BEHAVIOURAL ASPECTS OF THE PHYSICAL ENVIRONMENT: A STUDY OF ATTITUDES TOWARDS HOUSING IN GLASGOW

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SUMMARY

The thesis aimed to develop a theoretical approach to the study of behavioural aspects of the physical environment through an examination of the special case of attitudes to housing in Glasgow. The theoretical discussion and performance of the research were developed in two main sections, one dealing with attitudes and their measurement, in which a semantic differential questionnaire was tested and adapted, and the other dealing with the organisation of human space and relating the attitude towards the environment as disclosed by the semantic differential study to some of the space units and their characteristics.

The first chapter of the thesis set the context for the study in the field of environmental psychology. It outlined the author's interest in a system approach to the study of man-environment interaction and introduced some basic points of importance in such an approach. A model of the man-environment interaction system was outlined and its limitations discussed. The methodology to be employed in creation of a theoretical framework was described.

Part I of the thesis (chapters 2-8) was concerned with the theoretical structure of the attitudes and their measurement. It also dealt with some methodological implications of different techniques, and tried to place the chosen technique of semantic differential in its correct position relative to other studies of the attitude towards the physical environment. The research replicated the factor structure of the semantic differential for physical environment stimuli, using the buildings the subjects live in as the physical stimuli. The subjects were school children aged 14-16 who responded to a questionnaire describing the physical environment on the pilot phase and one for both the physical and social environments in the main study. Principal component analysis with oblique rotation resulted in a three factor structure - Friendliness, Activity and Aesthetic. The implications of the deviation of the factor structure from Osgood's EPA model were discussed, and further analysis employing the G-L. SSA.1 method was done to explain this point.

Part II of the thesis (chapters 9-14) dealt with the structure of space organization, placing the stimuli used for the research in their position in the organization of space. It also presented the characteristics of the subjects and placed the sample of the current study in its dimensional position relative to other studies. The research at this stage explored the relationships between the building and social background characteristics of the respondents, and the attitudes expressed towards the environment. The characteristics of the environment which were examined were the size of the building, the tenure of the residential unit, and the position of the building in the city. The characteristics of the subject background which were looked into were sex, denomination and occupation of head of family. Analysis of variance was employed comparing differences between attitudes of subjects with different characteristics. The results show that both characteristics of residential unit and those of the respondent influence the attitude. It also shows that different aspects of the attitudes are predicted by different variables.

The concluding discussion in chapter 15 sought to integrate the different stages of the research. It considered the extent of success for the system approach adopted in the thesis and tried to relate the separate sub-systems into the general model of man-environment interaction discussed in the first chapter. It also suggested possible implications of the findings of the research for those involved in environmental decision-making, and drew attention to potentially useful areas of further research.

CHAPTER 1

INTRODUCTION

In recent years there has been a growing interest in the study of the interaction between people and their environment. Architects and planners on the one hand have come to realise that their work is subject to critical assessment by users and, on the other, psychologists and sociologists have come to recognise the importance of the somewhat neglected physical aspect of the environment as a factor in human behaviour. Geographers, with their increasing concern with behavioural questions have been active discussants of numerous aspects of the interaction. The resulting interface between disciplines has created the sphere of study known to the reader as environmental psychology.

In environmental psychology the study of man and environment can be approached in more than one way. For example, theoretical questioning may seek to describe and explain some points of the interaction between man and environment out of curiosity and the need to know the 'truth', while the applied approach may be trying to predict certain behaviours in order to assess the validity of architectural and planning concepts. The interaction between the individual and the built environment is one of the problems most amenable to applied research and as a result many studies seek to explore the way individuals perceive their environment and their attitudes towards it. But such study is by no means as simple as might be assumed from reading about some of the work which has been undertaken. In some of this work the assumption is that a technique used for the measurement of an attitude has already been developed and all that the environmentalist has to do is to apply the technique to the physical environment and interpret the results. Though some of the techniques <u>can</u> be employed directly, in many cases this is not possible and their use demands some critical adaptation. In these circumstances, as has been suggested (Canter, 1973), the theoretical enquiry that is not always of interest to the practical man is called for. The current study while not eschewing the applied approach, is mainly concerned with the demonstration of a theoretical approach to the study of the behavioural aspects of the physical environment through the special case of attitudes towards housing.

A discussion of a subject, if it is to be adequate, should include some definition, if possible, and preferably a framework in which the topic can be placed and its position relative to other topics indicated. In their introduction to a collection of papers entitled "Environmental Psychology" Proshansky et al (1970, p. 1), when trying to define the subject matter of environmental psychology, recognised the problem of a definition not based on a theory. The broad definition they offered, being general in nature, could be applied (as they themselves suggest) to a wider range of studies (op cit p 5). That a framework for the exploration is required has subsequently been mentioned by Evans and Eichelman (1976), who criticise researchers in the realm of environmental study for occupying themselves with bits and pieces of the environment rather than practising the wholistic approach they continuously preach. It is essential for the wholistic approach that even where only part of the system is studied, the framework of the total system is given, and the position of the study on the different dimensions identified. The approach of the current discussion to the problem of environmental research will, therefore, be a system approach.

Before tackling the task of creating a framework, some methodological points should be made in respect of three aspects of the system of relationships between man and his environment. The first of these aspects is the nature of systems, covering some basic points and assumptions of system theory. The second aspect to be explored is the general model adopted for the man-environment interaction system which helps to clarify some of the details to be described later and enables them to be placed in their rightful positions in the more general system. The third aspect to be discussed is the methodology used for the construction of the conceptual framework for the system approach.

1. The system approach and environmental research.

One of the more widely accepted points in the study of man and environment is that one is not dealing with a simple two way interaction, but with a system, in which the human organism is one of the units or sub-systems. This approach is implied, if not explicitly stated, in writings on the subject (Park 1936a, 1967 ed pp 80-84; Ittelson et al 1974 p 92 & 77-78). However the realisation that the environment-man interaction is a system calls at this stage for an outline of some elementary points on the nature of systems. Von Bertalanffy, the creator

of General System Theory, suggested that "the ... 'system' is a model of general nature, that is a conceptual analogy of certain rather universal traits of observed entities" (1971 p 89). The essential implication of the definition is that the system has some characteristics which stem from the very fact of being a system: this will be true for every system no matter what the specific content.

One of these characteristics of the system model is brought out by Angyal's definition of the concept: "A system is a distribution of the members in a dimensional domain" (1969 p 21). This can be considered a static structural definition, but gives an insight into the complexity of the system, and emphasises the need for defining the different dimensions of the system together with the possible positions of the units (members) on these dimensions. An additional implication of the dimensional structure of the system is its qualitative difference from a simple interrelationship. As Angyal put it:

> "1. Relationships involve two and only two members (relata). Complex relationships can always be analysed into pairs of relata. Systems may involve unspecified number of components, not analysable in certain respects into pairs of relata.
>
> 2. The relata enter into the relationship by virtue of their immanent attributes, while the constituents enter into the system-connection .... through the positional value which they have in the system. Secondary relations which are based on the positional values of the relata, can be established also between members of a system. But the system itself cannot be described even in terms of such relationships" (op cit p 25).

The relata then consist of pairs with direct relationships between them where the parts of the system are related to one another through the system and not directly. Therefore the definitions of systems which describe systems as complexes of relationships lack, in Angyal's opinion, the essential characteristic of a system which is its wholistic property.

One of the dimensions generally found in systems is an hierarchical order. The concept of hierarchy, suggested by von Bertalanffy (1971 p 28), can be observed in more than one system. Milsum (1972) presents as one example the hierarchy of the developmental system from inanimate objects through living organisms to the social system. Another is the hierarchy

of the social stratification, which achieved the position of an institute in the structural functional approach (Johnson 1960). In psychological theory the concept of hierarchy is related to the system of needs (Maslow 1954), and the process of selection of reaction in learning theory (Hull as described by Hilgard and Bower 1966, Ch. 6). In the sphere of environmental study the hierarchical concept has been introduced into the space system by Edney (1976) by relating the territories to the hierarchical order of the owner, from the lower level of an individual through that of a group to that of a community. Another hierarchical characteristic of the environment is the one suggested by Stea (1970) for the number of space units involved in the structure, from the single one through the cluster to the complex. The main characteristic of the hierarchy in both cases is that the simpler units of the system are part of the higher level ones, suggesting a different type of order than that of social stratification, or need hierarchies, where the order is of dominance in the social system, and in the survival of the organism respectively. Nevertheless the order aspect of the hierarchy is apparent in both types.

Another of the basic characteristics of the system in general could be considered to be related to the process of maintenance of the system. Though always considered as a whole, a system has its parts, which are somehow kept together. The fact that the description of a system in most cases involves a static situation where the units are working in collaboration does not mean that that is the only possible state of affairs. The forces in the system can cause its breakdown, as is well known from everyday experience. It is suggested here that these forces in the system can be classified into two types, one strengthening the relationships between the units and the system, and between them and other units, and the other weakening those relationships. The application of the centripetal concept for the first and the centrifugal concept for the second can be useful if one remembers that the forces are by no means directed towards any physical centre, or even towards a functional centre of the system, but rather to the system as a whole, though the function of the centre of the system may on occasion be the focal point of such forces.

The existence of the two forces can be observed in many systems in the psychological and sociological context. Freudian personality theory recognises the ego forces and tries to keep the two opposing forces of 'id' and 'superego' in line by the aid of defence mechanisms, some trying to reduce the pressure in the centrifugal direction, and others trying to increase it in the centripetal direction. The same mechanism (though in other terms) is described by Lewin (1951) for personality processes and for social conflicts. The notion of centrifugal space introduces this aspect of the system into the environmental system, (Osmond 1957, and used by Sommer 1969). In this use the concept applies to the way the space is organised to increase social interaction or reduce it, rather than to the implication it has for the space itself.

Finally one has to note the complexity of the system, that is, whether the units in it are identical (or at least similar), in form and in function, and therefore attracted to one another on that basis, or whether they are different in function (and most probably also in form) and therefore dependent on the system for their existence. A simple structure can be recognised in the social system of the village, and to a large extent in the early city (Mumford 1960; 1938), or in so-called 'primitive' societies, where the different human units of the social structure had a repetitive function, (most men, for example, were hunters) in contrast to the highly complex structure of the modern system where the variety of functions increases all the time.

All these characteristics of a system should be kept in mind as a background to any approach to the problem of environmental research. Though the list is by no means complete, lacking amongst other topics any differentiation between open and closed systems, the following discussion will seek to take one step forward and outline some of the more specific aspects of the system involved in the current study of the system of man-environment interaction.

2. Outlines of a model of the man-environment interaction system.

At this stage, the model to be suggested will outline the systemic structure of the interaction between man and his environment. The model will not go into any of the dimensions, but rather will try to present

a comprehensive scheme of events and constructs which form part of the process. This approach corresponds to Evans and Eichelman's demand for a wholistic approach to environmental study (1976) as did the earlier discussion of system theory.

A model for man-environment interaction emphasising the perceptual aspect of the interaction is presented in Figure 1.1. This model is an application of the model suggested by Haber and Hers enson (1973 p 162). In it the apparent differentiation is between three stages of the interaction; the perceptual aspect outside the organism, which is represented by rounded corner boxes; the inner organism process which is represented by angular corner boxes, and the response outwith the organism, again using the rounded corner box. The inner processes are divided into three stages, the image which corresponds to the perceptual aspect of the process, the two memories, short term memory and long term memory, mediating between it and the third stage which is the response organiser.(But as a nonperceptual general model the model falls short in the stages of the process which are of interest in the study of other aspects of the interaction. It does not place the attitude in the interactive model, nor does it give the contents of image, and long term memory (LTM).

One of the things which can be said to be included in the LTM is the image of the environment, and one can suggest the comparison of the perceived environment with that image. The research which has been carried out on the image of the environment shows that it exists in our minds in more than one form, and most notably in the form of a map. (Lynch 1960 showed this first but was followed by many others: to mention a few; Blaut et al (1970) Mental maps in young children; Downs and Stea 1973 etc.). But the image of the physical world does not exist in an empty space, and any one reading in the field of cognition and environment will be reminded time and again that the environment has some meaning for the individual, and that the individual's reactions are dependent to a greater extent on that meaning (Ittelson 1973 (a); Ittelson et al 1974). The importance of the meaning of the environment is emphasised by some authors in their descriptions of the communication messages involved in spatial arrangements (Sommer 1969; Hall 1966).

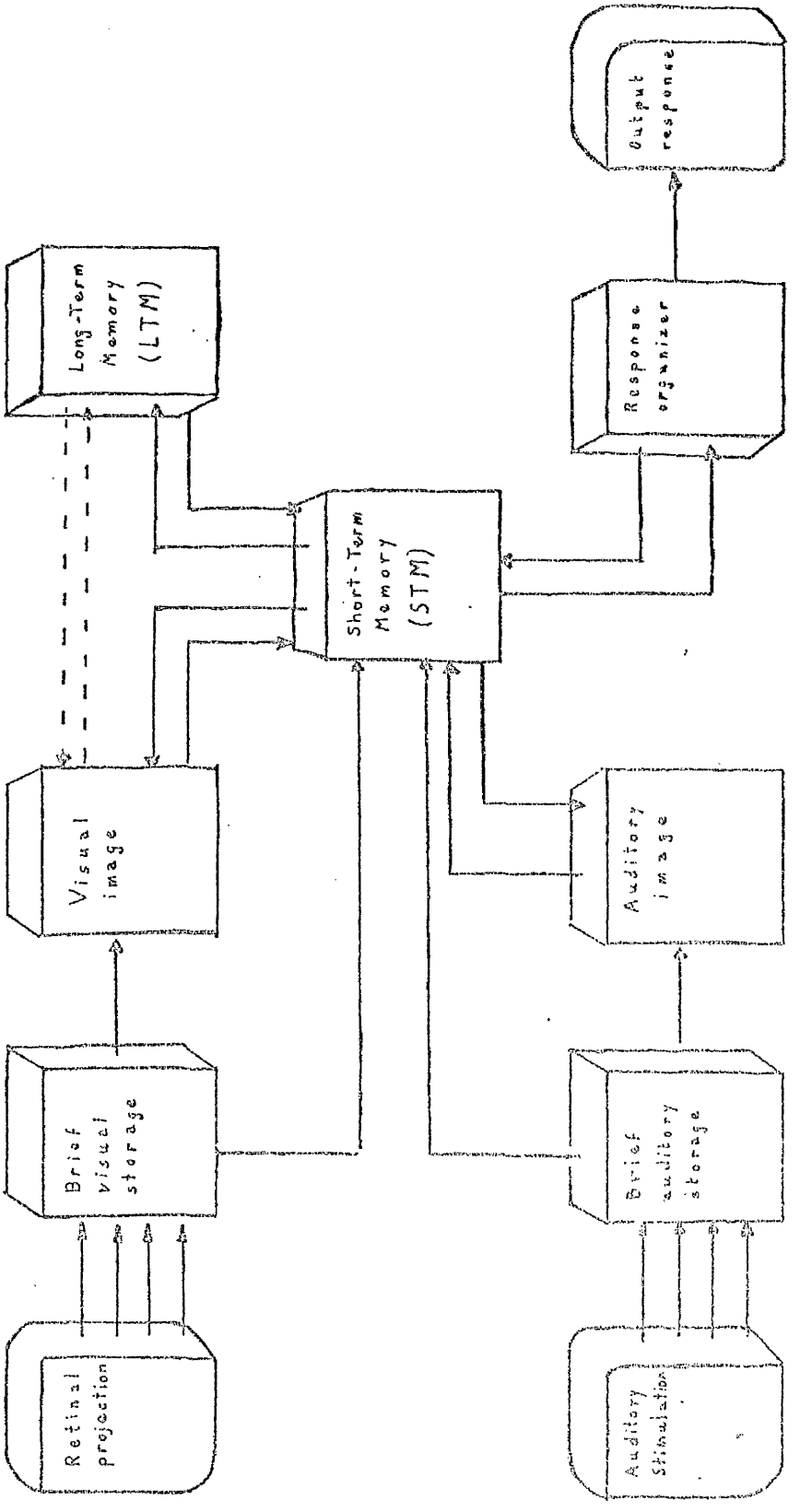


FIGURE 1.1 AN EXAMPLE FOR A MAN-ENVIRONMENT INTERACTION MODEL.

Haber and Hershenson (1973 p 162).

On the response side of the model Haber and Hershenson (op cit), remind the reader that some organization of the response occurs before the outward expression actually occurs. In that stage of the process Osgood (1962) suggests that the introduction of attitude is appropriate. In other words he considers attitude as one of the response organising devices. But as one can see from the modifications suggested for the model (in Figure 1.2), the introduction of attitudes and meaning further complicated the system. The meaning of the object can change the way it is perceived, as studies using subliminal exposure proved with ambiguous stimuli (Dember, 1961, Ch.9). One can also deduce the influence of meaning on the long term image of the environment from people's perception of the world mental maps or the width of the street which is perceived as a barrier (Gould and White (1974) p 32b). In the same way attitude is influenced by the meaning, and image of the environment (as discussed in Osgood 1962; and Heise 1970). In short, the model has the characteristics of a system, as every part is related to the total system and the interrelationships cannot be described in pairs (cf. Angyal 1969).

One of the problems of the model presented at this stage is that it does not describe in any form the different dimensions involved in the process. But in order to describe those dimensions one has first to describe the method used in the creation of the conceptual dimensional model used in the following study. The method is explored in the third part of this Introduction.

3. An aid in the construction of a theoretical system - the mapping sentence.

In the construction of the model presented in the previous discussion, the most general aspects were shown, without going into the different dimensions on which the specific occurrences of the process can vary. Though the model is generalised it is complex enough and it is clear that the introduction of the various dimensions will increase the complexity, making the understanding of the system close to impossible. In order to prevent obscurity on the one hand and avoid

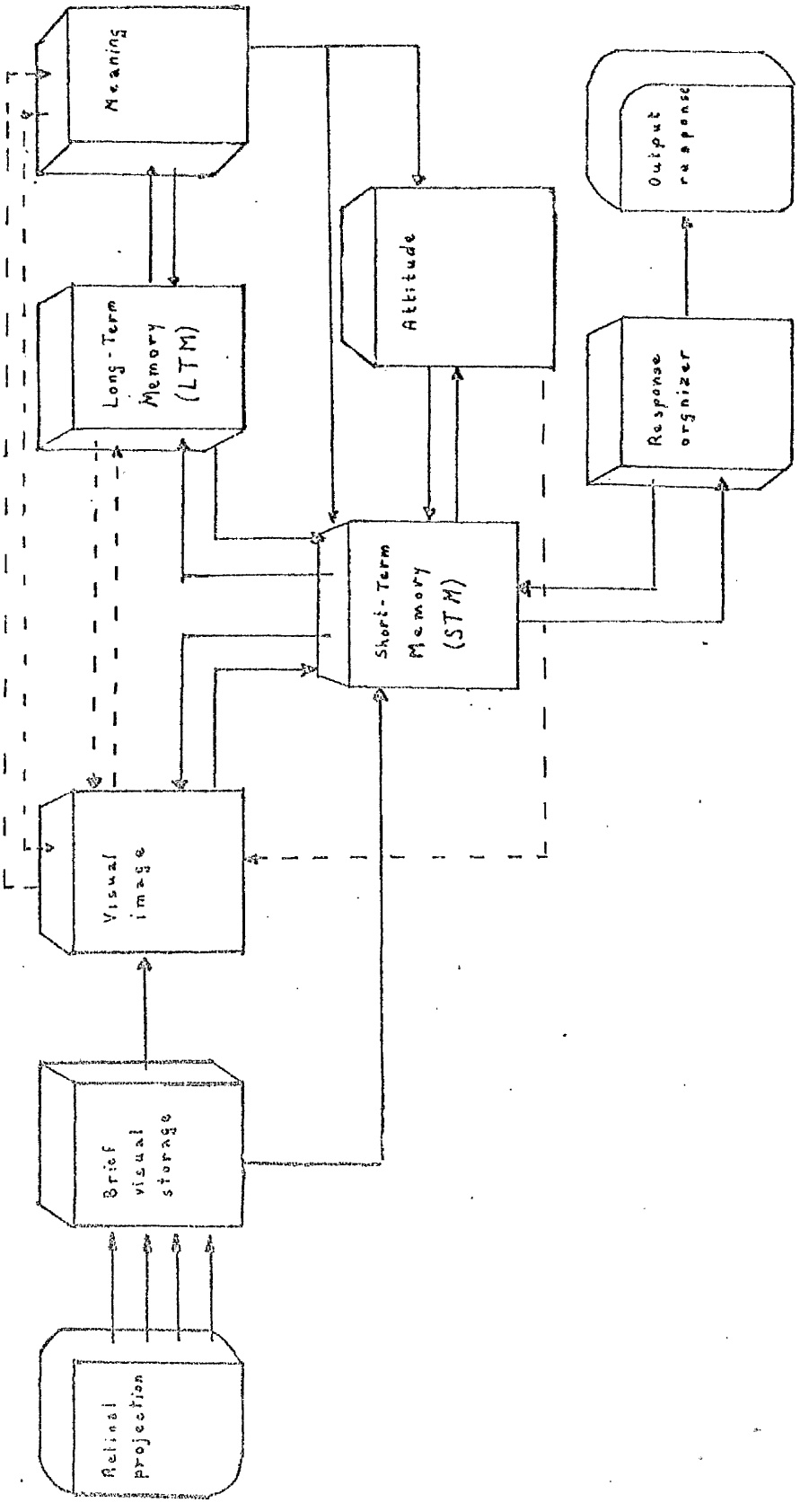


FIGURE 1.2. THE ADAPTED MAN-ENVIRONMENT INTERACTION MODEL

over simplification of the system on the other, some method has to be found which can describe a multidimensional system in a clear and communicable way. Guttman's method for construction of a theoretical multidimensional model by means of facets embedded into a mapping sentence, is useful for that purpose. One of the advantages in the use of the method is that it can be tested using some of the multivariate statistical methods worked out by Lingoes and Guttman (Lingoes 1973).(1)

On occasions where the mapping sentence has been used for the creation of a multidimensional theory the number of facets included in the construction has been rather limited. For example, a study of intelligence tests by Schlesinger & Guttman (1969) described the content world of the tests on two dimensions, using a mapping sentence with two facets. In a study of political attitudes Guttman (1971b) used 6 facets to account for the different relevant dimensions. When the number of facets in the mapping sentence increases the clarity of the model can be reduced; therefore the method used by Rimmer (1974) in the creation of a system for the validation of vocational counselling and selection was to divide what would be a lengthy mapping sentence into smaller sentences each describing part of the system. Sub-division also allows the theory to go into further details when necessary without obscuring the total structure. One advantage of using the method is that though the study of each part of the theory can be carried out separately, nevertheless the overall structure allows the system approach to come through. This proved to be most useful in Rimmer's case when the description of jobs was approached. Describing the measurement of both the evaluation of the individual before and after acceptance for the job did not require too many dimensions but this was not so with the jobs.(2) The inclusion of the additional facets in the overall theory would have proved difficult and unnecessary, and creation of a separate but complementary mapping sentence offered a suitable solution. Each part of the mapping sentence accounted for one stage in the process of adjustment to work and tried to describe that part of the process in detail. But except for the job description, where significantly different details had to be added to the dimensional structure, the separate mapping sentences were parallel in structure. On the other hand the theoretical construction of the current study goes a step further in the adaptation of the technique to a complicated theory,

and uses separate sentences with different facets in them, which can be structured into one chain sentence through linking points.

In the current study the method will be used to aid understanding with a mapping sentence placing the specific stage of the study in the general context of the study, and in its position in the dimensional structure compared to other studies. The mapping sentences will mainly deal with the relevant dimensions of man-environment interaction, but some will deal with the intervening aspects of the research, such as sampling and research methods.

4. The structure of the thesis

The theoretical discussion and the performance of the research will be developed in two parts. The first part of the discussion will deal with the theoretical structure of the attitudes and their measurement. It will also deal with some methodological implications of different techniques, and try to place the technique of semantic differential chosen in the current study in its correct position relative to other studies of the attitude towards the physical environment. The research will try to replicate the factor structure of the semantic differential for physical environment stimuli, using the buildings the subjects live in. The subjects are school children aged 14-16.

The theoretical discussion of the second section will deal with the structure of space organization, placing the stimuli used for the research in their position in the organization of space. It also presents the characteristics of the subjects and places the sample of the current study in its dimensional position, comparing it with other studies. The research at this stage will explore the relationships between the building and social background characteristics of the respondents, and the attitudes expressed towards the environment. The characteristics of the environment which will be looked into are: the size of the building, the ownership of the residential unit, and the position of the building in the city. The characteristics of the subject background which will be looked into will be sex, denomination and occupation of head of family.

Finally, the discussion will try to integrate the different stages of the research. It will consider the extent of success for the system approach, and try to relate the separate sub-systems into the general model of the man-environment interaction.

Footnotes

(1) The method was used by Schlesinger and Guttman (1969) for the classification of intelligence tests. They identified two dimensions which enabled them to describe the content of the tests, one identifying the task demand made on the respondent, and the other the language used. The first differentiated between tasks where the respondent had to find the rule, and solve the problem presented according to that rule. For example, 2 4 6 8 _ the next number in the series will be 10, as even number order is the rule. The other type presents the individual with the rule, and his problem is to apply the rule correctly. For example, tick if pair of numbers are identical 1234 ____ 1324. The two examples given above are similar in the second dimension, that of the language. They are both classified under digital language. The other major language is the verbal one: an example for a verbal task of the rule of deduction is: dress - cloth, book - ? The answer 'paper' will suggest that the subject has understood the rule that the second in the pair is the material from which the first one was made. An example of a rule application item in the verbal language would be tick if identical neighbour ___ neighbor. The Guttman and Schlesinger study confirmed the dimensional structure through the correlation coefficient found between the different types of test.

A slightly different method was used by Guttman (1971a) for the purpose of defining the concept of measurement as differentiated from similar concepts, a method which is similar to the method used later on in the current study for the definition of the various units of space.

(2) The general mapping sentence in Rimmer's theory was as follows:

The level of worker's (X) A a_1 attitude as evaluated at time of
a_2 achievement
a_3 job requirement

B situation	by C source	using E method of evaluation
b_1 counselling	c_1 observer	e_1 data processing
b_2 end of training	c_2 personnel management	e_2 object manipulation
b_3 on the job	c_3 foreman	e_3 human relations
	c_4 peers	e_4 work environment
	c_5 self	

——→ R degree
high
:
:
low
of fitness to job

The part dealing with the 'on the job situation' included a further dimension to deal with the description of the job. The job was defined through the description of the tasks on three aspects (dimensions): cognitive, motoric, and social. The aspects corresponding to the area of work facet (D) were facets on their own right, and for the purpose of the job description the elements not included in the general mapping sentence were defined. For example, in the social aspect two facets were included, one of the number of people in the interaction with the worker fulfilling a certain task, e.g. one person or a group. And the second facet was the type of relations practised by the worker in the task: impersonal, or personal.

The example presented here shows that the inclusion of the further subdivisions which were specific for one aspect of the theoretical structure in the general mapping sentence would have obscured the structure rather than clarified it and therefore their omission was justified.

PART I

ATTITUDES AND THE MEASUREMENT OF ATTITUDES

CHAPTER 2

ATTITUDES AND ATTITUDE MEASUREMENT

In the measurement of attitude towards the physical environment one of the assumptions is that "attitude" is a clear cut concept and the only need of a researcher is to apply it to the physical context. This view is rather simplistic if one considers the theoretical structure of attitudes suggested by Krech et al (1962) who suggested three components to the attitude: the cognitive component, the emotive component, and the action tendency component. The first component has to do with the beliefs the person has about the object the attitude is related to. In the environmental context it may deal with views on pollution (Althoff and Greig 1977). This may be considered also as perception of the environment, and this aspect of the attitude can be considered to be close to the perceptual phase of the interaction process. Thus Brennan's law (Lee 1962) which suggests that people perceive distance away from the centre as greater than that towards the centre, can be related to attitudes. In the same way mental maps, size, and boundary position of parts can be considered a reflection on the attitudes towards the different parts of the environment described by the technique (See examples in Gould and White, 1974). The fact remains that the person is describing the environment and that the study can be considered as a perceptual study. Nevertheless it can be discussed in the theoretical context of the attitudes as well as that of perception.

The next component is the emotive component. Krech et al suggest that this component is the one which gives the attitude its motivational direction. In the measurement of the attitude the scales used are the ones which indicate this aspect (for example the scales in Canter's (1973) study of school environment, where the cognitive component was provided by the researcher and the respondents had to describe their satisfaction). The third component of the attitude, the action tendency, could be best measured by observing behaviour although that is not always available. It can also be measured as in cases of pre-election opinion polls by asking about a likely behaviour. The last aspect of the attitude can be said to be closely related to the response phase of the interaction in the man-environment interaction model. (Guttman 1944 recognizes the importance of this in his attitude scale).

It can be argued that the measurement of one component of the attitude while ignoring the others is not possible because the attitude as a whole is always involved. But a questionnaire can emphasize one component at the expense of the others. One way is to assume the structure of the cognition by providing the respondent with aspects of the environment and asking about satisfaction from those aspects as Canter (op cit) did. This type of questionnaire assumes two things: the first is that the questionnaire is actually covering the relevant sources of the attitude, and the second is that the emotive component has a simple like-dislike structure, an assumption which will be contested later on in this chapter. Measurement techniques emphasizing the action tendency assume a given cognitive structure (e.g. limited number of candidates to choose from) or totally ignore it (e.g. it does not matter what the subject thinks of the object but rather his actions related to it). They also can be said to ignore the emotive component as in many cases the choice will be made not because one likes one of the given alternatives but rather because the other alternative seems even worse.(1)

The cognitive component when measured (as in the Lickert (1932) type of questionnaire) assumes the emotive structure (if one thinks that pollution is a problem that also means that one feels badly about it) and that the behaviour is related to it. (For a summary of prediction of different attitude scales compared with actual behaviour see Tittle and Hill (1967); and for the same prediction in the environment context see Bruvold,1973).

Another way of differentiating attitude scales is the centrality of the attitudes they measure. The description of the cognitive component has suggested that the scales involve statements of beliefs about the object, but the 'object' may be a general attitude towards all aspects of life and the environment. Such attitudes can be considered basic attitudes.(2) The other type of attitude measurements are what one may call object orientated questionnaires.

It can be said without hesitation that the majority of attitude studies and surveys are those which measure the object orientated attitude. This is not surprising as the object orientated aspect is closest to the actual behaviour prediction and therefore the most practical aspect of attitude measurement. Typically those methods

consist of either asking questions about probable behaviours (like voting behaviour) or statements to which the respondent has to agree or disagree (as in the Lickert scale 1932). The topics of the scales vary according to the specific interest of the researcher (for example it was said of the original Lickert scale that "The attitude areas best covered in the questionnaire are those of race relations, international relations and economic conflict" (1932). But the topic is not limited, and one may apply the technique to any subject (for example, it has been applied to environmental research by Onibokun, 1976 studying residential satisfaction). In this respect the technique is no different from the techniques used for the study of basic attitudes, but the difference lies in the theory behind the study. Whereas the object related study aims at the prediction of specific behaviours, and the selection of scales will aim to cover those behaviours as closely as possible, as one can see in Guttman's scale (Guttman 1944) for racial prejudices, in the study of the cognitive aspect of the attitude, the relationship between the statements in the scales and the behaviour to be predicted is not direct. In the study of the authoritarian attitude the development of the scales was changing from object oriented scales to measure attitudes towards ethnic minority groups in the community, to a general attitude towards Fascist tendencies, and finally Eysenck (1953 Ch. 7) stripped it even from its political connection, to the tendency to extremism in general.

This difference will also control the way the scales are validated. In the case of the tendency for action the validation of the attitude will be made directly to the relevant type of activities, and when one is measuring attitudes towards the environment, the validation of the scale will be made on the relevant actions such as recycling (Humphrey et al, 1977).

It is important to note that the object oriented approach to the attitude which is measured by these methods has its advantages and disadvantages; one of the major advantages is that both the subject and the consumer of the results understand what the questions are all about. When one is asking people about their environment (for example Canter 1973) by mentioning aspects of the environment such as rooms, view, approaches, etc., one is likely to give the subjects the

impression that one is interested in their view of the environment, and thus enhance their will to cooperate. The clarity of the technique as far as the subjects are concerned has another aspect, as the use of these questionnaires may be suggested as a technique for enhancing people's participation in the planning of the environment. An indirect attitude questionnaire in which the relationships between the environment and the questions asked is not understood by the subjects will not do.

The same clarity is also essential for communication with planners, architects and other decision makers. Like the general public these people have no theoretical training in psychology, and can hardly be expected to see the relevancy of questions of the indirect type, and when a survey is demanded by these professions one may well have to use the direct question. One has to consider that the architect may aim to understand the building rather than the people, who are of particular interest to the psychologist, and the architect will want to use attitude measurement to find the degree of satisfaction provided by certain aspects of the building, rather than some ambiguous statement to the effect that the person is dissatisfied by the activity factor of the building or its potency (see Notes on Semantic Differential later on in this chapter). The above considerations for the use of object oriented measurement, make the researcher face one essential problem, and that is the problem of the selection of suitable scales. One may try to do what Canter has done and select scales which will be suitable for any architectural environment (op cit), or select the relevant scales for the specific study as most studies and surveys do. The advantage of the first approach is that the different surveys are comparable, as the questions asked are the same, and the major disadvantage is that the researcher dictates to the persons involved the aspects of the environment which he considers relevant rather than trying to adjust his scales to the needs of the participants (either by observation of the environment as in much research or by letting the subjects list their own constructs as in Kelly's method (Harrison and Sarre, 1975)).

The important point in the first approach is that the researcher has a comprehensive approach to the environment in the questionnaire, which may well lead to a lengthy questionnaire where a substantial number of the questions are irrelevant in a specific case. This is not a reason to deter the researcher from the approach, as there is

no need to ask all of the questions each time, and the mere fact of the comprehensive questionnaire may make the results of each specific survey comparable to others. But the need is for a theory of the environment, a need which may be hard to satisfy. The other approach seems to be more practical for a situation where no such theory exists.

The main problem with the use of object oriented measurements is the absence of theory of the physical environment, but it is by no means the only one. One of the problems in any direct questioning of the subject is that there is the probability that he will point out the dissatisfaction from one aspect of the environment whereas a more careful study will show that only the interaction of that aspect with other characteristics created the effect. Most notably this misleading result can be seen in the study of crowding where researchers attributed to high densities of subjects certain aversive influences, and later on other studies suggested that the factor of density on its own is not aversive but rather its interaction with temperature (Griffitt and Veitch, 1971), or lack of facilities etc. (Freedman 1975). The respondent who wants to be helpful may well mention the crowding as one of the factors as there is a popular acceptance of its importance, rather than other aspects of the environment, which were not drawn to his attention by the media. To summarize, direct measurement may be misleading on two grounds, firstly that the subject himself does not always recognise correctly the source of his dissatisfaction and will express dissatisfaction with the more acceptable aspect of the environment (e.g. workers may be rather reluctant to admit even to themselves that they like to look out of the window during working hours), and secondly that one of the basic attitudes is involved (especially when the attitudes concern the behaviour of the subject in the environment, rather than his attitude to aspects of the environment itself).

The measurement technique selected for the current study differs from the previously described technique. It will be suggested that the semantic differential (henceforth SD) is a measurement of the indirect emotive component.

The fact that the SD (Osgood et al, 1957), which was constructed originally for the measurement of connotative measuring of concepts, is measuring attitudes was noted by the originators (op cit. p. 189) who considered it an important by-product of the technique. They also

maintained that of the three factors emerging in the semantic structure (Evaluative, Potency, Activity) only the evaluative factor was related to the attitude. This view is contested by Heise (1970) who points out the existence of distinctive potency scales in different attitude scales, the most noted of which is the F scale (see Footnote 2). In other words, one may suggest that the emotive component has much to do with the connotative meaning factors and not only with the first factor.

The measurement of the emotive component of the attitude inevitably involves the verbalization of the component. This means that some measurement of verbal expression is needed for the purpose. In everyday communications between humans verbalization of attitudes is assisted by non-verbal communications such as facial expression, intonation and spatial language. (For the relationship between attitudes and spatial language see Kuethe (1969), and Campbell Kruskal and Wallace (1966),). An essential aspect of the communication of the attitude is the meaning attached to the verbalisation by the receiver of the communication. When the communication is aided by non-verbal cues the meaning of the communication will be understood by a combination of both, but where the latter are absent, as in the case of written communication, the linguistic meaning becomes essential to the correct interpretation of the verbalisation of the attitude. It is therefore essential for the measurement of the emotive component of the attitude to have some way of measuring the meaning of its verbalisation. A technique developed for the measurement of the semantic meaning may therefore be useful in fulfilling the purpose.

The meaning Osgood et al were measuring was the connotative meaning of the word, rather than the denotative meaning. The denotative meaning implies that the term used communicates some quality in the object described itself, like the use of the term 'round' to describe the globe (provided one agrees that this is the right description for the Earth), or the use of the term 'blue' in connection with the sea (at least in the Mediterranean Sea). The use of the same terms may be connotative when used to describe oneself, or one's mood.(3)

For the measurement of the connotative meaning of concepts Osgood et al (1957) used 7 rank bipolar adjective scales of the format:

good $\overline{1}\ \overline{2}\ \overline{3}\ \overline{4}\ \overline{5}\ \overline{6}\ \overline{7}$ bad

Ticking the first rank indicates one meaning of the bipolar scale, and the seventh the other meaning. Rank 4 means a neutral reaction, and the second, third, fifth and sixth ranks indicate the inbetween meanings leaning to one side or the other of the bipolar scale. With the 50 bipolar adjective scales finally used factor analysis was performed and three dimensions emerged: Evaluation, Potency and Activity (EPA structure). Of the three dimensions Osgood et al (op cit. p. 190) suggested that the only one related to attitude was the evaluative factor, a suggestion agreeing with the emotive component as perceived by Krech et al (1962). Their view is contested by Heise (1970) in his comprehensive summary of the use of the technique for the measurement of attitudes. Heise suggests that potency and activity have a rightful place in the structure of attitudes as well as evaluation. To support his argument he used examples out of the scale mentioned before, the F scale, where one of the characteristics of the authoritarian attitude is the emphasis on the hierarchical order (i.e. potency). Further support for the argument is derived from a study of attitudes towards social class which showed that most of the variance between the groups is related to the potency factor rather than the evaluative one (Heise 1970). Nevertheless the evaluative factor is the dominant one in the measurement of attitude, as it is in the structure of the connotative meaning itself (accounting for the majority of the common variance: Osgood et al 1957, p. 37 Table 1).

The SD has been used with different subjects (Osgood (1960) and Miron (1961) for cross cultural and cross linguistics differences, Ware (1958) for sex and intelligence differences) and for different concepts (Osgood et al. 1961). Osgood (1962) noted that whereas the EPA structure is stable in the varying samples, and can be replicated in different languages and different cultures that is not the case with the different stimuli (or as he refers to them, concepts). The reason he suggests for the instability is the interference of the denotative meaning in the physical concepts. He observed that the use of certain terms is easier for the subject when some relationship is perceived with the concept described (Triandis and Triandis 1960). This phenomena with the tendency to adjust the scales used to the concepts (see Vielhauer, 1965) may account for the differences as well as Osgood's own suggestion. This point should be remembered when the technique is

used for the measurement of the semantic space of the physical environment concepts, as in the current study.

SUMMARY It was not the aim of the current discussion of the measurement of the different components of attitude to suggest that one type of measurement is more important than another, as obviously there is a place and need for all three. The aim was rather to point to one of the problems with the study of attitudes in general and attitudes towards the physical environment in particular. It is not only that the study of the environment lacks an environmental theory, but that the student of attitude adopts the techniques of attitude measurement without the comprehension of their theoretical implications. In none of the mentioned environmental studies was the nature of attitude discussed, largely on the assumption that it is well known, and when the different techniques were selected the nature of the component of the attitude measured was not even referred to (except in the case of Canter 1969, who referred to the measurement of connotative meaning of the environment rather than to the measurement of attitude). It is not only the lack of mention in the studies, but also that the lack of theoretical comprehension leads the researchers to misapply some of the techniques, and this is especially the case in the measurement of the emotive component of the environment, where the selection of scales with denotative meaning changes the measurement and its implications. It is not to say that these uses are not legitimate in the context in which they are employed, but rather that the terminology used in their discussion is inadequate, especially with reference to the changed SD technique as such.

Therefore the current study will concentrate on the more theoretical aspect of the measurement of attitudes, that of the emotive aspect, trying to increase the theoretical sophistication of the measurement of the environment, especially considering the fact that except for Canter's study (op cit) the emotive structure of the attitude has not been the subject of as much interest as the action oriented and environmentally oriented approaches.

Footnotes

(1) This type of survey was tried by Falkirk Council for the choice between 8 different plans for changes in the Falkirk central area local plan (Falkirk District Council 1978). One may suggest several errors in the performance of the survey:

1. Including 8 plans with sometimes minor differences is too much for the public
2. Most of the differences were highly technical and not of a kind that should be decided on on opinion poll basis
3. The main issue of the principles behind the change i.e. that the main transport route should go through the centre of the town, was not put to the vote.
4. The technical aspect of participation was not adequate.

The results (Falkirk Herald 1978) suggest that the reaction of the public was as should have been expected; number of participants was small (800 compared with 5500 signatures on petition opposing the plan collected by interested residents). The rejection of all alternative plans suggested to the public was confirmed by further stage of survey when 273 out of 1108 replies rejected all options.

(2) The measurement of basic attitude - an example

One of the most important basic attitudes to be studied is the authoritarian attitude. It originated with the measurement of attitude towards Jews with the antisemitism scale (A scale: Adorno et al 1951) as a reaction to the political situation preceding the Second World War. The scope of the interest was expanded into the development of the ethnic (E) scale, when researchers recognised the close relationships existing between attitudes towards Jews, and attitudes towards other ethnic minority groups, such as negroes. In the process of the study the researchers realised that some deeper characteristics are common to people sharing such beliefs, and these correspond with a more general view of the world, notably an authoritarian attitude. The final scale developed due to this recognition is what is known now as the F (Fascism) scale, which consists of certain declarations concerning political and social phenomena

and practices which correspond to the Fascist ideology. The respondents were asked to register on a 6 interval scale the degree of agreement or disagreement with those statements, and respondents scoring highly on the scale were considered to have an authoritarian attitude.

The results of the study gained their major interest from the fact that these attitudes were found to be basic in nature and to be related to personality aspects of the individual. Although the theory of personality on which personality interpretations were made is the Freudian theory, which is rather controversial, one can accept the results without accepting the theory as a whole. The authoritarian syndrome, on the cognitive level, proved to consist of a tendency to view the world in a simplistic way, in black and white, ignoring the middle hues of grey. Authoritarian people also tend to emphasise the hierarchical order of the world (what one may call the pecking order) where some have more authority than others and rightly so, and others have to obey implicitly, because the person in authority knows best. In everyday language the authoritarian concept implies dominance, but that is rather misleading, as two authoritarian types were found in the study, the first type was the dominant authoritarian person, who will try to place himself in the order he perceived as the upper position of the giver of orders, whereas the other type, the submissive authoritarian, will prefer to take orders from someone who knows better, and avoid responsibility. But the avoidance of responsibility is not only the characteristic of the submissive authoritarian syndrome but rather of both, as Adorno et al (op cit) suggest that the authoritarian person even in a position of power will prefer to be the second in command rather than the top of the hierarchy, and if he is in a position where no human authority can be referred to for the purpose, he will find some other authority such as a divide authority or science (laws of nature) or some dead human authority so that responsibility can be avoided at all costs. (This is one of the important characteristics of authoritarian personalities, dominant or submissive, which enables them to cope quite efficiently with their environment, as they avoid some of the inner conflict and debates non-authoritarians have, which slow their ability to perform). The non-authoritarian syndrome consists of two types too, one which present opposite characteristics to that of

the authoritarian syndrome. In it the individual tends to perceive the world in a more complicated way, allowing for the grey hues so to speak, and it is suggested that his view is more realistic. He will not perceive the relationship between humans as hierarchical only, and will not have to present either a dominant appearance to the world or a submissive one. (That does not mean that the dominant-submissive dimension of personality exists only in the non-authoritarian syndrome, but rather that its existence is less important in the non-authoritarian self image). The second non-authoritarian type proved to be so only as far as his F score was concerned, and in other respects was similar to the authoritarian syndrome. This conflict was resolved by Eysenck (1953) when he detached the object of the attitude (Fascist ideology) from the scale and suggested that both so-called left and right wing ideologies can be the object of the general attitude measured in the F scale. In his theoretical discussion of the syndrome, Eysenck also suggested that one can identify the authoritarian factor with extrovert-introvert dychotomy, suggesting a rather interesting physiological explanation for the phenomena. This change in the concept of authoritarianism, makes the attitude more basic still, controlling fundamental aspects of the mental system rather than specific stimuli.

The issues which are influenced by attitude are those suggested earlier such as the hierarchical order and the need for authority, as can be seen in the comparison of types of leadership between authoritarian and non authoritarian (Lippitt and White, 1947). The authoritarian attitude is related to, and sometimes identified with the attitude called by Rokeach (1960) dogmatism. It has implications for the perception of the environment, although its perceptual implications were only studied relative to objects, such as ambiguous pictures (Frenkel-Brunswick, 1949). There the tendency of the authoritarian was to simplify the situation by ignoring the conflicting stimulation presented. In the case of the environment conflicting stimulations can be said to exist; indeed they may well be assumed in any complex structure. One may say that the pictures presented to the subjects for evaluation in Canter and Thorne's study of housing of two different cultural milieux present a complex set of stimuli considering the familiarity of some and the travel implications of others. The fact that

they could not find positive relationships between the familiar stimuli and the attitude may have been due to this complexity. One cannot find any relationships between the cognitive component of a person's attitude and their expressed attitude in Canter and Thorne's study, as it did not go into this aspect of the attitude. But this does underline the complexity. In Garling's (1976) factors of attitude the third factor can be said to be that of status value of the building. Considering the relationships known to exist between social hierarchical order and the authoritarian attitude, one may expect that some effect will be found, linking the factor and the basic attitude, i.e. the status factor in the attitude towards the physical environment could be expected to be of increased importance.

The authoritarian attitude has been discussed at length as an example of the importance of basic attitudes to the more apparent attitudes towards the environment and to the influence of such attitudes on spatial behaviour. But it is by no means the only basic attitude of relevance. These others are the locus of control (Rotter 1966) which may be related to attitudes towards the dimension of tenureship status, and that of field dependence (Dember 1960, pp. 229-231) which suggests the general importance attached to spatial arrangements in the environment.

(3) The measurement of the connotative meaning does not exclude the cognitive component of the attitude from the measurement technique but by making it less direct than the denotative meaning the emphasis is more on the emotive component.

The difference between denotative meaning and connotative meaning can best be explained by the difference between the scientific and poetic reference to the same object, one describing the object excluding emotions, and the other using the object as a vehicle for emotional expression.

CHAPTER 3

FACETS OF THE RESEARCHER'S INTERVENTION

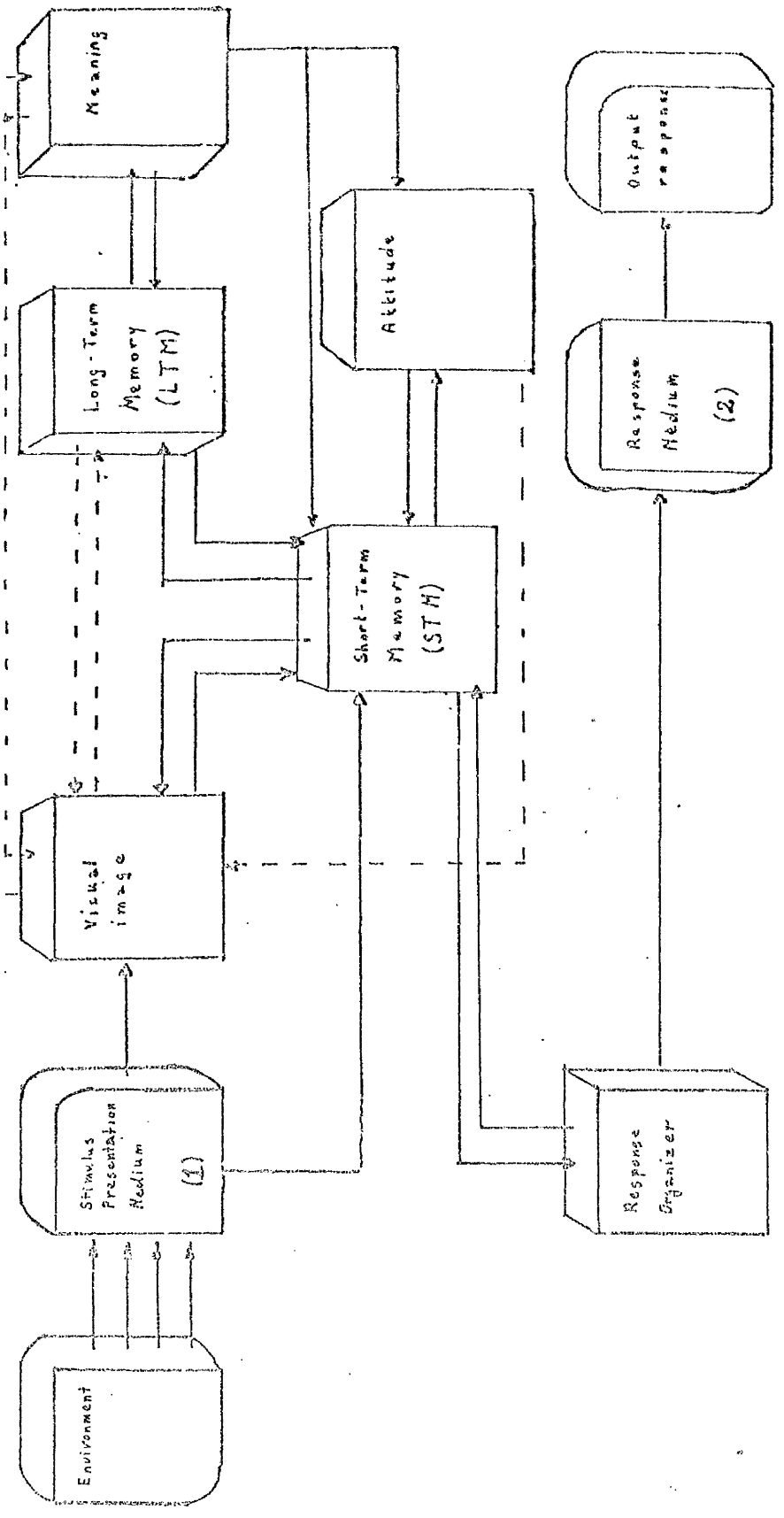
Another aspect of the study of interaction between man and his environment, is the methodological problem of the intervention of the researcher in both the perceptual part of the interaction and the response part of the process of interaction, with the aim of studying it. It has already been shown that one can measure the attitude in more than one way. In the cases previously described that meant also measuring different components of the attitudes. But differences can be found in techniques used for measuring the same aspect of behaviour. In other words, it is not only important to discuss what one is measuring, but also how to measure it, and how to present the environmental stimulus to the subject.

The emphasis placed on the technical aspect of the research has a strong theoretical and methodological justification. In earlier stages the model of man-environment interaction was presented, without the consideration of the experimenter's intervening role, but in many theoretical discussions and empirical studies the importance of this intervention was noted, either directly or as a side issue. Campbell and Fiske (1959) presented the first argumentation of the importance of the technique in the appreciation of the inner psychological constructs, in their discussion of the multitrait multimethod matrix. They noted the fact that the same trait measured by different techniques did not correlate as highly as different traits measured by the same technique.(1) It is not so difficult to realise the application of the same problem to the attitude structure, as different studies employ different attitude measurement techniques (for example different scale in the semantic differential) and also different ways of presenting the environment. These differences may account for a higher proportion of the variation in the results than the theoretical aspects which are so thoroughly discussed by the researcher. A study of the perception of the environment as influenced by the set created by the experimenter by Leff et al (1974) lends support to the argument presented above. In their study Leff et al instructed the subjects to perceive the given environmental stimuli in different ways, putting the emphasis on aesthetic perception in some (colour or contours) or social (deprivation signs) in others.

This instruction had some influence on the way the subjects perceived the environment. In Edelman et al (1977) study the instruction concerned the response rather than perception of the environment, asking the subjects to communicate their perception of the environment to themselves or to others, either intimates or non intimate. The assumption is that the way the environment will be described will have changed accordingly.

Looking at Figure 1.3.1 one can say that the first study (Leff et al) intervened(or rather meant to intervene) in Box '1' of the Model, in the presentation part of the stimulus. The other study (Edelman et al) intervened in the second part (Box '2') of the interaction, i.e. the response of the subject. But the two examples of sets created by deliberate intervention of the experimenter are not the only situations where set is involved either in perception or in response. One can rather say that set is involved in all situations of the interaction between man and his environment though not always introduced deliberately. The technique the researcher chooses for either presentation of the environment or for the measurement of the response influences the organization of either perception or response, and not only in the limited technical sense of the measurement bias but also in a more fundamental way. One of the problems is that the source and the effects of a set are largely unknown quantities. One way of solving the problem is the inclusion of the intervention of the researcher as a possible source of such a set, rather than only as a methodological aspect of the study. This approach coincides with the approach taken by Rimmer (1974) in the development of criteria system for the evaluation of a counsellor's success in his job. The solution to the controversy among psychologists as to the preferred source of information as to the ability of the employee, and the adequate criterion was solved by the suggestion that the source of information on the worker has not only technical implications, but has some theoretical implications as it implies something on the structure of the workplace and the system involved. Therefore the facet of source of information was introduced; management, foreman, and self (other possibilities like an observer, or peers were considered), and the results confirmed the importance of the facet. The additional step of validating the structure in the job situation against the test situation was not taken. The approach of the current study to the 'technical' aspect of environmental

FIGURE I.3.1 MODEL FOR RESEARCHER INTERVENTION IN THE MAN-ENVIRONMENT INTERACTION PROCESS.



presentation, and response media is based on similar theoretical considerations, suggesting the involvement of three facets in the dimensional structure of the interventions process. The facets will be discussed in the following pages.

Before further descriptions of the different facets are considered, a summary of the dimensions can be suggested in the form of a mapping sentence:

A study of man-environment interaction can be classified according to the APPROACH (A) whether [direct / indirect] and whichever LANGUAGE (B)

[body / spatial / figural / verbal / digital]

Applies to measurement of the PHASE (C) [perception / response]

of the interaction.

The following discussion offers an elaboration of this mapping sentence.

FACET A -- APPROACH TO INTERACTION

a_1 direct

a_2 indirect

THE DIRECT APPROACH is one in which the interaction of man with the environment is studied by observing the response of the individual to a real environment, and not the response of the individual to a presentation of the environment, which would be termed AN INDIRECT APPROACH.

In the first case the interaction of the person with the environment is explored, as with studies which describe the positional changes of the individual when his personal space is invaded (Sommer 1969), as opposed to studies presenting the individual with pictures of rooms and asking him to respond by answering some questions (Canter and Wools 1970, for example). These two studies present the two extreme cases, in one both aspects of interaction (perceptual and response) are direct and in the other both are indirect.

But when considering some of the points made in justification of the introduction of the technique dimensions into the system earlier on, one has to admit that though directness of approach is an important dimension it is not discrete but forms a sequence according to extent of intervention. One can recognise all levels and differences on the quantitative bases of the intervention of the experimenter. In the example of Canter and Wools cited above the intervention was total, as the subject had no interaction with the environment which was being studied, but only with the experimenter. But the experimenter was party to the interaction also in the studies of invasion of personal space (see for example Felipe and Sommer 1966). The fact that the situation is an artificial one does not necessarily mean that the study is indirect, as in the latter case the interaction studied was the one created by the experimenter, and not an interaction outside the laboratory situation (i.e. the real room, and real approach or rejection of it). But some studies can experiment or observe behaviour in the 'field' carrying the direct approach to its conclusion as with the inferences made by Goffman from the street behaviour of people(1971). Other studies will be involved in less intervention than that of Canter and Wools but more than the so-called direct studies. The instructions do react in a certain set-creating fashion as in the two set studies cited earlier (Leff et al 1974; and Edelman et al 1977) where the interaction is with the actual environment though with the intervention of the researcher, which goes beyond the selection of the stimuli. In other studies the intervention involves only the selection of some stimuli for the subject to react to, whereas in others even the stimuli are selected by the subjects to a very large extent (Harrison and Sarre 1975; Downs 1970, using Kelly's grid system). To conclude one can say that though it is a dychotomy, one can clearly draw the line according to the accepted definition one has chosen, as is the case in the current facet.

FACET B - LANGUAGE

b_1 body
b_2 spatial
b_3 figural
b_4 verbal
b_5 digital

The facet of language refers to the means of communication between the person and the environment whether it is direct, or through representations. This facet was introduced by Schlesinger & Guttman (1969) in their study of intelligence tests, and was adapted by Rimmer (1974) to criterion of job adjustment, and to the job analysis method. The adaptation from test situation to work situation involved some modifications, the most important being the introduction of the human interaction area which had not been part of the intelligence test world of items. For the study of the interaction with the environment some further modification should be made especially for the direct situation. The two languages involved are spatial language and body language, which are essential parts of the direct interaction with the environment.

SPATIAL language is used when a message is conveyed by the use of arrangements of space (into units for example), or objects inside that space, whether the arrangement of the space is by environmental cues or by personal (i.e. body) cues (the difference between the two will be discussed at a later stage). When one is using body cues one can consider the language as BODY language, and indeed the distinction is not clear and depends to a great extent on interpretation.

Essentially one considers those two languages in the environmental context as direct. Placing objects in space to convey the existence of territorial boundaries is not an unknown aspect of interaction, as has been shown by the research of Sommer (1969).

But although one may consider these as the mainly direct approaches, one can show that they can be indirect in certain situations. The most common of those is the artistic expression, where both body and space are used to convey something more than the direct interaction at hand. In other words they are not only a way of interacting within the context of the environment but also a way of expressing something about the environment (for self, or others).

FIGURAL language like spatial language uses environmental stimuli for communication, but unlike it, its emphasis is on the outlines of the objects rather than their position in space. A building can convey in spatial language the fact that it is a territory, or the enclosure of a certain public area, whereas in figural language it can convey some

relationship between lines, size, texture etc. The difference between the two can best be demonstrated by the difference between architecture and sculpture. In both cases one can view the outlines and the language will be figural, but in architecture one has the additional dimension of moving within the building which is the spatial language. As in the case of the difference between the body and spatial languages, the difference is not always so clear, or rather the objects in the space communicate in both languages. A sculpture offers spatial communication also through its size relative to other objects in the surroundings, and to the viewer. The effect is more noticeable in larger than life sized human figures (such as the giant figures in front of the Palazzio Vecchio in Florence).

Not much has to be said on the last two languages as these are the best known. The Verbal language is any communication by the use of words from one of the natural languages, and digital language is communication conveyed by the use of digits. In the study of environment the use of those two languages is less common especially on the receptive phase of the interaction with the environment, though the verbal language is quite commonly used as a means of instructing the subjects. The two are more widely used in the effector aspect of the interaction, as the form of response such as ratings etc. This brings the discussion to the last facet of the mapping sentence:

FACET C - INTERACTION PHASE

c_1 perceptual
c_2 response

The study of an interaction process involves two phases, which can also be considered to be approached in the ways described previously. The perceptual phase is the one where the individual studied receives information from the environment, and the response phase is his behavioural reaction to that information. It is not always easy to differentiate between the two, as one response can be part of the perception of another, and a later stage of the interactive process. In spite of this reservation one can consider the two phases as existing in most studies, and observe the approach the researcher chose to use.

Each study can be described on these dimensions. All studies of man-environment interaction inevitably will have the two phases of interaction, which will not have the same profile on the other dimensions. That means that the full profile can vary in100 ways, which makes a list too long to be presented in full. Considering that the study of attitudes deals mainly with the profile of verbal, or verbal+digital language in indirect response one can ignore all other languages in the response phase. In the perceptual phase there is more variation. Some use the direct approach, minimising the involvement of the researcher. Studies of this sort may present the environment to the subject by asking them to walk in the designated area (Lowenthal's for six American cities (1972), Burgess & Hollis (1977) for London) or rely on their previous knowledge (Harrison and Sarre 1975). In the first case short term memory is involved in the process, in the other the image created over time is the source of information. The languages used in the process of perception are all simultaneous by definition of the totality of the environmental situation perceived. On the other hand in the case of the indirect approach this totality can be broken down into the different elements, presenting stimulation of one type only. The most common is the figural language, presenting the environment in pictures (photographs, which present a more complete structure as in the study by Canter and Thorne 1972, drawings such as those presented by Canter 1969 or Wools 1969. Slides and Hol ograms compared by Canter et al 1973). Studies presenting the environment indirectly using verbal or digital language could not be found, but the experience of such presentation is not unfamiliar to any reader of literature, nor is the digital language of indirect presentation unfamiliar to any reader of scientific work.

SUMMARY AND THE PRESENT STUDY It is quite clear from the list of examples for the different technical approaches to the environment that the mapping sentence cannot be used for the total scope of environmental research as such, but rather that parts of the facet structure apply to different aspects studied. It is clear that the indirect approach can be divided better into the three languages

adapted from Schlesinger and Guttman (1969), and that the body language and the spatial language do not apply either in the perceptual aspect of the interaction or the response aspect. One can also see that the direct approach on either phase uses mainly the first two languages, and that the differentiation between body and spatial language is rather artificial on many occasions. It is also the case that the situations of interaction directly with the environment do not always allow the differentiation between the two phases of the interaction, as is the case in interpersonal spatial activity. Moreover some types of research are hard to place on the suggested dimensions, such as attitudes towards recycling (Humphrey et al 1977) or energy conservation (Delprato 1977).

But in spite of the problems and imperfection of the facet structure, some order can be suggested in the techniques used in environmental research, and even though some of the elements are not always relevant they are useful in comparing some of the studies. In that way one can compare attitudes studied in different approaches to the environment, directly or indirectly, using different response types, and one can also expect different degrees of replication success related to the similarity in the profile (Foa 1965). Moreover, the dimensional survey of the different studies can show one areas of research which are more widely studied, and what is more important point out some of the possible areas of study which have been neglected, such as the use of indirect body and spatial language in the study of attitudes. In the use of the latter language one may suggest that the use of models in the study of environmental attitudes can be beneficial in order to elicit changes in the environment desirable to the participant, a preferable approach to the verbal language usually used, as the predictability is enhanced by the increase in similarity between the predicting situation, and the predicted one.

Footnotes

1. The disappointment expressed by Danford & Williams (1975) points out to the same problems, i.e. the effect of the measurement technique, rather than the experimental setting. Although in their study they did not compare different measurement techniques, the fact that the control group did not show any difference from the experimental one caused them to come to the same conclusion as was suggested by Campbell and Fiske (1959).

CHAPTER 4

METHOD AND RESULTS OF THE CURRENT STUDY - PILOT STUDY

The description of the approach to the environmental stimuli which was presented in the last chapter shows that the approach to the environmental stimulus was direct in that the subject was asked to respond about the building in which he lived. In that respect the approach is similar to the study of school environment by Canter (1973). On the other hand the technique used in the response phase is of the indirect type, measuring attitudes on the semantic differential (SD), using a combination of verbal and digital languages.

The study of attitude, as may be inferred from the use of the SD, centres on the emotive component of the attitude rather than the cognitive component or the action tendency component. In the study of the emotive aspect of the attitude one other technique is available to the researcher, and that is the personal construct technique suggested by Kelly (1955). As was the case with the SD the personal construct method had previously been used for the study of attitudes towards the environment (Downs 1970, Harrison and Sarre 1975, and Hudson 1974). The advantage of the personal construct technique is that it allows the subject to select both the constructs (concepts) to be described and the elements on which to describe them, rather than enforcing an alien conceptual framework on the subject, and asking him to judge concepts in which he has no interest. But in the study of the attitudes towards the physical environment, as can be seen from the studies cited, the method will prevent the eliciting of the emotive component and will rather yield results indicating the less central component. This can be expected in view of the observations mentioned in the discussion of the SD earlier on, the instability of the factor structure in the physical context due to denotative meaning, and the tendency of subjects to prefer scales related to the concept judged. The latter tendency causes the subject to choose the denotative elements to a significant extent, so that the measurement of the connotative meaning becomes impossible. This on the other hand does not indicate that this meaning is non-existent for the physical environment, as was shown by Canter's

study of connotative meaning (1969), but rather that the method which may be adequate enough for the emotive component in non-environmental concepts is not suitable in the case of the physical environment. Furthermore the method gives no control to the researcher as to the aspects of the environments the subject is referring to, though it has the advantage of actually naming them. In Downs' study of a shopping centre (1970) some of the aspects studied were clearly human aspects such as service, which is not relevant for the design of the environment, though by no means unimportant. The last problem is not specific to the study of environmental stimuli, but is more general, due to the lack of standardisation in the constructs as well as the elements used by the subject. It can be suggested therefore that though the method may be more accurate for a clinical type of evaluation (as in the case of design where it may aid the designer in his interview with an individual client) it is not the best method in more general research, as it is less efficient and time consuming. That means in many cases smaller sample which reduces the confidence in the acquired results, and therefore one would suggest that the SD technique in those cases is preferable.

1. Selection of scales for the SD

In previous studies using the SD technique for the study of attitude one of the characteristic first steps was the selection of scales suited to the study of the physical environment. In one such study (Vielbaer 1966) the selection process started with 500 concepts. A three stage study reduced the number to 50 which were later used in the analysis of the environment itself. In all the studies using the technique the authors emphasise the fact that the concepts were selected on the basis of specific suitability to the physical environment (Garling (1973) Kuller (1973) Canter (1969). But the essence of the study of the emotive component of the attitude is that the meaning measured is the connotative meaning rather than the denotative one and by the specific selection of concepts suitable for the physical environment, the denotative meaning rather than the wanted connotative one will emerge (see for example Lowenthal, 1972, as summarized by Canter, 1977 p. 109).
This strategy may be the result of lack of consideration

of the structure of attitude, and misunderstanding of the function of the SD technique in the measurement of attitude compared with other techniques. The only study that had used the SD technique to elicit the connotative meaning of the environment by including a substantial number of the original scales (with some additions) was Canter's study comparing a group of architects with a group of non-architects (1969). Therefore the scales used in his study were considered a suitable basis for the construction of the current tool. Even Canter was none too cautious in the balancing of the terms in a way which would not yield different types of meanings. The emphasis of physical aspects in the architects' group, and the friendliness aspect in the non-architects' group may be influenced as much by this fact as by the other differences mentioned in his discussion.

2. The technique of the pilot study

The pilot study was performed in winter 1976, and the questionnaire was based, as was mentioned above, on Canter's two questionnaires, mixing the concepts randomly. One of the aims was to find out whether the method could be generalised to subjects of different social characteristics. Comparable data were needed, and therefore no change was made in the scales used. The structure of the questionnaire was similar to the standard SD scales (see discussion of the method) though the numbering of the ranks was missed out (see Appendix 1). Sixty seven rank scales were presented to the subjects on three pages with two columns of scales on each page. Though a summary of the instructions was given in writing, the administration was undertaken personally by the researcher, and the instructions were expanded on in further detail. (This proved to be essential from experience of the first group to be studied). Most of the explanation was on the technical aspects of the response needed and further explanations of the relevance of some of the scales was made in some individual cases. Though a teacher was present in the testing situation, the explanation was made only by the researcher, to avoid bias. When the problem of the relevancy of one or another of the scales arose (something that was a frequent occurrence in a group which obviously was unfamiliar with the technique) it was suggested to the subject that the adjective

that had to be selected was the one more suitable to describe their house than the other. Some problems as to the meaning of a word were also a cause for questions. Where this occurred the word was explained, though such a procedure may well have caused some bias in the results. As in the case of the relevancy the researcher tried to give a standard explanation in all cases. Many of the questions of the first few groups led to further details being included in the instructing of the later groups.

3. Statistical method of pilot study

The questionnaire included 60 scales, which would have made any interpretation of the results without the reduction of the scores to a manageable number practically impossible. The methods of analysing the data which fall under the general heading 'factor analysis' serve the purpose of such a reduction on a less arbitrary basis than the intuition of the researcher. When employing one of these methods the researcher assumes that the measurements being used are not totally independent of each other but form some complexes, which are theoretically interpretable. For that purpose the methods use the structure of correlation coefficients (in most cases Pearson's) and in various ways (depending on the specific method) try to find the best reduced results. As there is more than one method of achieving the same reduction the use of any one involves a process of decision making which should be described, and that will be the purpose of the following discussion. Detailed description of the methods can be found in many publications, among them Rummel (1970).

The first stage of the decision making process (after the individual measurements have been decided on) is the decision about which type of the various methods should be used. Rummel (op cit Ch 5 Factor analysis models) suggests several of those. Nie et al (1970, Ch. 24) suggest that the major difference between the various methods of extracting the original factors is the way communality is calculated or assumed. In factor analysis methods the analysis is on the common variance only, excluding the unique variance. In principal components analysis on the other hand, the analysis is on the total variance, as the assumed original communality is equal to 1.00.

The current study employed the latter method for the extraction of the factors using the programme PA1 in the SPSS (Nie et al 1970 p 479-80). The basic reason was that the same method was employed by Canter (1969) with whose results the structure was to be compared. Though the choice was controlled by the need for comparison, nevertheless it was also justified on other grounds, mainly the fact that the method is more adequate in the case of a set of highly correlated matrix, as was the case in the current study (Nie op cit).

The extraction of the original factors is only the first step in the process, and is followed by the rotation of the factors, so as to achieve an optimal solution. In the rotation step, as in the extraction of the factors, one can make more than one choice depending on the assumptions involved. Basically one can assume that the factors are orthogonal to each other, or not. In the first case one will choose the rotation which will submit an orthogonal solution (or rather one of them), and in the other case an oblique rotation will be the choice. In other words one assumes either no correlations between the factors, or the existence of some correlations between them. For the purpose of comparison with Canter's results (op cit) Varimax rotation, which is one of the orthogonal solutions, should have been the choice, and that is the way it was. But the results were compared with an oblique rotation of the same data and differences found to be only marginal, allowing the avoidance of any assumptions on the relationships between the factors which, one could say, in the case of semantic meaning is rather improbable. The factors rather than be expected not to correlate should be expected to correlate considering the associative value in words.

The oblique rotation unlike the orthogonal ones yields two loading matrices: one is referred to as factor pattern, and the other as factor structure (see Rummel op cit 397-405). The difference between the two types of loadings is the way they are determined, one by using the parallel lines to the axis, and the other by the vertical projections. (As the two are identical in the case of orthogonal rotations, they yield only one loading matrix).

Following selection of the suitable method, comes the stage when the results are presented by the helpful computer, and the heartbreaking task of interpreting the results begins. As in the previous stages the interpretation involves some decision making concerning the acceptance

of the results and their meanings, some of them methodological and some theoretical. At this stage the methodological decisions only will be discussed.

The first of these decisions is: How many Factors? And the decision is a difficult one as too few factors will not explain enough of the variance, and too many will be incapable of interpretation. Several methods of helping the researcher in this crucial decision are offered (see Rummel pp. 354-367 for a sample of these). Some of the criteria are mathematical, and others are more subjective in nature. Two of the methods were considered in the current study: one was an eigenvalue 1.00 criterion for screening, and the other was the Cattel scree test. The eigenvalue 1.00 criterion for the number of factors was suggested by Kaiser (as cited by Rummel) as the best criterion, though it should be applied with caution as the cut off at 1.00 could be arbitrary when the differences between eigenvalues are rather small.

The other criterion considered was Cattell's scree test (as cited by Rummel pp 361-2) in which the main idea is to exclude the factors whose addition to the explanation of the variance is small. In this case as in the previous method use is made of the eigenvalue, but instead of 1.00 cut off point the values are plotted along with the factors where the curve levels off, as can be seen in Appendix 4. Both methods were used in the pilot test, and later in the main study. The use of both methods was considered, and depended in each case on the specific results, especially the number of scales included in the factor.

This last point brings the process of decision making for the interpretation of the results to the problem of what will be the variables to be included in the factor. As in all the other stages of the process more than one alternative is available to the researcher, one being the significance of the loadings (Child 1970). In the case of a sample the size of the current study's, the significance level is reached with loading considerably below a level which will allow any reasonable interpretation of the results. The confusion arising can be avoided by simply ignoring the significance level, and choosing some other criterion. The criterion chosen in the current study was based on the arbitary cut off of $\pm$.30 for inclusion in the factor,

though the loadings of the scale on the other factors are presented in the tables (as can be seen in the presentation of the results).

Finally in the discussion of the results, the researcher, in the case of an oblique solution, should explain both matrices of loadings. Rummel (op cit 397-405) suggests that the interpretation of the pattern matrix should be that of the structure of the factor, whereas the interpretation of the structure matrix should be that of the structure of the variable. In the case of the study of the connotative meaning of the environment, the factor pattern matrix will be interpreted as the structure of that meaning whereas the factor structure matrix will be interpreted as the meanings attached to the different scales in the context of the questionnaire, and the environmental stimuli.

4. Presentation of the environmental stimulus

It was suggested earlier on that the environment can be studied directly or indirectly. In the current study, as was mentioned in the part describing the measurement technique, the reaction to the environment was studied indirectly using verbal and numerical language. The stimulus of the environment on the other hand is of the direct type, the actual house where the subject lives. Other studies of attitudes towards the built environment (and the study interests itself in what can be classified as man made environment) used the indirect approach also in the stimulus part of the study. Canter (1969), from whom the scales used were taken, used figural representations of the environment in the form of plans, for the group of architects, and drawings for the group of non-architects. The same drawings were used in the study of Wools (1970) in the construction of the technique, and in some of his experiments. Another to use the figural drawing language in an indirect approach to the built environment was Gärling (1973; 1976). Photographs of buildings have also been used as stimuli (Canter and Thorne 1972). Wools (1970) Harrison & Sarre (1973) and Downs (1970) provide examples of a direct approach to the environmental stimulus. One of the problems of the approach is the lack of stimulus control, as one has to take the environment in the way it is presented to one.

The instruction to the subjects, presented in detail orally during administration, was to describe the house they are living in, and the

immediate surrounding of that house. The immediate surrounding was added, to draw the subject's attention away from the interior of the flat.

5. Subjects and testing conditions

It has been suggested by Osgood (1962) that the structure of the semantic meaning has a considerable stability with different subjects. Nevertheless it was thought to be of interest to consider the same stability over subjects in the context of the physical environment. In the study performed by Canter (1969) comparison between subjects suggested some difference in structure of meaning. The subjects in his study differed on a professional basis, one being a group of architecture students, and the other of non-architecture students. The main difference to be detected was the stronger emphasis in the architecture group on aesthetic values, which suggests something for communication between the professional and the layman. But the non-architects were not further described either professionally or otherwise, and for that matter neither were the architects. The main problem of the difference in the structure of the connotative meaning of the environment may be suggested to involve communication between the architect and the user. But the differentiation between architects and others cannot assume that the others are a homogeneous group. It can be suggested that though the architects can be thought of as a relatively homogeneous group, one should look for more variance in what is commonly referred to as the 'general public'. The problem of communication is therefore not between the professionals and the users only, but between different types of users. One should therefore look into the generality of the structure of meaning of the physical environment for different type of users.

One of the problems in studies performed by psychologists is the use of students as subjects: moreover the tendency is in many cases to use the subjects most convenient for the researcher, i.e. students studying his own course. The fact that they represent a distinctive strata of society suggests that some replication using different subjects should be attempted, and the current study aims at doing that for the semantic differential, as measuring the connotative meaning of the physical environment. The following discussion provides some of the characteristics of the samples for the pilot study.

The pilot study was performed on a sample of 203 pupils from six schools in Glasgow. Two of the schools were Roman Catholic and four non-denominational. The difference is due to the greater co-operation from the non-denominational schools. Table I.4.1 gives details of the distribution of the sample. The number of males and females is nearly equal: 106 males and 97 females. But it can also be seen that the distribution of the sexes in the different schools is not balanced and in some schools the difference is quite large.

TABLE I.4.1 - DISTRIBUTION OF MALES AND FEMALES ACCORDING TO SCHOOLS AND DENOMINATION - PILOT STUDY

SCHOOL	DENOMINATION	MALES	FEMALES	TOTAL
St. Gerards	R. Catholic	17	18	35
St. Columba	"	22	9	31
Total	"	39	27	66
Kingsridge	Non-denominational	14	20	34
Knightswood	"	15	15	30
Govan	"	11	25	36
Adelphi	"	27	10	37
Total	"	67	70	137
	TOTAL	106	97	203

All administrative preparations concerning the sampling and location of the testing were carried out by the school, and the only thing left to the researcher was the administration of the test to the subjects.

To summarise, the sample of the pilot study was drawn to compare between the sexes, subjects were of two denominational groups, and the majority of the pupils were of working class background judging from the occupation of the father. It was also a sample of adolescents (15-16) on the assumption that some generalisation to adults could be made on that basis.

Before going onwith the description of the pilot study some details about the testing environment should be mentioned. Two aspects of the environmental situation could be detected: the first was the formality and discipline of the situation and the second was the density of the room. Apart from difficulties at one secondary school, discipline during the administration of the test was adequate, but in some situations the atmosphere created by the location of the test was more formal than in others.

At one school, due to some misunderstanding, the teacher who helped with the administration of the test was not prepared for the occasion, and did not know what the study was all about. In all other cases either the headmaster, or the teacher in charge of the year group was present during the administration helping with discipline, knowing both the aim and method of the study. In the one school responsibility was delegated to a teacher who could not control the group and who, because of ignorance which was not her fault, presented an attitude test as an ability test. To make things worse the children were not notified of the cancelling of their free afternoon, on the same day as a Celtic vs Rangers football match was taking place. Naturally they were not too pleased with the prospects for the afternoon and were rather reluctant to co-operate. Up to 25% of the tests had to be discarded (surprisingly, as more could have been expected to be unuseable). In no other school did any such problem arise, but the schools differed on the degree of formality of the situation. A formal situation could be described when the group was gathered in a special hall in the school rather than in one of the regular classrooms, and where the headmaster came in to introduce the research. In Kingsridge, St. Gerrard's and Govan the situation was formal, in the three other schools, Knightswood, Adelphi and St. Columba, it was informal. The density of the location was in some respects related to the formality, as the Halls were large enough to accommodate a larger group than the one participating in the study. Of the three cases where the administration was in a regular classroom only St. Columba's situation was not too crowded, though of all the schools the overcrowding was felt only in one.

B. RESULTS

1. Total sample

The first analysis of the pilot study questionnaire was performed on the total sample. As was mentioned in the discussion of the methodology the analysis was principal components with rotation to an oblique solution. Seventeen factors were found to be significant according to Kaiser criterion, having eigenvalue greater than 1.00, but only 6 of them answered Cattell's scree test criterion, and will be discussed (Appendix 4 presents scree test for analysis of pilot samples). Table I.4.2 presents pattern loadings for these factors in the sample accounting for 45.4% of the variance. A scale is included in the factor if its loading in the factor is greater than $\pm$ 0.30. If a scale had loading over $\pm$ 0.30 on more than one factor it will be listed on the one on which it has the highest loading, and its loading on the other will be given too. All loadings over $\pm$ 0.15 are presented in the factor's tables.

In the total sample the first factor accounts for 25.7% of the variance. This factor includes scales such as: 'friendly-unfriendly', 'happy-sad', 'good-bad' etc., to indicate a general evaluative factor, with FRIENDLINESS connotations. The second factor accounts for only 7.0% of the variance, including scales like 'active-passive', 'alive-dead', 'vibrant-still' etc. It can, therefore, be named ACTIVITY factor. The third factor accounts for 3.5% of the variance including scales like 'fruitful-barren', 'fashionable-unfashionable', 'dull-sharp' and closing the list, 'beautiful-ugly'. One can call the factor the AESTHETIC factor.

The remaining three factors, presented in the table, account together for 9.2% of the variance. The first of these, the 4th factor, can be named STABILITY, the second can be named UNIQUENESS and the third PHYSICAL characteristics.

As the rotation used was oblique, one has to take into consideration the correlation coefficient between the factors. Table I.4.3 presents all correlations above 0.10. Out of 15 correlation coefficients only one third are greater than the criterion and three of those are in the relationships between the FRIENDLINESS factor. This factor is correlated with the third factor (AESTHETIC), the fourth (STABILITY) and the fifth

TABLE I.4.2 FACTOR LOADINGS FOR TOTAL SAMPLE - PILOT STUDY

SCALES		I	II	III	IV	V	VI
friendly	- unfriendly	.69					
happy	- sad	.66			-.20		
good	- bad	.61					
welcoming	- unwelcoming	.61					
neighbourly	- unneighbourly	.61			.19		
relaxed	- tense	.54	.16				-.18
pleasant	- unpleasant	.52					
fair	- unfair	.47			-.17		
harmonious	- discordant	.45	.17	-.26	.22	-.18	
sympathetic	- unsympathetic	.44	.16	.33		.35	
safe	- dangerous	.40			-.35		-.17
active	- passive		-.75				
alive	- dead		-.65	-.21			
vibrant	- still		-.62				
lively	- calm		-.47		.27		
fast	- slow		-.43			-.26	-.31
invigorating	- tiresome		-.40		-.23		-.32
interesting	- boring		-.35	-.22			
fruitful	- barren	.15		-.65		.25	
fashionable	- unfashionable			-.54			.17
sharp	- dull		-.25	-.50	.18		
formal	- informal	.29		-.44	.20		
light	- dark			-.38		-.22	
bright	- dull	.26	-.17	-.38			
beautiful	- ugly			-.38	-.22	.24	
expected	- unexpected			-.18	-.59		
peaceful	- ferocious	.23	.20	-.16	-.52		
honest	- dishonest	.16			-.50	-.20	
soft	- loud	.18	.22		-.48		
smooth	- rough				-.47	.18	-.21
stable	- unstable			-.21	-.39		
tidy	- untidy			-.35	.37		
sacred	- profane					.72	
unique	- commonplace	-.19		-.22		.57	
dignified	- undignified	.40		-.34		.48	
thin	- thick					.15	.68
soft	- hard				-.24	.28	.41
spacious	- constricted		-.22				.39
simple	- complicated				-.33	-.24	.36
45.4%		25.7	7.0	3.5	3.3	3.2	2.7

(UNIQUENESS) to a lesser extent. The other two correlation coefficients above the criterion line are the one between the STABILITY factor and the AESTHETIC and UNIQUENESS factor. The activity factor (II) and that of the PHYSICAL (VI) characteristics are not correlated with any of the others, or with each other.

TABLE I.4.3 - FACTORS CORRELATION COEFFICIENTS FOR TOTAL SAMPLE OF PILOT STUDY

FACTOR	I	II	III	IV	V
I	-				
II		-			
III	-.2907		-		
IV	-.2127		+.1649	-	
V	+.1660			-.1364	-
VI					

It was suggested that the social background of the subjects may account for a difference in the structure of the attitudes of the subjects. As the sex of the subjects divided the sample into two groups each large enough to enable a separate analysis, a further analysis of the data was done so as to enable comparison between the sexes. The methods used for the factor analysis, and for the decision about the scales which should be included in each factor were identical as in the analysis of the total sample.

Eighteen factors in the male group, and 15 in the female group, had eigenvalue larger than 1.0. In both cases the Tables (I.4.4 for males, I.4.5 for females) as in the total sample, present the first 6 factors. These factors in the male sub-sample account for 48.1% of the variance and in the female sub-sample for 50.5%. of the total variance. As in the case of the total sample all the loadings presented are pattern loadings of the factors.

Factor I in the male sub-sample accounts for 24.6% of the variance, and in the female sub-sample it accounts for 26.7% of the variance. The first factor in the two sub-samples, though not exactly the same includes the general evaluative scales which could be described as FRIENDLINESS, as was the case with the total sample. The difference between the two is that the factor of the female sub-sample includes

more scales, and indicates the perception of the factor as a RETREAT factor, and in the male sub-sample the retreat scales of 'fair-unfair', 'sympathetic-unsympathetic', 'safe-dangerous', and 'peaceful-ferocious' are to some extent part of the 5th factor, which also includes scales of toughness of the environment (potency).

The second factor is responsible for 8.1% of the variance in the male sub-sample, and 6.9% of the variance in the female sub-sample. This factor in both sub-samples can be recognised as the ACTIVITY factor, but as in the first factor the connotation of the factor is not exactly the same in the two sub-samples. In the male group ACTIVITY includes the scale of 'strong-weak', and 'confident-hesitant' which have potency connotations. These are related in the female group to the 5th factor which includes scales indicating UNIQUENESS connotation, as will be described later.

The third factor, unlike the two previous ones, has to be discussed separately for each of the sub-samples, as the difference between the two is more substantial than in the previous two factors. In the male sub-sample the third factor accounts for 4.5% of the variance, and includes scales such as 'sacred-profane', 'subtle-unsubtle', and 'dignified-undignified' This factor seems to be similar to some extent to the 5th factor in the total sample analysis, though the scales of 'fine-coarse' and 'clean-dirty' which are also included indicate a slight tendency to an aesthetic connotation for the factor. Despite the difference, one can name it UNIQUENESS factor due to the similarity with the 5th factor of the total sample. The third factor in the female group is the AESTHETIC factor (4.5%) similar to the total sample. It includes scales such as 'impressive-unimpressive', 'tidy-untidy', 'bright-gloomy', 'clean-dirty' and, to close the list, 'beautiful-ugly'. It is the fifth factor in the female sub-sample which corresponds to the UNIQUENESS factor (3rd in the male sub-sample and 5th in the total sample), accounting for 4.0% of the variance. The fourth factor in the male sub-sample can be described as CLARITY factor (4.0%). It includes scales such as 'light-dark', 'fashionable-unfashionable', 'sympathetic-unsympathetic' (which seems out of place in the factor and is loaded also on the FRIENDLINESS factor), 'clear-obscure' etc.

The fourth factor in the female group (4.3%) cam ne called EXPECTANCY factor, as the major scale in it is 'expected-unexpected'.

The fifth factor in the male sub-sample (3.7%) includes some of the scales that in the female sub-sample are part of the third factor, but the connotation is of TOUGHNESS of the environment rather than its AESTHETIC value. It could have been considered a potency factor but for the fact that the scale 'strong-weak' has higher loading on the second (ACTIVITY) factor, and for the fact that it also includes a scale such as 'honest-dishonest' which has no potency connotation. In the female group, as was mentioned before) the 5th factor (3.9%) can be described as UNIQUENESS factor corresponding to the third factor in the male sub-sample and the 5th factor in the total sample. The factor has some potency connotations as it includes the scale 'strong-weak'. The 6th factor for the male sub-sample (33) suggests the SIMPLICITY connotation including scales such as: 'simple-complicated', and 'naive-sophisticated'. In the female sub-sample the 6th factor, accounting for 3.9% of the variance, suggests the connotation of CHARACTERFULNESS, including the scales 'characterful-characterless', 'valuable-worthless' among others.

In the female group the SIMPLICITY factor is the 7th one (not included in the table). It adds 3.3% to the variance, and includes the scales 'flexible-unflexible' (loading 0.67), 'simple-complicated' (0.49), 'unsublte-subtle' (0.43) and 'clear-obscure' (0.37). Also loaded on the factor are the following scales which were included under one of the other factors: 'sacred-profane' (0.37) and 'invigorating-tiresome' (-0.32). In the male group the 7th factor can be considered to be a STABILITY factor (similar to the 6th factor for the total sample).

Tables I.4.6 and I.4.7 present the correlation coefficients between the factors of the male and the female sub-samples respectively. More of the correlation coefficients are above the 0.10 criterion and represented in the tables. But the correlations are not very high. It is the FRIENDLINESS factor again which shows some correlation with most of the factors, in the male group even with the ACTIVITY factor which is not correlated with any of the factors in the total sample, and only slightly with the 6th factor in the female sub-sample.

Generally speaking one can say that the impression one gets from the presentation of the results of the principal component analysis for the two separate sex groups is that some differences between the samples occur

TABLE I.4.4 FACTOR ANALYSIS FOR MALES

SCALE		I	II	III	IV	V	VI
happy	- sad	.72					
friendly	- unfriendly	.64				-.17	
welcoming	- unwelcoming	.63	-.25				
good	- bad	.56		-.20		-.16	
characterful	- characterless	.52		.16			.21
neighbourly	- unneighbourly	.51	.15	-.24		.30	
pleasant	- unpleasant	.47	-.23	-.22		-.16	.30
harmonious	- discordant	.45			.41		
relaxed	- tense	.43	.18	-.42			
constant	- changeable	.37	.35				
active	- passive		-.76				
alive	- dead		-.72				
confident	- hesitant		-.68			.24	
strong	- weak		-.63				
interesting	- boring		-.43				.21
hot	- cold		-.37			-.17	
bright	- gloomy		-.35				
vibrant	- still		-.31				
sacred	- profane	-.21		-.72	-.24		
subtle	- unsubtle			-.70			
dignified	- undignified	.20		-.68			
fine	- coarse	.29		-.38		-.23	
clean	- dirty	.30		-.38	.19	-.32	
light	- dark				.59		
fashionable	- unfashionable				.46	-.21	
sympathetic	- unsympathetic	.31	-.29	-.20	-.45		
clear	- obscure	.36	-.31	.20	-.42	-.23	
expected	- unexpected		-.15		-.41	.26	
bright	- dull	.36	-.22		-.39		
sharp	- dull		.36		-.37	-.23	
smooth	- rough					-.69	
peaceful	- ferocious					-.68	
honest	- dishonest	.21		.23		-.66	
soft	- hard			-.18		-.59	.31
soft	- loud		.34	-.22		-.57	
delicate	- rugged			-.40		-.57	
calm	- lively				-.20	-.54	
tidy	- untidy	.28			.22	-.52	-.22
impressive	- unimpressive		-.23		.15	-.47	
sophisticated	- naive				.26		.76
sweet	- bitter	.19	.15	.20			.46
complicated	- simple			.21		.18	.46
barren	- fruitful		.20	.33	-.23		.41
48.1%		24.6	8.1	4.5	4.0	3.7	3.3

TABLE I.4.5 FACTOR LOADINGS FOR FEMALE GROUP

SCALES		I	II	III	IV	V	VI
friendly	- unfriendly	.73	-.22				
neighbourly	- unneighbourly	.65			.16		
welcome	- unwelcoming	.65	-.18			.16	.17
good	- bad	.60				.15	
pleasant	- unpleasant	.59		-.16			
harmonious	- discordant	.58	.23		.29		
happy	- sad	.55	-.16				
fair	- unfair	.55				-.24	.19
sweet	- bitter	.53	-.15			-.16	
sympathetic	- unsympathetic	.52		.27			
formal	- informal	.50	.22	-.17	.22		-.18
safe	- dangerous	.45		-.35			
peaceful	- ferocious	.43	.25		-.36		.18
active	- passive		-.76				.16
vibrant	- still		-.68	.35			
lively	- calm		-.61		.30	-.24	
invigorating	- tiresome		-.60	.16		.22	
alive	- dead		-.59				.25
fast	- slow		-.57	-.19			
uplifting	- depressing		-.38	-.29	-.15		
impressive	- unimpressive			-.78	.17		.16
tidy	- untidy			-.70			
bright	- gloomy	.22	-.33	-.52			
clean	- dirty	.33		-.49	-.19		
smooth	- rough			-.48	-.21	.21	
fashionable	- unfashionable			-.42		.19	
fine	- coarse	.40	.18	-.40	.19	.17	-.20
delicate	- rugged		.23	-.38		.34	
beautiful	- ugly			-.36		.17	
expected	- unexpected				-.75		
soft	- loud	.21		-.31	-.40	.17	.17
hot	- cold	.15	.27	.30	.38		
sharp	- dull		-.21	-.30	.37		.35
unique	- commonplace					.75	.21
soft	- hard				.16	.62	
sacred	- profane			.16	-.18	.52	
dignified	- undignified	.30				.45	
strong	- weak		.17		-.27	-.41	.31
light	- heavy	.20				.38	
protected	- unprotected	.31		-.25		.37	.31
characterful	- characterless					.26	.66
thick	- thin	-.32				.23	.61
valuable	- worthless			-.25	-.18		.44
stable	- unstable			-.17	-.22		.39
50.5%		26.7	6.9	4.5	4.3	4.2	3.9

either in difference in the content of a factor (rather in its secondary meaning) or in the order, i.e. its importance.

TABLE I.4.6 CORRELATIONS COEFFICIENTS FOR FACTORS OF MALE SAMPLE OF PILOT STUDY

FACTOR	I	II	III	IV	V	VI
I	-					
II	-.20100	-				
III	-.23297	+.10639	-			
IV	+.15298	-.10251	-.14451	-		
V	-.26083		+.20951		-	
VI		-.14017				-

TABLE I.4.7 CORRELATION COEFFICIENTS FOR FACTORS OF FEMALE SAMPLE OF PILOT STUDY

FACTOR	I	II	III	IV	V	VI
I	-					
II		-				
III	-.29383		-			
IV				-		
V	+.26803		-.24803		-	
VI	+.17708	-.12285	-.12439			-

CHAPTER 5

METHODOLOGY AND RESULTS OF MAIN STUDY

The main study was based on the results of the pilot study, in the choice of scales, environmental stimulus, and sample.

1. The questionnaire

In the pilot study 60 scales were included in the questionnaire, a number larger than that of the questionnaire used in the different studies by Osgood et al (1957) or the two questionnaires used by Canter (1969). The intention behind the procedure was to reduce the number of scales according to the responses acquired from the subjects rather than make the subjective judgement of the researcher the basis for choice of appropriate scales. It would have been useful to have used one of the previous studies for the decision, but for the difference between the samples (the current sample not consisting of students). As a result of the size of the questionnaire, and probably due to the complexity of the connotative meaning, the number of factors was large (17 for the total sample), and many of them explained a small part of the variance only. The main 6 factors which explained only 45.4% of the variance have been described in detail. This is a rather small percentage, but not unexpectedly so, considering that in one of the studies presented by Osgood et al (1957) the percentage for 8 factors was only 48. It is important to note the importance of the FRIENDLINESS factor in the structure of the attitude in all three analyses (corresponding to the importance of the evaluative factor in the EPA structure). Its influence is shown not only by the relatively high proportion of the variance it accounted for but also through the correlation coefficients it had with most of the other factors. One way of reducing the number of scales in the questionnaire could have been to reduce the importance of this factor, or even totally ignore it, and by doing so emphasise the more subtle aspects of the meaning (which would have meant ignoring the most important of the factors in the emotive component of the attitude, the one giving it its direction). However, that is not the approach taken by any of the users of the technique. Osgood et al (op cit) concentrated on the three major factors and Canter and Thorne (1972) applied the evaluative factor only for their cross cultural comparison of attitudes towards the environment. It is

this approach which is the one taken in the construction of the current main study questionnaire. This does not mean that the other factors are not considered important, as some of the subtleties of the meaning are due to the inclusion of scales of that sort, but that may be considered a fair price to pay for clarity of structure.(1)

That means that scales which were highly loaded on the major factors were included in the modified questionnaire, or rather the ones not loaded significantly on any of the first 6 factors were excluded. As some differences between the sex sub-samples occurred this was considered for the separate structures of the sub-samples.

A second consideration for the exclusion of scales was the proportion of neutral responses for the specific scale. In the study performed by Lowenthal (1972) the number of neutral responses to a scale was considered as an indication of the lack of significance of the scale for the specific milieu. That may be one interpretation of the phenomenon, but in his study the highest occurrence of such a response for a scale was 25.0% (op cit Table 14). In the current study the proportion of neutral responses was 25.2% for the total number of scales (22.1 and 28.2 for males and females respectively as one can see in Table I.5.1), which indicates another interpretation.

TABLE I.5.1 DISTRIBUTION OF RESPONSES ON EACH RANK FOR TOTAL QUESTIONNAIRE

RANK	MALES		FEMALES		TOTAL	
	N	%	N	%	N	%
NR	43	0.7	34	0.6	77	0.6
1	778	12.2	825	14.2	1603	13.3
2	708	11.1	717	12.3	1427	11.8
3	903	14.2	932	16.0	1835	15.2
4	1403	22.1	1643	28.2	3096	25.2
5	795	12.5	625	10.7	1420	11.8
6	719	11.3	438	7.5	1157	9.6
7	1011	15.9	606	10.4	1617	13.3
TOTAL	6360	100	5820	100	12180	

In the current sample the highest proportion of neutral responses was 52.2% ('statusful-statusless'). Even Lowenthal's finding that younger people and the less educated tend to show more tendency towards median response cannot account for this difference. This is suggested mainly by considering the tendency in the subjects to make a higher proportion of extreme responses (categories '1' and '7') which appear more often than would have been expected from a normal distribution of responses. The tendency towards neutral response therefore was interpreted as due to either of two causes: unfamiliarity with the concepts used in the scales, and inability to consider the scales in the context of the physical environment (or rather in the context of the building). Such a problem with the scale will, it was hypothesised, cause the subject to either totally ignore the scale and leave it blank (NR category in the table) or, if he wants to conform, a neutral response. Some support for this interpretation can be gained from observations during administration of the questionnaire. Questions during presentation were quite frequent for some of the scales, and although one cannot always remember on which scales it occurred, three of the scales with the highest neutral response were among the ones most commonly asked about: 'sacred-profane', 'thick-thin' and 'statusful-statusless'. In the case of the 'sacred-profane' scale the significant impression was that that scale was less often asked about in the two RC schools. Table I.5.2 presents all those scales which had a frequency higher than 40% in one of the sex sub-sample, and not less than 30% in the other. (Appendix 5 presents the proportion of neutral responses for the remaining scales).

TABLE I.5.2 FREQUENCY OF NO RESPONSE+NEUTRAL RESPONSE FOR EACH SCALE

SCALE	MALES	FEMALES	TOTAL
SACRED - PROFANE	36.4	50.0	42.8
THIN - THICK	41.1	43.8	42.4
MASCULINE - FEMININE	34.6	45.6	39.8
SUBTLE - UNSUBTLE	34.6	50.0	41.9
BARREN - FRUITFUL	33.6	46.9	39.9
HARMONIOUS - DISCORDANT	43.0	47.9	45.3
COLD - HOT	36.4	50.0	42.8
STATUSLESS - STATUSFUL	51.4	53.1	52.2

The last consideration was the use of a term more than once with a different adjective at the other end of the scale on each occasion (for example 'bright-dull', 'dull-sharp' and 'gloomy-bright').

This practice was repeated several times in the questionnaire of the pilot study, and was somewhat responsible for some of the clustering of those scales. Because of this, only one of each of the grouped scales was included in the questionnaire of the main study, preferably one highly loaded on one of the major factors. On the other hand not all the scales that were not included in the first factors were excluded, as the main study was not considered a final use of the technique, and some scales were included on the subjective judgement of the author. Others were changed to make them more suitable ('protected-unprotected' to 'protective-unprotective', and 'cold-hot' to 'cold-warm'). As the main study asked the subjects to describe their social environment too, some scales were dropped to avoid unnecessary comments (dead-alive). The last consideration stems from the wish, contrary to some of the other studies using the SD technique (notably Viellauer 1965; Gärling 1973; 1976 and others mentioned earlier on) to find suitable words to describe the physical environment. The current approach, as has been stated before, aimed to use the same terms and search for the difference in the structuring of the scales into factors, when different stimuli are referred to.

The list of the remaining 34 scales included in the questionnaire can be seen in the Appendix 6. The statistical method used for the extraction of factors was identical with that used for the pilot study.

2. Environmental stimuli

It was mentioned earlier on that in the main study the subjects were asked about the social environment as well as the physical environment. The instructions for the physical environment were identical to those given in the pilot study i.e. to express one's feelings towards the building and its immediate surroundings. The social environment was described to the subjects as the people living in the same building in the case of a multi-family dwelling, or those living in the neighbouring buildings in the case of single-family dwellings.

The results of the pilot test played a part in the decision to introduce the social questionnaire. The impression given by looking at the factor structure for the separate sex groups was that scales such as 'fair-unfair' and 'safe-dangerous' were placed in the factors according

to the way the subjects felt towards the neighbours rather than the way they felt towards the building. The tendency of subject to respond to the social environment rather than the physical one when the stimuli are of a direct nature rather than pictures, is apparent in other studies too. In Lowenthal's study (op cit) the subjects actually mentioned people as one of the characteristics to describe the environment, and in Down's study (op cit) some of the scales chosen for the description of the shopping centre indicated that social aspects of the centre, such as service were being mentioned.

It was hypothesised therefore that the fact that the environment is asked about in general inevitably brings in the social aspects of the environment, and by giving two questionnaires, one for each aspect of the environment, one may increase the probability of the subjects' differentiating between the two. Lack of differentiation between the two aspects of the environment will be seen if the structure of the factors is similar, and if the different scales correlate with one another, and if the profile of the subjects shows correlation between the answers for the two questionnaires. Three hundred and eleven subjects responded to both environments, and 160 responded to one only (80 for each aspect).

3. Sample and presentation

The main study was performed in winter 1977, on subjects drawn from 13 schools, using the same method of sampling within the schools as in the pilot study (i.e. letting the school decide on participation). Some further instructions as to the subjects to be selected were given to the school in order to balance the number of subjects of each sex. The schools were from areas all over the city of Glasgow:

1.	Possilpark Secondary	- 38	subjects	Non denominational
2.	John Bosco	- 41	"	Roman Catholic
3.	Queens Park Secondary	- 36	"	Non denominational
4.	Colston Secondary	- 40	"	" "
5.	Riverside Secondary	- 40	"	" "
6.	North Kelvinside Secondary	- 40	"	" "
7.	Cranhill Secondary	- 40	"	" "

8. Holyrood	- 40 subjects	Roman Catholic	
9. St. Pius	- 40 "	"	"
10. St. Augustine	- 39 "	"	"
11. St. Thomas Aquina	- 37 "	"	"
12. St. Mungo	- 20 "	"	"
13. Our Lady and St. Francis	- 20 "	"	"

The order of the schools on the list is according to the order of administration of the questionnaires.

St. Mungo is a school for boys only, and Our Lady and St Francis for girls, serving the same catchment area. All other schools are co-educational. In Colston, Riverside, Cranhill, St. Mungo and Our Lady' subjects were presented with one of the questionnaires only. In each school 50% had the questionnaire for the physical environment and 50% the one for the social environment. The subjects were equally distributed according to sex, so that in each school half of the subjects responding to each of the questionnaires were males and half females. Four hundred and seventy one subjects participated in the study, 311 responding to both questionnaires (161 males and 150 females). Eighty responded to the physical questionnaire only (40 of each sex group), and 80 to the social questionnaire only. For each of the questionnaires there were 391 responses (201 males and 190 females).

Table I.5.3 presents the number of subjects from each sex group by denomination of school. The distribution for sex is even, and so is the distribution for denomination. But more of the ND schools had only one questionnaire so that each questionnaire had 174 responses in the ND group compared with 217 in the RC group (114 and 197 responded for both questionnaires respectively).

TABLE I.5.3 SEX AND DENOMINATION OF SUBJECTS

	ND		RC		TOTAL	
MALES	119	49.4	122	50.6	241	100
FEMALES	115	50.0	115	50.0	230	100
TOTAL	234	49.7	237	50.3	471	100

To sum up the discussion of the sample of the main study, a short description of the test environment should be offered. As in the pilot study, the two main factors which could be detected were the formality of the situation and the density of occupation of the room.

In the main study no major disciplinary problems arose, as experience from the pilot study helped in avoiding them. In all the schools the subjects were informed in advance that they were going to participate in an environmental study, and in some cases it was suggested to them that they were lucky to be chosen for the study and that their opinion would be noted. Except for St. Pius none of the situations involved had as formal an atmosphere as the schools in the pilot study, and the difference between schools was negligible. Density conditions were also not so different in the schools except for John Bosco and Holyrood, but in none was there any suggestion of overcrowding, as far as one can judge without asking the subjects themselves. In John Bosco the room was rather hot and it might have disturbed the subjects, though no complaints were made. In short one could say that the conditions were less varied in the main study than in the pilot one.

4. Factors of physical and social environments in the main study

The first part of the main study was trying to replicate the factor structure found in the pilot, especially trying to confirm the stability of the differences found between the sexes, which might have been due to instability of the results. It also tried to find out if the environment described by the subject was the physical environment, or whether they, because of the concepts used in the scales described their attitudes towards the social environment, or a composite whole. The presentation of two separate sets of scales for each aspect of the environment could prevent such a tendency and that had to be checked.

PHYSICAL ENVIRONMENT FACTORS - as in the pilot study the first analysis was of the total sample, for the 34 scales.

The loadings which will be presented in the following tables will bethe factors pattern table. Seven factors were significant, having eigenvalue larger than 1.0, and these accounted for 59.2% of the total variance. The 7 factors and the loadings of the different scales on them are presented in Table I.5.4.

TABLE I.5.4 PHYSICAL ENVIRONMENT FACTORS FOR TOTAL SAMPLE

SCALES		I	II	III	IV	V	VI	VII
Neighbourly	- Unneighbourly	.81						
Happy	- Sad	.63	.27			.16		
Friendly	- Unfriendly	.60				.17		.35
Sympathetic	- Unsympathetic	.52		.19	-.25		.17	
Welcoming	- Unwelcoming	.49	.17					.24
Light	- Dark	.48		.21			.18	-.16
Good	- Bad	.38	.24		-.17		.21	.19
Pleasant	- Unpleasant	.44	.25		-.19		.25	
Interesting	- Boring		.82					
Lively	- Calm		.77		.24			
Invigorating	- Depressing		.65		-.16			.16
Active	- Passive		.55		.25		.35	
Impressive	- Unimpressive			.74				
Beautiful	- Ugly			.73				
Delicate	- Rugged			.66		.29	.24	
Fashionable	- Unfashionable			.60	.32			
Unique	- Commonplace	-.23		.57				
Clean	- Dirty	.21		.52				.21
Formal	- Informal			.49	.32	.26		.17
Fine	- Coarse	.17		.49		.17		.19
Smooth	- Rough			.47		.41	.21	.19
Bright	- Dull	.30	.35	.46				
Fast	- Slow	.15		.19	.66			
Soft	- Loud		-.18	.25	-.41			.39
Peaceful	- Ferocious	.15		.19	-.41	.16	.35	.17
Strong	- Weak				.22	-.59	.27	.37
Relaxed	- Tense			-.18	-.15		.71	
Confident	- Hesitant				.23		.51	.15
Sophisticated	- Naive			.30		-.26	.57	
Protective	- Unprotective							.76
Safe	- Dangerous							.66
Valuable	- Worthless			.29		-.31		.42
59.2		33.1	7.0	5.9	3.7	3.3	3.2	3.0

The first factor can be considered the FRIENDLINESS factor, as it includes scales such as 'neighbourly-unneighbourly', 'happy-sad', 'friendly-unfriendly' etc. This factor is a general factor accounting for 33.1% of the variance and not very different from the results of the pilot study. An interesting difference between the results of the pilot factor and the replicated factor is the low loading the scale 'good-bad' has on the factor compared with its status in the pilot factor.

The second factor is the ACTIVITY factor, accounting for 7.0% of the variance. It includes scales like 'interesting-boring', 'lively-calm', 'invigorating-depressing' and 'active-passive'. Interesting in this factor is the absence of the scale 'fast-slow', which is highly loaded on the 4th factor.

The third factor could be named the AESTHETIC factor, combining scales which produced in the pilot study the AESTHETIC and UNIQUENESS factors. It accounts for 5.9% of the variance, and includes scales such as 'impressive-unimpressive', 'beautiful-ugly', 'delicate-rugged' etc.

Factor 4 accounting for 3.7% of the variance can be considered a minor factor of ACTIVITY or WILDNESS. Factor 5 (3.3%) is a POTENCY factor, and factors 6 and 7 can be considered as RETREAT factors, the first with RELAXATION connotations and the second with SAFETY connotations.

Table I.5.5 presents the correlation coefficients for the first 7 factors. It is apparent from this table that the factors in the main study are more often correlated with one another than the ones in the pilot study (compare with Table I.4.3). All three first factors are correlated with one another, and also correlated with the two last factors (6 and 7, the two RETREAT factors). All the correlations are positive, and significant (p 0.01). The ACTIVITY factor which in the pilot study was not correlated with any of the first factors is correlated with the same factors as the other major factors. This may be due to the fact that in the questionnaire of the pilot study the positive adjective of the pairs was not always the first to be presented, whereas in the main study the adjectives which can be considered to be

positive were all presented on the lower end of the scale (see Appendix 1). It may also be the result of the method of reduction of the questionnaire, where the evaluative aspect of the meaning was more important, as the scales which were not loaded on any of the major factors, and may have suggested to the respondent more subtle meanings could not affect the response to the environment.

The increased importance of the first factor, the FRIENDLINESS factor can also be seen from the increase in the percentage of the variance it accounts for (33.1 compared with 25.7) whereas in the ACTIVITY factor no increase was observed (7.0% in both versions). The third factor that of the AESTHETIC evaluation increased its proportion. The variance was also slightly increased, and the difference between the 3rd and 4th factors is greater than in the pilot study questionnaire (5.9% and 3.7% compared with 3.5% and 3.3%).

TABLE I.5.5 CORRELATIONS FOR PHYSICAL ENVIRONMENT FACTORS FOR MAIN STUDY - TOTAL SAMPLE

FACTOR	I	II	III	IV	V	VI
I	-					
II	+.30439	-				
III	+.28127	+.26521	-			
IV				-		
V					-	
VI	+.35060	+.26516	+.32857			-
VII	+.35585	+.24630	+.36705			+.29095

Table I.5.6 presents the first 7 factors of the social attitudes (factor pattern). In the social questionnaire, as in the physical questionnaire 7 factors were significant according to Kaiser criterion, accounting for 57.5% of the variance.

The first factor, accounting for 31.0% of the variance, can be named FRIENDLINESS as it includes scales such as: 'neighbourly-unneighbourly', 'welcoming-unwelcoming' etc., a similar list of scales to the friendliness factors encountered in the other cases described earlier.

TABLE I.5.6 SOCIAL ENVIRONMENT FACTORS FOR TOTAL SAMPLE

		I	II	III	IV	V	VI	VII
Neighbourly	- Unneighbourly	.79			.16			.20
Welcoming	- Unwelcoming	.77						
Friendly	- Unfriendly	.76						
Pleasant	- Unpleasant	.62	.19			-.18		
Happy	- Sad	.54	.24	.20			.24	
Good	- Bad	.51				-.21	-.23	-.18
Interesting	- Boring	.15	.72					
Lively	- Calm		.63		.23		.19	.33
Invigorating	- Depressing		.60					-.22
Unique	- Commonplace		.53	.45			-.36	
Active	- Passive	.26	.49				.30	
Delicate	- Rugged			.75				
Smooth	- Rough	.22		.59				
Soft	- Loud	.21		.48	-.18		-.26	-.19
Formal	- Informal			.46	.26	-.20		
Impressive	- Unimpressive	.20		.43			.33	
Confident	- Hesitant	.25		.22	.62	.27		
Strong	- Weak		.19		.58	-.27		
Fast	- Slow				.52		.40	
Relaxed	- Tense	.25			.48		-.27	-.19
Bright	- Dull		.16		.17	-.68		
Clean	- Dirty			.21	-.19	-.61		
Fine	- Coarse			.27		-.61		
Beautiful	- Ugly					-.59		
Light	- Dark	.24			.28	-.43		
Fashionable	- Unfashionable					-.23	.56	-.20
57.5		31.0	3.8	4.6	3.8	3.2	3.2	3.6

The second factor (8.8%) is the ACTIVITY factor including 'interesting-boring' and 'lively--calm' which were part of the same scale in the physical environment factors. The third scale cannot be said to be the same as the one of the physical environment scale third factor. It accounts for 4.6% of the variance and could be named DELICACY rather than AESTHETIC, as it indicates more of behavioural interactive beauty compared with the actual physical beauty which is part of the 5th factor (3.2%). The 4th factor can be named POTENCY factor as it includes scales such as 'confident-hesitant', 'weak-strong', etc. It accounts for 3.8% of the variance.

The 6th factor (3.2%) includes only the scale of 'fashionable-unfashionable'. But other scales which have higher loading on other factors have loading greater than 0.30 on that scale. These include the scales: 'unique-commonplace' (-0.36) and 'passive-active' (0.30) from the ACTIVITY factor; 'impressive-unimpressive' (0.33) from the DELICACY factor; and 'fast-slow' (0.40) from the POTENCY factor. The 7th factor (3.0%) includes the scales 'valuable-worthless', 'protective-unprotective', 'sophisticated-naive' and 'sympathetic-unsympathetic' suggesting a connotation of UNFRIENDLINESS not with hostility implications, but rather with a hint of paternalistic meaning. This interpretation of the last factor is further supported by the negative correlation it has with the FRIENDLINESS factor (Table I.5.7). One can see in the correlation coefficients presented in Table I.5.7 that the structure of factors of the social questionnaire is somewhat different from that of the physical questionnaire. Whereas in the physical questionnaire all the correlation coefficients between the factors are positive, that is not the case with the social questionnaire. The two first factors, the FRIENDLINESS factor, and the ACTIVITY factor suggest a similar structure to the one found for the physical environment. The third factor, which in the physical environment is correlated with the two first factors, is not correlated with them in the social environment. This supports the difference which was observed in the content of the two third factors (AESTHETIC & DELICACY).

TABLE I.5.7 CORRELATIONS BETWEEN SOCIAL FACTORS OF THE TOTAL SAMPLE

FACTOR	I	II	III	IV	V	VI
II	+.268	-				
III	+.248		-			
IV		+.217		-		
V	-.385	-.247	-.363	-.206	-	
VI						-
VII	-.356	-.192	-.332		-.320	

5. Some further comments on the differences between the attitudes towards the physical and social environments

It was observed earlier on that the structure of the two factor results for the questionnaires is somewhat different. The major results suggesting the differences are in the minor factors, or in some of the scales in the first two factors. One of the important differences is in the correlation coefficients between the two first factors and the other factors, especially the 7th factor. In both questionnaires the last factor included the scales 'valuable-worthless', and 'protective-unprotective', but whereas in the physical context it was related to safety, and was positively correlated with the FRIENDLINESS factor, in the social context it was correlated negatively with the FRIENDLINESS factor and was interpreted as PATRONISING.

Two other statistics can suggest the ability to differentiate between the two aspects of the environment. The first of these indicated the ability of subjects in general to differentiate between the social and physical environment on a specific scale. This can be measured by the correlation coefficient between the parallel scales of the two questionnaires over all the subjects. The Pearson correlation was calculated between the scales and the results show that the range of the correlations was between 0.30 and 0.54, all significant for 311 cases. That means that there is a tendency to respond to one aspect of the environment in the same way as to the other for all of the scales. But significant as it is from lack of any relationship between the two aspects, it also is far from showing total similarity between the two. The range

TABLE I.5.8 CORRELATION BETWEEN SOCIAL AND PHYSICAL ENVIRONMENT SCALES AND MEAN AND SD OF SCALES' SCORES

Scale	Correlation	Physical Environment		Social Environment	
		Mean	SD	Mean	SD
Impressive - unimpressive	0.34	3.81	1.54	3.59	1.34
Delicate - rugged	0.42	4.23	1.43	4.06	1.33
Honest - dishonest	0.50	3.57	1.49	3.67	1.64
Smooth - rough	0.49	4.23	1.63	3.95	1.50
Fashionable - unfashionable	0.25	3.63	1.80	3.11	1.55
Formal - informal	0.36	4.07	1.38	4.03	1.58
Protective - unprotective	0.38	3.49	1.55	3.34	1.53
Beautiful - ugly	0.30	4.07	1.42	3.98	1.14
Fast - slow	0.38	3.95	1.19	3.71	1.26
Bright - dull	0.42	3.78	1.88	3.46	1.57
Clean - dirty	0.40	3.06	1.74	2.63	1.54
Fine - coarse	0.36	3.72	1.43	3.41	1.39
Invigorating - depressing	0.38	4.17	1.44	3.94	1.41
Safe - dangerous	0.40	3.25	1,74	3.04	1.62
Valuable - worthless	0.43	3.64	1.56	3.51	1.43
Friendly - unfriendly	0.41	2.66	1.47	2.35	1.46
Happy - sad	0.45	2.96	1.49	2.61	1.25
Lively - calm	0.34	3.68	1.85	3.34	1.69
Interesting - boring	0.48	4.38	1.85	3.80	1.74
Soft - loud	0.31	7.12	1.49	7.09	1.57
Unique - commonplace	0.43	4.63	1.56	4.44	1.50
Welcoming - unwelcoming	0.41	3.12	1.53	2.96	1.55
Warm - cold	0.44	3.35	1.73	3.22	1.43
Strong - weak	0.38	3.24	1.47	3.38	1.32
Neighbourly - unneighbourly	0.54	2.47	1.50	2.41	1.61
Light - dark	0.39	3.13	1.49	3.26	1.33
Active - passive	0.42	3.63	1.47	3.39	1.45
Relaxed - tense	0.36	3.36	1.43	3.23	1.44
Confident - hesitant	0.35	3.47	1.30	3.46	1.33
Good - bad	0.45	3.25	1.68	3.02	1.60
Sympathetic - unsympathetic	0.38	3.71	1.41	3.36	1.51
Sophisticated - naive	0.41	4.01	1.21	3.94	1.28
Pleasant - unpleasant	0.37	3.09	1.56	2.91	1.49
Peaceful - ferocious	0.51	3.28	1.72	3.10	1.60

of variance common to the scales of the two questionnaires is from 0.09 to 0.29, which suggests that most of the variance cannot be explained by the use of one of the questionnaires only. That, in short, means that differentiation between the two aspects of the environment does exist. (Results are presented in Table I.5.8).

The other measurement indicates the ability of each subject to differentiate between the two aspects of the environment. This is the correlation coefficient between the scales of the two questionnaires for each subject. Computing this score results in each subject having a similarity score which indicates how much he or she expressed a similar attitude towards the two aspects of the environment (rather than how much the two scales differed from all subjects, it is how much subjects differed for all scales). The calculation of this index meant the writing of a special programme as the SPSS (Nie 1970) which was used for all other analysis done previously was not capable of doing this efficiently. The results for these scores show a range of -0.33 which is a small negative correlation (not significantly different from 0.00 for 34 scales) to 0.995, nearly identical responses. The mean of the score for the 311 cases was 0.39 and standard deviation 0.24. One may conclude that subjects do differentiate between the two aspects of the environment though not all of them do so. The similarity between the attitudes may be due to a general attitude which controls both environments, as well as lack of differentiation.

Footnote

(1) The importance of subtle differences in the meaning of the FRIENDLINESS factor are apparent in the relationship the factor has with aspects of the environment, as can be seen in the second part of the thesis.

CHAPTER 6

STRUCTURE OF ATTITUDES - SOCIAL DIFFERENCES

The major social characteristics which could be compared in the current stage of the study are the sex of the subjects and the denomination of the school attended. Four homogeneous groups were formed.

1. Males ND (89 cases)
2. Females ND (85 ")
3. Males RC (112 ") and
4. Females RC (105")

1. RESULTS FOR MALES ND - PHYSICAL AND SOCIAL QUESTIONNAIRES

Table I.6.1 presents the loadings for the first 6 factors of the physical questionnaire for the ND male group. They account for 60.4% of the variance. The first factor includes scales such as 'safe-dangerous', 'warm-cold', 'soft-loud' and 'honest-dishonest', which form part of the other factors in the total sample. Other scales on the list are similar to some of the scales which form the FRIENDLINESS factor in the total sample. The factor cannot be considered to be a FRIENDLINESS factor, as it includes some scales which point towards the RETREAT connotation, which makes it a combination of the two. It accounts for 32% of the variance.

The second factor accounting for 8.5% of the variance, includes the scales 'lively-calm' and 'active-passive' which makes it an ACTIVITY factor, although the two other scales which are part of the ACTIVITY factor in the total sample: 'interesting-boring' and 'invigorating-depressing', are not included.

The third factor accounting for 6.4% of the variance can be called the AESTHETIC factor as it includes scales such as 'beautiful-ugly', 'bright-dull' and 'clean-dirty'.

The fourth factor (4.9%) includes scales that in the total sample are part of the FRIENDLINESS first factor and this can be considered a suitable name for this factor.

TABLE I.6.1 PHYSICAL ENVIRONMENT FACTORS FOR NON DENOMINATIONAL MALES

SCALE			I	II	III	IV	V	VI
Safe	-	Dangerous	.79					
Warm	-	Cold	.76	.26				
Soft	-	Loud	.57	-.35	-.33		.16	
Honest	-	Dishonest	.55					
Valuable	-	Worthless	.53	-.18			-.49	
Friendly	-	Unfriendly	.46		.29	.41		
Good	-	Bad	.42	-.25			-.35	
Pleasant	-	Unpleasant	.39		-.31		-.38	-.27
Peaceful	-	Ferocious	.34	-.16	-.34		.22	.24
Lively	-	Calm		.91				
Active	-	Passive	.27	.61	-.16	-.21	-.16	
Beautiful	-	Ugly			-.85			-.16
Bright	-	Dull			-.60	.25		
Clean	-	Dirty	.23		-.56			
Delicate	-	Rugged			-.46		-.25	-.18
Impressive	-	Unimpressive			-.45		-.15	
Neighbourly	-	Unneighbourly				.77		
Light	-	Dark		.36	-.37	.59		
Happy	-	Sad	.16			.47		.24
Protective	-	Unprotective	.32		-.18	.38		
Sympathetic	-	Unsympathetic				.38		.23
Confident	-	Hesitant					-.86	
Strong	-	Weak	-.18	.36		.22	-.63	
Fashionable	-	Unfashionable	.18		-.18		-.39	-.36
Fast	-	Slow			-.15			-.76
Relaxed	-	Tense				.24	-.25	.56
60.4%			32.0	8.5	6.4	4.9	4.3	4.2

The fifth factor (4.3%) including scales such as 'confident-hesitant' and 'strong-weak' can be considered to be the POTENCY factor. And finally the 6th factor (4.2%) including the scales 'fast-slow' and 'relaxed-tense' may be called RELAXATION factor (which is the other RETREAT factor).

One may suggest that the major difference between the ND male group attitude structure, and that of the total sample, in the physical questionnaire is that more emphasis is placed on the RETREAT aspect of the environment, and the FRIENDLINESS aspect plays a less important role in the structure of the attitude.

Table I.6.2 presents the results of the analysis of the social questionnaire. Six main factors are presented, accounting for 57.7% of the variance. The first factor is clearly a FRIENDLINESS factor including scales such as 'neighbourly-unneighbourly', 'friendly-unfriendly' and 'welcoming-unwelcoming'. Surprisingly the concept of cleanliness also forms part of the FRIENDLINESS attitude, and so does the scale 'active-passive'. The factor accounts for 27.1% of the variance.

The second factor (11.3%) includes scales such as 'lively-calm', fashionable-unfashionable', 'interesting-boring' and confident-hesitant'. Although two of the scales form part of the ACTIVITY factor for the total sample, the factor cannot be considered as such in the ND male group, but rather as a FASHIONABLENESS combined with ACTIVITY.

The third factor (6.1%) can be considered a RETREAT factor combining the two connotations of RETREAT: RELAXATION and SAFETY. It includes scales such as 'relaxed-tense', 'light-dark', and 'safe-dangerous'.

The fourth factor (4.8%) includes the scale 'sophisticated-naive' and two other scales which have higher loadings on the 7th factor (not in the Table) 'fast-slow', and 'unique-commonplace'. SOPHISTICATION factor may be a suitable name for this factor. The placement of the scale 'fast-slow' in the factor seems to be due to the sexual connotation given to the word fast (a fast woman), which may also account for the

TABLE I.6.2 SOCIAL FACTORS FOR NON DENOMINATIONAL MALES

SCALES			I	II	III	IV	V	VI
Neighbourly	-	unneighbourly	.87					
Friendly	-	unfriendly	.84					
Welcoming	-	Unwelcoming	.76			.18		
Happy	-	Sad	.48	.20		.28		
Clean	-	Dirty	.44				.31	.26
Honest	-	Dishonest	.42				.32	.17
Pleasant	-	Unpleasant	.42			-.19		
Active	-	Passive	.31	.27	-.24			
Lively	-	Calm		.65		-.19	-.19	
Fashionable	-	Unfashionable	.33	.58				.29
Interesting	-	Boring		.56	.22		-.20	
Confident	-	Hesitant		.53	.21	.29	.18	
Relaxed	-	Tense			.78			
Light	-	Dark	.15		.63	-.15	-.21	
Safe	-	Dangerous			.61			.27
Valuable	-	Worthless			.49	.30	-.29	
Good	-	Bad	.33		.45			-.17
Protective	-	Unprotective		-.34	.40	.28		
Sophisticated	-	Naive				.91		
Fast	-	Slow				.41		
Unique	-	Commonplace				.31		
Strong	-	Weak		.18			-.65	
Warm	-	Cold	.39		.23	.15	-.51	.31
Fine	-	Coarse			.36		.48	.44
Smooth	-	Rough			.26		.42	
Peaceful	-	Ferocious		-.26	.13	-.18	.42	
Formal	-	Informal	-.18					.83
Impressive	-	Unimpressive	.29					.41
57.7%			27.1	11.3	6.1	4.8	4.5	3.8

fact that the word throughout the analysis in the main study failed to appear in the ACTIVITY factor, contrary to its placement in the pilot study.

The fifth factor (4.5%) including scales such as 'strong-weak', 'warm-cold', 'fine-coarse' etc., is clearly a POTENCY factor. Finally the sixth factor can be considered to be a FORMALITY or IMPRESSIVE factor according to the two scales loaded on the factor (3.8%).

Interesting in the social questionnaire factor structure is the lack of an ACTIVITY factor, and the position of the RETREAT factor in third position in the structure. One may also note the fact that the scales which in the total sample are part of the DELICACY factor are in this group part of the POTENCY factor.

2. RESULTS FOR MALES RC - PHYSICAL AND SOCIAL QUESTIONNAIRES

Table I.6.3 presents the loadings of the scales for the first 6 factors of the physical questionnaire. These factors account for 62.5% of the variance.

The first factor can be considered to be a general evaluative factor. It includes scales such as 'valuable-worthless', sympathetic-unsympathetic', 'pleasant-unpleasant' and 'good-bad'. EVALUATION factor in this case will be an appropriate name, as the factor includes also some scales that in the total sample form part of the AESTHETIC factor. It accounts for 33.8% of the variance.

The second factor (9.5%) including scales such as 'lively-calm', 'interesting-boring' and 'active-passive' is clearly an ACTIVITY factor, not differing from the second factor in the total sample.

The third factor (6.2%) including the scales 'fashionable-unfashionable', 'impressive-unimpressive', 'beautiful-ugly' and 'unique-commonplace' can be considered an AESTHETIC factor. But it differs from the AESTHETIC factor in the total sample by the position of the 'fashionable-unfashionable' scale, and by the emphasis on the impressiveness and uniqueness connotation, and the smaller number of scales included in the factor.

TABLE I.6.3 PHYSICAL ENVIRONMENT FACTORS FOR ROMAN CATHOLIC MALES

SCALES		I	II	III	IV	V	VI
Valuable	- Worthless	.63		.35			
Sympathetic	- Unsympathetic	.63					
Pleasant	- Unpleasant	.61				.24	
Good	- Bad	.60	.15				.22
Fine	- Coarse	.45	.16	.23			.29
Welcoming	- Unwelcoming	.40		.27	.27	.18	
Clean	- Dirty	.32		.20			.22
Lively	- Calm		.89	-.17			
Interesting	- Boring	.26	.76				
Active	- Passive	-.29	.57		.27	.39	-.23
Invigorating	- Depressing		.43	.28	-.17		
Fashionable	- Unfashionable		-.16	.81	.26		
Impressive	- Unimpressive			.72			
Beautiful	- Ugly	.22		.58			.17
Unique	- Commonplace	.21		.51	-.27	.19	
Fast	- Slow		.19		.79		
Friendly	- Unfriendly	.35			.51	.33	
Peaceful	- Ferocious	.27	-.15		.43	.32	.18
Happy	- Sad	.27			.39	.27	
Confident	- Hesitant				.21	.81	
Relaxed	- Tense					.80	
Protective	- Unprotective					.32	.18
Honest	- Dishonest	.18					.75
Delicate	- Rugged			.35		.21	.71
Smooth	- Rough			.23			.67
Formal	- Informal			.28	.24	-.17	.63
Soft	- Loud	.24	-.16	-.15	-.35		.56
Safe	- Dangerous			-.15			.54
62.5%		33.8	9.5	6.2	5.3	4.2	3.4

The fourth factor (5.3%) includes scales such as 'fast-slow', 'friendly-unfriendly' etc. This can be considered to be a FRIENDLINESS factor, and the position of the 'fast-slow' scale in the factor may be interpreted as a result of its sexual connotation. It seems rather strange to find such a factor in the context of the physical environment, but one may suggest that word associations are somewhat independent of the context they are used in, and used in a connotative meaning can be applied in such a way.

The fifth factor can be considered to be a RETREAT factor. It accounts for 4.2% of the variance and includes the scales 'confident-hesitant', 'relaxed-tense', and 'protective-unprotective'. The sixth factor (3.4%) can be considered to be a POTENCY factor with SAFETY/RETREAT as secondary connotations. It includes scales such as 'honest-dishonest', 'delicate-rugged' etc.

The major difference between the structure of the attitude for the current group, and the structure for the total sample is the first factor being more of a general EVALUATION factor than a FRIENDLINESS factor. And the major difference between the RC male group and the previously discussed ND male group is the lesser importance accounted to the RETREAT factor, which in the ND male group forms part of the first factor and in this group is part of the sixth factor.

Table I.6.4 presents the factor loadings for the social questionnaire for the RC male group. Six factors are presented accounting for 62.7% of the variance.

The first factor accounting for 28.8% of the variance can be considered a DELICACY factor. It includes scales such as 'delicate-rugged', 'smooth-rough', 'soft-loud' etc. It differs from the DELICACY factor in the total sample by its position in the factor structure (first as compared with third factor), and the additional friendliness connotations it has through the inclusion of the scale 'friendly-unfriendly'.

TABLE I.6.4 SOCIAL ENVIRONMENTS FACTORS FOR ROMAN CATHOLIC MALES

SCALE		I	II	III	IV	V	VI
Delicate	- Rugged	.85					
Smooth	- Rough	.79				-.17	
Soft	- Loud	.60		.19			
Safe	- Dangerous	.59		.34			
Honest	- Dishonest	.55		.15			.33
Peaceful	- Ferocious	.50	-.28				.47
Friendly	- Unfriendly	.42	.17	-.38			
Clean	- Dirty	.41	.18	-.15	-.30		.39
Active	- Passive	-.16	.88				
Interesting	- Boring		.72				
Lively	- Calm	-.17	.69				-.16
Invigorating	- Depressing		.44	.26			.36
Happy	- Sad		.32				
Unique	- Commonplace	.25	.24	.72			
Formal	- Informal		.21	.52		.38	
Fashionable	- Unfashionable				-.87		
Valuable	- Worthless				-.71		
Impressive	- Unimpressive				-.62	-.19	.16
Fast	- Slow		.20		-.42	.37	-.15
Strong	- Weak	-.28		.22		.72	
Neighbourly	- Unneighbourly			-.15		.61	
Protective	- Unprotective	.31			-.25	.51	
Welcoming	- Unwelcoming					.40	
Relaxed	- Tense						.72
Beautiful	- Ugly		.26			.19	.50
Sympathetic	- Unsympathetic		-.16	-.29			.50
Fine	- Coarse	.39	.20				.44
Bright	- Dull		.27		-.28		.42
62.7%		28.8	11.3	6.1	4.6	4.4	4.2

The second factor (11.3%) is the ACTIVITY factor. It includes scales such as 'active -passive, 'interesting-boring' etc. It differs from the ACTIVITY factor for the total sample by the inclusion of the scale 'happy-sad'.

The third factor (6.1%) is the UNIQUENESS factor including the scales 'unique-commonplace' and 'formal-informal'. The factor has some minor friendliness connotations, as the scales 'friendly-unfriendly', and 'welcoming-unwelcoming' have also significant loading on the factor, though they have higher loadings on other factors.

The fourth factor (4.6%) can be called the FASHIONABLENESS factor, it includes scales such as 'fashionable-unfashionable','valuable-worthless', etc. Interesting is the inclusion of the scale 'fast-slow' in this factor.

The fifth factor (4.4%) is a POTENCY factor with RETREAT connotations; it includes scales such as 'strong-weak','neighbourly-unneighbourly' etc.

The sixth factor (4.2%) is a RELAXATION (another of the RETREAT factors) factor, including scales such as 'relaxed-tense','beautiful-ugly' (does it mean that for the subjects a beautiful person's company is more relaxing?), and 'sympathetic-unsympathetic'.

The major difference between the structure of the attitude towards the social environment in the RC male group and that of the total sample is the position of the DELICACY factor, and the fact that the scales forming the FRIENDLINESS factors are spread among other factors, mainly the first DELICACY factor and the two RETREAT factors.

3. RESULTS FOR FEMALES - PHYSICAL AND SOCIAL QUESTIONNAIRES

Table I.6.5 presents the factor loadings for the physical questionnaire of the ND female group. The six factors presented in the table account for 58.8% of the variance.

The first factor can be considered a RETREAT factor, including scales such as 'peaceful-ferocious', 'smooth-rough' etc. Two scales

TABLE I.6.5 PHYSICAL ENVIRONMENT FACTORS FOR NON DENOMINATIONAL FEMALES

SCALES		I	II	III	IV	V	VI
Peaceful	- Ferocious	.83	.17			.19	
Smooth	- Rough	.65			.17		-.26
Good	- Bad	.52			.26		
Delicate	- Rugged	.44		-.34			-.15
Happy	- Sad	.39	-.20	.25	.16		
Unique	- Commonplace		.81				
Soft	- Loud		.76	.33			
Valuable	- Worthless		.57	-.26	-.15	.19	
Warm	- Cold			-.57	.29	.17	
Friendly	- Unfriendly			.51			
Neighbourly	- Unneighbourly			.45	.30	.34	.20
Sophisticated	- Naive	.28	.28	-.39		.23	
Light	- Dark				.80		
Fashionable	- Unfashionable		.32	-.17	.72		
Protective	- Unprotective	.16			-.27	.65	
Strong	- Weak	-.17		-.16	.43	.63	
Safe	- Dangerous	.38				.52	
Formal	- Informal						.81
Fine	- Coarse				.30		-.49
Confident	- Hesitant			.36	.34		-.48
Honest	- Dishonest	.36		.22		.35	-.39
58.8%		28.7	8.9	6.5	5.7	4.6	4.5

significantly loaded on this factor are included in other factors, as their loadings on those factors are higher than on the first factor. These are the scales 'honest-dishonest', and 'safe-dangerous'. The factor accounts for 28.7% of the variance.

The second factor is the UNIQUENESS factor, accounting for 8.9% of the variance. It includes scales such as 'unique-commonplace', 'soft-loud' and 'valuable-worthless'. Also loaded on this factor is the scale 'fashionable-unfashionable' which is part of the fourth factor.

The third factor (6.5%) is the FRIENDLINESS factor. It includes scales such as 'warm-cold', 'friendly-unfriendly' and 'neighbourly-unneighbourly'.

The fourth factor (5.7%) including the scales 'light-dark' and 'fashionable-unfashionable' can be considered to be an AESTHETIC factor. In this factor many of the scales which on the total sample form part of the AESTHETIC factor are also loaded on the fourth factor of this group, although they are part of other factors ('delicate-rugged', 'soft-loud', etc.).

The fifth factor (4.6%) can be named a POTENCY factor with RETREAT connotations. It includes the scales 'protective-unprotective', 'strong-weak' and 'safe-dangerous'. The sixth factor (4.5%) can be named FORMALITY factor. It includes scales such as 'formal-informal', 'fine-coarse' etc.

One can see that as in the other ND group, the male group, the first factor is a RETREAT FACTOR, but in the female group it is not related to the friendliness connotation, and the FRIENDLINESS factor appears to have an independent position in the structure (a position it does not have in the two male groups). Interesting is the position of the FRIENDLINESS factor after the UNIQUENESS one in third place rather than the first place it had for the total sample. The ACTIVITY factor is not among the first 6 factors. But the two next factors the 7th and 8th can be considered as ACTIVITY factors, one with RELAXATION connotations and the other similar to the activity factor found in the ACTIVITY factor of the total sample. The term 'fast' which caused the

scale 'fast-slow' to have some sexual connotation does not appear to have the same connotations for this group. It forms the RELAXATION factor with the scale 'relaxed-tense'.

Table I.6.6 presents the factor loadings for the social questionnaire. The Table includes six factors accounting for 61.9% of the variance.

The first factor, accounting for 33.7% of the variance is the FRIENDLINESS factor. It includes scales such as 'friendly-unfriendly', 'sympathetic-unsympathetic' etc.

The second factor (7.9%) includes scales such as 'lively-calm', 'sophisticated-naive', 'smooth-rough' and 'peaceful-ferocious'. The factor can be considered as ACTIVITY/POTENCY at one and the same time.

The third factor (6.7%) is the DELICACY factor. It has some relationships with the UNIQUENESS factor through the scale 'unique-commonplace', but other scales in the factor clearly indicate DELICACY connotations as suggested in the total sample.

The fourth factor (4.9%) is a RELAXATION factor including the scales 'relaxed-tense', 'neighbourly-unneighbourly' and 'invigorating-depressing'.

The fifth factor (4.8%) is a FASHIONABLENESS factor, including the scales 'fashionable-unfashionable', 'confident-hesitant' and 'clean-dirty'. The last scale is also part of the sixth factor (4.0%) which includes the scales 'light-dark', 'bright-dull', and 'fine-coarse' and can be named BRIGHTNESS factor.

The most significant impression one gets from the structure of the attitude towards the social environment in this group, is that it lacks consistency. More scales than in the previous groups (and as can be seen later on also in the other female group) have loadings on more than one factor, and sometimes the difference between them is very small indeed (for example, the scale 'peaceful-ferocious' is loaded 0.37 and 0.38 on the two first factors respectively). In other cases scales have loadings on up to three factors (e.g. clean-dirty). This means that different persons in the group associated the scales differently and they do not show a consistent structure for the attitude as a group.

TABLE I.6.6 SOCIAL ENVIRONMENT FACTORS FOR NON DENOMINATIONAL FEMALES

SCALE		I	II	III	IV	V	VI
Friendly	- Unfriendly	.76					
Sympathetic	- Unsympathetic	.67					
Impressive	- Unimpressive	.63					-.46
Pleasant	- Unpleasant	.59				.22	
Happy	- Sad	.45		.27	.16		
Welcoming	- Unwelcoming	.42		.33		.16	.22
Good	- Bad	.41	-.28	.21	.24	.18	-.21
Lively	- Calm	.16	.75		.21		
Sophisticated	-Naive	.19	-.58				
Smooth	- rough		-.49	.35	.16	.31	
Peaceful	- Ferocious	.37	-.37			.35	
Unique	- Commonplace			.34			
Soft	- Loud	.20		.81			
Warm	- Cold	.24		.63		-.23	-.16
Delicate	- Rugged		-.33	.56	.21		-.24
Beautiful	- Ugly		.20	.49		.29	
Honest	- Dishonest	.18	-.32	.43		.22	-.18
Protective	- Unprotective	.25		.33	-.18	.26	
Relaxed	- Tense				.80		
Neighbourly	- Unneighbourly	.35	.23	-.16	.54		
Invigorating	- depressed	.36			.43		-.23
Fashionable	- Unfashionable					.75	
Confident	- Hesitant		-.22		.41	-.47	-.29
Clean	- Dirty	-.19			.32	.52	-.52
Light	- Dark	.19	-.18				-.57
Bright	- Dull		.30	.20		.27	-.52
Fine	- Coarse					.42	.51
61.9%		33.7	7.9	6.7	4.9	4.8	4.0

Individual differences should be expected but as other cases show some group consistency does occur. Nothing known on the group can account for this lack of consistent pattern, as it is not repeated in the other ND group, or as can be seen later on in the other female group.

4. RESULTS FOR FEMALES RC - PHYSICAL AND SOCIAL QUESTIONNAIRES

Table I.6.7 presents the factor loadings for the physical questionnaire. Six factors are presented accounting for 61.5% of the variance.

The first factor is clearly the AESTHETIC factor, accounting for 36.9% of the variance. It includes scales such as 'formal-informal', 'delicate-rugged', 'fine-coarse', 'beautiful-ugly' etc.

The second factor (6.6%) is the FRIENDLINESS factor. It includes scales such as 'friendly-unfriendly', 'neighbourly-unneighbourly', 'happy-sad' etc.

The third factor (5.8%) is the ACTIVITY factor. It includes scales such as 'interesting-boring', 'lively-calm', 'active-passive' etc.

The fourth factor (4.4%) can be called RETREAT factor of the POTENCY type. It includes scales such as 'protective-unprotective', 'soft-loud', 'safe-dangerous' etc.

The fifth factor (4.1%) is a POTENCY factor including scales such as 'warm-cold', 'valuable-worthless', 'strong-weak' etc.

The sixth factor(3.7%) can be named SOPHISTICATION factor. It includes scales such as 'sophisticated-naive', 'relaxed-tense' and 'fashionable-unfashionable'.

In the analyses for the groups the AESTHETIC factor had the priority in some cases over both the FRIENDLINESS factor and the ACTIVITY factor (most noticeable in the RC female group) without changing its meaning. The fact that the AESTHETIC factor can take the lead in a group of non-architects is suggestive for the attitude of these subjects, as all the structures presented in this study and those suggested in other studies (Canter 1969, Canter and Wools (1970), and summary of studies in this subject by Canter (1977) suggest that

TABLE I.6.7 PHYSICAL ENVIRONMENT FACTORS FOR ROMAN CATHOLIC FEMALES

SCALES			I	II	III	IV	V	VI
Formal	-	Informal	.81		.26			
Delicate	-	Rugged	.57		-.16	-.30		
Fine	-	Coarse	.49	-.19		-.18		
Beautiful	-	Ugly	.48				.35	
Clean	-	Dirty	.38	-.19		-.29	.23	
Impressive	-	Unimpressive	.34	-.17			.24	
Unique	-	Commonplace	.30			.24		
Friendly	-	Unfriendly		-.82				
Neighbourly	-	Unneighbourly		-.79				
Happy	-	Sad		-.72	.25			
Welcoming	-	Unwelcoming		-.65			.23	.19
Pleasant	-	Unpleasant	.30	-.48			.20	.18
Light	-	Dark	.31	-.36	.17			
Good	-	Bad		-.30	.30	-.29		
Interesting	-	Boring		.18	.69	-.22	.25	
Lively	-	Calm		-.28	.67	.29		-.16
Active	-	Passive			.43			.36
Invigorating	-	Depressing	.30	-.30	.41	-.18		
Confident	-	Hesitant			.33			.22
Protective	-	Unprotective			.18	-.77		
Soft	-	Loud		-.18	-.18	-.68		
Safe	-	Dangerous				-.62	.30	-.20
Honest	-	Dishonest	.15			-.61		.19
Smooth	-	Rough	.34	-.15		-.55		
Peaceful	-	Ferocious		-.26		-.44		.32
Warm	-	Cold					.87	
Valuable	-	Worthless					.68	
Strong	-	Weak				-.15	.62	.26
Sympathetic	-	Unsympathetic		-.21	-.27		.45	
Bright	-	Dull	.34		.22		.40	
Sophisticated	-	Naive		.16	-.19		.21	.69
Relaxed	-	Tense		-.17	.15	-.24		.66
Fashionable	-	Unfashionable	.41					.58
61.5			36.9	6.6	5.8	4.4	4.1	3.7

the friendliness of the physical environment (when the scales used allow its expression) is foremost in importance.

Table I.6.8 presents the results for the social questionnaire. Six factors are presented accounting for 60.1% of the variance.

The first factor is the FRIENDLINESS factor accounting for 34.8% of the variance. It includes scales such as 'neighbourly-unneighbourly', 'welcoming-unwelcoming', 'friendly-unfriendly' etc.

The second factor is UNIQUENESS/ACTIVITY factor (7.4%). It includes the scales 'unique-commonplace', 'lively-calm', etc. It is different from the other ACTIVITY factors as it includes also scales such as 'light-dark', and 'protective-unprotective'.

The third factor (5.6%) can be named SOPHISTICATION factor. It includes scales such as 'formal-informal', 'sophisticated-naive', and scales which form part of the DELICACY factor in the total sample such as 'delicate-rugged'.

The fourth factor (5.0%) including scales such as 'impressive-unimpressive', 'honest-dishonest', 'active-Passive' etc. can be considered to be a SLUM SYNDROME factor. Some of its scales form part of the RETREAT factor but the position of the scales of 'impressive-unimpressive' and 'active-passive' change its connotation, giving the sense of helplessness, which may be part of life in the slum.

The fifth factor (4.4%) can be considered a POTENCY factor including scales such as 'sympathetic-unsympathetic', 'soft-loud', 'peaceful-ferocious' and 'strong-weak'. The sixth factor is CONFIDENCE factor including the scales 'fast-slow' and confident-hesitant'.

The structure of the attitude towards the social environment in this group seems close enough to the structure of the attitude for the total sample as far as the three first factors are concerned, although some of the secondary connotations of the second and third factors are slightly different.

TABLE I.6.8 SOCIAL ENVIRONMENT FACTORS FOR ROMAN CATHOLIC FEMALES

SCALES		I	II	III	IV	V	VI
Neighbourly	- Unneighbourly	.97					
Welcoming	- Unwelcoming	.84					
Friendliness	- Unfriendliness	.76					
Happy	- Sad	.66			.16		
Pleasant	- Unpleasant	.49	.35				
Good	- Bad	.42	.23				
Unique	- Commonplace		.69			.23	.23
Lively	- Calm		.61		.29	-.23	
Interesting	- Boring		.59				
Light	- Dark		.55	.34			
Invigorating	- Depressing		.48				.28
Protective	- Unprotective	.16	-.46	.18			
Bright	- Dull	.22	.36	.31	-.19	-.22	
Warm	- Cold		.42		-.23		
Formal	- Informal			.81		-.20	
Sophisticated	- Naive	-.20	.18	.66		.17	
Delicate	- Rugged	-.16		.54	.30	.32	.27
Beautiful	- Ugly	.25		.53		-.32	
Fine	- Coarse	.24		.50			
Smooth	- Rough	.17		.38		.38	.16
Impressive	- Unimpressive	.28		.34	.58		.28
Honest	- Dishonest	.17			-.56		
Active	- Passive	.39	.18		.53		
Clean	- Dirty				-.50		
Dangerous	- Safe	.33		.33	-.36		-.16
Sympathetic	- Unsympathetic	.20	.26	-.22		.60	
Soft	- Loud	.27		.23		.55	
Peaceful	- Ferocious	.22		.30	-.23	.53	
Strong	- Weak	.20	.20	.29		-.46	.30
Confident	- Hesitant	.18					.74
Fast	- Slow			-.20			.70
60.1%		34.8	7.4	5.6	5.0	4.4	3.7

To summarise the results of the factor structure for the sub-samples one can say that some differences are apparent. Of major importance in these differences is the position of the FRIENDLINESS factor. In both male groups the scales that in the total sample form the FRIENDLINESS factor are part of other factors, mainly the RETREAT factors. Sometimes their position is in the first factor and sometimes in others, but the RETREAT connotation is there. It seems that the AFFILIATIVE connotation of the FRIENDLINESS factor does not appear in the structure of the physical environment in the two male groups. In the two female groups on the other hand the FRIENDLINESS factor clearly exists as a part of the structure of the attitude towards the physical environment, although unlike the total sample it is not the first factor. In the ND female group it is the second, and in the RC female group it is the third factor. In the social environment on the other hand the FRIENDLINESS factor seems to be of major importance for three of the four groups. Only in the group of the RC males does the factor have the RETREAT connotation found in the physical environment. But this is also the male group where the RETREAT factors are the 5th and 6th and not the first. The other major difference between the groups is the percentage of variance the various factors account for. In the RC group it is the AESTHETIC factor of the physical environment which plays the major part in the structure. In the two non-denominational groups it is a factor describing the TOUGHNESS of the environment (RETREAT connotation in the male ND group), and in the RC male group it is the EVALUATIVE factor.

The results, though suggesting differences, cannot be considered conclusive, due to the relatively small number of cases in each group. They may well be caused by random error and any further conclusions can be drawn from further verification.

Although one can hardly expect the results of the subgroups to be conclusive, one can point out the apparent complexity of the meaning. It seems that the concept of FRIENDLINESS has more than one meaning, one related to the need of affiliation (Maslow 1954). It is

a positive attitude, in which the environment is considered friendly (in both its physical and social aspects) if it interacts with the individual, accepting him. On the other hand there is FRIENDLINESS with the RETREAT connotation, which has an avoidance element related to either the ability of the environment to protect the individual, or the lack of hostile characteristics in the environment. This can be considered a negative aspect of the attitude, as it does not aim to create relationships with the environment, but rather to defend by avoidance of relationships. In that sense the environment is related to aggressiveness rather than to affiliation, either defending the individual from aggressive behaviour of the social environment, or if those other characteristics are described they are perceived as not aggressive. The interpretation given to the FRIENDLINESS of the environment is supported by both the finding of the total sample through the correlation between the first FRIENDLINESS factor and the 7th RETREAT factor, and the results for the sub-samples where the FRIENDLINESS scales had in some cases acquired RETREAT connotations.

The dual connotation of the FRIENDLINESS factor is not unique in the study of attitudes. In Herzberg's (1966) study of motivation for work the conclusion was that the variables determining job satisfaction are not the same as those determining job dissatisfaction, suggesting that the attitude should be considered to be positive to indifferent, and indifferent to negative, rather than positive to negative. The same observation is indicated by the meaning given to the FRIENDLINESS factor in the current study.

The dual structure which was observed in the FRIENDLINESS factor was not observed for the ACTIVITY or AESTHETIC factors, but it makes one question whether this may not be due to the scales missing in the questionnaire rather than to the structure of the attitude itself, but only another study can clarify the question.

CHAPTER 7

THE STRUCTURE OF THE EMOTIVE COMPONENT OF THE ATTITUDE - DISCUSSION

The previous chapters described the results of the factor structure for the semantic differential (SD) indicating that the EVALUATION, POTENCY, ACTIVITY (EPA) structure of the attitude was not replicated. Not only can the first factor and the third factor, those of FRIENDLINESS and AESTHETIC evaluation be considered factors indicating evaluation of the environment, but also the connotation of the FRIENDLINESS factor varies from subgroup to subgroup, and does so with the change of aspect of the environment. In the current discussion the variations of the sub-samples, indicative as they may be, will be ignored, in discussing the implications of the structure of the total sample, on the assumption for the time being that the differences may be due to the small numbers.

1. Comparison of current structure with results of previous studies

The results of the current study confirm previous results of the measurement of the emotive component of attitude, showing that the structure of the factors is not exactly as one would predict from the original measurement of the connotative meaning. The evaluative factor proved to be divided into two sub-factors, one evaluating the FRIENDLINESS of the environment, and the other its AESTHETIC value, and the third factor was the factor of ACTIVITY. These results correspond to the study performed by Canter (1969), though in his study the importance of the factors was not of the same order for the two groups, but rather the architects emphasised the AESTHETIC evaluation and the non-architects the FRIENDLINESS factor. In the current study the subjects were different in many respects from Canter's two groups, but in spite of this the results are comparable with the group of non-architects. This is also despite the difference in the representation of the environmental stimuli, and the emphasis put on the external part of the building rather than the interior which was described by Canter's subjects.

The most interesting aspect of the results is the lack of generality of the EPA structure, a result which one could have predicted from the instability of the structure over the concepts judged (Osgood 1962). Osgood referred to this instability suggesting that it occurs as a result of the contamination of the denotative meaning of some of the scales which change the structure of their position in the different dimensions. It is an important consideration when the study of the emotive component of the attitude is concerned.

It was mentioned when the study was first presented that other studies using the technique of SD searched deliberately for words suitable for the description of the physical environment. Therefore the phenomena of a different factor structure should be more obvious in those studies even than in the current study, and that of Canter (1969). This is what can be suggested from surveying the results of those studies. One can see that the evaluative factor is quite general (Garling 1973; 1976; Martinuk et al 1973; Kuller 1973; and Lowenthal and Riehl 1972), despite the differences in scales, subjects, and the environmental stimuli studied. This can be an indication of a universality of the evaluative factor in the emotive component of the attitude.

The importance of this factor in the structure of attitude may have been what caused Osgood et al to suggest that it is the only part of the EPA structure to be relevant to attitude measurement, a comment disputed by Heise (1970), as was mentioned in the discussion of the SD technique previously. But as already mentioned the factor of evaluation seems to be of two types, and not one as the results for non-environmental concepts had shown. Garling's structure pointed to an aesthetic factor as a major one with a status factor as a subsidiary factor. In Kuller's factors (eight in number) the aesthetic value is the major component in the attitude towards the environment. On the other hand, in the results in Lowenthal and Riel's study the factor achieved was the more general evaluation one.

2. The two facet structure of the emotive component of the attitude

It was suggested earlier on that the different studies concerning the use of SD technique used it more as an attitude test rather than considering the implications of its being a measurement of the emotive component of the attitude, and that being what it has to measure, Canter's study concentrated on the connotative aspect of the environment (Summers 1970), and the failure on the part of the researchers to recognise the theoretical implications of the technique led them to select scales with denotative meaning. The result is most obvious in the structure of the factors of Lowenthal and Riel (1972), with one being distinctively connotative and the other denotative. (For the analysis of their results one can also see Canter 1977 p 109.)

But even though the current study aimed to find the emotive component of the environment the 'contamination' of the denotative meaning has led the structure on a different road than the EPA, and that kind of difference was due not only to scales added for the physical environment, but also with scales typical of the original study such as heavy-light, delicate-rugged etc. Those scales indicating the potency factor in the Osgood et al studies were part of the aesthetic factor of the current study.

The absence of POTENCY as an independent factor for the physical environment in the current study has a status element which can be interpreted as a social potency factor. The fact that this result did not occur in any of the other studies, including the current one, is because the scales which contributed to the factor were not represented in the studies, or were only partly represented. In the current pilot study 'statusful-statusless' was one of the scales, but it was not related to a potency factor but rather formed a minor factor of its own. The problem of the structure leads one to hypothesise an alternative structure for the emotive component of the attitude, which applies not only to the physical environment but, may be more apparent in it, as research has shown.

The suggested dimensional structure will be developed using the previously described and employed facet structure (Foa 1965). In the factor structure one can distinguish between elements of one facet only, and in the case of a unidimensional structure (which will elicit a radex) the results will be near enough to the reality, but as Osgood has already observed, the type of concept described has an effect on the structure, indicating the existence of an additional facet. The first facet to be involved can be the facet of connotative vs denotative meaning of the word in relation to the concept described (Osgood 1962). The acceptance of this hypothesis is encouraged by the fact that scales which in the current study were included in the AESTHETIC factor of the environment have a more denotative meaning if referring to this type of concept than the ones included in the FRIENDLINESS factor, or ones included in the ACTIVITY factor. An adjective such as 'rough' can actually describe a building, whereas the adjective 'friendly' is obviously used in a connotative context only.

The other facet is the content facet which consists of the EPA structure, where the evaluation, potency and activity factors form the elements. The connotative vs denotative dimension is not an absolute dimension as far as the scales are concerned, but rather the position of the scale on the dimension is determined by its relationship with the concept described. The concept of friendliness then will be connotative in the context of the physical environment, but denotative when a person is referred to.

The hypothesised structure can be summarized using a mapping sentence:

An attitude towards the environment can be expressed by verbal language

with $\begin{bmatrix} a_1 \text{ denotative} \\ a_2 \text{ connotative} \end{bmatrix}$ adjectives to describe the $\begin{bmatrix} b_1 \text{ evaluative} \\ b_2 \text{ potency} \\ b_3 \text{ activity} \end{bmatrix}$ meaning

of the environment.

The structure of the attitude suggested can be tested using the GL-SSA.1 method (used by Schlesinger and Guttman 1969 for example, and in the environmental context by Tagg 1973). The hypothesis can be said to be confirmed if a clear boundary can be drawn between variables belonging to one element in the facet and those belonging to the other element(s) (see best example Schlesinger and Guttman op cit).

The results of the pilot scales were run on the SSA-1 programme (Lingoes 1973) when the total questionnaire was run, and it was obvious that the number of scales did not allow for any pattern to emerge. One of the problems as can be seen in figure I.7.1 is that the ACTIVITY factor was different from the other scales, and caused them to concentrate in one area of the space. One has to remember also that the construction of the questionnaire and the inclusion of scales in it was not based on the above mentioned hypothesis, and the scales which cannot be described on these facets cause some obstruction. Therefore the next best solution to the construction and testing of a new questionnaire was carried out, and scales were selected on the basis of the above mentioned hypothesis, to test the structure. The ACTIVITY scales were excluded from the test.

Figure I.7.2 presents two dimensional plotting of the scales, and the structure emerging is as hypothesised. The results suggest a circular distribution in which the content facet controls distance of the scale from the centre (central scales are correlated more highly with one another, and with the other scales), and the evaluative scales are more to the centre than the potency ones. One can assume from figure I.7.1 that the excluded activity scales are in the outer circle being less central than the others. One exception to this structure is the scale 'sympathetic-unsympathetic'. The second facet divides the space into two areas, one including the denotative meaning scales and one the connotative (roughly only, as one can see from 'loud-soft' which can be called the connotative scale). The results of two

FIGURE I.7.1 PILOT STUDY - TWO DIMENSIONAL SPACE FOR TOTAL QUESTIONNAIRE (coefficient of alienation 0.22).

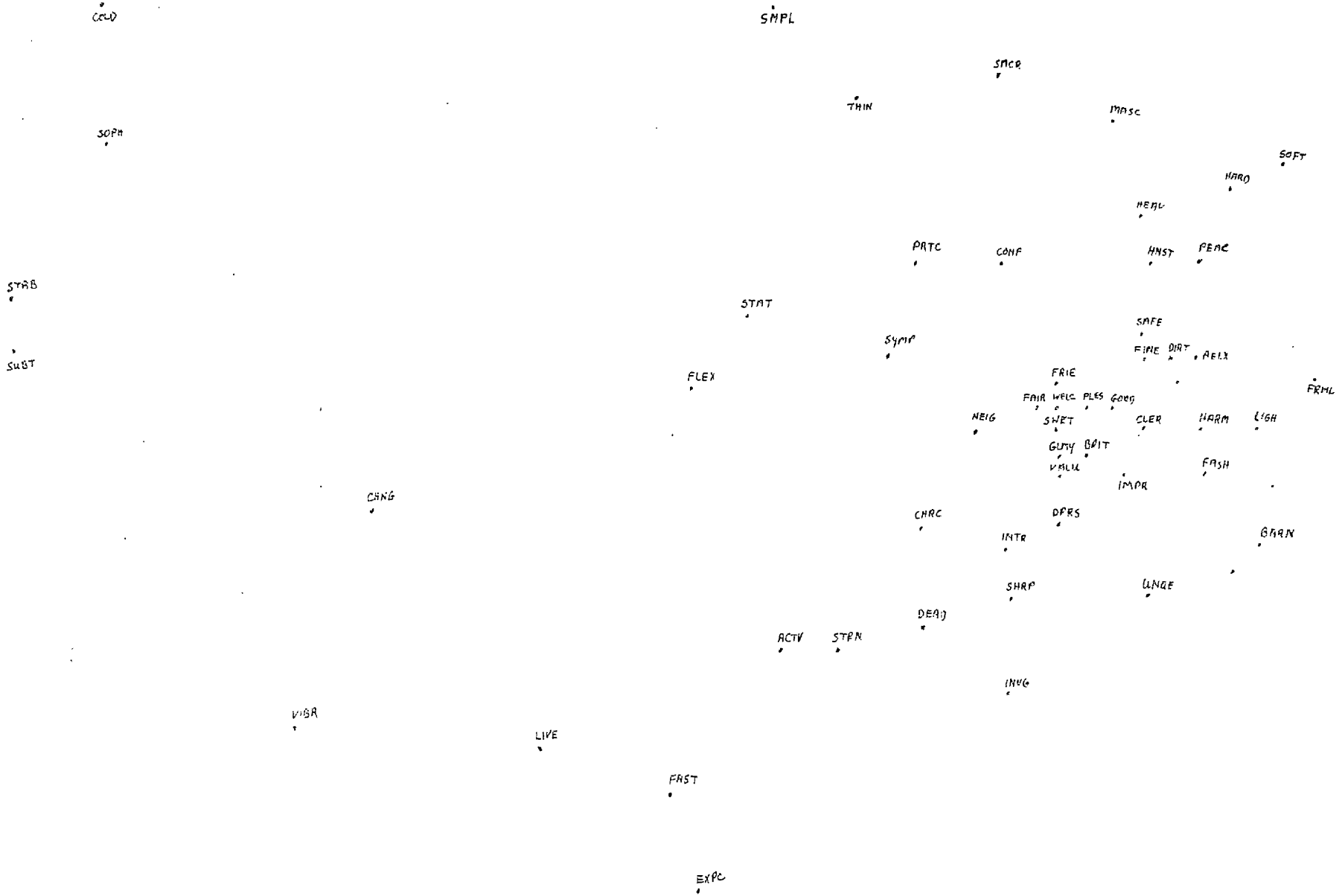


FIGURE I.7.2 TWO DIMENSIONAL SPACE FOR SELECTED SCALES OF PILOT STUDY (coefficient of alienation 0.27)

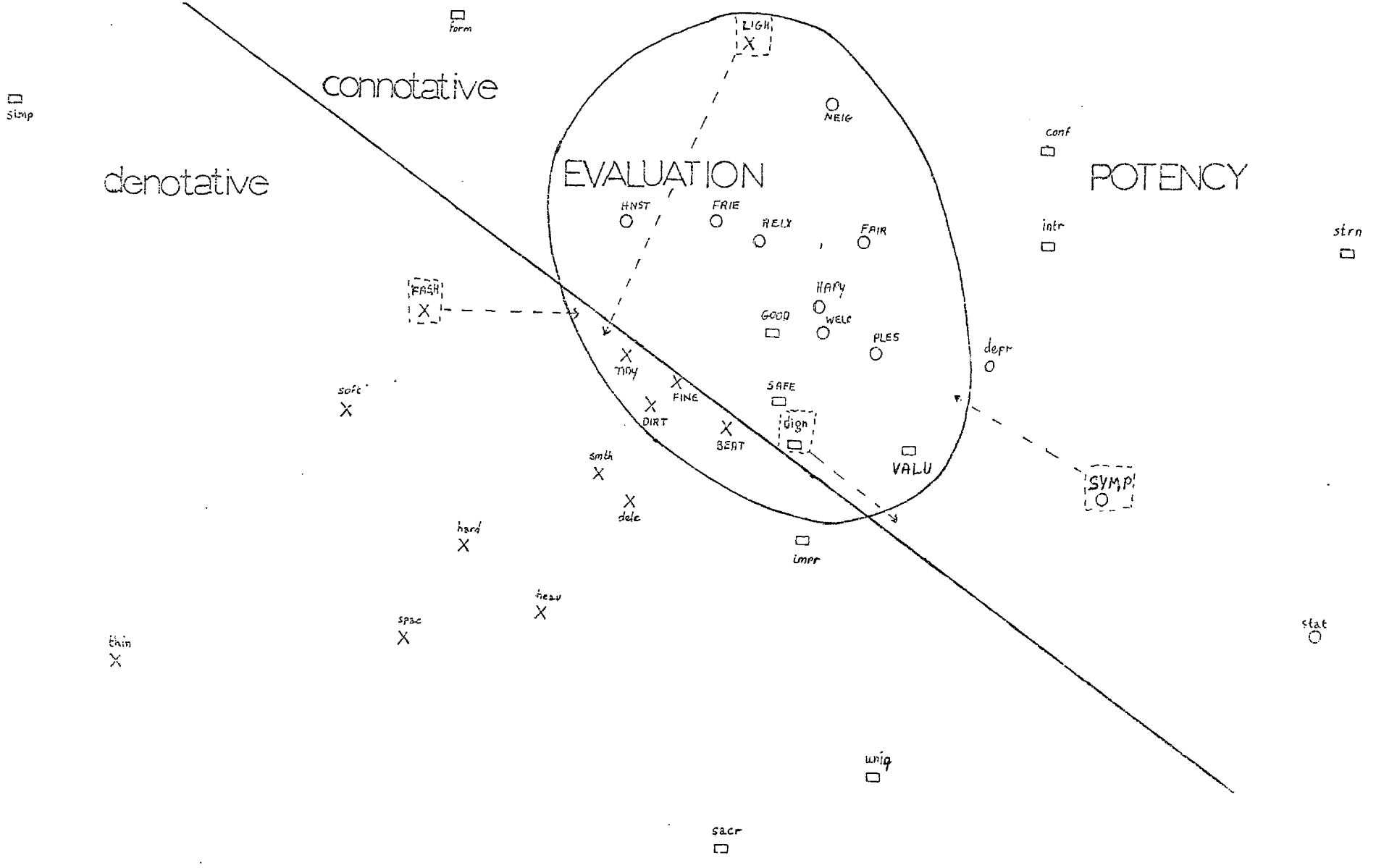


FIGURE I.7.3 PILOT STUDY - 1ST & 2ND DIMENSIONS PROJECTION OF 3 DIMENSIONAL SPACE (0.19).

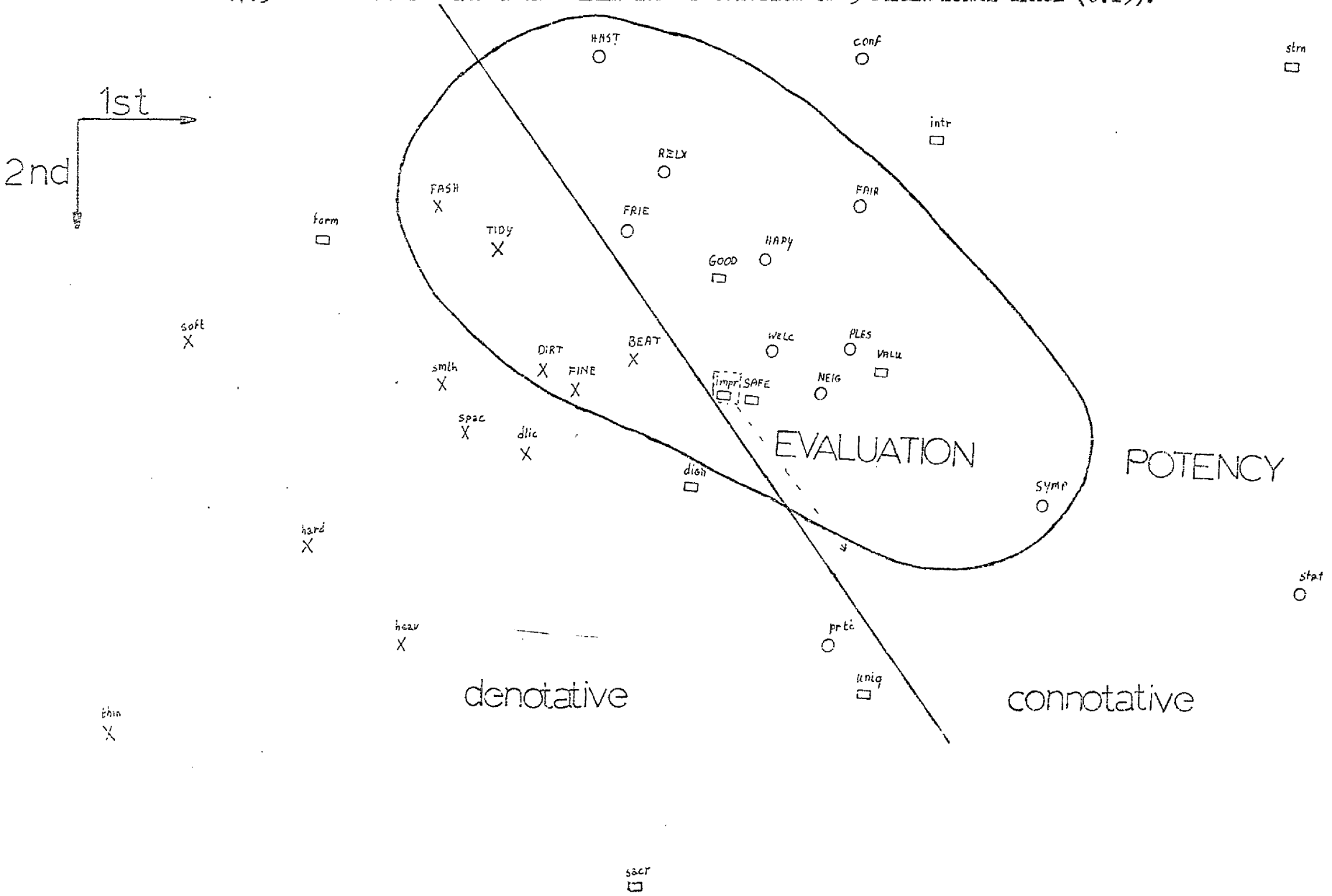


FIGURE I.7.4 PILOT STUDY - 1ST & 3RD DIMENSIONS PROJECTION OF 3 DIMENSIONAL SPACE.

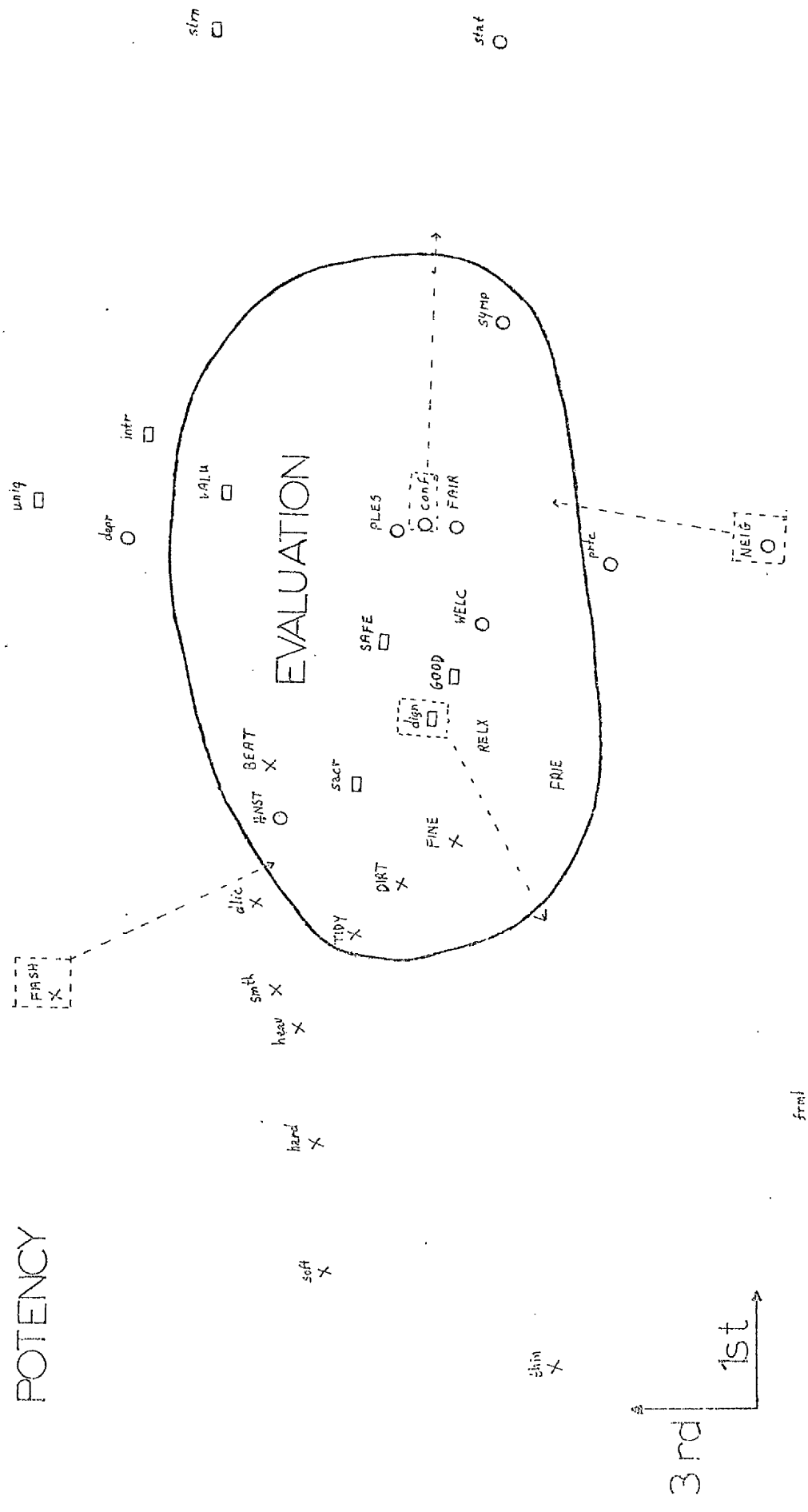
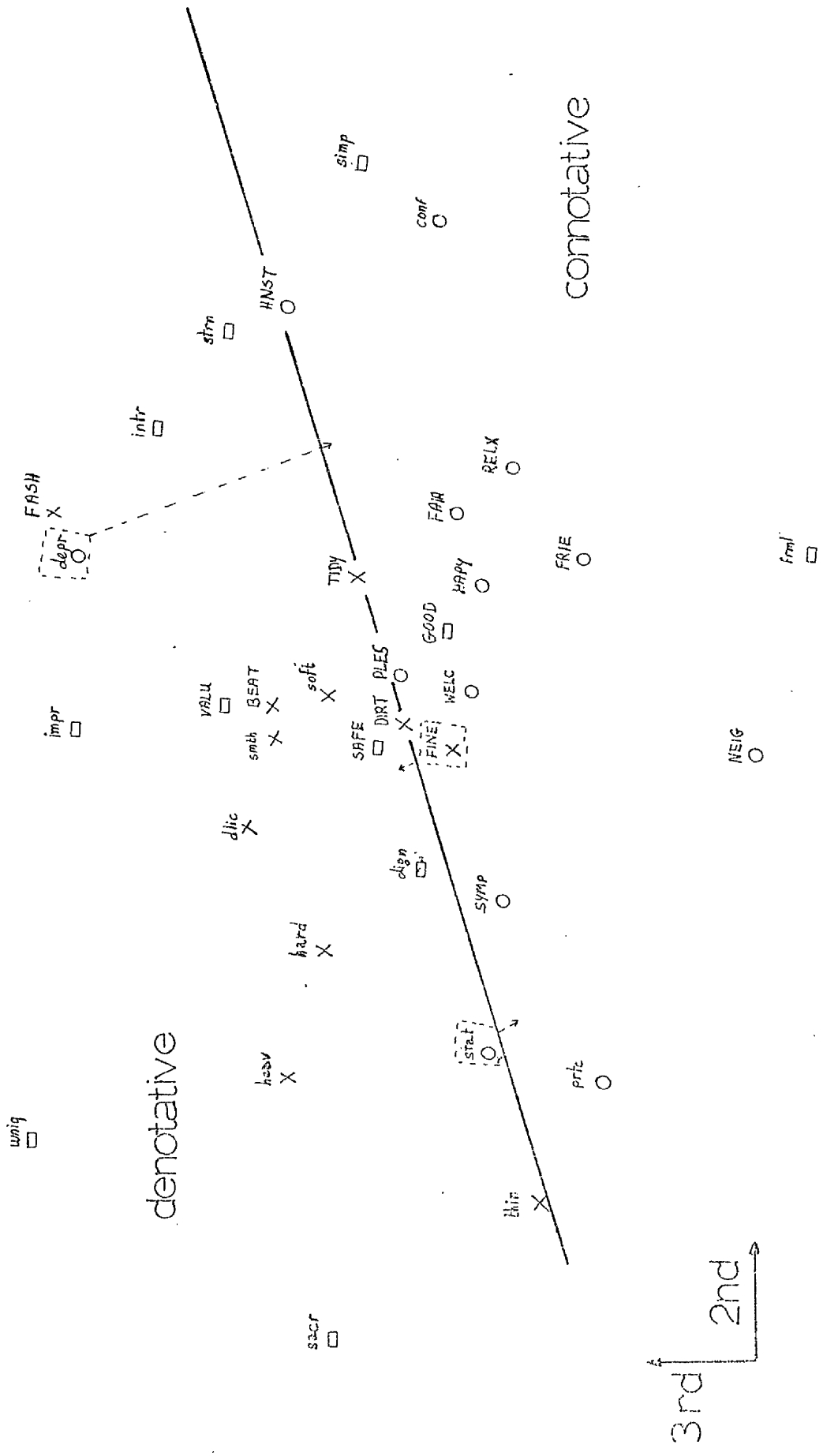


FIGURE I.7.5 PILOT STUDY - 2ND & 3RD DIMENSIONS PROJECTION OF 3 DIMENSIONAL SPACE.



dimensions of the space are not significant as can be judged from the coefficient of alienation (Figure I.7.2), but using three dimensional space elicits similar results as can be seen from figures I.7.3 to I.7.5 and these are significant.

FOOTNOTES

1. Key to SSA plots (valid for plots in chapter 8 too):

O - connotative meaning

X - denotative meaning

▭ - general (can be interpreted either as connotative or as denotative).

CAPITAL LETTERS - evaluative scales

SMALL PRINT LETTERS - potency scales

HAND WRITING - activity scales (only for plots in chapter 8).

Key is relevant for all figures in chapter 7 and chapter 8 except figure I.7.1 where all scales are represented in the same form.

For abbreviations of scale names see Appendix 6.

2. The interpretation of the different scales for the different facets was done subjectively by the author of the thesis, with the use of previous results. But for once the previous results could not always present a clear cut solution for the position of the scales on the different facets (especially in the case of connotative vs denotative meaning), and therefore the general category was introduced. It can be seen that on the whole the interpretation seems to be adequate, but some cases show consistent deviation from the interpretation. The discussion ignored the different meanings of the scales emphasising the general picture presented by the structure, which on the whole confirmed the hypothesis of the two facet structure. In this the discussion avoided obscuring the main issue of the structure. Nevertheless it is interesting to note some of the 'behaviours' of specific scales in the structure:

One can point out some interesting characteristics in the interpretation of specific scales which consistently deviate from the hypothesised structure. One of these scales is the scale 'sympathetic-unsympathetic' which on some of the plots occupies a position in the POTENCY area, and in others is a boundary point in the EVALUATION area. The fact that this scale in the different versions of the questionnaire (pilot, and two main study questionnaires) is part of different factors, and moreover changes its factor position with different subjects suggests that the interpretation of the term can be as part of either of this factor. This type of fluctuation is also apparent for the scale 'fashionable-unfashionable', which can get a POTENCY position through its status value, or an evaluative position, as part of the aesthetic value of the environment.

Also it can be seen that some of the scales which were interpreted as general proved to appear consistently in the connotative area, or the denotative one: 'good-bad' was one distinctive case where the term should have been interpreted as connotative, and 'impressive-unimpressive' as denotative. On the other hand the term 'safe-dangerous' is a clearly general term, appearing in different positions on different plots, and in many cases can be spotted on the boundary between the denotative and the connotative meaning.

It is not the purpose of this thesis to discuss the semantic meaning of different scales (which is also the reason why the structure heading of the factor analysis was not presented), but only to point out the complexity of terms accounting for some instability in the position of specific scales in the structure. This complexity suggests the need for caution when specific scales are selected out of the structure created with one group, in order to measure the factor for another group (which may interpret specific scales differently), as was done by Canter and Thorne (1972) and Canter et al (1973) for the friendliness factor.

CHAPTER 8

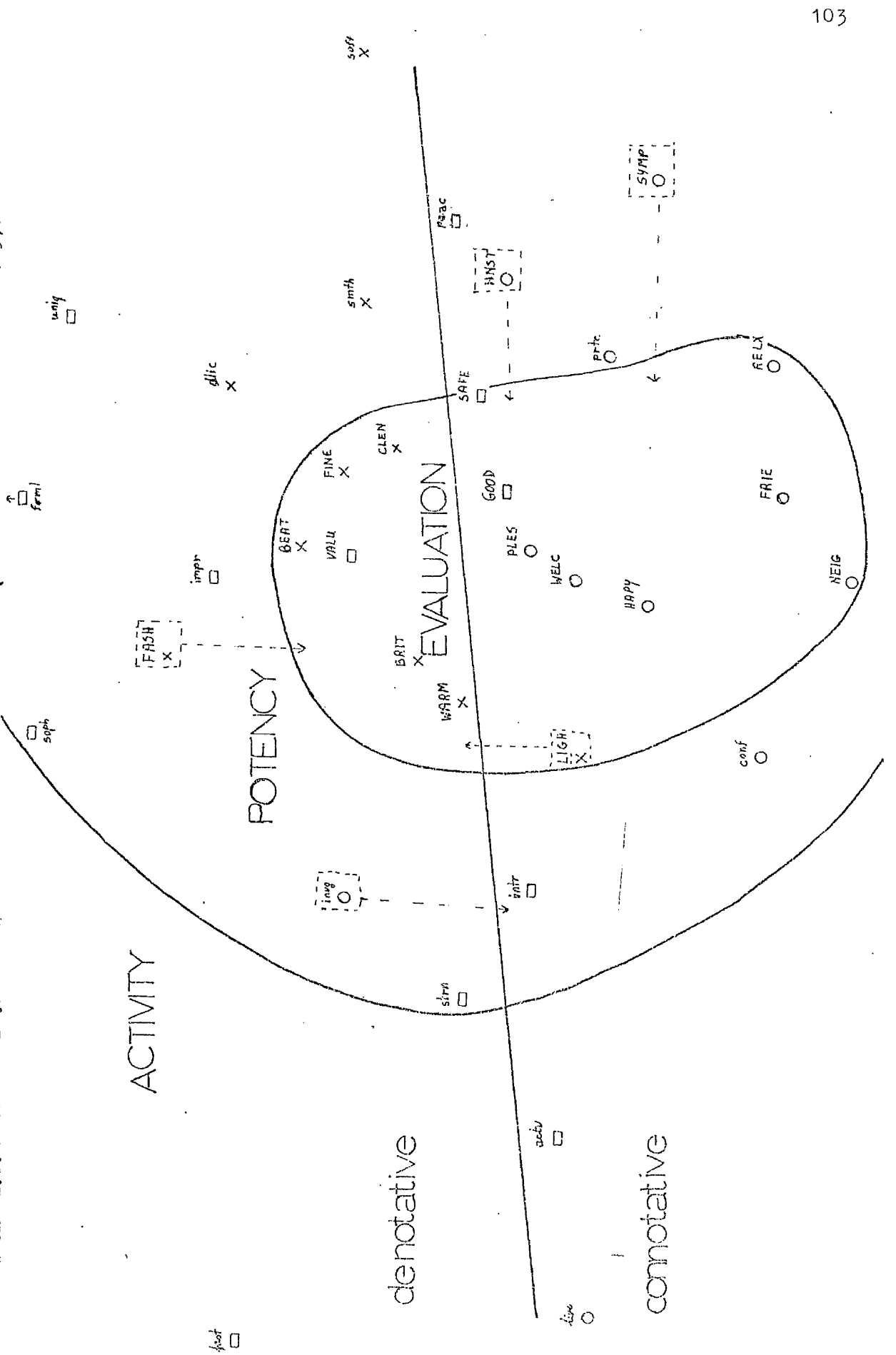
REPLICATION OF THE TWO FACET MODEL WITH MAIN STUDY DATA

The main study, as was described previously, reduced the number of scales in the questionnaire, on the basis of the factors of the first study, to 34 scales. It did not do so on the basis of the above suggested new model, but rather on the basis of the factors observed in the factor analysis. Therefore one could expect that a replication could confirm the above improvement of the model, though failing to replicate could hardly be considered as a rejection of the model.

As suggested previously the need for consideration of the denotative meaning of concepts is enhanced when the attitude expressed by the subjects is towards physical concepts (Osgood 1962), due to the meaning of the terms used in the scales. In the current study this suggestion was confirmed for the physical environment, but in the pilot study it could not be compared with the social environment. In the main study such a comparison could be undertaken, as the subjects were asked to respond to both social and physical environments. In accordance with Osgood's suggestion, one can hypothesize that whereas the results for the physical environment will replicate the two facet model of the meaning of the attitude, the social environment will yield a structure based only on the facet differentiating between the three main factors of the environment. On the other hand observing the factor structure of the social questionnaire, presented in Table I.5.6 one can see that the differences between the social and physical questionnaires are not so great as to suggest the confirmation of the above hypothesis. One may suggest that the differentiation on the basis of the second facet of the denotative meaning for the social questionnaire will not be eliminated.

To test these hypotheses the SSA-1 programme was used as with the pilot questionnaire before. The results of the 2 dimensional projection of the space are presented in Figure I.8.1.

FIGURE I.8.1 PHYSICAL QUESTIONNAIRE - TWO DIMENSIONAL SPACE (coefficient of alienation 0.23).



They include in the current study the activity scales, and one can see that those lie in the outer circle of the plot. More central are the potency scales, and the most central, as in the case of the pilot study results, are the evaluation scales. The emergence of this structure with the inclusion of the ACTIVITY factor scales confirms the results of the pilot questionnaire despite the different sample and changes in the scales. But one can see that the structure is not complete. The ACTIVITY factor scales presented occupy one part of the circle only suggesting that the dynamic aspect of the meaning of the attitude is not covering the total potential of the space. It can also be observed that they do not include any concepts with denotative meaning for the physical environment, which is the other dimension of the space described in the plot.

In most of the cases the scales occupy the position in space suitable to their predicted meaning, but in three cases the position of the scale was predicted to be in the evaluative region but the scales appear in the potency region; these are 'fashionable-unfashionable', 'honest-dishonest' and 'sympathetic-unsympathetic'. The other dimension suggested in the hypothesis, that of the denotative vs connotative meaning, also proves to be present in the plot, dividing the two dimensional space into two parts with one deviation, the 'invigorating-depressing' scale. The questionnaire, which was not built for this purpose, included inevitably many adjectives appropriate for the EPA structure, but unclassifiable on the basis of the other dimension, distributed in both parts of the space. But as in the case of the pilot study, the results indicated that two dimensions are not enough to explain the variance (coefficient of alienation 0.228) and a three dimensional space structure was sought.

The results of the three dimensional space analysis confirm the existence of the above mentioned structure. The first

projection of the space (Figure I.8.2) is similar to the two dimensional space structure, presenting the two facets. The projection of the first and third dimension (Figure I.8.3) presents only the differentiation between the three factors of the EPA model, but does not differentiate between the denotative and connotative meaning of the environment. The projection on the second and third dimensions (Figure I.8.4) differentiates between regions of space only on the basis of the connotative vs denotative meaning, and not between the EPA factors. The results of the three dimensional analysis suggest that the scales' variance cannot be explained by two facets only, and there is a need for a third facet to explain the organization of the scales on the third dimension (coefficient of alienation for the three dimensions 0.162).

The revision of the structure of the meaning of the attitude suggested above stems from the peculiar structure of meaning expressed for the physical concepts, as has been suggested by Osgood, and confirmed in the two analyses performed in the current study on the questionnaires describing attitude towards the physical environment. But the same problems cannot arise for a social stimuli, as those are the ones where the connotative meaning does not 'contaminate' the meaning, as in the case of the physical stimuli. Therefore one cannot predict the differentiation for the facet concerning this meaning. On the other hand one can note that some of the scales which can be considered connotative for the physical environment can be considered as denotative for the social environment, such as friendly-unfriendly and neighbourly-unneighbourly. The results of the social questionnaire fail to repeat the facet structure for the physical environment (results for two dimensions non-significant as coefficient of alienation exceeds 0.20, see Figure I.8.5, but for three dimensional space presented in Figures I.8.6 to I.8.8 the coefficient of alienation is 0.166). This suggests that only the first facet, the content facet, which corresponds to

FIGURE I.8.2 PHYSICAL QUESTIONNAIRE - 1ST & 2ND DIMENSIONS PROJECTION OF 3 DIMENSIONAL SPACE (0.16).

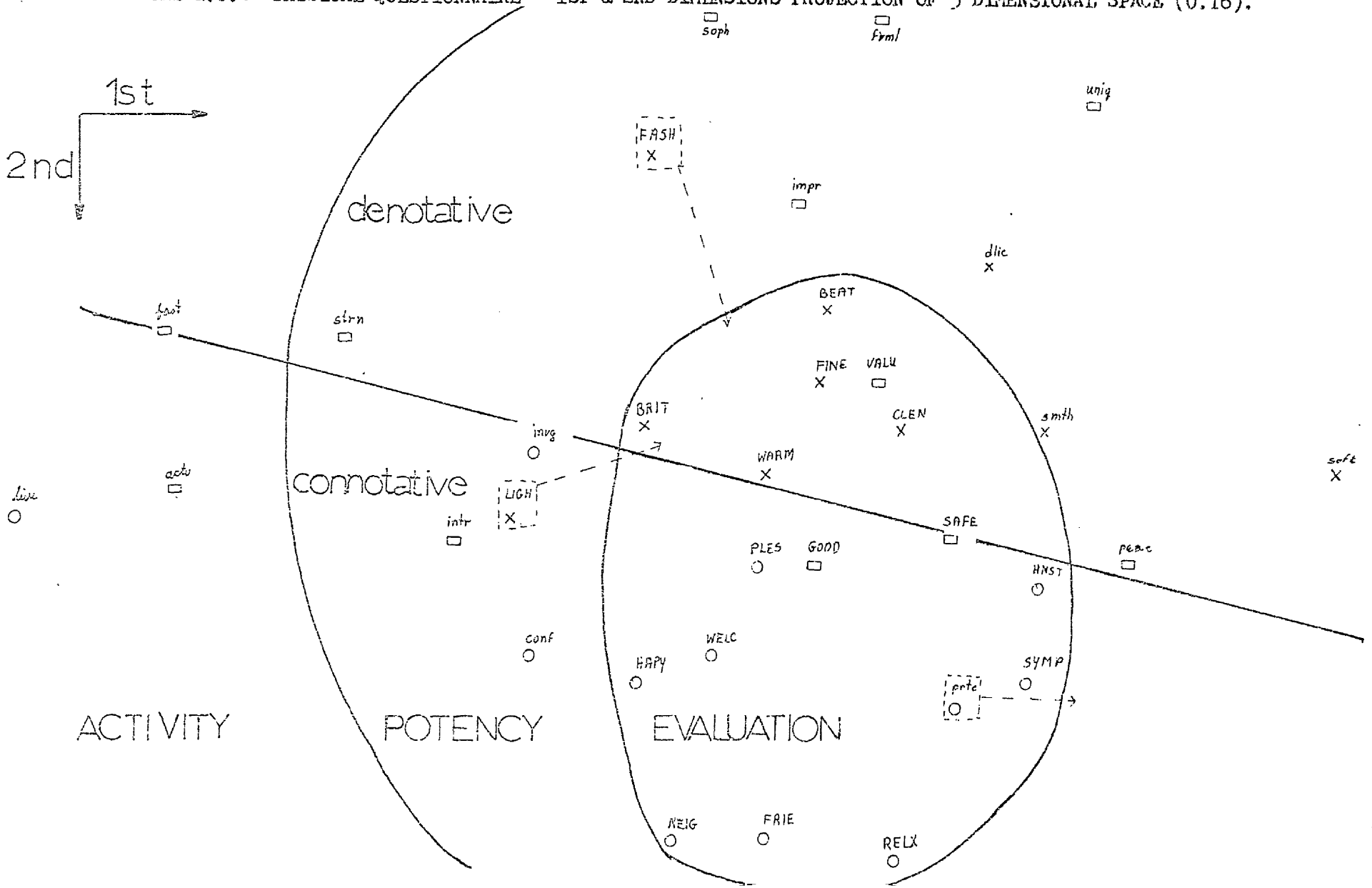


FIGURE I.8.3 PHYSICAL QUESTIONNAIRE - 1ST & 3RD DIMENSION PROJECTION OF 3 DIMENSIONAL SPACE.

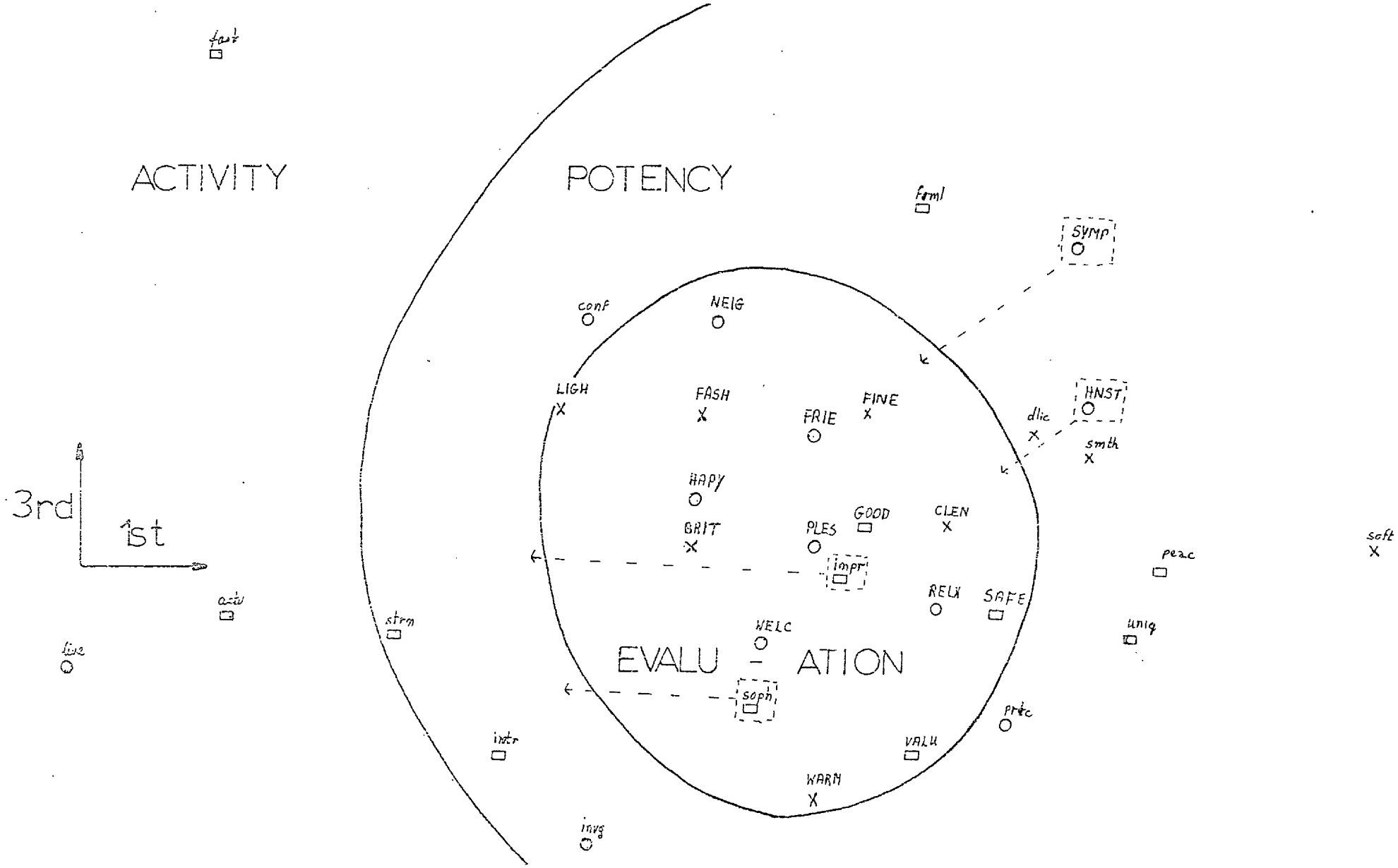


FIGURE I.8.4 PHYSICAL QUESTIONNAIRE - 2ND & 3RD DIMENSIONS PROJECTION OF 3 DIMENSIONAL SPACE.

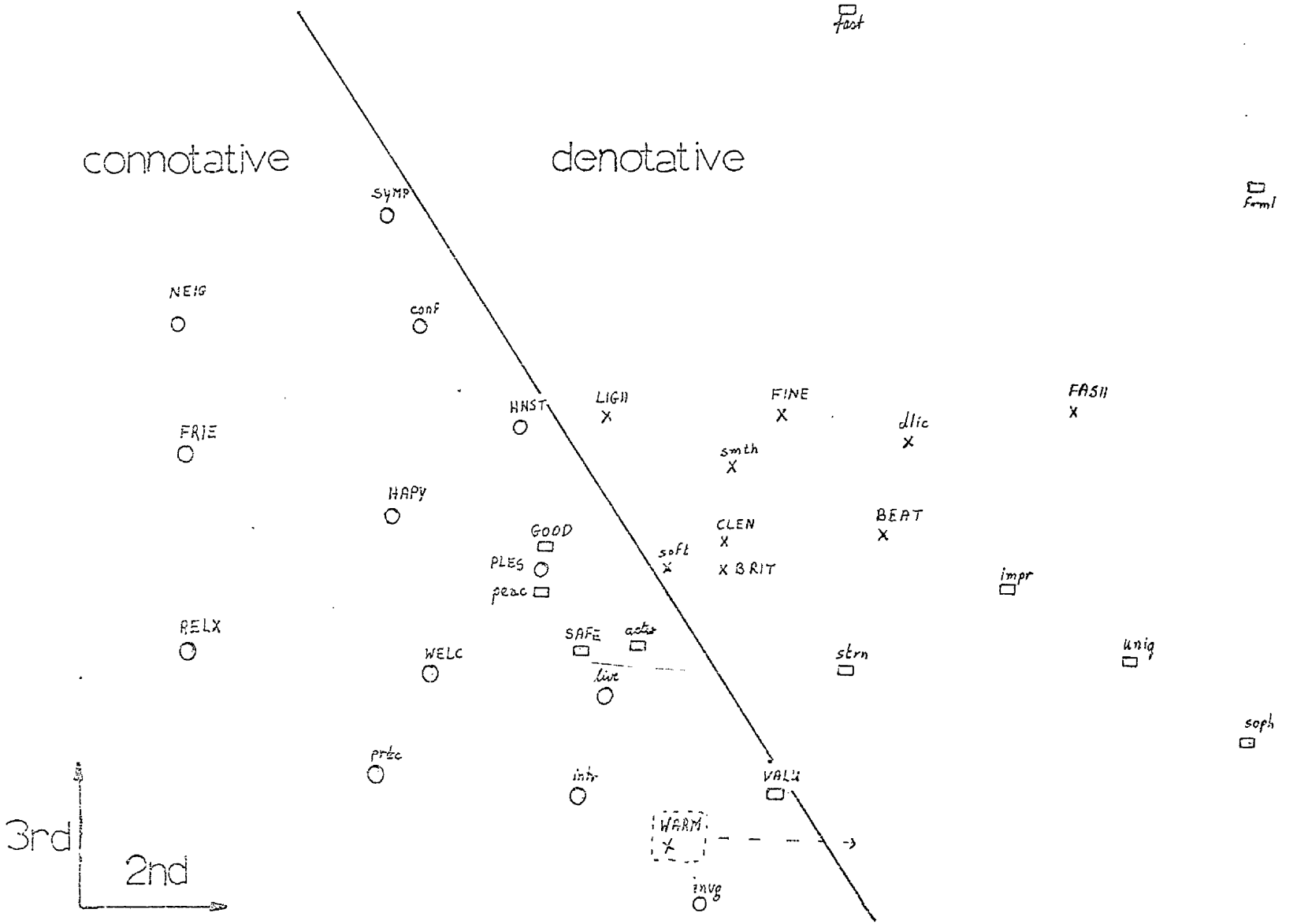


FIGURE I.8.5 SOCIAL QUESTIONNAIRE - TWO DIMENSIONAL SPACE (coefficient of alienation 0.23).

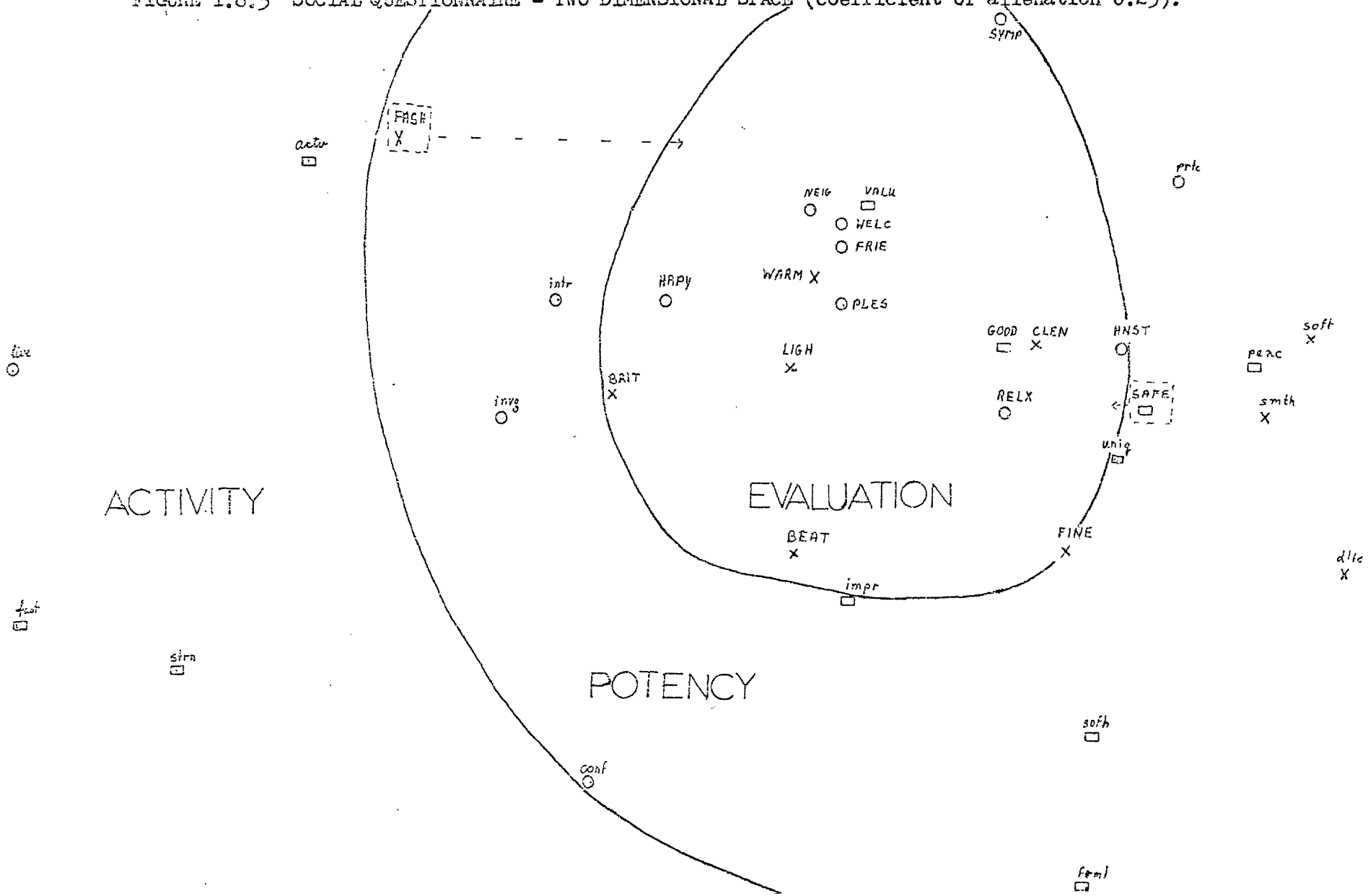


FIGURE I.8.6 SOCIAL QUETIONNAIRE - 1ST & 2ND DIMENSIONS PROJECTION OF 3 DIMENSIONAL SPACE (0.17).

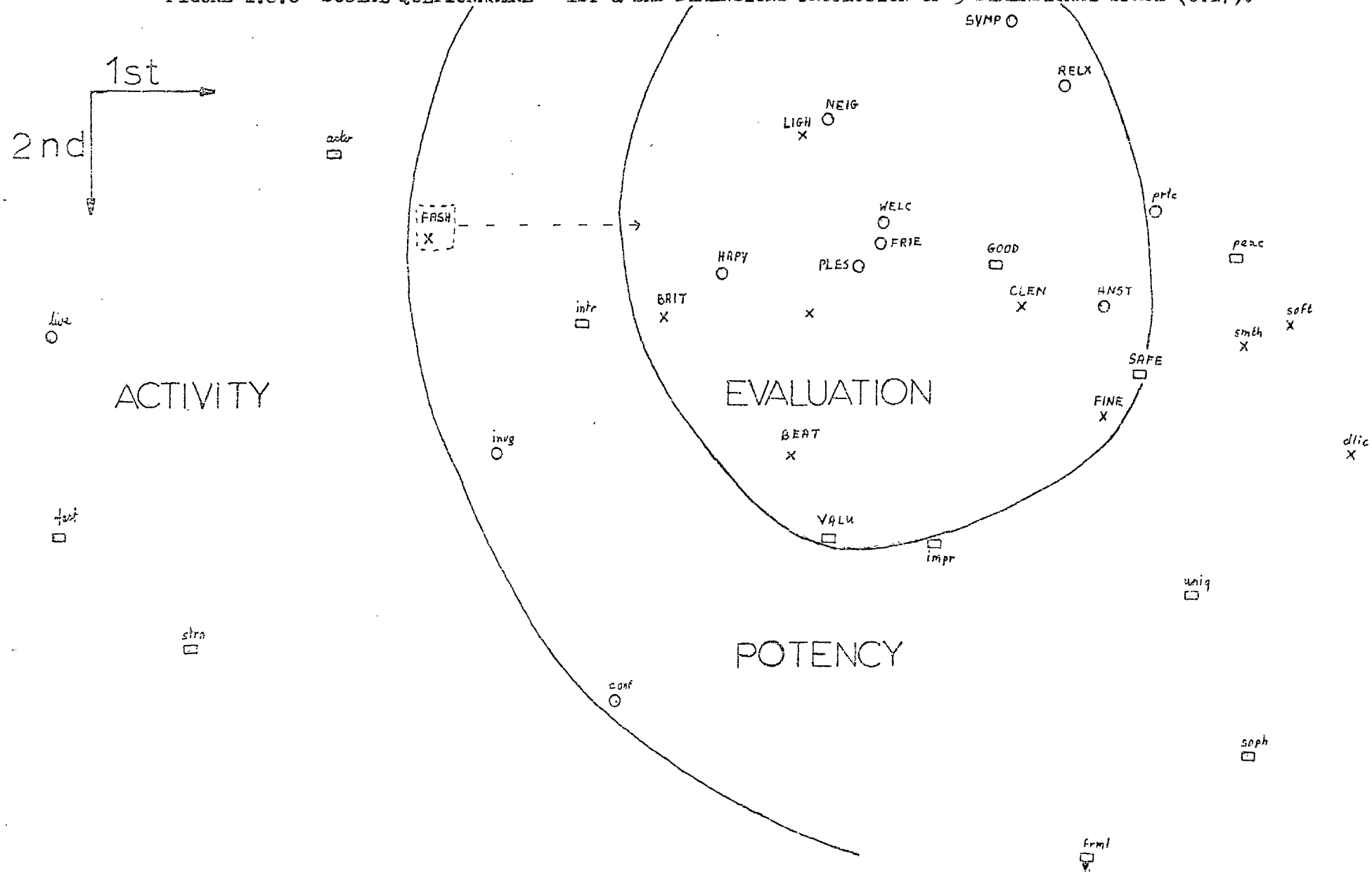


FIGURE I.8.7 SOCIAL QUESTIONNAIRE - 1ST & 3RD DIMENSIONS PROJECTION OF 3 DIMENSIONAL SPACE.

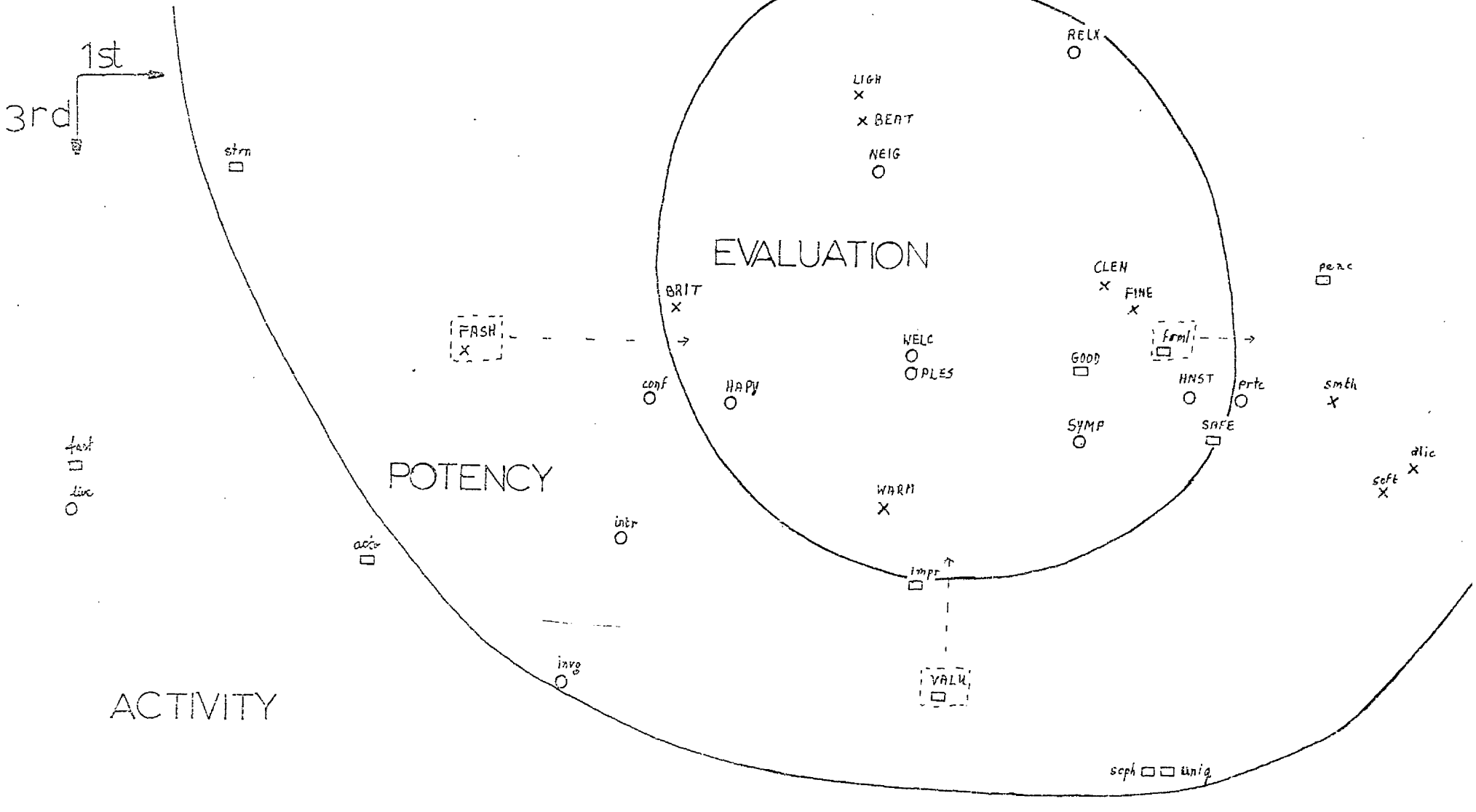
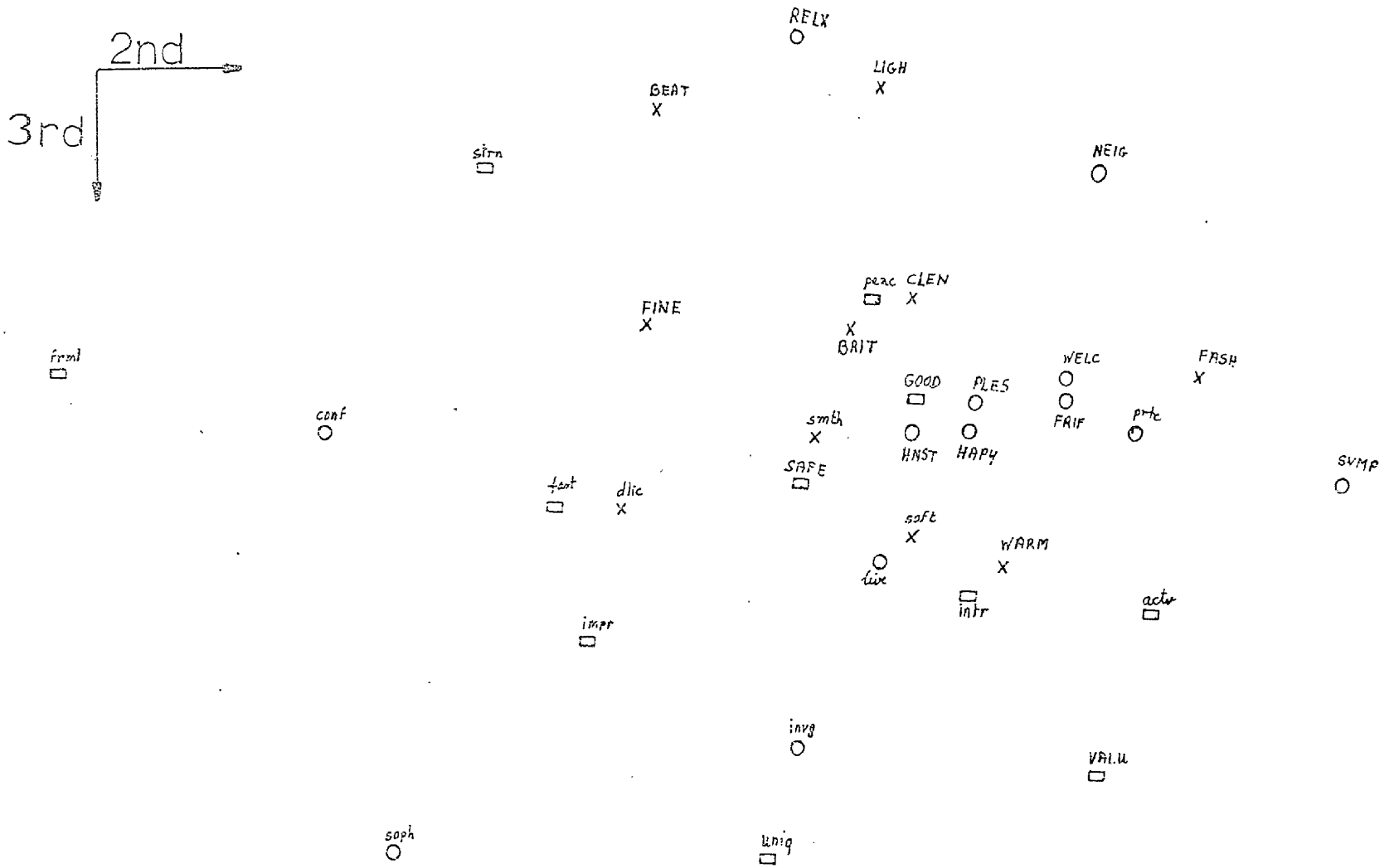


FIGURE I.8.8 SOCIAL QUESTIONNAIRE - 2ND & 3RD DIMENSIONS PROJECTION OF 3 DIMENSIONAL SPACE.



the EPA factor structure, is the one that differentiates the space. It is apparent in the different plots that the connotative scales (or rather those which would have been considered connotative for the physical environment) are spread among the denotative scales and cannot be differentiated into regions without a considerable number of deviations. On the other hand the existence of the EPA structure is not dissimilar to that achieved in the physical questionnaire.

SUMMARY AND DISCUSSION OF THE MEASUREMENT OF THE ATTITUDE

The first part of the current study looked into the composition of the connotative structure of the emotive component of the attitude towards the social and physical environments. It had been suggested that though the study of the action oriented component of attitude is clearly of importance, one should also consider other aspects of the attitude as a way of understanding behaviour in the environment. The study of the structure tried to elicit the EVALUATION, POTENCY, and ACTIVITY factors suggested by the original semantic differential technique for the study of the meaning of concepts. It studied it as related to different subsamples of the population on sex and cultural differences (i.e. denomination) and as related to social vs physical concepts. As has been observed, the structure of the EPA factors was not fully replicated, but rather the three main factors were the FRIENDLINESS factor which in importance occupies the position of the evaluative factor, ACTIVITY, and AESTHETIC factor in the physical questionnaire, and DELICACY in the social questionnaire. The lack of replication of the EPA model for either environment, when considered with the same failure suggested by Osgood (1962), and the various structures found in other studies (cited earlier on in the discussion), has led to the hypothesis concerning the inadequacy of the factor model for the description of attitude towards the physical environment, and the suggestion of the two facet model in its stead. The suggested model was proved to be of relevance for explaining the deviation from the original model

as far as the attitude towards the physical environment was concerned, but not for the social environment, confirming Osgood's suggestions in his comments describing the spatial case of the physical concepts. But the suggested model does not explain two points which had emerged during the above mentioned analysis; the first point concerns the unpredicted and hence unexplained third dimension which was needed for the presentation of the results of the physical questionnaire, and the deviation of the factor structure of the social questionnaire from the expected EPA model.

Considering the problem of the social questionnaire first, one has to look into the structure of the factors yielded by the principal component analysis again. The DELICACY factor emerging in the analysis suggests some similarity with both the AESTHETIC factor which is the third factor of the physical environment, and the POTENCY factor of the EPA model. It can be observed that the scales of which the factor is constructed are all of the potency factor, though some of the potency scales are included in the fourth factor. It can also be observed that the fifth factor for the social environment has some of the scales that in the physical environment correspond to the AESTHETIC factor. In other words, one can consider the aesthetic evaluation of the social environment as consisting of two aspects: one is the physical aspect of the person involved, which will include terms of a denotative meaning (and those will be denotative for people also) and the other, which in this case proved to be of more importance, accounting for a larger proportion of the variance, is the terms which in the physical environment would have a connotative meaning, but in the social context describe the behaviour of persons, rather than their physical entity. It can also be noted that the distribution of the terms used for the scales on the behavioural 'aesthetics' of the social environment, and the physical 'aesthetics' factor describing it are of a different nature on the EPA model. The behavioural 'aesthetic' factor consists mainly of scales of the potency terms

whereas the 'physical aesthetic' has mainly scales which can be described as evaluative. This suggests that the preconception of the questionnaire did not balance the terms in a way that would have allowed the differentiation on a second facet, though one can hardly suggest that the second facet is that of the denotative-connotative dichotomy.

The existence of a third dimension in determining the distribution of the scales in the space was apparent in both the physical and social questionnaires. This dimension suggests that the two facets offered in the discussion for the questionnaires are not enough, and at least one more should be introduced. One of the possible facets may be a facet differentiating between interactive and non-interactive concepts. Interactive concepts mean that the terms used in the scale imply an interaction between the stimulus described and the describer. 'Friendly-unfriendly' will be such a scale in the connotative group of scales for the physical environment, and in the denotative group of scales in the social environment, with evaluative connotation in both environments. Impressive- unimpressive is also an interactive scale, but more of a potency in character. 'Sacred-pro fane' can be thought non interactive with connotative meaning and dirty-clean is non-interactive with denotative meaning. In the case of the current questionnaires the majority of the denotative scales are also non-interactive and the majority of the connotative scales are interactive which does not allow the testing of this further hypothesis, but it may be suggested as a point for further research.

PART II

ATTITUDES AND HUMAN SPACE UNITS

CHAPTER 9

THE ORGANIZATION OF HUMAN SPACE

The first part of the current study looked into the structure of attitude towards the physical environment; this part will look into the relationships between the attitudes and some characteristics of the environment. But before presenting the results the position of the environmental stimuli in the spatial framework should be clarified. The previous discussion involved the technical dimensions of the presentation of the stimuli to the subject, but did not go into the position of the space unit in the organization of space. This conceptual framework to be presented here will define some of the dimensions of the human spatial system, and some of the basic units of space using these dimensions. This is by no means the first paper in which an attempt has been made to define some of the basic concepts of environmental study, and it is the aim of this chapter, as it was of other papers, to approach this structuring through the concept of space units (Stea 1970; Parr 1970; Edney 1976; and some of the books summarising the subject like Ittelson et al 1974; Sommer 1969) Due to the lack of a theoretical system structure approach these earlier papers have cleared only some hurdles on the way to comprehensive understanding of the organization of space. The aim here is to clear some more of the hurdles, not in a random but in an organized and systematic way so that some theoretical development can take place.

THE MAPPING SENTENCE AND ITS FACETS

The facets of the organization of human space units can be integrated into a mapping sentence which defines the units by locating them in the different dimensions.

A [single / cluster] (of) space unit(s) occupied by [an individual / a group / the public] with [full / limited / no] rights to the space, can be defined by socially accepted [personal / environmental] cues to indicate the existence and location of [markers / boundaries / gates], and by its

[mobile / static] relationship with [outer system(s) / inner system(s)] .

FACET A - THE SPACE UNIT

The concept of space unit has been adapted from Stea's (1970) concept of territorial unit. The use of the word "space" is preferable as it incorporates non territorial space units into the system. As Stea has observed, the system can be constructed from a single unit or from an ascending number of units which integrate into a cluster of such units. Although throughout this discussion the focus will be on the single unit it is essential to identify separately the single unit and the cluster, and hence the first facet is introduced:

a_1 single

a_2 cluster

A single space unit is a continuous space system where no boundaries are defined within the system. It is defined by boundaries encircling it.

A cluster of space units is a non-continuous space system broken by boundaries within, differentiating between the types of space in the system. It does not have to have a boundary encircling it.(1)

FACET B - THE HUMAN UNITS

This facet is concerned with the human units connected with the space unit, that is the human units occupying the space unit:

b_1 an individual

b_2 a group

b_3 the public

It has been suggested in previous discussions of space units that they are related in some way to human units (Stea 1970; Edney 1976), but the terminology used here is not exactly the same, so that definition of the term is needed. It should be mentioned that the definition of the categories, and a decision as to whether a certain unit is included in one or other category is sometimes context dependent especially in respect of the scale of the environment under study. The unit 'an individual' which seems not to need any definition, as it always seems to consist of a single human being, is sometimes in this facet a family

unit, for whom the context is the larger community and not the psychological context. In the social context the single person may be considered to be a single person family.

"A group is a social unit consisting of a number of individuals who stand in role and status relationships to one another, stabilized in some degree at the time, and who possess a set of values or norms of their own, regulating their behaviour, at least in matters of consequence to the group" (Sherif & Sherif 1969 p.131). The definition of the group given here uses terms which are not defined in the current discussion and will not be defined here. It is possible though to see the major implication of the definition relevant to the current analysis, and that is the underlying structure assumed for the unit. In other words, a group is not only a mere collection of individuals, but needs to have some additional characteristics to create the system. On the higher levels of the social system 'groups' which are commonly referred to as organizations exist. Those consist among other things, of the primary groups defined above. In this context no differentiation is made between the levels of the hierarchy, so as to avoid confusion from too much detail, though any discussion which needs the further detail could make use of it without harm to the facet structure, as the existence of the hierarchy is assumed.

The public, as the term is used in the current discussion, though usually implying a larger number of individuals, does not mean just that. Whereas the term 'group' refers to a structured collective, the public is an unstructured aggregation of individuals or groups, who do not answer the above stated condition for the existence of a group. Nevertheless some common denominator should exist so that it will be pronounced to be the public. The members could be in the same group, but not act as a group at the time. The members can participate in a common activity which does not involve interaction (like people watching a certain programme on their own T.V. sets). They can be defined by their location at a certain time, or by their potential occupation of a certain location. The term in the first instance refers to the people who occupy an underground station area, for example, and in the second instance all those who could be doing so at any time. When the discussion of public spaces is reached some more clarifications of the concepts will be possible.

For an observer the difference between the public and a group is not always clear, and much depends on knowledge of the circumstances. The stereotype view will tend to consider size as a factor for such a decision, but in some cases a small aggregate will occur, whereas a structured group will be larger. As the structure of the situation is not always observable some confusion in operational definitions may occur.

FACET C - TENURESHIP STATUS OF OCCUPANT OF SPACE UNIT.

Closely related to the unit occupying the space are the rights involved in the occupation. In the animal world, occupation of space may be absolute and of one type, but not so in the human social system, where as can easily observe, many types of rights are involved in the occupation of the space units.

c_1 full rights

c_2 limited rights

c_3 no rights

The first category can be called that of ownership rights of the space. In this case the occupant has unlimited rights to do with and within the space whatever he chooses (naturally always provided he does not violate the rights of other space units).

The second category is more a group of categories (like the term group in the previous facet) which refers to certain limitation of the use of the space units by the occupants. In all cases it means that somebody else has the ultimate rights to that same unit, though his rights are limited by the rights he granted to the occupant.

The third situation is where the occupant of the space unit has no rights to the space, and someone else holds those rights. Two types of such situation can be observed: one is where the occupant is temporarily occupying the space and has another space unit where he does have full or limited rights, or the situation where the occupation is of more permanent character, and the occupant has no alternative space unit where more rights are given to him. The first type will not be considered as tenureship status over the space.

FACET D - SOURCE OF SPATIAL CUES

The recognition of a space unit is dependent on accepted cues, which

can come from two essentially different sources:

d_1 personal

d_2 environmental

The first category of personal cues does not refer to man made aspects of the cue, but rather to its dependence on the person of the occupier for its existence (For a detailed description of personal cues see Goffman 1971). These cues cannot exist without the person issuing them being present as they involve verbal and non-verbal communications, using body and spatial languages.

Environmental cues refer to cues stating ownership of the space unit, or its boundaries which are independent of the presence of the occupier, and enable him to be absent from the space unit (for example walls in buildings, or man made environmental cue, or the sea which serves as boundary cue for more than one country).

FACET E - FUNCTION OF SPATIAL CUES

Closely related to the previous facet is the one describing the function of the cue in the spatial system.

e_1 markers

e_2 boundaries

e_3 gates

It is not always clear in the literature that the functions are differentiated from one another (for example Sommer 1969 p.43) and indeed the same cue can serve more than one function simultaneously.

Markers are, as Sommer (1969) suggested, cues informing a non occupant of a space unit that the unit is occupied. Though Sommer limited those cues to cues independent of the person's presence, one would suggest that this is not always the case, as will be demonstrated in the description of the different space units later.

Boundaries are the cues informing occupants and non-occupants where a certain space unit begins or ends. This is not the same thing as the declaration that a unit is occupied. On the contrary, many space units are not occupied though they definitely have distinctive boundaries (any desert island will do as an example), but it is true to say that in many cases a cue can serve both functions.

Gates are the cues for the opening existing in the boundaries of the space unit. In most cases one can suggest that a human space unit will have a gate (otherwise it will be considered by us as an object and not as a space), though in some cases builders have tried to create space units without gates, and to their great disappointment proved wrong (by grave robbers or archaeologists, as the case of the Pyramids has proven). Those gates could be in either of two phases, open or closed, and the cues indicate the phase of the gate position as well as its existence. One can consider a closed gate as a boundary and only the open one as a gate, and this would be the correct approach in most cases. But one could conceive of a situation where the potential break in the boundary indicate by communication would be as importanct to the approaching non occupant as the opening of that gate. The importance of the concept of the gate in the social context was suggested by Lewin (1947) who recognised the change in the direction of the forces involved once the gate was passed through.

All the functions of the cues can be indicated either by personally dependent cues, or by environmentally dependent cues, and by both types simultaneously. But in the case of the gates the existence of environmentally dependent cues, and the phase they are in, depend to a large extent on the existence of the same types of cues for the boundaries.

All types of cues for all functions are dependent on the social system to support their message, as lack of acceptance by others will lead to defensive behaviour (as Sommer's examples of aggressive intrusion illustrated in many cases). Edney's suggestions (1976) that defense is not essential to define human spatial behaviour depends largely on that assumption. In cases of breakdown in spatial communication one could expect active defence of space rights not only at the national level but also at individual level. Not only boundaries should be accepted as such, but also markers, as Sommer (op cit) demonstrated by the inefficiency of the newspaper as a marker.

FACET F - MOBILITY

It is not uncommon for space units not to be static in their relationship to one another. The concept of mobility as used in the current context refers to the change in the relative position of the unit in the physical dimensions of space over time.

f_1 static

f_2 mobile

The static state of a space unit is when the space unit is 'parked' in the same position in space over a certain length of time. That means that relative to other space units in the same system it occupies the same position in three dimensional physical space. Some units can be considered mostly static - for example buildings.

The mobile state of the space unit is when the unit is changing its position in the physical space relative to other space units of the same system. Vehicles can be considered to be one type of mobile space unit. As one knows from everyday experience these units are not always in the mobile state.

The facet of mobility is meaningless without the next facet which defines the part of the space system the space unit is mobile in relation to.

FACET G - MOBILITY TO WHAT?

g_1 outer system(s)

g_2 inner system(s)

When dealing with a static system one does not have to mention the other systems as it is assumed to be static in its relationship to both inner and outer systems, or rather that any occurring mobility is irrelevant for the definition of the unit.

Mobile units can be classified into those mobile in relation to other units outwith the space unit in the same way that the Earth is mobile in relation to the other planets, or in relation to units within its boundaries in the way the Earth is mobile in relation to humans. In the latter case the bias of our way of thinking makes us view the situation as mobility of ourselves rather than as of the Earth, but because movement can always be described both ways the other perspective was chosen for the discussion of space units.

Following the dimensioning of the organization of space the different units and their placement in those dimensions must be described. In this part of the discussion description and definitions of the various space units will be given, some of them as observed in previous studies and some inferred through the dimensioning of the human space organization

discussed above.

The first to be discussed are the static units of space i.e. units of space where the mobility, if it exists, is irrelevant to their definition. Of these the first units to be described will be those with personally dependent cues.

1. STATIC UNITS OF SPACE

A. Units defined by personally dependent cues.

As was suggested on the dimension of function of the cues, three functions can be observed, one for the declaration of ownership, one for the delineation of the boundaries, and the third for the location of the gate(s).

The first type of space unit to be defined is one where all three functions, markers to declare occupation, boundaries to delimit the space unit and gates to suggest possible enrance to the unit, are communicated by means of personal cues.

These units will be called BUBBLES , using one of the words mentioned in the Hall (1966) definition of personal space, to replace the word 'space'. The change is due to the use of the word with different combinations of occupier like 'group' and 'public', combinations which with the word 'space' have been used with different implications from the one used in this discussion. But the change has also a positive aspect; it is advantageous to use a term which implies a limit to the space, and to use it separately from the name of the occupier.

A BUBBLE therefore is "a single unit of space occupied by a human unit, and is defined by socially accepted markers, boundaries and gates dependent on personal cues, and by its static relationships with inner and outer systems".

INDIVIDUAL (PERSONAL) BUBBLE is what is commonly referred to as personal space or body buffer zone (Hall 1966; Sommer 1969; Ittelson et al 1974; and many others). It is the most extensive bubble type of space unit studied (as a matter of fact the only one studied). The term originated with animal studies and was adapted to human study with most fruitful results. Leibman (1970) summarized the factors involved in determining its shape and size; environmental characteristics, interactor characteristics and nature of the interaction. But what is of interest in the discussion at this stage, is the fact that observations

show the dependence, of what is referred to in the literature as 'personal space' or 'body buffer zone',and called here 'individual bubble', on the occupier's personal presence for definition and delimitation. Though in other units of space it is suggested that personal space or body buffer zone can be left behind to be protected by the unsuspecting neighbour. All experiments with the personal bubble point out that both preservation and violation of rights are done by using personal cues, sometimes in a direct approach (Sommer 1969 provides some of the most illuminating suggestions for those), or by other cues like eye contact (Argyle & Dean 1965; Russo 1975; Patterson 1977), and voice (Ford et al 1977). Sommer also suggests that the best way to recognise the location of the boundaries is to approach a person (ibid p.26). But not only the boundaries are defined by body communication, what is far more important and has largely been ignored is the fact that the marker for the bubble is the person himself. The fact that a person is present indicates to others that a bubble exists around him, and there is a reluctance to violate the bubble in accordance with the rights to that bubble agreed on in the social system.

Before describing the other bubbles the concept of personal distance should be clarified.

This concept is on occasion used with the same meaning as personal space, but Sommer (Op.cit.) rightly recognises that a difference between the two exist. His suggestion that the difference is between an individual concept (personal space) and a social concept (personal distance) cannot be accepted, as both are social concepts in the sense that they are part of the social system of space. The difference between the two is that the personal space (or rather the bubble) is a space unit whereas the personal distance is part of the spatial language communicating the existence of the unit, and indicating its boundaries. As a cue it can be replaced by other cues giving the same message such as body position, or eye contact, or it may communicate other messages than the existence of a bubble. The increase in distance between persons as suggested by Hall (1963; 1970) is not a change in the personal bubble in all cases but communicates the situation and the relative status of the interactors in that situation. A lecturer will keep a public distance between himself and the audience, but not as an indication of the bubble he would like to keep free of those people, as

when the lecture is over he will not retreat when members of the audience approach him for further clarification.

GROUP BUBBLE differs from individual bubble by the human unit occupying the space unit. It is the group and not the individual person which marks the space, and its boundaries by using the same means as in the individual bubble, i.e. personal cues. The essential difference between group bubble and individual bubble is the fact that a single human being is a fixed unit whereas a group can be easily split into its components, and with it the bubble will be split into the individual bubbles. As the unit within the encircling boundaries is less rigid so are the boundaries and the clarity about the bubble is existence. It is to be regretted that though the existence of the bubble of the group can be inferred from studies of the individual's bubble, the group bubble has not been studied on its own account.

In the study of personal bubble it has been observed that the distance between friends is smaller than between strangers, as Lomranz (1976) has demonstrated in a simulation of spatial interaction. He asked his subjects to place figures of friend and self comparing these with the figure of a stranger and found that the distance of placement between friends was distinctly shorter than between strangers. This is only one of the studies to confirm the importance of the friendship factor (Little 1965; Russo 1967 or Leibmans summary 1970). Studies of social interaction in the actual environment by Festinger et al (1951) Gullahorn (1952) and Lauman (1969) for example demonstrated the relationship between physical distance and friendship, giving the impression that distance also works as an independent variable in those relationships. Whatever the cause and effect it can be accepted as a fact that friendship relates people together, and so does physical distance and they are related to each other. Therefore one can predict that distances between members of the group will be smaller than those between the group and non members. It can also be predicted that other forms of communication will be used to indicate the belonging to a group. Eye contact is one frequent alternative as Argyle and Dean (1965) and Russo (1975) have observed, where the reduced distance was compensated for by reduced eye contact. The position of the body can be another, as it was observed that the bubble is smaller in the back or profile position (Horowitz et al 1970). One can therefore assume that those means will be used to indicate the location of the boundaries of the group

bubble when space is scarce and distance cannot be used as an indicator. Inference on the existence of group bubble can also be made from the Kuethe (1962) experiment. In it he asked his subjects to put figures together, and found out that the subjects tended to group them, leaving larger spaces between the grouped figures and the non-member figure. One can interpret the phenomena as awareness of a space separating group members from non group members. In a study about grouping in public places Bakeman and Beck (1974) defined a group using terms like proximity, body messages etc. to indicate the existence of group relationships. The same indications will communicate boundaries of group bubble, as one cannot separate the two. The fact that the observers could with reasonable reliability identify groups confirms the hypothesis of the existence of the group bubble. Not much is known about this unit of space, as studies dealing with group ecology have not dealt with the unit but rather with ingroup structure (Sommer 1967 for example).

PUBLIC BUBBLE refers to the space surrounding an aggregation of non interacting persons usually havinga common aim, as the term 'public' was defined earlier in this discussion. As with the other two bubbles, described previously, the public bubble depends on the physical presence of the aggregation. Public bubble like group bubble, and unlike personal bubble has not been studied, and unlike group bubble its existence cannot be inferred from studies on personal bubble. But experience with public areas will indicate the existence of such a bubble. Clearly enough the fact that the ties between the individuals in the public are, in many circumstances, weaker than that of the group, indicate that contradictory communications are more likely to occur. In the definition and location of all bubble boundaries both in-bubble and out-bubble communications are involved. It is the avoidance of the non-occupants as well as the rejection of the occupants of the bubble which define the boundary. When the unit within the bubble is cohesive, as in the case of an individual, or a cohesive group, the cues from within are less likely to contradict one another, and in the balance of influence they will be highly weighed. On the other hand when such contradition is common out-bubble cues will weigh more in defining the boundary location. In the case of many public bubbles one can assume this type of situation, and therefore one can infer the boundary by means of the people or groups who avoid the bubble. But, though boundary cues are not too clear, there is no doubt about the marker of the space unit, which is the aggregation itself. The most obvious

cases where public bubble can be observed are those where emotional involvement creates some inner unity (though one could hardly call it a group), like mob demonstration, or where the common purpose shared by the units of the public results in concentrating them in a rather limited space like the buyers of tickets off the ticket machines (Stilitz 1969). As the phenomena has not been studied one has to rely on anecdotal information for its description, which in most cases will be unwanted but unavoidable clashes with such aggregations (within the bubble it is more likely to be ignored). It would be interesting to study the relationship between the phenomena of positive and negative reaction to high densities (Freedman 1975) as related to group vs public bubble situations. The study of public bubble could be considered one of the mass psychology topics which are so difficult to study under controlled situations, and to some extent more intriguing because of that.

B. Units defined by environmentally dependent cues

These units are the units which are totally defined by environmentally dependent cues from markers to gates. These are the units which are called TERRITORIES, but not only those, as the essential difference between territories and bubbles are the markers and not the source of cues for boundaries and gates. The definition of territory which will be given here will try to clear some of the obscurity in the use of the concept and does not disagree with previous definitions offered but suggests that due to overlooking of some of the essential aspects of organisation the definition did not clearly differentiate between the units. A TERRITORY therefore is "a single unit of space occupied by a human unit, and is defined by socially accepted markers dependent on environmental cues, and by boundaries and gates dependent on either environmental or personal cues, and has a static relationship with inner and outer systems".

What does this definition imply? Leyhausen (1970) considers the territory of the individual animal an extension of the individual distance (the concept used by Hediger for the same space unit called in the current discussion 'bubble'). He suggests that if the individual attaches himself to a home area, instead of moving continuously, a geographically defined area will surround him and this will be the territory. The concept of 'territoriality', like the concept of 'bubble', originated in the study of animal spatial behaviour (Hediger 1955;

Lorenz 1966; Ardrey 1966) and was adapted to human spatial behaviour (Hall 1966; Sommer 1969; Edney 1974,1976). Edney (1976) disagreeing with Parr (1970), suggests that the concept of territoriality in humans should not put an emphasis on the defensive aspect of the behaviour arguing that the defense is passive by mutual agreement embedded in the social system, a suggestion relating the spatial behaviour closely to the social system. However, that is not a unique characteristic of the territorial unit of space but general to all units. It is the geographical stability suggested by Leghausen (Op.cit.), and taken up by Altman (1970) and Edney (1976) which is the important aspect differentiating a territory from a bubble. It is not always clear that this difference exists at all from the discussion of the two concepts in the literature. Lyman & Scott (1967) in their classification of space units include the personal bubble in the same hierarchical order of space unit as the territories, therefore it seems that a clarification of the definition given above of the territory is needed. Goffman 1971 p.29 calls personal space (bubble) egocentric territory not recognising the difference between the two terms.

It was suggested that in territory the marker is environmentally dependent, which basically means that the declaration of occupation of the space unit is independent of the presence of the occupier. Though theoretical discussion failed to notice the significance of this phenomena, it was observed in studies of territories (and the term territory was the one used and not one of the terms substituted by the term bubble) that the person's rights to a certain space unit can be, under certain conditions kept though he does not occupy the space unit at the time (Sommer & Becker 1969). Markers play a significant role in the preservation of space rights of an absentee occupier, but not everything can serve as a marker. A marker should be recognized as such, and be accepted by others. If that is the case (as in the case of habitual seats Sommer 1969 p.53) the person is not obliged to leave a special marker, as the seat itself with the help of a friendly neighbour will be the marker. It is not, as Edney suggests, that by staying in one location for a certain length of time the territory is created, but rather the ability to vacate it, which is the crucial factor. If this definition is accepted Edney's whole argumentation for the crucial role territory plays in human behaviour falls apart, as the completion of sequence of action though it may need stability and lack of movement does not necessarily imply a need for territory.

This also resolves the contradiction of his argumentation with some nomadic spatial patterns as observed by Willem and Campbell (1976) who put it aside as unimportant, as what is lacking is not staying in one location long enough for some sequence of action to be performed, but rather the ability or the inclination (or both) to keep rights to the location while absent (Hiatt 1968). It does not always mean that the possibility of defending rights of absentee occupation is easy, as the absent occupier tends to lose the social acceptance of his rights to some competing claimants, but such loss can occur when he is present and the other claimants are rather aggressive.

However, the question arises of those 'territories' which the occupier fails to defend in his absence. According to the definition offered here those are not territories, and will be discussed with the other intermediate units of space occurring in the sequence between the bubbles and the teritories.

Edney recognised the importance of the occupier in the hierarchy of space units. This has already been discussed in the context of 'bubbles' and should be mentioned also in the territorial context. It is suggested here that the difference between territories occupied by individuals and groups is negligible as far as the structure of the territory is concerned barring two features which are:

1. the existence, in group territory, of public area(s) , and
2. the possibility of incongruity, within the group, about the boundaries.

The latter feature could account for the uniqueness of the boundaries of neighbourhoods as perceived by different persons (Lee 1968), suggesting that clearer definition of the community itself, and greater cohesiveness within it will bring clearer community boundary definition. This problem also faces the researcher who tries to find a clear definition for a city's boundaries, a major problem in research on urban communities (see for example Haggett 1965), a problem greater in the modern city than it used to be in mediaeval urban settlements.

PUBLIC AREAS - these areas (and the word 'area' substitutes the word 'territory') are areas within the boundaries of the group, which are not sub-divided into individual or sub-group territories, but shared by all members of the group, or other persons allowed into the general group territory. Persons occupying public area do not necessarily act as a group (though they may do so) but as individuals

and sub-group. Public areas do not have a marker in the sense of declaring the occupier, though the status of the area is agreed on by the group, an agreement which can be considered a form of marker. In some respect the definition of the public areas is negative due to boundaries decided by the location of boundaries of adjacent territories, but one has to remember that all group allocates certain areas to public use. In the public area a sub-group may claim territorial rights (home territory Lyman & Scott 1967). But though others are not included in the group they may use that area provided they do not belong to the group the territorial claim wants to exclude (streets gangs are an example). If the group is the only one that has access to the so called 'public area' it ceases to be public and becomes group territory. The existence of home territories in public areas reveals the phenomenon that space can serve more than one purpose at one and the same time. For the gangs and their social system it is a group space, whereas to the larger society it is a public area.

One exception to the rule of territories seems to exist, the national territory in which the occupiers cannot leave the territory without losing their rights to it. But the special situation of national territory should be considered before the paradoxical case is expected as such. It is not a common case where the total nation occupying a territory has to leave the territory. If there is a case like it it involves an enforced situation, either by nature or by other nations. The latter is probably the case where the rights of the territory will not be kept for the group, but the invasion of the territory occurred before the occupier left it, so the exception to the rule does not hold. This seeming paradox is a result of a breakdown in the social acceptance of the rights to the space, which is understandable in a situation when the links between the unit of the social order are not as strong as they are within national boundaries.

C. The intermediate units of space.

These units of space can be classified into two types, the first are the units of space with environmentally defined markers and personally defined boundaries, and gates; the second are the units where the markers are defined by personal cues, and the boundaries and gates by environmentally dependent cues.

TERRITORIES WITH PERSONALLY DEFINED BOUNDARIES - it was suggested

in the discussion of territories that the environmentally dependent marker cues are territories no matter what the definitions of boundaries and gates are dependent on. But one can hardly leave a territory which is dependent on personal cues only for its boundaries and expect that anything would be left to be reclaimed on return. Nevertheless some assumption, as far as the necessary space for a marked territory might be made by the participants in the interaction in these cases. In the case of a seat preserved by a marker on a chair there is no problem as the boundaries are defined by the boundaries of the chair, but when the space to be marked is on a bench it is assumed that a human being has a certain size which should be accommodated. (It could be interesting to find out reactions of neighbours when an occupier is not of the regular size) This can be assumed in small territories but not in larger ones. In that case the lack of environmentally defined cues for boundary may cause the need for permanent active defence of the boundaries. To conclude, the environmentally defined boundaries are essential for the existence of most territories, as they support the maintenance of the territory intact.

UNITS OF SPACE WITH ENVIRONMENTAL CUES FOR BOUNDARIES AND PERSONAL ONES FOR MARKERS - boundaries dependent on environmental cues, it was suggested, are an essential condition for the territory, but not a sufficient condition. It has to be remembered that many units of space can be defined by boundaries in the environment without having any occupant (at least as far as the social system is concerned). It can always become a territory, but not only by being occupied. In public areas there are space units which are occupied by persons for a limited length of time; several examples of those are offered by Sommer (1969 ch 4). In an experiment under high density conditions a female student could not defend rights to a room when standing outside the room, which is not very surprising, as under the same condition she could protect only the table she was using when present. The essential point is that neither room nor table were territories, as they could not be defined when the occupier was not present, and one could suggest that an experiment will have to be performed in a low density situation to confirm the results. Whereas most of those units are potentially territories, it is not so in all cases. It was observed that in cases of high density even the presence of the occupant did not enable her to protect the whole room. That suggests that the

need for the space plays an essential role in its preservation, but not all rooms can be invaded when a person is in them, and the bathroom is an example. On the other hand though one occupies it alone, one can never claim it as a territory to the exclusion of all others, and one is expected to share it with others on some time scheduled basis. This is the case of a protected personal space, which is not a potential territory. One can consider the bathroom, and other units of space which are used at one time by a single occupier, public areas of the group, which give support to bubble defence, and in most cases include defence from visual invasion too. Goffman calls those units stalls,(2) which does not explain all their characteristics as units of space.

2. THE MOBILE UNITS OF SPACE

A description of the mobile units of space must follow the discussion of the static ones. Mobile units can be sub-classified by the system they are mobile in relation to. VEHICLES are the units which are mobile relative to their surrounding environment, and ROUTES are the units which are mobile relative to their inner sub-units.

A Vehicles.

The first vehicle to be described is the one based on personal cues, and this is the bubble. In describing the bubble previously it was said that it is a static unit of space, but that is mentioning only one aspect of the unit: as Goffman (1971) has observed, the bubble has also a mobile aspect. The unit itself is the same in its two phases, but the communication between occupier of the unit and non occupiers while the unit is on the move whould indicate the fact. The interaction between the unit and other mobile and non mobile units should allow for the possibility of collision and try to prevent it. Goffman (Op cit first chapter) gives a detailed description as to the means employed in the process. A bubble in its mobile phase can, therefore, be defined as: a space unit with socially accepted personal cues to indicate existence and location of markers, boundaries and gates, which is mobile relative to outer system.

The other type of vehicle is the mobile territory which, like the car, is defined by environmentally dependent cues. These too are mobile relative to the environment and static relative to the occupier, but an important aspect of the mobile territory compared with the static territory is that the occupier of the territory, though

being able to leave it while it is static, must, in most cases, be in it when it is mobile. This feature of the mobile territority, though important enough, is not essential to its definition, as technological development may well change the situation.

A mobile territory can be defined as: a space unit with socially accepted environmental cues to indicate existence and location of markers, boundaries and gates, which is mobile relative to outer systems.

The occupier of the vehicular units, and the status of tenure are not mentioned in the definition as they are the same as in the static units, i.e. they can be occupied by individuals, groups and the public under different tenure status.

B. Route.

The first of the units of space mobile relative to their occupants (or in every day language, units of space in which the occupants are mobile) is the PATH. This concept was used by Fischer (1971) for the change in an animal's position in space. He includes in the path the intentions of the mover and the body movements involved in the process. Goffman (1971) uses a similar concept in the description of human movement (ch 1). It is clear from his description that the path is hard to differentiate from the bubble in its mobile phase, as the same occupier is involved, and in both cases personal cues are essential for the definition of the unit. Nevertheless those two units, though closely related to one another, are not one and the same: the path includes not only the area surrounding the occupier but also the space the occupier intends to move into, and indicates by accepted cues what his intentions are. Some such paths and the way they are indicated can be found in Goffman's (op cit) discussion of the path. Stilitz (1969) also describes some of the phenomena related to the path behaviour. Hall (1966) suggests that whereas the static bubble has priority in western culture, in the Arab world the defence of the path is more protected than the static bubble, which may cause conflict when persons from the two culture meet. As in the case of the bubble in its two phases, the path can be of an individual, a group or the public, as will be indicated by the personal markers involved.

The path can be defined as: a unit of space defined by socially accepted personal cues to indicate existence and location of markers, boundaries, gates and by its mobile relationship with inner subsystem.

The environmentally dependent routes are ORBITS. The concept is taken from Parr's discussion of the topic, as the unit of space connecting two (or more) territories. The orbit has been studied more often than the previous unit; Appelyard et al (1964) and Carr & Schissler (1969) described the view of the city from the highway; Finnie (1973) studied littering behaviour on the highways, and a more direct study of the New York subway system was by Bronzaft et al (1976).

The orbit can be defined as: a unit of space defined by socially accepted environmental cues to indicate existence and location of markers, boundaries and gates, and by its mobile relationship with subsystems.

Foot Notes

(1) The definition of the term cluster is my own, although the term has been taken from Stea (1970), who uses it in the context 'territorial cluster'. In his paper he differentiates between 'personal space', 'territorial cluster' and 'territorial-complex'. The term cluster is not defined on its own but the implication is that it is a combination of space units which one individual is occupying or visiting. The next level is the complex which includes more than one human unit. (p 39)

(2) Goffman defines STALLS as: "The well-bounded space to which individuals can lay claim, possession being on all-or-none basis". (1971 p 32).

CHAPTER 10

CHARACTERISTICS OF ENVIRONMENTAL STIMULUS

Previously the discussion noted different approaches to the presentation of the environmental stimuli in the different studies, showing that the one used in the current study is the direct approach. But the dimensions relevant to environmental stimuli are also those mentioned earlier in the discussion of the organisation of space.

One of the relevant dimensions is that of the differentiation between 'bubbles' and 'territories'. In as far as attitude measurements are considered, the studies can be said to involve territories only, and the current environmental stimulus is not different in this respect. The building occupied by the respondent, which is the environmental stimulus of the current study can be considered as territory, as the cues for markers and boundaries are distinctively environmental.

Another dimension of the organization of space which has to be considered is the dimension of the occupier of the territory. One can study individual territory, group territory for different levels of groups (from small group to organization) and public areas. One can find that the range of interest of the different studies covers the three types of occupiers. Rooms, which generally can be considered as individual territories, were studied by Wools (1970), using drawings and photographs. Similar drawings of rooms were used by Canter (1969) for the group of non architects. In his study Kuller (1973) chose to use rooms as one of the stimuli presented to his subjects. But most of the spaces presented to the subject for attitude measurement can be said to be group territories, or rather clusters of space units as, though for the most part they belong to a group, they do contain personal spaces, and public areas within the cluster. The school territory studied by Canter (1973) can be considered such a cluster. On the smaller scale of the group, the family group territory, Canter and Thorne (1972) studied the cross cultural difference of building style preference. Others have been interested in the study of larger areas, consisting mainly of public areas, such as the city as a whole (Harrison and Sarre 1975), a shopping centre (Downs 1970) or certain walks within the city (Lowenthal 1972). The current study uses the territory of the family group, in a similar way to Canter and Thorne,

looking at the total building, even if it includes more than one family.

One of the aspects which one can suggest is related to the occupier of the territory, is the relationship between the individual and the studied space unit. One may suggest that the smaller the space unit, other things being equal, the closer to the individual. Other dimensions of the space unit are also related to the feeling of closeness of the territory to the individual, mainly the tenureship status of the individual (or group) in the territory. In most previously mentioned studies the relationship between the subject and the territory referred to is quite clear in this respect, and there are no tenureship rights, or rather the individual has no rights as he is not the occupier of the unit. In most of the mentioned studies no markers to identify any occupier exist, and there is no way for the respondent to guess who it may be, relating the human unit to the space unit, more than the owner being an individual (probably) or a group. In many of these studies the respondent himself was not related to the territory at all. In one of the studies some identifying cues are given as to the national belonging of the occupier (Canter and Thorne cross cultural study), but in others it can be anyone (see for example Canter(1969) for houses, and rooms, Gärling for public areas). Wools, in the part of the study where the judgement of the room of interview was asked for, did give the subject some information as to the owner of the territory (though no cues were given as to the occupier's tenureship status, but as far as the interviews were concerned full rights can be assumed). In all these cases the subject himself was a non occupier of the territory. In other studies the subjects were asked to respond to a territory, or an area, where they were occupiers, mainly as part of a group (Canter's study of schools (1973), Lowenthal (1972) and Harrison and Sarre (1975) for cities and Downs (1970) for a shopping centre). In the case of the teachers in Canter's study, and the inhabitants in Lowenthal's and Sarre and Harrison's studies one can consider the subjects as actual occupiers of the space units, though rather as part of the group, but Downs study used subjects which brings one to a further differentiation, that of users, owners and customers (Downs 1970). This differentiation can be made also for the school (between teachers and pupils who definitely have different rights in the space they occupy as part of the school group).

One has to recognise that when the interest lies with the larger

territories one is dealing with the space clusters or even a complex (Stea 1970) rather than the space unit, and that the attitude is dependent on the position of the individual in the complex. The position of the teacher in the school is quite different from that of the pupil, and though the physical space is the same one can expect differing attitudes (one could suggest that it is indicative of the system that the researcher chose to seek the responses of the teachers only, as the pupils in the complex of the school have no territorial rights whatsoever; witness the fact that they are locked out of the classroom, and have to wait for the teacher to let them in for the period). One may suggest that the pupils are at best treated as customers (to use Downs' classification) and not very good ones at that considering that they do not have much choice of 'shop'.

The environment can be further differentiated on the basis of the function of the space unit studied. Most of the studies cited above refer to residential units of space or parts of them (living rooms in Canter 1969, and Wool 1969, residential buildings in Canter and Thorne 1972), in others other territories are studied: economic, in the form of a shopping centre (Downs 1970 or Hudson 1974) educational (Canter 1973), and office (Wool 1969). In others the total settlement pattern is studied, as one can see in the Lowenthal and Harrison and Sarre studies of cities.

One can describe the building the subject lives in, which is the environmental stimulus of the current study, using the mapping sentence of the organization of space as:

A space unit occupied by [a group / an aggregation] with [full / limited]

rights to the space, and defined by socially accepted environmental cues to indicate the existence and location of markers boundaries and gates and by its static relationships with outer systems.

This definition of the environmental stimulus suggestsafew points as to the position it occupies in the organization of space:

1. It belongs to the type of space units which were named territories i.e. defined by environmental cues. The cues for markers are personal possessions as well as the legal status of the occupation (by title deed or contract). Cues for boundaries in the case of

a building are its walls, which also defines inner subdivisions. When the open space includes a garden attached to the building the boundaries are also fences etc. Gates in the case of a building will be doors or opening into the building which are supposed to be used for entering the space unit (not windows) or gates in the garden fence.

2. The definition also suggested that the research is dealing with a space unit rather than a cluster, or a complex. This may be explained by the fact that the instructions emphasized the outer shell of the building. But strictly speaking the occupier who knows the building from within, and in some cases occupies only part of the building may have conflicting images, one as an outsider (according to instruction) and one of insider (because of his personal experience). It is therefore perceived as a single space unit and a cluster (or even a complex) at one and the same time.

The two facets which are varied in the current environmental stimulus are the facet of occupier (group vs aggregation), and tenureship status (full vs limited rights).

The first of the two facets is represented in the study by the variable of 'number of floors'. This variable does not indicate merely the physical size of the building, but rather the type of occupier (group or aggregate). Three categories exist in this variable. One is the 'single' family building where the building from bottom to top floor is occupied by one family group. It includes bungalows, cottages, detached, semidetached and terraced building types. The main characteristic to all of these forms of dwelling is that the territorial boundaries of the residential unit (family group) coincide with building walls, and in many cases include also some part of the open space around the building. As can be seen in Table II.10.1, 28.5% of the dwelling units of the current study were of this type. The two other categories ('2-4' and '5+' floors), although considered separately in some of the analysis are of the 'multi-family' type. In these the occupiers are several families, their number depending on the size of the building, who have their territories in the form of flats within the building, and the boundaries of the territories only partly coincide with the outer

walls of the building. Moreover, the building includes 'public' or shared areas such as staircases, lifts and landings, and the immediate open space outwith the walls. The majority of buildings in the current sample are of this type. The two types were further divided into two categories: the tenement[1] type which has 2-4 floors, and the low and high rise blocks which have 5 and over floors (most being over 8 floors). The interest in these was due to the tendency of the council to build high rise blocks in the sixties, and its reversal of this policy due to many complaints from residents. It may be regrettable to find that the sample included only 32 cases of the low and high rise category (7.1%), and the tenement type present the majority (64.4%). Considering its traditional status in Glasgow housing (compared with the English tendency towards the single family building type of housing) this is not a surprising result. (For example of building types see Appendix 7).

TABLE II.10.1 DISTRIBUTION OF HOUSE SIZE BY OWNERSHIP

		SINGLE		2 - 4		5 +		TOTAL
		N	%	N	%	N	%	
OWNER OCCUP	N	20	27.8	52	72.2	-		72
	%	15.5		17.9				15.9
PUBLIC	N	108	30.2	218	60.9	32	8.9	358
	%	83.7		74.9		100		79.2
PRIVATE RENTED	N	1	4.5	21	95.5			22
	%	0.8		7.2				4.9
	N	129	28.5	291	64.4	32	7.1	

The other variable representing the second dimension on which the environmental stimuli of the study vary, is the 'ownership' variable. Four categories of owners were detected: occupier of the residential units (in some cases it was the husband, in other both parents, and in some the wife), local authority (Glasgow District Council), Scottish Special Housing Association (SSHA), and private non-occupier owners. As the number of cases of the SSHA category was very small (less than 5%) they were included with the local authority category ('public ownership'). The category of 'owner occupier', as one can see in Table II.10.1 has 15.9% of the cases, the 'public' 79.2% and the 'private' rented 4.9%. Two of the categories can be considered to be representing the 'limited' tenureship rights, these are the categories of 'public' and 'private', where the occupier is not the

owner of the territory. The difference between the two is that whereas in the 'public' sector the tenant has, at least theoretically, some say in the general policy through his political involvement in the electoral system, in the case of the private owner he has no say at all. This difference is not very significant considering the helplessness one sometimes feels facing the bureaucracy which more often handles the property than the elected members of the council. Nevertheless it was thought to be a difference worth looking at and the categories were kept apart. The 'owner occupier' category is representing the status of 'full' tenureship rights, limited only by such factors as building and planning regulations.

Comparing the current sample with some data on ownership of residential units in Glasgow, the suggestion is that the number of 'public' units in the current sample is larger than one would expect (79.2% compared with 54% according to West Central Scotland Plan (WCS) 1974). Even if one excludes the SSHA residential units from this number it is still a big difference (in the case of the above cited report the council property only was considered and the SSHA was included in the 'other' category). One of the reasons for the difference in the sample may be the time difference (6 years as the statistics for the current study are from 1977, whereas in the WCS report they are for 1971). During that time some of the older property which was more often non-council property was either demolished, or changed hands for rehabilitation, and new property in Glasgow is more often than not (according to council policy) owned by the local authority. Another reason may be the fact that the sample of subjects was from the comprehensive school system, and did not include any of the private schools. One may suggest that the latter would have included a higher proportion of owner occupiers.

Table II.10.2 presents the third variable describing the environmental stimulus, a variable not directly related to the mapping sentence. This variable is the 'gross annual value' of the property (i.e. residential unit), which is an indication of the value of the property, based on size (number of rooms) existence of amenities etc. It is not identical with the amount of rates paid by the tenant, but serves as basis for the actual rate discussion.

TABLE II.10.2 GROSS ANNUAL VALUE BY NUMBER OF FLOORS AND OWNERSHIP.

TABLE II.10.2 GROSS ANNUAL VALUE BY NUMBER OF FLOORS AND OWNERSHIP.	SINGLE 1	2	3	4	5	6	TOTAL
OWNER OCCUP	162.75	35.74	75.56	29.07	-		99.8
PUBLIC	136.34	26.53	116.48	15.56	122.02	11.06	123.0
PRIVATE RENTED	162.00	-	67.57	23.12	-	-	69.0
TOTAL	140.67	29.55	105.39	27.22	122.02	11.06	

In Table II.10.2 one can see that the public owned property, for the total sample is more highly rated than the owner occupier, and private rented dwellings (F=65.07, p=0.00, DF=2), and that the single family buildings are the highest rated, with low and high rise as second (F=93.79, p=0.00, DF=2). But from a closer look at the distribution of value, one can see that interaction between the variable of ownership, with that of building size exists. In the single family buildings the owner occupiers have higher rateable values than the publicly owned property, whereas in the '2-4' category, the publicly owned property has the advantage (the interaction is highly significant p=0.00, F=62.13, DF=2). One cannot but regret the lack of further information explaining the difference between the groups, and suggest that it may be attributed to existence or lack of amenities in some of the tenements represented in the owner occupier (and private rented) category, compared with the newer property built by public authorities.

All three variables mentioned above were taken from the 'Valuation Rolls' of Glasgow District.(2) The missing variables for some of the cases (maximum of 18 for the 'ownership' variable) were due to the gap between the available 'Rolls' (1974) and the year of the study (1977), during which some of the families must have moved house, and their name was not on the lists. That meant that the exact residential unit could not be identified, and the 'gross annual value', and 'ownership' could not be ascertained (see footnote (1) for the exact process). In the case of the size of building ('number of floors') the exact flat number was not important, and therefore fewer cases are missing. Table II.10.1 presents the results for the cases where the two relevant variables ('size' and 'ownership') were not missing and Table II.10.2 presents the results for the cases where all three variables exist.

Another variable describing the environment, though somewhat

different from the previous one, is the position of the building in the city. The Grid Reference coordinates were taken for each of the buildings in the study so that the position of each building in Glasgow would be identified. This variable enables the plotting of the sample on the city map.

The sector differentiation of the city was based on two criteria, as suggested by the results of a study of migration in the city in both public and private housing sector (Forbes, Lamond and Robertson 1978). The study suggested certain patterns of migration in the city which suggest the significance of the sub-division. The major significance of the pattern is that the migration across the River Clyde running in the east west direction, is nearly non-existent. It is not the aim of this study to suggest any reason for this pattern, but the fact that it exists may suggest that any sub-division of the city into sectors should take the fact into account. Three of the schools in the sample represent the area south to the river. They are concentrated in the south centre to south eastern area (the centre being the more populated zone), and none of the schools of the south western area was included in the main study (though two were included in the pilot study). Two of the schools were RC and one ND and they include 113 subjects. All of the subjects in this area were presented with both questionnaires (social and physical environments). Table II.10.3 presents the distribution of the sample in the ward sub-division. As one can see the sample is drawn from two major areas, one for 'Queen's Park sec' and Holyrood, and the other for John Bosco, though some overlap between the two exists. Though one may suggest that smaller units could have presented a more homogeneous picture, the small number of subjects and the uneven distribution of building type and occupation of head of family which was observed in the previous analysis did not permit such an approach. Because of the small number of cases and because of the partial overlap the southern area of the city was included as one area.

TABLE II.10.3 WARD 1975 FOR SOUTH OF RIVER AREA BY SCHOOL

		QUEENS PARK			HOLYROOD			JOHN BOSCO.		
		N	%SCH	%AREA	N	%SCH	%AREA	N	%SCH	%AREA
GORBALS	(43)	2	5.9	1.8	1	2.5	0.9	23	59.0	20.4
CROSSHILL	(45)	14	41.2	12.4	6	15.0	5.3	1	2.6	0.9
PROSPECTHILL	(46)	14	41.2	12.4	7	17.5	6.2	2	5.1	1.8
POLLOKSHIELDS	(55)	1	2.9	0.9	4	10.0	3.5			
STRATHBUNAN	(56)	1	2.9	0.9	1	2.5	0.9			
MT FLORIDA	(62)	1	2.9	0.9	5	12.5	4.4			
RUTHERGLEN	(67)	1	2.9	0.9						
CAMPHILL	(57)				2	5.0	1.8			
POLLOKSHAWS	(58)				6	15.0	5.3			
NEWLANDS	(61)				3	7.5	2.7			
KINGSPARK	(63)				2	5.0	1.8			
LINN	(65)				3	7.5	2.7	1	2.6	0.9
WELLHOUSE	(7)							1	2.6	0.9
HUTCHESONTOWN	(44)							10	25.6	8.8
KINGSTON	(50)							1	2.6	0.9
TOTAL		34	100	30.1	40	100	35.4	39	100	34.5

The other 10 schools of the sample were on the north side of the river. The size of the sample, and the distribution allowed further sub-division into three sub-samples. As in the sub-division between south and north of the city the major criterion was the migration pattern of the population. It has been observed by the above cited study that migrants from the east end of the city move further east, so that the schools of the East End, and Cranhill Sec. were included in the same sub-sample. That consideration was used despite the fact that a neighbourhood of Dennistoun which was not included in the sample lies between them. This separation causes the complete lack of overlap between the three East End schools, and Cranhill Sec. All the subjects of this sector of the city were presented with either the social or physical environment questionnaire, and because of this though their number is 120, the analysis of each questionnaire is based on 60 cases only. Two other areas were identified in the north of the city, the centre of the north, which included the Maryhill area, Ruchill, Possilpark, Milton etc. In the study of migration this area presents

inconsistent migration tendencies. In the more western direction the migration is further west (from Maryhill into Drumchapel), but in the more central zone the migration is in both west and east directions. Two reasons determined the inclusion of the two areas together, one the existence of some overlap between the areas, and the other the boundary of the River Kelvin between the western part of the area, and the next area. The sub-sample included 4 schools, only one of them RC. In one of the schools the subjects were presented with one of the questionnaires only so that the analysis is based on a smaller number than the 157 cases included in the sub-sample (distribution of cases according to school and ward is presented in Table II.10.5).

The last area includes subjects from two of the schools, and presents the western side north to the Clyde. It is differentiated from the previous area by the river Kelvin in the south of the area and the river and a zone outwith Glasgow boundaries in the north. It includes Drumchapel on the one hand, and a more affluent area of Knightswood, Scotstoun, on the other hand. Had the sample been larger, and more evenly distributed it would have been possible to consider the significant differences between the areas and create a more homogeneous zone. Moreover the major road toward the west lies between the two different areas and can be considered as a significant boundary. Table II.10.6 presents the distribution of the sample according to school and ward. The two schools presented in the sample are RC and the subjects were all presented with both questionnaires. The boundaries of the different areas are presented on the following maps by the thinner lines.

Table II.10.7 presents the results for the building type in number of floors. It can be observed that the South River area and the North East have less than expected in the single family building category, whereas the North has more than expected. The 2-4 category has no difference between the areas except the North East where there is slightly more than expected. In the low and high rise building category the area of the South River has slightly more than the other areas. The observed tendency is not just significant (X^2= 13.62, DF=6, p=0.09).

TABLE II.10.4 WARD 1975 FOR NORTH EAST AREA BY SCHOOL

		RIVERSIDE			ST. MUNGO			OUR LADY			CRANHILL		
		N	%SCH	%AREA	N	%SCH	%AREA	N	%SCH	%AREA	N	%SCH	%ARE
PARKHEAD	(2)	16	40.0	13.6	10	50.0	8.5	9	45.0	7.6			
CARNTYNE	(3)	6	15.0	5.1	6	30.0	5.1	3	15.0	2.5			
CAMLACHIE	(4)	1	2.5	0.8	3	15.0	2.5	1	5.0	0.8			
GARTHAMNOCK	(6)	1	2.5	0.8									
LETHAMHILL	(10)	1	2.5	0.8									
DALMARNOCK	(14)	15	37.5	12.7	1	5.0	0.8	7	35.0	5.9			
WELLHOUSE	(7)										17	44.7	14.4
QUEENSLIE	(8)										15	39.5	12.7
RIDDRIE	(9)										6	15.8	5.1
TOTAL		40	100	33.9	20	100	16.9	20	100	16.9	38	100	32.2

TABLE II.10.5 WARD 1975 FOR NORTH AREA BY SCHOOL

		POSSILPARK			COLSTON			ST.AUGUSTINE			N.KELVINSIDE		
		N	%SCH	%AREA	N	%SCH	%AREA	N	%SCH	%AREA	N	%SCH	%AREA
SUMMERSTON	(21)	1	2.7	0.6	1	2.5	0.6	2	5.1	1.3	21	55.3	13.6
RUCHILL	(23)	2	5.4	1.3	4	10.0	2.6	4	10.3	2.6	9	23.7	5.8
MILTON	(24)	4	10.8	2.6	21	52.5	13.6	16	41.0	10.4	1	2.6	0.6
POSSILPARK	(25)	25	67.6	16.2				15	38.5	9.7			
COWCADDENS	(26)	5	13.5	3.2	1	2.5	0.6	1	2.6	0.6			
BALORNOCK	(15)				10	25.0	6.5						
ROBROYSTON	(16)				1	2.5	0.6						
COWLAIRS	(17)				2	5.0	1.3						
KELVINSIDE	(34)							1	2.6	0.6			
WYNDFORD	(22)										5	13.2	3.2
KELVIN	(29)										1	2.6	0.6
BLAIRDADIE	(39)										1	2.6	0.6
TOTAL		37	100	24.0	40	100	26.0	39	100	25.3	38	100	24.7

TABLE II.10.6 WARD 1975 FOR NORTH WEST AREA BY SCHOOL

		ST. PIUS			ST. AQUINAS		
		N	%SCH	%AREA	N	%SCH	%AREA
DRUMRY	(37)	19	47.5	24.7			
SUMMERHILL	(38)	19	47.5	24.7			
BLAIRDARDIE	(39)	2	5.0	2.6	4	10.8	5.2
PARK	(28)				1	2.7	1.3
PARTICKEAST	(31)				2	5.4	2.6
SCOTSTOUN	(35)				9	24.3	11.7
PARTICKWEST	(36)				4	10.8	5.2
KNIGHTCLIFFE	(40)				2	5.4	2.6
YOKER	(41)				6	16.2	7.8
KNIGHTSWOOD	(42)				9	24.3	11.7
TOTAL		40	100	51.9	37	100	48.1

TABLE II.10.7 DISTRIBUTION OF NUMBER OF FLOORS BY AREA

	SOUTH RIVER		NORTH EAST		NORTH		NORTH WEST	
	N	%	N	%	N	%	N	%
SINGLE	27	23.3	24	20.2	57	37.0	26	33.8
2 - 4	77	66.4	87	73.1	88	57.1	47	61.0
5 +	12	10.3	8	6.7	9	5.8	4	5.2
TOTAL	116	100	119	100	154	99.9	77	100

TABLE II.10.8 DISTRIBUTION OF OWNERSHIP BY AREA

	SOUTH RIVER		NORTH EAST		NORTH		NORTH WEST	
	N	%	N	%	N	%	N	%
OWN.OCCUP	38	34.5	13	11.1	10	6.7	11	14.3
PUBLIC	61	55.5	101	86.3	135	90.6	62	80.5
PRIVATE	11	10.0	3	2.6	4	2.7	4	5.2
TOTAL	110	100	117	100	149	100	77	100

Table II.10.8 presents the distribution of ownership of property for the different areas. It can be observed that the South River area has more of its share of the private sector ownership, both owner occupied and private rented properties. The North East area and North area have more of the publicly owned property than would be expected, whereas the North West area has as many of each category as would be expected. (X^2 = 53.57, DF=6, p=0.00). The results are also presented visually on Maps II.10.1 to II.10.3.

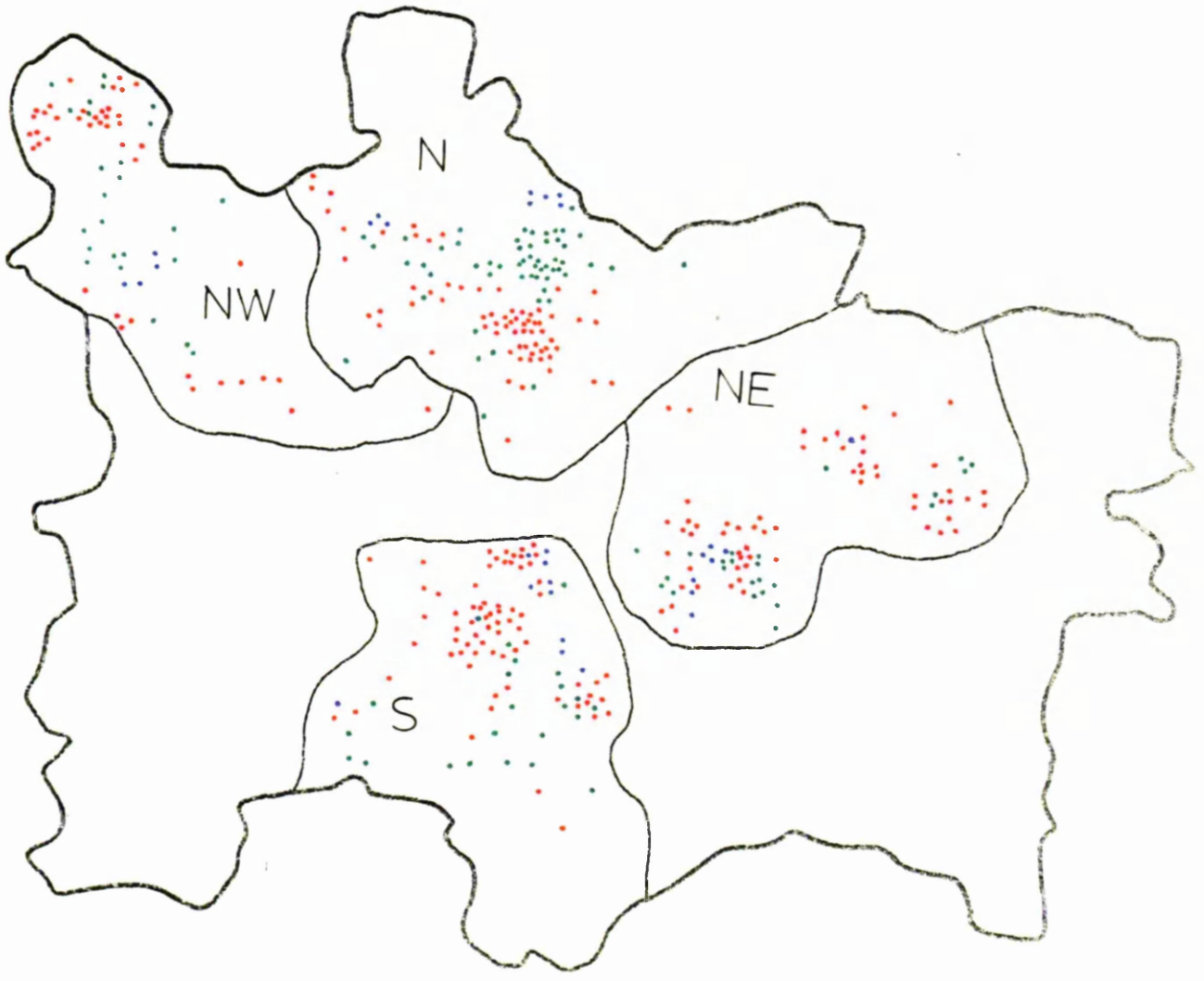
The value of the property of the different areas does not vary significantly (results presented in Table II.11.1 in next chapter), though the North East area seems to have slightly lower rated property and the North West slightly higher than the other areas. The distribution of value of property is presented in Map 3.2.4. For that purpose the value of the properties was divided into three groups, based on the mean and standard deviation. The mean category includes all values from -0.5 (£15) standard deviation to +0.5 standard deviation. The values below -0.5 SD (£101 and below) are in the lower category, and those above +0.5 (£132 and above) are in the upper category. The map shows some patterns not apparent in the mean score. There are apparent concentrations of low rated properties in the East End area (North East central area) and in North and South River areas. There are also apparent upper category concentrations in the North area and in the South River areas, but these are (except for one place) more dispersed than the lower category. Comparing the Map of the size of building with that of value shows that in many of the cases the higher valuation coincides with the single family building category, as may be suggested from the results presented in the previous chapter, but one can also see that the tenement category of housing does not show consistency in valuation, and some of the property is in the medium to high categories, whereas others are in the low value one. Comparing the map of the value with that of ownership confirms the results presented earlier on showing that the non-public property is rated lower than public one, as the low rated property coincides with the owner occupied property in the south river area mainly. In the North West area on the other hand the owner occupier category is in the higher rate category.

MAP II.10.1 BUILDING SIZE

green - single

red - 2 to 4 floors

blue - 5 and more

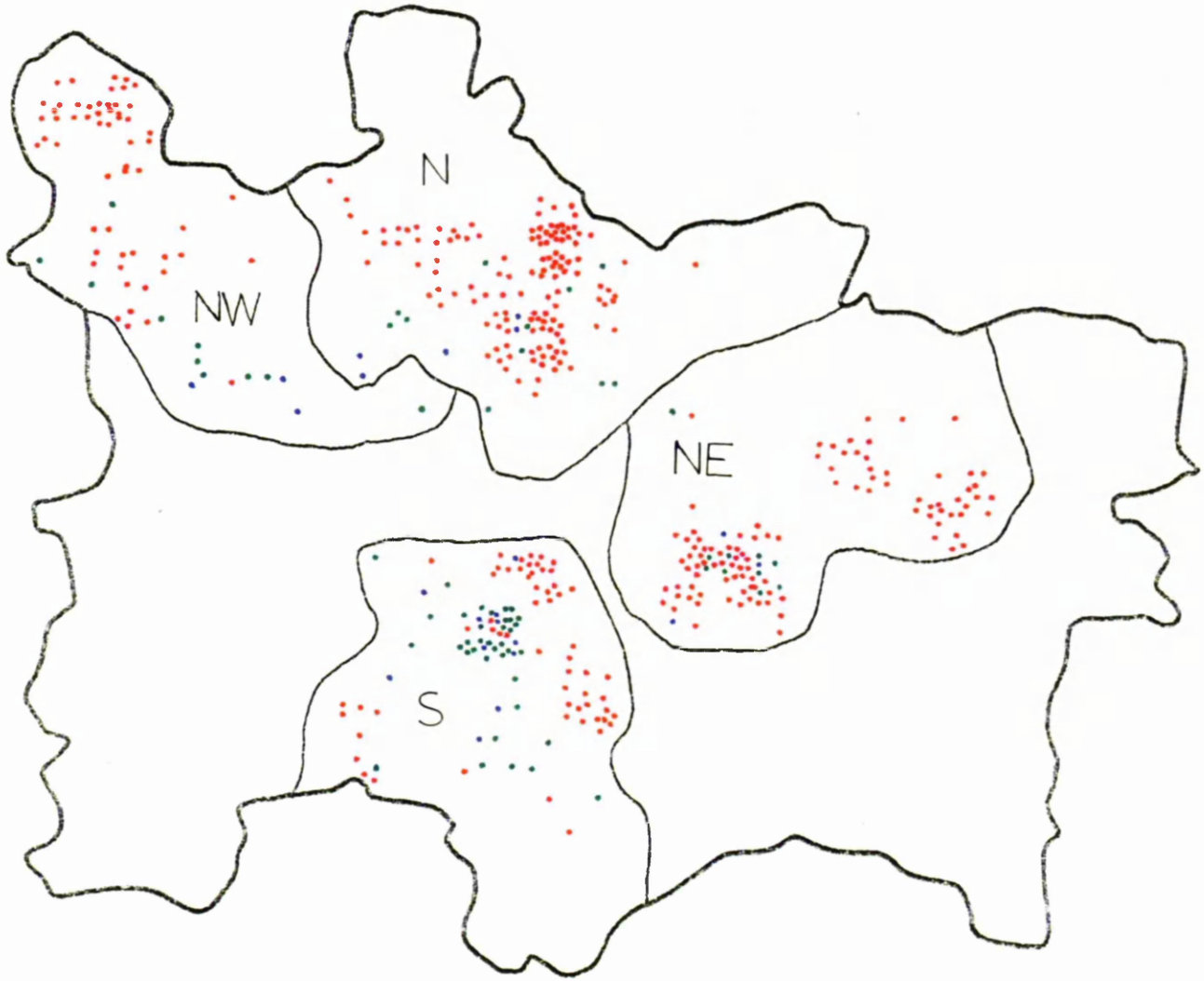


MAP II.10.2 HOUSE OWNERSHIP

green - owner occupier

red - public

blue - private rented

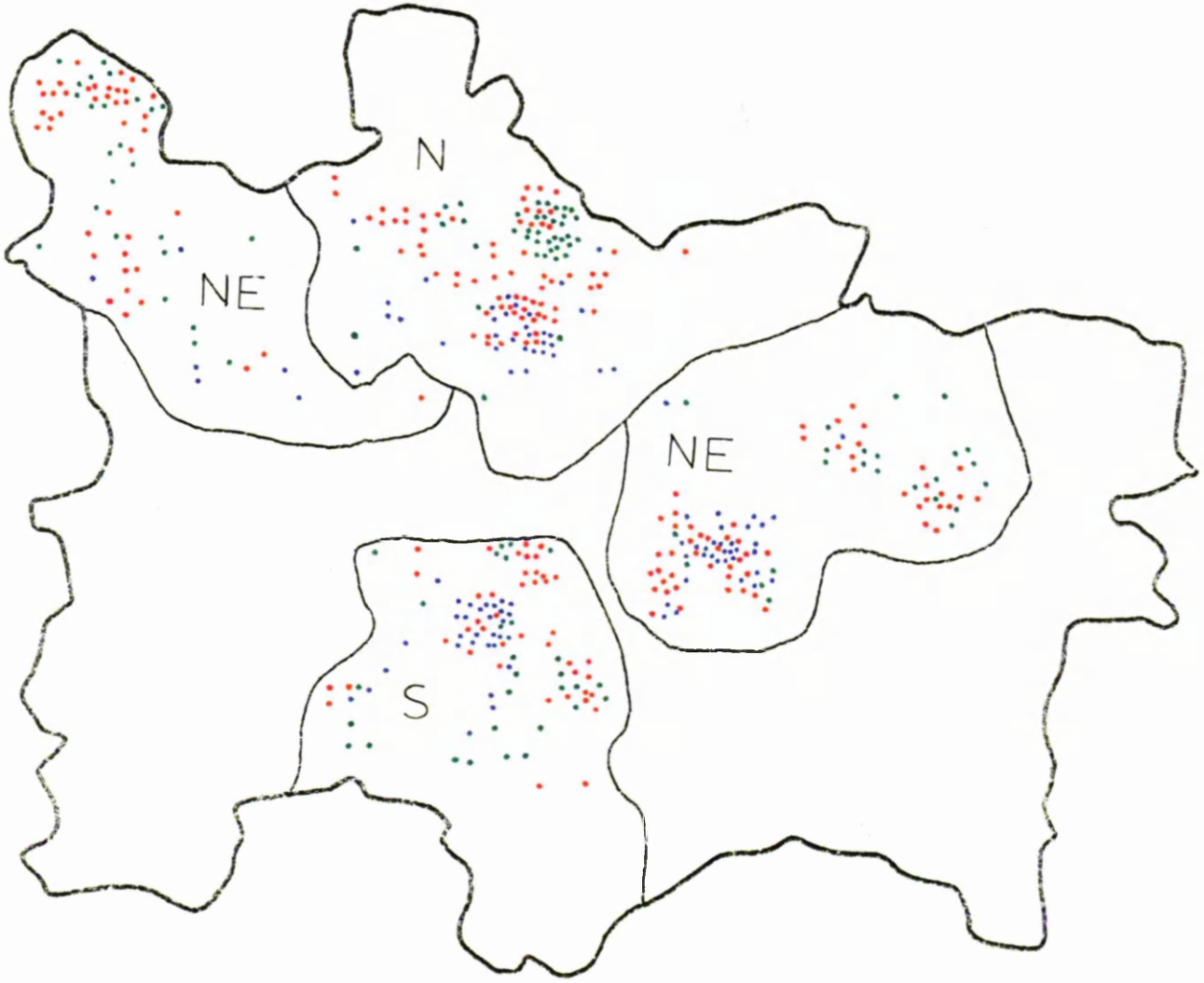


MAP II.10.3 GROSS ANUAL VALUE OF RESIDENTIAL UNIT

green - 132 and more

red - 101 to 131

blue - 100 and less



Foot Notes

(1) Tenement in the case of Glasgow means the Victorian type of tenement which includes inner court (See pictures in Appendix 7). In the present discussion the word was used less strictly to name all the buildings in the category '2-4' floors whatever the size and age of building. When the Victorian tenements are discussed they are referred to as such.

(2) Valuation Rolls for Glasgow Districts (1974) are arranged according to spatial arrangement (local election wards). Within a ward's boundaries the residential units are arranged according to walking order, that means that one street is not necessarily given in one section (or in the same ward for that matter), but can be divided into several sections with units in other streets in between. This order, which may be convenient for the assessor, is by no means the best arrangement for finding a specific address for research purposes. It means that to find an address one has first to find the relevant ward (a map was used for that purpose), and then look at the index in the Valuation Rolls. When the house is found one realises that the flats (when the building is a multi-family building) are not in any number order, but again in walking order, and sometimes that means that not all the flats of the same building are put together (this is especially the case with older property). In other cases it means that the list of flats in a building begins with one ground floor, goes on with one flat on each of the following floors and back in the reverse direction, ending with the second ground floor.

When the name of the subject was missing from the lists a process of deduction was started; firstly if the building was a single family one no problem of identifying the residential unit existed, as there was only one. It was assumed therefore that the 'ownership' status was not changed from that of the previous occupier (i.e. owner occupied, or 'public' status remained). If the building was a multi-family one identification of the flat was necessary for assessing the Gross Annual Value and the 'ownership'. In the case of the latter the problem arose only in the private sector, as in the public sector the whole building was owned by the same owner (LA or SSHA). In the case of the

private sector some of the private rented properties were also owned by one person or firm, making the identification easier. The cases of missing values for the 'ownership' variable, therefore, are in the case of multi-family building where the ownership is of the private sector, and the flat was not identified.

In the case of the Gross Annual value the problem of identification was more often present in the public sector. If the exact flat was not known, the value of the different flats of the building was looked at. In the smaller buildings it was apparent that the values were for ground floor and all others, and that meant that in cases where the subject stated the floor number one could assess the value of the property even if the exact flat was not known. In the larger buildings there were more differences, and many of these cases could not be identified. In these buildings the name of the family was not always enough to identify the flats, as more than one family of that name appeared, in some cases, on the list, and where the subject had not stated the floor number the value was missing.

Another way of solving the missing cases was, in the case where the difference between two or three values was not more than a few pounds (less than 5), was taking the lower value, or the middle one, and assuming that this was the value of the flat.

Therefore the missing cases in the Gross Annual Value variable were cases where the value of dwellings in the same building varied significantly.

Recently (regrettably too late for the current study) Glasgow University acquired a housing file for Glasgow District, including all the above mentioned variables, and others such as number of apartments in the unit, which can be used through matching techniques, and save the manual work involved in collecting the data. It also can be ordered in any required order, so as to make a manual process easier, than the one performed for the current study. Considering that the file is easier to update, its value for further housing studies is assured.

CHAPTER 11

RESULTS FOR ENVIRONMENTAL CHARACTERISTICS

The characteristics of the environment were compared with the first three factors of each of the questionnaires. Factor scores were calculated for each subject by the S.P.S.S. FACTOR sub-programme. The scores are standard scores so that the mean of the total sample is 0.00 and the standard deviation is 1.00. The factors used for the description of the attitude towards the environment were:

1. FRIENDLINESS factor for both physical and social environment.
2. ACTIVITY factor for both questionnaires.
3. AESTHETIC factor for the physical environment and DELICACY factor for the social environment.

The factors were described in detail in the previous part of the thesis and they account together for 46% of the variance in the physical questionnaire, and 44.4% of the variance in the social questionnaire. The reference to the concepts, friendliness, activity, aesthetic value, and delicacy in the following discussion will be limited to the meaning given to the factor by the scales included in them. It must be mentioned that the method used for the calculation of the factor scores included in each factor not only the scales which ranked highest on the list but also all other loadings of other scales weighed according to their respective loadings on the factor.

Another score to be calculated was a simple mean score for the total questionnaire, ignoring the factor structure. This score was not standardized and its theoretical mean is 4.0. The empirical mean for the physical questionnaire was 3.498 and for the social questionnaire 3.307.

Calculations of the scores compared sub-groups' means using the BREAKDOWN S.P.S.S. sub-programme (using analysis of variance for the significance test of difference between the sub-groups).

The number of cases involved in each analysis is not always the same due to missing values for some of the cases. In some cases as explained in Chapter 10 it was due to the fact that the

valuation rolls were not up to date, and the flat in which the family resides could not be identified. This mostly caused problems in the case of the Gross Annual value, as different flats in the same building had different values, and in differentiating between owner occupied tenureship status, and privately rented dwellings. In the case of publicly owned dwellings the lack of dwelling identification did not cause any problems as the whole building was owned by one owner. But the majority of missing cases are due to the fact that in 4 schools only one of the questionnaires was presented (80 physical and 80 social).

TABLE II.11.1 EVALUATION OF BUILDING ACCORDING TO SIZE OF BUILDING

SCORE	SINGLE M	N	2 - 4 M	N	5+ M	N
MEAN SCORE	3.289	89	3.585	189	3.610	21
FRIENDLINESS	0.005	110	0.018	251	-0.219	26
ACTIVITY	0.167	110	-0.072	251	0.076	26
AESTHETIC	-0.371	110	0.173	251	-0.032	26

The results of the physical questionnaire as related to the size of building show the expected tendency to favour single family houses. They are judged most favourably on the general mean of the questionnaire ($p<.00$) and on the aesthetic factor ($p<.00$).

The second in positiveness of evaluation is, surprisingly enough, the low and high rise buildings, which are significantly more positively evaluated on the aesthetic factor than the tenement type of house, and in the factor of friendliness show a tendency for a more positive evaluation than both other categories, but the results are not significant for the factor ($p<.169$).

The results of the activity factor are not significant either ($p<.101$), though the tendency is for the single family houses to be judged as more passive than the two other groups, a rather unexpected tendency considering that one of the scales highly loaded on the factor is 'interesting-boring'.

TABLE II.11.2 EVALUATION OF HOUSE ACCORDING TO TENURE STATUS

SCORE	OWN. OCCUP		PUBLIC		PRIVATE	
	M	N	M	N	M	N
MEAN SCORE	3.358	55	3.538	223	3.569	19
FRIENDLINESS	0.068	64	-0.018	289	0.231	22
ACTIVITY	-0.336	64	0.093	289	-0.108	22
AESTHETIC	-0.020	64	0.022	289	0.198	22

The results of the physical questionnaire as related to the tenureship status (Table II.11.2), show that some differences between the type of tenureship are expressed in the attitudes towards the building the subject lives in. There is a tendency to prefer the status of owner occupier (full tenureship status in the conceptual framework of the organization of space). Though the above tendency exists in all factor scores it is not always significant. The results of the mean score for the questionnaire show this tendency, but the tendency is not significant (ANOVA Nie op cit). The same can be said for the aesthetic factor. The only significant results are for the activity factor ($p<0.048$), showing that the owner occupier, and privately rented property are considered more active than the publicly owned property.

TABLE II.11.3 EVALUATION OF NEIGHBOURS ACCORDING TO SIZE OF BUILDING

SCORE	SINGLE		2 - 4		5+	
	M	N	M	N	M	N
MEAN SCORE	3.143	89	3.393	198	3.202	21
FRIENDLINESS	-0.047	113	0.046	246	-0.215	28
ACTIVITY	0.004	113	0.005	246	-0.032	28
DELICACY	-0.250	113	0.091	246	0.220	28

The results of the social environment questionnaire as related to the size of building indicate some existing differences between the subjects in their attitude towards their neighbours. The general mean score of the questionnaire indicated that the respondents living in single family houses, and those living in low rise and high rise buildings tend to view their neighbours in a more favourable way ($p=.006$). Of the factor differences the only significant one was the delicacy factor, and as expected the subjects of the single family houses view their neighbours as more delicate than do the two other sub-groups ($p=.00$).

TABLE II.11.4 EVALUATION OF NEIGHBOURS ACCORDING TO TENURE STATUS

SCORES	OWN. OCCUP		PUBLIC		PRIVATE	
	M	N	M	N	M	N
MEAN SCORE	3.162	55	3.347	223	3.372	19
FRIENDLINESS	-0.142	63	0.028	293	0.158	19
ACTIVITY	-0.139	63	0.044	293	0.091	19
DELICACY	-0.066	63	0.060	293	-0.417	19

The results of the evaluation of the neighbours according to tenureship status of the territory (flat or house) are not significant, though looking at Table II.11.4 one may think that they are. But one has to note the small number of cases in the privately owned category, and exclude it from any calculation. Some of the lack of significance can be attributed to the small number of cases, so that an apparently meaningful difference is not large enough to produce significant results in the accepted probability of $p<.05$. Another possible cause, interaction with other variables will be tested later.

Comparing the two types of stimuli the subjects had to respond to (physical and social) one can see that no differences exist between the results. That means that the subjects, generally speaking, perceive the physical and social environments as similar to one another in friendliness and activity (these being the two comparable factors). On the other hand when one compares the results within the type of environment differences as to the three factors are related to the type of house in both size and ownership. For size of building the single family building is judged to be less active, but more attractive, and friendliness is in between. In the case of the tenement category (2 - 4) the situation is the opposite, activity being higher than either friendliness or aesthetic value ($F = 4.150$, $p = .006$, $DF = 4$). No such difference between the factors occurs in the response to the social environment in the two size categories.

Comparing the different physical factors for the two tenureship categories (private ownership was excluded due to the small number of cases), suggested that in the owner occupier category the activity factor was the highest with little difference between the other two factors (friendliness and aesthetic), and, in the publicly

owned, no difference between the three factors occurred ($F = 2.416$, $p = 0.047$, $DF = 4$). No difference was observed in the case of the attitude towards the social environment, suggesting that the physical environment does not interact with the attitude component for the social environment.

TABLE II.11.5 MEAN SCORE OF PHYSICAL ENVIRONMENT FOR SIZE OF BUILDING

	SINGLE M	N	2 - 4 M	N	5+ M	N
OWN. OCC	2.975	18	3.545	37	-	
PUBLIC	3.377	66	3.596	137	3.673	20
PRIVATE	3.294	1	3.584	18	-	

TABLE II.11.6 FRIENDLINESS OF PHYSICAL ENVIRONMENT FOR NUMBER OF FLOORS BY OWNERSHIP

	SINGLE M	N	2 - 4 M	N	5+ M	N
OWN. OCC	-0.045	19	0.115	45	-	
PUBLIC	0.003	86	-0.020	177	-0.069	25
PRIVATE	1.809	1	0.156	21	-	

TABLE II.11.7 ACTIVITY OF PHYSICAL ENVIRONMENT FOR NUMBER OF FLOORS BY OWNERSHIP

	SINGLE M	N	2 - 4 M	N	5+ M	N
OWN. OCC	-0.284	19	-0.358	45	-	
PUBLIC	0.254	86	0.006	177	0.145	25
PRIVATE	0.867	1	-0.154	21	-	

Interaction between size of house and tenureship of flat

The two variables which characterise the house may interact in accounting for the variance in attitude. Tables II.11.8 to II.11.11 present the results for the physical environment questionnaire for interaction between tenureship and size of building. As the number of cases in the private rented group are too few, and as the '5+' category buildings are publicly owned, the ANOVA test for the significance of the differences between the groups was carried out without those categories. It can be seen that an interaction exists for the aesthetic factor of the attitude only ($F = 8.338$, $p = 0.004$, $DF = 1$). In this factor the single family house category is more attractive in the

TABLE II.11.8 AESTHETIC FACTOR OF PHYSICAL ENVIRONMENT FOR NUMBER OF FLOORS BY OWNERSHIP

	SINGLE M	N	2 - 4 M	N	5+ M	N
OWN. OCC.	-0.825	19	0.320	45	-	
PUBLIC	-0.256	86	0.148	177	0.011	25
PRIVATE	-1.631	1	0.285	21	-	

TABLE II.11.9 MEAN SCORE FOR SOCIAL ENVIRONMENT FOR NUMBER OF FLOORS BY OWNERSHIP

	SINGLE M	N	2 - 4 M	N	5+ M	N
OWN. OCC	3.025	18	3.229	37	-	
PUBLIC	3.183	66	3.445	137	3.221	20
PRIVATE	3.354	1	3.373	18	-	

TABLE II.11.10 FRIENDLINESS OF SOCIAL ENVIRONMENT FOR NUMBER OF FLOORS BY OWNERSHIP

	SINGLE M	N	2 - 4 M	N	5+ M	N
OWN. OCC	-0.119	19	-0.152	44	-	
PUBLIC	-0.027	88	0.089	178	-0.198	27
PRIVATE	2.152	1	0.048	18	-	

TABLE II.11.11 ACTIVITY FACTOR OF SOCIAL ENVIRONMENT FOR NUMBER OF FLOORS BY OWNERSHIP

	SINGLE M	N	2 - 4 M	N	5+ M	N
OWN. OCC	-0.088	19	-0.162	44	-	
PUBLIC	0.013	88	0.062	178	-0.027	27
PRIVATE	0.851	1	0.049	18	-	

case of owner occupier, whereas in the category of tenements the publicly owned buildings are considered more attractive (or rather less unattractive). In the social questionnaire (Tables II.11.9 to II.11.12) no such interaction was found for any of the scores. Considering the interaction between the two variables as related to the rateable value, in which the value of the owner occupied single house is higher than the public house, whereas in the tenement category the opposite is true, one may suggest that the aesthetic factor will correlate with the rateable value of the flat of the respondent. Table II.11.13 presents the correlations

TABLE II.11.12 DELICACY OF SOCIAL ENVIRONMENT FOR NUMBER OF FLOORS BY OWNERSHIP

	SINGLE M	N	2 - 4 M	N	5+ M	N
OWN. OCC	-0.604	19	0.167	44	-	
PUBLIC	-0.141	88	0.135	178	0.219	27
PRIVATE	-2.400	1	-0.307	18	-	

TABLE II.11.13 CORRELATION OF PHYSICAL AND SOCIAL ENVIRONMENTS WITH GROSS ANNUAL VALUE

	PHYSICAL		SOCIAL
FRIENDLINESS	0.009		0.04
ACTIVITY	0.004		-0.016
AESTHETIC	-0.27**	DELICACY	-0.12*

between the factor scores of the questionnaires with the rateable value. One can see that the greater the value of the building the lower the aesthetic score (the lower the score the higher the value), and though the correlation is not very high it is significant (p .01). The correlation for the delicacy factor in the social questionnaire is also significant, though not as high as for the aesthetic factor. The results lend some support to the finding comparing the mean scores of factor of the groups.

Areas and the attitude

The following discussion presents the results of the different attitude factor scores for the areas. Table II.11.14 presents the results for the total sample of the area for all scores, value of property, and scores for the two questionnaires.

TABLE II.11.14 GROSS ANNUAL VALUE AND SCORES OF PHYSICAL AND SOCIAL ENVIRONMENT

	SOUTH RIVER M	N	NORTH EAST M	N	NORTH M	N	NORTH WEST M	N
GROSS ANNUAL VAL.	115.39	109	111.72	117	118.13	148	123.17	77
FRIENDLINESS PHYS	0.048	117	0.155	60	0.019	137	-0.252	77
ACTIVITY PHYS	-0.144	117	0.292	60	0.135	137	-0.204	77
AESTHETIC PHYS	-0.121	117	0.302	60	-0.033	137	0.006	77
FRIENDLINESS SOC	-0.273	117	0.365	60	0.137	137	-0.095	77
ACTIVITY SOC	0.021	117	0.027	60	0.097	137	-0.203	77
DELICACY SOC	-0.199	117	0.714	60	-0.057	137	-0.162	77

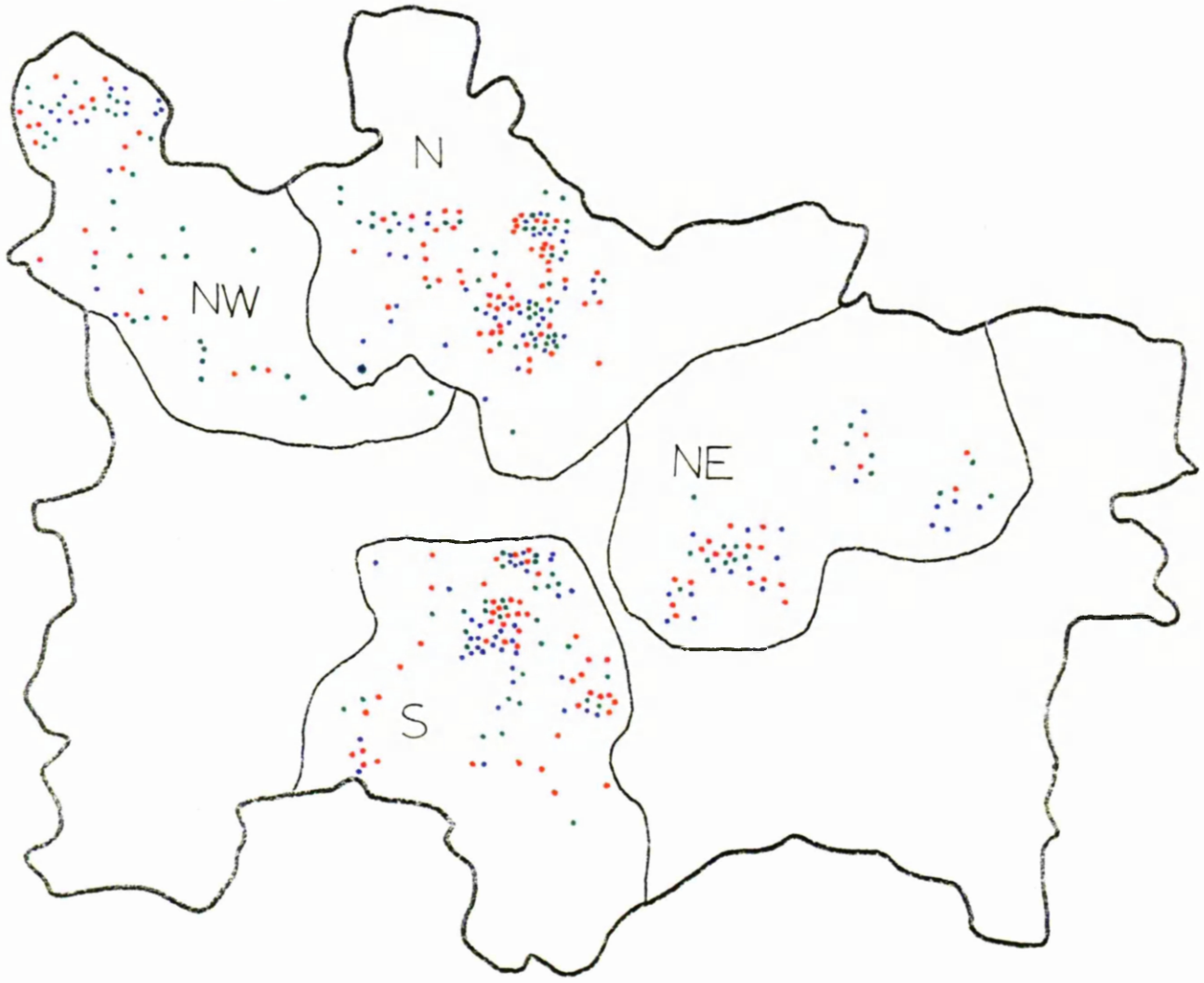
The results for the value of the property were discussed in the previous chapter, but are presented on the same table as the questionnaire scores for comparison. In the physical questionnaire the attitude on the friendliness factor shows some tendency to suggest differences between the areas. The North East area shows that the respondents consider their building as least friendly, whereas the respondents on the North West consider the building as most friendly ($p = 0.087$ NS). The activity factor suggests that the respondents of the North East consider the building as most passive, second are the respondents of the North area, and the South River and North West consider the environment rather active ($p = 0.004$). The aesthetic factor results suggest the tendency of the south river and north west to consider the environment as attractive whereas the North East consider it as unattractive. Comparing the results for the physical questionnaire with the value of the property shows that the results do not always coincide with the relationship between the rateable value of property and the aesthetic factor found in the previous analysis of environmental characteristics. It can be seen that in the area south to the river the aesthetic evaluation of the property is high though the rateable value is lower than that of the north and north west areas. Comparing the map presenting the rateable value of the property (II.10.3) with a map presenting the aesthetic factor for the physical environment (II.11.3) based on the same method as the rateable value map (low in the scores is below -0.5 which is 1/2 SD and high is +0.5) suggests that the concentration of low rated property in the area (corresponding to Crosshill ward approximately) is by no means considered unattractive, but some of the property is considered attractive and some is in the average category of the score on the aesthetic factor. This stems from the fact that the property in this area is to some extent Victorian sandstone tenements (see pictures) which being old and lacking some of the amenities considered essential are low in rating, but can be said to be very attractive (when cleaned from pollution) and even without cleaning they cannot be considered unattractive. The factor in which some relationship with the valuation of the property is detected is the friendliness factor, but as the differences in the areas are not significant for either value or friendliness score the tendency cannot be considered as significant.

MAP II.11.1 FRIENDLINESS FACTOR FOR BUILDING

green - friendly

red - neutral

blue - unfriendly

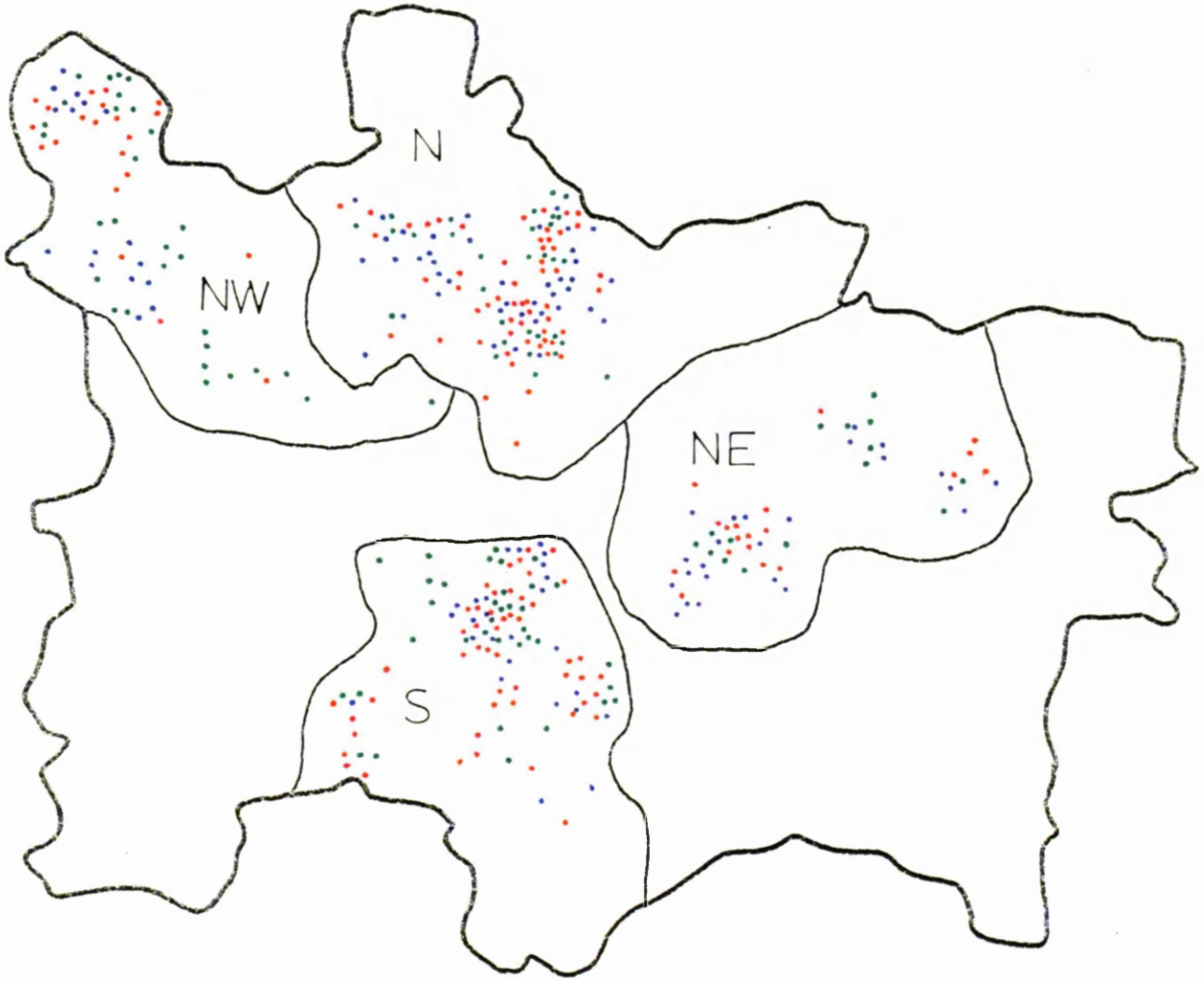


MAP II.11.2 ACTIVITY FACTOR FOR BUILDING

green - active

red - neutral

blue - passive

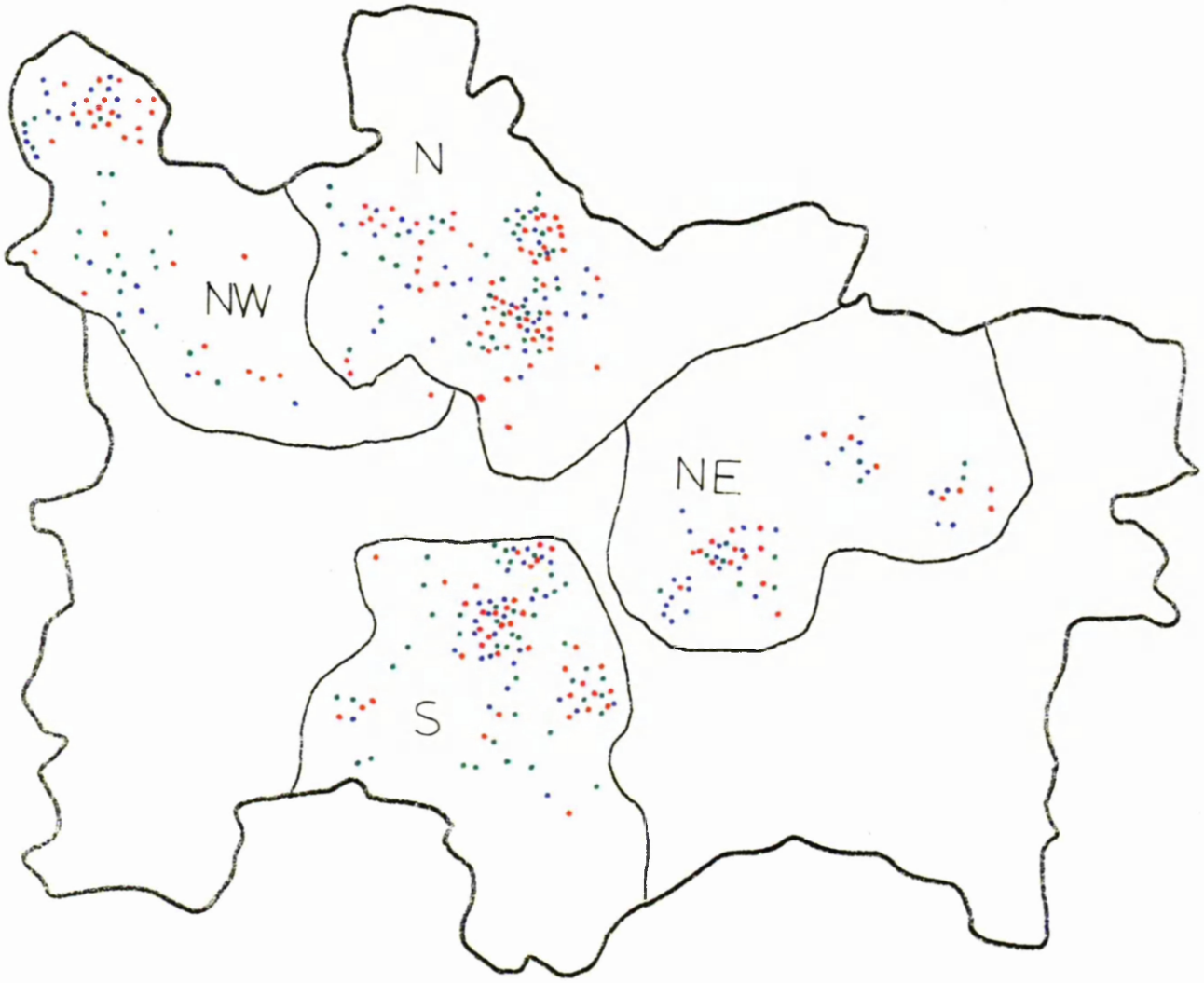


MAP II.11.3 AESTHETIC FACTOR FOR BUILDING

green - aesthetic

red - neutral

blue - unaesthetic



The results for the social environment present a somewhat different picture. Both the friendliness factor and delicacy factor for neighbours show significant differences between the areas. In the friendliness factor the North East area shows the least friendliness for the neighbours. One can also see that in the North area the tendency is to consider the neighbours as unfriendly, whereas the South River respondents consider their neighbours as friendly. In the delicacy factor the results suggest a similar pattern though the North group do not consider their neighbours as indelicate, and the North West group consider them slightly more delicate than friendly. The interesting difference is in the North East area where the result shows that the respondents consider their neighbours very rugged. Looking at the map of the distribution of the score (Map II.11.6) shows that the tendency is present in both neighbourhoods included in this area, that of the East End and that of Cranhill.

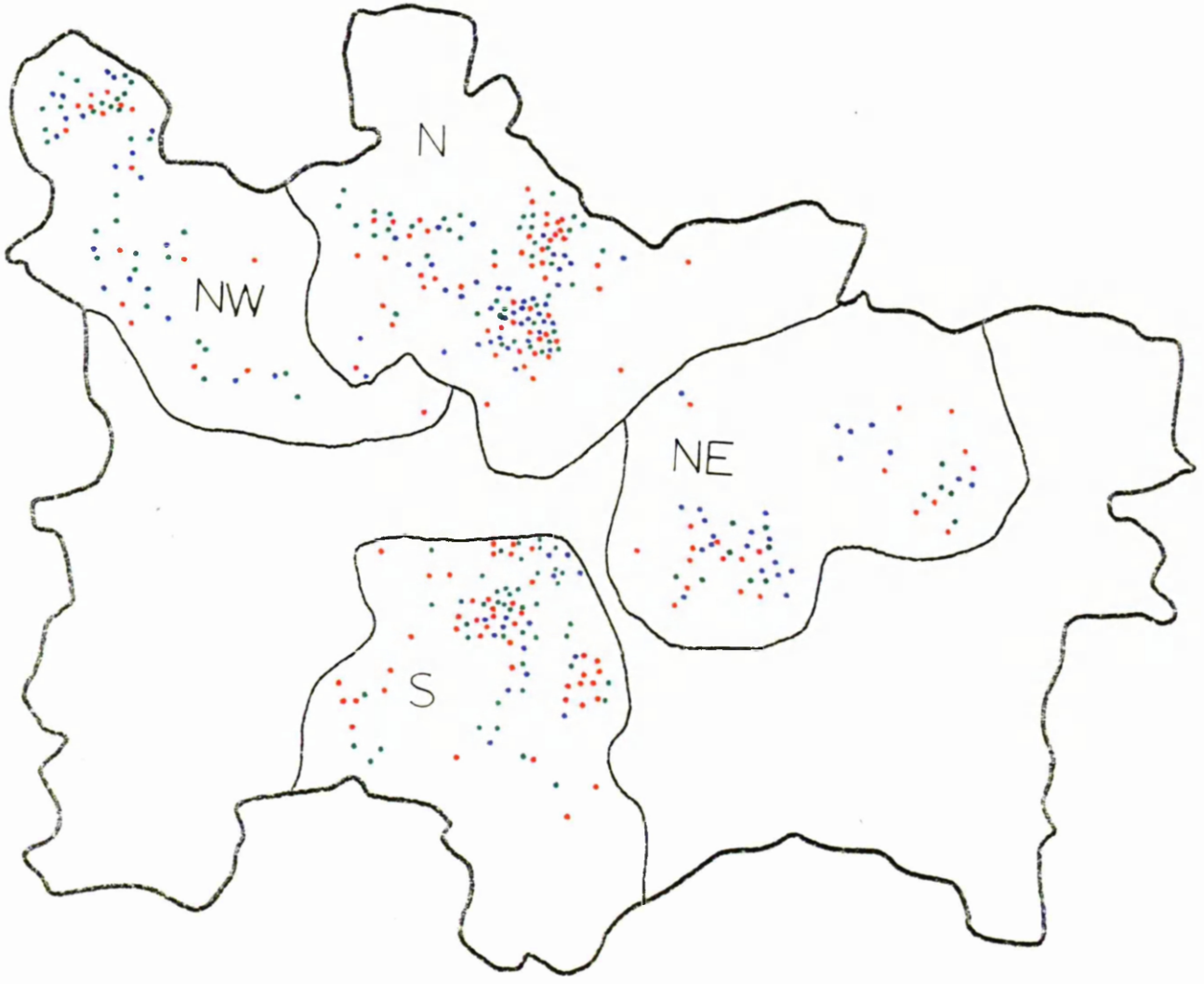
The maps of the distribution of factor scores show no significant spatial pattern concerning the areas except for those already discussed.

MAP II.11.4 FRIENDLINESS FACTOR FOR NEIGHBOURS

green - friendly

red - neutral

blue - unfriendly

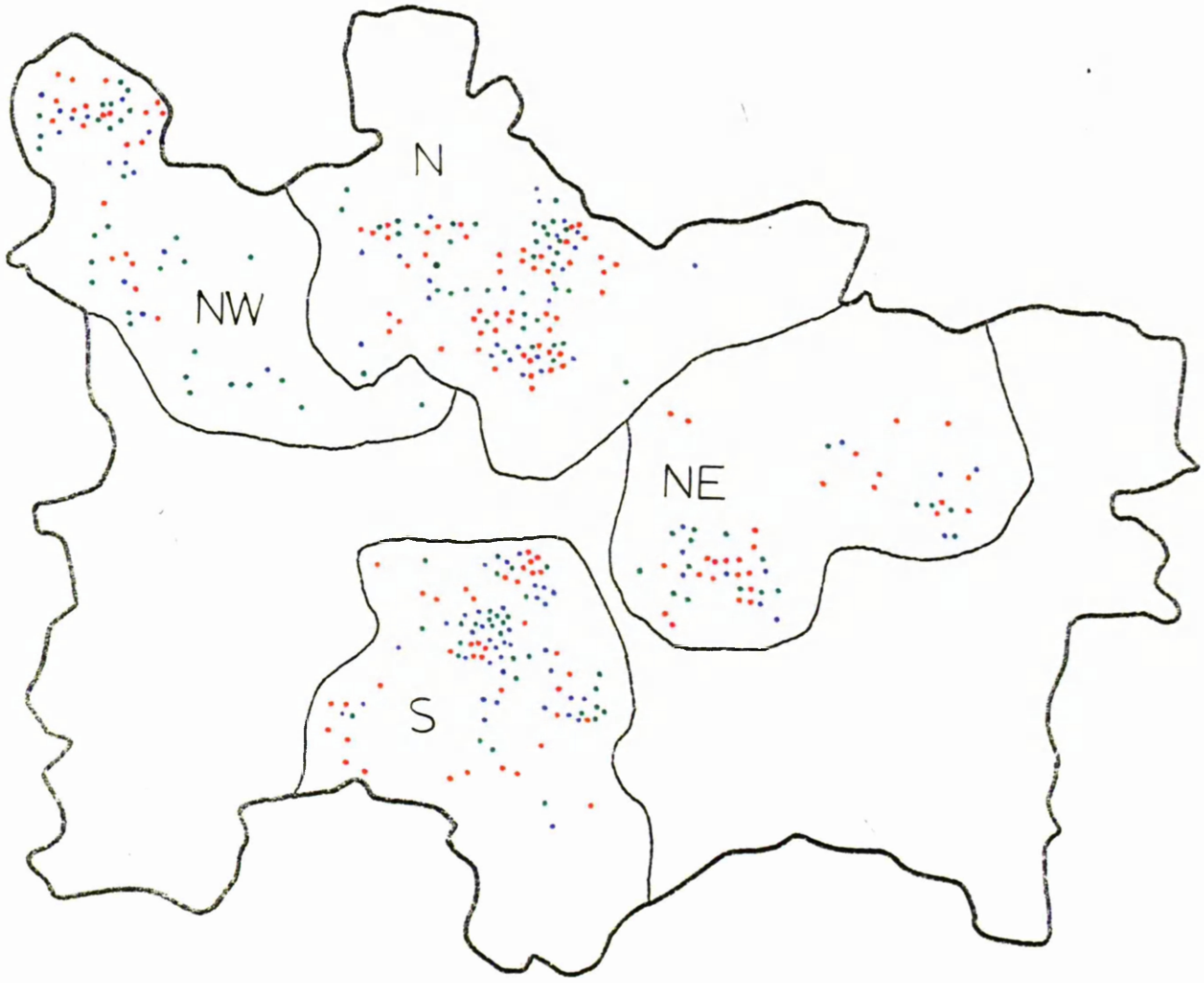


MAP II.11.5 ACTIVITY FACTOR FOR NEIGHBOURS

green - active

red - neutral

blue - passive

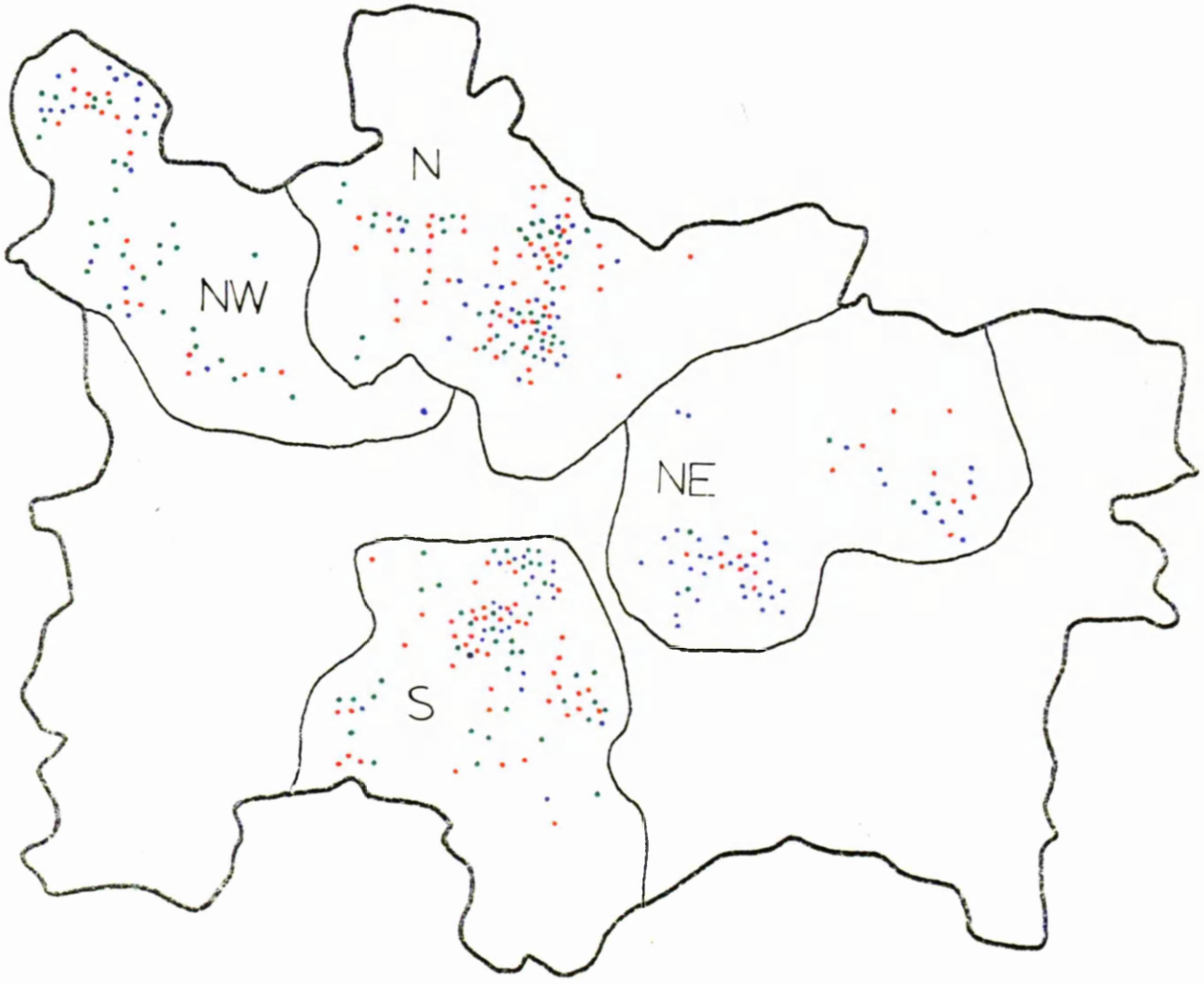


MAP II.11.6 DELICACY FACTOR FOR NEIGHBOURS

green - delicate

red - neutral

blue - not delicate



CHAPTER 12

SUBJECT CHARACTERISTICS AND THE ATTITUDE TOWARDS PHYSICAL AND SOCIAL ENVIRONMENT

It is not surprising that in a study interested in attitudes towards the environment the researcher should take care in describing the environmental stimuli the subject has to respond to. Previously in the current study it was noted that one should also consider some aspects of the social background of the respondents, and the construction of the questionnaire considered the relevance of two of the possible variations of social background, sex and denomination, for the structure of the expressed attitude. Though no difference in structure was observed, one cannot exclude other differences between expressed attitude by persons of different background, to the same stimuli. But sex and denomination are not the only aspects of the social order that may differentiate respondents to the environment. The purpose of the current discussion is to go into some of the possible differentiations suggesting the position of the current characteristics of the subjects relative to other studies.

Two dimensions of the subject are closely related to the territory and therefore were described earlier on in the context of the environmental stimulus: that of occupier (i.e. individual, group, public) and that of tenureship status (i.e. total, partial and no rights to the space unit). The importance of the theoretical implications to the structure of the space unit, and to the patterns of space (which were described in earlier stages) made it necessary to introduce these facets in the environmental context rather than wait to discuss them in their proper position in the human (or subject) context. In other words the difference between the occupier and his tenureship status is of significance to the unit of space itself as was described in the relevant chapter, and not only a characteristics of the human unit detached from the context of the space unit. The close relationships between these dimensions of the human unit, and the structure of the space unit exist in all space units, but are most pronounced in the case of the bubbles, which as was described before are wholly dependent on

the human unit for their existence and therefore for their structure too. In other words one can see that the introduction of a second human organism into a bubble will change its nature immediately, whereas in a territory the structure will not necessarily change due to such an introduction. One of the important differentiations one could make in relation to the man-environment interaction is the person's occupational status in the space unit. In the discussion of the organization of space the assumption was that the human unit connected with the space unit is the occupier of that space unit. But occupation status of the human unit can be said to differ as the tenureship rights can differ. It may be suggested that the status of 'no tenureship rights' to the space does not include visitors to the territory, as they have another territorial unit where their rights are established. In the light of the occupational status concept those people are non-occupiers of that unit of space. It is evident that this type of status can exist mainly in the environmentally defined unit of space, as the personally defined are too much dependent on the presence of the human unit for their existence. Nevertheless though one could find it difficult to observe, a non-occupier status can be included in a group or public bubble (though it is quite impossible in a personal bubble). These non-occupants though rather difficult to identify could sometimes be spotted by a break in the smoothness of distribution of the human units (like people making way for someone), but the knowledge of the existence of such persons will be mainly based on the knowledge of the interrelationships between the members of the group or the public. It is similar in the case of the non-occupant of the territory. One cannot easily realize from the structure of the space that the human unit is a non-occupant though in some cases (like the moving of furniture) it is observable. But as the territory is defined by environmental cues one can easily conceive of non-occupant status of persons within the space unit. Visitors are only one of those categories, invaders are another. In some cases no doubt the status of occupation in a space unit will be a controversial issue between the different human units involved in the situation, one thinking that the other has the status of a non-occupant and the other surprisingly enough trying to establish himself as an occupant.

This situation is not uncommon and is bound to lead to some conflicts, the intensity of which will be dependent on the strength of each of the contestants and on the type of occupation rights held, and the type of tenureship sought. In the case of immigrants for example, theoretically i.e. according to the law they are occupants. Nevertheless they are perceived by some part of the population as non-occupants who are trying to get full tenureship rights in territory which is not theirs. And the suggestion of repatriation of those people is an indication of the conflict between the perception of the situation by two of the sides involved. A somehow different example of the same type of conflict, is the military occupation of some area, where the people of the country do not recognise the military power to be in that territory at all, whereas the military power not only wants to establish its own full tenureship rights to the territory, but also to reduce the tenureship rights of the local population to the same territory.
The two examples from different situations are not given here as the sum total of the meaning of occupant status, as the situation is more complicated than the dichotomy occupant vs non-occupant will indicate. One point to be made is that the occupation status is a sequence rather than a dichotomy, and one of the differences is the time difference, as can be clearly seen if applied to the immigration situation. Though the immigrants by definition substitute one territory for another, the length of time of stay in the new territory can be a factor in the way they and others perceive their relationship with their previous 'home', and therefore their relationship with the new one. But one can also find occupation status differing on the functional dimension as in Appleyard (1973) differentiation between users, non-users and consumers can be considered. The status of the human unit is dependent on the position it has in the system, but sometimes the apparently identical positions do not indicate the same human unit space unit structure of relationships. In the studies of attitudes towards school Canter (1973) chose to study the attitudes of the teacher, and not the pupils. But can one expect the structure of the result to be generalisable? Though they might have the same position in the social system the teachers in Israel, for example, have a different relationship with the territories of the school. The classrooms

(except for laboratory rooms) belong to the children and the teacher has the status of non-occupant, whereas the situation in Britain is the reverse. One could suggest that the occupational status of the Israeli pupil being similar to that of the teacher in Britain will reduce the difference in environmental attitudes towards the classroom, as would have been expected from their different organisational status. And that the same factor will increase the difference between the teachers of the two countries. One should therefore be rather careful to mention the relationship between the units studied, and not only their position in the system. The fact that a person is a consumer means a different thing if the general attitude is that the consumer is a nuisance, or if it is that the consumer is always right. The same will be relevant for every type of territory, and for other occupancy status. The fact that Canter mentioned that the subjects in a study were teachers might be misleading rather than enlightening to a reader from a different educational system, who did not know what Canter must have been taking for granted.

To summarize the comments on the subject, all the characteristics described can be said to be the characteristics of the relationships between the subject and the unit of space, and therefore can be considered a part of the organization of space. The tenureship status, which is one of these was, therefore, studied in the building characteristic context rather than in the context of subject characteristics.

When one considers subject characteristics, one can also consider some of the characteristics which are independent of the spatial system: these are the social characteristics of the subject, i.e. the position the subject occupies in the social system, and individual differences i.e. traits, aptitudes, etc. The importance attached to personality vs social characteristics of the individual is largely dependent on the general theoretical approach, but also on the type of environment studied (large scale patterns of space vs single units for example). An approach emphasising situational context in behaviour in general will no doubt do the same with environmental behaviour, whereas trait approach will emphasise individual differences. Though there are some indications of the

limitations of the trait approach (see Mischel 1968, and Campbell and Fiske 1959) because of measurement problems this approach is by no means obsolete, and is used in many areas in psychology where individual differences are of importance (personnel selection for example). Though the study of environmental behaviour does not centre on the latter approach it is not ignored, and an issue of Environment and Behavior dedicated to personality and the environment could be an indication of that fact (June 1977).

Individual differences are discussed not only in the sphere of personality study. A substantial amount of the study of individual differences is in the sphere of aptitude tests (known to the public as intelligence tests but including also specific aptitudes). The ability of individuals to cope with their environment, physical and social, varies, and tests try to assess and predict future coping for different purposes. One may suggest that this ability to cope is also relevant to coping with spatial units, understanding of spatial organisation etc. One may find an indication of that in the existence of spatial tests among the non-verbal intelligence batteries. In most of these tests the relationship between two dimensional (spatial) form and its three dimensional form is the problem presented to the individual, and though one has to recognize the relationships between a culture and this ability (Jahoda 1966; Hudson 1960; Segall et al 1968) one can see that individual differences exist. This interests especially the researcher who concentrates on the image of the environment, asking his subject to present the environment in maps (Gould and White 1977 for example). But that same technique shows the importance of another individual difference in ability, and that is the motor aptitude to draw maps. In studies using the technique the ability difference is played down, though one may find it mentioned.

Other differences between individuals may be due to differences in traits, differences in basic attitudes (relationships to be described in the chapter discussing attitudes) which are widely studied in non environmental contexts.

One of the reasons for the lack of interest in individual differences is the fact that they are expensive to assess compared

with social characteristics and their predictability is doubtful even in non-environmental situations (see Mischel 1968 for personality assessment, and Ghiselli 1966 for predictability in the context of personnel selection). The other consideration hindering this type of research is the fact that design inevitably does not cater for individuals but rather for a standard individual, either in the most general sense, or in a more limited sense according to the position he occupies in the social system.

In spite of what was said before one can see some theoretical justification for this type of study, in the short run, enhancing the understanding of spatial behaviour. Its practical use in the long run may be in the use of spatial practices in psychotherapy, or a clinical approach to the relationship between designer and client.

The third type of subject characteristics is the social position of the subject in society. Two of the characteristics of that type involved in the current study have already been mentioned when the questionnaire was discussed: sex of the respondent, and denomination. Despite the insistence of equality between the sexes, differences do exist, and one can note as an example the differences in the structure of the FRIENDLINESS factor in the current study. The denominational characteristic may be considered an intra-society cultural difference. How significant these differences are to the attitude towards the environment has not been established. Many of the studies dealing with the subject fail to mention the sex or denomination of the subject (Canter 1969, Wools 1970), others mention the composition of the subjects as far as sex is concerned (denomination is less often available, or relevant) for example Garling (1976), but do not compare subjects on that basis.

Other considerations for the selection of subjects exist in studies: Canter & Thorne (1972) based their selection on inter society cultural differences (what is commonly called cross cultural comparison). Further bases for differences can be the socio-economic status of the subjects (SES). SES variables are many including income, education, and occupational status. In

most cases the middle-class group is under study (as subjects are more often than not students), being the more articulate group, for example, see details of subject background in Canter & Thorne op cit. In some cases, though, one can find studies using comparisons between SES (Onibokun 1976). Age is another common basis of subject classification. As in the other cases the availability of students results in common use of young adults (Canter 1969, Canter & Thorne 1972, Downs 1970 and many others). But other age groups are also available for study, as in the current study where the sample was of adolescents, aged 14 to 15.

The most comprehensive comparison of subject characteristics as far as the study of attitude towards the environment was concerned is the study by Lowenthal (1972) where different subjects from boy scouts to persons over 40 were included in the sample, though the majority were young adults, but not as young as a sample of students would have been. It also included persons of different occupations, although in general they were of middle class occupations (semi-professionals, and professionals), and different educational levels.

The characteristics of the current sample on those dimensions was partly described earlier on. The sample consisted of evenly distributed two denominational groups, about half Roman Catholic, and the others Non-denominational (see Table I.5.3). The sample also included half boys and half girls (see same Table). The age group was, as mentioned before, adolescents. The occupation of the head of family was the other social characteristic to be included. It was the only available information indicating the socio-economic status of the family (income was not a question one could put to the subjects, of whom the majority could not be expected to give any information of this type, and education was equal for all cases as the subjects were in the same year at school).

Classification at first was into 6 groups, and was later reduced to 3, because of the small number of cases in some of the groups.

1. The first category included all subjects where the head of the family was not working for other reasons than unemployment.

Pensioners were one of the groups. Another were cases where the father was absent, and the mother was not working.

2. The second category was of the unemployed.

3. Unskilled workers - labourers, cleaners, etc.

4. Semi-skilled and skilled workers.

5. White collar workers - secretaries, and shopkeepers were in this category.

6. Semi-professionals and professionals - teachers, nurses, etc.

Table II.12.1 presents the distribution of subjects according to this classification. Later on for the analysis the two first categories wereput into one, suggesting that psychologically speaking the presence of a head of family who is employed has a critical effect on the adolescent, by setting and example, and therefore the absence of such a figure in the household, no matter what the reason is, may have a similar effect on attitude as on other things.

TABLE II.12.1 DISTRIBUTION OF HEAD OF FAMILY OCCUPATION

	Pensioner, Absent	Unemployed	Unskilled	Skilled	White-collar	Prof.
No.	38	65	69	225	52	20
%	8.1	13.9	14.7	48.0	11.1	4.2

Not employed		Manual		White collar	
N	%	N	%	N	%
103	22.0	294	62.7	72	15.4

(This point was suggested by Wolff and Shanan (1976) in their argument for investing in rehabilitation programmes for the unemployed rather than spending on social security). Twentytwo per cent were in that category. The second category included the cases of unskilled and skilled manual workers forming the majority of cases in the sample (62.7%) and the third category consisted of the non-manual workers (whitecollar and professionals) 15.4%. The groups are not homogeneous, but the uneven distribution of occupations in the sample led to small numbers in all the groups except for the manual skilled one, and they had to be put under one category in the most logical way to create large enough categories for comparison.

The previous discussion described the characteristics of the sample on each of the variables separately. One can also show the distribution of subjects on two way interaction between sex and occupation of head of family, and denomination and occupation of head of family.

Table I.5.3 (in chapter 5 first part), presents the details of the subjects' sex according to their denomination, and one can see that the distribution of the subjects is even according to that interaction.

Table II.12.2 presents the distribution of occupational category between the sex groups. One can see that there is no difference between the sex groups in the occupational structure of the sample. In other words the occupational structure of the two sex groups is similar.

TABLE II.12.2 OCCUPATION OF HEAD OF FAMILY BY SEX

	Not employed		Manual		White Collar		Total	
	N	%	N	%	N	%	N	%
Males	55	23.0	144	60.3	40	16.7	239	100
Females	48	20.9	150	65.2	32	13.9	230	100
TOTAL	103	22.0	294	62.7	72	15.4	469	100

Table II.12.3 presents the comparison between the two denominational sub-samples in the occupation of head of family. Contrary to the case of the sex sub-sample the denominational subsample presents a different occupational structure. More of the RC subjects come from a home where the head of the family is occupied in non-manual work, and less of the group from a family where the head of the family is unemployed ($X^2 = 6.646$, DF = 2, p = .04).

TABLE II.12.3 OCCUPATION OF HEAD OF FAMILY BY DENOMINATION

	Not employed		Manual		White Collar		Total	
	N	%	N	%	N	%	N	%
N. Den.	59	25.4	146	62.9	27	11.6	232	100
Ro. Cath.	44	18.6	148	62.4	45	19.0	237	100
TOTAL	103	22.0	294	62.7	72	15.4	469	100

The difference between the denominations can be observed to be repeated in other variables of environmental characteristics, and due to some bias in the sampling, which was caused by the response and cooperation of schools which were invited to participate in the study. The differences, which will be described in the chapter on interaction between social and physical variables, should be kept in mind when reading the results presented in this chapter.

Another variable unvalued is the spatial position of the subject (denomination, sex and occupation of head of family). The distribution of subject according to sex was even in all areas (see Table II.12.4) as a result of the sampling. On the other hand the problems in achieving cooperation from schools caused the distribution of subjects of different denomination in the areas to be uneven (Table II.12.5). Map II.12.1 presents the distribution of denominations in the four areas. It can be seen that the North West areas is totally RC. It can also be seen that in the North area the majority of the subjects are ND and that the RCs and NDs within the area do not reside in the same parts of the area.

TABLE II.12.4 DISTRIBUTION OF SEX BY AREA

	SOUTH RIVER		NORTH EAST		NORTH		NORTH WEST	
	N	%	N	%	N	%	N	%
MALES	63	53.8	60	50.0	77	49.0	39	50.6
FEMALES	54	46.2	60	50.0	80	51.0	38	49.4
TOTAL	117	100.0	120	100.0	157	100.0	77	100.0

TABLE II.12.5 DISTRIBUTION OF DENOMINATION BY AREA

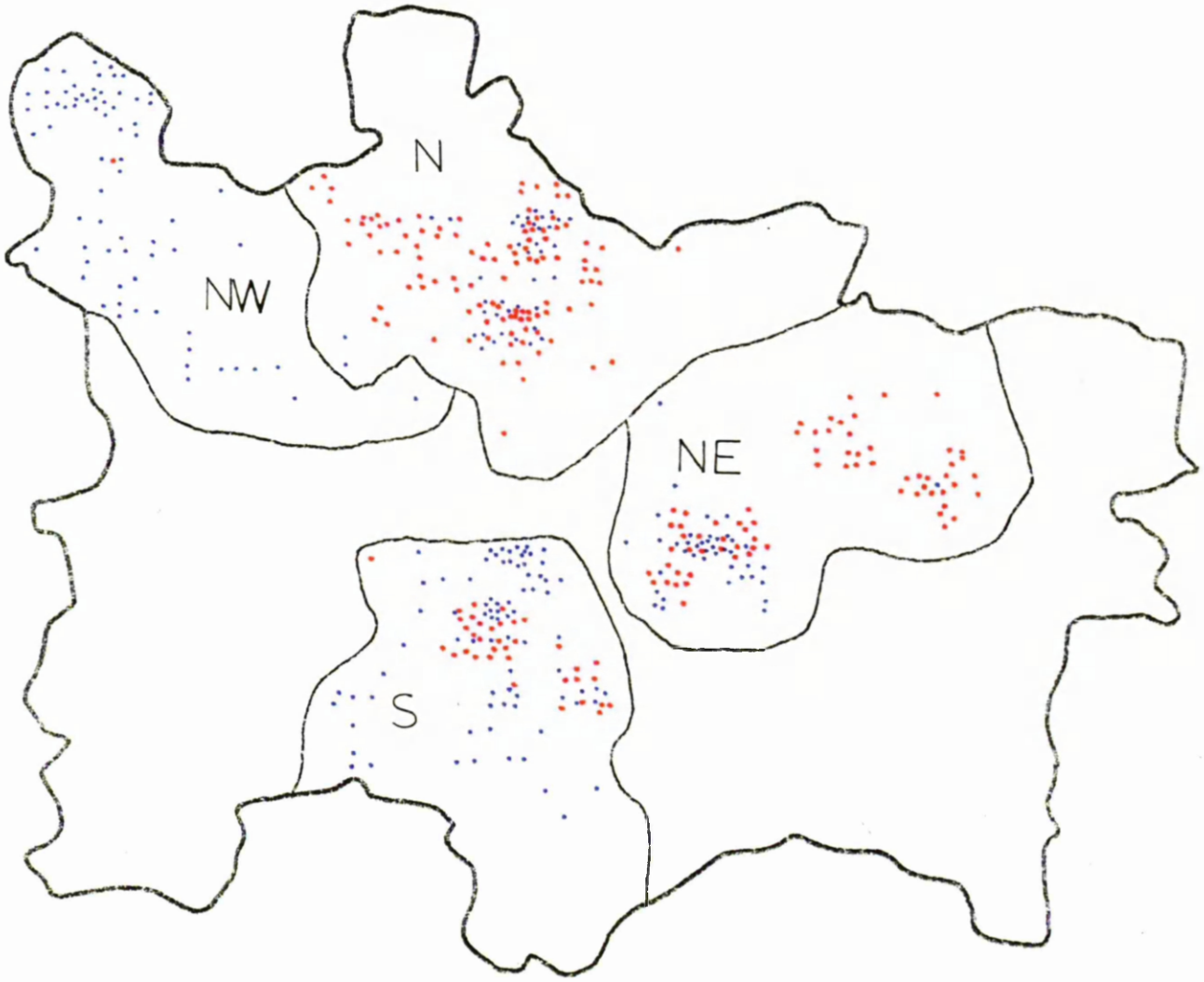
	SOUTH RIVER		NORTH EAST		NORTH		NORTH WEST	
	N	%	N	%	N	%	N	%
ND	36	30.8	80	66.7	118	75.2		
RC	81	69.2	40	33.3	39	24.8	77	100.0
TOTAL	117	100.0	120	100.0	157	100.0	77	100.0

In the North East a similar observation can be made, whereas the East End area (the area to the centre of the city) is mixed denominations and the area more to the outskirts has almost all NDs. In the South, as well as in the previous areas, the sampling is

MAP II.12.1 SUBJECT'S DENOMINATION

blue - Roman Catholic

red - Non Denomination



imbalanced, the number of RC exceeding the number of ND and some areas having only one denomination.

The sample is obviously biased, and may account for some of the differences found in the Denominational groups. One has to remember that the need to gain the cooperation of schools may have caused the imbalance, as, unlike the sex, one had less control on the availability of subjects.

Table II.12.6 and Map II.12.2 present the distribution of the occupation of head of family for the areas. Here as in the case of the denomination groups the sample is not balanced. In the North East area and in the North area the number of 'Not employed' is higher than in the other two areas and in the North West the number is lowest. The two areas with the lowest number of not employed have the highest number of white collar employees. The Map (II.12.2) also shows the concentration of the 'not employed' within the areas.

TABLE II.12.6 DISTRIBUTION OF OCCUPATION BY AREA

	SOUTH RIVER		NORTH EAST		NORTH		NORTH WEST	
	N	%	N	%	N	%	N	%
NOT EMPLOYED	19	16.2	36	30.0	38	24.5	10	13.0
MANUAL	69	59.0	73	60.8	103	66.5	49	63.6
WHITE COLLAR	29	24.8	11	9.2	14	9.0	18	23.4
TOTAL	117	100.0	120	100.0	155	100.0	77	100.0

1. <u>The influence of social position on the attitude towards the environment</u>

It has been shown that there was no difference between the sexes as to the type of house they occupied and that of the head of family's occupational status, but some difference between the denominational groups did exist. Therefore any difference existing between the sexes can be considered as such whereas further analysis should be made on the denominational results (see Table II.12.7).

MAP II.12.2 OCCUPATION OF HEAD OF FAMILY

green - white collar

red - manual

blue - not employed

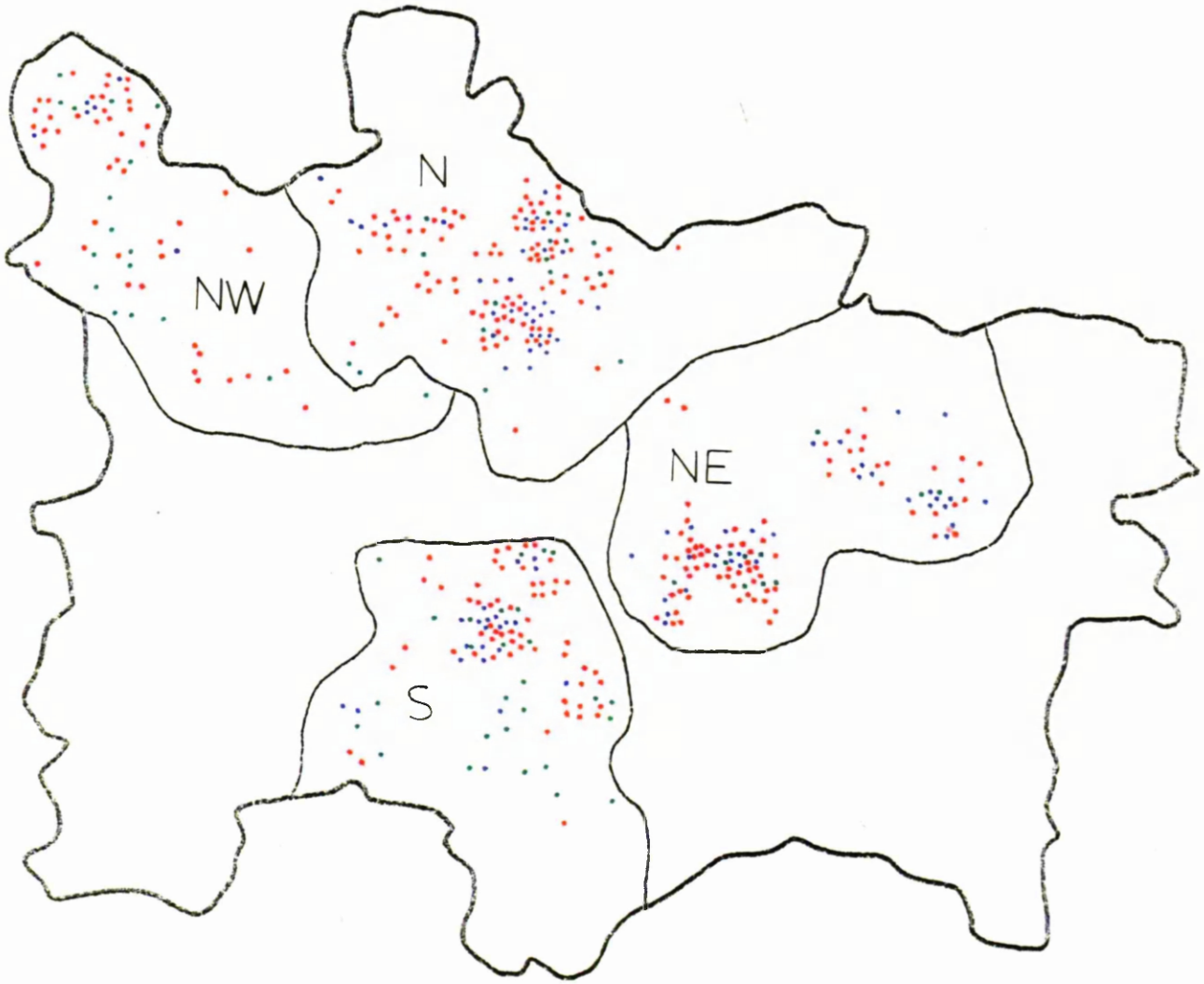


TABLE II.12.7 MEAN SCORE FOR PHYSICAL QUESTIONNAIRE FOR SEX AND DENOMINATION

	TOTAL M	N	ND M	N	RC M	N
TOTAL	3.498	311	3.663	114	3.402	197
MALES	3.443	161	3.752	59	3.431	95
FEMALES	3.548	150	3.568	55	3.371	102

In two modes of analysis of variance (ANOVA Sub-routine SPSS Nie 1970) the main effect was significant, and so was the difference between the denominational groups. The sex differences were non-significant. One can see that attitude towards the environment is more positive in the RC denomination in both the male and the female group, but though some tendency for a more positive attitude exists for the male group it is not significant.

The next tables (Tables II.12.8 to II.12.10) will describe the results for the first three factors of the questionnaire, i.e. FRIENDLINESS, ACTIVITY and AESTHETIC. The difference in the number of cases is due to the addition of cases which completed only one questionnaire.

TABLE II.12.8 RESULTS OF FRIENDLINESS FACTOR FOR PHYSICAL ENVIRONMENT ACCORDING TO SEX AND DENOMINATION OF SUBJECT

	TOTAL M	N	ND M	N	RC M	N
TOTAL	-0.005	391	0.108	174	-0.095	217
MALES	0.200	201	0.309	89	0.114	112
FEMALES	-0.222	190	-0.102	85	-0.318	105

It can be noted from the results for the friendliness factor (Table II.12.8) that differences exist between the groups, a result confirmed by a two way ANOVA. The main effect and the sex difference are significant ($p<.001$). The lower scores of the female group indicate their tendency to a more positive attitude towards the environment, i.e. viewing it as more friendly than the males. The same tendency occurs in the RC group, but the difference is non-significant ($p<.10$), and one can regard it as only a tendency, which must be confirmed if it is to be accepted.

TABLE II.12.9 RESULTS OF ACTIVITY FACTOR FOR PHYSICAL ENVIRONMENT ACCORDING TO SEX AND DENOMINATION

	TOTAL		ND		RC	
	M	N	M	N	M	N
TOTAL	0.009	391	0.172	174	-0.122	217
MALES	0.056	201	0.254	89	-0.101	112
FEMALES	-0.041	190	0.087	85	-0.145	105

In the activity factor the group of RC tend to see the environment as more active than the ND group ($p < .025$) if difference is present between the sexes.

TABLE II.12.10 RESULTS OF AESTHETIC FACTOR FOR PHYSICAL ENVIRONMENT ACCORDING TO SEX AND DENOMINATION

	TOTAL		ND		RC	
	M	N	M	N	M	N
TOTAL	0.000	391	0.113	174	-0.091	217
MALES	-0.058	201	0.090	89	-0.176	112
FEMALES	-0.061	190	0.136	85	0.000	105

No significant differences between the groups were found on the AESTHETIC factor. Results for occupational groups are presented for 5 groups (white collar and professional are put into one category). In later stages when interaction between variables is looked into the 3 category classification comes into effect.

TABLE II.12.11 OCCUPATION OF HEAD OF FAMILY AND ATTITUDE TOWARDS THE PHYSICAL ENVIRONMENT

	1	2	3	4	5
MEAN	3.747	3.579	3.428	3.464	3.435
FRIENDLINESS	0.108	-0.056	-0.026	-0.059	0.140
ACTIVITY	0.231	0.032	-0.097	-0.012	0.004
AESTHETIC	-0.114	0.114	0.031	0.008	-0.099

The differences between the groups of occupational status are not significant (Table II.12.11). To summarise the results of the relationship between the attitude towards the physical environment thenone can say that some of the differences in the social position account for differences in the attitude towards the environment, or rather the building they live in.

TABLE II.12.12 MEAN SCORE FOR SOCIAL QUESTIONNAIRE ACCORDING TO SEX AND DENOMINATION

	TOTAL	ND	RC
TOTAL	3.307	3.468	3.214
MALES	3.460	3.715	3.313
FEMALES	3.143	3.204	3.107

The attitude of the subjects towards their social environment (i.e. neighbours) differs according to both sex and denomination (Table II.12.12). Females and Roman Catholics tend to have a more positive view of their neighbours.

TABLE II.12.13 FRIENDLINESS FACTOR FOR SOCIAL ENVIRONMENT ACCORDING TO SEX AND DENOMINATION

	TOTAL	ND	RC
TOTAL	0.002	0.144	-0.111
MALES	0.213	0.343	0.111
FEMALES	-0.221	-0.065	-0.348

In the friendliness factor (Table II.12.13) the different groups differ also in their view of their neighbours. And the results show that the girls and the RC have a more positive attitude towards their neighbours than the boys and the ND ($p<.001$) on the factor. This result agrees with the result of a general attitude as was shown in the previous table, and is different from the lack of difference found in the physical questionnaire on the friendliness factor.

TABLE II.12.14 ACTIVITY FACTOR FOR SOCIAL SCALE ACCORDING TO SEX AND DENOMINATION

	TOTAL	ND	RC
TOTAL	0.003	0.096	-0.071
MALES	0.105	0.177	0.049
FEMALES	-0.105	0.011	-0.199

For the activity factor (Table II.12.14) the significant difference is the difference between the sexes, girls seeing their neighbours as more active than boys ($p<.045$). The difference between the denominations was not significant, compared with the opposite effect in the physical scale.

TABLE II.12.15 DELICACY FACTOR FOR SOCIAL ENVIRONMENT ACCORDING TO SEX AND DENOMINATION

	TOTAL	ND	RC
TOTAL	-0.002	0.097	-0.081
MALES	-0.066	0.119	-0.213
FEMALES	0.066	0.074	0.059

The difference on the delicacy factor (Table II.12.15) is significant for sex and denomination differences. The difference in the sex groups is in the RC group, and the difference between the denomination group is for males. In other words RC males see their neighbours as more delicate than ND males, but there is no difference between females according to their denomination. In the RC group the males consider the neighbours more delicate than the females.

TABLE II.12.16 HEAD OF FAMILY OCCUPATION AND SOCIAL ENVIRONMENT ATTITUDES

	1	2	3	4	5
MEAN	3.650	3.325	3.345	3.223	3.294
FRIENDLINESS	0.181	0.026	0.048	-0.051	0.008
ACTIVITY	0.347	-0.178	-0.049	-0.001	0.001
DELICACY	0.025	0.057	0.129	-0.030	-0.098

Table II.12.16 presents the results of attitudes towards the neighbours for occupational groups. Although the results of some of the occupational groups seem to deviate from the mean significantly, notably the first group, these differences are not significant mainly due to the small number of cases in the deviating groups.

To summarize the results of the social questionnaire one can see that the differences between the sub-groups according to social characteristic is more common than the difference in their view of the physical environment. Significant difference was found on the factors, either for sex of the subject or for denomination, or both. On the other hand in the physical environment questionnaire the differences were fewer, and except for one case, that of aesthetic value, only one of the social variables gave rise to the difference. But one common fact emerges in both questionnaires,

and that is that the tendency of the female group in general and the RC group in general is to a more positive attitude towards the environment than the male group or the ND group respectively.

2. Comparison between differential scores of factors and questionnaires

Due to the fact that the factor scores of the two questionnaires are standard scores, a comparison between the position of the sex and denomination groups on the factors can be made. One can compare the results for the friendliness factor as compared with the two other scores of the questionnaire, and the score of friendliness for the physical environment, with that for the social environment. Comparing the results of the factor scores for the two questionnaires (friendliness of building with friendliness of neighbours, activity of building with activity of neighbours, and aesthetic of building with delicacy of neighbours) one can see clearly enough from the above presented results that stimulus had no relationship with the attitude difference. That means that the mean score of the group for each of the parallel factors of the two questionnaires was similar.

Comparing the different factors within each of the questionnaires suggests that some differences in the component of the attitude exist in the different groups. These differences exist when the two way interaction between the factor scores of the two questionnaires with the sex of the respondent is considered. Females tend to perceive the environment as more friendly than aesthetic, and the opposite order is true for the male group attitude ($F = 6.826$, $p = 0.001$, $DF = 2$). The results for the social questionnaire are similar, having the same order in the component of the attitude for the neighbours as can be seen for the building ($p = 0.00$, $DF = 2$). No interaction was found between denomination and factor scores, or the occupation of head of family.

3. Interaction between occupation and sex and denomination of subject

The results of the occupational status of the head of the family did not account for the difference in the attitude structure of the respondents in either the social or physical questionnaire. It may be as a result of an interaction between the occupation of head of family with other variables. The interaction between occupation and the other two social variables is looked into in

this stage. Tables II.12.17 and II.12.18 present the value of the property for the different groups by sex and occupation and denomination and occupations respectively. Although differences between the occupational groups seem to exist they are too small to be of significance, and no difference appears to be present in either sex or denomination. Therefore any difference in the attitude cannot be explained by the value of the property.

TABLE II.12.17 GROSS ANNUAL VALUE FOR SEX AND OCCUPATION OF HEAD OF FAMILY

	NOT EMPLOYED		MANUAL		WHITE COLLAR	
	M	SD	M	SD	M	SD
MALES	110.30	36.41	117.46	28.25	120.71	41.17
FEMALES	114.52	23.06	116.01	28.72	124.65	42.07

TABLE II.12.18 GROSS ANNUAL VALUE FOR DENOMINATION AND OCCUPATION OF HEAD OF FAMILY

	NOT EMPLOYED		MANUAL		WHITE COLLAR	
	M	SD	M	SD	M	SD
ND	110.53	25.91	115.83	24.48	121.75	38.36
RC	114.51	36.73	117.57	31.80	122.87	43.22

Tables II.12.19 to II.12.22 present the results for the physical questionnaire in the interaction between sex and occupational status. The results for most of the scores are not significant. The only significant effect is for the friendliness factor (main effect $F = 6.476$, $p = 0.00$, $DF = 3$), where the attitude of the males when the father is of white collar occupation is to consider the building slightly less friendly than is the case for the other two occupational groups, with a similar effect in the female group. But the differences are not large enough to be significant.

TABLE II.12.19 MEAN OF PHYSICAL QUESTIONNAIRE FOR SEX AND OCCUPATION OF HEAD OF FAMILY

	NOT EMPLOYED		MANUAL		WHITE COLLAR	
	M	N	M	N	M	N
MALES	3.748	34	3.794	94	3.547	31
FEMALES	3.557	31	3.419	96	3.291	24

TABLE II.12.20 FRIENDLINESS OF BUILDING FOR SEX AND OCCUPATION OF HEAD OF FAMILY

	NOT EMPLOYED		MANUAL		WHITE COLLAR	
	M	N	M	N	M	N
MALES	0.155	49	0.185	114	0.341	36
FEMALES	-0.175	40	-0.269	124	-0.129	27

TABLE II.12.21 ACTIVITY OF BUILDING FOR SEX AND OCCUPATION OF HEAD OF FAMILY

	NOT EMPLOYED		MANUAL		WHITE COLLAR	
	M	N	M	N	M	N
MALES	0.133	49	0.074	114	-0.092	36
FEMALES	0.078	40	-0.127	124	0.114	27

TABLE II.12.22 AESTHETIC OF BUILDING FOR SEX AND OCCUPATION OF HEAD OF FAMILY

	NOT EMPLOYED		MANUAL		WHITE COLLAR	
	M	N	M	N	M	N
MALES	0.011	49	-0.073	114	-0.038	36
FEMALES	0.047	40	0.092	124	-0.181	27

Tables II.12.23 to II.12.26 present the results for the social questionnaire. As in the case of the physical questionnaire the results are too small to be of significance. There is some tendency in the friendliness factor for the 'not employed' group to consider their neighbours as less active than the other two occupational groups, in the male group, and some indication for the female manual workers to consider the neighbours as more active than the other occupational groups, but none of the results is significant statistically.

TABLE II.12.23 MEAN OF SOCIAL QUESTIONNAIRE FOR SEX AND OCCUPATION OF HEAD OF FAMILY

	NOT EMPLOYED		MANUAL		WHITE COLLAR	
	M	N	M	N	M	N
MALES	3.696	34	3.396	94	3.474	31
FEMALES	3.233	31	3.108	96	3.063	24

TABLE II.12.24 FRIENDLINESS OF NEIGHBOURS FOR SEX AND OCCUPATION OF HEAD OF FAMILY

	NOT EMPLOYED		MANUAL		WHITE COLLAR	
	M	N	M	N	M	N
MALES	0.433	40	0.140	124	0.296	35
FEMALES	-0.257	39	-0.198	122	-0.339	29

TABLES II.12.25 ACTIVITY OF NEIGHBOURS FOR SEX AND OCCUPATION OF HEAD OF FAMILY

	NOT EMPLOYED		MANUAL		WHITE COLLAR	
	M	N	M	N	M	N
MALES	0.033	40	0.090	124	0.238	35
FEMALES	0.063	39	-0.117	122	-0.281	29

TABLE II.12.26 DELICACY OF NEIGHBOURS FOR SEX AND OCCUPATION OF HEAD OF FAMILY

	NOT EMPLOYED		MANUAL		WHITE COLLAR	
	M	N	M	N	M	N
MALES	-0.076	40	-0.012	124	-0.200	35
FEMALES	0.165	39	0.029	122	0.025	29

The results of the attitude scores for the interaction of denomination and occupation of head of family are presented in Tables II.12.27 to II.12.30 for the physical environment, and II.12.31 to II.12.34 for the social environment. Though some of the results indicate some possible interaction between the two variables most of them are not significant. In the physical questionnaire the main effect for the mean score of the physical questionnaire is significant, and though the main differences to be found are between the denominational groups, one can note a difference in the trend of the score between the occupational subgroups in each denomination. In the ND group the white collar tend to a less favourable attitude towards the environment compared with the two other occupational groups, whereas the tendency in the RC group is for a more favourable attitude (main effect: $F = 2.936$, $p = 0.034$). Similar indications exist in the activity factor, where the white collar group of the ND sub-sample consider the building most passive and the 'not employed' group consider it the most active, whereas in the RC group the manual and white collar groups consider the building more active than the 'not employed' group (main effect: $F = 2.945$, $p = 0.032$).

TABLE II.12.27 MEAN OF PHYSICAL QUESTIONNAIRE FOR DENOMINATION AND OCCUPATION OF HEAD OF FAMILY

	NOT EMPLOYED		MANUAL		WHITE COLLAR	
	M	N	M	N	M	N
ND	3.665	30	3.606	67	3.844	16
RC	3.649	35	3.744	123	3.267	39

TABLE II.12.28 FRIENDLINESS OF BUILDING FOR DENOMINATION AND OCCUPATION OF HEAD OF FAMILY

	NOT EMPLOYED		MANUAL		WHITE COLLAR	
	M	N	M	N	M	N
ND	0.005	49	0.062	104	0.558	20
RC	0.009	40	-0.139	134	0.055	43

TABLE II.12.29 ACTIVITY OF BUILDING FOR DENOMINATION AND OCCUPATION OF HEAD OF FAMILY

	NOT EMPLOYED		MANUAL		WHITE COLLAR	
	M	N	M	N	M	N
ND	-0.121	49	0.156	104	0.321	20
RC	0.093	40	-0.176	134	-0.155	43

TABLE II.12.30 AESTHETIC OF BUILDING FOR DENOMINATION AND OCCUPATION OF HEAD OF FAMILY

	NOT EMPLOYED		MANUAL		WHITE COLLAR	
	M	N	M	N	M	N
ND	0.137	49	0.064	104	0.276	20
RC	-0.107	40	-0.027	134	-0.274	43

TABLE II.12.31 MEAN OF SOCIAL QUESTIONNAIRE FOR DENOMINATION AND OCCUPATION OF HEAD OF FAMILY

	NOT EMPLOYED		MANUAL		WHITE COLLAR	
	M	N	M	N	M	N
ND	3.553	30	3.416	67	3.498	16
RC	3.408	35	3.160	123	3.210	39

TABLE II.12.32 FRIENDLINESS FOR NEIGHBOURS FOR DENOMINATION AND OCCUPATION OF HEAD OF FAMILY

	NOT EMPLOYED		MANUAL		WHITE COLLAR	
	M	N	M	N	M	N
ND	0.126	40	0.161	109	0.113	23
RC	0.059	39	-0.178	137	-0.051	41

TABLE II.12.33 ACTIVITY OF NEIGHBOURS FOR DENOMINATION AND OCCUPATION OF HEAD OF FAMILY

	NOT EMPLOYED		MANUAL		WHITE COLLAR	
	M	N	M	N	M	N
ND	0.165	40	0.052	109	0.167	23
RC	-0.072	39	-0.065	137	-0.091	41

TABLE II.12.34 DELICACY OF NEIGHBOURS FOR DENOMINATION AND OCCUPATION OF HEAD OF FAMILY

	NOT EMPLOYED		MANUAL		WHITE COLLAR	
	M	N	M	N	M	N
ND	0.143	40	0.115	109	-0.063	23
RC	-0.081	39	-0.076	137	-0.117	41

In the mean score for the social questionnaire there is a slight tendency for both denominational groups to express less satisfaction with their neighbours when the head of the family is not employed, though the effect is slightly smaller in the ND group (main effect: $F = 3.410$, $p = 0.018$). In the other factors of the social environment the differences are even smaller than those mentioned before.

3. Summary

To summarize the results presented in this chapter, one can see that differences of attitude towards the environment exist in some cases due to differences in social background. Occupation of head of family is most significantly not one of those variables. On the other hand, sex and denomination have an influence on the attitude, mainly on the attitude towards the neighbours. The attitude towards the building is less influenced by the social characteristics of the subject. These results compared with the relationships of building characteristics with the attitude suggest that in the attitude towards the physical environment what the stimulus is like is more important and in the attitude towards the neighbours who the respondent is is more important.

The following chapter will look into the interaction between the two aspects of the environment, physical and social, and the effect they have on the attitude.

CHAPTER 13

INTERACTION BETWEEN PHYSICAL AND SOCIAL VARIABLES - AND THE ATTITUDE

It has been shown in the previous discussions that the social factors and the physical factors of the environment account for the variance in the different components of the attitudes. The current discussion will look into the interaction between the social and physical variables. One could suggest that the difference in the attitude of males and females and the different denominations, may be due to the fact that they occupy different types of house. Looking into the distribution of houses described by the two sex groups suggests that there is no difference between them either in size of house (in categories) or ownership status (Tables II.13.1 and II.13.2 respectively). One can say, therefore, that any difference between the sex group attitude is not due to the bias of the sample.

TABLE II.13.1 SEX AND NUMBER OF FLOORS

	SINGLE		2 - 4		5 +		TOTAL
	N	%	N	%	N	%	N
MALES	74	31.7	148	62.7	14	5.9	236
FEMALES	60	26.1	151	65.7	19	8.2	230
TOTAL	134	28.8	299	64.2	33	7.1	466

TABLE II.13.2 SEX AND OWNERSHIP

	OWNER OCCUPIER		PUBLIC		PRIVATE		TOTAL
	N	%	N	%	N	%	
MALES	40	17.3	176	76.2	15	6.5	231
FEMALES	32	14.4	183	82.4	7	3.2	222
TOTAL	72	15.9	359	79.2	22	4.9	453

For the denominational groups some bias in the type of building occupied by the subjects was expected due to the difference in the areas covered by the schools (caused by problems in acquiring the cooperation of some of the schools). The difference can be seen in the ownership distribution, where the RC group has the advantage over the ND group in having a higher proportion of owner occupied houses (19.3 compared with 12.3, see Table II.13.3). The difference in distribution is significant to the .05 level (X^2=6.105).

TABLE II.13.3 DENOMINATION AND NUMBER OF FLOORS

	SINGLE N	SINGLE %	2 - 4 N	2 - 4 %	5 + N	5 + %	TOTAL
ND	59	25.8	154	67.2	16	7.0	229
RC	75	31.6	145	61.2	17	7.2	237
TOTAL	134	28.8	299	64.2	33	7.1	466

The results of the activity factor for the RC group (p=.025 significance); and for ownership (p=0.048) can be related to this distribution, and one should establish how much of the variance is accounted for by one or the other (see Tables II.10.6 and II.12.6.

TABLE II.13.4 DENOMINATION AND OWNERSHIP

	OWNER OCCUPIER N	OWNER OCCUPIER %	PUBLIC N	PUBLIC %	PRIVATE N	PRIVATE %	TOTAL
ND	27	12.3	185	84.1	8	3.6	220
RC	45	19.3	174	74.7	14	6.0	233
TOTAL	72	15.9	359	79.2	22	4.9	453

TABLE II.13.5 OCCUPATION OF HEAD OF FAMILY AND N FLOORS

	SINGLE N	SINGLE %	2 - 4 N	2 - 4 %	5 + N	5 + %	TOTAL
NOT EMPLOYED	19	18.6	82	80.4	1	1.0	102
MANUAL	82	28.3	177	61.0	31	10.3	290
WHITE COLLAR	32	44.4	39	54.2	1	1.4	72
TOTAL	133	28.7	298	64.2	33	7.1	464

TABLE II.13.6 OCCUPATION OF HEAD OF FAMILY AND OWNERSHIP

	OWNER OCCUPIER N	OWNER OCCUPIER %	PUBLIC N	PUBLIC %	PRIVATE N	PRIVATE %	TOTAL
NOT EMPLOYED	8	8.0	88	88.0	4	4.0	100
MANUAL	39	13.8	229	81.2	14	5.0	282
WHITE COLLAR	25	36.2	40	58.0	4	5.8	69
TOTAL	72	16.0	357	79.2	22	4.9	451

The samples did not differ on the basis of size of building (II.13.3). Comparing the type of building occupied by the different occupational status one can see that the difference between the groups is significant for both ownerships (white collar have more often owner-occupied status than the other two groups, 36.2% compared with 8.0% for the not employed, and 13.8% for the manual workers), and more often occupy single family houses (44.4% compared with 18.6% for the

not employed and 28.3% for the manual). Considering that the employment status had no effect in the total sample on the attitude level, one may ask whether the interaction between the occupation and the environmental characteristics of the house caused the difference to disappear. The following analysis will try to establish what are the changes in the attitude towards the environment when the social background of the subjects interacts with the characteristics of the building.

Attitude scores for interaction between physical and social characteristics

Tables II.13.7 to II.13.10 present the results of the physical questionnaire for the sex and size of building interaction. One can see that the general trend observed in the total sample can be seen also in the subgroups. For the mean score of the physical environment one can see that in both sexes the difference exists between the attitude for the size of building, but the difference is not the same. In the male group the order of the attitude shows the first preference is for single family houses, second being the 2-4 category, and least preferable being the high rise. In the female group the order is similar to the result of the total sample, single first, 5+ second, and 2-4 third (significance for main effect is p=0.014 F=3.6 for 3 degrees of freedom). It also can be noted that the difference between the attitude towards buildings of different sizes in the male group is larger than in the female group. Though some of the differences could lead one to expect some interaction between the factors, that is not the case and the two-way interaction between sex and size of house in the mean score is not significant (Table II.13.7).

TABLE II.13.7 MEAN OF PHYSICAL QUESTIONNAIRE BY SEX BY NUMBER OF FLOORS

	SINGLE		2 - 4		5 +	
	M	N	M	N	M	N
MALES	3.442	57	3.608	100	3.943	6
FEMALES	3.084	38	3.562	98	3.478	15

TABLE II.13.8 FRIENDLINESS OF BUILDING BY SEX BY NUMBER OF FLOORS

	SINGLE		2 - 4		5 +	
	M	N	M	N	M	N
MALES	0.074	60	0.216	128	0.991	9
FEMALES	-0.104	50	-0.188	123	-0.860	17

TABLE II.13.9 ACTIVITY OF BUILDING BY SEX BY NUMBER OF FLOORS

	SINGLE		2 - 4		5 +	
	M	N	M	N	M	N
MALES	0.181	60	-0.011	128	0.133	9
FEMALES	0.151	50	-0.134	123	0.045	17

TABLE II.13.10 AESTHETIC OF BUILDING BY SEX BY NUMBER OF FLOORS

	SINGLE M	N	2 - 4 M	N	5 + M	N
MALES	-0.421	60	0.145	128	0.058	9
FEMALES	-0.310	50	0.201	123	-0.080	17

The main factor (accounting for the majority of the variance in the factor structure) showed a difference between the sexes but not between the building size. It can be seen in Table II.13.8 that the friendliness factor suggests not only that the females feel that their building is more friendly than do the males, but also that when the size of house increases the females tend to consider it as more friendly, whereas the males consider the friendliness of the building reduced by the size of the building (significance of main effect p=0.001 F=6.056, and for interaction p=0.017,F=4.109). Considering the interaction between the two factors it is not surprising that the factor scores for the size of building were not significant in the total sample. Comparing the results of the friendliness factor with the results of the rateable value for the different subsamples does not explain the attitude, as the different house size does not account for the difference in value, or the difference between the sex group (Table II.13.11).

TABLE II.13.11 GROSS ANNUAL VALUE FOR SEX AND NUMBER OF FLOORS

	SINGLE M	SD	2 - 4 M	SD	5 + M	SD
MALES	139.93	30.07	103.84	28.49	123.14	11.22
FEMALES	141.53	29.12	106.91	25.91	121.12	11.19

The difference between the subgroups in the aesthetic factor suggests that the structure of attitude towards the different type of buildings by respondents of different sexes are similar and the single family houses are the most attractive whereas the 2-4 are the least attractive in both sex groups.

The results of the responses to the social environment for sex and size of building are presented in Tables II.13.12 to II.13.15. In the mean score for the social questionnaire the same trend as in the mean score of the physical questionnaire is apparent. In the female group the tendency is to view the neighbours in the '2-4' category of building in least favourable light, just as they do for the building

itself. Their preference is for the neighbours of the single family house, and the low rise blocks come close second. In the male group the order decreases in the favourable attitude towards neighbours with the increase of the size of the building, just as was shown by the trend in the attitude towards the building (main effect significant to p=0.00, F=8.012 for 3 degrees of freedom).

TABLE II.13.12 MEAN OF SOCIAL QUESTIONNAIRE BY SEX BY NUMBER OF FLOORS

	SINGLE		2 - 4		5 +	
	M	N	M	N	M	N
MALES	3.314	51	3.555	100	3.716	6
FEMALES	2.915	38	3.229	98	2.998	15

TABLE II.13.13 FRIENDLINESS OF NEIGHBOURS FOR SEX AND NUMBER OF FLOORS

	SINGLE		2 - 4		5 +	
	M	N	M	N	M	N
MALES	0.095	65	0.282	120	0.408	11
FEMALES	-0.240	48	-0.178	126	-0.616	17

TABLE II.13.14 ACTIVITY OF NEIGHBOURS FOR SEX AND NUMBER OF FLOORS

	SINGLE		2 - 4		5 +	
	M	N	M	N	M	N
MALES	0.138	65	0.052	120	0.406	11
FEMALES	-0.178	48	-0.039	126	-0.316	17

TABLE II.13.15 DELICACY OF NEIGHBOURS FOR SEX AND NUMBER OF FLOORS

	SINGLE		2 - 4		5 +	
	M	N	M	N	M	N
MALES	-0.185	65	-0.032	120	0.484	11
FEMALES	-0.338	48	0.208	126	0.049	17

In the friendliness factor (II.13.13), the neighbours also present a similar trend to that of the attitude on the same factor for the building itself. The male group perceive their neighbours as less friendly the bigger the building, whereas the females are perceived as more friendly the bigger the building, but though the main effect is significant (F=9.855, p=0.00), the interaction is not significant, (p=0.16).

The results for the activity factor deviate the attitude towards the neighbours from those towards the building. In the attitude

towards the neighbours the effect in the two sexes is not as similar as in the attitude towards the building. In the male group the pattern of activity perceived for the neighbours repeats the attitude structure for the building, and the residents of the 2-4 buildings are considered to be the most active by male respondents. In the female group the pattern is different for the neighbours from that for the building. In this group single family houses, residents, and '5+' residents are considered more active than the '2-4' category showing an opposite pattern to that of the activity factor for the building. But the results for the structure are not distinctive enough to be significant. The delicacy factor of the attitude towards the neighbours shows some similarity to the pattern of the aesthetic factor towards the building. In the male group the single family house residents are considered the most delicate, just as the single family building is considered the most attractive, and the low and high rise blocks are considered the least delicate repeating the same emotion expressed towards the building's aesthetic value, though the difference between the categories in delicacy of neighbours is larger than in the attractiveness of the building.

On the other hand in the female group the low and high rise block residents are considered more delicate than those of the 2-4 category, which is similar to the pattern observed for the aesthetic value of the building itself (main effect significance is to the $p=0.007$ level, $F=4.134$, though the interaction is not significant).

Comparing the results of the delicacy factor with the table presenting the value of the house one can see some similarity in the female group with the results of the delicacy and aesthetic factors. The same pattern did not appear in the comparison of the two factors in the male group.

Generally for all scores of attitudes towards both social and physical environment one can observe some preference by females for low and high rise blocks, compared with 2-4 category, whereas on all scores the male group prefer the smaller buildings. But one has to remember the small number of cases in the '5+' category.

Tables II.13.16 to II.13.19 present the results of the physical environment scores for denomination and size of building. The results of the mean score for the physical questionnaire suggest that the

preferred building in the non-denominational group is the low and high rise blocks, and second are the single family buildings. In the Roman Catholic group the preference for a building is reduced by its size (significance level for main effect is: p=0.003, F=4.815 for 3 degrees of freedom).

TABLE II.13.16 MEAN OF PHYSICAL QUESTIONNAIRE FOR DENOMINATION AND NUMBER OF FLOORS

	SINGLE		2 - 4		5 +	
	M	N	M	N	M	N
ND	3.503	25	3.761	79	3.357	7
RC	3.206	64	3.468	119	3.737	14

TABLE II.13.17 FRIENDLINESS BUILDING FOR DENOMINATION AND NUMBER OF FLOORS

	SINGLE		2 - 4		5 +	
	M	N	M	N	M	N
ND	0.056	41	0.152	118	-0.123	11
RC	-0.044	69	-0.100	133	-0.290	15

TABLE II.13.18 ACTIVITY OF BUILDING FOR DENOMINATION AND NUMBER OF FLOORS

	SINGLE		2 - 4		5 +	
	M	N	M	N	M	N
ND	0.403	41	0.116	118	-0.126	11
RC	0.021	69	-0.238	133	0.223	15

TABLE II.13.19 AESTHETIC OF BUILDING FOR DENOMINATION AND NUMBER OF FLOORS

	SINGLE		2 - 4		5 +	
	M	N	M	N	M	N
ND	-0.203	41	0.243	118	0.092	11
RC	-0.470	69	0.110	133	-0.122	15

For the friendliness factor the results presented in Table II.13.17 show some signs that the 5+ category is perceived as more friendly than the other two groups by the ND subjects, and the RC subjects, but the difference is more distinctive for the ND group, and very similar in the RC groups, and not significant.

In the activity factor of the attitude (Table II.13.18) the ND group consider the 5+ category of building as most active, and the single family buildings as least active. The RC group on the other

hand considers the 5+ category as least active and the 2-4 category as the most active buildings (main effect significant p=0.012, F=3.729 for 3 degrees of freedom).

The aesthetic factor of the attitude presented in Table II.13.19 shows preference by both denominational groups for the single family houses, and second are the high rise blocks. The least attractive are the buildings in the 2-4 category (F=6.670, p=0.00 , DF=3).

Comparing the results of the factors of the attitude with the rateable value of the dwelling occupied by the respondents according to the same variables, presented in Table II.13.20 shows that like the case of the attractiveness of the building in the two sex groups, the aesthetic factor pattern is the one related to the value of the flat, whereas the other three scores are not.

TABLE II.13.20 GROSS ANNUAL VALUE FOR DENOMINATION FOR NUMBER OF FLOORS

	SINGLE		2 - 4		5 +	
	M	SD	M	SD	M	SD
ND	134.78	24.26	107.60	25.19	117.73	6.92
RC	144.99	32.41	103.08	29.09	126.06	12.81

The results for the social questionnaire for denomination and size of building are presented in Tables II.13.21 to II.13.24. The mean score for the social environment presented in Table II.13.21 suggests some similarity with the results of the attitude towards the building. In the ND group the tendency is for preference for the single family house neighbours, and those of the low and high rise blocks, as is the case with the building itself. In the RC group on the other hand the results are slightly different suggesting that there is no difference in the score for the neighbours, compared with preference for the smaller buildings in the physical questionnaire (main effect F=4.386, p=0.005, DF=3).

TABLE II.13.21 MEAN OF SOCIAL QUESTIONNAIRE FOR DENOMINATION AND NUMBER OF FLOORS

	SINGLE		2 - 4		5 +	
	M	N	M	N	M	N
ND	3.196	25	3.605	79	3.012	7
RC	3.123	64	3.253	119	3.298	14

TABLE II.13.22 FRIENDLINESS OF NEIGHBOURS FOR DENOMINATION AND NUMBER OF FLOORS

	SINGLE		2 - 4		5 +	
	M	N	M	N	M	n
ND	-0.071	43	0.250	115	-0.124	12
RC	-0.032	70	-0.132	131	-0.284	16

TABLE II.13.23 ACTIVITY OF NEIGHBOURS FOR DENOMINATION AND NUMBER OF FLOORS

	SINGLE		2 - 4		5 +	
	M	N	M	N	M	N
ND	0.018	43	0.138	115	-0.032	12
RC	-0.005	70	-0.111	131	-0.032	16

TABLE II.13.24 DELICACY OF NEIGHBOURS FOR DENOMINATION AND NUMBER OF FLOORS

	SINGLE		2 - 4		5 +	
	M	N	M	N	M	N
ND	-0.033	43	0.147	115	0.196	12
RC	-0.384	70	0.042	131	0.238	16

The results of the friendliness factor, presented in Table II.13.22 also suggest some similarity with the friendliness factor for the attitude towards the building, but the differences for both number of floors and denominational group are more distinctive, and the results are significant ($F=3.919$, $p=0.003$). The ND respondents consider the neighbours in the '2-4' type of building as least friendly, and those of the other two groups similar in friendliness. In the RC group the results of the friendliness factor suggests that there is an increase in the perception of the neighbours as more friendly the larger the building. The interaction between the denomination and size of building is not quite significant ($F=2.693$, $p=0.069$).

The activity factor presented in Table II.13.23 suggests the existence of interaction between the size of the building and denomination of the subject in the attitude. The main difference between the two groups is that whereas the ND group consider the least active the neighbours of the '2-4' category of building, the RC group considers them the most active ($F=2.403$, $p=0.087$ for interaction), with no difference in the other two building size categories either for house category, or denomination. Comparing the activity factor for the

neighbours with the similar factor for the building, one can see that the structure of the attitude is not quite the same. Comparable are the results for the 2-4 category, whereas the two other categories suggest a distinctive difference from the view of the neighbours.

The results for the delicacy factor presented in Table II.13.24 show a similarity between the two denominational group, and difference based on the size of building. There is some suggestion that the ND tend to consider the neighbours of the single family building as less delicate than the RC group, and slightly more so for the high rise blocks in the RC group on the other hand. Although the main effect is significant ($F=4.026$, $p=0.008$) the interaction is not. The results are somewhat different from those of the aesthetic factor for the building, where the high rising category shows some advantage for the building, which is not true for the neighbours.

Tables II.13.25 to II.13.28 present the results of the physical questionnaire for the interaction between the size of building with the occupation of the head of family. It can be seen in Table II.23.25 that the two employed groups present a more favourable attitude toward the physical environment than the 'not employed' one, but the difference is rather small (main effect $F=2.469$, $p=0.045$).

TABLE II.13.25 MEAN SCORE FOR HOUSE BY NUMBER OF FLOORS AND FATHER'S OCCUPATION

	NOT EMPLOYED		MANUAL		WHITE COLLAR	
	M	N	M	N	M	N
SINGLE	3.442	12	3.273	50	3.251	27
2 - 4	3.731	52	3.512	118	3.588	27
5 +	2.353	1	3.642	19	4.273	1

TABLE II.13.26 FRIENDLINESS OF HOUSE FOR NUMBER OF FLOORS AND FATHER'S OCCUPATION

	NOT EMPLOYED		MANUAL		WHITE COLLAR	
	M	N	M	N	M	N
SINGLE	-0.082	17	0.027	65	-0.040	28
2 - 4	0.055	71	-0.063	145	0.262	34
5 +	-1.883	1	-0.201	24	1.011	1

TABLE II.13.27 ACTIVITY OF HOUSE FOR NUMBER OF FLOORS AND FATHER'S OCCUPATION

	NOT EMPLOYED		MANUAL		WHITE COLLAR	
	M	N	M	N	M	N
SINGLE	0.176	17	0.219	65	0.041	28
2 - 4	0.117	71	-0.182	145	-0.037	34
5 +	-1.661	1	0.158	24	-0.154	1

TABLE II.13.28 AESTHETIC OF HOUSE FOR NUMBER OF FLOORS AND FATHER'S OCCUPATION

	NOT EMPLOYED		MANUAL		WHITE COLLAR	
	M	N	M	N	M	N
SINGLE	-0.321	17	-0.332	65	-0.489	28
2 - 4	0.131	71	0.176	145	0.228	34
5 +	-1.409	1	0.037	24	-0.302	1

In the friendliness factor (II.13.26) the only difference to emerge is the tendency of the white collar group living in the 2-4 size of building category to consider their physical environment as less favourable than the other sub-groups. But the results of the table as a whole are non significant.

In the activity factor presented in Table II.13.27 one can see that in the 'not employed' group no difference between the activity for the building emerges for difference in building size. On the other hand the difference between the activity of the two size categories for the manual workers is greater but as a whole the results are not significant.

In the aesthetic factor the results presented in Table II.13.28 suggest that the three occupational groups tend to consider the single family house as having higher aesthetic value than the '2-4' category, suggesting the above general observation of lack of interaction between the attitude towards the physical environment and the occupation of the head of family.

Similar results can be noted for the social environment, where the only apparent difference is the consideration of the neighbours of the not employed as less active than the neighbours of the other two employment categories, but the results are not significant. In none of the cases did the interaction between the employment status and the size of building suggest any distinctive differences, and the attitude of different

occupational groups seems to be the same.

TABLE II.13.30 GROSS ANNUAL VALUE FOR OCCUPATION OF FATHER & NUMBER OF FLOORS

	SINGLE		2 - 4		5 +	
	M	SD	M	SD	M	SD
NOT EMPLOYED	137.61	40.58	106.51	25.58	120.0	0.0
MANUAL	138.38	21.52	105.84	27.45	121.52	10.97
WHITE COLLAR	147.97	38.90	100.68	30.12	139.00	0.0

TABLE II.13.31 MEAN SCORE FOR NEIGHBOUR FOR NUMBER OF FLOORS AND FATHER'S OCCUPATION

	NOT EMPLOYED		MANUAL		WHITE COLLAR	
	M	N	M	N	M	N
SINGLE	3.194	12	3.162	50	3.086	27
2 - 4	3.557	52	3.297	118	3.476	27
5 +	2.588	1	3.191	19	4.030	1

TABLE II.13.32 FRIENDLINESS OF NEIGHBOUR FOR NUMBER OF FLOORS AND FATHER'S OCCUPATION

	NOT EMPLOYED		MANUAL		WHITE COLLAR	
	M	N	M	N	M	N
SINGLE	-0.046	14	0.029	67	-0.036	31
2 - 4	0.104	63	0.048	150	0.052	32
5 +	-1.455	1	0.038	26	-0.445	1

TABLE II.13.33 ACTIVITY OF NEIGHBOURS FOR NUMBER OF FLOORS AND FATHER'S OCCUPATION

	NOT EMPLOYED		MANUAL		WHITE COLLAR	
	M	N	M	N	M	N
SINGLE	0.115	11	-0.157	33	-0.051	19
2 - 4	0.168	52	-0.042	159	-0.002	38
5 +	-0.602	6	0.055	25	-0.324	2

TABLE II.13.34 DELICACY OF NEIGHBOURS FOR NUMBER OF FLOORS AND FATHER'S OCCUPATION

	NOT EMPLOYED		MANUAL		WHITE COLLAR	
	M	N	M	N	M	N
SINGLE	-0.189	14	-0.222	67	-0.335	31
2 - 4	0.075	63	0.098	150	0.080	32
5 +	0.316	1	0.165	26	1.543	1

Tables II.13.35 to II.13.38 present the results of the physical questionnaire for the interaction between sex and ownership of house.

TABLE II.13.35 MEAN OF PHYSICAL QUESTIONNAIRE BY OWNER AND SEX

	OWNER OCCUPIER		PUBLIC		PRIVATE	
	M	N	M	N	M	N
MALES	3.566	30	3.568	110	3.657	12
FEMALES	3.110	25	3.509	113	3.418	7

In Table II.13.35 the results for the mean score of the questionnaire are presented, indicating some tendency in the group living in owner occupied and privately rented flats, to show a slightly more favourable attitude if the respondent is a female, but on the whole the results for the score are not significant.

TABLE II.13.36 FRIENDLINESS OF BUILDING FOR OWNER AND SEX

	OWNER OCCUPIER		PUBLIC		PRIVATE	
	M	N	M	N	M	N
MALES	0.301	36	0.182	141	0.395	15
FEMALES	-0.233	29	-0.209	148	-0.120	7

In the friendliness factor one can observe a considerable difference between the attitude of the sexes, with no difference between the ownership status in the friendliness of the building, though some tendency for less friendliness of the two non council property groups is in the male group, whereas the female group shows reduced consideration of friendliness only for the privately rented property, and not for the owner occupied property (main effect F=6.081, p=0.00, DF=3).

TABLE II.13.37 ACTIVITY OF BUILDING FOR OWNER AND SEX

	OWNER OCCUPIER		PUBLIC		PRIVATE	
	M	N	M	N	M	N
MALES	-0.207	36	0.132	141	0.083	15
FEMALES	-0.502	28	0.056	148	-0.518	7

In the activity factor the main difference is in the ownership status. The difference between the non-public ownership and the public ownership is quite distinctive in the female group, but in the male group the difference between the ownership groups is smaller, especially similar are the publicly owned, and the privately rented categories (main effect F=3.963, p=0.008), though the interaction

is non significant.

The results for the aesthetic factor presented in Table II.13.38 show no difference between the subgroups.

TABLE II.13.38 AESTHETIC OF BUILDING FOR OWNER AND SEX

	OWNER OCCUPIER		PUBLIC		PRIVATE	
	M	N	M	N	M	N
MALES	0.032	36	-0.069	141	0.239	15
FEMALES	-0.088	28	0.109	148	0.108	7

Comparing the results for the physical questionnaire with the distribution of rateable value of the property according to sex and ownership (Table II.13.39) suggests that the preference observed in the female group for the owner occupied on some of the scores cannot be accounted for by the value of the property, and in the case of the preference for the privately rented, the tendency is in distinctive contradiction to the assessed value of the property. In the case of the male group some conformity between the assessor and the attitude can be suggested, but as most of the results are not significant, one can hardly consider it more than an hypothesis for further research.

TABLE II.13.39 GROSS ANNUAL VALUE FOR SEX AND OWNERSHIP

	OWNER OCCUPIER		PUBLIC		PRIVATE	
	M	N	M	N	M	N
MALES	97.63	48.18	124.21	22.42	74.00	33.22
FEMALES	102.47	52.75	121.85	19.92	58.29	22.85

Tables II.13.40 to II.13.43 present the results for the attitude towards the neighbours according to sex and ownership status of the house. In general the attitude expressed by the females is more favourable than that of the males. In the mean score for the questionnaire no difference in the attitude for ownership can be observed.

TABLE II.13.40 MEAN OF SOCIAL QUESTIONNAIRE BY OWNER AND SEX

	OWNER OCCUPIER		PUBLIC		PRIVATE	
	M	N	M	N	M	N
MALES	3.515	30	3.501	110	3.471	12
FEMALES	2.739	25	3.198	113	3.202	7

TABLE II.13.41 FRIENDLINESS OF NEIGHBOURS BY OWNER AND SEX

	OWNER OCCUPIER		PUBLIC		PRIVATE	
	M	N	M	N	M	N
MALES	0.219	34	0.236	145	0.352	12
FEMALES	-0.565	29	-0.176	148	-0.174	7

In the friendliness factor, on the other hand, some differences can be observed; the female group shows some preference for the neighbours of the owner occupied property, whereas the male group does not show any differentiation between the three categories (main effect F=8.186, p=0.00, DF=3). Comparing the attitude on the factor for the neighbours with that for the building shows that whereas the difference between the sexes in general is similar, the tendency of preferences within the sex groups is slightly different, and whereas in the male group the tendency of the friendliness attitude for the building is not differentiated between the two non-public ownership groups, the tendency in the attitude towards the neighbours is of similarity between the owner occupier and the publicly owned, and the attitude towards the privately rented is slightly less friendly. In the female group comparing the friendliness attitude towards the building with that towards the neighbours suggests that whereas the owner occupied building and the publicly owned are similar in the friendliness perceived in them, in the case of the neighbours the similarity is in the two rented properties, and the neighbours of the owner-occupied property are considered friendlier.

TABLE II.13.42 ACTIVITY OF NEIGHBOUR BY OWNER AND SEX

	OWNER OCCUPIER		PUBLIC		PRIVATE	
	M	N	PUBLIC		PRIVATE	
			M	N	M	N
MALES	0.243	34	0.064	145	0.246	12
FEMALES	-0.588	29	0.025	148	-0.175	7

The result for the activity factor, presented in Table II.13.42, shows an interaction between the ownership and sex variables (F=4.238, p=0.015). In the female group the results for the activity attitude suggest some similarity for the building, and the neighbours. The females perceive the owner occupied neighbours as most active, similar to the situation for the building, and the privately owned neighbours as second, though not as much as the activity for the building of that category. In the male group there is no similarity between the attitude towards the building and that towards the

residents. The owner occupied neighbours and the privately owned group are perceived as passive compared with the publicly owned residents, whereas the building is, in the owner occupied group, perceived as active. The trend of the two sex groups in the activity factor for the neighbours is opposite to one another, whereas no such tendency is observed in the attitude towards the building.

TABLE II.13.43 DELICACY OF NEIGHBOURS BY OWNER AND SEX

	OWNER OCCUPIER		PUBLIC		PRIVATE	
	M	N	M	N	M	N
MALES	-0.074	34	0.025	145	-0.653	12
FEMALES	-0.554	29	0.093	148	-0.012	7

The results of the delicacy factor, presented in Table II.13.43 suggests some tendency of the male group to consider the neighbours in the privately rented buildings to be more delicate than those of the other two categories, whereas the females consider the neighbours of the owner-occupied houses to be the most delicate. But the results are not significant.

Tables II.13.44 to II.13.47 present the attitude towards the building for denomination and ownership of dwelling.

TABLE II.13.44 MEAN OF PHYSICAL QUESTIONNAIRE FOR DENOMINATION AND OWNERSHIP

	OWNER OCCUPIER		PUBLIC		PRIVATE	
	M	N	M	N	M	N
ND	3.775	19	3.629	78	4.250	6
RC	3.139	36	3.489	145	3.254	13

The mean score for the physical questionnaire suggests that an interaction between the denomination of the subject, and the ownership status of the dwelling his family occupies exists in explaining the attitude he expresses towards the building (main effect $F=3.258$, $p=0.022$, $DF=3$; interaction: $F=3.302$, $p=0.038$, $DF=2$). In the ND group the attitude as measured by the mean score of the physical questionnaire is similar for the owner occupier and the publicly owned properties (with a slight advantage for the public property), and less favourable towards the privately rented property. In the RC group on the other hand, the results indicate similarity between the owner occupied property and the privately rented, and a less favourable attitude towards the publicly owned dwellings.

TABLE II.13.45 FRIENDLINESS OF BUILDING FOR DENOMINATION AND OWNERSHIP

	OWNER OCCUPIER		PUBLIC		PRIVATE	
	M	N	M	N	M	N
ND	0.314	23	0.049	130	0.832	8
RC	-0.071	41	-0.073	159	-0.112	14

In the friendliness factor (II.13.45) there is some tendency to consider the owner occupier house and the privately rented one as less friendly in the ND group, and no difference for ownership in the RC group, but the differences cannot be considered significant.

TABLE II.13.46 ACTIVITY OF BUILDING FOR DENOMINATION AND OWNERSHIP

	OWNER OCCUPIER		PUBLIC		PRIVATE	
	M	N	M	N	M	N
ND	-0.154	23	0.206	130	0.502	8
RC	-0.438	41	0.000	159	-0.456	14

In the activity factor (II.13.46) the results indicate that ND group perceive the owner occupied house as more active than the other two types of ownership, and in the RC the privately rented building is considered as active as the owner occupied (main effect F=5.517, p=0.001, DF=3), but the interaction is non-significant.

TABLE II.13.47 AESTHETIC OF BUILDING FOR DENOMINATION AND OWNERSHIP

	OWNER OCCUPIER		PUBLIC		PRIVATE	
	M	N	M	N	M	N
ND	0.285	23	0.118	130	0.637	8
RC	-0.191	41	-0.055	159	-0.054	14

In the aesthetic factor (II.13.47) the ND group consider the owner-occupied and the publicly owned property as slightly less unattractive than the privately rented building. In the RC group the owner occupied property is considered slightly more attractive than the other two categories (main effect F=2.170, p=0.091, not significant).

TABLE II.13.48 GROSS ANNUAL VALUE FOR DENOMINATION AND OWNERSHIP

	OWNER OCCUPIER M	SD	PUBLIC M	SD	PRIVATE M	SD
ND	89.07	40.99	120.99	19.87	70.63	26.02
RC	106.20	54.05	125.15	23.07	68.33	33.87

Tables II.13.49 to II.13.52 present the results for the social environment.

TABLE II.13.49 MEAN OF SOCIAL QUESTIONNAIRE FOR DENOMINATION AND OWNERSHIP

	OWNER OCCUPIER M	N	PUBLIC M	N	PRIVATE M	N
ND	3.378	19	3.462	78	4.133	6
RC	3.049	36	3.286	145	3.021	13

The mean score of the attitude towards the social environment, presents a tendency for interaction between the denomination and the ownership status of the house (main effect F=3.307, p=0.021, DF=3; interaction F=2,723, p=0.067, DF=2). But the trend of interaction is not the same as the one in the expression of the attitude towards the building itself. Subjects of the ND group expressed similar attitudes towards the neighbours of the owner occupied house and the publicly owned ones but with slight advantage for the neighbours of the first, an opposite tendency to the one in the attitude towards the building. As in the case of the attitude towards the building the privately rented neighbours were perceived in less favourable attitude than the other two categories of ownership. The subjects of the RC group as in the case of the attitude towards the building expressed similar attitudes to the neighbours of the two non-public ownership categories, and slightly less favourable attitudes towards the neighbours in the publicly owned category.

TABLE II.13.50 FRIENDLINESS OF NEIGHBOURS FOR DENOMINATION AND OWNERSHIP

	OWNER OCCUPIER M	N	PUBLIC M	N	PRIVATE M	N
ND	0.021	23	0.143	133	0.740	6
RC	-0.236	40	-0.068	160	-0.110	13

The results of the friendliness factor (II.13.50) for the neighbours suggest some advantage for the owner occupied category in the friendliness of the neighbours, with the privately owned category perceiving their neighbours as least friendly, a similar effect to that of the attitude of friendliness expressed toward the building, in the private category, but differing from the attitude towards the building in the other two categories, in which the building of the public category has the advantage on the privately owned, whereas the neighbours of that type of property are perceived as less friendly than those of the owner occupied category (main effect F=2.516, p=0.058, DF=3).

TABLE II.13.51 ACTIVITY OF NEIGHBOURS FOR DENOMINATION AND OWNERSHIP

	OWNER OCCUPIER		PUBLIC		PRIVATE	
	M	N	M	N	M	N
ND	-0.143	23	0.112	133	0.845	6
RC	-0.137	40	-0.013	160	-0.257	13

The results for the activity factor (II.13.51) for the neighbours present a similar tendency to the attitude measured by the same factor for the building, but the differences between the sub-groups are smaller, and the results therefore are not significant. Table II.13.52 presenting the results for the delicacy of the neighbours, suggests that the difference between the house categories are small, though there is some tendency in the ND group to express a less favourable attitude on this factor for neighbours of the privately owned category. In the RC group the tendency is for more favourable attitudes towards neighbours of the owner occupied category, and the privately owned one. This expressed attitude is slightly different from the attitude expressed on the aesthetic factor for the building, where the privately rented category is not considered more attractive than the publicly owned one (Main effect: F=2.742, p=0.043, DF=3).

TABLE II.13.52 DELICACY OF NEIGHBOURS FOR DENOMINATION AND OWNERSHIP

	OWNER OCCUPIER		PUBLIC		PRIVATE	
	M	N	M	N	M	N
ND	0.170	23	0.142	133	0.043	6
RC	-0.201	40	-0.009	160	-0.590	13

Tables II.13.53 to II.13.56 present the results of the attitude towards the physical environment for ownership status and the occupation of the head of family. The results for the mean score of the questionnaire suggest that the attitude expressed towards the building in the owner occupied category is more favourable in the white collar group, and least favourable in the 'not employed' group. In the publicly owned category the most favourable attitude is expressed in the manual occupation, and the other two are similar in the expressed attitude. In the privately rented category the attitude expressed for the not employed category is least favourable, and the attitude towards the white collar is second. But all the differences are too small to be significant.

TABLE II.13.53 MEAN SCORE FOR HOUSE BY TENURESHIP AND FATHER OCCUPATION

	NOT EMPLOYED		MANUAL		WHITE COLLAR	
	M	N	M	N	M	N
OWNER OCCUPIER	3.678	7	3.459	28	3.107	20
PUBLIC	3.613	55	3.488	139	3.604	28
PRIVATE	5.073	2	3.315	13	3.639	4

In the friendliness factor (II.13.54) the not employed living in owner occupied property consider the building as least friendly, with the other two employment categories very similar to one another. In the case of subjects living in publicly owned property the attitude of the white collar group is that the building is least friendly with the other occupation categories similar to one another. Subjects living in privately rented dwellings consider the building less friendly than the other type of ownership, with the ones living in owner occupied dwellings less so than the other two occupational categories. But the results of the friendliness factor are not significant. Theresults for the activity factor (II.13.55) suggest that the subjects living in owner occupied property consider their building as more active when they are a family where the head is a manual worker, or white collar (with an advantage for the latter) than if the head of the family is not employed. Those who live in publicly owned dwellings suggest a different trend. The white collar group consider the building as least active, second are the 'not

TABLE II.13.54 FRIENDLINESS SCORE FOR HOUSE BY TENURESHIP AND FATHER OCCUPATION

	NOT EMPLOYED		MANUAL		WHITE COLLAR	
	M	N	M	N	M	N
OWNER OCCUPIER	0.394	8	-0.019	34	0.082	22
PUBLIC	-0.046	76	-0.042	178	0.135	34
PRIVATE	0.360	4	0.220	14	0.143	4

employed', with the manual workers considering it as most active of the three occupational categories. In the privately owned category, subjects where the head of family is employed either manually or in white collar occupation consider the building as most active, and the not employed consider the building as very passive compared with all the other subgroups (main effect F=2.852, p=0.024, DF=4; interaction F=1.906, p=0.11).

TABLE II.13.55 ACTIVITY SCORE FOR HOUSE BY TENURESHIP AND FATHER OCCUPATION

	NOT EMPLOYED		MANUAL		WHITE COLLAR	
	M	N	M	N	M	N
OWNER OCCUPIER	0.001	8	-0.304	34	-0.507	22
PUBLIC	0.100	76	0.033	178	0.351	34
PRIVATE	0.848	4	-0.302	14	-0.384	4

In the aesthetic factor (II.13.56) the subjects living in owner occupied property consider their building as attractive when the head of the family has a white collar occupation, and less than average in attractiveness when the head belongs to the two other occupational categories. Subjects living in privately rented dwellings express least favourable attitudes on the aesthetic factor when the head of the family is not employed, and second are those where the head is a white collar worker (interaction F=2.326, p=0.056).

TABLE II.13.56 AESTHETIC SCORE HOUSE BY TENURESHIP AND FATHER OCCUPATION

	NOT EMPLOYED		MANUAL		WHITE COLLAR	
	M	N	M	N	M	N
OWNER OCCUPIER	0.112	8	0.229	34	-0.454	22
PUBLIC	-0.028	76	0.030	178	0.073	34
PRIVATE	0.970	4	-0.084	14	0.412	4

Comparing the results for the attitude towards the building with the rateable value of the property (II.13.57) one can see that the most similar attitude with the value is that of the attractiveness of the building. In the public property, where there is no difference between the employment category in the value, no difference in the perceived attractiveness of the building exists. In the privately owned property where the manual workers live in the highest assessed property, the attitude expressed on the aesthetic factor is the most favourable, though the differences in the attitude are more distinctive than the difference in the assessed value. In the owner occupied property the same relationships exist between the value of the property and the expressed attitude. These results conform with the existence of the correlation between the factor score and the value of the property.

TABLE II.13.57 GROSS ANNUAL VALUE FOR OCCUPATION AND OWNERSHIP

	OWNER OCCUPIED		PUBLIC		PRIVATE	
	M	SD	M	SD	M	SD
NOT EMPLOYED	76.50	51.10	118.30	23.19	50.50	17.14
MANUAL	87.28	38.40	124.33	19.17	75.50	34.94
WHITE COLLAR	126.72	55.64	125.60	26.13	64.75	18.01

The results for the interaction of ownership and occupation presented in Tables II.13.58 to II.13.61 show that the results for all the measurements of the attitudes towards the social environment are not significant.

TABLE II.13.58 MEAN SCORE FOR NEIGHBOUR BY TENURESHIP AND FATHER OCCUPATION

	UNEMPLOYED		MANUAL		WHITE COLLAR	
	M	N	M	N	M	N
OWNER OCCUPIED	3.383	7	3.206	28	3.024	20
PUBLIC	3.472	55	3.279	139	3.420	28
PRIVATE	4.029	2	3.238	13	3.478	4

TABLE II.13.59 FRIENDLINESS FOR NEIGHBOUR BY TENURESHIP AND FATHER OCCUPATION

	UNEMPLOYED		MANUAL		WHITE COLLAR	
	M	N	M	N	M	N
OWNER OCCUPIED	0.006	7	-0.216	33	-0.082	23
PUBLIC	0.083	67	0.017	190	-0.011	34
PRIVATE	0.227	2	0.219	13	0.074	4

TABLE II.13.60 ACTIVITY SCORE FOR NEIGHBOUR BY TENURESHIP AND FATHER OCCUPATION

	UNEMPLOYED		MANUAL		WHITE COLLAR	
	M	N	M	N	M	N
OWNER OCCUPIER	-0.258	7	-0.061	33	-0.216	23
PUBLIC	0.015	67	0.020	190	0.064	34
PRIVATE	1.033	2	-0.216	13	0.618	4

TABLE II.13.61 DELICACY SCORE FOR NEIGHBOUR BY TENURESHIP AND FATHER OCCUPATION

	UNEMPLOYED		MANUAL		WHITE COLLAR	
	M	N	M	N	M	N
OWNER OCCUPIER	0.047	7	0.149	33	-0.408	23
PUBLIC	-0.105	67	0.043	190	0.242	34
PRIVATE	0.162	2	-0.443	13	0.624	4

In some cases in the previous presentation of the relationships between the attitude and the characteristics of the respondent and those of the environment comparison with the value of the property was made, and showed some relationships existing. In other cases the attitude was not related to the value of the property as measured by the Gross Annual Value. Tables II.13.62 and II.13.63 present the correlation coefficients between the value of the property and the scores of physical and social questionnaires respectively.

TABLE II.13.62 CORRELATION OF GROSS ANNUAL VALUE OF HOUSE WITH FACTOR SCORES PHYSICAL ENVIRONMENT.

	MEAN	P	FRIENDLINESS		ACTIVITY		AESTHETIC	
TOTAL	-0.1310	0.012	0.0093	NS	-0.0041	NS	-0.2436	0.001
MALES	-0.045	NS	0.0245	NS	0.0629	NS	-0.2201	0.001
FEMALES	-0.21	0.005	0.0029	NS	-0.0711	NS	-0.275	0.001
ND	-0.1907	0.027	-0.0497	NS	-0.0542	NS	-0.2239	0.002
RC	-0.0782	NS	0.0607	NS	0.0474	NS	-0.2424	0.001

It can be seen in Table II.13.62 that the aesthetic factor is correlated with the value for the total sample, and for all the sub-group (according to sex and denomination). The correlation is between -0.22 and -0.27. The negative sign suggests that the higher the value of the property the higher the lower score on the factor, which means that the

aesthetic value of the property is higher. The correlation though significant accounts for only about 6% of the variance (R^2=0.057) in the total sample, and the difference between subgroups is too small to be considered. This means, that although some of the difference between the groups in attitude in the factor can be explained by the value of the property this is not much.

In other factors there is no consistency in the correlation between the attitude and the value of the property. In the total sample some slight correlation between the value of the property and the mean score for the physical questionnaire which is mainly due to the ND group and the female group. In the Friendliness factor all the correlations are zero, and so are those between the activity factor and the value.

Table II.13.63 presents the correlation coefficients between the scores of the social questionnaire and the value of the property. In this case none of the scores present a consistent relationship with the value of the property. Some correlation can be detected between the mean score and the value in the case of the male group and the ND group, and in the Delicacy factor in the total sample mainly due to the female group and the RC group.

TABLE II.13.63 CORRELATION OF GROSS ANNUAL VALUE WITH FACTOR SCORES SOCIAL ENVIRONMENT

	MEAN	S	FRIENDLINESS		ACTIVITY		DELICACY	
TOTAL	-0.0.814	0.082	-0.0046	NS	-0.0155	NS	-0.1215	0.009
MALES	-0.1346	0.049	-0.0749	NS	-0.039	NS	-0.077	NS
FEMALES	-0.0376	NS	0.0624	NS	0.0046	NS	-0.1711	0.011
ND	-0.1923	0.026	0.0929	NS	-0.1034	0.096	-0.0447	NS
RC	-0.0013	NS	0.0743	NS	0.0462	NS	-0.1477	0.016

Due to the size of the sample one is bound to get some coefficients which are significant statistically even though they do not explain enough of the variance. Therefore one may suggest that only the result which is repeated in all subsamples, i.e. the relationship between the aesthetic factor and the value can be considered important enough to be taken into account. This result also confirms some of the observations made previously where the preference of subject on the aesthetic factor coincided with the value of the property for the subgroups.

CHAPTER 14

DISCUSSION OF ATTITUDES TOWARDS PHYSICAL AND SOCIAL ENVIRONMENTS

The previous chapters of this part of the thesis presented the results of the attitude towards the environment, physical and social, as related to characteristics of the environmental stimuli, and subjects. The current discussion will summarize the main results, and relate them to the theoretical framework of the organization of space presented in the first chapter of this section of the thesis (chapter 9).

1. Implications of building characteristics results

First to be presented were the attitude scores compared with the characteristics of the building. Three characteristics were noted in the study. The first was the value of the residential unit, the second the number of families in the building (single family category, and two categories of multi-family buildings) and third the ownership of the residential unit (owner occupied, publicly and privately rented). The two variables, that of the size of building and that of ownership, were related to the facet of type of occupier of the unit of space (individual, group or the public), and that of tenureship status of occupier in the space unit (full rights or limited rights).

The first relationship between building characteristics and the attitude to be noted was the correlation coefficient found between the AESTHETIC attitude and the Gross Annual Value of the residential units. This correlation, though not very high (explaining about 6% of the variance) is further supported by some of the other results. It can be seen that the relationships between the size of building and the AESTHETIC factor and the results for the interaction between the size of building and the ownership of the property and the AESTHETIC factor show that the categories of buildings which had higher value, were also considered to be of more AESTHETIC value (the single family building, and the owner occupied property in the single family building, and publicly owned property in the multi-family building). These findings present some questions as to the meaning given to the AESTHETIC factor. The factor included the scales 'impressive-unimpressive',

'beautiful-ugly', 'delicate-rugged', 'fashionable-unfashionable', 'unique-commonplace', 'clean-dirty', 'formal-informal', 'fine-coarse', 'smooth-rough', and 'bright-dull'. These scales though clearly indicating an AESTHETIC value, also indicate some POTENCY characteristics ('impressive-unimpressive', 'delicate-rugged', 'unique-commonplace', 'formal-informal', 'fine-coarse' and 'smooth-rough'). These scales may suggest that the AESTHETIC factor also implies some status value for the property, and not its attractiveness to the individual only. If one considers that the value of the property is related to its value as a status symbol, one has to remember that in Garling's (1973) study one of the scales in his second factor, which was interpreted earlier on in the current study as a status factor, the value of the property was one of the scales which emerged as part of the factor. Further support for this interpretation of the factor is in the fact that one of the criteria of which the valuation consists is the size of the property. That means the size of the territory of the family group (and this variable describes the family residential unit rather than the building as a whole). Size of space unit as related to dominance of the individual was detected in bubbles (White 1975; Guardo 1976), and in territories both in the case of animal territories (Lorenz 1966; Ardrey 1966) and human territories (Sommer 1969; Delong 1970; Calhoun 1970). The same relationship between size of building and the DELICACY factor for the social questionnaire, and the correlation between the factor and the value of the property suggest that this factor too is related to the status meaning. Considering that the scales included in the factor ('delicate-rugged', 'smooth-rough', 'soft-loud', 'formal-informal' and 'impressive-unimpressive') are those that suggest the POTENCY connotation of the AESTHETIC factor for the physical environment, and the other scales (such as 'beautiful-ugly') are part of another factor for the social environment, the interpretation for this factor seems even more acceptable than for the AESTHETIC factor. But one has to explain why it is that the DELICACY factor does not show the stronger correlation with the value of the property, as less interference of irrelevant scales occurs. One would suggest that the reason may lie in the closeness of the environmental stimuli to the subject.

The fact that the correlation coefficient between the DELICACY factor and the Gross Annual Value is not as high as that of the AESTHETIC factor, and that it is not as consistent for all subjects (in the sub-sample it does not exist for the male group and the ND group), suggest that although the meaning of the factor is more of the status, it apparently is not projected to the neighbours in many of the cases. One would have suggested that if the social environment asked about included the other people sharing the residential unit (the family group) the connection between the value and the people would have been made, and the correlation coefficient would have been similar to that of the AESTHETIC factor. In other words the similarity of the attitude expressed towards the neighbours, and that expressed towards the building in the factors of AESTHETIC value and that of DELICACY stems from the association of territory with the occupier, and the similarity to one's self which a person perceives in people surrounding him (due to the mechanism of projection, or the tendency to choose neighbourhoods with similar people).

Another important finding in the relationship between the characteristics of the building and the attitude is the relationship between the ACTIVITY factor of the physical questionnaire and the ownership of the residential unit. This showed that owner occupiers consider the building more active than do the residents of a publicly owned property. One may look into the ACTIVITY factor for interpretation of the results. The scales with highest loading on the activity factor are: 'interesting-boring', 'lively-calm', 'invigorating-depressing' and 'active-passive'. One may suggest that the importance of the 'interesting-boring' scale in the factor is an indication of the visual characteristics of the building, which as any one who knows the city can tell is, in the case of the publicly built property, rather monotonous. The privately owned property (both rented and owner occupied) can be said to be more stimulating visually than much of the new housing provided by the local authorities. One has only to walk in some of the areas of the city to realize this (notably Drumchapel and Cranhill, both included in the current study, and both areas with all local authority buildings). It does not mean to say that all the publicly owned property is of this type (see pictures of

buildings in Appendix 7), or that all the non-publicly owned property is interesting architecturally, but two estates of this type can, no doubt, tip the balance in the direction observed in the study (for a note on perceptual deprivation as a factor in architectural design, see Smith 1974).

But the physical characteristics of the building are not the only possible interpretation of the attitude observed; another interpretation has to do with the implication of ownership variables for the organization of space. It has been suggested that the ownership variable is related to the tenureship status of the occupier in the territory. The owner occupier has what amount to full rights in the territory (or as near as possible to full rights in the social context), and is able to do with the territory whatever he would like. The most important of all is his right to sell it and move to another territory of his own choice. The full rights in the space unit mean also full responsibility for the unit, responsibility for defence within the limitation and needs of the law, and responsibility for maintenance of the territory. This responsibility is not one which the residents of rented property have to face. They also cannot do with the territory as much as the owner occupier is permitted to do, and in the case of the publicly owned property their ability to choose the territory is limited by more restrictions than the market and economic considerations. The combination of the freedom of action, and responsibility for the space unit, may be combined into the notion of activity for the territory and its occupiers.

This latter interpretation of the relationships found between the ACTIVITY factor and house ownership is supported by two papers discussing the relationships between house ownership and residential satisfaction (Onibokun 1976) and housing alienation (Marcuse 1975). In the first study satisfaction from house was less in the cases of people moving from owner occupier status to public housing. In the case of alienation it was found to be a more complex situation, ownership status interacting with socio-economic status. Marcuse (op cit) had suggested that the source of alienation from house in the public sector stems from lack of control on manipulation of territory and restrictions on creating one's own dwelling environment,

and the dominance of others in the territory (i.e. non occupiers). His findings for lower income occupants did not confirm the hypothesis suggesting the opposite result (e.g. moving from public to owner occupier status increases the alienation). His interpretation suggests the involvement of alienation due to lack of community structure in the private sector, rather than alienation from the house itself - an interpretation which finds support in Booth and Camp (1974) study of social network in neighbourhoods where the movement of blue collar workers increased dependency on family relationships. It confirms the suggestion of the importance of community life in the slums which compensates for overcrowding and lack of amenities (J. Jacobs 1961; Fried & Gleicher 1961). These studies show that the interpretation given to the ACTIVITY factor is feasible but by no means conclusive.

It can be observed that in the case of the ACTIVITY attitude for the building the results predicted by this interpretation coincide with those predicted by the visual interpretation. Even the discrepancy of the case of the limited rights of the privately let property can be explained by the greater freedom in mobility one can have compared with the publicly owned property. The fact that the two hypotheses in the case of Glasgow housing coincide does not allow the choice between them, and a study where the characteristics do not coincide would be needed to solve the problem.

Another point should be made before discussing the other type of variables, those of the subject characteristics. It can be noted that the attitude differences due to property differences are related mostly to the physical environment questionnaire, but also to some of the scores of the social environment questionnaire, such as the DELICACY factor and the mean score for the questionnaire. This, one may suggest, confirms the relationship of the variables presented on the social organization of the space as presented in chapter 9, and suggests that the attitude expressed is not influenced only by the physical characteristics of the building, but also by the position of the space unit in the organization of space.

2. Implications of subject characteristics results

Three variables come under the headings of subject characteristics in the current study. The first of these is the sex of the

respondent, the second is the denomination (non-denominational or Roman Catholic which was determined by the school the subject attended) and the third was the occupation of the head of the family, which was reported by the subject and later on grouped into three categories (not employed, manual and white collar).

The most important finding when subjects with different characteristics are compared is that of the difference between the sexes in the attitude. In the FRIENDLINESS factor for the physical questionnaire and all three factors for the social questionnaire a difference in the attitude was apparent for the two sexes. On three of the scores, that of the FRIENDLINESS factor in both questionnaires, and the ACTIVITY factor for the social questionnaire, the girls expressed a more favourable attitude towards the environment than the boys; in the fourth, the DELICACY factor, the opposite was the case. The importance of the finding is further emphasised by the fact that no difference whatsoever was found on any of the characteristics of the houses occupied by the two sexes, to account for this difference in attitude.

This effect of the attitude may be the result of lack of criticism in the female group, or the result of the environment being perceived as more friendly and active. As the effect of the FRIENDLINESS factor of the physical questionnaire shows some important relationships in the interaction between sex and size of building, it will be discussed later on in the section discussing the interactions between the characteristics of the building with those of the subjects. The results for the social questionnaire, both for the FRIENDLINESS factor and the ACTIVITY factor may indicate the tendency of females to more interaction with their neighbours, and the greater familiarity has the effect of more positive relationships, and is expressed also in the attitude. One study indicating more interaction between women in neighbourhood relationships in Poland for example, is the study by Kryczka (1973), who found that whereas the relationships of males with neighbours are limited they are more often found between females in the same neighbourhoods. This interaction will no doubt also have an effect on the ACTIVITY factor where 'interesting-boring', and 'lively-calm' are two of the major scales. The hypothesis

of the friendly female may have some support from findings in the field of 'helping behaviour', where it was found that females are more altruistic than men, and that they are less likely to be influenced by external reward in their altruistic behaviour than are men (Wilson & Kahn 1975). Further support for this hypothesis can be suggested in the tendency of females to have smaller personal bubbles (White 1975) and more eye contact (Russo 1975). One may regard, therefore, the results presented in this study as an extension of observations made for the bubble into the units of space defined by environmental rather than personal cues.

The effect of sex of the respondent on the attitude expressed by the DELICACY factor is opposite to the effect on the other two factors. But the difference is rather small, even if significant, and in the ND group it is non-existent.

The second variable describing the respondents is the denomination; in this variable two differences between the groups are observed. The first is in the FRIENDLINESS factor for the social questionnaire, and the second is the ACTIVITY factor for the physical questionnaire. The differences in the denominational groups are difficult to explain, except for the fact that the background of RC is more authoritarian (in the meaning of the word as used in the first part of the discussion as a basic attitude), as the school is part of a more authoritarian system. But one would suggest that the results in the activity factor will be of less active rather than more active as well as the other way round. If, as suggested before, the ACTIVITY factor is related to the ability to manipulate the territory and freedom of choice between territories, one may also suggest that for some people too much freedom (and the responsibility attached to it) may be threatening and ego defences will be called on to reduce the threat. Fromm (1964) has argued a similar case for the attraction of totalitarian ideologies as a form of escape. One of the ways of reducing the threat may well be by reducing the perceived ACTIVITY of the environment. In that case the more 'authoritarian' will consider the environment as less active rather than more active. The 'escape from freedom hypothesis' is supported by the findings of Marcuse (op cit) for lower income subjects and by those of English

(1973) for Glasgow's Oatlands housing where residents refused to take over the responsibility (and risk) for rehabilitation even though it meant house ownership. But the results for the denomination variable in the current study do not confirm the 'escape' rationale. One may suggest that contrary to expectations the RCs are not more 'authoritarian' than the NDs. And the argument may be correct considering the fact that authoritarianism was not actually measured. Or one may cast doubt on the ACTIVITY as freedom indicator interpretation and look for the difference in visual dynamism of the building (the other interpretation for the ACTIVITY factor discussed earlier on in this chapter). Although both RC and ND groups included were in areas where types of buildings were rather monotonous (Drumchapel for RC and Cranhill for ND) it is hard to assess to what extent this factor interpretation applies in other areas of the city and as in the case of the ownership variable the two different interpretations of the factor should be tested in another context.

The third variable, occupation of head of family, did not show any relationship with any of the factors. This finding is different from the findings of the above cited study by Onibukun (1976) who found a relationship between social status and income and residential satisfaction. This result may be due to the effect of interaction with the characteristics of the environment as was shown in chapter 12 and will be discussed in the next section of this chapter.

Comparing the results of the characteristics of the building, and those for the characteristics of the subject one can observe one point. The characteristics of the building affect mainly the attitude towards the building itself, and to a lesser extent, the attitude towards the neighbours. In the case of the characteristics of the subjects, the major effect, with the exception of the FRIENDLINESS factor for the physical questionnaire, is on the attitude towards the neighbours. In other words when the attitude towards other people is concerned it is more important who the respondent is whereas when the environment is concerned both respondent characteristics and environmental characteristics are important.

3. Implications of interaction between building and subject characteristics

The previous discussion tried to explain some of the relationships observed between the attitude, and the characteristics of the territory or the subject separately. It also has been observed that the characteristics of the territory influence the attitude towards the building to a greater extent than the attitude towards the neighbours, and the opposite effect occurs in the case of subject characteristics. But one exception to the influence of subject characteristics on the attitude was observed in the case of the FRIENDLINESS factor for the physical questionnaire, which suggested that males present a less favourable attitude on this major factor than do the females. The interpretation of the results was postponed to this stage of the discussion, as another finding in the interaction between sex of respondent and the variable of number of floors.

It has been observed that the girls considered the territory more friendly than did the boys, for all types of building. It was also observed that there was no difference as far as the FRIENDLINESS factor was considered between the buildings according to size. But when the attitude of the two sex groups was considered separately it was observed that whereas boys considered the single family building more friendly (or rather less unfriendly), the girls considered the two multi-family building types as friendlier than the single family category. The results for the single family building show that the difference between the sexes is rather small (0.074 for males and -0.104 for females), but in the two multi-family categories the difference increases (0.267 for males in the two categories together, and -0.270 for females). The difference is considerable (over 0.5 standard score) and is due to the preference shown by the two sexes for different types of building. The scores for the larger building, those of the third category ('5+'), show an even bigger difference (0.991 for males and -0.860 for females) but they were not considered separately because of the small number of cases (9 males and 17 females) in the category.

It has been argued earlier on that the more friendly attitude expressed by females towards the neighbours, is a tendency apparent in other behaviours, such as the smaller female personal bubble,

and altruistic behaviour. But the need of affiliation is not the only need that the attitude of FRIENDLINESS can be said to express. Another need is the RETREAT need which was observed to be correlated with the FRIENDLINESS factor in the total sample, and in some of the sub-samples was observed to be the secondary connotation of the first FRIENDLINESS factor. One connotation may suggest that the FRIENDLINESS of the building is influenced by the amount of social interaction it allows as in the case of the multi-family buildings with the sharing of the building by more than one family, and the existence of public areas where some type of interaction is inevitable. The observation that females are more likely to involve themselves in interaction with neighbours (Kryzcka 1973) may be an explanation for their preference for the multi-family building. In the case of the males, one may suggest that the situation is different. The FRIENDLINESS factor may have the meaning of RETREAT which is the avoidance of aggression rather than the acquisition of social contacts. The single family building has one characteristic which is absent in the case of a multi-family building; it has clear-cut territorial boundaries, not only for the flat, but also for the outer walls of the building, and in many of the cases (though not all) it includes some sort of garden as part of the territory. The situation of the multi-family building where public areas make meetings (and conflicts) inevitable reduces the possibility of avoiding territorial clashes. Edney (1976) has suggested that the active defence of territory is not a characteristic of the human territory, but it has been argued earlier, in the discussion of the organization of space that this does not reduce the importance of the concept of defence for the territory. The male of the species in animals, and as can be observed in the case of the larger territories (states) in humans, too, is the defender of the territory. The observation of the attitude towards territory on the FRIENDLINESS factor supports the suggestion that territorial defence is an important issue for humans as well as for animals (even if the defence is not usually active) and that in humans as well as in animals it is the role of the male. The analysis of the structure of the questionnaire reported in the previous part of the thesis in which the structure for four groups, differing on the variables of sex and denomination, was looked into suggests that the meaning of the FRIENDLINESS factor for the two sexes is as suggested by

the attitude towards the environment using the factors of the total sample. In the two female groups the scales of the FRIENDLINESS factor included scales such as: 'warm-cold', 'friendly-unfriendly', 'neighbourly-unneighbourly', 'welcoming-unwelcoming' with some of the scales of the general evaluation as 'good-bad', 'happy-unhappy' as did the factor in the total sample, although it was not the first factor in any of the female groups. In the male groups on the other hand scales which in the total sample were part of the FRIENDLINESS factor were part of factors which included scales such as 'safe-dangerous', 'honest-dishonest', 'protective-unprotective' etc. (not always in the same factor).

Considerable support for this interpretation for the difference between the connotation of friendliness for males and females, in relation with the space unit can be found in various studies of the personal bubble. Not only the tendency of females to place themselves near to others (White 1975) which may be also interpreted as a tendency to be less dominant (Delong 1970), and their tendency to involve in more eye contact (Russo 1975) and physical contact (Fisher et al 1976; Maier & Ernest 1978) but they also seem to be less disturbed by crowding conditions (Saegert et al 1975). Moreover their reactions in a situation involving contesting someone's rights to a space unit is not the same as that observed for males.

In a study looking at a situation where subjects were forced to invade the personal bubbles of others Hughes & Goldman (1978) observed that males found it easier to do so when the 'other' (either sex) was not looking at them. This was true even when the other was smiling at them. In the case of females the invasion was easier when the 'other' was looking at them when it was a woman and when it was not looking at them when it was a man. Contrary to males, in females smile had its influence with the 'other' being a male. Had dominance been the cause of the difference males would have found it easier to invade females' 'bubble', which was not the case. Therefore it seems that the fact that someone is gazing at them means for males that the person is prepared to defend his space unit whereas for females that meaning is applied to unsmiling gaze from males only. (This finding is further

supported by a study performed by Thayer & Schiff (1977) suggesting that women are more likely to give differential interpretations to gaze according to the situational context.) This means that males are more likely to perceive space unit defence whereas females perceive it only in males. The tendency of females not to defend their space unit was also observed in smaller territories (the library setting) where females chose the escape reaction to the invader sooner than did the males. The authors (Polit & La France 1977) interpreted it as tendency in males to defend their territory whereas females do not consider their right to the territory as secure (no effect of the sex of invader was observed suggesting that dominance was not the factor involved). Whereas space unit invasion studies support the interpretation of defence given in the present study to the attitude on the FRIENDLINESS factor no data can be presented to support the interpretation in other studies looking at the attitude towards housing. The studies which considered the FRIENDLINESS factor separately (Canter et al 1973; Pedersen 1977; Canter & Thorne 1972) did not look into these differences. Onibokun (1976) who looked into the attitude of females comparing single family buildings with multi-family buildings showed that they preferred the former. But this questionnaire was a Lickert scale type (Lickert 1932) which did not look into the aspect of the meaning of the attitude as the current study has done, and the attitude may be attributed to the involvement of aesthetic preference (on which the tendency in the female group was similar to that of the male group preferring the single family building to the multi-family one).

One may argue against the present interpretation of results that in humans it is no longer valid due to changes in society, and therefore a different interpretation should be sought for the difference in the attitude between the sexes. This argument assumes that what is suggested by the current interpretation of the difference in attitude is that the role of defender of the territory is inherent in the male, and as instinctive as it is supposed to be for the other species. That is not the implication of the suggestion, but rather that it may well be a learned sex role like other social roles, and the fact that the social changes

in territorial status of females are fairly recent (only during the current century, which in evolutionary terms is not even yesterday), did not allow the change to be apparent in the sex image, and therefore in the attitude. One may suggest that in cases of absent father, for example, girls may develop a different attitude, more similar to the male attitude in the current study, or otherwise boys, through lack of identification with a male defender figure, will develop what here was proved to be a more feminine attitude. They may also develop a stronger territorial attitude through the need to take on the role which is usually the role of the father at an age when they are less capable of coping with it. The current study cannot answer these problems, and further research should be performed for the purpose. One may hypothesise in that type of socialization that females will be found to be more territorial than in a normal family background, and that males will be either less territorial or more territorial than the normal case, with the implications that that has for the attitude. (A study suggesting that territorial defence sex role is learned is the study performed by Granza (1973) who did not find any difference in young children as to the type of boxes they chose to play with, but one cannot consider this result definite.) Some further support for the socialization involved in territorial defence is in Onibokun's (1976) study where the single family females complained more often of lack of friendliness in neighbours, lack of privacy, etc., which suggest a territorial defence reaction.

Another important interaction between building characteristic is the interaction between home ownership and the variable of occupation of the head of the family with the factors of ACTIVITY and AESTHETIC in the physical questionnaire. Comparing the attitude towards owner occupied and public buildings, the differences in the three occupational groups show the same tendency: i.e. the public housing is considered less active, but the difference is less apparent in the 'not employed' category and most apparent in the 'white collar' group. This is due to the fact that in the owner occupier category the 'white collar' considered the building most active. These results lend support to the interpretation of the ACTIVITY factor given in the earlier section of the discussion.

This effect may suggest correspondence with the study of Marcuse (1977) where lower income strata showed less alienation in the public housing. It may also be thought to be supported by the results of the AESTHETIC factor where the 'white collar' show preference for owner occupation and the 'not employed' and 'manual' prefer the public housing. The significance of the results for the 'white collar' is that contrary to the other two occupational groups the results do not correspond with the value of the property. Onibokun (1976) results suggest a similar finding.

DISCUSSION

CHAPTER 15

DISCUSSION - SYSTEM APPROACH AND THE MAN ENVIRONMENT INTERACTION MODEL

The presentation of the current thesis in the introductory chapter suggested that the approach of the thesiswould be a system approach. It was suggested that there is a general agreement among students of the field that the environment is a system (for which Ittelson has expressed his support as recently as June 1978). Despite the theoretical commitment research has its technical limitations which do not allow it to involve more than small parts of the environmental system. This problem may have been the source of Evans and Eichelman's criticism of environmental research, which does not differ from other areas in psychology, in not being able to fulfil its wholistic promises (1976). But one can see in the environmental context that the system approach is kept in mind, at least as far as the theoretical work is concerned. To what extent this practice solves the problem facing the discipline is the subject of the present discussion.

Although the introduction to the thesis presented some of the characteristics of a system, i.e. its dimensionality, hierarchical order and complexity, it did not go into detail over the differentiations between systems. One of the major differences is the difference between closed and open system. But this is only one of the aspects of system approach which can be discussed in the context of the environmental system. One has also to look into Miller's differentiation between CONCRETE and CONCEPTUAL systems (1976).

The concrete system occupies a concrete position in the physical space i.e. has a position on the three dimensions of the physical space and on the temporal dimension. A wholistic approach in the case of a concrete system will describe the system as a whole, inevitably using a conceptual system which determines the aspect of the system looked into. System approach as far as the concrete system is concerned can deal with one specific system (in the case of the environmental system a structure plan for an area such as the above cited WCS 1974) or go into a type of system like the city (Mumford 1961) the neighbourhood (Lee 1968), territory (Edney 1976; Dyson-Hudson and Smith 1978) or

personal bubble (Pedersen and Shears 1973; Evans and Howard 1973; Hayduk 1978). The conceptual system used for these descriptions of the concrete system is occupying what Miller refers to as the conceptual space, which has an unlimited number of dimensions on which the elements of the system are placed. In their view of the literature Pedersen and Shears (1973) discussed the personal bubble in the context of 'general system theory'. This approach, though recognising the system qualities of the concept is different from the one taken by the two other reviews mentioned earlier dealing with the same subject (Evans and Howard, and Hayduk) which are also different from one another. The advantage of using these three reviews as an example of a system approach is that by covering a similar topic they allow some comparison of different ways of describing systems.

In the case of Pedersen and Shears' work, an attempt is made to prove that the personal bubble is a system, and an open system at that. For that purpose they present its characteristics, and compare them with the characteristics of an open system, as defined by the 'general system theory', one of these being the defensibility of the system. This review, though interesting enough, does not go into the conceptual space of the system, which the other two discuss. It does not try to describe the dimensions of the system, such as the dimensions on which the specific bubbles differ (e.g. size difference due to occupier characteristics) or those differentiating the bubble from other space units (such as territories).

The first of the other two reviews tries to suggest the former type of dimensions of the personal bubble, and in this way it is similar to Edney's (op cit) review of territories concentrating on the dimension of occupier, and Dyson Hudson and Smith concentrating on two economic dimensions in human territoriality (Evans and Howard 1973). Their summary of the literature on the subject concentrates on the dimensions of the system on which the space unit differs, mainly in size, suggesting the lack of agreement between results of different studies in this respect. To sum up their discussion they try to present their own conceptual system. One of the elements of this discussion is the fact that they try to relate the personal bubble to other psychological concepts, or in other words, the bubble system with the human unit system. This is done by Edney in his discussion of territories, where the major dimension on which the territories differ is the difference in the human occupier. Altman's (1976) discussion

of privacy has also the characteristic of linking two systems together, the concept of privacy on the one hand, with the concept of space units on the other. That type of work is common in the context of the city, describing its different dimensions as do Abrahamson and DuBick (1977) who looked into the dimensions of the urban social system and compared different cities in the U.S.A., suggesting factors other than economic ones for urban dominance.

The third review of the personal space system to be cited was Hayduk's (1978). Like the previously mentioned review of the personal bubble, it describes the inner structure of the system, presenting some models suggested by others for the system of personal bubble. Unlike the above mentioned type of work it also tries to distinguish the system of personal bubble from other adjacent concepts such as the concept of territories. Another contribution of this review is the emphasis on the methodological aspect of the conceptual system to be described, an emphasis which is in agreement with Ittelson's (1978) suggestion that the researcher in the case of the environment is part of the system. This type of system approach can be seen in many works on cities, trying on the one hand to define the city, differentiating it from other settlements (Mumford (1961) discussion of the difference between the early cities and the previous village) or differentiating cities at different stages of development from one another (Mumford 1961 or 1938, differentiating between the modern city and the medieval city). In the case of the city the major dimension to be mentioned is the dimension of complexity, differentiating the city from the village, or the Baroque city from the earlier stages of city development. This type of approach tries to present not only the dimensions of the system itself, but at least some of the dimensions of the suprasystem (to use Miller's (1976) concept).

This system approach leads one to another type of system approach apparent in the literature, in which different subsystems are placed in a conceptual space using one or more dimensions of this space. The difference between this approach and the previous one is that it does not concentrate on one of the subsystems only, but tries to place several subsystems, all having the same interest for the discussion. Such a system can be seen in Lyman and Scott's discussion of the organisation of space units.

Not all the works mentioned above refer to system theory, or even use explicitly any of the terminology of systems, or system approach. But one can say that the conceptual system exists in these works. Although one may suggest that the use of system terminology may help to make the system approach recognisable when it exists, it does not guarantee that this approach was taken by the reviewer. In his discussion of Nomadism as a system Rappoport (1978) repeatedly mentions the fact that it is a spatial system, but the fact is not apparent in the details of his discussion. Rather than describing the dimensions of his conceptual space on which nomadism can be compared with other spatial systems (except the most obvious mobility aspect), or discussing the dimensions of the nomadism as a system, it describes complex behavioural patterns without differentiating between them and other complex behavioural patterns on any dimensional basis. It was suggested in the introduction that one of the major characteristics of a system is its dimensional structure, and any discussion which lacks such structure cannot be recognised as system approach.

The approach to the system in the current thesis can be said to be a conceptual approach at the theoretical level of discussion. It tries to present a conceptual framework for dealing with environmental research, not only with the specific topic of the current study, but also placing the study of the structure of attitudes towards housing in the more general conceptual space. In that respect the discussion differs from other discussions described previously. It does not try to prove that a concrete system of any type exists as Pedersen and Shears did for the personal bubble. It goes beyond the territory in the structuring of space units, although the research itself deals only with territorial space units (as compared with Edney 1976 discussion), and it tries, through the man-environment interaction model (which will be further discussed later on in this chapter) to examine the relationships between the environmental system and the human inner system. It also takes into consideration the involvement of the researcher in the structure of the system, as Ittelson (1978) has suggested. The main advantage of the structuring of the conceptual system using the mapping sentence technique is the clarity of the dimensions of the system and the possibility of summarising the conceptual space in a few mapping sentences, putting together the different dimensions, and providing a

common basis for definitions of the various sub-systems of the whole system. In that way a study which is concentrating on one aspect of the system can be interpreted more widely in the environmental context, than would have been the case without this approach.

The following discussion will try to show to what extent the statement of the previous paragraph is justified by the theoretical and research work of the current thesis. It will compare the discussion with the requirements of system structure, basically these presented in the introduction (dimensionality, hierarchy and complexity) and refer both to the theoretical conceptual system, and to the observation of the concrete system in the empirical study. It will also try to show to what extent the use of the conceptual system contributed to the understanding of the concrete system.

1. System status of the theoretical discussion

Two conceptual sub systems were developed in the theoretical discussion of the current thesis. In the first part of the thesis the concept of the attitude was discussed, and in the second that of the organization of space. The former conceptual framework includes the dimensions of the research intervention technique, those of the attitude, and its meaning. The latter included the dimensions of space and human units involved in the organization of the space.

The first characteristic of the system to be mentioned in the introduction which, being part of the definition of a system, can be said to be a major criterion for a successful system approach, is the dimensionality of the system. In the case of the attitude structure this dimensionality is clear enough. The first two dimensions can be said to be the different components, and the centrality of the attitude described in Chapter 2. The other dimensions described in the first part are those of the intervention of the researcher and research technique, which cannot be separated from the interaction process as Ittelson has pointed out (1978). These dimensions place the research done in the current thesis in its position as far as the study of attitudes and environmental perception are concerned. Moreover, it allows the organization of the different studies dealing with the meaning of the environment by placing them into these dimensions.

In the context of the environment two types of dimensions were described, the first dealing with the organization of space, and the second with the characteristics of the respondent. In the case of the organization of space one could see that the physical characteristics of the space cannot be the only dimensions in the conceptual system, but human characteristics are involved in the structure. These are mainly the characteristics of the human unit relationships with the space unit, such as occupation status (occupier, visitor, user etc) or tenureship status (full, limited or no rights). Not all of these dimensions can be said to play an essential part in the definition of different units of space, but if one considers the system as a whole they are important to describe the 'ecological setting' as a unit (to use Barker's 1968 term), which includes the physical setting as well as the relevant activity of the setting. The concept allows for much flexibility, as one physical setting can serve for more than one ecological setting, depending on activity. One may suggest that the dimensions of the organization of space described in the current thesis can be used to differentiate these settings (together with other activity and social dimensions). Other dimensions to be described in the second part were the dimensions of the respondents' characteristics, which were related to the social system rather than the spatial system.

In both the attitude system and the environmental system the results of the empirical study, which can be considered as description (at least in part) of the concrete system, suggest that the conceptual system allowed an additional insight into the meaning of the results. In the case of the attitude, and the structure of the semantic meaning it pointed out the importance of the position of the different terms used in the scales on the connotative-denotative dimension as well as on the EPA factors dimension. It also could suggest some order in the results of previous studies in the same technique, and explain the difference in observation on a dimensional basis of the system, rather than individual analysis of scales. In the second part the importance of the environmental spatial dimensions on the one hand, and respondent characteristics on the other provided further understanding of the implication of the attitude towards the building, an understanding which could not have been achieved if the different factors had not been isolated (friendliness and aesthetic factors

especially), and the position of the building in the organization of space would not have been taken into consideration. The most impressive of the results can be said to be the results for the friendliness attitude for sex and building size. This showed the importance of at least three dimensions in the structure of the attitude towards the environment, one the factor of its meaning, another the relationships between the occupant and the building, and the third the position of the occupant in the social system. Comparing these results with other studies which did not take into account all three dimensions confirmed that only a dimensional structure could yield such understanding. It also enables comparison with studies dealing with space units differing on the dimensions of source of cues, when they can be compared on other dimensions. In the previous case the attitude of friendliness towards a territory had considerable support from studies on 'bubbles', despite the different ways of measuring the attitude (direct spatial language in the case of bubbles compared with indirect verbal language in the case of the present study), and despite the fact that the source of cues for markers and boundaries were personal compared with environmental. The importance of this comparability of the different units of space is that it emphasised not only the difference between them, but also the fact that they are part of the same system.

The second characteristic of the environment which indicates it is a system is its hierarchical nature as suggested by von Bertalanffy (1968). This characteristic suggested by two dimensions of the conceptual system, one which relates it to the social system, i.e. the dimension of the occupier, and the other related to the space itself, i.e. the dimension identifying the unit, cluster, and, as described later, the pattern of the units of space. These two elements of the system have the characteristic that the lower order units of the space are included in the higher order ones. Individual space units, both territories and bubbles, are included in group or public units. In the case of group and public units the position in the hierarchy depends on the size of one as related to the other. Group space unit can include public space unit, when the space identified is the undivided space which is part of the total group space unit. Or on the other hand the public space can include space units of groups, such as a group bubble in a public area. In other words in this case the hierarchical order is dependent on the social hierarchy of size of human unit. In the case of the

dimension identifying the single vs the multiple units, the dependence is mainly on the space itself. In this case also the single unit will be included in the multiple unit and smaller clusters will together form the higher order ones. The next level of the hierarchy of the space organisation is the 'complex' (Stea 1970). This level was not included in the facet structure as one of the elements. It can be described as a combination of clusters (multiple space units) and groups or aggregations (multiple human units), creating a pattern of bubbles, territories, paths, routes, and vehicles in the environment, through the dynamic movement and rearrangement of boundaries, gates and position of units in the physical space.

In the case of the attitude system suggested in the present study the hierarchical order of the conceptual system is apparent in the study of the concrete system rather in the theoretical construction of the structure. Some of the data is apparent from the current research and others from previous studies. The dimensions on which the hierarchical order seems to exist are the EPA factor dimensions where the difference in variance accounted for by the factors may suggest a hierarchy (the EVALUATIVE factor being the most important and in the case of the current study the second is the ACTIVITY factor). In the SSA1 plot the result suggested some relationship between the EPA structure and centrality order. In that plot the evaluative factor was central and the activity and potency less central (although the number of scales in the activity factor did not allow one to determine the relationship between the two).

The other dimension to indicate an hierarchical order is the denotative-connotative dimension. It seems that when the choice of terminology is given to the subject as Lowenthal (1972) did and as the personal construct method does (Downs 1970; Hudson 1974; Harrison and Sarre 1975) the subject responding to the environment tends to prefer the denotative concepts rather than the connotative ones. That suggests that the denotative meaning has priority as a way of thinking and if the connotative is looked for, one has to prevent the emergence of denotative concepts.

The third characteristic of the system to be mentioned is the existence of forces working in the centripetal direction to keep the parts of the system together as a whole, and the forces in the

centrifugal direction working to emphasise the separate identity of the units and even divide the system into its components. This aspect of the system can be considered one of its dynamic aspects, and as the conceptual framework of the organisation of space was static rather than dynamic in nature, describing the dimensions of the system and not the system as a whole, one can find the description lacking in its dynamic characteristics. But even though the direct reference to the dynamic aspects was not part of the conceptual system, it is nevertheless implied in the dimensions of the system. One of the assumptions made in the conceptual framework was of the close relationship between the social and the spatial organisation. Two of the facets can be considered to refer to the human units rather than the units of the space itself. Considering that the conceptual framework refers to the human space rather than to space in general suggests that the social system is part of the system. That implies that any of the characteristics of the social system will be attributed also to the space system related to it. The dynamism of interaction in the human system is not a new concept. The cohesiveness of groups, the conflicts existing in the system, etc. are well known (see for example any social psychology textbook such as Krech et al (op. cit) Sherif & Sherif, op. cit and many others), and as the individuals and groups form or break ranks etc, boundaries and gates are erected, and markers are put in position to show the new way in which the space is organised, the relationships between the space units etc. The boundaries and the gates of space units may be considered the indicators of these forces; the boundaries indicating the sub-unit's individual identity and, therefore, part of the centrifugal force for the total system, and the gates indicating the existence of links between the sub-units and, therefore, serving as indicators of the existence of the centripetal forces uniting the sub-systems into a whole. The concept of privacy which as Altman (1976) has suggested involves the control over the flow of information through territorial boundaries (and one may add other space unit boundaries too), can be said to be related to the existence of a balance between the centripetal and centrifugal forces of the system.

The forces acting in the system cannot be detected in a study looking into a static situation as does the current study. One cannot even observe the two sources suggested for those forces (similarity and interdependence), unless one considers the similarity of the attitude

towards the building and towards the neighbours as suggesting this type of relationship between occupier and territory. One may have expected the similarity to be greater in the case of self description and that of the territory (rather than the building as a whole). But more apparent is the interdependence, or rather the dependence of the occupier on the territory, a dependence which was suggested by Edney (op cit), for basic activities.

The last of the characteristics of the system is its complexity. The complexity of the system is apparent in both the conceptual and concrete systems. The conceptual system, one may suggest, should with its simple dimensional structure provide the conceptual framework for the description of complex structures, without the description getting too involved for the reader to understand. As far as this demand on the conceptual system is concerned one may suggest that the description of the organisation of space provided in the current study, as a basis for the description of the environment has these characteristics. Although it in itself seems a simple framework, it provides the conceptual system for the description of the complex structure of spatial behaviour. This can be seen in the discussion of patterns of space in Appendix 8. The discussion there tries to define different space patterns from nomadic patterns to city patterns using the same terminology which in chapter 9 was used for the description of the units of space.

The structure of the attitude is far less complex as far as the current conceptual system is concerned, although some of the dimensionality of the attitudes is pointed out, it may be pretentious to suggest that the discussion presented all the complexity of the structure of the attitude, but one may suggest that it did give some insights into the implications of this complexity as far as the research into attitudes towards the environment are concerned. The research itself could not go into all the aspects of the attitude which were presented in the conceptual system, neither did it go into more than two of the dimensions of the organisation of the spatial conceptual system, but discussion of these enabled the researchto be placed in position relative to other studies on a unifying basis. One of the most significant aspects of this is the use that the discussion of the relationships between the friendliness factor and the environment could make of data produced in

studies concerning 'bubbles', although the current study was dealing with territorial units. This less usual use of supporting studies for interpretation was possible due to the unifying structure presented in the form of the conceptual system.

2. The man-environment interaction model and the attitude

An overall model for the interaction between man and his environment was introduced early in the thesis, and further discussed in chapter 1 (Figure 1.1). In the model it was suggested that the method used in the presentation of the stimulus is important in determining the results of the study, as is the method used in eliciting the response. In the case of the current study the method used in the perceptual aspect of the interaction was what was described as direct, meaning that no intervention of the experimenter was used, except for the instruction. This meant one had to rely on the long term memory (L.T.M) of the subject for the knowledge of the stimulus, and it can be suggested that that means the response was to the environmental system rather than to some of the characteristics of the physical environment. In this case one can consider the short term memory (S.T.M.) to be the non-essential part of the model, as the subjects rely on their long term memory (L.T.M) of the environment, as discussed in several other studies, such as the study of mental maps of the world (Saarinan 1973), a country (Gould and White 1974) or a city (Lynch 1961). The emphasis therefore is on the meaning of the environment rather than the direct stimulation. That does not mean that the direct presentation of the stimulation, or the indirect one, which uses the STM as one of the stages of the interaction, is not influenced by the LTM image and meaning, but rather that in the case of dependency on the memory the balance of influence is even more on the image, as the stimulus is not presented to enable the subject to make corrections to his memory bias. In the Canter and Thorne (1972) comparison of two cultural groups, using culturally different architecture the authors were surprised at the results suggesting the preference for the foreign type of architecture to the familiar one. The result expected was that familiarity breeds attractiveness, and that each group will prefer their own type of architecture. But one has to remember one other difference between the two types of architecture presented to the subjects, the existence of the LTM image and meaning

in the familiar one, and the absence of that intervening aspect of the interaction in the case of the foreign one. In the case of the foreign building, the meaning attached to it is the one attached to its cultural background, that of travel. The imagery aspect of the environment may have caused results opposite to expectations, especially when one considers that in many cases familiarity breeds, if not actually contempt, at least some lack of sensitivity and awareness to the environment. In short, the subjects were actually presented with architecture not only differing in style but also from the images present in their LTM. In one case, that of the foreign one, they could use only the picture presented by the researcher for their judgement, a picture, to judge from the examples, which did not include the faults one encounters in the environment while interacting with it, whereas in the case of the familiar environment, those aspects of the environment may have been included in the LTM image when judgement was made.

In the current study all subjects were closely related to the environment they were responding to, and as one could see from the results the attitude was not only controlled by the physical characteristics of the building, but to a very considerable extent by the meaning of these characteristics. It seems from the results presented that the image is loaded with the system meaning of the building. The position the building holds in the structure of space controls some of the attitudes, and in most cases the ones directly relevant to this aspect of the environment. One cannot explain the interaction occurring between size of building and sex of the respondent controlling the friendliness factor of the attitude by its physical attributes, unless one is introducing the position buildings of different size hold in the dimensions of the space system, in this case the occupier, and clarity of the boundaries. But this also indicates another connection in the overall system, that of the position of the respondent in the social system. The other image involved in the interaction, is the image of the self, in the specific case presented here, the image of the self in the role of defender of the territory. One can hardly suggest that subjects, males or females in this study, being only "junior members of the group, actually participate in the defence of the territory. But self image also determines with sex the role identification of the subject, which in most cases will be of boys with the masculine role

and girls with the feminine role they will be called on to perform in their adult life. The interesting cases will be those where one may expect some problems in this identification. For example the case of the one-parent family, where the father is absent. In this case the defender role is taken by the female, and identification of a girl with her mother will suggest a tendency for stronger territoriality compared with other females. In the case of the male the situation may be more complex. If the boy takes the role of the defender, either because of encouragement or through traditional attitudes towards the social order, one may expect a similar attitude to that of other males. But on the other hand due to the absence of a father figure, his security in his sex role may be deficient, causing him to play the role in its extreme form, through the reaction formation defence mechanism, or letting the females control the territory as was done through necessity when he was too young to take on the role. The relationships one may predict are further complicated by other aspects intervening in the image of the self, and only further research can even suggest what those may be. The main issue which this discussion can settle is the involvement of another set of dimensions, those of the respondents, in the man-environment interaction system. What was said for the relationships between the friendliness factor and the size of building variable, can be said for the activity factor and tenureship status of the territory, and the aesthetic factor and the value of the property. The results presented point out a complex structure of the two systems, relating it to the suggestion of the complexity of the relationships between the attitude and the environment. Not only different factors were related differently to the characteristics of the environment, but also a complex structure of relationships was suggested between the attitude and some interactions of those characteristics (notably the interaction between sex and number of floors as related to the friendliness of the building), which suggest some functional relationships between the environment and the attitude. But it seems that the complexity of the system as well as other aspects of the system is dependent on the relationship of the sub-system with other sub-systems in the mental system. The verbal expression used for the measurement of the attitude is the most apparent one, but also the need system, with its hierarchy control some of the attitude system structure. In short it seems that the attitude is even less independent than the space system and is closely related to the other aspect of the organism.

Figure 15.1 presents the structure of the man-environment model, as it appears after taking into consideration the modification of the attitude structure. The attitude is presented as a three compartment box, according to the three components of the attitude. The meaning, which it was suggested was expressed in the emotive component of the attitude is also of three parts corresponding to the EPA factor structure of the semantic meaning. This is the inner organism part of the interactive model. Another inner organism construct is the image. This also is a multi-dimensional structure, including the self and the environment, and in both the social and the physical components of the image. On the receiving end of the interaction is the environment both social and physical. The intervening construct of the medium of presentation was excluded as the study relied on the LTM image of the environment. On the response end of the model, the response organiser is represented by the box describing the choice between denotative and connotative terms for the verbalisation of the response. This model presents the process of the expression of the attitude towards the environment, but it does not go into the details of the relationships found in the study.

Figure 15.2 presents the details presented earlier on between the different factors of the attitude and those of the environment, with the relevant intervening psychological constructs. In this model the environment is represented in a more complex way. On the one hand the space system is described for the physical environment, and on the other the position of the subject in the social system is presented. The self image and the image of the environment are described so that the relationships between aspects of the environment and its image can be shown in the existence of the connecting arrows. The attitude is suggested to be the result ofthe two images, that of the self and that of the environment. The connecting arrows present relationships found in the current study, such as the relationship between friendliness and territory defence, or hypothesised, such as aesthetic value (denotative evaluation attitude) with aesthetic needs. This model is less a presentation of a process, as was the previous one, and more of an organisation of the relationships.

To summarise, one can see that the theory and the results presented can be integrated into one system despite the fact that it is far from complete, and many aspects could be studied.

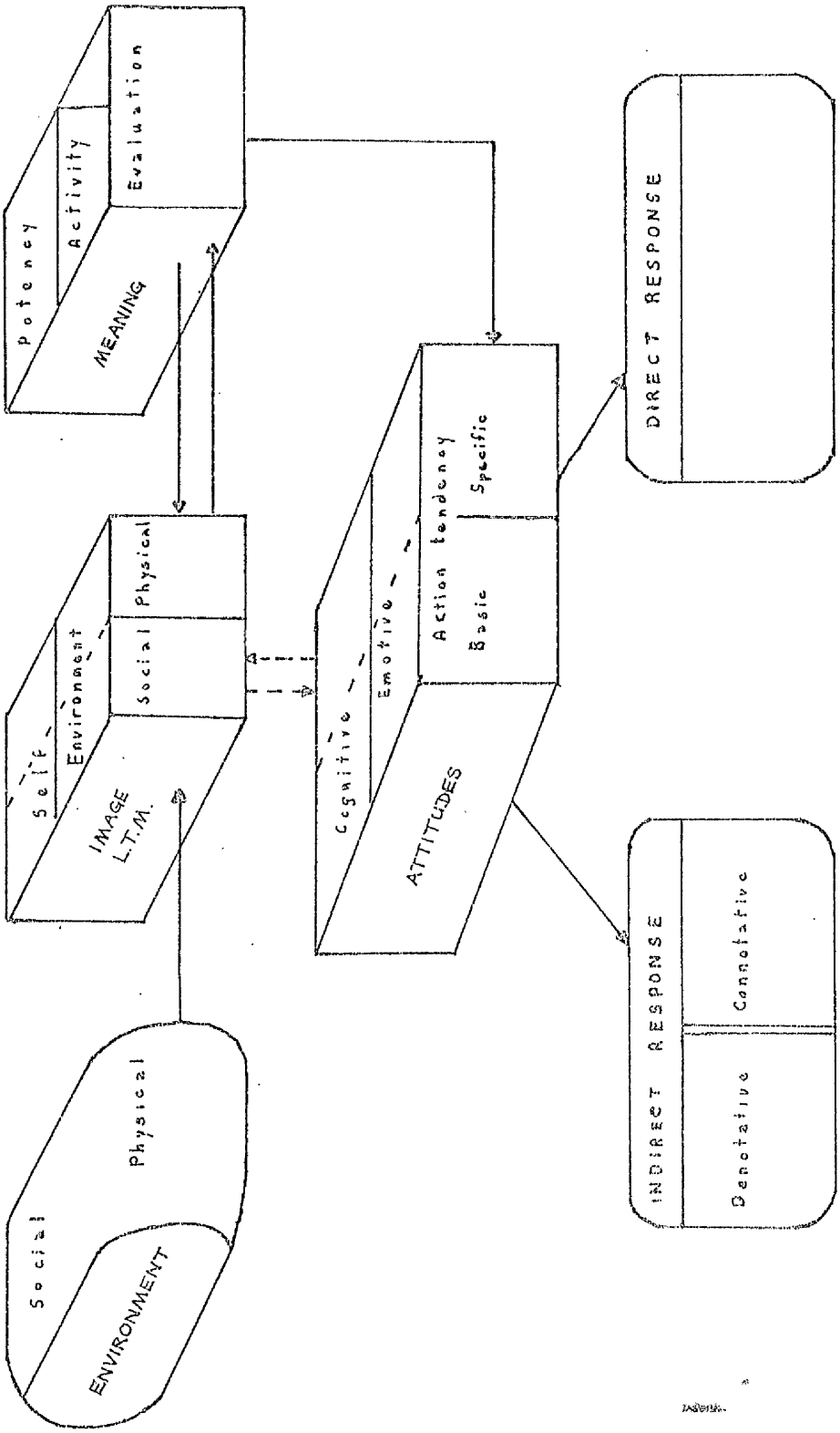
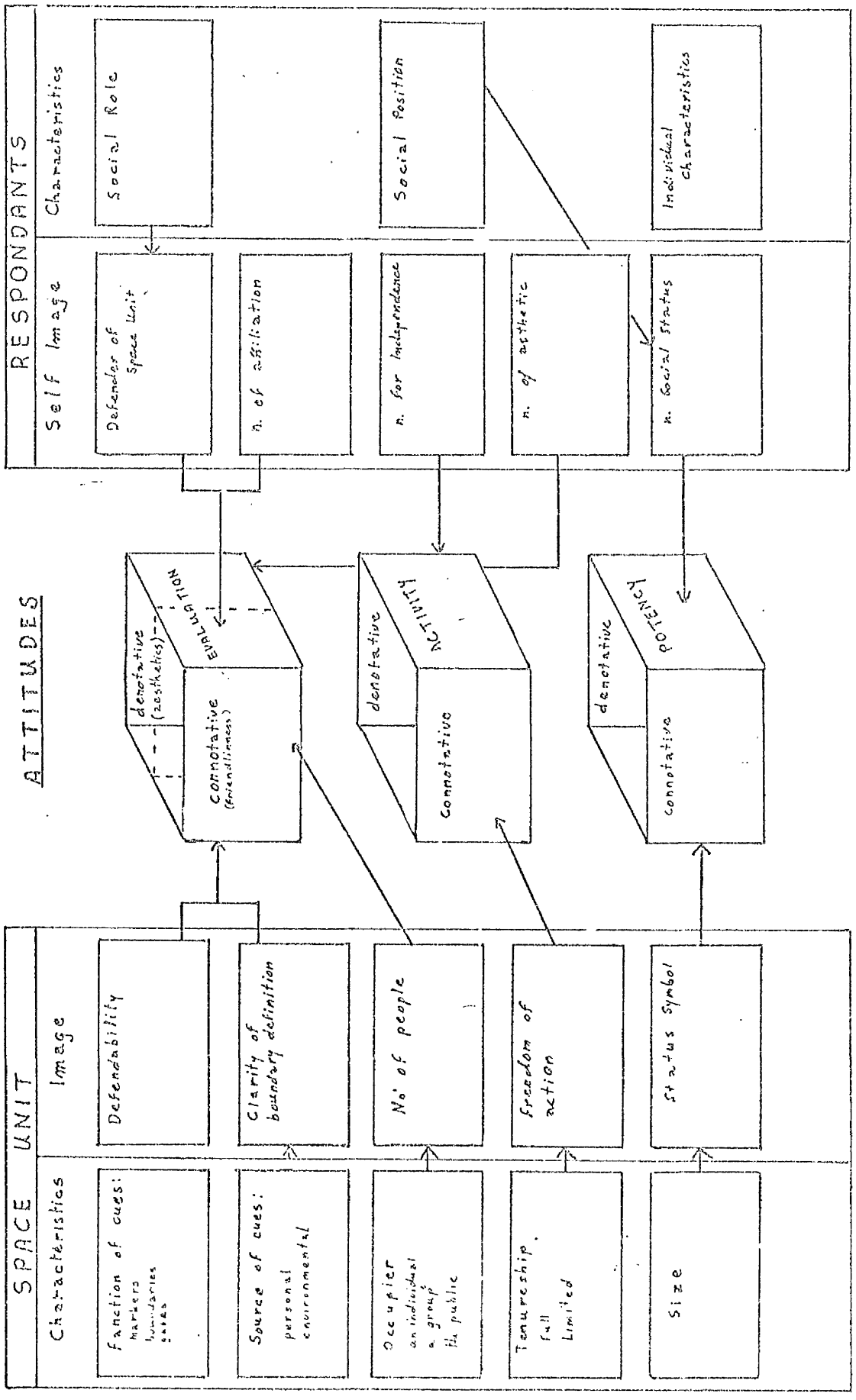


FIGURE 15.1 MAN-ENVIRONMENT INTERACTION MODEL: STUDY RESULTS.

FIGURE 15.2 SUMMARY OF DIMENSIONS OF SUBJECT, SPACE UNIT AND ATTITUDE.



3. Some points on application and further research

The approach of the current study is very much theoretical in nature, and in such a situation one may always find one's self confronted with the question of what is the use of such a study. There is no need for any justification of a theoretical approach, as history has already proved its importance, but one does not have to go far to find immediate applications in the case of this study. One of the more important points the results of the current study produced evidence for is the fact that the study of attitudes towards the environment should take some factors into consideration which are at present largely ignored:

1. It should consider very carefully who the respondents are, allowing for sex differences, occupation and socio-economic status. It is apparent from the results of the current study, and from other studies that reactions to the environment differ. Although sex differences cannot be considered in the planning process as sexes are not separated, they can cause problems in the interpretation of survey results. For example in Onikokun's study the reaction of females to the dimension of single vs multi-family buildings was as would have been expected of males according to the results of the current study. It was suggested earlier on that general preference is more like the AESTHETIC factor where the two sex groups are not different, rather than the FRIENDLINESS factor on which they are different. But the cause may be due to the fact that females will, when married, have a tendency to accept their spouse's preference as their own because of his role as the defender of the territory, although they do not do so earlier on in their life cycle. For practical purposes, one may consider this type of difference between the sexes only in situations where the environment will be used solely by one of the sexes, suggesting for example that dormitories provided for females put the emphasis on common areas where socialising is encouraged, whereas in male dormitories the emphasis should be on reducing 'public' area where territorial boundaries are not clear.

2. The other important subject characteristics to influence the attitude towards the environment may be suggested to be the socio-economic status related to the tenureship status. It seems that although in general the attitude of professionals who influence the decision making process (mainly social scientists) is similar to the one expressed by Marcuse (1977) it does not necessarily correspond to the attitude of the occupants. In other words, although the professional being middle class considers house ownership a preferable state, it is not the case for residents of all strata in society. (Note the reluctance of Oatlands residents to renovate their own houses and preference for the public housing sector found by English 1973). Letting a person have responsibility for his territory may not be an answer to an existing need, but it may well be a way of educating him for a responsible role in society. One cannot say that this is a desirable aim, as it is a matter of value judgement, but if that is what one wants, one of the first things in the process is giving rights over one's own territory. The importance of the rights in space were indicated more in the theoretical discussion than in the research, but the results relating the activity factor to this aspect of the space lend support to the theoretical suggestion.

Further-more, one of the problems of the multifamily building so far as males are concerned is the areas which are not defined as part of group territory. These, it was suggested, are sources of potential conflict, and this fact is further enhanced by the fact that whereas the residents may damage them they are not the ones responsible for improving them. The creation of a multifamily group with responsibility for the whole building may change the role of these areas from potential conflict inducers to areas where potential cooperation can emerge. The need to decide between costs for maintenance or doing the work themselves may lead the residents into structuring their activity, and the building becoming a group territory (rather than aggregate unit) with the defence of the territory expanding from the single flat into the whole of the building, thereby reducing the potential conflict apparent in shared parts of the building and increasing feelings of friendliness.

It is regrettable that the number of cases in the current study did not allow the testing of this three-way interaction between ownership, size, and sex. But both the FRIENDLINESS factor and the ACTIVITY factor point in the direction of house ownership and self responsibility in the territory.

3. The results do not suggest that the highrise blocks are undesirable, as some writers in daily papers suggest. It is hard to draw conclusions from the sample as the number of subjects living in highrise blocks was small, but some indications are that the blocks are not totally rejected but rather may be on the basis of who shares them with the respondent, and the general quality of the property. In other words, other variables than the mere size of the building are involved in the problems arising in these blocks. Taking this point with the previous one of independence and responsibility, one may suggest that creation of a body of elected persons from the building itself, a body which will be given real responsibility in common concerns, may suggest one way of approaching the problems encountered in some blocks. This is a rather simplistic suggestion if taken without further consideration, as the system is far more complicated than just the two mentioned variables, but it does point out an approach to the problems.

These are only three possible applications of the research, but there are many more, although one cannot apply the results directly, and any application should involve much thought and further research, or at least some consideration of other aspects of the system than those discussed here.

Another aspect of the system approach is that it suggests further studies to complement those carried out at this stage:

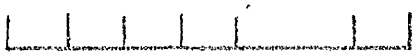
1. It is apparent from the discussion of the organisation of space that some units of space have been neglected in research, such as the group bubble and the public bubble. In providing a definition for those units one also provides an opening for new research areas.

2. The hypothesis presented for the structure of the attitude presents another research project taking into account the full implications of the two dimensions of the meaning.

These are only two of the possible research projects suggested by the system approach, though others are implied throughout the discussion. These are pointed out to indicate the importance of system approach for research.

APPENDICES

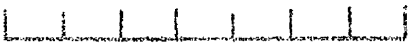
APPENDIX ONE PILOT STUDY QUESTIONNAIRE



nimpressive impressive

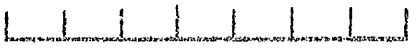
delicate rugged

ibrant still



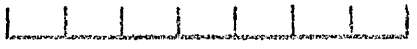
dull sharp

eautiful ugly

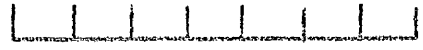


dishonest honest

ntidy tidy



fair unfair

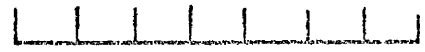


ard soft

sacred profane

rough smooth

thin thick



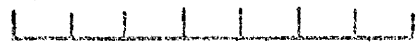
flexible inflexible

simple complicated

fashionable unfashionable

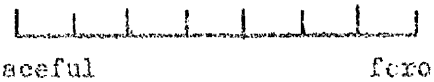
formal informal

unprotected protected



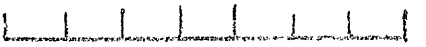
slow fast

characterful characterless



peaceful ferocious

bright dull



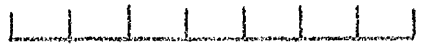
heavy light

masculine feminine

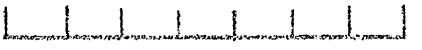
dirty clean

fine coarse

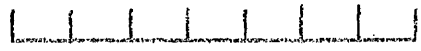
tiresome invigorating



dangerous safe

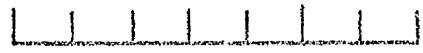


worthless valuable



subtle unsubtle

changeable constant



friendly unfriendly

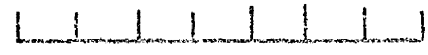
gloomy bright

happy sad

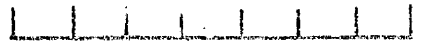
stable unstable

lively calm

interesting boring

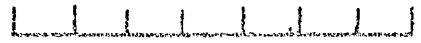


soft loud

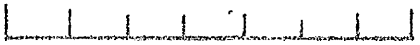


commonplace unique

barren fruitful

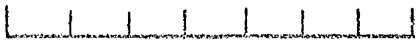


welcoming unwelcoming



harmonious discordant

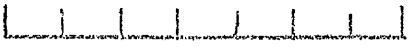
cold hot



weak strong

light dark

dead alive

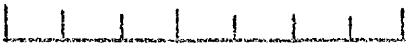


spacious constricted

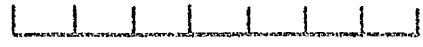
neighbourly unneighbourly

passive active

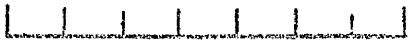
dignified undignified



clear obscure

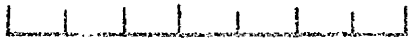


relaxed tense



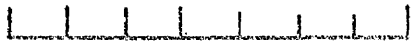
confident hesitant

good bad



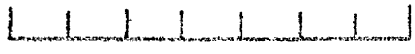
statusless statusful

unexpected expected



depressing uplifting

sympathetic unsympathetic



sophisticated naive

bitter sweet

unpleasant pleasant

Name .....

Sex .....

Father's occupation .....

Address (including .....)

.....

NOTE: Please give total number of floors in the building you live in.....

impressive	1	2	3	4	5	6	7	unimpressive
delicate	1	2	3	4	5	6	7	rugged
honest	1	2	3	4	5	6	7	dishonest
smooth	1	2	3	4	5	6	7	rough
fashionable	1	2	3	4	5	6	7	unfashionable
formal	1	2	3	4	5	6	7	informal
protective	1	2	3	4	5	6	7	unprotective
beautiful	1	2	3	4	5	6	7	ugly
fast	1	2	3	4	5	6	7	slow
bright	1	2	3	4	5	6	7	dull
clean	1	2	3	4	5	6	7	dirty
fine	1	2	3	4	5	6	7	coarse
invigorating	1	2	3	4	5	6	7	tiresome
safe	1	2	3	4	5	6	7	dangerous
valuable	1	2	3	4	5	6	7	worthless
friendly	1	2	3	4	5	6	7	unfriendly
happy	1	2	3	4	5	6	7	sad

lively	1	2	3	4	5	6	7	calm
interesting	1	2	3	4	5	6	7	boring
soft	1	2	3	4	5	6	7	loud
unique	1	2	3	4	5	6	7	commonplace
welcoming	1	2	3	4	5	6	7	unwelcoming
warm	1	2	3	4	5	6	7	cold
strong	1	2	3	4	5	6	7	weak
neighbourly	1	2	3	4	5	6	7	unneighbourly
light	1	2	3	4	5	6	7	dark
active	1	2	3	4	5	6	7	passive
relaxed	1	2	3	4	5	6	7	tense
confident	1	2	3	4	5	6	7	hesitant
good	1	2	3	4	5	6	7	bad
sympathetic	1	2	3	4	5	6	7	unsympathetic
sophisticated	1	2	3	4	5	6	7	naive
pleasant	1	2	3	4	5	6	7	unpleasant
peaceful	1	2	3	4	5	6	7	ferocious

PILOT QUESTIONNAIRE ORIGINAL COEFFICIENTS

		IMPR 1	DLIC 2	VIBR 3	SHRP 4	BEAU 5	HNST 6	TIDY 7	FAIR 8	HARD 9	SCRD 10	SMTH 11	THIN 12	FLEX 13	SMPL 14	FSHN 15	FORM 16	PRTC 17	SLOW 18	CHRC 19	PEAC 20
1	IMPR	.0																			
2	DLIC	.41	.0																		
3	VIBR	-.13	-.26	.0																	
4	SHRP	.35	.19	.13	.0																
5	BEAU	.50	.51	-.16	.30	.0															
6	HNST	.32	.36	-.13	.18	.34	.0														
7	TIDY	.49	.49	-.26	.25	.54	.40	.0													
8	FAIR	.27	.30	-.11	.16	.38	.41	.37	.0												
9	HARD	.22	.46	-.22	.01	.36	.31	.31	.14	.0											
10	SCRD	.04	.29	-.08	.01	.29	-.00	.16	.12	.24	.0										
11	SMTH	.35	.52	-.26	.12	.49	.38	.53	.26	.54	.22	.0									
12	THIN	.06	.13	.04	.00	.13	.01	.18	.03	.32	.17	.24	.0								
13	FLEX	.10	.13	-.05	.16	.17	.14	.05	.20	.04	.04	.10	.06	.0							
14	SMPL	.09	.06	-.13	-.02	.10	.06	.19	.15	.01	-.00	.16	.09	.08	.0						
15	FSHN	.24	.33	-.09	.27	.42	.18	.40	.25	.23	.14	.28	.18	.10	.05	.0					
16	FORM	.10	.20	-.12	.20	.25	.09	.34	.16	.19	.12	.19	.15	.03	.09	.29	.0				
17	PRTC	.28	.25	-.16	.12	.22	.30	.30	.29	.18	.23	.27	.14	.12	.01	.12	.13	.0			
18	SLOW	.06	-.12	.19	.17	-.06	-.05	-.04	.06	-.18	-.22	-.13	-.16	.08	-.18	.03	.00	.04	.0		
19	CHRC	.22	.11	-.07	.31	.11	.30	.22	.30	.12	.01	.08	.02	.15	.03	.15	.06	.30	.10	.0	
20	PEAC	.35	.48	-.28	.11	.43	.42	.53	.37	.40	.22	.50	.11	.04	.24	.32	.23	.23	-.19	.17	.0
21	BRGH	.49	.33	-.06	.60	.53	.26	.49	.44	.21	.09	.32	.18	.15	.05	.43	.28	.22	.16	.35	.39
22	HEAV	.28	.36	-.03	.19	.34	.23	.25	.17	.42	.26	.33	.18	.06	.12	.19	.09	.22	-.08	.04	.30
23	MASC	.24	.31	-.08	.20	.23	.16	.13	.24	.18	.15	.18	.16	.01	-.01	.18	.04	.16	-.16	.17	.18
24	DIRT	.44	.52	-.25	.30	.56	.36	.69	.29	.38	.22	.47	.18	.06	.06	.35	.35	.29	-.10	.20	.54
25	FINE	.37	.48	-.27	.27	.54	.28	.46	.35	.35	.26	.39	.28	.19	.09	.33	.30	.29	-.03	.17	.35
26	INVG	.26	.08	.07	.24	.20	.12	.20	.12	-.02	-.05	.12	-.12	.03	-.06	.16	.02	.13	.26	.14	.10
27	DANG	.40	.39	-.18	.18	.43	.42	.51	.44	.22	.13	.37	.07	-.00	.06	.13	.16	.32	-.07	.25	.52
28	VALU	.40	.32	-.00	.42	.49	.36	.42	.37	.23	.22	.41	.03	.28	-.01	.33	.12	.30	.07	.31	.39
29	SUBT	-.19	-.39	.13	-.23	-.35	-.20	-.30	-.34	-.23	-.23	-.26	.04	-.03	.02	-.23	-.31	-.15	-.06	-.14	-.29
30	CHNG	.08	-.06	.09	.09	-.13	-.06	-.08	-.05	-.05	.05	-.15	-.02	.06	.05	.02	.02	.12	.05	.09	-.12
31	FRND	.19	.25	-.08	.15	.38	.36	.39	.36	.23	.12	.29	.18	.16	.09	.32	.25	.28	.11	.25	.35
32	GLMY	.43	.30	-.02	.40	.43	.30	.48	.45	.26	.06	.34	.15	.23	.06	.36	.20	.21	.26	.31	.34

		IMPR 1	DLIC 2	VIBR 3	SHRP 4	BEAU 5	HNST 6	TIDY 7	FAIR 8	HARD 9	SCRD 10	SMTH 11	THIN 12	FLEX 13	SMPL 14	FSHN 15	FORM 16	PRTC 17	SLOW 18	CHRC 19	PEAC 20
33	HAPY	.28	.26	-.14	.24	.43	.36	.39	.56	.20	.14	.30	.10	.23	.14	.23	.18	.29	.09	.41	.36
34	STBL	-.28	-.27	.08	-.25	-.43	-.35	-.36	-.33	-.28	-.11	-.37	-.04	-.12	-.06	-.28	-.15	-.13	-.04	-.26	-.36
35	LIVL	-.03	-.13	.30	.22	-.07	-.17	-.16	.09	-.17	-.02	-.22	-.03	.08	-.03	.03	-.01	-.02	.31	.19	-.27
36	INTR	.35	.18	.07	.39	.32	.31	.27	.34	.18	-.01	.21	.07	.20	.03	.30	.17	.12	.31	.30	.21
37	SOFT	.20	.39	-.32	-.10	.36	.27	.46	.20	.36	.18	.42	.14	-.02	.20	.21	.19	.16	-.10	.04	.53
38	UNQU	.34	.31	-.09	.29	.28	.16	.15	.15	.17	.32	.24	.07	.05	-.11	.24	.05	.14	-.13	.20	.19
39	BARN	.09	.25	-.05	.22	.36	.12	.23	.16	.22	.13	.18	.11	.06	.17	.22	.20	.05	-.01	.16	.21
40	WELC	.32	.31	-.10	.34	.42	.34	.38	.44	.26	.17	.28	.22	.22	.09	.28	.23	.32	.03	.41	.36
41	HRMN	.16	.23	-.16	.34	.33	.27	.33	.35	.18	.00	.20	.12	.10	-.03	.25	.36	.20	.07	.24	.25
42	COLD	-.31	-.12	-.02	-.35	-.16	-.21	-.21	-.38	.00	-.04	-.18	-.10	-.05	-.12	-.15	-.11	-.31	-.19	-.25	-.12
43	STRN	.14	.05	.12	.23	.19	.13	.11	.22	-.04	.01	.08	-.06	.11	.02	.17	.13	.14	.25	.17	.01
44	DARK	.25	.28	-.14	.28	.42	.22	.37	.27	.25	.04	.25	.15	.10	.16	.33	.20	.06	.08	.21	.31
45	DEAD	.19	.16	.19	.39	.19	.12	.13	.27	.01	.01	.03	-.06	.04	-.05	.22	.12	.11	.35	.17	.06
46	SPCS	.23	.14	.04	.16	.31	.13	.19	.25	.29	.11	.28	.20	.02	.13	.28	.06	.07	-.04	.08	.14
47	NEIG	.23	.13	-.05	.26	.25	.15	.17	.35	.17	.11	.07	.13	.13	.03	.19	.23	.23	.06	.21	.25
48	ACTV	.14	-.02	.22	.25	.07	.08	.03	.11	-.00	-.06	.10	.09	.04	.02	.07	.02	.07	.35	.13	-.03
49	DGNF	.27	.42	-.10	.34	.50	.17	.35	.38	.33	.37	.29	.16	.28	-.00	.26	.28	.22	.06	.19	.35
50	CLER	.39	.29	-.05	.42	.43	.38	.37	.22	.27	.06	.31	.21	.20	.16	.35	.27	.13	.01	.21	.30
51	RELX	.21	.30	-.20	.18	.42	.26	.43	.42	.17	.16	.33	-.05	.12	.15	.18	.23	.21	.05	.20	.44
52	CNFD	.26	.25	-.15	.10	.36	.20	.31	.20	.15	.16	.27	.13	-.01	.01	.17	.16	.08	-.05	.09	.21
53	GOOD	.31	.32	-.15	.29	.44	.40	.45	.42	.26	.17	.39	.14	.18	.02	.28	.23	.32	.12	.29	.43
54	STTS	.15	.09	-.01	.09	.22	.06	.06	.19	.06	.12	.17	.04	.17	-.06	.01	-.00	.32	.03	.22	.11
55	EXPC	.00	-.12	.00	.14	-.01	-.06	-.04	-.00	-.09	-.03	-.05	.09	.03	-.15	.04	.10	-.07	.09	.03	-.19
56	DPRS	.32	.27	.03	.29	.44	.17	.30	.29	.17	.15	.27	.09	.15	.05	.27	.05	.09	.15	.29	.19
57	SYMP	.20	.14	-.01	.14	.23	.16	.15	.36	.16	.24	.19	.13	.09	.00	-.02	.15	.32	.03	.16	.25
58	SOPH	-.23	-.06	.08	-.12	-.26	-.05	-.18	-.13	-.21	-.05	-.16	-.10	-.09	.06	-.13	-.06	-.07	-.12	-.23	-.08
59	SWET	.29	.29	-.03	.22	.46	.24	.30	.39	.18	.19	.31	.14	.17	.01	.19	.18	.24	.17	.27	.32
60	PLES	.34	.33	-.14	.29	.42	.37	.33	.39	.26	.17	.37	.13	.14	.05	.21	.23	.33	.08	.32	.39

APPENDIX J TABLE 1 CONTINUED

		BRGH 21	HEAV 22	MASC 23	DIRT 24	FINE 25	INVG 26	DANG 27	VALU 28	SUBT 29	CHNG 30	FRND 31	GLMY 32	HAPY 33	STBL 34	LIVL 35	INTR 36	SOFT 37	UNQU 38	BARN 39	WELC 40
21	BRGH	.0																			
22	HEAV	.36	.0																		
23	MASC	.28	.32	.0																	
24	DIRT	.55	.38	.26	.0																
25	FINE	.48	.33	.33	.51	.0															
26	INVG	.24	.07	-.05	.17	.07	.0														
27	DANG	.46	.26	.26	.51	.47	.16	.0													
28	VALU	.48	.31	.11	.42	.33	.25	.38	.0												
29	SUBT	-.39	-.29	-.21	-.38	-.42	-.22	-.38	-.29	.0											
30	CHNG	-.00	-.00	-.03	-.17	-.11	-.04	-.14	-.02	.11	.0										
31	FRND	.44	.25	.15	.37	.44	.26	.33	.24	-.33	-.02	.0									
32	GLMY	.66	.34	.19	.47	.43	.28	.47	.53	-.32	.01	.42	.0								
33	HAPY	.55	.23	.13	.45	.40	.26	.45	.43	-.25	-.00	.61	.53	.0							
34	STBL	-.38	-.27	-.23	-.42	-.25	-.18	-.33	-.47	.29	.17	-.31	-.44	-.35	.0						
35	LIVL	.12	-.01	-.01	-.12	-.05	.12	-.05	.11	-.01	.11	.03	.18	.14	-.04	.0					
36	INTR	.44	.14	.02	.18	.30	.24	.20	.46	-.17	.10	.39	.47	.34	-.37	.22	.0				
37	SOFT	.14	.31	.13	.42	.32	.12	.36	.15	-.25	-.23	.27	.21	.26	-.19	-.25	-.00	.0			
38	UNQU	.27	.23	.16	.23	.23	.25	.26	.35	-.26	.04	.06	.21	.14	-.21	-.06	.24	.13	.0		
39	BARN	.27	.12	.01	.34	.26	.12	.18	.20	-.26	-.09	.18	.21	.24	-.18	.02	.19	.17	.24	.0	
40	WELC	.50	.25	.22	.48	.54	.23	.48	.40	-.37	.02	.58	.52	.66	-.42	.16	.40	.22	.25	.23	.0
41	HRMN	.47	.25	.26	.40	.38	.02	.30	.28	-.31	-.11	.39	.35	.35	-.27	-.01	.21	.10	.08	.17	.45
42	COLD	-.43	-.31	-.23	-.16	-.26	-.25	-.32	-.32	.27	-.09	-.20	-.43	-.30	.20	-.19	-.34	-.01	-.22	-.13	-.35
43	STRN	.18	-.00	.00	.11	.11	.13	.17	.38	-.10	.07	.10	.39	.21	-.19	.20	.29	-.07	.11	.10	.24
44	DARK	.48	.23	.19	.39	.38	.10	.23	.23	-.35	-.04	.30	.33	.30	-.23	.01	.28	.21	.09	.29	.25
45	DEAD	.45	.23	.07	.17	.18	.28	.17	.29	-.23	.21	.21	.44	.24	-.18	.28	.41	-.06	.25	.26	.26
46	SPCS	.26	.27	.08	.19	.17	.17	.19	.21	-.17	-.06	.23	.31	.20	-.31	.03	.21	.17	.21	.17	.23
47	NEIG	.45	.14	.13	.30	.31	.12	.30	.19	-.25	.02	.45	.31	.40	-.14	-.00	.21	.05	.20	.09	.43
48	ACTV	.24	.08	.00	.04	.11	.25	.12	.18	-.02	.12	.20	.36	.22	-.16	.23	.26	-.10	.15	.05	.29
49	DGNF	.47	.29	.20	.44	.50	.18	.43	.37	-.39	.00	.40	.39	.41	-.21	.00	.35	.22	.37	.43	.46
50	CLER	.52	.27	.16	.42	.46	.10	.26	.37	-.21	-.01	.41	.48	.42	-.31	-.01	.32	.18	.16	.19	.42
51	RELX	.35	.23	.15	.46	.38	.15	.38	.35	-.37	-.13	.41	.32	.46	-.30	-.10	.16	.32	.13	.19	.40
52	CNFD	.27	.12	.08	.30	.33	.08	.23	.26	-.15	.06	.29	.30	.33	-.19	-.08	.24	.11	.06	.12	.35

APPENDIX J TABLE I CONTINUED

		BRGH 21	HEAV 22	MASC 23	DIRT 24	FINE 25	INVG 26	DANG 27	VALU 28	SUBT 29	CHNG 30	FRND 31	GLMY 32	HAPY 33	STBL 34	LIVL 35	INTR 36	SOFT 37	UNQU 38	BARN 39	WELC 40
53	GOOD	.57	.27	.18	.51	.49	.36	.47	.47	-.43	-.04	.61	.54	.64	-.37	.02	.37	.31	.26	.23	.62
54	STTS	.16	.08	.07	.14	.12	.16	.14	.28	-.10	-.01	.16	.15	.24	-.15	.01	.10	-.05	.20	.09	.20
55	EXPC	.06	.02	-.00	-.08	.06	.01	-.08	-.04	-.06	.12	-.03	.02	-.06	.12	.08	.05	-.17	-.03	.08	.01
56	DPRS	.42	.14	.14	.29	.28	.32	.25	.37	-.31	-.03	.34	.43	.29	-.22	.08	.39	.19	.19	.24	.32
57	SYMP	.29	.22	.15	.22	.26	.10	.33	.32	-.23	.07	.28	.24	.38	-.11	.16	.28	.10	.20	.04	.41
58	SOPH	-.27	-.20	-.06	-.16	-.20	-.15	-.09	-.21	.22	-.00	-.11	-.26	-.13	.19	-.11	-.20	-.20	-.12	.04	-.15
59	SWET	.44	.29	.23	.41	.36	.27	.42	.40	-.32	-.07	.35	.48	.48	-.32	.14	.37	.27	.16	.10	.49
60	PLES	.53	.29	.20	.56	.47	.26	.46	.38	-.42	-.06	.51	.49	.52	-.34	.04	.36	.21	.23	.19	.57

		HRMN 41	COLD 42	STRN 43	DARK 44	DEAD 45	SPCS 46	NEIG 47	ACTV 48	DGNF 49	CLER 50	RELX 51	CNFD 52	GOOD 53	STTS 54	EXPC 55	DPRS 56	SYMP 57	SOPH 58	SWET 59	PLES 60
41	HRMN	.0																			
42	COLD	-.25	.0																		
43	STRN	.19	-.26	.0																	
44	DARK	.35	-.34	.08	.0																
45	DEAD	.13	-.33	.39	.18	.0															
46	SPCS	.20	-.27	.03	.16	.11	.0														
47	NEIG	.34	-.30	.04	.15	.17	.30	.0													
48	ACTV	.09	-.36	.33	.00	.49	.07	.14	.0												
49	DGNF	.31	-.21	.11	.27	.30	.27	.39	.10	.0											
50	CLER	.47	-.24	.13	.44	.21	.32	.30	.20	.34	.0										
51	RELX	.30	-.23	.11	.31	.10	.18	.31	.03	.51	.30	.0									
52	CNFD	.22	-.15	.21	.13	.20	.12	.13	.14	.30	.32	.32	.0								
53	GOOD	.38	-.34	.15	.38	.28	.20	.41	.21	.53	.47	.54	.36	.0							
54	STTS	.14	-.10	.16	-.04	.12	.03	.14	.03	.16	.06	.19	.17	.12	.0						
55	EXPC	.16	-.26	.07	.07	.02	.06	.02	-.03	.09	.05	-.01	.04	.05	-.09	.0					
56	DPRS	.22	-.24	.27	.36	.29	.34	.19	.26	.35	.31	.24	.27	.35	.06	.02	.0				
57	SYMP	.16	-.25	.16	.09	.24	.14	.29	.11	.35	.20	.24	.27	.35	.28	-.06	.24	.0			
58	SOPH	-.18	.17	-.11	-.30	-.14	-.19	-.17	-.03	-.17	-.18	-.17	-.14	-.18	-.10	-.13	-.35	-.12	.0		
59	SWET	.35	-.32	.24	.35	.31	.15	.29	.26	.39	.33	.37	.21	.54	.17	-.01	.49	.37	-.37	.0	
60	PLES	.40	-.28	.19	.32	.28	.18	.41	.28	.44	.47	.36	.26	.59	.20	-.08	.42	.33	-.21	.58	.0

PHYSICAL QUESTIONNAIRE ORIGINAL COEFFICIENTS

		IMPR 1	DLIC 2	HNST 3	SMTH 4	FSHN 5	FRML 6	PRTC 7	BEAT 8	FAST 9	BRIT 10	CLEN 11	FINE 12	INVG 13	SAFE 14	VLUE 15	FRND 16	HAPY 17	LVLY 18	INTR 19	SOFT 20
1	IMPR	.0																			
2	DLIC	.46	.0																		
3	HNST	.22	.41	.0																	
4	SMTH	.35	.60	.51	.0																
5	FSHN	.44	.39	.23	.35	.0															
6	FRML	.28	.34	.25	.31	.32	.0														
7	PRTC	.26	.26	.46	.36	.19	.16	.0													
8	BEAT	.58	.54	.35	.47	.46	.33	.31	.0												
9	FAST	.12	.16	.12	.08	.20	.11	.12	.19	.0											
10	BRIT	.45	.41	.31	.38	.42	.21	.26	.56	.21	.0										
11	CLEN	.49	.46	.37	.45	.36	.25	.38	.52	.14	.57	.0									
12	FINE	.38	.43	.38	.46	.43	.33	.31	.47	.19	.44	.53	.0								
13	INVG	.28	.24	.26	.25	.24	.21	.30	.33	.09	.34	.30	.28	.0							
14	SAFE	.28	.37	.48	.47	.25	.21	.49	.36	.12	.40	.49	.35	.29	.0						
15	VLUE	.39	.30	.31	.29	.37	.16	.34	.46	.15	.41	.38	.37	.25	.41	.0					
16	FRND	.20	.19	.32	.28	.21	.15	.36	.23	.19	.26	.31	.30	.23	.40	.28	.0				
17	HAPY	.27	.27	.37	.38	.26	.11	.31	.35	.21	.45	.34	.38	.31	.37	.31	.54	.0			
18	LVLY	.17	.05	.10	.02	.11	.15	.09	.16	.24	.25	.10	.11	.33	.08	.12	.14	.25	.0		
19	INTR	.31	.20	.22	.24	.22	.17	.30	.33	.10	.49	.31	.30	.48	.28	.33	.26	.41	.48	.0	
20	SOFT	.22	.29	.34	.45	.17	.16	.25	.27	-.08	.16	.39	.31	.18	.37	.30	.23	.23	-.17	.11	.0
21	UNQU	.39	.35	.23	.37	.30	.24	.15	.40	.09	.32	.37	.33	.26	.30	.32	.14	.13	.04	.20	.35
22	WLCM	.34	.30	.27	.38	.34	.18	.35	.32	.15	.39	.33	.36	.32	.36	.36	.44	.47	.18	.37	.23
23	WARM	.35	.23	.26	.26	.25	.16	.31	.36	.09	.43	.41	.35	.26	.46	.38	.23	.30	.22	.39	.25
24	STNG	.31	.17	.20	.15	.32	.13	.31	.32	.15	.30	.27	.24	.25	.32	.33	.14	.26	.29	.28	.07
25	NEIG	.17	.13	.30	.23	.19	.11	.27	.21	.15	.33	.29	.25	.18	.29	.19	.51	.47	.12	.17	.17
26	LIGT	.31	.27	.27	.32	.33	.17	.23	.39	.18	.47	.37	.32	.29	.34	.23	.23	.45	.23	.31	.16
27	ACTV	.20	.19	.17	.16	.23	.11	.16	.24	.23	.32	.20	.23	.32	.21	.20	.18	.33	.43	.40	-.11
28	RELX	.14	.25	.30	.30	.14	.06	.28	.23	-.02	.31	.24	.28	.21	.28	.27	.33	.38	.06	.23	.25
29	CNFD	.22	.27	.26	.25	.29	.17	.25	.22	.14	.33	.33	.33	.16	.28	.26	.34	.36	.20	.28	.13
30	GOOD	.33	.40	.50	.49	.29	.25	.44	.46	.16	.47	.49	.44	.35	.48	.39	.45	.55	.21	.44	.35
31	SYMP	.27	.23	.34	.28	.13	.14	.23	.30	.08	.24	.32	.25	.14	.25	.28	.27	.31	.06	.14	.26
32	SOPH	.28	.31	.20	.24	.31	.19	.10	.31	.10	.31	.25	.23	.24	.19	.26	.11	.18	.11	.17	.18
33	PLES	.36	.37	.41	.44	.33	.17	.36	.45	.08	.53	.48	.42	.35	.43	.43	.48	.53	.25	.41	.27
34	PEAC	.32	.38	.38	.53	.21	.16	.37	.37	-.02	.35	.41	.30	.23	.44	.27	.29	.35	-.05	.21	.47

		UNQU 21	WLCM 22	WARM 23	STNG 24	NEIG 25	LIGT 26	ACTV 27	RELX 28	CNFD 29	GOOD 30	SYMP 31	SOPH 32	PLES 33	PEAC 34
21	UNQU	.0													
22	WLCM	.16	.0												
23	WARM	.28	.41	.0											
24	STNG	.17	.26	.38	.0										
25	NEIG	.07	.38	.22	.28	.0									
26	LIGT	.14	.32	.37	.32	.42	.0								
27	ACTV	.12	.22	.22	.33	.14	.34	.0							
28	RELX	.17	.30	.23	.21	.24	.27	.23	.0						
29	CNFD	.13	.23	.26	.32	.29	.35	.26	.41	.0					
30	GOOD	.28	.47	.42	.28	.39	.42	.27	.39	.44	.0				
31	SYMP	.20	.28	.27	.23	.36	.28	.14	.26	.19	.43	.0			
32	SOPH	.30	.22	.24	.28	.13	.23	.24	.25	.19	.27	.28	.0		
33	PLES	.24	.45	.39	.33	.39	.42	.32	.40	.45	.66	.41	.27	.0	
34	PEAC	.32	.32	.31	.14	.24	.28	.10	.40	.28	.54	.31	.26	.49	.0

SOCIAL QUESTIONNAIRE ORIGINAL COEFFICIENTS

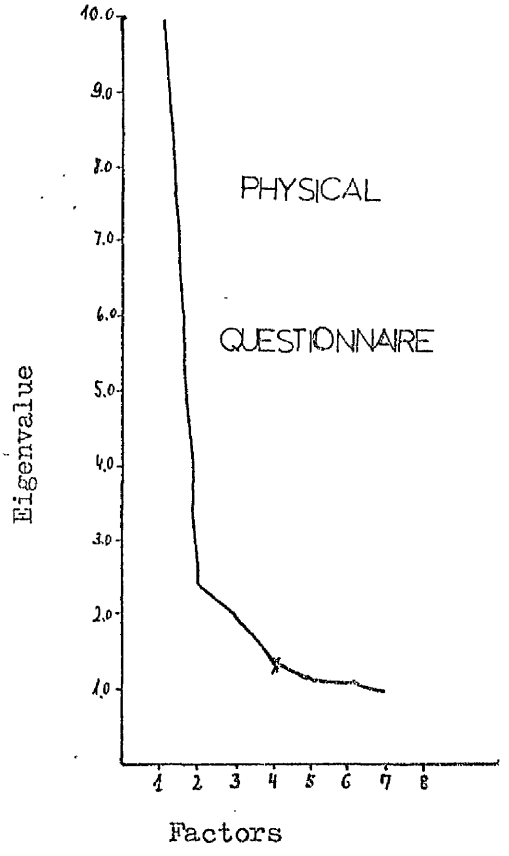
		IMPR 1	DLIC 2	HNST 3	SMTH 4	FSHN 5	FRML 6	PRTC 7	BEAT 8	FAST 9	BRIT 10	CLEN 11	FINE 12	INVG 13	SAFE 14	VLUE 15	FRND 16	HAPY 17	LVLY 18	INTR 19	SOFT 20
1	IMPR	.0																			
2	DLIC	.33	.0																		
3	HNST	.31	.37	.0																	
4	SMTH	.28	.53	.54	.0																
5	FSHN	.26	.14	.19	.23	.0															
6	FRML	.17	.23	.14	.20	.14	.0														
7	PRTC	.26	.31	.39	.36	.23	.21	.0													
8	BEAT	.27	.22	.32	.26	.23	.12	.28	.0												
9	FAST	.15	-.03	-.08	-.06	.24	.04	.07	.14	.0											
10	BRIT	.28	.14	.33	.26	.32	.17	.27	.44	.28	.0										
11	CLEN	.27	.31	.53	.37	.32	.17	.31	.32	.04	.48	.0									
12	FINE	.29	.30	.41	.41	.20	.26	.35	.33	.10	.40	.43	.0								
13	INVG	.24	.17	.24	.17	.23	.11	.24	.22	.27	.33	.26	.25	.0							
14	SAFE	.31	.38	.57	.49	.16	.28	.45	.27	-.03	.29	.45	.44	.24	.0						
15	VLUE	.30	.18	.28	.28	.28	.14	.39	.30	.16	.28	.28	.25	.30	.39	.0					
16	FRND	.37	.27	.44	.32	.30	.10	.33	.26	.14	.34	.36	.30	.27	.35	.34	.0				
17	HAPY	.33	.26	.32	.32	.34	.12	.29	.26	.25	.42	.35	.32	.34	.55	.29	.56	.0			
18	LVLY	.13	-.08	-.08	-.09	.23	.02	-.05	.13	.31	.30	.01	-.01	.30	-.04	.06	.16	.29	.0		
19	INTR	.23	.17	.28	.20	.32	.11	.18	.28	.22	.37	.30	.25	.49	.26	.40	.41	.40	.46	.0	
20	SOFT	.27	.41	.44	.48	.12	.19	.34	.25	-.07	.19	.33	.31	.15	.45	.27	.32	.29	-.19	.19	.0
21	UNQU	.22	.28	.37	.31	.11	.17	.18	.19	.02	.22	.29	.29	.30	.41	.23	.18	.24	.07	.31	.40
22	WLCM	.28	.23	.44	.35	.30	.13	.37	.36	.12	.37	.37	.30	.25	.32	.29	.67	.53	.14	.40	.38
23	WARM	.24	.26	.36	.22	.25	.19	.33	.30	.13	.35	.36	.30	.33	.40	.32	.41	.35	.16	.40	.31
24	STNG	.14	.03	.06	-.01	.21	.16	.07	.26	.30	.32	.10	.08	.25	.06	.10	.09	.23	.32	.23	-.05
25	NEIG	.29	.21	.38	.25	.20	.15	.29	.27	.19	.35	.34	.27	.19	.28	.16	.58	.45	.19	.30	.25
26	LIGT	.28	.17	.35	.27	.21	.17	.24	.28	.17	.43	.32	.34	.24	.30	.25	.34	.29	.10	.33	.21
27	ACTV	.22	.04	.13	.06	.32	.02	.14	.20	.22	.33	.20	.20	.31	.11	.23	.31	.40	.38	.45	.05
28	RELX	.24	.22	.28	.29	.14	.16	.30	.27	.05	.30	.29	.28	.21	.36	.24	.29	.28	.08	.21	.26
29	CNFD	.25	.21	.25	.21	.18	.14	.18	.18	.22	.27	.18	.18	.23	.27	.16	.26	.31	.19	.24	.18
30	GOOD	.31	.36	.50	.48	.22	.17	.40	.35	.03	.45	.45	.39	.23	.55	.30	.49	.43	.01	.36	.43
31	SYMP	.32	.19	.31	.27	.18	.06	.31	.21	.01	.26	.25	.20	.27	.27	.32	.31	.30	.03	.24	.28
32	SOPH	.20	.25	.26	.29	.14	.20	.24	.19	.02	.16	.24	.24	.21	.28	.25	.22	.16	-.06	.21	.23

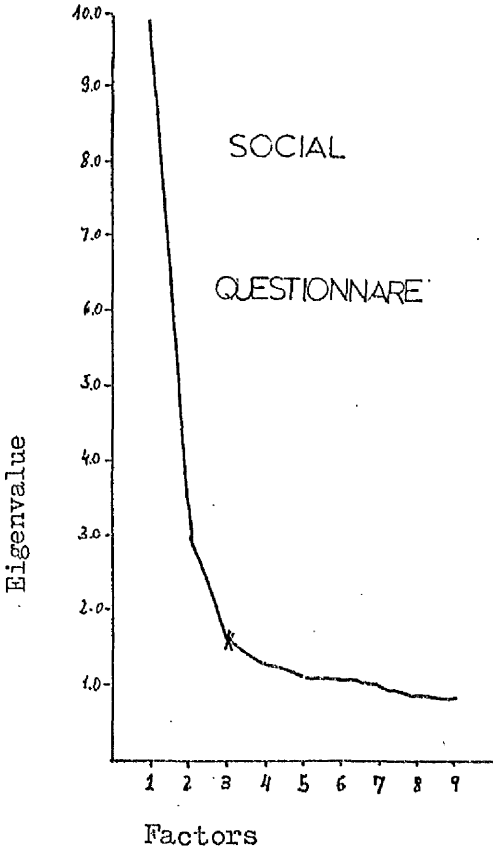
		IMPR 1	DLIC 2	HNST 3	SMTH 4	FSHN 5	FRML 6	PRTC 7	BEAT 8	FAST 9	BRIT 10	CLEN 11	FINE 12	INVG 13	SAFE 14	VLUE 15	FRND 16	HAPY 17	LVLY 18	INTR 19	SOFT 20
33	PLES	.33	.26	.47	.43	.33	.15	.35	.41	.11	.45	.37	.36	.33	.43	.34	.61	.51	.21	.45	.34
34	PEAC	.26	.34	.51	.55	.11	.22	.36	.30	-.08	.24	.44	.39	.19	.46	.22	.39	.28			

		UNQU 21	WLCM 22	WARM 23	STNG 24	NEIG 25	LIGT 26	ACTV 27	RELX 28	CNFD 29	GOOD 30	SYMP 31	SOPH 32	PLES 33	PEAC 34
21	UNQU	.0													
22	WLCM	.22	.0												
23	WARM	.33	.44	.0											
24	STNG	.09	.15	.26	.0										
25	NEIG	.17	.64	.31	.19	.0									
26	LIGT	.18	.35	.37	.25	.35	.0								
27	ACTV	.11	.34	.29	.14	.25	.20	.0							
28	RELX	.21	.29	.28	.20	.32	.35	.11	.0						
29	CNFD	.18	.25	.23	.21	.22	.23	.18	.38	.0					
30	GOOD	.30	.54	.43	.13	.47	.38	.24	.40	.34	.0				
31	SYMP	.16	.38	.33	.04	.27	.27	.20	.28	.20	.46	.0			
32	SOPH	.22	.22	.18	.10	.11	.18	.15	.17	.21	.29	.18	.0		
33	PLES	.29	.63	.48	.19	.52	.42	.38	.37	.30	.66	.47	.19	.0	
34	PEAC	.26	.37	.21	.03	.34	.30	.02	.34	.16	.51	.38	.27	.46	.0

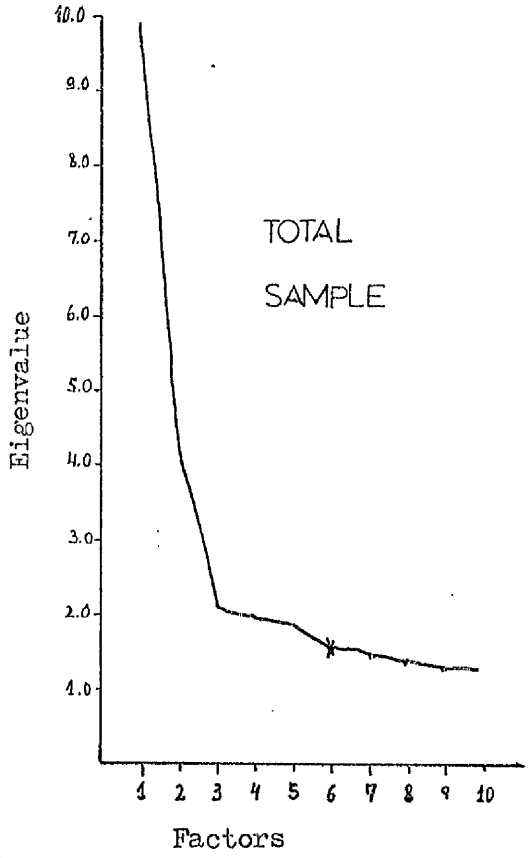
APPENDIX 4 CATTELL'S SCREE TEST FOR QUESTIONNAIRES.

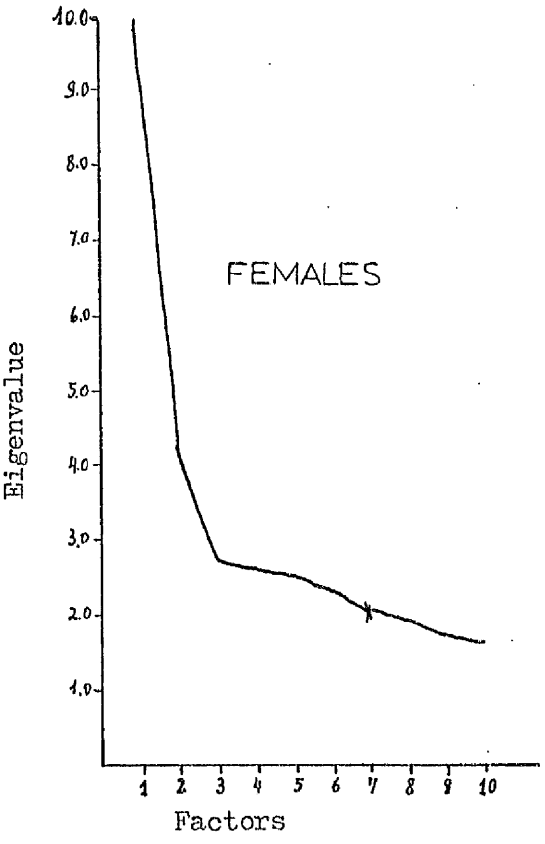
1. Pilot study questionnaire.

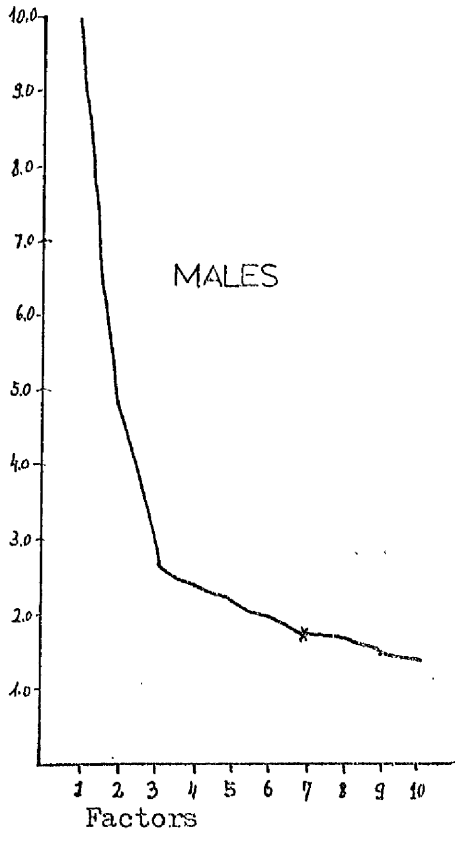




2. Main study questionnaire.







APPENDIX 5 FREQUENCY OF NEUTRAL CATEGORY OCCURRENCE FOR EACH SCALE

		MALES		FEMALES	
1.	IMPRESSIVE-UNIMPRESSIVE	23	21.5%	18	18.8%
2.	DELICATE-RUGGED	24	22.4	37	38.5
3.	VIBRANT-	23	21.5	16	16.7
4.	DULL-SHARP	21	19.6	33	34.4
5.	BEAUTIFUL-UGLY	31	29.0	35	36.5
6.	DISHONEST	25	33.4	35	36.5
7.	UNTIDY-TIDY	11	10.3	10	10.4
8.	FAIR-UNFAIR	37	34.6	28	29.2
9.	HARD-SOFT	19	17.8	37	38.5
10.	SACRED-PROFANE	39	36.4	48	50.0
11.	ROUGH-SMOOTH	14	13.1	22	22.9
12.	THIN-THICK	44	41.1	42	43.1
13.	FLEXIBLE-INFLEXIBLE	38	35.5	38	39.6
14.	SIMPLE-COMPLICATED	16	15.0	25	26.0
15.	FASHIONABLE-UNFASHIONABLE	15	14.0	17	17.7
16.	FORMAL-INFORMAL	26	24.3	25	26.0
17.	UNPROTECTED-PROTECTED	24	22.4	21	21.9
18.	SLOW-FAST	23	21.5	33	34.4
19.	CHARACTERFUL-CHARACTERLESS	18	16.8	14	14.6
20.	PEACEFUL-FEROCIOUS	14	13.1	23	24.0
21.	BRIGHT-DULL	12	11.2	14	14.6
22.	HEAVY-LIGHT	29	27.1	35	36.5
23.	MASCULINE-FEMININE	37	34.6	44	45.8
24.	DIRTY-CLEAN	14	13.1	13	13.5
25.	FINE-COARSE	21	19.6	29	30.2
26.	TIRESOME-INVIGORATING	21	19.6	28	29.2
27.	DANGEROUS-SAFE	19	17.8	20	20.8
28.	WORTHLESS-VALUABLE	32	29.9	28	29.2
29.	SUBTLE-UNSUBTLE	37	34.6	48	50.0
30.	CHANGEABLE	11	10.3	16	16.7
31.	FRIENDLY-UNFRIENDLY	16	15.0	15	15.6
32.	GLOOMY-BRIGHT	15	14.0	15	15.6
33.	HAPPY-SAD	27	25.2	29	24.0
34.	STABLE-UNSTABLE	23	21.5	33	34.4
35.	LIVELY-CALM	16	15.0	17	17.7
36.	INTERESTING-BORING	16	15.0	17	17.7
37.	SOFT-LOUD	22	20.6	35	36.5
38.	COMMONPLACE-UNIQUE	23	21.5	29	30.2
39.	BARREN-FRUITFUL	36	33.6	45	46.9
40.	WELCOME-UNWELCOME	23	21.5	15	15.6
41.	HARMONIOUS-DISCORDANT	46	43.0	46	47.9
42.	COLD-HOT	39	36.4	48	50.0
43.	WEAK-STRONG	20	18.7	37	38.5
44.	LIGHT-DARK	26	24.3	33	34.4
45.	DEAD-ALIVE	12	11.2	13	13.5
46.	SPACIOUS-CONSTRICTED	20	18.7	22	22.9
47.	NEIGHBOURLY-UNNEIGHBOURLY	17	15.9	10	10.4
48.	PASSIVE-ACTIVE	20	18.7	22	22.9
49.	DIGNIFIED-UNDIGNIFIED	29	27.1	24	25.0
50.	CLEAR-OBSCURE	26	24.3	26	27.1

APPENDIX 5 - CONTINUED

		MALES		FEMALES	
51.	RELAXED-TENSE	18	16.8	20	20.8
52.	CONFIDENT-HESITANT	31	29.0	22	22.9
53.	GOOD-BAD	18	16.8	16	16.7
54.	STATUSLESS	55	51.4	51	53.1
55.	UNEXPECTED	31	29.0	31	32.3
56.	DEPRESSING-UPLIFTING	22	20.6	22	22.9
57.	SYMPATHETIC-UNSYMPATHETIC	31	29.0	37	38.7
58.	SOPHISTICATED-NAIVE	35	32.7	45	46.9
59.	BITTER-SWEET	30	28.0	33	34.4
60.	UNPLEASANT-PLEASANT	17	15.9	10	10.4

APPENDIX 6 LIST OF SCALES AND ABBREVIATIONS

impressive-unimpressive	IMPR	friendly-unfriendly	FRIE
delicate-rugged	DLIC	gloomy-bright	GLMY
vibrant-still	VIBR	happy-sad	HAPY
dull-sharp	SHRP	stable-unstable	STAB
beautiful-ugly	BEAT	lively-calm	LIVE
honest-dishonest	HNST	interesting-boring	INTR
tidy-untidy	TIDY	soft-loud	SOFT
fair-unfair	FAIR	commonplace-unique	UNQE
hard-soft	HARD	barren-fruitful	BARN
sacred-profane	SACR	welcoming-unwelcoming	WELC
rough-smooth	SMTH	harmonious-discordant	HARM
thin-thick	THIN	cold-hot(warm)	COLD or WARM
flexible-inflexible	FLEX	weak-strong	STRN
simple-complicated	SIMP	light-dark	LIGH
fashionable-unfashionable	FSHN	dead-alive	DEAD
formal-informal	FRML	spacious-constricted	SPAC
protected(ive)-unprotected(ive)	PRTC	neighbourly-unneighbourly	NEIG
slow-fast	FAST	passive-active	ACTV
characterful-characterless	CHRC	dignified-undignified	DIGN
peaceful-ferocious	PEAC	clear-obscure	CLER
bright-dull	BRIT	relaxed-tense	RELX
heavy-light	HEAV	confident-hesitant	CONF
masculine-feminine	MASC	good-bad	GOOD
clean-dirty	DIRT or CLEN	statusless-statusful	STAT
fine-coarse	FINE	expected-unexpected	EXPC
invigorating-tiresome	INVG	depressing-uplifting	DPRS
safe-dangerous	SAFE	sympathetic-unsympathetic	SYMP
valuable-worthless	VALU	sophisticated-naive	SOPH
subtle-unsubtle	SUBT	bitter-sweet	SWET
changeable-constant	CHNG	pleasant-unpleasant	PLES

APPENDIX SEVEN

1. (160 Lincoln Avenue and 190 Kestrel Road)

The picture presents one of the buildings in a High Rise complex of buildings. The sample included two respondents who lived in these blocks. In both cases the Gross Annual Value of the flat was £155. The complex was surrounded by open space (which can be seen in the picture) and the houses near it were semi-detached. The impression gained when walking around the building was of quietness and cleanliness.

The open space around the building was empty of people (despite the day being sunny and a Saturday) by comparison with the near-by park which was full of people taking advantage of the weather. One of the respondents was a male who described the building as 'average' on the FRIENDLINESS factor and 'above average' on the ACTIVITY and AESTHETIC factor. (The same pattern occurred in his attitude towards his neighbours.) The other respondent was a female who described both building and neighbours as 'above average' on all three factors (FRIENDLINESS for building, and all three social environment factors more than 1.00 SD above mean).

2-3. (8 Lawrence Street applies also to 15 Havelock Street)

The picture presents both sides of a Victorian Yellow Sandstone Tenement. The two addresses belong to the same tenement blocks (on either side of the enclosure). Picture 2 presents the front of the building. The sandstone has been blackened by years of pollution. The other picture (3) shows that the inner court is divided between the tenements and there are dust bins in the back court. All the other buildings in the neighbourhood are of the same type, and the street is placed near a shopping street (Byres Road and Dumbarton Road) and near the University of Glasgow. No open space is available in the vicinity (though two parks are not far away, one Kelvingrove Park and the other the Botanic Gardens). The building, as one can see in the picture, shows some deterioration (noticeable on the top floor in the picture). Both respondents are males and the residential units belong to the private sector (the one in Lawrence Street rented and the one in Havelock Street owner occupied). The head of the family in both cases is a white collar worker. The Gross Annual Value for the residential unit is £73 and £75 respectively (below the average for the sample). The respondent in Lawrence Street considered the building near the mean in all three factors whereas the one in Havelock Street considered the building as FRIENDLY and ACTIVE and near the mean on the AESTHETIC factor. In the attitude towards the neighbours the Lawrence Street respondent considered them as UNFRIENDLY and near the mean on the ACTIVITY and DELICACY factors. The Havelock Street respondent considered the neighbours as average in FRIENDLINESS and ACTIVE and DELICATE.

4-5. (5 Ardhu Place, 10 Invercanny Drive)

One of the buildings presented is of 4 floors (Invercanny Drive, front picture) and the other of 3 floors (Ardhu Place, back picture). One can see that these buildings have open space both in front and in the back but they are not tended too carefully. As one can see in picture 5 the area just outside the boundary of the front garden is littered. The other buildings in the vicinity are of the same type on the same side of the street, and terrace housing on the other side of the street. All have the same surfacing (providing a rather dull general visual effect).

The housing is owned by the Local Authority (built in the early fifties). Gross Annual Value £118 for Ardhu Place and £115 for Invercanny Drive. Both respondents live on the ground floor of the building and are RC. The respondent in Ardhu Place is a female, and the head of family is 'not employed'. The other is a male and the head of family is a manual worker. Ardhu Place was described as average on the FRIENDLINESS and AESTHETIC factor and active. The neighbours were described as ACTIVE and DELICATE and average on FRIENDLINESS. Invercanny Drive was described as UNFRIENDLY and average on ACTIVITY and AESTHETIC factors. The neighbours were described as average on FRIENDLINESS and ACTIVITY factors but DELICATE.

6-7. (36 Katewell Avenue)

The building (4 floors) can be said to be an appropriate example of a neglected and vandalized building. Notice in the picture (6) at the front of the building the existence of broken windows in one of the flats and of graffiti in the staircase. One can also see the neglect in the front garden and the lack of care in the open space at the back of the building (picture 7). One can compare the lack of enclosure in the back yard with the close of the Victorian tenement presented in picture 3. The flat in which the respondent lived was valued at £121. The respondent was a female RC and the head of family was a manual worker. She considered the building FRIENDLY, very ACTIVE (1.5 SD from the mean) and AESTHETIC. The neighbours were considered FRIENDLY, average in ACTIVITY and DELICATE, results which were surprising considering the picture of the building presented here.

8. (28 Inchrory Place)

The building in this picture is a terrace house (three floors occupied by the same family. so as to include it in the 'single' category of house in the current study). The area was littered all over (glass on the street). As one can see the houses have gardens which are not always taken care of (the back gardens were totally neglected) and the fences are broken in many cases. The house was valued at £147 (owned by the council). The respondent was a male and the head of family was a white collar worker. He considered the building as average on the friendliness factor and PASSIVE and not AESTHETIC. The neighbours were described as FRIENDLY, average on the ACTIVITY factor and not DELICATE.

9. (31 Verona Avenue)

A terrace house (like the previous building) which was also defined as a single family house. It has both a small front garden which can be seen in the picture and a slightly larger back garden which is well kept. The tidiness is not only in the private area but also in the public ones (e.g. street and the park nearby). The building has a red sandstone facade (the colour in the picture itself is misleading) and looks very attractive. All the buildings nearby are of similar type (not of exactly the same style but with various types of stone or some minor style changes and are mainly terrace houses). The respondent was a male and the occupation of the head of family was white collar. The house is owner occupied and was valued at £157. The building was described as average in FRIENDLINESS and ACTIVITY and was high on AESTHETIC factor. Neighbours were described as average on FRIENDLINESS and DELICACY, and PASSIVE.

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APPENDIX 8 THE CITY VS NON CITY PATTERNS - SOME THEORETICAL POINTS OF THE TOTAL CITY

The first aspect of the city which is mentioned by many of the writers is the fact that the city is a settlement. Some also add that it is a relatively permanent settlement (Wirth 1938). The question suggested by the concept of settlement is what other non settlement patterns of spatial institutions exist, and how do they differ from a settlement?

Wirth's mention of the term "permanent" suggests an implication of the word "settlement" which seems to be taken for granted by others, and that is that whatever a settlement is, it is not mobile in the spatial dimensions for relatively long periods. One can therefore accept the concept of a settlement for the spatial pattern of a social system, which is static, i.e. as was suggested earlier on in this chapter, where the static phase of the pattern is the normal and the mobile phase is a rare exception. In order to recognize the implications of this patterning one has to be reminded of the non settlement type of patterns (or what Wirth would have called relatively non permanent settlements). Two such patterns differ from the settlement on the mobility aspect of the pattern; the nomadic pattern where the movement of the society is either permanent or in cycles, and the semi-nomadic where the movement of the society is in cyclical repetitions between defined territories where some permanent boundary arrangements are being suggested.

NOMADIC PATTERN - would be, therefore, a pattern where the total group (tribe, clan, etc.) has a defined territory, and keeps moving within the boundaries of that area, as a total group (although some splitting and regathering may occur occasionally), according to the environmental, economic, or ideological motives of the group as a whole. In the said pattern the territorial units of parts of the group will not serve as markers for the territory of the total group, but will be moved by the members with their own migration, as no permanent markers are created by the system. The affirmation of the functioning of natural markers in the environment is needed occasionally, and the mobility can serve the territorial function as well as the functions mentioned

before. The 'house' of the member of the group can be, in that respect, regarded as his clothes, i.e. physical aid to the protection of personal bubble, rather than a marker to a territory (this does not mean to say that it is not used in the latter function in the static phase of the pattern).

SEMINOMADIC PATTERN - in the seminomadic pattern the traces of settlement exist. But as was already suggested the pattern includes the mobile stage of the total group on a regular basis, as in the nomadic pattern. The movement one could suggest would be between two territories, self-owned, each marked by the dwelling unit, or at least marked by the dwelling units as their territory. In this pattern the dwelling units cease to be just like clothes, and become environmentally defined territories as well as protection of personal bubble.

SETTLEMENT PATTERN - the settlement pattern is the spatial pattern where the movement of the total group is the exception and not the rule (in larger groups one might nearly consider it non existent). The movement always occurs between territories where one is self owned (not suggesting the specific tenure status), and the other is not, and where either ownership is exchanged, when it is called migration, or where ownership is not exchanged, as in a visit. In the case of a settlement the dwelling units of the members serve as markers for the territory, and sometimes as boundaries too. (This differentiation between migration and nomadism is not made by Rappoport (1978) for example.)

It is interesting to note where these patterns are found. As was mentioned earlier on it is not always in a society which has such a pattern. . One could find nomadic pattern in a settlement society, as for example a family going for camping holiday, or a street gang. Sometimes what looks like a settlement pattern is in effect a nomadic one, though the movement is rather slow on the dimension of time and small on the dimension of space, as in the pattern of redistribution of land to families in the Swedish village (Demangeon 1962). In this pattern the redistribution of the land meant the rebuilding of the house on a new location, and as far as the family was concerned it was mobility of the total group in periodical pattern, and inside group territory.

Clearly it is not a pure nomadic pattern, not because of the small movement in distance and large gaps between moves in time, but because the total group did not move as one, and the different families exchanged one territory for another: one could regard it as a combination of nomadic and settlement patterns.

The city therefore can be regarded as a settlement, as all the units which acquire that name never move. The city as a whole is a settlement pattern, i.e. static pattern is the dominant feature. This conclusion agrees with all the previous definitions which mention the fact, or take it for granted. It seems an obvious conclusion, but nevertheless it should be mentioned, as there are other patterns of space which should be specified.

If the city is a settlement as the previous discussion concluded, how is it to be differentiated from other patterns of the same type? The discussion is limited to the patterns of the total settlement and its place as related to other patterns of the same system.

TENURESHIP - An important dimension for that purpose is the dimension of the rights of tenure of the territory and the other units of the space pattern. A right of tenure could be one of three for the space unit; the members of the group could have equal rights to certain territory, or unequal rights to it. Whatever the tenure status of the members the important issue in recognising the place of the pattern in this dimension is the total sum of tenureship rights to the total territory. It was observed in more than one classification that the most obvious difference between types of settlement is the difference between concentrated and dispersed ones. But the question is what is the essential difference between the two? Is it the distance between dwelling units which makes the essential difference? The essential difference is, one can suggest, the pattern of ownership of the total territory. It can be easily observed in the so called dispersed settlement like the farmstead type that the ownership of the territory is held by one person, or a family at the most. In small farms no more persons occupy the territory, but in the big ones the number of people can well create the impression that the settlement is of the concentrated type,

especially if all our information is from the results of the digging in the area. But one can hardly consider the big tobacco or cotton farms of the southern states of the U.S.A. villages, and neither can one think of the Roman settlement of Britain as such. The pattern, though on a much bigger scale is that of the lonely farm, the negro slaves and their overseers had no rights in the territory, which was owned by one person (even family members had only potential rights in the territory, and only one could inherit). On the other hand in the concentrated type of territorial pattern the territory was shared equally by the members of the unit. It can be observed in many villages where the system of periodical redistribution of land was practised (Trewartha 1962 described this for the early settlements of New England; Loomis & Beegles 1950 for Germany, and many others). The redistribution of the land is not the essential aspect of the pattern, it only suggests the existence of equal rights to the members to the territory as a whole. It can be that the area allocated to specific persons is fixed, and not of the same size and quality, it can also occur that the system includes persons with no rights, like slaves. For the present discussion it is enough to mention that the territorial rights are distributed between a number of sub-units, rather than that only one has rights. It should be emphasized also that though the territory may vary in size and quality the type of tenure is the same. These types of tenureship can be found side by side in the same system. It was mentioned before that the Mexican, Italian and Russian landowners preferred labourers to stay in villages rather than live on the farm (Demangeon op cit) as did the American southerner, or disperse them in separate farmstead as the Bulkan landowners (Demangeon op cit). The creation of villages for farm labourers was also the practice in the Russian feudal system. The reasons for the need are not the problems discussed here. Essentially what was created was a dual pattern system where the single tenure was partnered with group tenureship. It is obvious that the village in those cases did not consist of people that had total rights to the territory, but rather of those with very limited rights, but they were equal in their misery within the village.

The city as Weber has observed is that type of settlement (Weber 1959, p.66). It is not a settlement of one family unit, though it may be quite large, but open in respect to territorial rights (though Weber himself does not use the concept). Mumford's concept of the magnet of the city, and its openness to newcomers also suggests that the tenureship pattern cannot be other than multiple in character. But this can also be the problem of the relationship of the city with other territories of the system. It is not always the case that the single tenure pattern is related to individual ownership; the single unit owning the territory can be a group (and for the purpose of the current discussion one should consider the family group as an individual, and the individual person as a one person family unit). This phenomena could be observed in the ancient empires where the ruling was of the city on other cities paying the ruling one tribute, or the ruler will assert his ownership right, and the lack of those rights by the other cities the way the Babylonians and later the Romans asserted those rights in Jerusalem (i.e. destruction and population exile). This type of relationship between cities was also in existence in Italy up to the Renaissance period where some cities were subordinated to others, without the supreme force of a dictatorial king. The development of the countrywide state made an end to this type of relationship between cities and created such a situation between countries. The essential characteristics of the pattern is the fact that the benefits (economic in most cases) are not considered to be the rights of the occupier of the territory, but of another group which does not create the wealth. The American colonies in their demand for the right to participate in the process of decision making if they were to go on paying taxes expressed this type of demand for participation in the ownership of both territories, the colony and the home territory. As this was not granted they had to satisfy themselves with unlimited ownership of their own territory.

The criterion of the royal charter for the city suggests also that the city as compared with other settlements where the common tenureship is practised has some additional rights to the territory, making the citizens more independent of the outside landlord than some of the peasant type of villages mentioned here.

But this territorial independence can be lost, by the city, as was described in the subordination of one city to other cities.

Closely related, but not just the same, is the dimension of occupier of territory. It was suggested earlier on that one can differentiate on the tenure dimension between patterns where a single unit of the system has rights over other units to their space, and between the pattern where equal rights are given to more than one unit. It was also suggested that the single unit in the case of the smaller scale pattern of space is the family unit, and in other patterns it can be other types of groups which have the tenureship status such as the family in the smaller scale patterns. It has already been shown that a city can form the basis for such a pattern, and it can also be shown that the pattern of common tenure rights can be based on family social structure. As Weber's definition has suggested, the city as settlement pattern cannot be based on a single family, but the possibility of multi family structure as the basis for the occupying group can be noted from well known cities in history, like Rome and Athens as two of the more notable examples. In that structure, the tenureship rights of some families was superior to that of other inhabitants of the city, and equal to one another (not always in practice). On the other hand that same multi-unit structure which formed the city was not forming a similar structure in its relationships with the other units outside its boundaries, but rather a system of subordinate tenure rights of other similar groups.

The discussion of the previous dimensions shows how misleading the concept of the mere dispersion and concentration of buildings is as a basis of classification. But some aspects of the mere physical spacing should also be considered in the patterning of the space. It was suggested in chapter 9 that some units of space, the bubble are to some extent the extension of the self; it was also suggested that those units are larger in more dominant individuals than the less dominants. This, one could suggest is also true for some of the larger groups, and the dwelling territory as well. As the territory is an extension of the self one can consider the possibility of the need for a certain form

of buffer zone around it, in the same way that this need is in existence in the human body. This suggestion is not so strange to the observer if one remembers the experience a driver has when a car behind him keeps too close for his liking. It is not enough to declare that the cause for the annoyance is the very probable danger of collision which exists, as this only explains the size of the buffer zone and proves that the need is very real. This can be true for the dwelling unit as well as for the vehicle, and as in the case of other units it will differ in size and shape according to the status of the unit in the social structure, and according to the culture it is part of. In many cases the dispersed lone farmstead type of settlement indicates the existence of a cultural tendency towards large buffer zones around the unit, whereas the concentrated village type indicates that of the small buffer zone. This will suggest differences in the spacing between a city and other cities at least in the early stages of development, and differences in the size of territory the city is considered to have under its influence. One should add that this factor, naturally, is hardly the only determinant in the location of the city, and maybe even loses most of its influence once the urbanised society emerges. It could be suggested that the factor is more important in influencing the inner structure of the city.

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