Police interview environments: Towards an ecological approach

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POLICE INTERVIEW ENVIRONMENTS: TOWARDS AN ECOLOGICAL APPROACH

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This work is dedicated to the Police Service.

ABSTRACT

This thesis examines, from an ecological approach, the effects that Police interview room environment have on the perceptions of the users of such environments. The research takes into account the perspectives of the different categories of persons involved, e.g. Police, victim, witness, suspect and Solicitor.

Starting from a review of the relevant Police and psychological literatures and a pilot study using a variety of questionnaires and interview techniques, the first main study involves objective assessment of environmental factors such as sound, temperature, humidity, light and colour. Two subsequent studies explore the perspectives of Police interviewers and Solicitors. In a final study the perspectives of Police interviewers, victims, witnesses and suspects are compared.

The main finding of the thesis is that environmental stimuli such as sound, temperature, humidity, light, colour, spatial aspects and tidiness have an effect on users' perceptions. Factors relating to the design of the interview room environment are also shown to be important. The category of the perceiver also affects the perceived importance of the various environmental factors.

The thesis ends by recommending that further research should be undertaken to take account of variations in the environmental stimuli that occur in the course of the interview and that it would be useful to make a detailed analysis of the social interaction during the interview. Proposals are also made for the introduction of changes to existing interview environments.

CHAPTER ONE

REVIEW OF POLICE LITERATURE

CHAPTER TWO

REVIEW OF PSYCHOLOGICAL LITERATURE

CHAPTER THREE

ENVIRONMENTAL FACTORS

CHAPTER FOUR

METHODOLOGY AND RESULTS

CHAPTER FIVE

DISCUSSION SECTION

APPENDIX

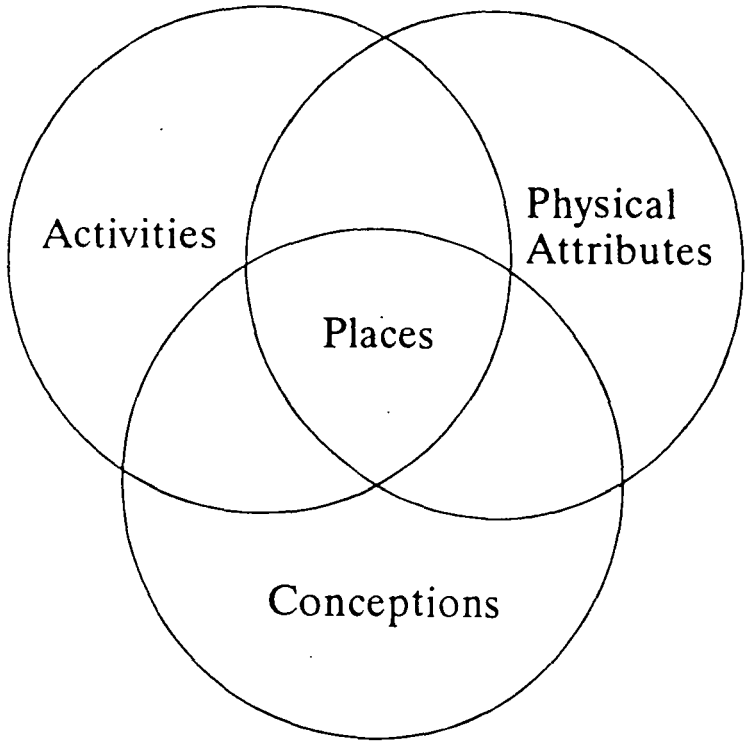
FIGURE REFERENCES

INTRODUCTION

My aim is to examine what effect environmental stimuli within designated Police interview rooms at Police Stations may have on the interview taking into account the category of persons involved. This is not to say that similar interaction does not occur at other locations within or outside of these areas. The study is intended to provide valid and reliable information to those who plan, design and implement policy decisions with regard to Police interview room environments.

I have adopted a model of 'Place' as described by David Canter (1977) his book 'The Psychology of Place' (pg. 158) as a framework for this research. This model presents three components of place (as shown on the next page) which show that a place is established as a result of relationships between actions, conceptions and physical attributes.

The Police interview rooms can be looked on as the 'Place' in Canter's sense if we consider that the criteria for such a setting is that it can be seen as a bounded, self-regulated and ordered system composed of replaceable human and non-human components that interact in a synchronized fashion to carry out an ordered sequence of events called the setting program.



A visual metaphor for the nature of places

I have carried out my intention by (1) establishing the physical properties of such environment, (2) obtaining information from subjects who were involved in the interaction within such environments and those who were involved in the establishment of the environment, and (3) interrelating what is known about social interaction within interviews and psychological effects of environmental factors with such information.

Zube, Crystal and Palmer, in 1976, stated a similar type of ideal when they cited as the primary objective of their study of visitor centres, was to:

"develop information which can contribute to more enlightened and informed design decisions in the future and in doing, to identify components or attributes which contribute to or detract from the quality of the centre."

The components or attributes referred to above were considered to be physical (for example colour, light, temperature, etc.), perceptual (for example room size, tidiness, etc.) and procedural (for example design, decisions, etc.).

Whilst the more traditional psychological view is that persons and environment are independent, I take the general ecological psychological view that the behaviour of people and their immediate environment are interdependent. The approach is thus an ecological one.

It is for this reason that the principal concern of this research is to examine the effects of environmental stimuli, within the Police interview situation, on the people who are interacting in such environments.

Interviews involve a relationship between the interviewer and interviewee which is itself a complex system of interrelated processes, actions, decisions, influences and emotions. (Weinstein & Deutschberger 1964; Denzin 1970; Harre & Secord 1972). The interview, which in many cases has a structured format with pre-set organisational goals, may be affected by opinions, expectations and environmental influences all of which can have an effect on the outcome of the interview. (Brenner 1978).

The importance of the social interaction that occurs between the interviewer and interviewee must not be underestimated. In my personal experience I consider that it is one of the most important aspects of the interview situation.

Thee importance of this aspect of interviewing can be seen over the past 15 years by the numerous studies undertaken on this subject. A large amount of work has

been carried out on the nature of interviews, on the effects of different types of questions and the manner in which they are asked and on the processes of social interaction within interviews (e.g. Weitz 1974; Chapman & Gale 1982; Walkley 1983 & 87; Irving & Hilgendorf 1980; Inbau, Reid & Buckley 1986).

A number of studies have emphasised the importance to victims, witnesses and suspects of how they are treated personally, as opposed to how the Police respond in a technical sense, such as taking a report of a crime or charge office procedures etc., to be the most important correlate of attitude towards the Police. (Softley; Brown; Ford; Mair & Moxon 1979. Scaglion 1980; Maguire 1982; Shapland 1982; Jones 1983).

If we consider that the attitude of the public, who have had personal contact with the Police is, in the main, based on their perception for their initial treatment, then as part of the influence upon we must consider seriously the environment in which this interaction occurs. Indeed Neisser 1985) has recently put forward the view that "The history of ecological analysis in perception and in the study of concepts suggests that a simple commitment to take the environment seriously often has radical consequences."

This research makes no pretence to being comprehensive with regard to the various approaches in ecological and environmental psychology that could have been used. I do, however, consider it necessary to mention the main aspects of these various approaches.

Robert Farr (1982) pointed out that there is, at present, no adequate theory in psychology of direct relevance to

the practice of interviewing. There is much advice offered and many guides are to be found in the literature as to how best to conduct interviews. There is also much research relevant to certain aspects of the interview, such as research on how we perceive persons and research on various aspects of non-verbal communication, etc.

Much of the classic literature on interviewing is highly 'cognitive' in tone and is now rather dated (Cannell & Kahn 1968). However, the cognitive component in environmental assessment is emphasised in the work of Kaplan (1982) when he argued that considerable cognitive analysis and calculation precede an affective appraisal and when (1983) he put the view that a person's interaction with the environment is a function of both the actions the individual attempts to carry out and the informational patterns of the environment.

The interest and concern with the physical environment as it affects behaviour has been around for at least 50 years among Gestalt psychologists such as Koffka (1935). Although, as a separate theory gestalt psychology hardly exists today, it can be seen as one of the roots of the general theoretical perspectives of attribution which puts forward the view that stimulus situation tends to produce perceptual experiences of wholeness or unity. In all cases, it is argued, that the whole dominates the perception and it is experienced as different from simply the sum of its several parts.

Attribution theory which, as a conceptual base in the work of F. Heider (1939) whose psychology of interpersonal relation is highly relevant to the interview situation, argues that a person's perceptions of the behaviour of others are determined largely by what

he or she attributes the causes of that person's behavour to. Specifically the attribution is made either to internal personal causes or to the external action of the environment or to some combination of the two.

A related concept is that of Goffman (1959) who describes the area of impression management 'Man as an actor putting on a performance for a particular audience'. Jones & Nisbett (1971) suggested that the perspectives of Heider and Goffman were in fact different and cited Milgram's (1963) study as a classic one where actors and observers are two different persons, as in the case of the interview where the subject (victim, witness, suspect, Solicitor or Police Officer) are actors and observers and vice versa.

During the same period environmental psychologists have taken account not only of the goal-directed actions of the person and the behaviour settings in which these actions occur, but also their interdependent relationship (Barker 1968; Canter 1983; Russell & Lanius 1984).

They have begun to ask questions about the attention drawing properties of social stimuli and about how selective attention can produce affects upon impressions and casual attributions.

Whilst I have stated the importance of the social context of the interview situation, I take the view outlined by Kurt Lewin (1944) when he argued that the first step in attempting to understand the behaviour of individuals or groups is to examine the opportunities and constraints of their environment. It is with this concept in mind that this research has been undertaken.

In order to examine the opportunities and constraints of the environment, it is essential to be aware that

ecological psychology has an interdependence with other disciplines that study people and their environment, such as sociology, geography, anthropology, architecture, ergonomics, etc. During the course of this thesis a large amount of research material will be drawn from some of the above mentioned sources.

CHAPTER ONE

REVIEW OF POLICE LITERATURE

1. REVIEW OF POLICE LITERATURE

1.1 Introduction

As outlined in the introduction the purpose of this research is to develop information which can contribute to a more enlightened and informed design decision, with regards to Police Interview Room environments in the future and in doing so, to identify components or attributes which contribute to, or detract from the quality of such environment.

In order to carry out this ideal it is not only necessary to consider the attributes themselves, but also necessary to take into account the location of the interaction, the category of person involved in the interaction, and the rules governing the process.

The purpose of this chapter is to review the existing Police literature with regards to Police Interview Room environments. The intention is to make the reader aware of the involvement of organisational factors in the establishment of the Police Interview Rooms, the social and legal considerations with regards to the establishment of interview rooms and finally, a review of recent developments in respect to environmental conditions pertaining to Police buildings.

The chapter is set out as follows:

1.2 A review of Police literature, in which advice has been given with regards to environmental conditions and considerations in the

establishment and use of rooms for Police interviews.

1.3 A review of the category of persons using such interview rooms.

1.4 A review of the legal constraints placed on the development of the Police interview environment.

1.5 A review of the present criteria with regards to the construction of Police buildings, with an emphasis on Police Interview Rooms and initial design planning.

1.6 The chapter will conclude with a discussion of recent developments concerning environmental factors at present under review within the Police Service.

1.2 Police Literature Review

1.2.1 Overview

It is worth noting at this stage that there is very little literature on this subject and what literature has been found tends to refer very vaguely references to suitable environmental conditions. The tendency in the literature is to make generalisations only (such as, too big or too small, too hot or too cold, etc) without making more specific recommendations.

1.2.2 Report to Royal Commission

Irving et al. (1980) and Morris (1978) both presented papers to the Royal Commission on Criminal Procedure, in which they made reference

to Police interviews. Irving, when discussing Police interviews, noted that there were few studies in this area to be found in Britain, and what literature did exist, was fragmented. He also pointed out that many of the writings he referred to were of American origin and that most of the writers who have referred directly to interrogation, do so to exemplify some particular academic interest of their own, often quite unrelated to interrogation per se. Pauline Morris in her critical review of literature on Police interrogation in England and Wales, also noted that there were few psychological writings in this area.

1.2.3 Police Literature Abstracts

From an evaluation of the information with regards to what should be taken into consideration when undertaking an interview, the following extracts are those which encapsulate the main emphasis of the literature reviewed. Inbau, Reid & Buckley (1986), put forward the view that privacy is one of the main psychological factors contributing to a successful interview/interrogation. Buckwalter (1983) considered that for the purposes of interrogation, a specifically designed room should be used which enables control by the interviewer over the physical environment and ensures privacy.

It is interesting to note that whilst Buckwalter advocates a specifically designed room and recommends that it should be small, plain, etc., he (like the majority of the other authors), only makes general comments and gives no

indication of the actual measurements of these physical characteristics or specific comments on the likely effect that the factor in question can have on the people using such an environment.

Lietz (1980), points out that "individuals feel completely alien in surroundings devoid of all extrinsic bric-a-brac". He goes on to say that "the interviewer should make a calculated psychological assessment of the subject in order to select the most suitable environment in order that the interviewer is in total control, the subject being interviewed must 'feel comfortable but not lackadaisical'. He must be controlled, not rigidly, but with a degree of flexibility".

As a result of a pilot study carried out by the Home Office Research Unit into the feasibility of observing the questioning of suspects at Police Stations, J. Ditchfield (1979), made the following observations:

(a) That differences in procedure and environment were of more than academic interest. The differences in procedure and accommodation could affect the way in which interviews were conducted.

(b) Better the accommodation and the clearer the separation of the interview from the rest of the proceedings, meant that the suspect could be dealt with more 'privately'.

(c) Some observers felt that physical factors such as accommodation and environment were

likely to affect a suspect's ability to understand what was happening.

1.2.4 Police Training Literature

Another source of Police information with regards to Police interview environments can be found in the literature produced at Police training establishments as guidelines to Investigating Officers.

Shepherd (et al. 1988), in his Investigative Interviewing Training: Facilitators Guide, (used as part of a Police interview development course), points out that consideration should be given to the accommodation, interview setting, furniture and furnishings, distractions or disruptions.

Another example can be found in Lancashire Constabulary Detective Training Interview Techniques Manual (1987), produced for Detective training where advice, as listed below, is given.

Interruptions

'Officers who interrupt interviews show a lack of respect for the Interviewing Officer and this diminishes the interviewer's credibility in the eye of the suspect....'

Location

'... The ideal place to interview is in a Police Station, in a room designed for the purpose, where you have control of the situation'.

Interview Room

With regards to the interview room itself, the following considerations should be taken into account:

1. Whilst the size and position of the room is beyond the control of the interviewer.....exercise some measure of control.

2. Extremes of heat and cold should be avoided.

3. Excessive lighting should be avoided, especially direct light or exposed bulbs.

4. There should be adequate ventilation.

5. There should be adequate seating.

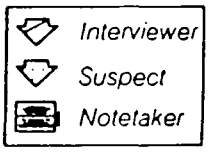
6. Outside noise should be kept to a minimum.

7. Furniture and layout should be moved to suit the style of the interview (Fig. 1).

8. Seating positions should be considered. There should be no confusion over who sits where.

9. There should be no distractions in the room.

10. Avoid chairs that are awkward to get in and out of. (X-Ref. Factor Review Ch. 3).



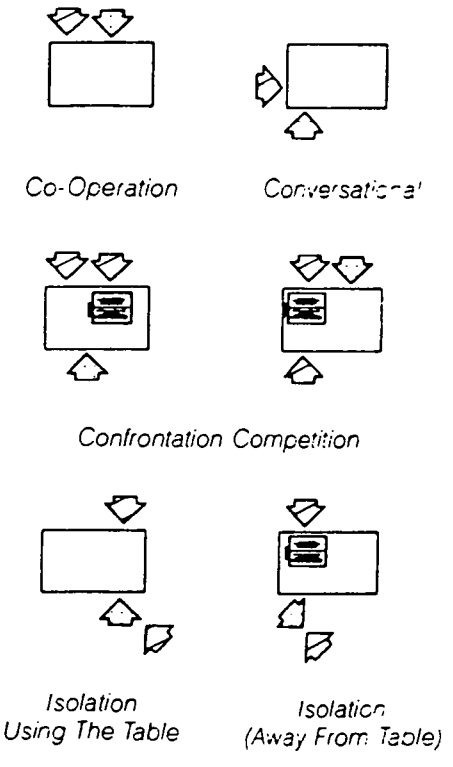


Figure 1

Table Seating Preferences

(Source Lancashire Constabulary, Detective Training Interview Techniques Manual p.8).

Personal Space

All human beings have their own personal zone and anyone who intrudes into that zone without consent, causes some discomfort (Fig. 2).

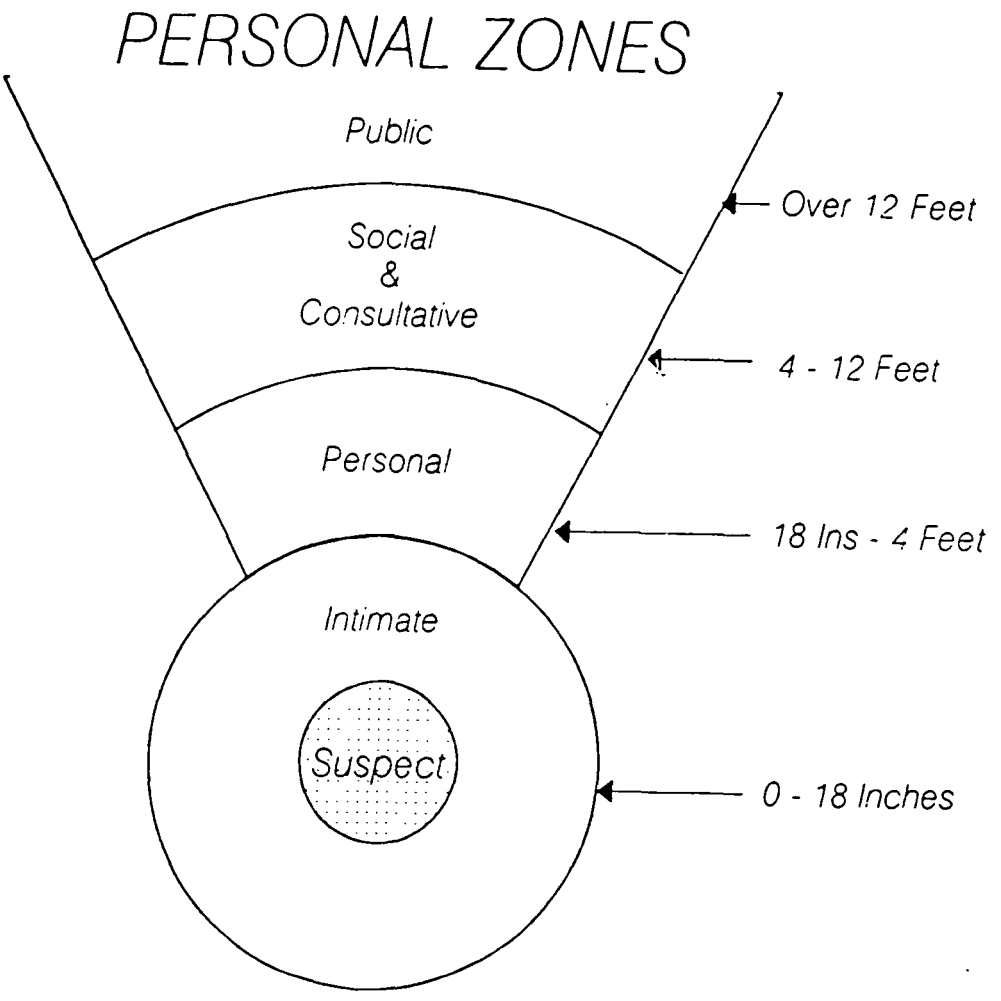


Figure 2

Personal Zones

(Source Lancashire Constabulary, Detective Training Interview Techniques Manual p.11).

The intimate zone (from 0"-18") is the distance used by people with great affection for each other, e.g. people in love with each other. The personal zone (from 18"-4') is used by friends. The social/consultative zone (4'-12') is more impersonal and businesslike. The public zone is in excess of. 12'. (X-Ref. Factor Review. Ch.3).

1.3 Subject Category (Victim, Witness, Suspect)

1.3.1 Overview

In order to understand how and why Police interview environments differ it is necessary to have an appreciation of the types of interview that the Police are involved in and the different approaches made to these interviews.

As pointed out in the introduction the Police interview situation can be placed into three broad categories of Victim, Witness and Suspect. Whilst it appears quite a simple task, we must also consider that a person being interviewed may fall into one or more of the main categories. (i.e. A victim is also a witness, and a victim may also be a suspect or vice versa).

In the main, a person who comes into contact with the Police, is either questioned, interviewed or interrogated. The manner and environment in which this interaction occurs will depend on which category a person finds themselves in.

The difference in manner and environment can best be understood by considering some basic aspects of Police practice and by looking at differences in terminology. I shall deal first with some aspects of terminology.

1.3.2 Terminology

The word interview was first used in 1514 to indicate a meeting of persons face to face for

the purpose of undertaking a formal conference. Morris 1978 in her critical review of Police interrogation literature, discussed the terminology used when describing the differing types of interview situations, she pointed out that Van Meter (1973), distinguishes between 'interviewing', which is designed to obtain further information, and 'interrogation', which is designed to obtain a confession. Wicks (1974), extends Van Meters concept when he defines 'interviewing' as being to secure data and 'interrogation', as being either to get an admission of guilt, or to obtain clarification and elaboration of certain facts from someone who is innocent.

Weins (1975), points out that.....'an interview is designed to achieve a consciously selected purpose and if the purpose of the interview is to be achieved, one of the participants must assume and maintain responsibility for directing the interaction'.

Schlossberg et al. (1974), makes an important distinction between an interview which, as stated by Weins (op. cit.), is designed to achieve a consciously selected purpose and guidance, when only facts and solutions are sought. He also points out that when the feelings and emotions of the person enter, it is counselling. The importance of feelings can easily be understood, when reference is made to a crime victim.

The above selection of interview descriptions can best be summed up by Mettler (1977), when he distinguished between an 'interview', which he

describes as a 'Verbal communication between the Police Officer and another person to ascertain the truth of a situation by obtaining and testing answers to pertinent questions re an alleged or suspected violation of the law...', and 'interrogation' which he defines as 'the questioning of a suspect or reluctant witness, the nature of which is more adversarial than that used in non-adversarial interview..... The investigator's skill must be of a higher order. The primary object of an interrogation is to obtain a confession' (Morris op. cit.).

1.3.3 Location of Interview

When possible, it is common practice to interview persons involved in minor road traffic accidents at the scene of the accident, in order that they can use the locality to explain what has occurred.

A vast amount of interviews with victims regarding reported crime (i.e. burglaries) take place at the scene. It is also common practice in serious enquiries, to carry out door to door enquiries where the majority of interviews occur at the location of the enquiry.

It is not common practice to take a suspect involved in crime, back to the scene or interview them at their own home.

Dudycha (1955), in his book, Psychology for Law Enforcement Officers, points out that 'the physical surroundings at the scene are anything but conducive to answering questions as attention continually jumps from one thing to

another, and is not sustained; memory is poor, emotion is intense, as a result even the law officer is under strain'.

The location of Police interviews is also discussed by McConville & Baldwin (1982), who question the reason for Police arresting people when they could summons them. They suggest that the reason for such a procedure is:

"....it enables them to take the suspect on to their territory, and territorial familiarity is a prerequisite of 'successful' interrogation. Territorial familiarity in turn is not enough there must also be territorial control".

Having outlined briefly the main categories of persons involved in Police interviews, and some of the numerous definitions with regards to the meaning of interview, I consider that a knowledge of the guidelines set out in respect to the interviewing of people by the Police, is also necessary in order to appreciate the establishment of the interview environment.

1.4 Law Review

1.4.1 Overview

Guidelines with regards to the treatment of people have been set at both National and International level.

1.4.2 International Law

The Universal declaration of Human Rights, the International Covenant on Civil and Political

Rights (of which the United Kingdom is a signatory) and the European Conventions on Human Rights all provide that:

> "No one shall be subjected to torture or cruel, inhuman or degrading treatment or punishment".

1.4.3 National Law

The Police and Criminal Evidence Act 1984 (S.66), Codes of Practice, sets out the guidelines for the detention, treatment and questioning of persons by Police Officers. Section 76(8) of this Act, defines oppression as including torture, inhuman or degrading treatment and the use of threats of violence. It is worth noting the use of the word 'including' as this indicates that this is not a complete definition of oppression. There are Court cases where extreme treatment has constituted oppression.

Whilst the contents of the previous paragraphs have moved away from the main area of my research, I felt that their inclusion is necessary in order to provide an insight, albeit a very basic and limited one, into some of the practices and considerations, that contribute to the Police interviewing procedure. One could ask if the environment in which an interview is conducted could be seen as "oppressive".

1.5 Police Building Guidelines

In order to understand the physical attributes of 'place', which in this context is the Police

interview environment, a major aspect to take into account is the pre and post development stages of the Police interview room itself. Police interview environments in the main are established, not by Police Officers, but by a number of interrelated agencies who interact when the question of development or redevelopment of such environments occur. These agencies have differing opinions as well as political and administrative constraints.

1.5.1 Home Office Guidelines

The Home Office (1970) Police Building Design Guide 2 (Organisation Activities and Relationships) states that the use of interview facilities is required when it is inconvenient or undesirable for personnel to conduct interviews or answer enquiries in a personal or group space, usually when private or confidential matters are to be discussed, or when a suspect is to be questioned. It further states that the number of interview spaces provided may vary according to the size and needs of the establishment, pointing out that Police and Civilian personnel conduct interviews which usually involve two or four persons. The guide also points out that the interview space may also be used for other associated activities such as, assembling identikit portraits with the help of witnesses, or taking fingerprints of suspects.

1.5.2 Home Office Circular 24/77

A major constraint on interview room development within the Police Service, is reflected in the Home Office Circular 24/77 Police Buildings - Review of Unit Costs and Procedures. The document which is one of the current guides to Police buildings states that:-

> 'The document is written in the light of the increased necessity for cost consciousness with its constraining effect on design. It is essential that each building scheme is carefully planned within area and cost standards which will provide reasonable prospects that the tender obtained will be within the maximum cost limit.
>
> Recommendations are made within as to what areas and standards which will achieve economies, it is for Police Authorities to decide how to apply these recommendations to particular schemes in order to work within the cost limits'.

The recommendations that are made in H.O.C. 24/77, which gives guidance and advice as to the procedure to follow in the planning stages of a new Police Station, are as follows:

2.16 The building should be planned to minimise public penetration..... Normally entrances should be restricted to three:- Public, Police and Prisoners.

2.17 With careful planning and attention to detail, many aspects of security can be

incorporated into the building without producing a 'fortress appearance'.

2.39 Interview rooms other than those at the front entrance, should be 6m^2, an area which is normally sufficient to accommodate four persons. Interview rooms should be grouped together so that they are available for maximum use.

The Circular then lays down the criteria for the development of Police buildings (which includes Police interview rooms). The design team referred to in this section, is a multi-discipline professional design team, including as appropriate, architects, quantity surveyors, structural engineers, electrical and mechanical consultants, and other essential professional advisors.

1.5.3. <u>Police Buildings Guide 1969</u>

The Home Office Planning of Police Buildings Guide (1969), gives advice re ventilation and furniture. It states:-

> 'Mechanical ventilation should be provided in information/ communication rooms, laboratories, cells and accommodation without natural ventilation. The installation should be in accordance with statutory regulations, the Offices, Shops and Railway Premises Act 1963, and the Institution of Heating and Ventilating Engineers Guide 1965..... Furniture purchases can either be as a direct result of capital development or the replacement

of obsolete stock. They can also be as a result of additions to the staffing establishment. Purchase justified on grounds of quality and quantity, and on grounds of price'.

The building guidelines outlined above give a very brief insight into the area of Police building development. They do not take account of the numerous inter-agency interaction that occurs at all stages of development and the organisational conflicts that also occur due to the differing organisational goals.

Whilst the area of inter-agency interaction is in itself an interesting topic for discussion, it would move too far from the original field of research to develop further.

This type of system, which is essentially linear in concept practice, approach and where the steps in the process are sequential, do not provide a feedback loop for the development of alternative designs. (X-Ref. Psychology Literature Review Ch.2 p.55-59).

1.6 Developments in Police Environment Awareness

1.6.1 Overview

The majority of consideration of Police Interview Room environments has been developed with regards to the suspect. There is however, a move towards interview room environmental awareness with regards to victims, especially in the cases of victims of sexual assault and children who are the subject of child abuse.

1.6.2 Police Review Abstracts

The Police Review (28/7/1989) in an article on interviewing child sex abuse victims, makes the following observation with regards to interview room layout:-

> 'Specially furnished rooms like the victim examination and recovery suites situated in many Police Stations, constitute ideal environment..... Chair positions which are set at a 90 degree angle to each other and approximately four feet apart are considered optimum (Wicks, 1974). The distance is tolerable for children when interacting with an unfamiliar adult and is small enough to allow for hand holding and gestures of support when appropriate. The angle of the chairs avoids a 'head to head' confrontation type of encounter and allows the child victim to avoid eye contact, which may generate more verbal communication (Arygle, 1976). On the other hand, the comfort of the chairs should be such that the interviewer can take up different body positions to manage eye contact and to be located at a height where eye contact, when it is made, is horizontally aligned. Younger children may prefer floor cushions.....'
>
> 'Intrusions into the room are to be avoided, and direct steps to prevent any disturbance are an essential factor to be considered when setting up the environment' (Vol. 97 5022).

1.6.3 H.O.S.T.P.R.S.U.

The Home Office Science and Technology Police Requirements Support Unit Bulletin (34. July 1989) reports on the use of both lighting and colour as influencing factors in certain situations, involving both victims and suspects. The report points out that:

'West Yorkshire Police are discriminating on colour. They are using a pink cell for tranquillising violent prisoners and a blue room for interviewing child abuse victims. In Police Control Rooms, they are using special lighting designed to ease stress'.

Pink Cell (X-Ref. Environmental Factors Ch.3 p.89).

Two trials were conducted in Britain to determine the benefit of using the tranquillising effect of a particular pink colour, known as Baker Miller Pink paint, a pink colour of 618 nanometers, in prison cells to reduce aggressive and anti-social behaviour of prisoners. In the first trials at a Police Station, prisoners assigned to a Baker Miller pink cell were less abusive, disorderly or violent, than those placed in magnolia coloured cells (Fisher's Exact Test, 0.003). In the second trials, a prison cell was constructed in a University architectural department. Volunteer subjects were randomly assigned to either the pink or magnolia cell. The effects of pink (620nm), green (500nm), and blue (440nm) light filters over a 200 watt incandescent bulb, in addition to pink or magnolia painted cells,

were evaluated. Heart rate and behavioural changes in the University study supported the findings of the Police Station study. Filtered pink light and Baker Miller pink painted cells reduced muscle strength rates of arousal and increased the time for return to calm. The pink painted cell was reported as being effective in reducing maladaptive behaviour apparently through psychological and psychological pathway (Int. J. Biosocial Med. Research, Vol. 13(1) 118-127, 1991).

Blue Rooms

'An experimental child abuse victim interview room in St. James Hospital, Leeds, has been painted in two tones of blue with brown furnishings'. (X-Ref. Colour Factor Review Ch.3 p.91).

Full spectrum lighting - designed to match natural daylight was installed'. (X-Ref. Light Factor Review Ch. 3 p.85-86).

'The colours and lights were designed from research carried out by Professor Harry Wohlfarth of Canada. The blues were chosen to give the opposite effect of pink. They were to strengthen, comfort and create a loving atmosphere for both the child and the interviewers'.

'A yellow board was available to stimulate very withdrawn children'. (X-Ref. Colour Factor Review Ch. 3 re the effects of yellow stimulation, p.88).

Controlled Light

'Four Control Rooms at Pudsey, Normanton, Westwood and Horsforth, are participating in an experiment to test claims made for full spectrum light.

'These lights use the full colour spectrum of the rainbow including ultra-violet'.

'The claims are that there is less or no glare on V.D.U. screens, less stress on operators and an improvement in performance and health'.

'Another study concerning full spectrum light is being conducted under supervision of Dr. Chris Shinn, the Force Medical Officer. Here, the claim is that treatment from full spectrum lighting helps to reduce blood cholesterol from which many Police Officers suffer'.

The main emphasis in these areas with regards to interview room environments, is the establishment of interview facilities away from Operational Police areas with no obvious identification of the nature of the facility. The special selection of furnishings with an emphasis on matching non formal furniture, lighting control and adequate facilities such as showers and toilets, within the interview environment in order that maximum privacy can be maintained.

1.6.4 Environment and Tape Recording

Another interesting development within Police interview environments, is the introduction of tape recording of Police interviews with suspects. It is quite obvious that the equipment itself is an addition to the environmental stimuli and as such, is worthy of consideration.

Due to the fact that the tape recording of Police interviews is a relatively new development and equipment was not installed in all the interview rooms used in this thesis, this area of the interview environment will not be given the full consideration in the discussion part of the thesis, that I feel it merits, due to a lack of appropriate data.

What can be discussed is the sudden awareness of environmental factors such as temperature, noise and location, not as human effectors, but aspects that could affect the quality of the tape recording.

Interview Recording: Equipment Aspects 7/85 and Interview Recording: Equipment and Room Costs 48/86 are the main Home Office publications with regards to tape recording and environmental factors. These documents produced by the Scientific Research and Development Branch at the Home Office, give procedural guidance with regards to the development of existing interview rooms for the purpose of tape recording of interviews. (It must be emphasised at this stage that the tape recording of Police interviews has only been introduced for the

interviewing of suspects). Factors that were taken into consideration were outside noise levels, heat build up within the interview environment due to sound insulation requirements, and effects of the internal acoustic environment.

The need to introduce, where necessary, sound insulation was recognised in order to produce good quality recordings. A consequence of the introduction of sound insulation is a build up of heat and humidity within the room. It was recognised that forced air ventilation was of little use and air conditioning was the only satisfactory solution. Where interview rooms were subject of high traffic noise levels, a sound level of 43 dBA was seen as a realistic target figure for recording purposes.

The purpose of the research cited above, was to establish a criterion for the introduction of tape recording equipment in Police Interview Rooms, as such, no specific mention has been made in the report with regards to factors which may have a psychological effect on the persons using the room.

1.7 Summary

There are very few studies on the subject of Police Interview Room environments, and what literature does exist is fragmented. (Section 1.2.2).

Certain factors are identified as having an effect on interview interactions (Section 1.2.3/1.2.4). These factors being:-

1. Privacy.

2. Room Design (No specifications given).

3. A need for control over the interview environment.

4. Need for subjects to feel comfortable.

5. Physical factors such as accommodation and environment can affect a suspect's ability to understand what is happening and lead to alienation.

6. Consideration should be given to accommodation, interview setting, furniture and furnishings, distractions and disruptions.

7. The location of the interview environment.

8. Extremes of temperature should be avoided.

9. Excessive lighting should be avoided.

10. Adequate ventilation.

11. Adequate seating arrangements.

12. Minimum outside noise.

13. Furniture layout.

14. Personal space.

There are three main categories of person identified as being interviewed (Section 1.3.1).

(a) Victims.

(b) Witness.

(c) Suspect.

There are basic differences between interviewing, interrogating and counselling (Section 1.3.2).

Guidelines as to the treatment of a person being questioned are based on the ideals that no one should be subjected to any treatment that could be classified as torture or cruel, inhuman or degrading, or be subject to any oppressive act (Section 1.4).

Interviews usually involve two or four persons (Section 1.5.1).

The criteria set out with regards to Police building regulations, are linear in concept and organisation, and are effected by cost consciousness economies (Section 1.5.2).

The designated size of a Police Interview Room is 6 m^2 (Section 1.5.2, Item 2.39).

There is awareness of the influence of lighting and colour on certain interview situations, as well as the effects of interview location and furniture within the environment (Section 1.6.2).

Some of the reasons for certain aspects of the Police interview environment and the development of environmental awareness, can be found in psychological research. In order to lay the foundations of this thesis, Chapter 2 is a review of psychological literature with specific reference to environmental research.

CHAPTER TWO

REVIEW OF PSYCHOLOGICAL LITERATURE

PSYCHOLOGICAL REVIEW

2.1 Introduction

In this chapter I have undertaken to highlight the similarities and differences within the terminology, ecological and environmental in order that the differences can be understood in the context of this research.

The chapter begins with an historical review describing the relationship between the Ecological and Environmental perspectives and develops the model of "Place" as described by Canter (1977) as outlined in the introduction and Zube (1984).

The final section of the chapter compares the Constructionist and Gibsonian Approaches to Environmental Psychology.

The term ecological psychology pre-dates the more modern term environmental psychology in its use within psychological literature. Whilst the terms are sometimes regarded as synonymous they are also used to indicate certain different theories within psychology. The use of terminology in this way can lead to a certain amount of confusion and misunderstanding, unless the historical background is established with regards to the development of environment psychology.

2.2 An Historical Perspective of Ecological/ Environmental

Ecology, as expressed in Reber's (1985) dictionary of psychology, is broadly the study of the relationship between organisms and their environment. The discipline is concerned with the complex interrelationships between the various plants and animals with each other, and with the physical environment in which they live.

2.2.1 Ecological Perspective

Ecology developed as a biological science from which work such as Darwin's theory of evolution evolved. Scientific work in ecology began around 1900 with numerous studies by botanists and zoologists into the interdependence of plants and animal species living in the same habitats. In the 1920's, sociologists began to apply some of the ecological notions in their study of human populations in cities (Ittelson, Proshansky, Rivlin & Winkel 1974).

Interest and concern with the physical environment as it affects behaviour, was shown by the gestalt psychologist Koffka (1935) and by the social psychologist Heider (1939).

Ecological psychology began to establish itself in the 1940's when psychologists of that period began to give some attention to ecological principles and methods. The field theorist Lewin (1944) in his paper on 'Psychological Ecology', in which he studied psychological factors that contributed to a person's life

space, argued that the first step in attempting to understand the behaviour of individuals or groups is to examine the opportunities and constraints of their environment.

Another psychologist who used the term ecology in the 1940's was Brunswik (1947) in his paper 'Systematic and Representative Design of Psychological Experiments' in which his primary interest was the study of perception. Brunswik developed this area with his studies of perceptual cognitive discrimination and categorisation. The term 'ecological validity' was originally coined by Brunswik for the degree to which the distal and proximal stimuli co-vary. Wicker (1979) pointed out that although Lewin was the first to suggest the study of psychological ecology, neither Lewin or his students and associates gave such attention to its development.

Barker and Wright (1949) suggested benefits that might result if ecology were to become a recognised branch of psychology. They pointed out that some of the limitations of the traditional approach to psychological research were that the approaches were adapted from the physical sciences; they consisted of bringing people into a laboratory and asking them to respond to pre-arranged conditions or tasks. They suggested that the ecological approach moved away from the laboratory, and documented everyday events which cumulatively shape people's lives. They pointed out that this approach would have both a practical and scientific value. They contended that the

naturalistic records of behaviour would be useful for formulating general theories about relationships and environment.

What followed from Barker and Wright's proposal was the development of the Midwest Psychological Field Station research establishment from which behaviour setting research was carried out by Barker, Wright and others (Barker 1955; 1966; 1968).

About the same time as Barker and Wright were developing their concept of 'ecological psychology', another psychologist, Gibson (1950; 1959 & 1966) was laying the foundations of his ecological approach to psychology. From his theory of direct perception (which will be considered later in this section), the term 'Ecological Psychology' became synonymous with Gibson's final theoretical position.

This leads to the problem that the term 'ecological psychology', could pertain to a specific theory within psychology (Gibson), or to a broad area of psychology (Barker et al.).

2.2.2 Environmental Perspective

The definition of 'environment' as expressed in Rebers dictionary of psychology, states that the word environment comes from old French and translates roughly as 'encircle'. Hence, the environment is that which surrounds. Reber points out that this is clearly a general meaning and as such, invites a wide range of uses.

Reber goes on to point out that environmental psychology is a relatively new discipline within psychology and that it is a true synthesis drawing from data and theories developed in a variety of areas, including social psychology, sociology, ethology, political science, architecture and anthropology, and then turning them upon issues involving the complex interactions between people and environment.

Cone and Hayes (1980) suggest that the 1970's appears to have been a landmark one for the populist environmental movement. It was also the beginning of a clearly definable behavioural-science involvement in the problems of the physical environment. (Craik 1970: Canter & Canter 1971).

Cone and Hayes also point out that Stokols (1978) differentiated environmental psychology from other areas of behavioural science on the basis of three major dimensions:

1. An ecological perspective.

2. An emphasis on scientific strategies for solving community/environmental problems.

3. An interdisciplinary approach.

Stokols after having reviewed this area concluded that it is 'more than an assortment of loosely defined problem areas, but less than a comprehensive, coherent paradigm'. He went on to summarise the research within environmental psychology into eight areas:-

1. Cognitive representation of the spatial environment.

2. Personality and environment.

3. Attitudes towards the environment.

4. Environmental assessment.

5. Experimental analysis of ecologically relevant behaviour.

6. Impact of the physical environment on behaviour.

7. Movement of humans through space.

8. Ecological psychology.

It is possible to see from the wide range of topic areas mentioned, that psychological research in perception, cognition and development psychology, have all paid some attention to the role of the environment and human interaction. Environmental psychology's emergence into the 1980's, was hailed as a "coming of age" (Canter & Craik 1981).

Russell and Ward (1982) suggest that 'environmental psychology is generally seen as that segment of psychology concerned with the systematic accounting of the relationship between the person and environment'.

Wicker (1979) defined ecological psychology as '.... the study of the interdependent relationships between the goal-directed actions of the person, and the behaviour settings in which these actions occur'. (p.116).

2.3 Environmental/Ecological Perspective

The purpose of this section is to review the development of ecological/environmental psychology in general terms and in particular, consider those aspects that are relevant to this research.

'How do people manage their environment? What processes are basic to the interaction between people and their environment? These questions are central to almost all areas of psychology, but in a more narrow sense, are the heart of environmental psychology'. (A. Baum & J.E. Singer 1980).

Craik and Feimer (1987) put forward the view that any research study that manipulates, contrasts, or specifies environmental characteristics, entails the informal or formal use of environmental assessment and that the structure of concepts, methods, and issues, reveals environmental assessment to be an important substantive area of scientific research within environmental psychology.

Canter (1977) points out that 'the physical constituents of a place is a much more significant component of that place than research literature would have one believe'.

Genereux et al. (1983) pointed out that the representation of a place includes three distinct types of knowledge: information about its objective attributes, about its effective quality, and about the behaviours that occur there.

It can be seen that the differing approaches towards ecological/environmental psychology acknowledge the necessity to describe the interaction taking place between the component parts of the environment in question. The question is how do we evaluate this interaction? Where do we start? Where do we finish?

2.4 Environmental Assessment

Craik ibid., points out that the practical aim of environmental assessment is to develop techniques for systematically describing and evaluating environmental settings in order that the techniques could be used to identify standards of quality for various settings and to monitor ongoing variations in quality.

The development of environmental assessment as a psychological framework can be traced back through the 1960's with work such as Austin and Holland (1961) Environmental Assessment Technique, Burton and Kates (1964) research on adjustment to flood hazards, Barker (1968) behaviour setting surveys, to name but a few of the numerous research areas undertaken within this field.

The methods involved in environmental assessment are divided into three broad categories - evaluative assessment, descriptive assessment, and predictive assessment.

Sochman (1967) pointed out that 'values are essential antecedents to evaluation, since they help specify needs and problems and constitute a starting point in the evaluative process'.

In order to carry out an environmental assessment, it is necessary to consider that the assessment requires that the environment in question be measured in reference to some standard of comparison.

These measurements can be physical such as decibel levels (sound), lux (light), etc., (X Ref Ch.3 & Study 2 Ch.4), but should also include values such as beliefs, thoughts, feelings (X Ref Study 1 Ch.4 & Study 1, 3 & 5).

The development of the more objective type of assessment work can be seen in the works of Pugh et al., (1969), Loo (1978), Barker and Schoggen (1973), to name but a few who have used such methods as indexes of organisational structure, density, and community characteristics, etc., in order to produce measurements that are adequate, reliable, and reproducible.

The observational environmental assessment approach makes the use of the ability of the human observer to differentiate among places and factors, over wide descriptive dimensions. Within this area we have seen the development of environmental assessment instruments such as

environmental quality indices an example of which is the perceived environmental quality indices (P.E.Q.I.) as developed by Craik and Zube (1976).

A PEQI affords a quantitative measure of the quality of a physical setting as it is subjectively experienced by a particular group of people (Craik 1981). An example of such techniques are the Behaviour Setting Surveys, (Barker op. cit.), Technical Neighbourhood Assessment Indices (Carp & Carp 1982), Indoor Air Monitoring Program (Wallace et al. 1984) to mention but a few.

Similar formats of PEQI have been established which fit the topic area of research in question. An example of this type of development is Moos & Lemke (1983, 1984) Multiphasic Environmental Assessment Procedure (MEAP) for evaluating a broad range of settings for older persons.

Craik and Feimer op. cit., put forward the view that 'whilst the environmental assessment concept is an important tool in psychological analysis the attention to the conceptual analysis of descriptive and evaluative constructs has been inadequate, especially with regards to those constructs drawn from ordinary language. Furthermore the variety of relevant environmental units of analysis may continue to fragment research in this area.....' They also point out that 'environmental assessment offers potential usefulness at stages throughout the planning and design process. Environmental assessments based on preconstruction simulations

can provide guidance in the selection of plans and design. Post-occupancy environmental assessments can contribute to empirical generalisations that also offer selection guidelines for subsequent decision contexts'.

Holahan (1986) puts forward the view, in his summary and critique of environmental assessment, that 'although important advances are being made in developing testable theories of environmental assessment, conceptual development is still at an early and general stage. Explicit links between the major conceptual frameworks are absent, though shared emphases between at least two perspectives include: the importance of place, a purposive or adaptive focus, a multivariate approach, and increasingly more attention devoted to cognitive factors'.

This cognitive component in environmental assessment is also emphasised in the work of Kaplan (1982, 1983). Kaplan put forward the view that the quality of a person's interaction with the environment is a function of both the actions the individual attempts to carry out and the informational patterns of the environment.

Kaplan (1982) also emphasises the cognitive component in environmental assessment. Kaplan argued that considerable cognitive analysis and calculation precede an effective appraisal, though some cognitive processes such as categorisation and inference can occur without conscious awareness. A supportive environment

is seen as one where the information necessary for making decisions is readily available and interpretable.

Having taken an overview of the environmental assessment perspective I would now like to consider developments in the psychological perspective of cognitive mapping within environmental psychology.

This insight into the developing structure of environmental cognition and perception can help to provide a framework understanding how people construct their opinions of the environment they find themselves in.

2.5 Cognitive Mapping

According to Golledge (1986), the process of acquiring, mentally storing, accessing, and using spatial knowledge has been termed "Cognitive Mapping'.

'Cognitive Maps' are the mental pictures that people develop of their surroundings that they use to structure the way they look at, react to, and act in their environment (Downs & Stea, 1973, De Jonge 1972, Ladd 1970, Lynch 1960). "A cognitive map is not necessarily a 'map' seen as a flat piece of paper (Downs & Stea 1973:11), it is more an ongoing process "..... by which an individual acquires, codes, stores, recalls and decodes information about the relative locations and attributes of..... his everyday spatial environment (Downs & Stea 1973:9).

Altman and Chemers (1980), depicted the elements of environmental cognition and perception, as outlined in Figure 3 below, basing their findings on the analysis by Downs and Stea (1973), who defined cognitive mapping as 'a process composed of a series of psychological transformations by which an individual acquires, codes, stores, recalls, and decodes information about the relative locations and attributes of phenomena in his everyday spatial environment'.

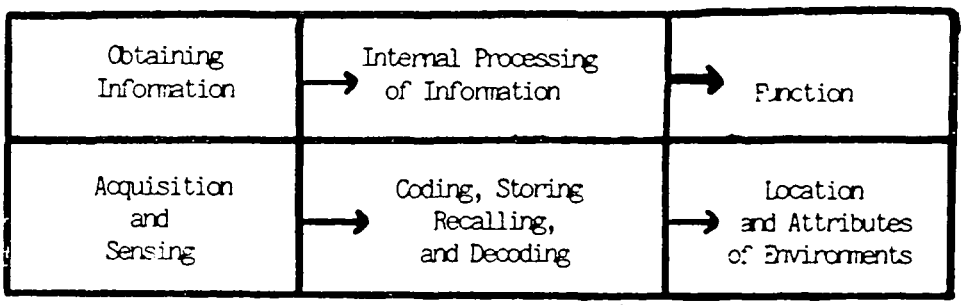


Figure 3

The elements of environmental cognition and perception. (From I. Altman & M.M. Chemers (1984 ed) Culture and Environment p.45)

Altman and Chemers op. Cit., point out that the first stages in coping with a new environment is to obtain information about it by using the various sensory modalities (e.g. vision, hearing, smell, touch, taste and kinesthesis). These sensory inputs become part of our understanding and information processing ability.

Downs and Stea op. Cit., observed that environmental cognitions are often inaccurate and incomplete; and that they sometimes differ from person to person and from group to group. They further point out that cognitive

representations of the physical environment are often distorted and schematised.

A person's knowledge and differentiation of the environment has been shown to effect how a person responds to the said environment: places close at hand being 'good' and successively more remote locations being increasingly 'bad'. (Saarinen 1973a, Gould & White 1974; Orleans 1973; Appleyard 1976).

Stea (1974) in his study of hospital workers pointed out that people's cognitive maps only partly correspond to the measurable attributes of environments and that they are influenced and distorted by their background, their experience, their purposes, etc. Mapping studies have also been criticised by Burgess (1979), Pocock (1979), and Spencer and Dixon (1983) for paying too little attention to the affective component of environmental cognition.

Foley and Cohen (1984), suggested that in solving a specific spatial task, people use only a limited subset of the total knowledge they have about an environment.

Much of the applied work in this area (Levine 1982; Canter 1983; Garling et al. 1983; Heft 1983; Levine et al. 1984) has focused on ways to facilitate orientation in modern settings such as large buildings and shopping malls, etc.

This brief review of 'Cognitive Mapping' is intended to give a broad outline of the work being conducted in this area.

Having reviewed the psychological literature with regards to environmental assessment and cognitive mapping, I would like to move onto the area of environmental stress.

2.6 Environmental Stress

Campbell (1983), puts forward the view that 'ambient stressors are chronic and interactable environmental conditions that, although non urgent, are negatively valued and place adaptive demands on people'.

Lazarus (1981), pointed out that a variety of psychological and environmental factors can mediate the stress reaction, including attitudes towards the source of the stress, perception of risk associated with the stressor, and support from other persons in dealing with the stressor.

The powerful mediating role of perceptions of control over stressors, is underscored by Fleming et al. (1984) and Epstein (1982) who noted that psychological effects are more adverse when the level of control and social co-operation in the setting are lower. The point is made that the effects are most negative in prisons, intermediate in dormitories, and least adverse, in family residences. (Holahan op. cit.). Rohe (1982), found a positive association between even moderate levels of household density (persons per room) and both reduced satisfaction and more negative forms of behaviour.

Holahan op. Cit points out that applied work on density has tended to show negative consequences in correctional facilities where social cohesion and control are low.

Physical attributes of the environment such as colour, light, temperature, etc., may contribute to the build up of environmental stress. (Ch.3).

Evans and Cohen (1986), suggest that prospective longitudinal designs are essential to disentangle the complex casual picture in models of environmental stress.

Having considered the general areas of research and developments within environmental psychology, this review will continue with specific reference to Canter's model of place, and Zube's concepts concrning the design of place.

2.7 Place

As a framework for this research, I have adopted a model of 'place' as described by Canter (1977). This model falls within the framework of environmental assessment.

The model proposed by Canter (Figure 4), shows three components of place which suggest that a place is established as a result of relationships between actions, conceptions and physical attributes.

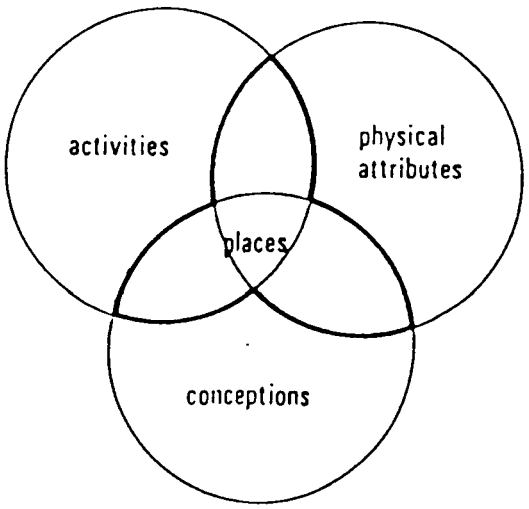


Figure 4

Components of Place

(Adopted from Canter (1977)
The Psychology of Place p.158)

Canter suggests that 'The goal of environmental design is the creation of Place, from this starting point the question of definition, recognition, structure and location of places, readily emerge that, whether it is a city centre, a school, or just a quiet corner in the living room that is being created, the major concern is an identification and clarification of the conceptions of that place'.

Canter also suggests that 'The notion of degree of differentiation of place, also raises the possibility that some places, by their very nature, will be easier to distinguish from the range of experiences than will others'. He points out that, 'It is useful to re-phrase the difficulties of identifying places as two interrelated questions':

1. What are the major constituents which amalgamate to form place?

2. What procedures are available for identifying places and their attributes in any given instance, whether it be for research, or for design?

Canter then puts forward the model of place, that I have adopted to assist in this research. He points out that the model 'indicates that a place is the result of relationships between actions, conceptions and physical attributes. It follows that we have not fully identified the place until we know:-

a) What behaviour is associated with, or it is anticipated will be housed in a given locus.

b) What the physical parameters of the setting are.

c) The descriptions, or conceptions, which people hold of that behaviour in the physical environment.

Canter points out that 'the reason for such a dearth of studies appears to be, in part at least, the difficulty of deciding which physical attributes to study. Taken in the abstract, independently of any conceptual framework, there is an infinity of ways of dividing up and measuring physical parameters. Weight, size, colour, shape, form, texture, or combinations of any or all of these and many others, at any scale, are feasible. So researchers have either

selected on which caught their fancy, with disappointing results or given up because they were spoilt for choice'. Canter suggests that 'with the three-component model, it is possible to look for those aspects of physical attributes which have the greatest likelihood of linking to the other components of the place in question, those which facilitate the identification off place'.

The physical attributes (Factors) that have been selected for the purpose of this research are discussed in the next chapter.

With regards to the presence of the notion of 'conceptions' in the model of 'Place', Canter notes that 'the point here is that to describe the places which exist in any given area, it is necessary to identify also the people who are using that area, their conceptions and activities'. (p.160).

The identification of persons using the environment in question has been outlined in the review of the police literature in chapter 1, p.17.

The reason that I have made use of Canter's model of place in this research, is that I consider that it is necessary to have a full understanding of the concept and meaning of the 'Police Interview Room Environment' (Place) in order to expand this understanding within the more general theoretical framework of ecological psychology which will be discussed later in this chapter.

C.J. Holahan describes Canter's model of place as one which 'underscores a cognitive dimension in which place evaluation can be understood in terms of three facets: the place's social, spatial, and service referents, the level of interaction with the place and the degree of specificity or focus of the association with the place. The facet approach to theory definition is used to provide a structural framework for converting the multiple classification scheme of referent, level, and focus into a set of related testable hypotheses'.

2.8 The 'Design' of Place

Another aspect of environmental assessment that it is necessary to consider is why, how and for whom the assessment is being carried out.

White (1972) makes the point that it is the design program which limits and directs the process.

One method of creating a design program, as suggested by Zube (1980), is the creation of evaluation scheme groups, in which the elements of evaluation studies are divided into three primary dimensions: institutional, environmental, and participatory. Zube points out that these dimensions provide a useful framework for the design and review of evaluation studies based on the user as a measuring instrument.

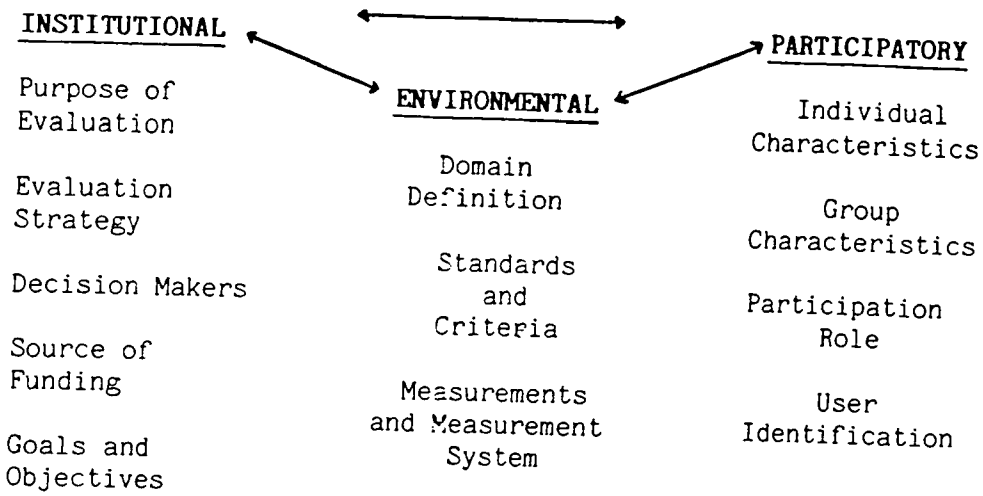


Figure 5

Design Evaluation Scheme

(From E.H. Zube (1984) Environmental Evaluation, Perception and Public Policy p.10)

Figure 6 shows a traditional design process, described by Zube as being 'essentially linear in concept and practice. (X Ref review of police literature p. 25). The term linear means that the steps in the process are sequential and there are not feedback loops in the procedure. A linear process does not provide for the development of alternative designs. It represents a more authoritarian concept of how decisions are made, and relies very heavily, if not totally on professional expertise. The primary role played by the user is that of approving the final design, and this is a role open to the user only in specific cases.

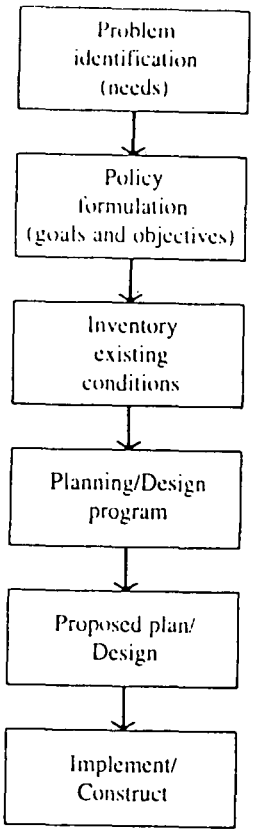


Figure 6

Linear Design Process

(Found in E.H. Zube (1984) Environmental Evaluation, Perception and Public Policy p.47).

Zube points out that 'The relationships tend to be established between the professional and the client who, in the case of most public projects, is not the direct user but local authority establishments. The program, in written and graphic form, records and organises information about client needs, and information acquired through the inventory process. It includes facts about physical conditions as well as limitations imposed by codes, laws and regulations. It should also include social and behavioural facts and information acquired from actual or potential users. In the absence of social and behavioural information, the program represents an inaccurate and inappropriately simple plan of action'. (p. 48).

Zube criticises the linear process for the following reasons:

a) The linear process is susceptible to overlooking important user-based values and needs.

b) The process leads to simplified solutions.

c) It supports the practice of producing the single solution rather than alternative solutions.

d) Due to the oversimplification, the process does not foster the idea of feedback.

e) The linear process ends with plan implementation or construction of the designed facility. It does not extend to an evaluation of the new environment after it has been used, so that what has been learned can be used to refine the problem, definitions, and policies in order to contribute to better decisions the next time a similar plan or design is undertaken.

Figure 7 shows an alternative design structure to that of the linear design structure. This conceptual design framework differs from that of the linear design structure in the following ways:

a) The process is circular and iterative.

b) The final produce is derived from the consideration of alternatives.

c) Evaluation is an explicit component.

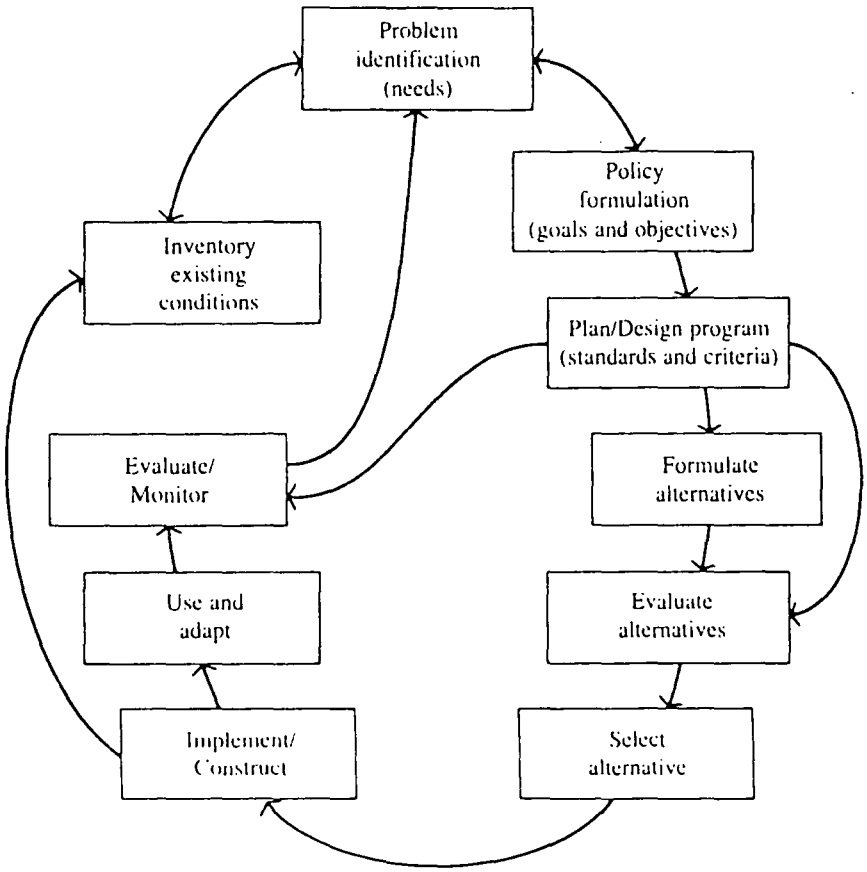


Figure 7

Conceptual Design Framework

(Found in E.H. Zube (1984) Environmental Evaluation, Perception and Public Policy p.50)

Zube goes on to make the following points with regards to the conceptual design framework:

1. The identification of needs, the inventory activity, and the setting of goals and objectives all interact.

2. The relationships are neither linear nor unidirectional, and the design process may start with any of these steps.

3. The program components, combined with quantitative and qualitative inventory data, are the primary ingredients for the formulation of alternatives.

4. The inventory of existing conditions identifies environmental opportunities and limitations within the context of the identified problem.

5. Evaluation is a continuous activity throughout the conceptual process:

a) It occurs in the inventory of existing conditions (addressing both quantitative and qualitative dimensions of the environment).

b) It is an inherent component in the iterative process of formulating and refining alternatives.

c) The evaluation of feasible alternatives that lead to the selection of a design.

d) The evaluation of an environment after it has been constructed and used.

6. The feedback loop is the channel for the final monitoring or evaluation activity. It channels information on the success or failure of designs back into the system so that:-

a) The efficacy of the activity can be assessed.

b) The problem identification can be reconsidered, amended, or redefined.

Zube further points out that this concept of evaluation differs considerably from earlier and more traditional approaches in which the primary emphasis was on an analysis of probable economic benefits and costs, stating that benefit cost analysis is an inadequate tool for assessing environmental and quality-of-life attributes that are primarily experiential and perceptual in nature.

2.9 Ecological Perspective

Wicker (1979), put forward the view that the contrast between the traditional and ecological approaches to psychology concerns the relationships between the environment, on the one hand and the behaviour and experiences of people within it, on the other. He points out that the traditional view has been that persons and environment are independent (separate, distinct, isolated) from one another because the natural laws that govern them are different and cannot be integrated. He also points out as an example that it is not possible to predict with precision the subjective experiences or behaviours of a particular individual by knowing the characteristics of the room the person is occupying. There is no known formula for translating physical features of rooms into the behaviours or psychological experiences of

persons. Some psychologists have concluded from such observations that there is really only one way to predict what people will experience in particular environments: by observing or interviewing people who have been in the environments to learn what they experienced and then predicting that others will have the most frequently observed and/or reported experiences.

Heft (1981) points out that 'Constructivism rests on the epistemological assumption that perception of the environment is a result of inference, hypotheses, or similar cognitive operations rather than being attributable to immediate sensory impressions' (p.288). He goes on to write, 'we have seen that the account of perception which has dominated psychological inquiry for centuries, rests on the assumption that several phenomenal characteristics of the environment are not represented in the proximal stimulus. As a result, perception is claimed to be a constructive process, and our experience of the environment is considered to be indirect. J.J. Gibson (1966, 1979) rejects this assumption through a reformulation of the relationship between the environment and the perceiver, and in turn provides grounds for a theory of direct perception of the environment'.

Ecological psychologists take a different point of view. They believe that the behaviour of people and their immediate environments are interdependent, rather than independent. This interdependence is due to the self-regulating mechanisms in behaviour settings and to the fact that people are components of the larger social setting system.

Maintenance mechanisms act on people to guarantee that the essential activities (the setting program) are carried out. Thus it is possible to make some limited predictions about how people will behave from knowing the program of the setting they are in.

Wicker also points out that 'An obvious limit to this kind of prediction is its lack of attention to the psychology of the individual, including motives, feelings, and behavioural style' (p.17-18).

In order to develop the differing perspectives outlined above, this review of ecological literature will include a review of literature pertaining to the differing approaches to ecological psychology.

2.10 Constructivist Approach

Most of the psychological literature reviewed so far can be seen to fall within the bounds of a constructivist approach to environmental psychology if we consider that the essence of all constructivist theories is that perceptual experience is viewed as more than a direct response to stimulation. It is instead viewed as an elaboration or construction based on hypothesised cognitive and affective operations.

Examples of ecological environmental psychology which falls within this concept of a constructivist approach is the research of people such as Canter (1971; 1977; 1981; 1983), Barker (1955; 1966; 1968), etc. The main emphasis of their research being on the

behaviour setting concept, which led to research into levels of manning, service behavioural settings, organisation size and member behaviour in churches, High Schools and other organisations.

Much of the research was based on quantitative data, such as frequencies and numerical ratings but also includes casual observations made whilst living in the town.

Whilst the main emphasis of ecological environmental research is based on the commitment to take the environment seriously (Neisser 1985) makes the point that "Taking the environment seriously" in the case of studies of social knowing inevitably involves some element of commitment to studies of social knowing in everyday settings. But it need not involve an exclusive commitment to a naturalistic approach. As Neisser himself notes, "The most typical characteristic of the ecological approach is not an aversion to the laboratory, but an attempt to maintain the integrity of the variable that matter in natural settings". (p.24-25).

2.11 Gibsonian Approach

2.11.1 Introduction

Gibson's ecological approach to environmental psychology is based on the theory of affordances supported by the theory of information pick-up. In order to understand the Gibsonian approach to ecological psychology, it is necessary to be aware of the theoretical background and

implication of Gibson's theory in respect to the use and application of the terminology 'ecological psychology'.

2.11.2 Affordances

Gibson (1979) describes the term affordances as follows:

The affordances of the environment are what it offers the animal, what it provides or furnishes, either for good or ill'. He goes on to explain the term affordance in the following manner. 'I mean by it something that refers to both the environment and the animal in a way that no existing term does. It implies the complementarity of the animal and the environment'. (p.127).

Gibson points out that different layouts afford different behaviours for different animals, and different mechanical encounters. He put forward the view that an affordance cuts across the dichotomy of subjective/objective and helps us to understand its inadequacy. It is equally a fact of the environment and a fact of behaviour. It is both physical and psychical, yet neither. He pointed out that an affordance points both ways, to the environment and to the observer.

Gibson (op. cit.) in his introduction to his book The Ecological Approach to Visual Perception outlines the three main considerations in his ecological approach:

'First, the environment must be described, since what there is to be perceived has to be stipulated before one can even talk about perceiving it..... Second, the information available for perception in an illuminated medium must be described..... Third, (and only there do we come to what is called psychology proper), the process of perception must be described. This is not the processing of sensory inputs, however, but the extracting of invariants from the stimulus flux.....' (p.2).

'What we perceive when we look at objects are their affordances, not their qualities. We can discriminate the dimensions of difference if required to do so in an experiment, but what the objects affords us is what we normally pay attention to'. (p.134).

Gibson suggested that the perception of the affordance is based on the pickup of information in touch, sound, odour, taste and ambient light and that the richest and most elaborate affordance of the environment are provided by other people. Gibson put forward the view that the observer may or may not perceive or attend to the affordance but the affordances are always there and furthermore behaviour affords behaviour and different places may have different affordances.

There is a way of explaining why the values of things seem to be perceived immediately and directly. It is because the affordance of things for an observer are specified in stimulus

information. They seem to be perceived directly because they are perceived directly. (p.139-140).

According to the theory which was being developed by Gibson, if information is picked up perception results; if misinformation is picked up, misperception results.

Having gained an insight into the main aspects of the term affordance, it is necessary to understand the theory of information pickup.

2.11.3 Information Pickup

Gibson questioned the validity of existing theories of perception and asked the question:

'What sort of theory, then will explain perception?' and answered it with, "Nothing less than one based on the pickup of information". (p.238) For Gibson what was new about the pickup of information concept was that it differs radically from the traditional theories of perception for the following reasons.

1. It involves a new notion of perception, not just a new theory of the process.

2. It involves a new assumption about what there is to be perceived.

3. It involves a new conception of the information for perception, with two kinds always available, one about environment and another about self.

4. It requires the new assumption of the perceptual system with overlapping functions, each having outputs to adjustable organs as well as inputs from organs.

5. Optical information pickup entails the concurrent registering of both persistence and change in the flow of structured stimulation.

Gibson having outlined what was new about the concept of information pickup, highlighted perhaps the most difficult aspect of this whole concept: the problem of detecting what an object affords from the available information. This is how he puts it: 'Consider these five novelties in order, ending with the problem of detecting variants and invariants or change and non-change'. (p.239).

Gibson pointed out that 'The qualities of objects are specified by information; the qualities of the receptors and nerves are specified by sensation. Information about the world cuts right across the qualities of sense..... the information in the sea of energy around each of us, luminous or mechanical or chemical energy, is not conveyed. It is simply there. The assumption that information can be transmitted and the assumption that it can be stored are appropriate for the theory of communication, not for the theory of perception'. (p.242).

Heft (op. cit.) whilst reviewing the constructivist and Gibsonian approaches to environmental psychology points out that 'A detailed ecological description of the environment may reveal that the phenomenon in questions can be accounted for solely in terms of environmental variables. It is for this reason that environmental description should be the first step in any environment-behaviour investigation. Only when this is done can the variance attributable to the environment and to cognitive processes be accurately partitioned'. (p.238).

Barker (1968) appears to argue that the environment and the person have unequal influence; the person is docile and malleable (a medium), whereas the setting is hard and thing-like. Influence is assumed to flow from the thing to the medium. The setting is seen as coercing people to perform their roles. Behaviour-environment congruence is conceived of primarily in terms of various mechanisms of external influences such as conditioning and modelling. Finally, the influence of the physical environment is treated as indirect; it is only important insofar as it effects standing patterns of behaviour of the social system.

The affordance perspective, on the other hand, treats the person-environment interface as much more reciprocal. First, organisms are assumed to select and remain in environments only so long as there is a high level of compatibility between the properties of the organisms and the environment. Second, the needs of inhabitants help determine what affordances will be detected

and utilised. Further, the physical environment and the social environment are assumed to be equally accessible to direct perception. Specifically, both are assumed to provide affordance information through the detection of invariants, a position very different from Barker's treatment of the physical and social environment as incommensurate entities.

2.12 SUMMARY

Whilst Ecological Psychology has been described as the study of the interdependent relationship between goal directed actions of the person and the behaviour settings in which the actions occur, Environmental Psychology is described as a segment of psychology concerned with the systematic accounting of the relationship between the person and environment.

Specifying environmental characteristics is an important component of psychological research. It is necessary to take account of both subjective assessments and objective assessments such as physical measurements.

Environmental factors can mediate stress reaction, and physical attributes of the environment may contribute to the build-up of stress. Canter's model of place describes a relationship between three components, action, conception and physical attributes. Zube points out that the designs of "place" can limit and direct the process that occurs within the place.

If we consider Canter and Zube's approach and the Gibsonian approach to ecological psychology based on the theory of affordances supported by the theory of information pick-up we can see the necessity within this research to understand what possible effects environmental factors could have within specified environments.

In chapter three environmental factors are considered.

CHAPTER THREE

ENVIRONMENTAL FACTORS

3. FACTORS

3.1 Introduction

In order to understand what possible effects environmental factors could have, within specified environments, it is necessary to take account of known features of the environmental factor concerned. The purpose of this chapter is to identify the factors that are to form a central focus of this research and to consider their specific features in order, as stated in the introduction, that the people who make the policy decisions with regards Police interview environments have an understanding of these factors.

3.1.2 Selected Factors

For the purpose of this research the factors that have been taken into consideration are:-

1. Light
2. Colour
3. Sound
4. Temperature & Humidity
5. Spatial Orientation

The main reasons for the selection of the above named factors are their obvious measurability within the environment, the existence of background information in respect of each feature and the technical ability of the researcher to obtain the required measurements. Due to the objective nature of the factors they can be related to and create perceived subjective responses from any subjects

who participate in the field studies. The purpose of the field studies being to ascertain how these factors may affect the complex system of interrelated processes, actions, decisions, influences and emotions that occur within the interview itself.

General consideration will be given to physical, physiological and psychological information relevant to the factor in question. This information will be drawn from the wide variety of disciplines applicable to these factor areas.

3.2 Light

3.2.1 Light

Light according to the Illuminating Engineering Society (IES), is "radiant energy that is capable of exciting the retina (of the eye) and producing a visual sensation".

A curious feature of light is that whilst it enables us to see objects it is not visible itself (Mitton 1936).

Light is that which enables us to see objects. The objects in a room do not themselves affect our eyes. If we were to be placed in a darkened room with no light source, we would not be able to see any of the objects in the room, but we know they are there because we could feel them.

Light can be thought of as the aspect of radiant energy that is visible. It is basically

psychophysical in nature rather than purely physical or purely psychological. (Osbourne 1982).

Light comes from two sources:-

a) Incandescent bodies.
'Hot sources', such as the sun, luminaires, or a flame.

b) Luminescent bodies.
'Cold sources', such as the objects in our environment which reflect the light to us.

3.2.2 Characteristics of Light

In order to understand what types of effect light can have on us within certain environments, it is necessary to have an appreciation of light itself.

Visible light as we know it forms a small part of the spectrum of electromagnetic radiation, of which most frequencies are not visible. Within the electromagnetic energy spectrum which contains sixty or seventy differing parts or 'octaves', sunlight is only one part of this spectrum.

The sun's spectrum extends from the long waves of infra-red light to the shorter waves of ultra-violet light. In between these two differing wavelengths, we find what we know as visible light. The visible spectrum ranges from about 380 to 780 nanometers (nm). The nanometer (formerly referred to as millimicron), is a unit of wavelength equal to 10-9 (one billionth)m.

Variation in wavelength within the visible spectrum gives rise to the perception of colour, the violet being around 400nm, blending into blues around 450nm, the green around 500nm, the yellow oranges around 600nm and the reds around 700nm.

The effector characteristics of colour are discussed in the next section of this chapter. (p.87-93)

The rate at which light is emitted from a source is called luminous flux, this luminous intensity emits luminous flux in all directions. If we imagine the source of the light being placed at the centre of a sphere, then the amount of light striking any point on the inside of the sphere is called illumination or illuminance. The light striking the surface (illuminance) is partly absorbed and some of it is reflected (luminance). The light that is reflected from an object allows us to see the object and produces our awareness of the object's colour.

The three characteristics of light that produce our visual experiences are:-

1. The dominant wavelength (e.g. 450nm blue).

2. Saturation (The predominance of a narrow range of wavelengths).

3) Luminance (The amount of light reflected or transmitted by a surface).

These physical characteristics of the light in turn influence our perception of colour in terms of three corresponding attributes:-

1) Hue.

That dimension of visual sensation corresponding chiefly to the wavelength of the light. The term is roughly synonymous with the common term 'colour' and indeed, hues are specified by names like red, green etc. Hues are also secondarily related to the amplitude of the light waves since the perceived hue will change with light intensity.

2) Saturation.

Purity or chroma. In the Munsell colour system the dimension that corresponds with saturation, the 'purity' of a colour. A quality of any visual stimulus that differentiates it from grey.

3) Lightness.

Relative amount of incident light which is an attribute of an object's colour which permits it to be classified along the series of greys that runs from black to white.

3.2.3 The Eye

It is now worth considering how the eye itself functions with regards to light. The basic features of the eye, as shown in Figure 8, are:

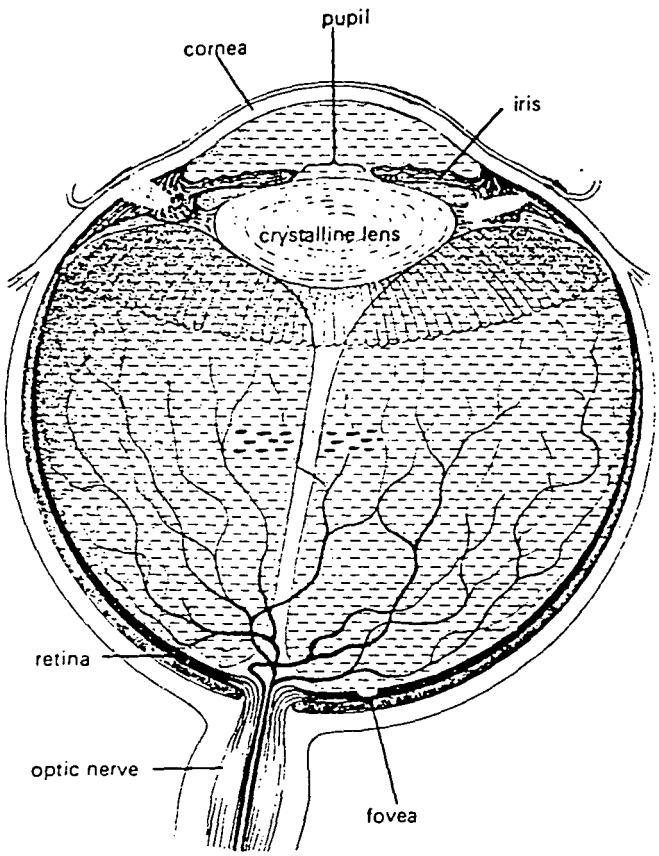


Figure 8

The Eye

(Adapted from R.L. Gregory (1966) Eye and Brain. p.34)

a) The Cornea.

This is a lens of fixed focal length, to protect the lens capsule.

b) The Crystalline Lens.

An elastic lens in the capsule which accommodates to distant and near vision, being flat and thin to view distant objects, and bulging and fat for close work.

c) The Iris.

Light enters the eye through the pupil (black) and the iris regulates the flow of light by contracting and lessening the pupil. The iris gives the colour of the eye.

d) The Retina.

A photosensitive mosaic coating of nerve endings consisting of rods and cones, rods on the periphery and cones concentrated on the centre or fovea.

The rods of the eye are sensitive to brightness, while the cones react to colour. At a high level of illumination the rods and cones, within the eye, both function, this is known as photopic vision and the eye is most sensitive to light wavelengths around 550nm (green). As illumination levels decrease, the cones cease to function and the rods take over the entire job of seeing, this is called scotopic vision, and the eye becomes most sensitive to wavelengths around 500nm (blue-green).

The shift in sensitivity from photopic to scotopic vision is called the Purkinje effect.

The luminance qualities of an object will only be perceived by an observer after the reflected light has stimulated their retinal cells and information passed to the optic cortex of the brain via the optic nerve. At this point the concept of the body's brightness is invoked which can be seen as the subjective aspect of a body's luminance.

We can see from this basic description of the eye that differences in light and colour levels have a physiological and psychological effect on the perceiver.

The point in question, in this thesis, with regards to environmental stimuli, is what physiological and psychological effect, if any, can change in our stimuli perception have on us, and how could this affect the interview environmental interaction.

3.2.4 Physiological and Psychological Research into Light

Numerous experiments with animals have shown that differences in the lighting and/or colour within the environment can have an effect on the users of that environment. (Bissonnette 1939, 1941; Wurtman 1964, 1967, 1968).

Cunningham (1979) offered evidence from several studies that sunlight improves mood. Boyce (1975) reported people's preference for sunlight to artificial light. Thorington (1975) raised

the possibility that artificial light, which differs from sunlight in its spectral distribution, may be a negative influence on mood. Whilst Hellman (1982) reported cases in which a lack of sunlight was thought to be a factor in depression, jet-lag, and sleep disorder.

Logan (1947, 1963, 1965, 1968) quoting his own research and that of others pointed out that light dilates the blood vessels, and increases circulation, thus ridding the body of toxins and lightening the load on the kidneys. He also points out that the haemoglobin in the blood will be increased by light and decreased by darkness.

Wurtman op. cit. put forward the view that light is the most important environmental input, after food in controlling bodily function.

3.2.5 Artificial Light

Artificial light in the majority of cases is produced by incandescent filament lamps. The light is produced by electrical heating of a filament or combustion of gases within a thin mesh mantle and gas discharge lamps and is produced with the passage of electric current through the gas.

The main types of incandescent filament lamps are:-

a) High intensity discharge lamps (H.I.D.)
b) High and low pressure sodium lamps
c) Fluorescent lamps

Hopkinson and Collins (1970) suggested that their data confirms the generally held opinion that people with poor eyesight benefit more from increased levels of lighting than do people with normal sight.

3.2.6 Illumination Levels

I have outlined in Figure 9 some of the illumination levels for different types of work as suggested by the Illumination Engineering Society Code (1973).

Type of Work Area	In Lumens/Sq.Ft.
Storage areas with no continuous work	150
Rough Work (rough machine & assembly)	300
Routine Work (office, control room)	500
Demanding Work (Plan drawing, inspection)	750
Fine Work (colour discrimination, etc)	1000
Very Fine Work (hand engraving, etc)	1500
Minute Work (inspection of fine assembly)	3000

I.E.S. Recommended Illumination Levels

We can see from the extract from the I.E.S. code and the work of Hopkinson and Collins op. cit., that the amount of light should vary depending on the task at hand, the person involved and the environment itself.

Certain aspects of light distribution can and does have an effect on our perception of the environment.

3.2.7 Glare

One of these aspects is the problem of glare. Glare is a reducer of visual efficiency and an agent for visual fatigue. Glare is caused whenever one part of the visual field is brighter than the level to which the eye has become accustomed.

Glare is commonly described as being of two types, disability glare and discomfort glare. The effect of both types of glare may cause distraction, and reduce performance.

3.2.8 Disability Glare

Disability glare is caused when there is direct interference with visual performance and discomfort glare is when the stimulus causes discomfort, annoyance, irritation or distraction.

Hopkinson and Collins point out that the effect produced by a glare source will be the same whether the source is a small source of high luminance, or a large source of low luminance (e.g. a dark sky seen through a large window can have the same effect as a small intense light bulb). Hopkinson and Longmore (1959) demonstrated that the eye makes jerky movements towards the brighter area in the visual field. This Purkinje effect which can be caused by the photoropric effect of glaring (Murrell 1971) was described earlier in this section and can lead to fatigue.

3.2.9 Discomfort Glare

Discomfort produced by glare appears to have a different physiological origin than does disability glare. Hopkinson (1956) demonstrated a link between the level of discomfort and the activity of the eye muscularsture with the control of the iris. Hopkinson concluded that the experience of discomfort was due only in part to the conflict which arises between the requirements of the area of the retina, stimulated by the glaring source, and those receiving lower levels of illumination for pupil control.

3.2.10 Glare Formula

From numerous studies (Murrell 1971, Luckiesh and Guth 1949, Hopkinson op. Cit.), a modern glare formula which has become generally accepted has been produced by the I.E.S. Figure 10 shows the suggested reflectance levels in order to reduce glare discomfort. The recommended reflectances for surfaces should range from about 20% for floors, to 25-40% for furniture, to 40-60% for walls, to 80-90% for ceilings.

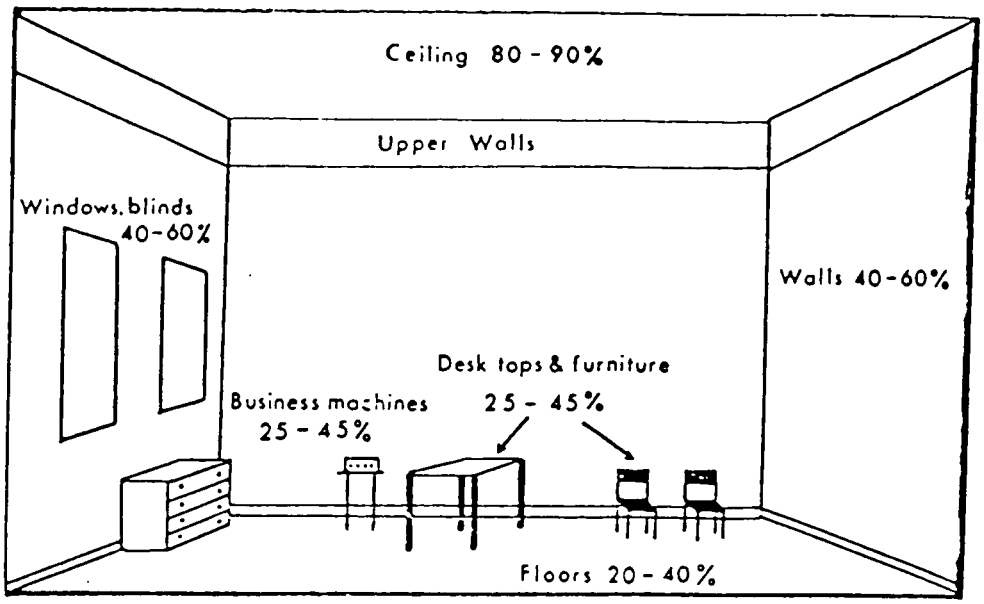


Figure 10

(Adapted from I.E.S. Recommended Reflectance Levels)

3.2.11 Spectral Distribution of Lighting

Ott (1973), theorised that light outside of the visible region of the spectrum, such as ultra-violet or infra-red affects the endocrine system. Ott helped to develop a fluorescent bulb that closely approximates the distribution of wavelengths in natural sunlight.

3.2.12 Up Lighting

Other research being carried out at the Xerox Corporation, New York State, by Alan Head of Corneill University, into ways of reducing stress from glare, has led to the development of a system of lighting known as up-lighting. This type of lighting replaces the normal type of fluorescent tube which hangs from the ceiling and casts is light downover, thus itself producing a glare source (especially in rooms with low ceilings), to a lighting system where

the light is reflected up over onto the ceiling giving an even overall light source. A lens spreads the light over the ceiling which reflects it giving a soft bright illumination without any shadows. This type of lighting should reduce the shadow effect of normal lighting and glare.

3.2.13 High Frequency Lighting

Wilkins et al. (1988) pointed out that headaches and stress could be caused by the fact that the fluorescent lighting in offices were pulsating twice every second as triggered by our AC electricity supply. Whilst the pulsations of the light are not apparent, Wilkins demonstrated that in fact our visual system does respond to these pulsations. In an experiment where the normal fluorescent tubes were replaced by tubes that pulsated at a rate of 20,000 times per second (such a rate not being detected by our visual system), Wilkinson reported that reported cases of headaches and eye strain were more than halved under the high frequency lighting. He also reported that headaches tended to decrease with the height of the office above ground thus increasing natural light.

3.2.14 Summary

The design of illumination systems can have a marked impact on the performance, comfort and responses of those people who operate within the illuminated environment. A light source of high or low intensity should be placed out of sight and properly baffled with louvers or lenses.

The introduction of up-lighting and high frequency lighting should be given serious consideration.

It is apparent from this review that light can and does have an effect on both our physiological and psychological well being. Within an interview environment consideration should not only be given to the amount of light present, but also the source and type of light distribution.

These aspects of lighting are taken into consideration and discussed in the methodology and results chapter (Ch.4) and the discussion chapter (Ch.5).

3.3 Colour

3.3.1 Introduction

With reference to human vision, the term 'colour' may be considered to have four distinct meanings, depending on which domain of the visual process is under discussion.

Three of the domains, the physical, the physiological and the psychological are "real" in the sense that each represents an assemblage of experimental facts. In the first two, purely objective procedures are used, and the latter uses primarily subjective techniques (Sheppard 1968). The interrelationship of these domains are indicated in figure 11.

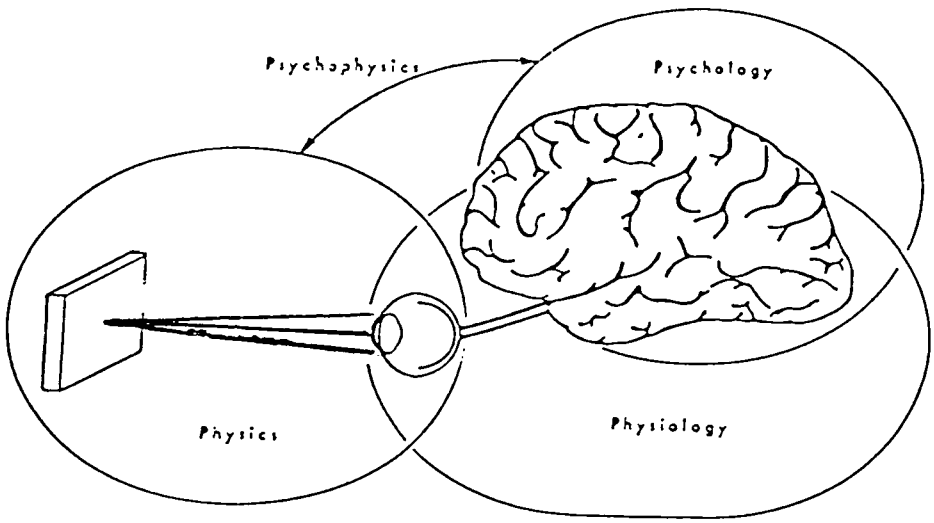


Figure 11

Four Domains of Visual Process

(Adapted from J.J. Sheppard (1968)
Human Colour Perception p.10)

3.3.2 Spectral Distribution

Support for the notion that the spectral distribution of light has psychological effects is put forward by McManus, Jones and Cottrell (1981), who point out that there is evidence of a consistency in the affective appraisal of colour, that people tend to prefer 'cool' colours (blue and green), over 'warm' colours (reds and yellows). Consistency has also been found in the rated arousing quality of different colours (Walters, Apter, & Sveback 1982). People rate long-wavelength colours as more arousing than shorter-wavelength colours (Wilson 1966).

It is a current belief that a hot shade of pink can quell anger. A U.S. Naval correction centre, the Santa Clara County jail, the San Bernadino County youth centre have painted their cells hot-pink, and some clinicians have used pink to tranquillize their patients (Schauss 1979). Whilst the colour hot-pink appears to have a tranquillizing effect, it would appear from unconfirmed reports that this effect is short lived and once a person has become acclimatised to the environment (approximately 20-30 minutes), the calming effect wears off. Whilst the effect may only be short lived, it does indicate the effectiveness of environmental stimuli. (X-Ref Review of Police Literature Ch.1 p.27).

Birren (1969) in his book, Light Colour and Environment, points out that in the main, colour effects tend to be in two directions towards red and towards blue, with yellow or yellow-green region of the spectrum more or less neutral. Further, these two major colours induce different levels of activation both in the autonomic nervous system, and in the brain.

Individuals are presumed to feel warmer in an area which is either lighted, painted or furnished in a colour scheme in which red predominates, as compared with an area in which blue is the prevailing colour.

However, experimental studies which relate thermal preference to colour, show no conclusive results (Berry 1961). Fanger, Breum and Jerking (1977), concluded that the effect of colour on man's comfort is so small, that it hardly has

any practical significance. Fanger (1970), rightly points out that any influence which colour has on the thermal sensation must be of a 'psychological nature'.

Goldstein (1942), noted that judgement could be affected by colour. He pointed out that time was likely to be overestimated under red light, and underestimated under green or blue light. Goldstein also pointed out that red seems to have an exciting influence, whilst blue seems to relax people.

Gerard (1958) experiments with colours gave the following results:

a) Blood pressure increased under the influence of red light and decreased under the influence of blue light.

b) Respiratory movements increased during exposure to red light and decreased during blue illumination.

c) The frequency of eyeblinks increased during exposure of red light, and decreased during the exposure to blue lights.

3.3.3 Design and Colour

There are a number of conventions, preferences and psychological associations related to colour which have become accepted by North Americans and Western Europeans (not necessarily true of other cultures), with regards to the effect of colour on our perception.

McCormick et al., (1984), puts forward the view that the following factors, with regards to the use of colour in design, should be considered:

a) Red, orange and yellow colours suggest warmth and stimulate gaiety.

b) Green, blue, blue-green suggest cold, are less stimulating and appear soothing.

c) White makes an object appear large.

d) Light colours make an object feel lighter in weight.

e) Black suggests gloom and boredom.

f) Red and orange indicate danger.

g) Cool colours on side walls and warm colours on the end wall, makes a long narrow room seem wider.

h) Low rooms seem higher when upper walls and ceilings are of similar light colours.

Luckiesh and Guth (1949), point out that with regards to visibility under different light sources, that yellow is in the region of maximum selectivity, the brightest portion of the spectrum. It is without aberration (that is, the eye normally focuses it perfectly), and is psychologically pleasing.

Birren op. cit., makes the following comments with regards to office colours:

1. Walls should not be white in a work environment as white makes it difficult to concentrate on anything else because it may constrict the pupil opening of the eye, fog vision, introduce tiring glare.

2. Deep colours on the other hand, may cause details to be glare sources, open the pupil of the eye too wide, and hence lead to visual fatigue.

3. An occasional end wall in a softer hue is both aesthetically and physiologically desirable.

4. Good colours for general offices are soft yellow, coral and chartreuse, for a warm effect. Also appropriate and more refined, would be sandtone and beige. Oyster white would be cooler and so would light green and aqua. In rest rooms rose, pale gold, fern green, colonial green, smoky blue are all suitable colours.

3.3.5 Summary

We can see from the literature quoted that light and colour can affect our body functions. Colour and brightness can have two different visual patterns of physiological and emotional effects. Where there is high brightness and warm colours, attention will extend outwards to an environment, and this reaction may be favourable for the performance of muscular tasks. Where there is lower brightness and cooler colours, the environment will be less

distracting, human attention will be directed inward, and the reaction here will be favourable for more exacting visual and mental tasks.

In the main, the response to colour tends to be two directional, towards red and towards blue, with the yellow or yellow-green region of the spectrum more or less neutral.

It is possible to see that colour as well as light can have a physiological and psychological effect on our perception of the environment. The effect of colour within the interview room environment, is given further consideration in the methodology and result section (Ch.4) and reviewed in the discussion section, (Ch.5).

3.4 Sound

3.4.1 Introduction

In order to understand the way in which sound can have a psychological effect on our perception, it is necessary to have a basic understanding of both the human hearing system and sound itself. This section outlines the basics of the hearing system, how sound is measured, the types of sound that affect human responses, and considers the psychological aspects of noise.

3.4.2 The Ear

Anatomically the ear is divided into three, the outer, the middle and the inner ear. As shown in the simplified diagram of the ear. (Figure 12).

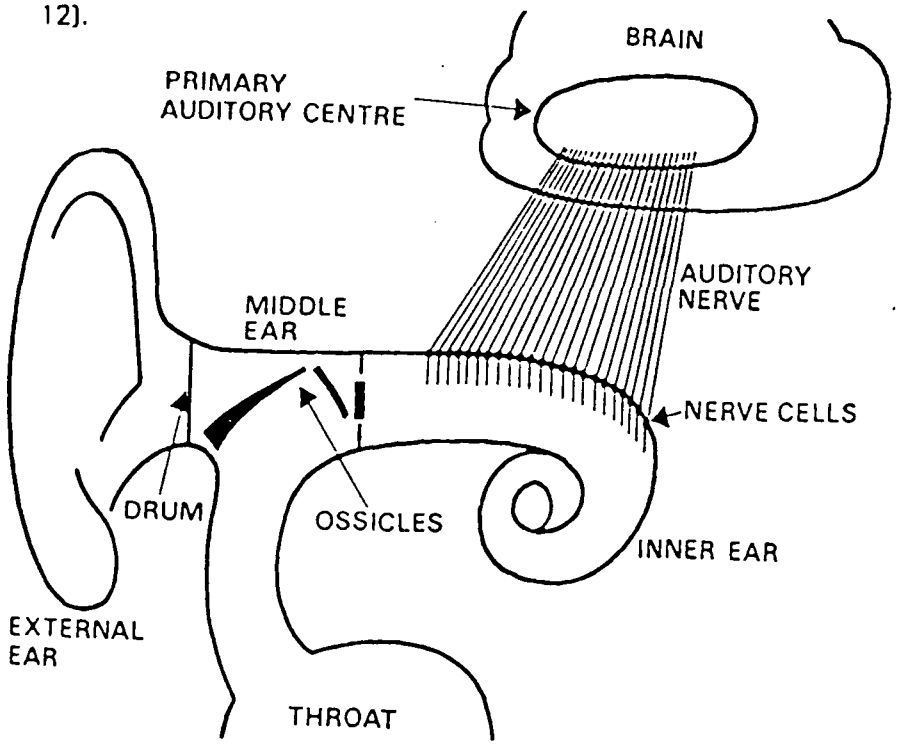


Figure 12

The Ear

The outer ear channels sound waves to the ear drum which transforms the energy of sound waves into movements of the middle ear's set of small bones which are called the ossicles. One of these bones acts on the oval window, which is a membrane in the inner ear, which seals one end of a spiral canal system. As the window moves in and out in response to the bones' movements, it generates pressure waves in the fluid in the spiral canal system, which deform a membrane running along the length of the canal. The deformation is sensed by the organ of corti, which is attached to the membrane and forms a termination to the auditory nerve. About 20,000

hair cells, each one being sympathetic to a particular frequency or group of frequencies, protrude into the lymph of the inner ear. Each 'hair' is connected to a nerve cell which in turn combine with other such cells to make the auditory nerve leading into the primary auditory centre of the brain itself. When the organ of the corti is stretched, the membrane distorts, generating nerve impulses which travel along the auditory nerve to the higher centres of the brain. Here they are decoded and interpreted as sound.

Sound can be described as a pattern of energy represented as condensation and rarefaction of molecules in an elastic medium. The sensory experience resulting from the physical energy change, stimulating our auditory and neurological mechanisms.

3.4.3 Hearing

Normal hearing is regarded as the ability to detect sounds in the audiofrequency range 16-20,000 Hz. However, individual hearing ability in man varies. Some of these variations being caused by such factors as:-

1. Different environmental influences (Roberts & Bayliss 1967).

2. Age of person concerned (Glorig & Nixon 1962).

3. Psycho-physiological state of the individual (Broadbent 1971).

4. Sound pattern reaction (Kryter 1970; Glass & Singer 1972).

Some of the factors mentioned above will be discussed further but it is worth considering at this stage, just how we measure sound levels in order to evaluate their effects.

As stated, normal hearing is regarded as the ability to detect sounds in the audiofrequency range 16-20,000 Hz. A sound level meter is used to weight sound pressure level measurements as a function of frequency, approximately in accordance with the frequency response characteristics of the human ear. That is to say that the energy at the low and high frequency is de-emphasised in relation to energy in the mid-frequency range.

3.4.4 Sound Measurement

Sound is hard to measure accurately, and there are several different scales for expressing sound levels. The decibel scale measures the intensity of sound pressure. It is a logarithmic scale, so that an increase of 10 decibels (10dB) means a tenfold increase in sound pressure. But the sounds we hear are a combination of pressure and frequency (cycles per second), and it is this combination we interpret as 'loudness'. So another appropriately modified scale is used, in this a scale usually written as dB(A), an increase of 10 decibels represents a doubling of loudness.

The instrument used to monitor sound levels is a sound level meter which is usually a portable, self contained instrument incorporating a microphone, amplifiers, a voltmeter and attenuators, the whole of which can be calibrated to read sound pressure levels directly. Intensity levels and power levels can be derived from sound pressure level measures if required. Most precision sound level meters incorporate three selectable filters labelled A, B, C (IEC, 1973a) and sometimes a D-Filter (IEC, 1973b). The A, B, C filters are intended to match the ear-response curve at low, moderate and high loudness respectively. The A-Filter usually provides the highest correlation between physical measurements and subjective evaluations of noise (Young & Peterson, 1969). Levels on the A-Scale are also measured in decibel units and are commonly expressed as dB(A).

3.4.5 Types of Sound

The main types of sound that affect human responses are:

1. Infrasound.
2. Audible sound.
3. Ultrasound.

Sound below audible sound levels and described as infrasound can be produced by any pulsating or throbbing piece of equipment normally encountered in the workplace such as ventilation systems etc.: (Leventhall & Kyriakides, 1976). Infrasound may cause psychological and physiological change (Tempest & Bryan, 1972; Evans & Tempest, 1972).

On the other hand Harris and Johnson, 1978, suggest that infrasound (7hz at up to 142dB) had no effect on such cognitive tasks as serial search or counting. Whilst Moskowitz, 1971, suggested that reaction time as effected by infrasound produced changes to the reaction time similar to those produced by alcohol.

The effect of the levels of infrasound encountered in normal working conditions are not clear. Harris, Sommer, and Johnson, 1976, have concluded: "Regardless of whether performance, nystagmus (loss of balance), or subjective measure are considered, it seems certain that the adverse effect of infrasound reported at low intensity levels either do not exist or have been exaggerated."

Within the audible sound level band effective verbal communication depends on both the ability of the speaker to produce the correct speech sounds, and on the ability of the listener to receive and decode these sounds.

A noisy environment is likely to interfere with this last stage in the speech transmission, due to an effect which is described as 'masking'. The American Standards Association, 1960, defines auditory masking as 'the process by which the threshold of audibility for one sound is raised by the presence of another' Deatherage and Evans, 1969, have redefined the A.S.A. 1960 definition as 'The process by which the detectability of one sound, the signal, is impaired by the presence of another sound, the masker."

If we consider the concept of the signal and the masker then the following points should be borne in mind:

1. A difference of 1dB(A) is not generally detectable.

2. A difference of 3 - 5dB(a) is noticeable.

3. A difference of 10dB(A) corresponds to a doubling or halving loudness.

Having looked albeit briefly at our ability to hear sounds and having considered some of the effects of these sounds, I would like to look further at the effects of unwanted sound on our ability at both a psychological and physiological level.

3.4.6 Noise

Noise is defined as unwanted sound. This definition enables a sound source to be considered as 'Noise' or 'Not Noise' solely on the basis of the listener's reaction to it. Burrows (1960), defined noise in an information-theory context:

He proposed that 'Noise is that auditory stimulus or stimuli bearing no informational relationship to the presence or completion of the immediate task.'

There are two aspects of noise annoyance that can be considered the physical aspect, and the subjective aspect, both of which give reasons why noise can cause annoyance.

Two noises may have the same intensity but cause different degrees of annoyance due to:-

a) Frequencies which they contain.
b) Duration of the noise.
c) Meaning to the listener.

3.4.7 Noise Stimulus

Kryter op. Cit. suggests that there are five aspects of noise stimulus that can be identified as affecting its annoyance level:

1. The spectrum content and level.
2. The spectrum complexity.
3. The sound duration.
4. The sound rise and time.
5. The maximum level reached by impulsive sounds.

On the subjective aspect of noise annoyance overhearing conversations was advanced as a cause of annoyance by Cavanaugh et al. (1962). Proposing the concept of 'speech privacy', they suggested that the disturbance might be caused by the worry that if one can hear other people talking, then one can also be heard by other people. Nemecek & Grandjean, (1973), also suggested that it is the degree to which intruding speech can be understood rather than its loudness, which destroys the feeling of privacy.

3.4.8 Noise Annoyance

There are no generally accepted measures of noise annoyance (McKennell & Hunt, 1966).

Individuals react differently to noise and have different annoyance levels and responses but as a general rule, as noise increases, man becomes more irritable and therefore more liable to irrational and neurotic behaviour (Rourke, 1960).

Wyon (1970), showed that classroom behaviour and the performance of schoolwork were adversely affected by intermittent noise even at a level below that prevailing in the classroom. He proposed that it is the disturbance and the distraction caused by audible noise that affect people, rather than the dB level per se.

Hockey (1970), showed that sometimes performances on high priority aspects of a task, could be enhanced while performance on low priority aspects was diminished by noise.

There is also some evidence that an individual performing a task becomes less sensitive to noise, if the rate of arrival of the signals is low, if the individual has a low level of anxiety, or if the noise is felt to be under the person's own control, rather than imposed upon him. Basically, there are 'unarousing' conditions (Broadbent 1971).

Noise can cause activation of the autonomic nervous system through 3 rather different mechanisms or neural processes:

1. Unconditioned defence or startle reflex responses (Molinie, 1916).

2. Cognitive meaning such as fear of injury from the source of the noise. (Sokolov, 1963).

3. Psychological activation of the autonomic nervous system by the higher brain centre. (Hebb, 1955).

Certain noises, especially those of an impulsive nature, may cause a startle reflex, even at low levels. The startle as proposed by Molinie op. Cit. occurs primarily in order to prepare for action appropriate to a possible dangerous situation signalled by sound. This reflex consists of a contraction of the flexor muscles of the limbs and the spine and a contraction of the orbital muscles. It may also be followed by an orientating reflex that causes the head and eyes to turn towards the source of a sudden sound in order to identify its origins. (Thackray, 1972).

The startle reflex is often followed by a fright reaction which affects the circulatory system and skin conductane.

Sokolov op. Cit. suggested that there were 2 reflex types of responses that are built into man:

1. The orientating response.
2. The reflex response.

The orientation response, is similar to the reflex quoted as the Molinie startle response, wherein the autonomic nervous system responds to any sound stimulus in order to alert and responding to the stimulus situation. The reflex response is described as defensive response that prepares the organism for flight or fight. Sokolov also suggests that whilst the orientating response and reflex response occur to meaningless sounds or noises, as the meaning becomes clear the response can become inhibited or habituated.

Hebb op. Cit. suggests that changes in stimulation not only initiate appropriate cortical responses, but also activate or arouse areas of the cerebral cortex other than those involved in the response. The wider arousal activity originates in the reticular formation, a portion of the central nervous system, and affects the person's psychological state, as well as their physiological system. Too low a level of arousal can mean complete absence of activity and therefore poor performance and too high a level can cause an over-reaction to the distraction leading to incorrect responses.

3.4.9 Mental Filters

According to a widely accepted theory in psychology, the human sensory system receives more information than can be analysed by the higher centres. In order to screen out useless information such as noise, the concept of a mental "filter" has been developed (Broadbent op. Cit.). This filter, however, has the following limitations:

a) It tends to reject or ignore unchanging signals over a period of time.

b) An individual's state of arousal, or fatigue, may hinder the mental filter's ability to discriminate.

c) The filter can be overridden by irrelevant stimuli that demand attention because of novelty, intensity, unpredictability, or learned importance.

There is emerging data (Lundberg & Frenken-haeuser, 1978), that the psycho-physiological aspects of noise are elevated when individuals expand effort to cope with other stressors during task performance conditions.

3.4.10 Noise Levels

Other factors that should also be taken into account are:-

1. The limits generally set for noise in order to avoid significant annoyance because of interference with speech communication and sleep are of the order of 35 to 75 dB(A) at the position of the listener, for 100% intelligibility, which is considered desirable for indoor listening conditions, a background noise of less than 45 dB(A) is recommended by United States of America Environmental Protection Agency (U.S., E.P.A., 1974).

2. Indoor sources of noise can originate from a variety of sources such as air conditioning, fans, air outlets, building structure noise, doors, people walking around and talking, etc.

Kerse (1975) in his review of the law in relation to noise, demonstrated as shown in Figure 13, some of the commonly encountered noise levels.

Noise clearly has an effect on overall performance, this can be due to masking of acoustic cues or effects of the processing within the central cognitive system, but the effect of noise does not act in isolation and account should be taken of other environmental stressors.

Wohlwill et al., (1976) supports the contention that individuals are able to cope with noise through increased concentration and effort a long as it does not demand more mental capacity than the task being undertaken.

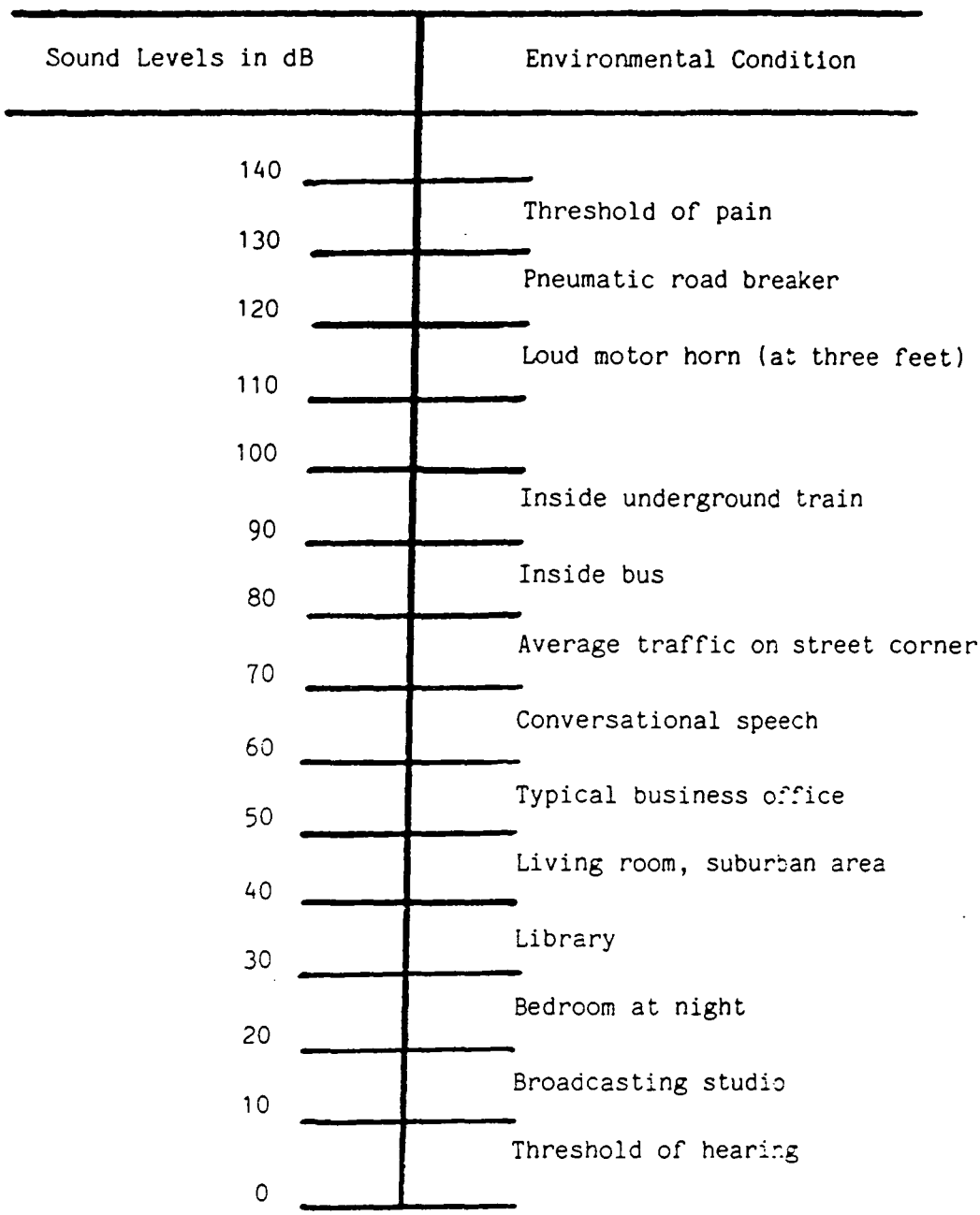


Figure 13

Adapted from C.S. Kerse (1975) The Law Relating to Noise also found in P. Brennan (1975) Noise and Music p.6 Greater London Intelligence Quarterly)

3.4.11 Summary

In conclusion we can see that exposure to noise may evoke numerous reflex responses. In order to carry out a study of the effects of noise within an environment, we must take account of not only the objective data, but also the subjective analyses of the environment concerned. The main aspects being:-

1. The highest correlation between physical measurement and subjective measurement for evaluating noise levels is the 'A'-scale on the sound level meter. (3.4.4 p.97).

2. A difference of 1dB(A) in sound levels is not generally detectable. (3.4.5 p.99).

3. A difference of 3 - 5dB(A) is noticeable. (3.4.5 p.99).

4. Background noise of less than 45dB(A) is desirable for indoor listening. (3.4.10 p.99).

5. Annoyance - induced capacity of a noise depends upon many of its physical characteristics including its intensity, spectral characteristics, variation of these with time and the meaning to the listener. (3.4.6 p.100)

6. Overhearing speech can cause a lack of 'Speech Privacy' and create annoyance. (3.4.7 p. 100).

7. Whatever scale is used to express noise exposure, it must be recognised that at any level of noise annoyance, reaction will vary greatly because of subjective and psychosocial differences. (3.4.8 p.101-106).

The effect of noise within the police interview environment will be considered further in the methodology and results section (Ch.4) and reviewed in the discussion section (Ch.5).

3.5 Temperature and Humidity

3.5.1 Introduction

The perception of temperature is due primarily to the relationship between the temperature of the external environment and core temperature of the body.

The natural external environmental temperature on earth varies over the approximate range -60'C to 60'C, whilst the body maintains a core temperature within a restricted range around 37'C.

Although man can survive extremes of temperature, to live comfortably and work efficiently, the environmental temperature should be such that the body can maintain its core temperature in a state of equilibrium with the environment without a necessity for change in either of these factors.

If the core temperature exceeds the restricted range around 37'C, serious disorder of heat stroke and heat exhaustion may occur that can lead to death (Bell & Greene, 1982).

If there is a difference in temperature between a person and the environment, there will be an interaction resulting in energy being transferred from one to the other.

3.5.2 Physiological Response

The hypothalamus serves as the neural controller for human thermal regulation process. It utilises sensory information from core, muscle, skin, and chemoreceptors to control sweating mechanisms, vasomotor changes in the blood vessels, and motor neurons of the muscles, which in turn, affect the level of temperature in the body itself. (Hockey 1983). A person's reaction to temperature difference basically occurs when a group of neurons in the pre-optic area of the hypothalamus, which effectively measure blood temperature, detect a difference in environmental/body temperature and signal the hypothalamus which responds by stimulating heat-loss or heat-gain actions in the body.

The heat-gain actions consist of the blood vessels in the skin being contracted causing less blood to flow in the skin surface, thus reducing heat loss to the environment.

The converse occurs with the heat loss action, blood is directed to the surface of the skin to maximise heat loss to the environment. The principal methods by which heat is lost are, in

order of decreasing magnitude, radiation, evaporation and convection. Guyton (1974) quotes the respective proportions, 60%, 22%, 15%.

Whilst perspiration is a defence mechanism the effects can be harmful and excessive perspiration can upset electrolytic balance in the body. Hockey op. Cit. also points out that 'another important physiological response to temperature relates to the ability of the thermoregulatory process to maintain, over a broad range of temperatures and at a given work load, a relatively constant storage of heat. With increasing environmental temperature, however, the point is reached where the prescriptive zone is exceeded and an environmentally driven zone is entered (Lind, 1963), and a significant increase in core temperature is initiated. This relationship has served as the basis for describing threshold values for exposure to hot occupational environments (Ramsey, 1975).

Factors that affect the exchange of heat between the body and the environment are clothing, acclimatisation, relative humidity, air movement and the activity of the individual within environment.

3.5.3 Clothing Effects

Clothing is an external factor that is important to thermal comfort. If the environment is cold then we tend to increase our insulation by putting on more clothes or vice-versa where the environment is too warm.

The normal measurement for this increase in insulation value is the 'clo'. One clo is approximately equivalent to the thermal insulation required by a resting nude persons to maintain comfort in a normally ventilated room at 21'C and 50% relative humidity. Clothing consisting of a long sleeve shirt, trousers, and jacket represent about 1 clo. (Hockey op. cit.).

3.5.4 Acclimatisation

Exposure periods of at least 2 to 4 hours per day over a period of 5 to 10 days is generally accepted as the time period required for acclimatisation. Acclimatisation to a given environment will involve both physiological and psychological processes. The physiological adjustments show a significant lowering of the body temperature and heart rate, an increase in the efficiency of the sweating mechanism.

The psychological aspect of acclimatisation can affect a person's perception of the environment for the work in question.

As ambient temperature rises there is a linear increase in negative effect that is accompanied by greater hostility and aggression. Baron (1978), points out that at approximately 36'C the hot setting becomes so negative or noxious that instead of aggression, behaviour to withdraw or escape from the hot environment predominates. Thus, at some moderately high temperature aggressive behaviour actually drops off.

Early work on temperature shows that tolerance for heat begins to decrease somewhere around 25'C (Buettner, 1962).

Pepler, (1963),; Wing (1965), and Viteles (1966), provide no evidence to suggest that temperatures below 36'C have any effect on mental task performance.

Murrell (1971), suggests that skilled performance will remain at a satisfactory level to about 27'C. Leigh (1988) suggests that in order to work efficiently a temperature of about 20'C is required. Studies carried out at the Building Research Establishment to investigate the effect of warm conditions, suggest that warmth discomfort begins at about 24 - 25'C.

Baron op. Cit., reported that for moderate clothing and 45% relative humidity, the range of comfort for most persons is 24'C to 27'C. The American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE), in 1972 reported that an air temperature of 25.5'C at moderate relative humidity of 45% and wearing light clothing or shorts, is considered mid-comfort range for sedentary work.

In the United Kingdom the generally accepted indoor temperature range for efficient working conditions is, 18'C to 23'C. (Humphreys & Nicol, 1970).

Under Section 2 of the Health & Safety At Work Act 1974, employers have a duty so far as reasonably practicable, to ensure that the temperature of the workplace is not too hot or

too cold, as this will have an adverse effect on welfare and possibly health as well as a decrease in efficiency. A minimum temperature of 16'C should be established within one hour of the commencement of work.

3.5.5 Humidity

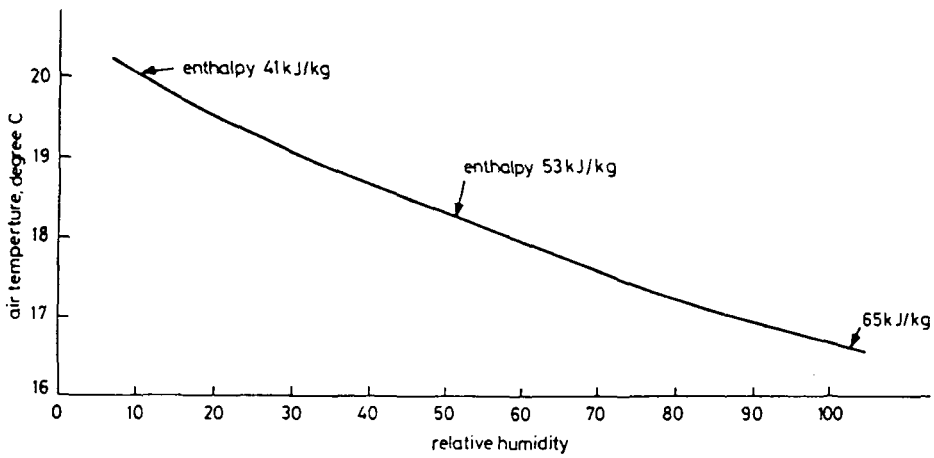
Relative humidity is a measure of the degree of saturation of the air at any dry-bulb temperature. It is an expression of percentage of saturation, with 100% relative humidity indicating saturated air and 0% relative humidity indicating perfectly dry air.

Relative humidity is related to air temperature. As a gas, air expands with heat. A certain weight of air will always occupy the same volume if temperature and air pressure remain constant. If air temperature is increased, volume will increase and thus moisture retaining ability will increase too, whilst actual moisture content decreases. Humidity affects the rate of evaporation from the skin so that we feel comfortable at a low temperature if the humidity is high and also comfortable at a high temperature if the humidity is low. (Rohles, 1965).

Leigh op. Cit., points out that 'It is a matter of common observation that we can feel too hot or too cold in a room whose air temperature is being controlled accurately at (say) 21'C. The reason is that we feel hot or cold dependent on the environmental factors; air temperature, air humidity, air velocity and presence of

radiation. The explanation of these effects is as follows. Humidity affects the rate of evaporation from the skin so that we will feel comfortable at a low temperature if the humidity is high. Air velocity affects both the rate of evaporation from the skin and the convection loss.' If we take into account air temperature relative humidity and air velocity, we can define the effective temperature of the environment.

The example in Figure 14 shows the differing combinations of air temperature and relative humidity that yield the same effective temperature. It is clear from the figure that a considerably lower room temperature will be found comfortable by the occupants in a room with high relative humidity. (The air velocity in this example was zero rated).



Combinations of air temperature and relative humidity to yield a constant effective temperature of 17°C
With indication of enthalpy at some selected combinations

Figure 14

Relative Humidity Level Scale

(Found in J.R. Leigh (1988) Temperature, Measurement and Control. p.157).

The majority of people are reasonably comfortable within a relative humidity range between 30% to 70%, the ideal being 50%. A survey by Black and Milroy (1966), on office workers suggested that the relative humidity should not exceed 50% when the air temperature rises above 22'C.

3.5.6 Atmospheric Conditions

The requirement to control the temperature inside a wide variety of buildings in order to counteract the effect of wide ranging cyclic (diurnal and seasonal), and random external temperature changes is obvious, but whilst heat regulation appears to be a simple concept, it is a complex issue in real life as physiological reactions are different according to different stress factors.

McIntyre (1981), emphasised that:-

'Decisions about the thermal environment in a building must be made at the design state.... it is no longer acceptable for the architect to call in the heating engineers only at the last moment.... the most important factors defining comfort in buildings is warmth'.

There are four atmospheric conditions which can affect human comfort:-

1. The temperature of the environment.
2. The humidity of the air.
3. Air purity.
4. Air movement.

The process of supplying fresh air to buildings in the proper amount to offset the heat, regulate the humidity, offset contaminants produced by people and deal with impurities such as smoke, is known as ventilation. Air conditioning is seen as a method of gaining control over atmospheric conditions within buildings in order to regulate the said atmospheric conditions.

3.5.7 Ions

The freshness of air seems to be related to ion content at the time. Molecules in air which have been tossed by wind scrub against one another with the result that electrons are scrubbed off some atoms and collect in excess on others. Positively and negatively charged atoms, called ions, are thus created, and the sense of freshness in air depends on ion content. Outdoor air usually has the ion content associated with freshness, while indoor air in crowded spaces does not.

Research is still inconclusive, with some evidence indicating that ions do have the predicted effect on self reported mood (Cherry & Hawkinshire, 1981; Hawkins, 1981; Tam, Poole, Galla & Berrier, 1981), but other studies showing less conclusive evidence (Albrechtsen, Clausen, Christensen, Jensen & Moeller, 1978).

First (1980) pointed out that one of the problems with isolating the effects of ions, is trying to isolate the ions from other physical and chemical compounds of the air.

What is known is that ion concentration affects the level of seratonin in the bloodstream (Krueger, Andriese & Kataka 1963, 1966, 1968; Krueger & Kataka, 1969), and seratonin is known to be a mood and emotion effector.

Merely circulating the indoor air with fans or blowers does not bring the ion content up to a satisfactory level.

The temperature and humidity of the interview environment will be discussed further in the methodology and results section (Ch.4), and the discussion section (Ch.5).

3.5.8 Summary

1. The body maintains a core temperature of 37'C (3.5.1 p.108).

2. Differences in temperature between a person and the environment results in energy being transferred from one to the other (3.5.1 p.109).

3. Physiological responses occur within humans due to temperature differences (3.5.2 p.110).

4. Factors that affect exchange of heat between the body and environment are clothing, relative humidity, acclimatisation and activity within the environment. (3.5.2 p.110).

5. The normal measurement for the increase in insulation value of clothing is the 'clo'. (3.5.3 p.111).

6. One 'clo' is equivalent to clothing consisting of a long sleeve shirt, trousers and jacket. (3.5.3 p.111).

7. As ambient temperature rises there is a linear increase in negative effect that is accompanied by greater hostility and aggression. (3.5.4 p.111).

8. The temperature range for efficient working conditions is 18'C to 23'C. (3.5.4 p.112).

9. Warmth discomfort begins at about 24'C - 25'C. (3.5.4 p.112).

10. Tolerance for heat begins to decrease around 25'C. (3.5.4 p.112).

11. 100% relative humidity indicates saturated air and 0% relative humidity indicates perfectly dry air. (3.5.5 p.113).

12. People are reasonably comfortable within a relative humidity range between 30% and 70%, the ideal being 50%. (3.5.5 p.115).

13. Relative humidity should not exceed 50% when air temperature rises above 22'C. (3.5.5 p.115).

14. Air conditioning is a method of gaining control over atmospheric conditions. (3.5.6 p.116).

15. Research with regards to the effects of ions in air is inconclusive. (3.5.7 p.116).

3.6 Spatial Behaviour

3.6.1 Introduction

This section takes account of human spatial behaviour and our ability to interact within environment.

3.6.2 Personal Space

The term personal space was first used by Katz (1937), and Heidiger (1950), who initially suggested the notion that each animal is surrounded by a series of bubbles that allow proper spacing between it and other animals.

The earliest work in this area was based primarily on the work of ethologists such as Lorenz (1955), Calhoun (1962), and ornithologists such as Howard (1920), Baine (1949), who focused on the spatial behaviour of animals and birds.

Work carried out by anthropologists such as Hall (1966), in the 'Hidden Dimension' and psychologists such as Sommers (1969), in 'Personal Space: The Behavioural Basis of Design', Argyle et al. (1965), in his work on eye contact distance and affiliation, together

with others made significant increases into the research of human spatial behaviour. In the 1960's and 70's, this area of research was further developed by such disciplines as sociologists, ecologists, geographers, psychiatrists and architects.

Zajonc (1965), pointed out that the mere physical presence of another person increases arousal. Middlemist, Knowles and Matter (1976), also pointed out that the closer another person is, the more arousing they become.

Stokols (1972), pointed out that when space exceeds the available supply, crowding occurs.

3.6.3 Distance Zones

The graphic illustration (Figure 15), shows the distance zones suggested by Hall op. cit. We can see that four main interactive areas as described by Hall are Intimate, Personal, Social and Public.

Hall hypothesised that Americans systematically use the aforesaid four spatial zones in their dealing with their everyday situations. These zones are described in the following way:

1. **Intimate Zone.** This zone spans 0 - 18 inches and includes a close phase (0 to 6 inches) and a far phase (6 to 18 inches).

2. **Personal Zone.** This zone ranges from 1.5 to 4 feet, with a close phase up to 2.5 feet and a far phase spanning the interval 2.5 to 4 feet.

3. **Social Zone.** This zone ranges from 4 to 12 feet, with a close phase of 4 to 7 feet and a far phase of 7 to 12 feet.

4. **Public Zone.** This zone extends beyond 12 feet, with a close phase of 12 to 25 feet and a far phase beyond 25 feet.
(X-Ref Review of Police Literature. Ch.1 p.16).

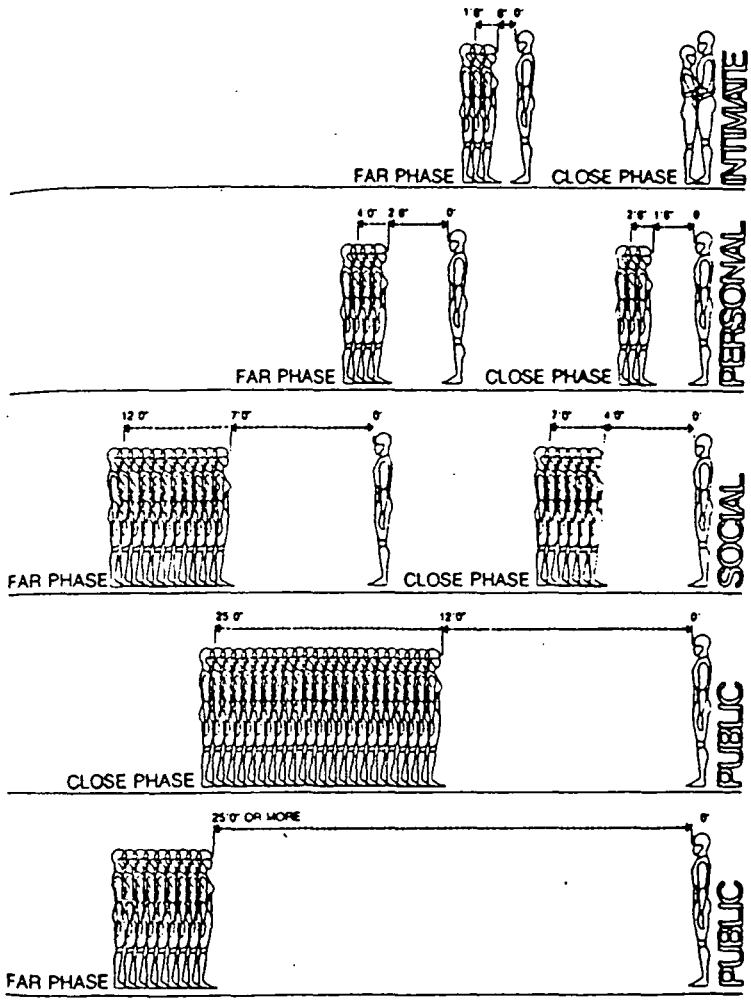


Figure 15

Personal Zones

Hall makes the following comments with regards to these zones:

Intimate Zone

At intimate distances, the presence of the other person is unmistakable and may at times be overwhelming because of the greatly stepped-up sensory inputs. Sight (often distorted), olfaction, heat from the other person's body, sound, smell, and feel of the breath, all combine to signal unmistakable involvement with another body.

Personal Zone

The distance (identified by Hediger as) consistently separating the members of non-contact species. It might be thought of as a small protective sphere or bubble that an organism maintains between itself and others.

Social Zone

This zone is acceptable for a range of contacts in our culture, but that beyond this distance, people lose the ability to communicate easily with one another.

Public Zone

This is a formal distance used on public occasions and is usually reserved for high-status figures.

Figure 16 (overleaf) shows queuing/buffer zone areas adapted by Fruin (1971). This view demonstrates the concept of the bubble of personal space surrounding people.

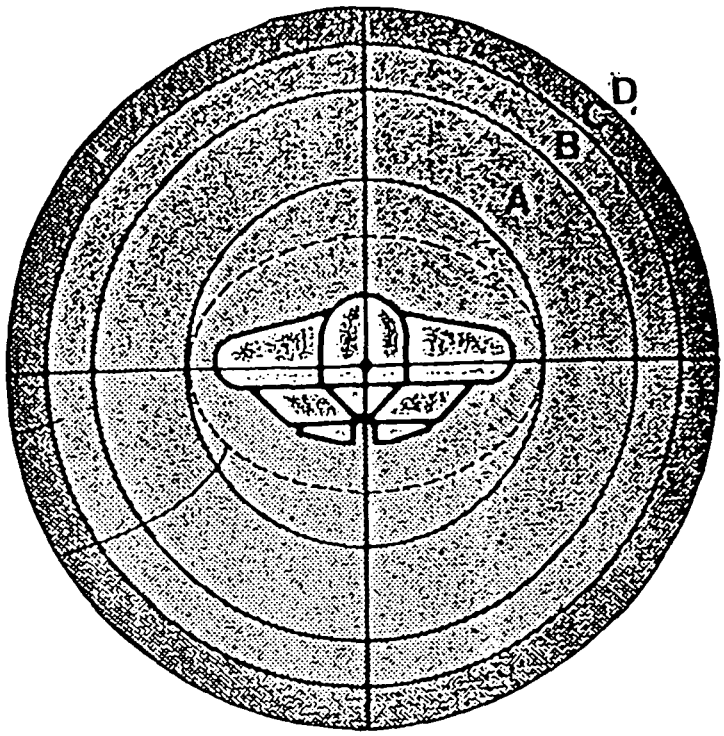


Figure 16

Queuing/Buffer Zone Areas

Zone 'A' - Touch Zone

The radius of this zone being 12in/30.5cm, an area 3sq ft/.28sq m. Below this area of occupancy, frequent unavoidable contact between people is likely. There is no possibility of circulation within this zone. Movement is restricted to shuffling.

Zone 'B' - No Touch Zone

The radius of this zone being 18in/45.7cm, an area 7sq ft/.65sq m. Contact between people can be avoided as long as movement within the area is not necessary.

Zone 'C' - Personal Zone

The radius of this zone being 21in/53.3cm, an area 10sq ft/.95sq m. At this spacing there is a full body depth separating standees. Limited lateral circulation between people is possible

by moving sideways between them. This is within the range of spatial occupancy that has been selected in experiments emphasising comfort standards.

Zone 'D' - Circulation Zone

The radius of this zone being 24in/61cm, an area of 13sq ft/1.4sq m. Circulation within queuing area possible without disturbing others.

Altman and Vinsel (1977), carried out an analysis of over 100 studies of interpersonal distance, or personal space from which they indicated general support for Hall's spatial zone hypothesis. They pointed out that people who interacted while standing typically used the far edge of the intimate zone (18 inches), or the near edge of the personal zone (18 - 30 inches). People who were seated were typically separated by about 2.5 - 4 feet, the upper boundary of the personal zone, or they used the lower boundary of the social zone (4 - 7 feet). These findings were stable across a range of conditions, such as sex differences, personal factors, and attraction between people. They concluded that Hall's ideas about spatial zones are well supported by empirical data.

Altmas and Vinsel also found that people typically reacted negatively to close approaches by others. They exhibited such behaviour as moving away, turning, looking away, and fidgeting, all of which reflect attempts to increase the psychological distance between themselves and the intruder.

Altman and Chemers (1980), summarise the results of Altman and Vinsel's analysis using the diagram, Figure 3. (p.51).

They make the following comments with regards to the analysis. 'The data are shown separately for people who were standing (open circles), and people who were seated (solid circles). It makes sense to distinguish between these conditions because seating arrangements are likely to involve somewhat greater distance between people than standing arrangements - that is, when distance is measured from body to body or chair to chair. Consider first the data for people who were standing. Here the most frequently used distance were in the far phase of the intimate zone and the near phase of the personal zone, averaging in the neighbourhood of 18 inches..... The second curve shows comparable information for people who were seated. Here we see a shift in distance; people tended to use the far phase of the personal zone and the near phase of the social zone. When people interacted in seated arrangements, the distance between (measured from body to body or chair centre to chair centre) was about 4 feet. This increase of about 1.5 feet from the usual standing distance.....

Furthermore, people seat themselves neither very close to others nor very far away. It is as if they knew and chose a normative and "acceptable" physical relationship to others. The stability of these findings reinforces the idea that personal space is an important mechanism used to regulate social interaction. In some respects

one can think of the space around one's body as an "ultimate" barrier that can be used to make oneself more or less accessible to another human being.'

Hayduk (1983), in an extensive critical review of research on personal space, concluded that projective measures of personal space correlate poorly with real-life behaviour. He pointed out that when projective data are excluded, it is evident that there is a gradual increase in the size of personal space between the ages of 3 and 21. He also reported that, recent data suggests that the traditional assumptions about cultural differences in personal space be viewed more cautiously, adding that findings relating to sex differences in personal space have been highly inconsistent.....

Several studies have found that various situational factors will also affect how males and females react to invasion of personal space. Patterson et al. (1971), suggested that males and females react differently to the invasion of personal space, from either the side or front. Fisher and Byrne (1975), whose findings were consistent with those of Sommer (1959), found that the direction (e.g. front or side) of the invasion of a male or female's personal space affected the subject's feelings towards the invader. The findings suggested that females reacted much more negatively to side invasion of personal space, whereas males reacted more negatively to frontal invasion. Aiello and Thompson (1980), pointed out from their research on distance stress that just as people experience distress as a result of distances

that are inappropriately close, females in particular have been found to experience discomfort and anxiety and react more negatively as a consequence of distances that are inappropriately far.

Sommer op. Cit. points out that personal space is a portable territory since the individual carries it with him wherever he goes, although it changes under certain conditions. (E.g. in a lift or in a tube train in the rush hour).

It is also known that there are cultural differences in spatial behaviour. People in contact cultures such as Southern Europeans, Latin Americans and Arabs maintain closer interaction distances.

This type of closer interaction not only involves closer proximity, but also larger amounts of touching and eye contact, and more direct body orientation. The members of the non-contact cultures, Northern Europeans, North Americans are less likely to interact in such an intimate way.

3.64 **Crowding**

Loo (1972), and McGrew (1970), put forward the view that crowding can only be defined in terms of changes in the number of people per unit of space (social density), or changes in the amount of area provided for a given number of people (spatial density).

one can think of the space around one's body as an "ultimate" barrier that can be used to make oneself more or less accessible to another human being.'

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As stated, Stokols (op. cit.), defined crowding as the psychological state when the need for space exceeds the available supply.

Numerous studies have found that crowding can have both physiological and psychological effects, some of these studies have shown:

Increases in blood pressure, heart rate, and skin conductance. (Evans 1978).

Negative effects such as tension, anxiety and stress (Sundstrom 1978).

Males tend to be more negatively affected, particularly under competitive conditions. (Sundstrom 1978; Epstein 1982).

Persons with external locus of control respond more negatively, to acute high-density exposure. (Baum & Paulus 1987).

Persons with large personal space zones also respond negatively to external locus of control. (Dooley 1978).

Negative effects in performance have been noted in several studies of crowding. (Rodin 1976).

This concept of personal space links in with that advanced in the police literature on interview technique as outlined in the police literature review section. (p.15-17). The concept of personal space and the Home Office guidelines on the size of interview rooms (p.24) is reviewed in the discussion section (Ch.5).

3.6.5 Furniture and Spatial Orientation

Russo (1967) on seating arrangements pointed out that the rating of seating arrangements by subjects along the dimensions of friendliness, talkativeness, intimacy and equality, correlated perfectly along the first three dimensions, with increasing physical distance. The indications were that the greater the distance the less acquaintance, friendliness, and talkativeness, except where increased eye contact countered the effects of distance and produced a greater psychological closeness.

A study carried out by students, under the guidance of Professor Richard Seaton at the department of architecture, University of California, Berkeley, on conversational distances adopted by subjects when furniture was placed at certain distances suggested that when couches were placed one to three feet apart, people sat opposite one another. Using the architect's concept of nose to nose distance, the subjects began to sit side by side when they were five and one half feet apart. Four chairs were also used in place of the couch, the subjects being given the choice between sitting five feet apart and across from one another or five feet apart, but alongside one another. The result supported the idea that people who want to converse will sit across from one another rather than side by side. However, the preference for sitting opposite was only found to be true when the distance across is equal to or less than the side by side distance. When

the distance across was greater than the distance side by side, most pairs sat side by side.

Hall op. Cit. points out that closer distances are adopted for more intimate conversations and at the closest distance, different sensory modes are used such as touch and smell, and vision, eye contact becomes less important.

Argyle and Dean (1965), put forward the view that people define an acceptable or appropriate level of intimacy they wish to have with another person they then use a blend of behaviour to achieve a state of "equilibrium" that reflects the desired level of intimacy. (E.g. body position, looking away, non-verbal communication, etc.).

Argyle (1983), in his book "The Psychology of Interpersonal Behaviour", discusses the manipulating of the physical setting (e.g. placing a desk to dominate the room, or arranging seats for intimate conversation). Argyle points out that seating orientation can signal interpersonal attitudes.

If person 'A' is sitting at a table, as shown in Figure 17 'B' can sit in several different places.

If 'B' is told that the situation is co-operative 'B' will probably sit at 'B(1)'.

If 'B' is told to compete, negotiate, sell something or interview 'A', 'B' will sit at 'B(2)'.

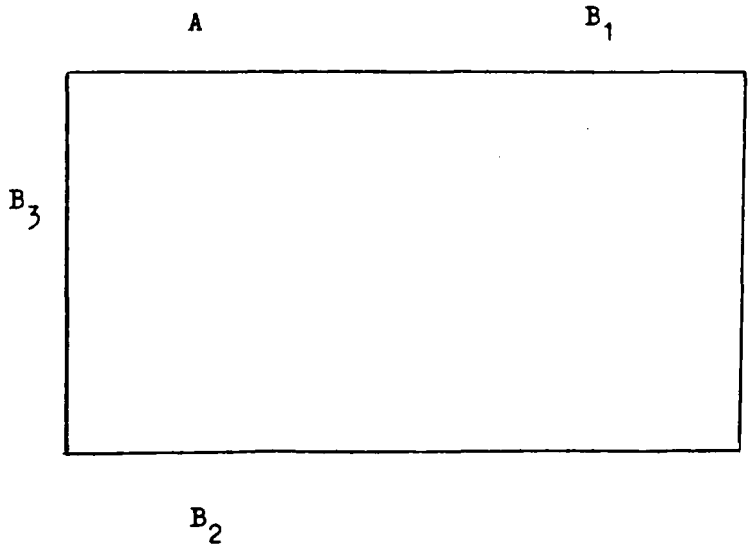


Figure 17

Seating Profile

(Found in Argyle (1983) The Psychology of Interpersonal Behaviour. p.39).

If 'B' is told to have a discussion or conversation, 'B' usually chooses 'B(3)'. (Sommer 1965).

Argyle also put forward the view that 'Dominance, however, is signalled neither by proximity nor orientation, but by the symbolic use of space - sitting in the largest chair, or at the high table, for example. Movement in space is also important - to start or end an encounter, or to invade territory. Manipulating the physical setting itself is another form of spatial behaviour - placing a desk to dominate the room, or arranging seats for intimate conversation.' (p.39).

This aspect of environmental orientation was mentioned in the review of police literature (p.15).

Gifford (1982) found that aspects of a social situation, such as interpersonal attraction and the co-operativeness of a task, affected distancing much more strongly than did respondent's sex or personality.

It is possible to see that spatial orientation can have an effect on our psychological appreciation of the interview environment as well as our ability to interact within it. This topic will be considered further in the methodology section (p.138), the results section (p.197) and finally in the discussion section (p.256).

3.3.6 Summary

1. Personal space suggests the notion that each animal is surrounded by a series of bubbles that allow proper spacing between it and other animals (3.6.2 p.119).

2. The mere physical presence of another person increases arousal and that the closer another person is, the more arousing they become (3.6.2 p.120).

3. There are four main distance zones:

   i) Intimate zone 0-18 inches
      Close phase 0-6 inches
      Far phase 6-18 inches

   ii) Personal zone 1.5 feet to 4 feet
      Close phase 1.5 feet to 2.5 feet
      Far phase 2.5 feet to 4 feet.

iii) Social zone 4 feet to 12 feet
Close phase 4 feet to 7 feet
Far phase 7 feet to 12 feet

iv) Public zone 12 feet to 25+ feet
Close phase 12 feet to 25 feet
Far phase beyond 25 feet

(3.6.3 p.123).

4. People react negatively to close approach by:

i) Moving away
ii) Turning
iii) Looking away
iv) Fidgeting

All of which reflect attempts to increase the psychological distance between themselves and the intruder (3.6.3 p.124).

5. Seating distances are likely to involve greater distances between people than standing distances by 1.5 feet (3.6.3 p.125).

6. There is a gradual increase in the size of personal space between the ages of 3yrs and 21yrs (3.6.3 p.126).

7. Findings relating to sex differences in personal space have been inconsistent (3.6.3 p.127).

8. Situational factors can affect how males and females react to invasion of personal space (3.6.3 p.127).

9. Personal space is a portable territory. (3.6.3 p.127).

10. There are cultural differences in personal space (3.6.3 p.127).

11. Crowding occurs when the need for space exceeds the available space (3.6.4 p.128).

12. Crowding can be defined in terms of changes in the number of people per unit space 'Social Density'. (3.6.4 p.128).

13. Crowding can also be defined as changes in the amount of area provided for a given number of people 'Spatial Density'. (3.6.4 p.128).

14. Crowding can have both physiological and psychological effects:

    i) Increases in blood pressure, heart rate and skin conductance.

    ii) Negative effect such as tension, anxiety and stress. (3.6.4 p.128).

15. Seating can be arranged along dimensions of:

    i) Friendliness
    ii) Talkativeness
    iii) Intimacy
    iv) Equality
    (3.6.5 p.129).

16. The greater the seating distance the less the above four interactions occur except where increased eye contact counter the effects of distance (3.6.5 p.129).

17. People when seated are typically separated by about 2.5 to 4 feet (3.6.3 p.129).

18. Seating orientation can signal inter-personal attitudes (3.6.5 p.130).

CHAPTER FOUR

METHODOLOGY AND RESULTS

4. INTRODUCTION

If we consider the establishment of the Police interview environment as discussed in Chapter One, together with the ecological perspective as discussed in Chapter Two, we can begin to establish an hypothesis that the environments in question will be perceived by the individuals who interact within them in accordance with their perceived affordances of the said environment. If we also consider the differing factors which make up the said environment, as discussed in Chapter Three, and the way in which these factors can affect our perceptions, then it would suggest that the individual's perception of what the environment affords them would differ to some degree, but should if the factors have a general affordance level affect people in a similar way. If this is the case one would expect the individual to perceive that a said factor has the same affordance level on other users of the environment as on themselves.

The following field research as discussed has been undertaken, having regards to the above hypothesis to establish:-

(a) The differing factor levels within Police interview environments.

(b) Individual perceptions of the said factors.

(c) Individual perceptions of the said factors on other users of the environment.

The methods used to carry out this research involved:

(a) The conducting of interviews.

(b) Surveys of police interview room physical environmental factors (i.e. room size, colour, temperature, light, etc.).

(c) The administration of questionnaires tapping the values, attitudes and beliefs of particular categories of people (i.e. police, solicitors, victims, witnesses, suspects).

(d) A certain amount of non-participant field observation, which occurred during the survey stages, is also taken into consideration within the thesis discussion (p.180).

The use of questionnaires can be problematic as the subjects are being asked to retrospectively report on past perceptions. Retrospective reporting is open to falsification and/or faulty recall, which can be unintentional or deliberate, in order to provide socially desirable information. (Spanier 1976).

In an attempt to minimise the effects of retrospective reporting, the unique contribution each subject could make, to the research was emphasised in order to help counter any possible social desirable effects. Subjects were also made aware that other people would also be reporting on the same issues.

Different but similar questionnaires were also administered to the subjects at different times, to recheck the subjects response.

The collection of the research data took place in three distinct stages. Stage one consists of the first study which was carried as a pilot study to obtain preliminary data and test the response of subjects to the study format. The second stage was to undertake a full survey of the physical attributes of the interview environments. The third stage consists of the studies of the different categories of subjects (i.e. police, solicitors, victims, witnesses, suspects).

In the final chapter the results for the three stages are discussed in relation to chapters one to four.

The studies are discussed in order of implementation.

4.1 Study One

4.1.1 Overview

Study one was in two parts. The first part included a tape recorded verbal interview with the subject. The second part an environmental questionnaire was administered.

4.1.2 Objective

To obtain data from Police Officers, concerning Police interview room environment using interviews and questionnaires.

To assess the response of Police Officers to the procedure adapted, taking into account the length of time to complete the survey, attitude towards being interviewed, willingness to participate and type of survey instrument used.

To examine the subjects perceived effects of human/environmental interaction and to evaluate the obtained data, in order to review the research procedure.

Using the results to develop further survey questionnaires.

4.1.3 Method

The survey instrument used (Appendix 'A' p.275-286) in the first field experiment, consisted of:

(a) An interview information sheet outlining the object of the interview with the subject. This was developed in order to ensure continuity of instruction between subjects (Appendix 'A'. Item A1. p.276). The information sheet points out that the purpose of the interview was to ask the subjects opinion of the effects of the environment on Police interviews, that the interview consisted of two sections (as outlined below), that all the questions and answers that the subject makes, would be treated in the strictest confidence as would the identity of the subject, that no other person would have access to the individual subjects data.

(b) The subjects were asked in their own words to mention any details of the interview environment, they felt, had any effect on the interview. This section was tape recorded to allow for continuity and analysis at a later stage.

This stage was introduced prior to the environmental questionnaire in order that the subjects were not influenced by the content of the questionnaire.

(c) P.E.Q.I. questionnaire (Appendix 'A' Item A3 -10, p.278). The questionnaire was produced to tap the environmental factor which the literature review identified as likely to affect interviews. The questionnaire consisted of 40 questions and was produced in order to explore the results of the literature review and establish a more concentrated type of questionnaire for use later in the research.

(d) In order to clarify any points concerning the interview environment that the subject wished to make and which may have occurred as a result of completing the P.E.Q.I. a second tape recorded interview was undertaken.

4.1.4 **Administration**

The survey was conducted between 23rd November and 8th December, 1988. The subjects used were all on duty Police Officers, and all from the same Force area. All the Officers were informed

that the survey was part of a research project being carried out by a serving Police Officer, into the effects of Police interview room environmental interaction.

4.1.5 **Verbal Interview**

(a) The subjects were asked to outline in their own words what factors they considered as being important with regards to the physical environment or the setting in which Police interviews took place. This interview was tape recorded. The average time for the first interview was four minutes. The following points are evident from the analysis.

Seven out of the nine subjects commenced by stating that they felt there was a difference between an interview room for suspects and those used for victims and witnesses. All seven subjects made the point that they felt that the interview rooms for victims and witnesses would be made more comfortable with a more pleasing decor.

Seven of the subjects considered that comfort and atmosphere were the main features of the interview environment.

Six of the subjects considered that the seating should be more comfortable in the interview rooms

Six of the subjects felt that the ventilation and heating system with

regards to interview rooms were inadequate.

Six of the subjects commented on the type of furniture (size of desks, number of chairs, etc.), not being right for the respective interview environment.

Four of the subjects felt the rooms were poorly decorated, dark, dismal and untidy.

Three of the subjects felt the security, privacy and room availability were important features.

4.1.6 P.E.Q.I.

(b) The subjects were then asked to complete the P.E.Q.I. (Appendix 'A' p.278-286).

The average time taken to complete the P.E.Q.I. was twenty-one minutes.

The results of the P.E.Q.I. are set out in Figure 18. The total analysis has been carried out by ranking the total scores of each of the questions on the P.E.Q.I.

A total score of 45 indicates that the subjects agree with the statement made in the question. The lower the total score, the less the subjects agree with the statement made.

It can be seen from the analysis (Figure 18), that all but the last two questions rate a score over 50% (22.5).

Lighting and tidiness are rated the highest factors with scores of 45 (100%).

Interruptions, sound proofing and noise are rated as the second highest factors with scores of 44 (97%).

The lowest score ratings were given to the statement made in question 21, that "Victims should not be interviewed at Police Stations", with a score of 21 (46%) and question 22, that "Witnesses should not be interviewed at Police Stations", with a score of 18 (40%).

The analysis will be reviewed further, in conjunction with the results of further environmental studies, in Chapter 5.

4.1.7 Second Verbal Interview

(c) The subjects were then invited to make any other comment they wished with regards to their own assessment of the interview environments they used, especially having regard to the P.E.Q.I. they had just completed.

Figure 18

P.E.Q.I. Results

RANK	QUESTION	Q. NO.	SCORE	%
1	HAVE GOOD LIGHTING	7	45	100
	KEPT CLEAN AND TIDY	17		
2	FREE FROM INTERRUPTIONS	2	44	97
	BE SOUND PROOFED	16		
	HAVE NO NOISE DISTRACTIONS	24		
3	ROOM SET ASIDE FOR INTERVIEWS	1	43	95
	NO OBJECTS IN ROOM THAT CAN DISTRACT	21		
	TEMPERATURE OF ROOM AFFECTS THE INTERVIEW	30		
	TYPE OF ROOM DEPENDS ON CATEGORY OF PERSON BEING INTERVIEWED	31		
4	NO POLICE PARAPHERNALIA IN ROOM	23	42	93
5	HAVE NO FURNITURE THAT CAUSES BARRIERS	5	41	91
6	SHOULD BE RECORDING FACILITIES IN ROOM	29	40	88
7	BE ADEQUATE IN SIZE	9	39	86
	NO CLOCK ON THE WALL	20		
8	THE PHYSICAL APPEARANCE OF THE OFFICER INTERVIEWING CAN AFFECT INTERVIEW	37	38	84
9	ALL CHAIRS SHOULD HAVE THE SAME EYE LEVEL	33	37	82
10	BE ORDINARY IN APPEARANCE	8	36	80
	HAVE NO MISMATCHED COLOURED WALLS	11		
	NO TELEPHONES IN THE ROOM	35		
	ROOMS SHOULD HAVE AIR CONDITIONING	36		

Figure 18 Continued

11	CHAIR ARRANGEMENT IN ROOM IS IMPORTANT	34	35	77
12	HAVE NO UNEVEN FLOORS HAVE NO SEE THROUGH WINDOWS	12 25	34	75
13	INSPIRE CONFIDENCE HAVE NO BARS AT WINDOW	4 13	33	73
14	HAVE A PLEASANT ATMOSPHERE HAVE RELAXING COLOURS ON THE WALL HAVE COMFORTABLE CHAIRS	5 14 18	31	69
15	HAVE FURNITURE THAT MATCHES	19	28	62
16	HAVE OUTSIDE OBSERVATION ROOM IF SUSPECT BEING INTERVIEWED NO WINDOWS	26 32	27	60
17	HAVE CARPETS ON THE FLOOR	15	26	57
18	NOT MAKE THE SUSPECT COMFORTABLE NOT BE DEVOID OF ALL BRIC-A-BRAC	22 27	25	55
19	CONDUCIVE TO RELAXATION	3	24	
20	HAVE NO EXTREMELY HIGH CEILINGS HAVE ALL FURNITURE FIXED TO FLOOR	10 28	23	51
21	VICTIMS SHOULD NOT BE INTERVIEWED AT POLICE STATIONS	38	21	46
22	WITNESSES SHOULD NOT BE INTERVIEWED AT POLICE STATIONS	39	18	40

Figure 19

Interview Profile

	SUBJECT NUMBER								
COMMENT	1	2	3	4	5	6	7	8	9
CLARIFICATION BETWEEN VICTIM/WITNESS/SUSPECT	1		2		1		2	2	1
RELAXED ATMOSPHERE FOR WITNESSES	2								
COMFORT OF ROOMS	3				2	2	3		2
RESTRICT FREE FLOW OF INFORMATION	4							3	
FURNITURE IN ROOM CAUSE BARRIERS	5 14	2				3			7
CHAIRS (NOT RIGHT TYPE)	6	4					5	5	5
ROOMS POORLY DECORATED	7 18	1						1	
ROOMS TO DARK	8								
ROOMS TO DISMAL	9								
ROOM UNTIDY	10								
LACK OF FILING SYSTEM	11	3					6		
UNPROFESSIONAL APPROACH	12								8
MORE FORMAL FOR SUSPECT	13								
INTERVIEW TECHNIQUE	15								
NEED DIFFERENT ROOMS	16							4	

FIGURE 19 Continued

ROOM LOCATION	17		1	6					3
EFFECT OF INTERVIEWER	19						7		
SIZE OF ROOM	20								
AVAILABILITY OF ROOMS	21								
ADEQUATE HEATING		5	10	2					
SECURITY			3						
REFRESHMENT FACILITIES			4						
TOILET FACILITIES			5						
WINDOWS IN ROOMS			5	15					5
ABILITY TO HOLD PEOPLES ATTENTION			7						
ROOMS CLAUSTROPHOBIC			8						
VENTILATION			9	3					
PRIVACY			12	4					
INTERVIEW WITNESS AT HOME					3				
SUSPECTS ROOMS SHOULD NOT BE COMFORTABLE					4	1	1		
CARPETS ON FLOOR							4		

On average these interviews lasted 19 minutes. The analysis of this interview is shown in Figure 19.

The analysis is set out commencing with subject 1 showing the first aspect mentioned by subject 1 in the interview (i.e. clarification between witnesses and defendants), then the second aspect mentioned (i.e. relaxed atmosphere witnesses), etc. The number on the chart indicating the order in which the said comment was made during the interview. The rest of the interviews, subjects 2-9 are then analysed, in the same way in order to produce the commentary chart. In total, 31 different comments were made.

The comments were then ranked as follows:

1. Clarification between interview rooms for victims/witnesses and suspects.

2. i. The comfort of the interview room.

   ii. The type of chairs in the interview rooms.

3. i. The furniture causing barriers within the room.

   ii. Rooms being poorly decorated (colour).

   iii. The location of the interview room.

4. i. Lack of filing systems for documents and papers within the two interview rooms.

ii. Adequate heating.

iii. Windows in interview rooms.

iv. Ventilation.

v. Comfort of room with regards to suspect.

5. i. The room restricts free flow of information.

ii. Rooms imply an unprofessional approach to interviewing.

iii. Rooms lack privacy.

6. i. Relaxed atmosphere for witnesses.

ii. Rooms too dark.

iii. Rooms too dismal.

iv. Rooms untidy.

v. Suspects interview room more formal.

vi. Lack of interview technique.

vii. Size of the room.

viii. Availability of interview room.

ix. Security of rooms.

x. Refreshment facilities.

xi. Toilet facilities.

xii. Rooms being claustrophobic.

xiii. Carpets on floor.

4.1.8 Summary

1. Police Officers suggested that there should be:

   (a) Different types of interview rooms for victims, witnesses and suspects (p.142).

   (b) Interview rooms for victims and witnesses should be more comfortable and pleasing than interview rooms for suspects (p.1 142 9).

2. Lighting and tidiness were reported as the highest environmental factors by the Police Officers (p.144).

3. Interruptions, noise and sound proofing were also highlighted as being important environmental factors (p.144).

This study has established that the time factor involved in completing the study was too great to continue the research in this manner, and the procedure should be reviewed.

The result of the study shows that different subjects have different perceptions of priorities within the Police interview environments, but what this study does not fully take into account is the different environments themselves (i.e. the interview rooms environments at different Police Stations).

In order to take into account the actual Police interview room environments, study two was undertaken within the target area. Study two (p.152-183) takes into account possible environmental influences (i.e. room size, colour, temperature, humidity, noise levels, etc).

4.2 Study Two

(Interview Room Physical Attributes)

4.2.1 Overview

This survey consisted of measuring selected environmental factors in 37 operational Police interview rooms in 14 different Police stations.

4.2.2 Objective

The literature review examined specific factors such as light levels (p.74-87), temperature and humidity levels (p108-119), sound levels (p.93-108) colour types, (p.87-93), and spatial arrangements (p.119-135) with respect to their possible psychological and physiological effects.

The main purpose of this study is to obtain details of the physical environment within Police interview rooms, having specific regards to the factors discussed in chapter three.

The other purpose of this study is to use the data collected to evaluate the physical environment with regards to the data collected from Police Officers, solicitors, victims,

witnesses and suspects in studies three, four and five.

4.2.3 Method

In order to record the factor details of each interview room environment, a standardised survey format was used. (Appendix 'B', p.303-311).

The survey format consisted of:

(a) Details of the type of room being surveyed. (i.e. location, victim, witness or suspect interview room). (Appendix 'B', Item 1, p.288).

(b) Details of light levels within the room (i.e. natural and artificial light levels). (Appendix 'B', Item 2, p.289).

(c) Munsell colour codes of walls, floor and ceiling. (Appendix 'B', Item 3, p.290).

(d) Sound level readings in d(B) including a description of the sound source. (Appendix 'B', Item 4-5, p.291-292).

(e) Temperature record with details of general building temperature, relative humidity and number of persons in the room. (Appendix 'B', Item 6, p.293).

(f) Room measurements taking into account actual size of room (length, breadth, height, area, volume), furniture measurements and building structure measurements (doors, windows, etc). (Appendix 'B', Item 7-9, p.294-296).

In order to undertake a survey of this type, certain aspects must be taken into consideration. The factors chosen should be relevant, not only in terms of physical definitions, but also in terms of the perceptual/cognitive processes of the subjects involved in the study.

The measurement system has to be reliable and obtainable in repeated application of the procedure. It should measure what it purports to measure. It should show changes that occur in the characteristics being measured.

Drawbacks to using a quantitative approach of the type outlined, is that it forces the researcher to narrow the scope of their research to include only a few variables depending on the technical capabilities of the researchers and the equipment available to obtain the measurements.

The environmental factors that were explored in this survey were chosen as a result of consideration of the literature review (p.9-143) and the technical limitation of the person undertaking the survey to measure the factors as well as the equipment available to undertake the measurements.

4.2.4 The factors examined in this survey consisted of:

4.2.4 (a) **Light**

Natural and artificial light levels are taken into consideration, these levels being measured in the following manner:

Light Readings

A United Detector Technology 11A Photometer/Radiometer was used to obtain the lux value of both the natural and artificial light source. The light being collected by the means of a photometric filter. Each function position, three in number, being calibrated in the following units and wavelengths, cd/m^2, lux, uWatt. The scale used (lux) measuring from 10^{-2} to 10^4.

4.2.4 (b) **Colour**

In order to identify the features of the room colours, the Munsell book of colours was used.

The standard used in this study conforms to specifications computed for illuminant C, as reported in the Journal of the Optical Society of America, Volume 33, No. 7, by Newhall, Nickerson and Judd.

Description of Charts

The Munsell Book of Colours displays nearly 1,500 colour standards assembled in

slots on charts for 40 constant hues. The charts are contained in two binders and assembled in neighbouring hue order from 2.5R to 10RP. There are 22 pages 918 double-face and four single-face) with 11 pages (20 hues), in each binder. Each chart is imprinted with a value/chroma grid and labelled with one of 40 hue notations. Each colour standard is individually mounted on white paper-board which is imprinted with an identifying Munsell notation. The chromatic colour standards are assembled in the appropriate V/C position on each constant hue chart. All constant hue charts display chromatic standards in horizontal rows from /2 chroma outward, in increments of 2 chroma steps, to the strongest achievable within the gamut of materials used. The charts in the hue series beginning with the numerals "5" and "10" (every second chart), also display near-grey standards of /1 chroma. Chromatic value standards are displayed in vertical colours of one value step increments from 2/ value upwards to 9/ value. Standards for a 19-step Neutra. Value Scale are displayed on the constant hue chart labelled "2.5R". The symbol "N" is used to identify the neutral standards: the remaining standards on the charts are chromatic colours or constant hue 2.5R. The neutral standards illustrated half-step value scaling between black and white.

The method of use of the Munsell collection was that after a colour was

identified by visual search the appropriate Munsell label was taken out of the book and checked against the colour in question. When the appropriate colour was matched the details of the said colour were then recorded in accordance with the details on the Munsell colour card.

4.2.4 (c) Sound

The audible sound levels within the building and outside of the building were recorded as were the background noise levels within the building and outside by means of a sound level meter.

The sound level meter used for this survey is a transistor sound level meter type 1400E. It conforms to the International Electrotechnical Commission (I.E.C.) specification for sound level meters. The type 1400E provides a direct reading of sound levels over the range of 24dB to 140dB.

The instrument consists of a crystal microphone, an impedance matching circuit, a high gain amplifier, weighting networks and an indicating meter. The three weighting networks, A, B, and C, are set to the I.E.C. requirements. Two attenuators are provided, one at the input and the other after the second amplifier stage. Both are operated by a single control and give a sensitivity coverage from 24dB to 140dB in 11 steps of 10dB.

The indicating meter is calibrated from -6dB to +10dB. An omni-directional Rochelle-salt crystal microphone is employed. The microphone folds into a recess in the end of the case and automatically operates the battery switch when it is raised. The instrument was fitted with its own power source off three dry cell pp4 batteries which will operate for 60 hours.

Operation of Sound Level Meter

With the equipment switched on (microphone arm raised) the response switch was set to the A, B or C network. The meter switch was set to fast. The sound level switch was adjusted until a deflection was obtained on the indicating meter. The meter reading added to the sound level setting, gave the sound level in decibels as appropriate to the weighting network selected as outlined below:

A ..... For sound levels below 55dB.

B.... For sound levels between 55dB and 85dB.

C ..... For sound levels above 85dB.

The conditions of measurement were then recorded.

4.2.4 (d) **Temperature and Humidity**

A Micronta digital thermometer capable of measuring the temperature, both inside and

out of the interview room simultaneously, was used for this survey.

The thermometer had the following features:

1. Liquid Crystal Display (L.C.D.)

2. Indoor/Outdoor Temperature Measurement Simultaneously.

3. Temperature Measuring Range - 40C to +50C (-40F to 122F). Accuracy to +/- 1C, +/- 1.8F.

4. Maximum and Minimum Temperature Memory Function.

Humidity

A 'ON' Hair Hygrometer was used to record the relative humidity factor. The measurement range of the hygrometer being 0 to 100 per cent relative humidity.

4.2.4 (e) **Spatial Aspects**

Room Measurements

A standard Rabone Onest 20 meter tape was used to take the measurements of the room and objects inside the room.

4.2.5 **Administration**

The survey was undertaken between the 6th and 19th of February, 1989.

In total, 37 operational interview rooms were surveyed at 14 different Police stations.

The surveys were conducted when the rooms were not being used for interview purposes.

Each survey took between 40 minutes to one hour, on average, to complete.

4.2.6 Results

The results of the survey for each individual room can be seen in Appendix 'B; (p.313-349). The drawings pertaining to each of these rooms being on a scale of 20mm to 1 metre.

The following charts show a comparison between the 37 interview rooms surveyed, of each individual environmental factor which was subject of the survey.

The results of the interview room survey are outlined at this point but discussion with regards to possible effects are not included in this section but are included in the overall discussion section.

The results of the survey are presented in a numerical form (Appendix 'B', p.297-333) and a narrative/graphic form in the proceeding paragraphs.

Appendix 'B' (p.297-333) outlines the data applicable to each individual interview room from which the graphic data used in the following text has been compiled.

Each room surveyed was numbered, in order of being surveyed 1 to 37.

Whilst each graph displayed in the following text depicts a different factor (i.e. light, sound, etc), the sequence displayed on the graphs (i.e. rooms 1-37) makes reference to the same room each time.

4.2.6 (a) Light

An analysis of the natural light levels shows that out of the 37 interview rooms surveyed, 11 rooms were devoid of any source of natural light (Appendix 'B', p.297-333), the remaining 26 rooms having natural light levels which fluctuated between 16 lux (Appendix 'B', p.317) and 847 lux (Appendix 'B', p.324).

Figure 20 displays a graphic representation of the natural light levels in interview rooms 1-37.

Natural Light Levels - Interview Rooms 1-37

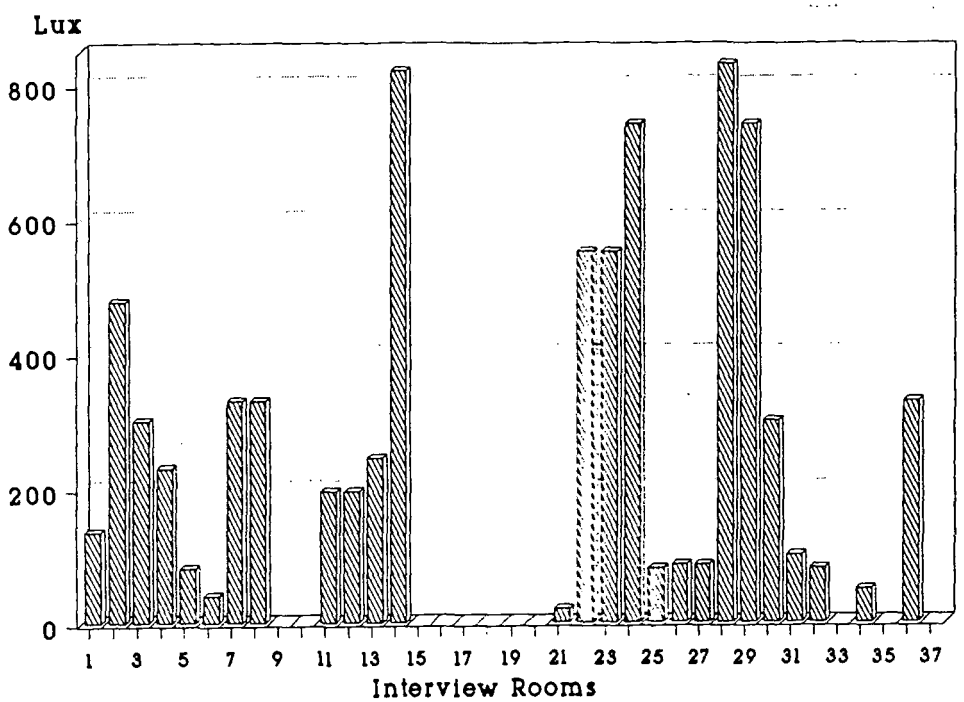


Figure 20

All 37 rooms were fitted with sources of artificial light. The artificial light levels fluctuated from 110 lux (Appendix 'B', p.330) to 720 lux (Appendix 'B', p.333).

Figure 21 displays a graphic representation of the artificial light levels.

Artificial Light Levels - Interview Rooms 1-37

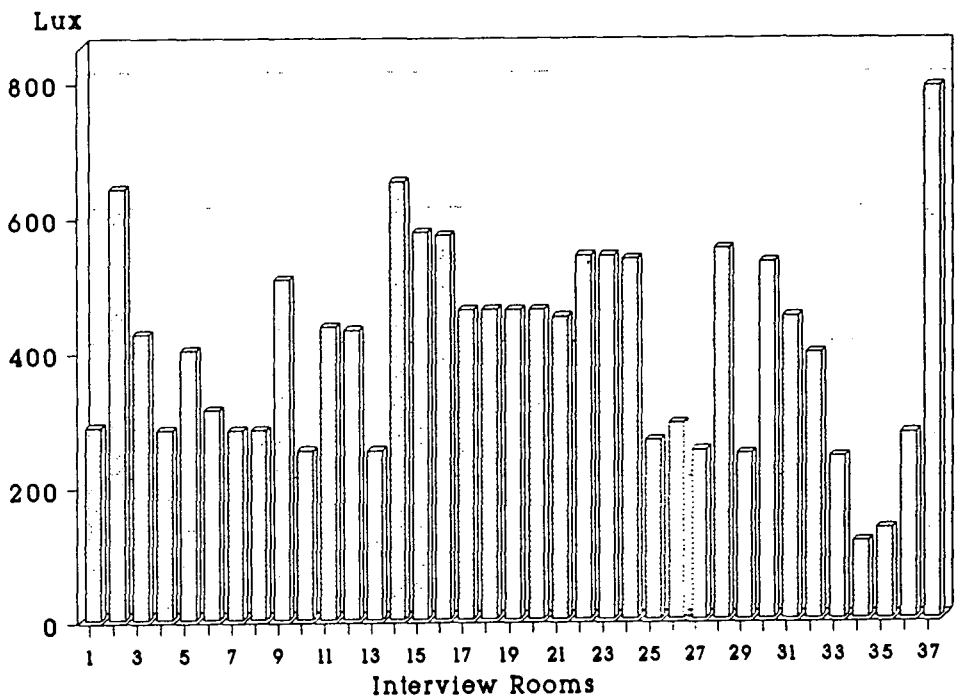


Figure 21

Figure 22 shows a comparison of the natural and artificial light levels in the interview room.

Light Level Comparison - Interview Rooms 1-37

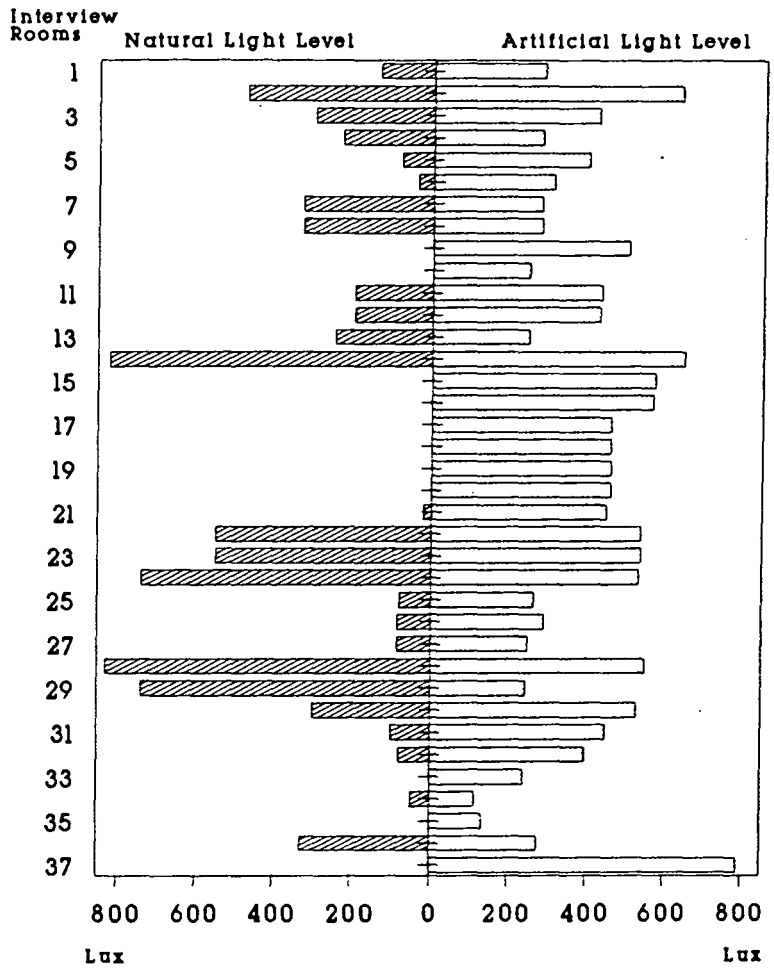


Figure 22

It can be seen from Figure 22 that there was a vast difference in light levels within the differing interview environments.

4.2.6 (b) Colour

A review of the colour data shows that out of the 37 rooms only one had wallpaper fitted. The remaining 36 rooms were all painted with matt paint which gave off fluctuating 'Hue' and Chroma values. Figure 23 gives an overall view of the colour data. Figure 23 also displays the number of rooms with similar colour characteristics. (Appendix 'B' 47, p.334).

INTERVIEW ROOMS 1-37
SUMMARY OF MUNSELL COLOUR CODE USED

NO. ROOMS	HUE	CHROMA	VALUE
2	5G	9	1
1	N	9	0
1	2.5Y	8.5	2
3	2.5Y	8	2
12	2.5Y	9	2
3	5Y	9	2
6	10Y	9	2
4	7.5YR	6	4
2	10YR	7	4
4	10YR	8	2
5	10YR	9	2

Figure 23

It is worth noting at this time that the colours analysed all fall within the broad neutral band of colour being pale yellow to light greens in colour.

4.2.6 (c) Sound

The sound level data with reference to levels from inside the building housing the interview rooms, (Figure 24), shows that internal sound levels fluctuate from 32dB(A) (Appendix 'B', p.311), to 58dB(A) (Appendix 'B', p.309).

Sound Level Within The Building

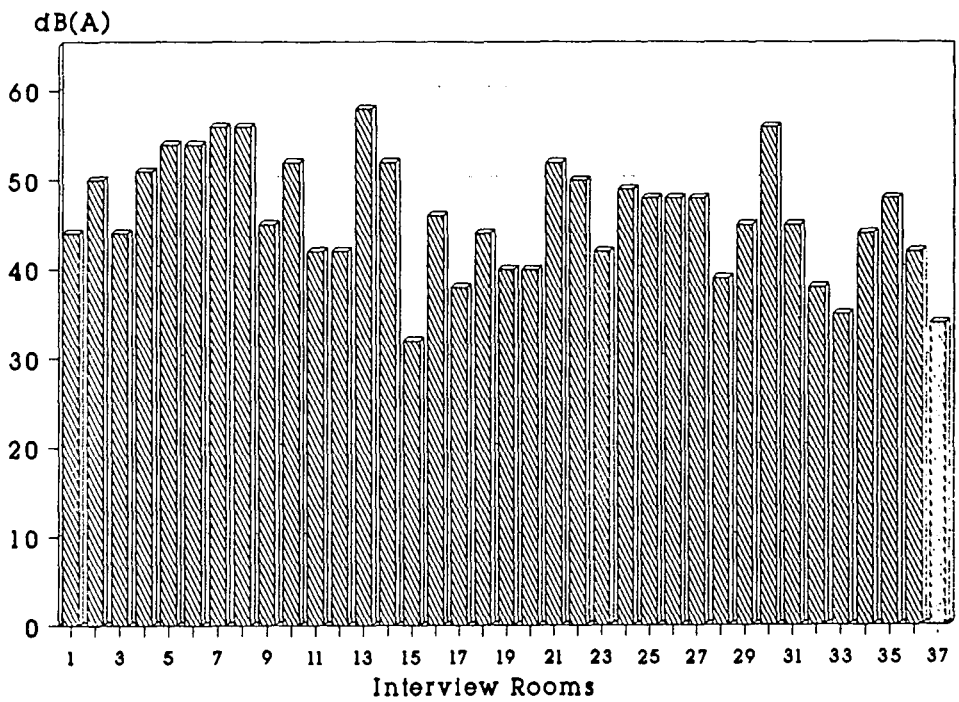


Figure 24

No external sound levels were recorded in 19 of the 37 rooms surveyed (external meaning sound levels from outside of the building housing the said interview room). The sound levels in the 18 rooms where external sound levels were recorded, fluctuated from 15dB(A) (Appendix 'B', p.319) to 58dB(A) (Appendix 'B', p.301). Figure 25 shows the external sound levels.

Sound Level Outside the Building

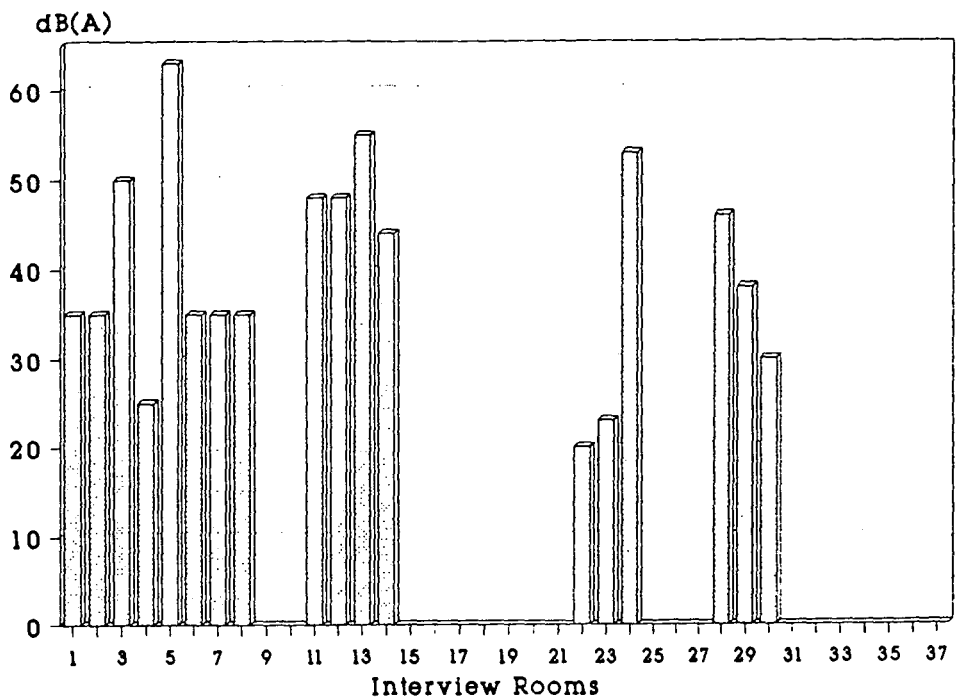


Figure 25

Figure 26 outlines a comparison of the recorded sound levels within the building and from outside of the building.

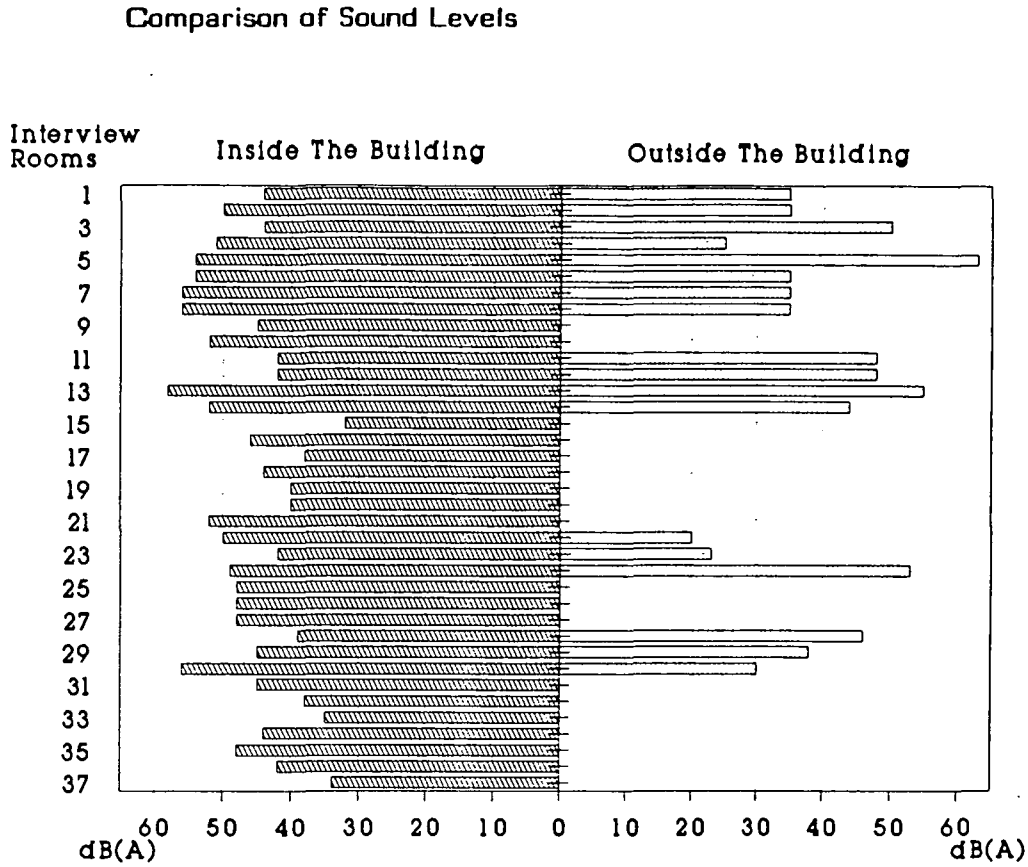


Figure 26

It can be seen that the sound levels differ but in the majority of cases, exceed 40dB(A) overall. The main source of the sound can be seen to emanate within the building housing the interview room.

The main source of sound within the building emanated from the following sources:

1. Doors closing (20dB(A) to 50+dB(A)).

2. People talking in other parts of the building -10dB(A) (audible but not understandable), to 50dB(A) (audible and understandable).

3. Mechanical noise - extractor fans (15dB(A) to 51dB(A)).

4. Electrical noise - light fittings (5dB(A) to 32dB(A)).

The main source of sound from outside of the building emanated from the following sources:

1. Traffic noise 15dB (A) to 50+dB(A).

2. People talking outside in the street -10dB(A) (audible but not understandable), to 50dB(A) (audible and understandable).

It can be seen in figure 26 (p.168) that all of the interview rooms surveyed were affected to some degree by noise intrusion.

4.2.6 (d) <u>Temperature and Humidity</u>

The temperatures within the interview rooms were all taken when the rooms were not in use and do not take account of incidental body heat or secondary heating sources such as that caused by persons smoking. .

The analysis of the temperature and humidity data can be viewed in numerical form on P. Appendix 'B'.

Figure 27 shows the temperature of the 37 interview rooms in question. It can be seen that the temperatures fluctuated from 17°C (Appendix 'B', p.335), to 24.5°C (Appendix 'B', p.335).

Temperature of Interview Rooms

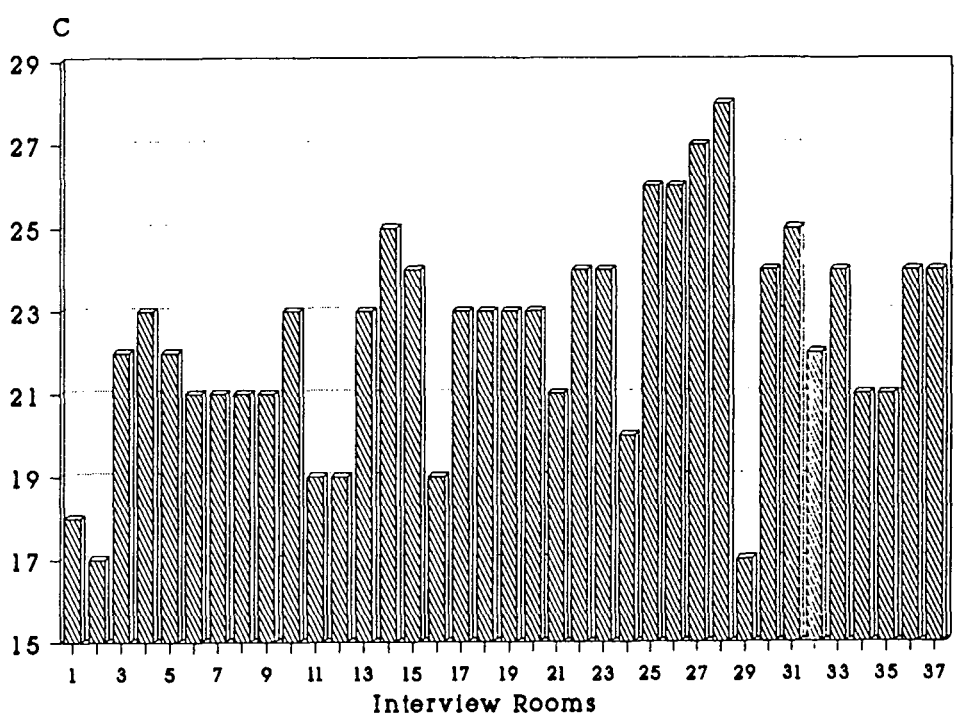


Figure 27

Figure 28 shows the relative humidity level of the 37 interview rooms in question. It can be seen that the relative humidity level fluctuated from 25% (Appendix 'B', p.336), to 66% (Appendix 'B', p.335).

Relative Humidity of Interview Rooms

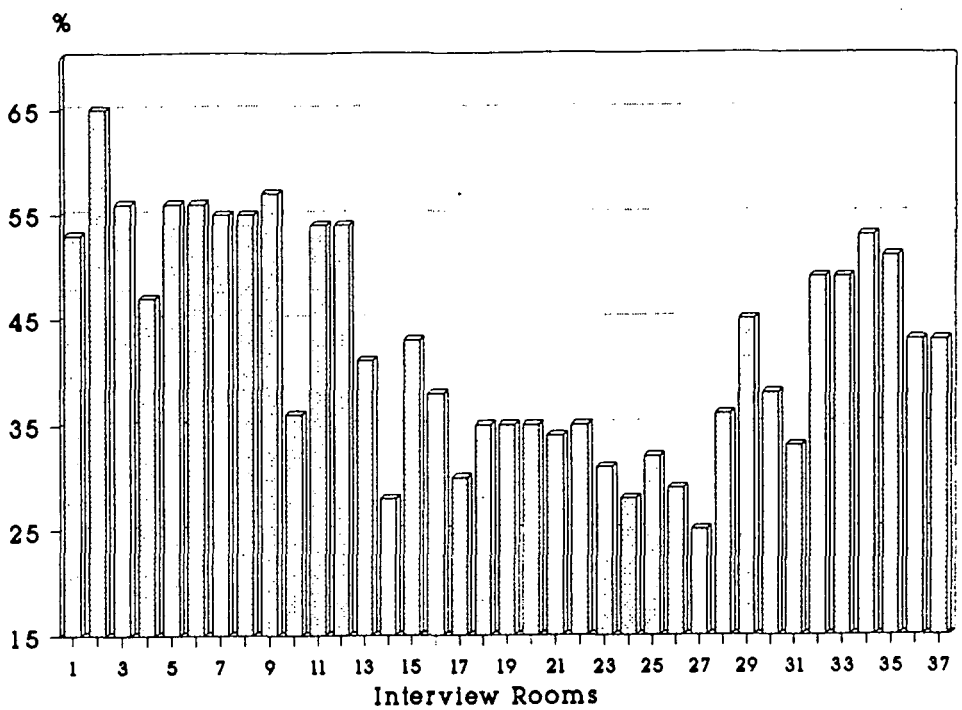


Figure 28

4.2.6 (e) Spatial Aspects

Appendix 'B', pgs.297-333 gives details of the size and layout of the interview rooms in question.

Figure 29 shows the scaled outline of the interview room. From this we can see that the interview rooms surveyed are in the main of different shapes and sizes.

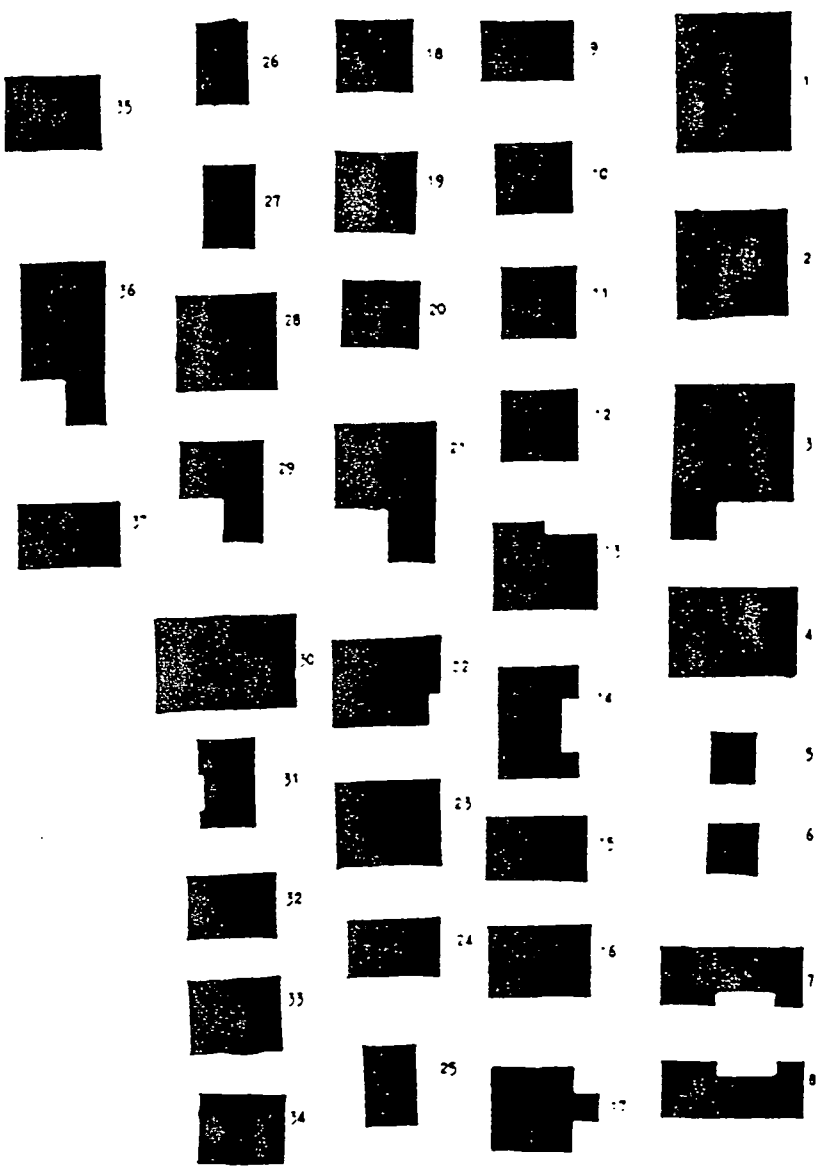


Figure 29

Figure 30 shows in graphic form the size of the interview room with regards to the floor area. It can be seen that the size of the interview rooms in question fluctuate from 3.11m2 (Appendix 'B', p.301) to 16.92m2 (Appendix 'B', p.297).

Floor Area of Interview Rooms

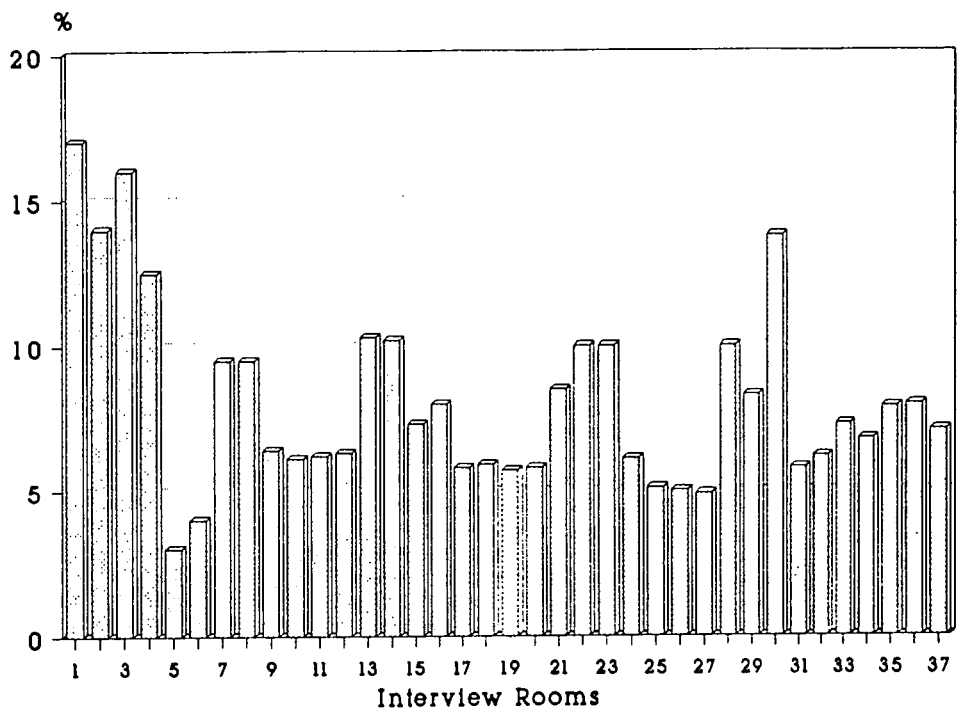


Figure 30

Figure 31 shows in graphic form the size of the same interview rooms but with reference to the heights of the rooms. It can be seen that the heights of the rooms fluctuate from 2.35m (Appendix 'B', p.328) to 4m (Appendix 'B', p.321-323).

Room Heights of Interview Rooms

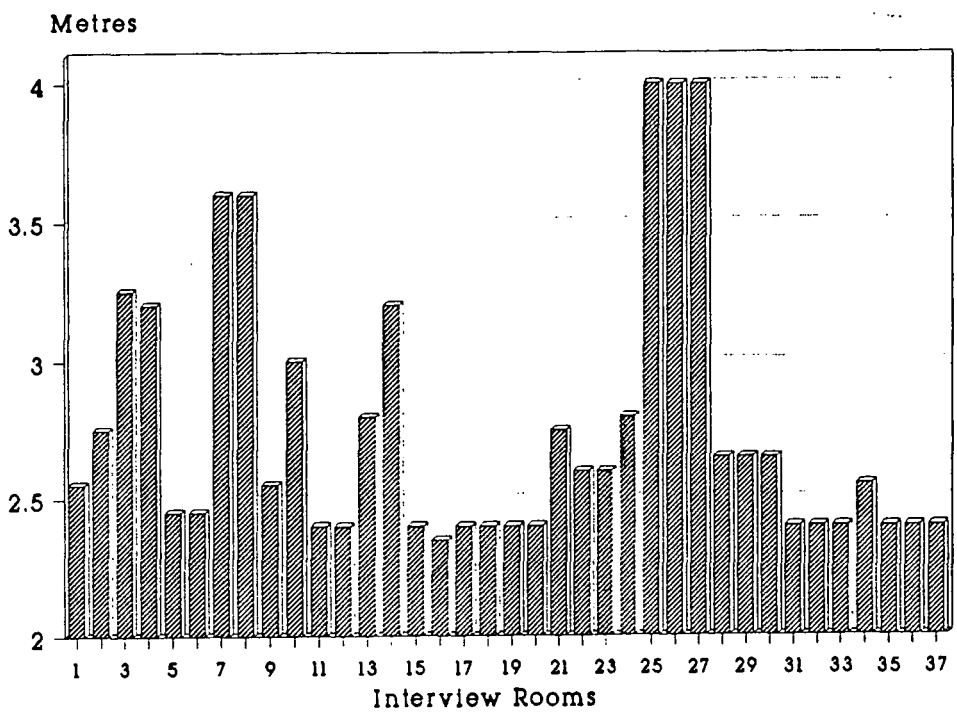


Figure 31

Figure 32 shows in a similar form the overall volume of the interview rooms. It can be seen that the volume of the rooms fluctuates from 7.58m3 (Appendix 'B', p.301-302) to 51.87m3 (Appendix 'B', p.299).

Volume of Interview Rooms

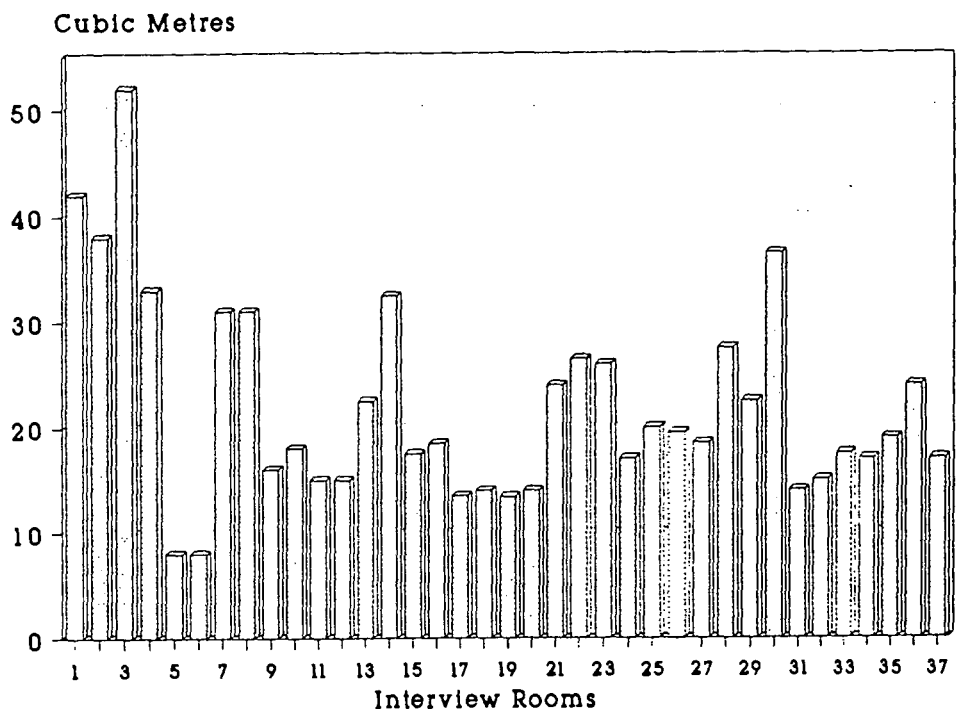


Figure 32

Figure 33 shows the position of the furniture within the interview rooms as found at the time of the survey.

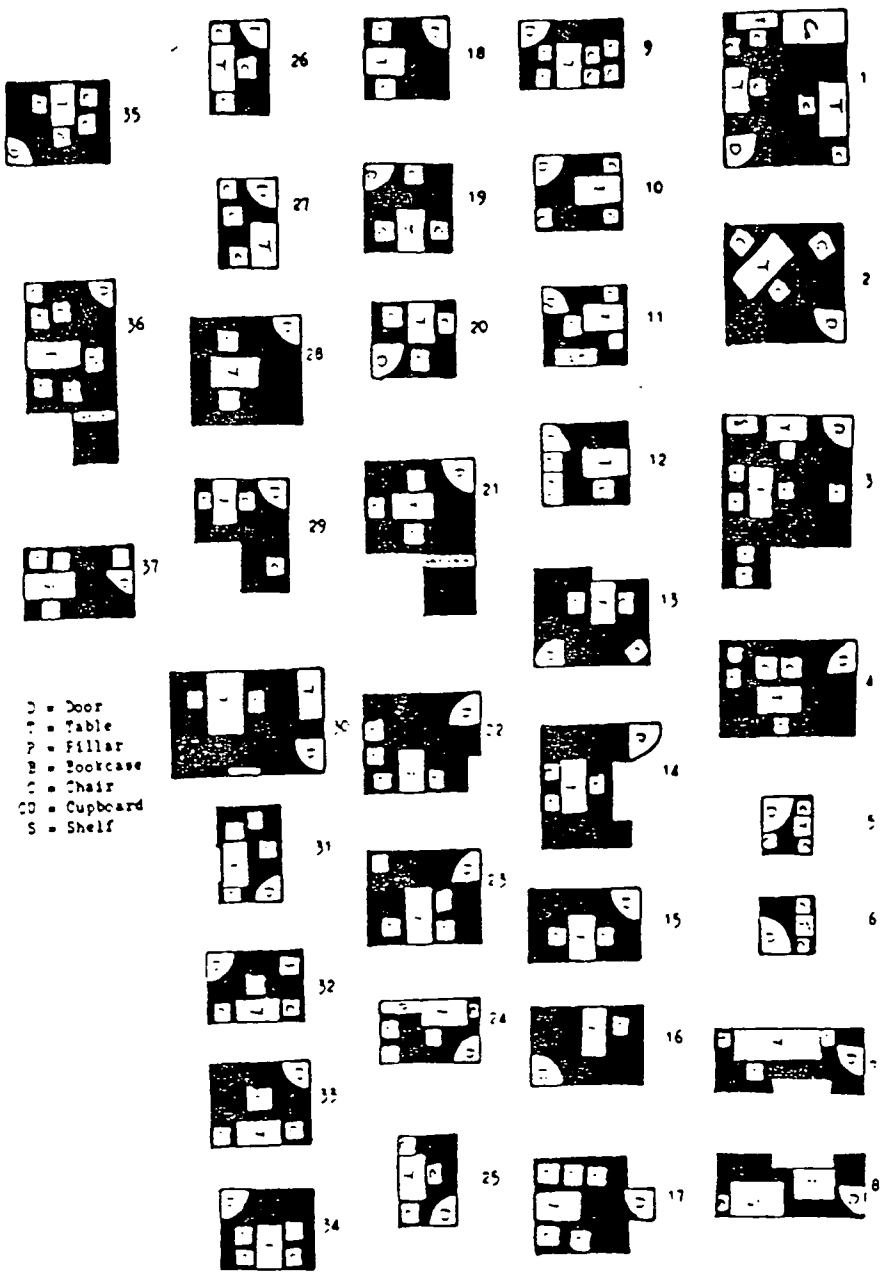


Figure 34 gives a graphic representation of the amount of area taken up by the furniture in each interview room. It can be seen that the size of area taken up fluctuates from .94m2 (Appendix 'B', p.301-302) to 4.63m2 (Appendix 'B', p.297).

Area of Furniture in Interview Rooms

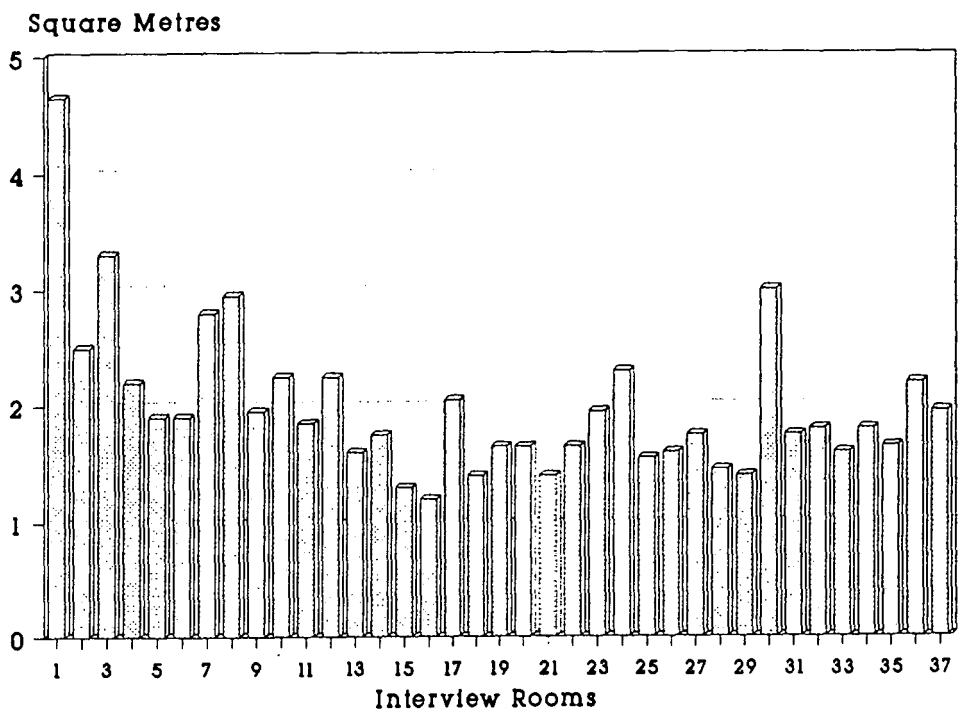


Figure 34

Figure 35 is a graphic representation of the free space within the interview rooms having considered the floor size and amount of furniture in each room. It can be seen that the amount of free space fluctuates from 2.17m2 (Appendix 'B', p.301-302) to 12.66m2 (Appendix 'B', p.299).

Free Space Interview Rooms 1-37

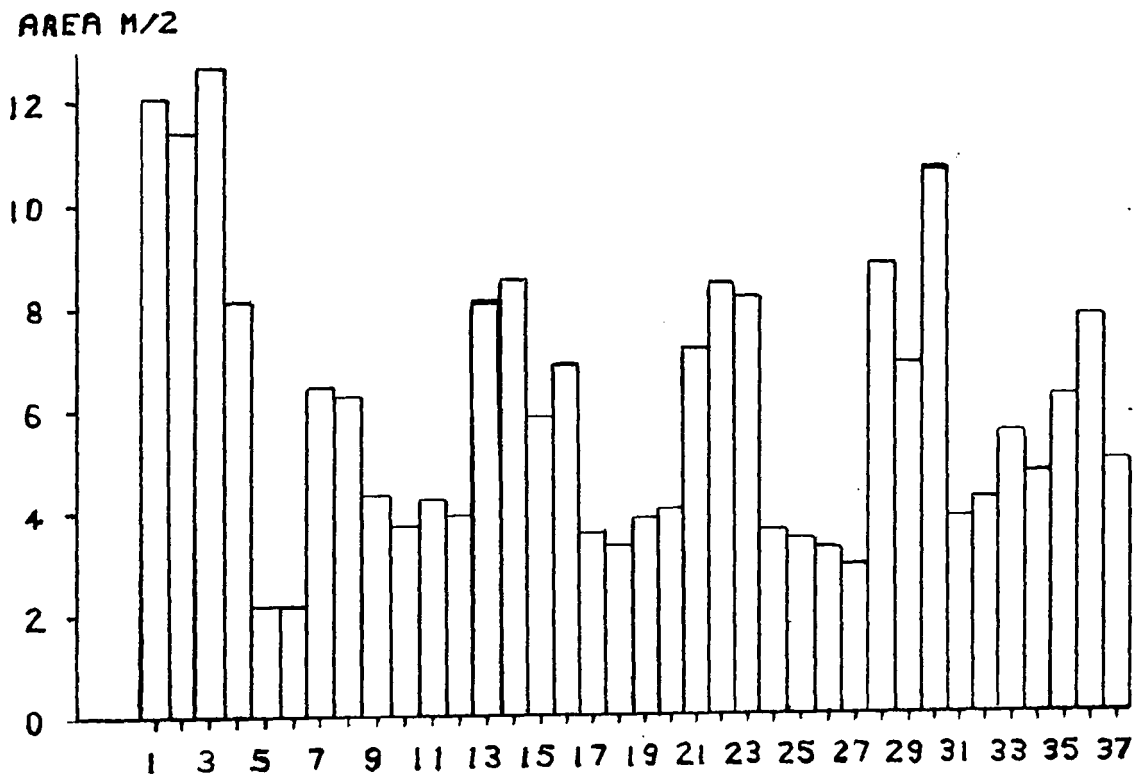


Figure 35

Figure 36 depicts a graphic representation of a comparison between the floor area of the said interview rooms and the area within the rooms taken up by furniture. It can be seen that in all of the interview rooms, less than 50% of the total area is occupied by furniture and in the majority of cases, less than 33%.

Floor Area/Furniture Area Comparison

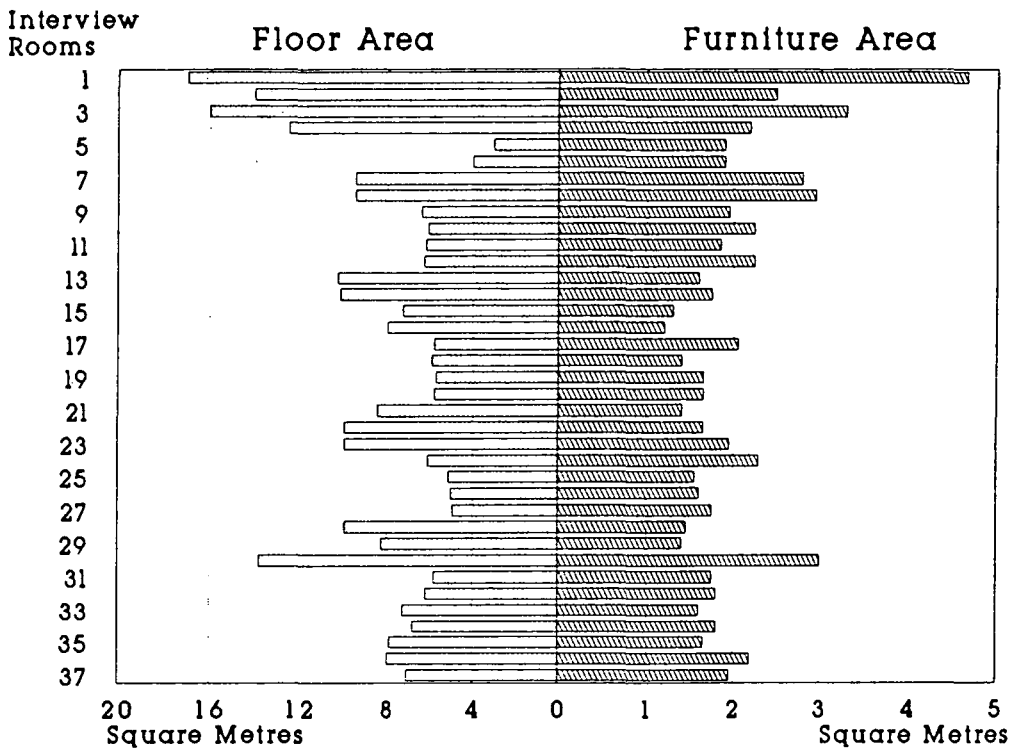


Figure 36

4.2.7 Field Observations

Whilst undertaking survey two, the following non-participant field observations were made.

On three separate occasions whilst undertaking the survey of the Police interview rooms, the interview door was opened by different Police Officers. On each occasion, the 'interview in progress light' was illuminated,indicating that the interview room was in use. When the Police Officers were later asked why they had ignored the warning light, different but apparently valid reasons were given, such as:

> "I was told to find P.C. ..., I thought he might be interviewing".
>
> The light is left on sometimes, I was just checking to see if the room was in use".
>
> "I need to check to see if the prisoner is alright, I thought he was in here but he was next door".

Whilst the three reasons given are in themselves valid, it demonstrated why on occasions interview privacy can be disturbed. This aspect is reviewed further in the discussion section (Ch.5).

At another interview room Police Officers complained of a lack of privacy as the interview room could be viewed by Police personnel from an office opposite and it was possible to hear people talking in the interview room next door.

On examination of this interview room, it was noted that the blinds (fitted to the windows in order to prevent people seeing in), were drawn and the double glazed windows were open. The interview room next door also had its blinds drawn and windows open. When these facts were pointed out to the Officers concerned, the reply that was given was that the room gets too hot if the blinds are drawn and the window closed.

Whilst lack of privacy because of the noise and lack of visual privacy initially appeared to be the main problems, this observation indicated that the main problem was not what was initially perceived by the subjects, the main problem was the temperature of the room.

4.2.8 Summary

The survey indicates that environmental factors within interview environments, fluctuate from one environment to another.

Natural light levels fluctuate between 16 lux and 847 lux whilst artificial light levels fluctuate between 110 lux to 720 lux.

The colours of Police interview rooms fall within the broad neutral colour band.

Sound levels from outside sources are perceivable within interview environment, fluctuating between 5dB(A) to 50+dB(A).

Temperature and humidity levels within interview rooms fluctuate in the regions of 17°C to 24.5°C and 25% to 60% humidity.

Interview rooms differ in shape, size and amount of furniture.

The factors taken into account in the survey were limited by the technical ability of the person undertaking the survey, and account was not taken of factors such as air flow and reflectivity of light.

No account was taken of changes in the interview environmental factors during the course of an actual interview. For example, incidental heat gain from the persons within the environment, changes in light levels or noise conditions, etc. In order to carry out an interactive interview room, environmental survey consideration should be given to installing a system of monitoring and logging environmental conditions whilst interviews are being undertaken.

As a result of studies one and two the main format for the questionnaire used in surveys three to five was established (p.342-357). This format took into account the following points:

1. The target number of subjects to undertake the study. (500 in total, comprising 100 Police, 100 solicitors, 100 victims, 100 witnesses and 100 suspects).

2. The amount of time to complete the questionnaire.

3. The measurability of the environmental influences within the interview environments (Study two).

Study three-five were set out as follows:

Study Three

A study of Police Officers focusing on the perceived detrimental effects that selected environmental factors would have on victims, witnesses and suspects within Police interview environments. (p.184-197).

Study Four

A study of solicitors focusing on the perceived detrimental effects that selected environmental factors would have on themselves and their clients (suspects) within Police interview environments. (p.197-209).

Study Five

A study of Police, victims, witnesses and suspects, focusing on their perception of the effects of selected environmental factors on themselves within Police interview environments. (p.209-226).

4.3 Study Three

(Police Questionnaire)

4.3.1 Overview

100 Police Officers completed a questionnaire (Appendix 'C', Item 1-3, p.338-340, which covered three categories of persons victims, witnesses and suspects. The Officers were required to select from a list of twelve factors, the five main aspects of the environment which they felt had the most detrimental effect on the interviewing of the victim, witness and suspect.

4.3.2 Objective

To obtain research data from Police Officers with regards to interview room environments.

To analyse the data in order to consider:

1. What factors Police Officers perceive as being detrimental to interview environments in which they interview.

   (a) Victims.

   (b) Witnesses.

   (c) Suspects.

2. Compare the result of the study with the findings of study two (interview room physical environment) and later studies with solicitors, victims, witnesses and suspects.

4.3.3 Method

In order to record the factors selected by each individual subject, a standardised questionnaire was used. (Appendix 'C', Item 1-3, p.338-340).

The questionnaire consisted of three sections, one pertaining to victims (Appendix 'C', Item 1, p.338), one to witnesses (Appendix 'C', Item 2, p.339), and the other to suspects (Appendix 'C', Item 3, p.340).

Each section presents the same twelve environmental factors. These factors being the main environmental factors identified as a result of studies one and two (p.139-183). The factors are colour, location, furniture, lighting, noise, heating, windows, tidiness, security, decoration, size and privacy.

The subject (Police Officers) were asked to consider the interview room they used and to select from the list of factors the five main aspects of the environment which they felt had the most detrimental effect on the interviewing of victims, witnesses and suspects.

The subjects were also invited to comment on any other environmental aspects that they felt may have a more detrimental effect on the interview.

4.3.4 Administration

In order to obtain as wide a cross section as possible of Police Officers with regards to length of Police service, rank and place of

work, the Officers, 100 in number, were selected from Police Officers attending courses at the Cleveland Constabulary in-force training school.

In order to allow the subjects to consider each section of the questionnaire separately, the questionnaire was presented at three stages in the same day (i.e. a section on the morning, one before lunch, and one after lunch).

If a questionnaire was not fully completed after issue, it was not used again.

The subjects were informed of the following aspects of the study:

1. The reason for the study. This being part of a Bramshill Fellowship research programme being carried out by a serving Police Officer.

2. That they did not have to complete the questionnaire if they did not wish to.

3. The identity of subjects would be treated in strict confidence.

4. That if any subject would like to assist further with the research at a later stage, they could identify themselves by placing their Police identity number on the survey form in the space provided.

4.3.5 Results

Of the 100 questionnaires presented, 94 were completed and returned (a response of 94%).

When analysing the questionnaires, each factor was allocated an 'F' number in order to ease the identification of the factors concerned when using graphic representation. The following 'F' numbers are maintained throughout this thesis.

F1.	Colour	F7.	Windows
F2.	Location	F8.	Tidiness
F3.	Furniture	F9.	Security
F4.	Lighting	F10.	Decoration
F5.	Noise	F11.	Size
F6.	Heating	F12.	Privacy

A chi squared test has been used in order to analyse the data. A full analysis is shown in Appendix (p.255-266).

The effect of the variable may be two-tailed in either direction or it may be seen to affect or not affect the person concerned, therefore, in order to reject the null hypothesis that it is a random chance result a two-tailed level of significance was used in order to arrive at the correct level of significance.

FACTOR	VICTIM	WITNESSES	SUSPECTS
1	$p < 0.001$	$p < 0.001$	$p < 0.001$
2	Not Significant	Not Significant	Not Significant
3	$p < 0.001$	$p < 0.001$	$p < 0.001$
4	$p < 0.001$	$p < 0.001$	$p < 0.025$
5	$p < 0.001$	$p < 0.001$	$p < 0.001$
6	Not Significant	Not Significant	Not Significant
7	$p < 0.001$	$p < 0.001$	$p < 0.001$
8	Not Significant	$p < 0.001$	Not Significant
9	$p < 0.001$	$p < 0.001$	Not Significant
10	Not Significant	Not Significant	$p < 0.001$
11	Not Significant	Not Significant	$p < 0.001$
12	$p < 0.001$	$p < 0.001$	$p < 0.001$

Figure 37 shows a comparison of the factors, as selected by the Police Officers with regards to their detrimental effect on the victim. F12, F3, F5 and F2 are seen as the factors having most effect, and F1 and F7, having the least effect.

The factor references used are:

F1.	Colour	F7.	Windows
F2.	Location	F8.	Tidiness
F3.	Furniture	F9.	Security
F4.	Lighting	F10.	Decoration
F5.	Noise	F11.	Size
F6.	Heating	F12.	Privacy

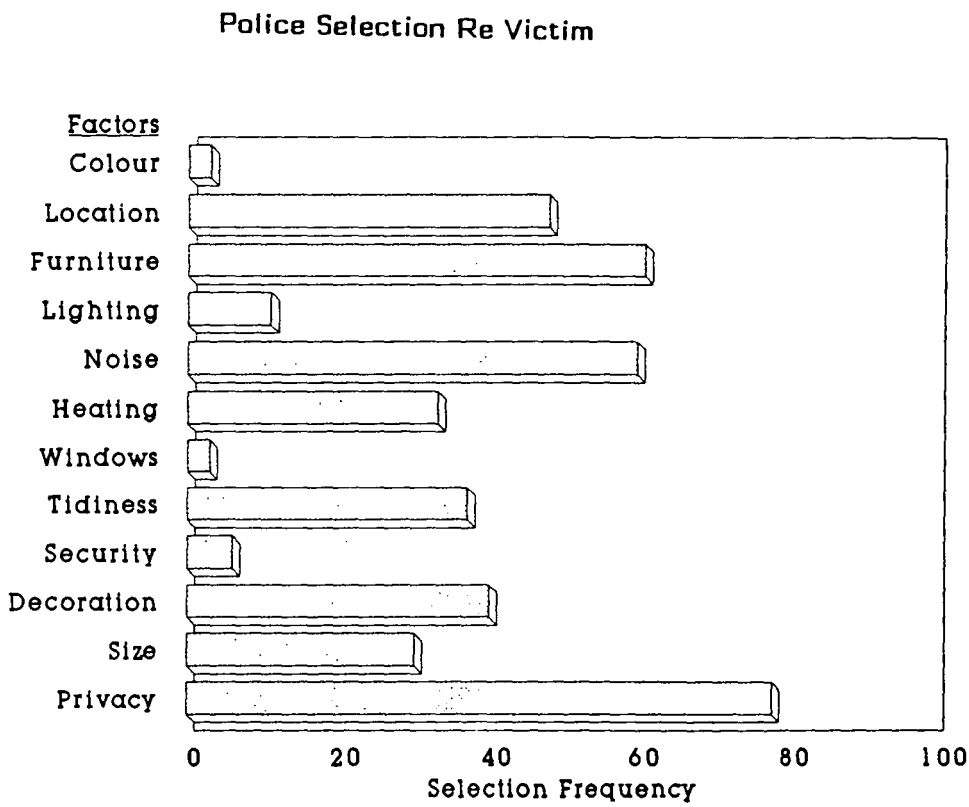


Figure 37

Figure 38 shows a comparison of the factors, as selected by the Police Officers with regards to their detrimental effect on the witness. F3, F12, F5 and F8 are seen as the factors having most effect and F9 the least effect.

The factor references used are:

F1.	Colour	F7.	Windows
F2.	Location	F8.	Tidiness
F3.	Furniture	F9.	Security
F4.	Lighting	F10.	Decoration
F5.	Noise	F11.	Size
F6.	Heating	F12.	Privacy

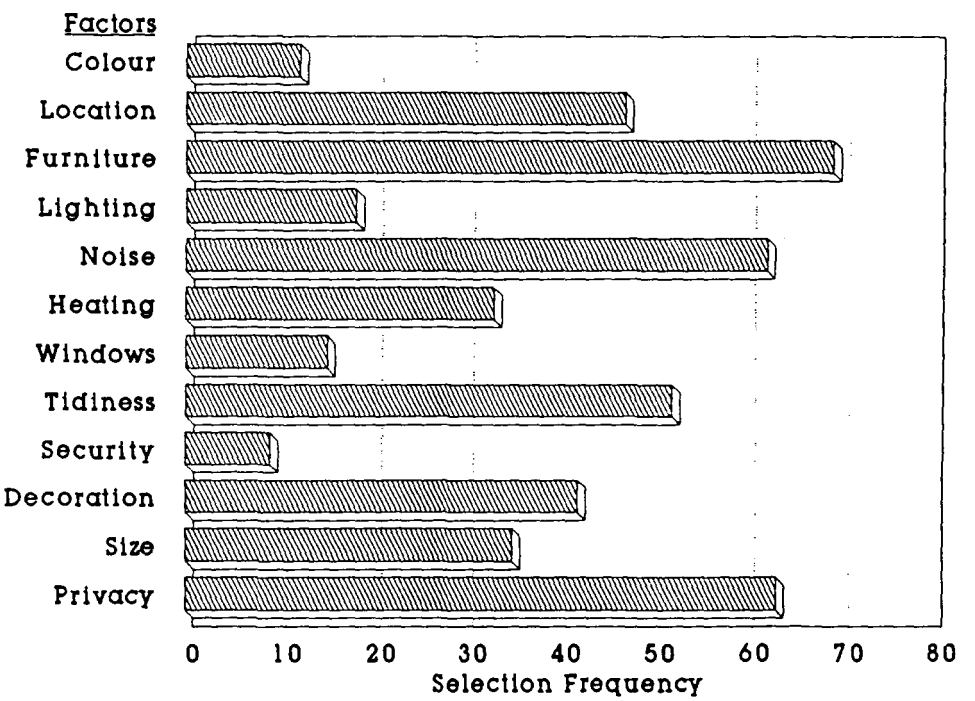


Figure 38

Figure 39 shows comparison of the factors, as selected by the Police Officers, with regards to their detrimental effect on suspects. It can be seen that F12, F11, F5 and F3 are seen to be the factors that the subject considers can have the most detrimental effect on suspects.

The factor references used are:

F1.	Colour	F7.	Windows
F2.	Location	F8.	Tidiness
F3.	Furniture	F9.	Security
F4.	Lighting	F10.	Decoration
F5.	Noise	F11.	Size
F6.	Heating	F12.	Privacy

F1 (Colour) being shown as the factor having the least effect.

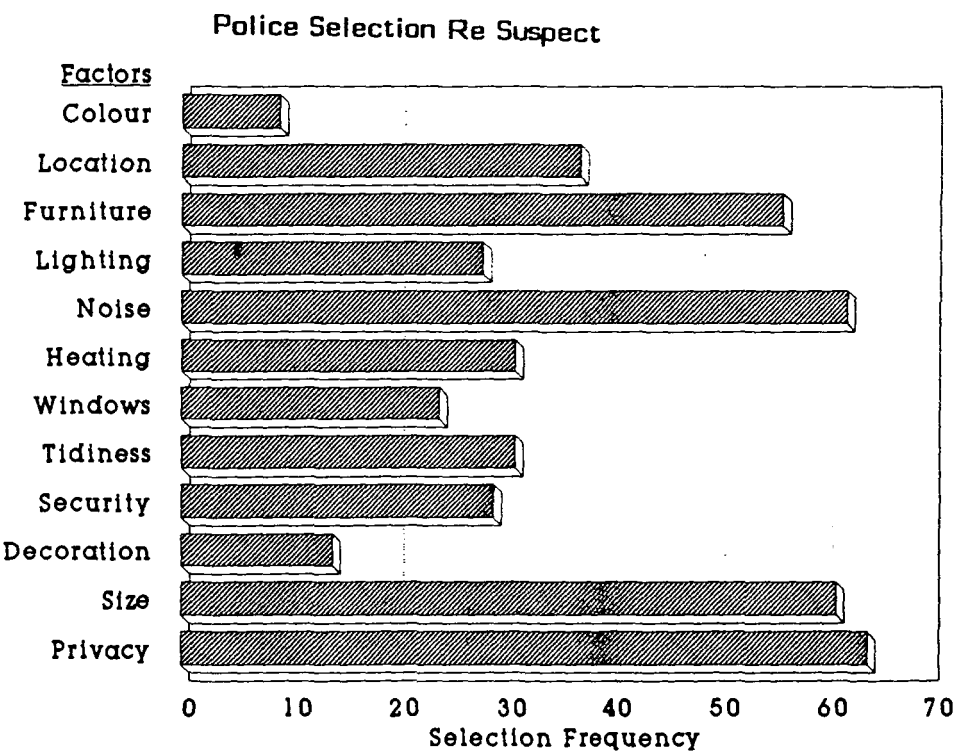
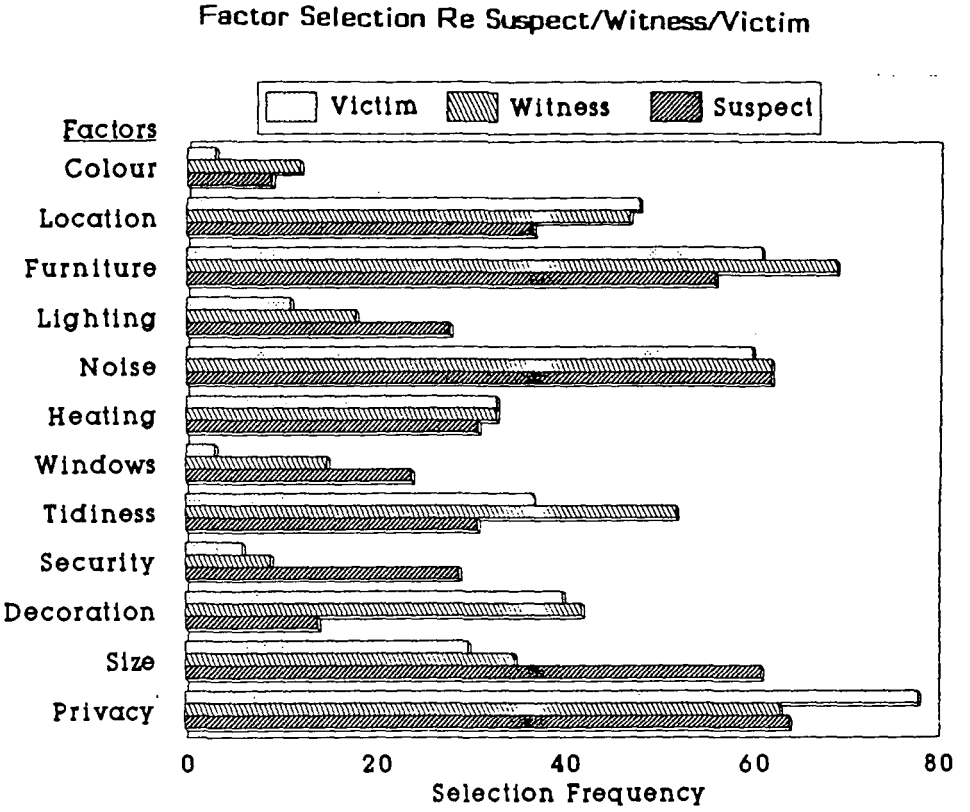


Figure 39

Figure 40 Shows an overall comparison of Figures 38 to 39.



It can be seen that Privacy (F12) is considered to have the most effect on all three categories of persons ($p<0.001$). Privacy is shown to be more important for the victim (81% selection than the suspect (68% selection). Privacy with regards to the suspect is in turn shown to be more important than privacy for the witness (66% selection).

Noise (F5) is also rated highly, with regards to all three categories ($p<0.001$), as a factor than can effect the interview environment, having a selection ratio of 66% for suspects, 62% for witnesses, and 60% for victims.

Furniture (F3) is also perceived as a highly rated factor that can effect the interview situation ($p<0.001$). It can be seen that furniture is perceived as having more effect on the witness (71% selection) than the victim (65%) and less effect on the suspect (60%).

The size (F11) of the room is perceived to be significant ($p<0.001$) regarding the suspect (65% selection), but not the witness (36%) or the victim (31%). It is worth noting that the ratio of selection regarding the suspect and witness/victim is about 2 to 1.

Tidiness (F8) is perceived ($p<0.001$) to have a significant effect on the witness (55% selection) but not the victim (38%) or the suspect (33%) selection.

Location (F2) is not perceived to be significant factor with a 50%, 49% and 39% for the victim, witness and suspect.

Decoration (F10) is perceived as being significant ($p<0.001$) in not having an effect on witnesses (44% selection), slightly less on victims (41%) and least effect on suspects (15% selection).

Heating (F6) can be seen to have a similar rating for witnesses and victims (35% selection) and the suspects (33%). Heating was not perceived as having a significant effect on any subjects.

Security (F9) is shown as having a significant result ($p<0.001$). With selections of 31%

suspect, 17% victim and 10% witness, but is not seen as a factor that is detrimental to the interview environment.

Lighting with a significant level of ($p<0.001$) is also seen as a factor that is not detrimental to the interview environment it was selected as having most effect on the suspect and victim (29%) and very little effect on the witness (10% selection).

Windows (F7) with an overall significant level of $p<0.001$ was perceived as having more effect on the suspect (26% selection) than the witness (16%) and the victim (10% selection).

Colour (F1) was perceived as having the least overall effect ($p<0.001$). The effect being rated slightly higher for victims (14%) than witnesses (13%) and least for suspects (10%).

Figure 42 shows a table of comparison between the results of the questionnaire in respect to Police Officers perception of what factors nominated on the questionnaire they perceived to be detrimental to victims, witnesses and suspects.

Column one (Rank) depicts the rank order of the factors derived from the number of times they were selected by the subjects as a factor that could have a detrimental effect on the interview environment. The highest possible total being 94.

Column two, five and eight give the factor number of the factor selected.

Columns three, six and nine, name the factors.

Columns four, seven and ten give details of the number of times that factor was selected by the subjects.

It can be seen in figure 42 that the perceived detrimental effect of the different factors varies depending on the category of person involved, (i.e. the number 1 response for suspects is F12 Privacy, for witnesses F3 Furniture, and for victims is F12 Privacy).

Out of the 282 returns made in this survey, 51 contained comments with regards to other factors that could be considered as being detrimental to the interview environment. The comments referred to:

1. Ventilation (12 references).

2. Comfort of environment (11 references).

3. Availability of interview rooms (6 references).

4. Type of room (5 references).

5. Size of furniture (3 references).

6. Isolation (persons being left along) (2 references).

7. Actual interview technique (2 references).

8. Inability to create interview environment (fixed furniture, size, etc).

RANKS	SUSPECT			WITNESS			VICTIM		
NO	F.No	Factor	Score (N = 99)	No	Factor	Score	No	FACTOR	Score
1	F12	Privacy	64	F3	Furniture	67	F12	Privacy	76
2	F5	Noise	62	F12	Privacy	62	F3	Furniture	61
3	F11	Size	61	F5	Noise	61	F5	Noise	60
4	F3	Furniture	56	F8	Tidiness	52	F2	Location	47
5	F2	Location	37	F2	Location	46	F10	Decoration	39
6	F8	Tidiness	31	F10	Decoration	42	F8	Tidiness	36
7	F6	Heating	31	F11	Size	34	F6	Heating	33
8	F9	Security	29	F6	Heating	33	F11	Size	29
9	F4	Lighting	28	F4	Lighting	18	F4	Lighting	28
10	F7	Windows	24	F7	Windows	15	F9	Security	16
11	F10	Decoration	14	F1	Colour	12	F7	Windows	13
12	F1	Colour	9	F9	Security	9	F1	Colour	13

Figure 41

9. Location of entry points to witness/victim interview rooms.

10. Unavailability of refreshments for witnesses and victims.

The remaining seven references suggested that environmental effects were caused by a collection of the factors mentioned rather than any single factor.

4.3.6 Summary

1. Police Officers perceive that the detrimental effects of different factors within an interview environment can vary depending on the category of person involved.

2. Privacy is seen as the most important factor.

3. Colour is seen as the least important factor.

4. Specific interview room environments have not been taken into account.

4.4 Study Four

(Solicitors Questionnaire)

4.4.1 Overview

100 solicitors were invited to take part in a postal questionnaire (Study 4, Appendix 'D', p.342-349). The questionnaire covered two

categories of person, the solicitor and the solicitors client. The solicitors were asked to identify the Police interview facilities which they had used and were then invited to comment on the suitability o f these facilities for themselves and their clients. Having carried out the first part of the questionnaire they were then invited to select from a list of twelve factors (as set out in study three), the five main aspects of the environment which they felt had the most detrimental effect on themselves and then on their client.

4.4.2 Objective

To obtain research data from solicitors with regards to interview room environments.

To analyse the data in order to consider:

1. What factors solicitors perceive as being detrimental to interview environments taking into account their own perspective and that of their clients.

2. Compare the result of the survey with the findings of survey two (interview room physical environment), survey three (Police Officers questionnaire) and later studies.

4.4.3 Method

The study presented to the solicitors consisted of three stages.

Stage One involved presenting subjects with a list of the Police stations in question and inviting them to identify those which they used. Having identified the Police stations, the subjects were then asked to rank order the Police station in terms of amount of use. Then the subjects were invited to indicate which Police station had the most suitable interview facilities. (Appendix 'D', p.345).

Stage Two was in two parts. The first part invited the subject to indicate if they considered that the Police interview facilities were adequate for their purpose and to comment on what facilities were lacking, inadequate or required improvement. The second part put the same question but asked the subjects to consider the facilities with regards to their suitability for their clients (Appendix 'D', p.346-347).

The third stage of the study consisted of a questionnaire which was similar to the one used for the Police Officers in survey three.

The subject (solicitors), were first asked with regards to the interview room they used to select and place in order of preference, the five main aspects of the environment which they felt had the most detrimental effect on themselves. They were presented with the same list of factors as in Study Three (Appendix 'D', p.348).

The subjects were then asked to place in order of preference the five main aspects of the environment which they felt had the most

detrimental effects on their client (Appendix 'D', p.349).

The subjects were invited to comment, at each stage, on any other environmental aspects that they felt may have a more detrimental effect on the interview.

4.4.4 Administration

The survey was conducted between March and May of 1989.

The subjects were selected from the Official Home Office Duty Solicitors Book that is held at Police stations. An equal number of subjects were selected from each Police station area in order that the data provided could relate to interview room data collected in survey two.

The survey was conducted by post, each solicitor being sent the questionnaire with a letter of introduction outlining the reasons for the research. The letter also pointed out that the data obtained would be treated in the strictest confidence, and that no disclosure of any individuals identity would be made.

A self-addressed stamped envelope was enclosed with the survey material, in order that completed questionnaires could be returned.

4.4.5 Results

From the 100 requests sent to solicitors, 24 replied with completed questionnaires (a 24% response rate). Replies were received for

another 15 solicitors who felt that they did not carry out sufficient work involving the use of Police interview rooms to enable them to take part in the survey.

Fifty one solicitors failed to respond to the postal survey. No follow up requests were made.

A Chi Square tent has been used in order to analyse the data. A full analysis is shown in Appendix (267-274).

Analysis - Solicitor Factor Selection

FACTOR	SOLICITOR	CLIENT
1	Not Significant	$p < 0.001$
2	$p < 0.001$	Not Significant
3	Not Significant	Not Significant
4	Not Significant	Not Significant
5	Not Significant	Not Significant
6	Not Significant	Not Significant
7	Not Significant	Not Significant
8	Not Significant	$p < 0.001$
9	$p < 0.001$	Not Significant
10	Not Significant	$p < 0.001$
11	Not Significant	Not Significant
12	Not Significant	Not Significant

F1. Colour
F2. Location
F3. Furniture
F4. Lighting
F5. Noise
F6. Heating
F7. Windows
F8. Tidiness
F9. Security
F10. Decoration
F11. Size
F12. Privacy

The analysis shown overleaf indicate that on average the solicitors in question do not perceive the majority of the factors in question as having a significant detrimental effect on themselves or their client within the interview situation.

Figure 42 shows the selection frequency of the factors the solicitors perceive as being detrimental to their perception of the interview environment.

The factor references used are:

F1.	Colour	F7.	Windows
F2.	Location	F8.	Tidiness
F3.	Furniture	F9.	Security
F4.	Lighting	F10.	Decoration
F5.	Noise	F11.	Size
F6.	Heating	F12.	Privacy

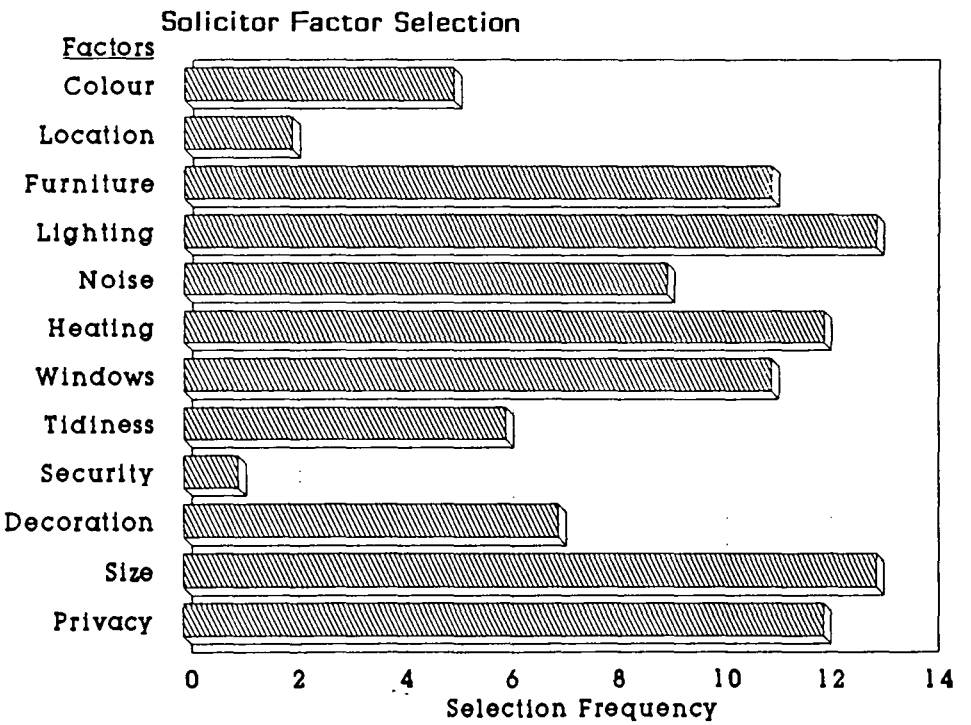


Figure 42

The size (F11) of the interview room is shown to be the factor that the solicitors suggested had the most detrimental effect on themselves, being selected by 58% of the subjects.

Lighting (F4) was shown as the next most detrimental factor being selected by 54% of the subjects.

Heating (F6) was rated third as a factor that had a detrimental effect on the interview environment, being selected by 50% of the subjects.

46% of the subjects selected furniture (F3) and windows (F7) as having a similar detrimental effect.

Privacy (F12) was felt, by the solicitors, to be less important as a factor for themselves (42%), than for their clients (54%. See Figure 44, p.213).

Noise (F7) was selected by 38% of the subjects as having a detrimental effect.

Decoration (F10) was selected by 25% of the subjects as having a detrimental effect on them.

Tidiness (F8) and colour (F1), were both selected by 21% of the subjects as having a detrimental effect.

Location (F2) was only selected by 8% of the subjects as a detrimental factor.

Security (F9) was selected as the least (4%) environmental effector on solicitors.

Figure 43 refers to what factors the solicitors perceive as being detrimental to their clients.

The factor references used are:

F1.	Colour	F7.	Windows
F2.	Location	F8.	Tidiness
F3.	Furniture	F9.	Security
F4.	Lighting	F10.	Decoration
F5.	Noise	F11.	Size
F6.	Heating	F12.	Privacy

Solicitor Factor Selection (Re Suspect)

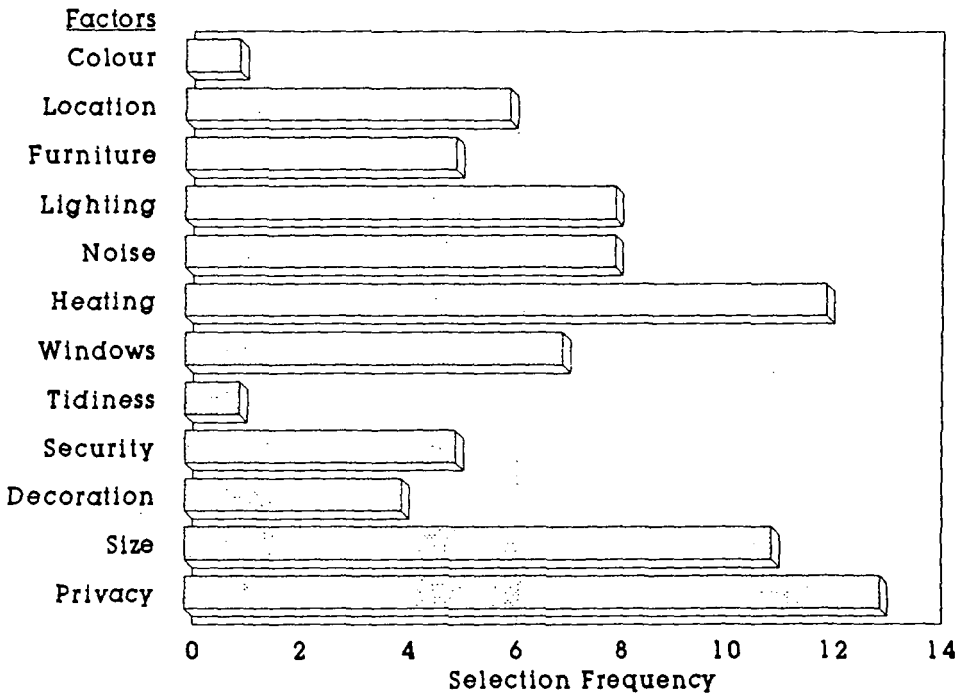


Figure 43

Privacy (F12) is selected by 54% of the subjects as having the most detrimental effect.

Heating (F6) being rated second with 50% selection.

Size (F11) of the room being selected by 46% of the subjects as the third highest factor perceived as being detrimental to the interview environment.

Lighting (F4) and noise (F5) are given similar ratings, being selected by 33% of the subjects.

Windows (F7) are selected by 29% of the subjects as being a detrimental environmental factor.

Location (F2 is rated by 25% of the subjects as a factor.

Furniture (F3) and security (F5) have a similar detrimental effect (21%) by the subjects.

Decoration (F10) is rated by 17% of the subjects as being detrimental to their clients.

Tidiness (F8) and colour (F1), are rated as the least of the environmental factors, being selected by only 4% of the subjects.

Figure 44 shows a comparison between Figure 42 and Figure 43.

From this comparison it is possible to see that the subjects consider that different factors within the interview environment effect their clients in different ways to themselves.

F1.	Colour	F7.	Windows
F2.	Location	F8.	Tidiness
F3.	Furniture	F9.	Security
F4.	Lighting	F10.	Decoration
F5.	Noise	F11.	Size
F6.	Heating	F12.	Privacy

Solicitor Factor Selection

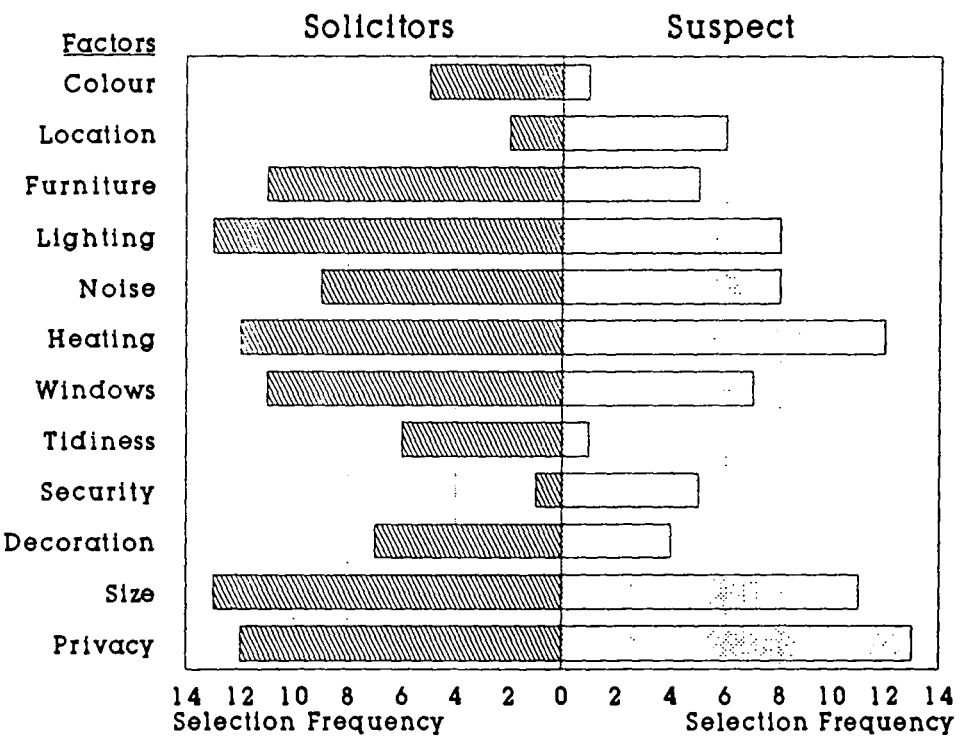


Figure 44

Figure 45 shows a breakdown of the results of the questionnaire.

	SOLICITOR			CLIENT		
NO	F.No	Factor	Score N=24	No	Factor	Score N=24
1	F11	Size	14	F12	Privacy	13
2	F4	Lighting	13	F6	Heating	12
3	F6	Heating	12	F11	Size	11
4	F3	Furniture	11	F4	Lighting	8
	F7	Windows	11	F5	Noise	8
6	F12	Privacy	10	F7	Windows	7
7	F5	Noise	9	F2	Location	6
8	F10	Decoration	6	F3	Furniture	5
				F9	Security	5
9	F8	Tidiness	5			
	F1	Colour	5			
10				F10	Decoration	4
11	F2	Location	2	F8	Tidiness	1
				F1	Colour	1
12	F9	Security	1			

The breakdown is set out as a table of comparison between the results of the questionnaire in relation to solicitors and clients.

Column one depicts the rank order of the factors in terms of the number of times selected by the subjects (solicitors) as the factor that could have a detrimental effect on the interview environment.

Column two and five give the factor number of the factor selected in each category.

Column three and six name the factors in question.

Column four and seven given details of the number of times that factor was selected by the subjects.

4.4.6 Summary

1. There was a low response rate (24%) to the questionnaire.

2. The results indicate that solicitors perceived that factors that could be detrimental to their perception of the environment were not necessarily the same factors that would have an effect on their clients.

3. In order to produce more reliable evidence of different perceived environmental perception, a more detailed study could be undertaken in order to:

(a) Obtain a larger and more reliable database.

(b) Compare the said data with specific interview environments.

4. A comparison with the results of study three and five is made in the Discussion Section (Ch.5).

Study Five

(Police, Victim, Witness and Suspect Questionnaire)

4.5.1 Overview

Questionnaires pertaining to 100 victims, 100 witnesses and 100 suspects, were sent to the Police Officers who identified themselves in study three as persons who would assist further in the research being carried out. The Officers were requested to present this questionnaire to the relevant category of person (i.e. victim, witness or suspect). The selected subjects were required to select and rank in order of preference the aspects of the interview environment which they felt had the most effect on themselves (Appendix 'E', p.354-355). The subjects selected from the same list of factors as used in studies three and four.

4.5.2 Objective

To obtain research data from victims, witnesses and suspects with regards to interview room environments.

To analyse the data in order to consider:

1. What factors victims, witnesses and suspects perceive as being detrimental to interview environments.

2. Compare the result of the survey with the findings of study two (interview room physical environment), study three (Police Officers questionnaire), and study four (solicitors questionnaire).

4.5.3 Method

In order to record the factors selected by each individual subject, a standardised survey questionnaire was used (Appendix 'E', p.353-357).

The questionnaire presented to the subjects (Police Officers, victims, witnesses and suspects), consisted of a letter of introduction detailing the reason for the survey (Appendix 'E', p.351-353), and a copy of the questionnaire (Appendix 'E', p.356-357).

(i) With regards to the interview room they had just used, subjects were asked to select and place in rank order of preference, the factors that they consider had the most effect upon them. The subjects made their selection from the same list as used in studies three and four.

(ii) Having ranked the factors, the subjects were then requested to indicate the type

of effect they perceived the factor had. (I.e. very positive, positive, neutral, negative, very negative).

(iii) The subjects were then invited to comment on any other environmental aspect that they felt may have an effect on the interview.

3. Details of the category of the subject (victim, witness, suspect), and the location of the interview room in question were recorded.

4.5.4 **Administration**

The survey was conducted between June and July of 1989.

From the returns in study three, 82 Police Officers had been identified as willing to assist further in the research. They were each sent a questionnaire to complete and a request to ask a given number of victims, witnesses and suspects to complete a similar questionnaire.

The victims, witnesses and suspects invited to participate in t he survey were selected by each Police Officer after they had been interviewed at a Police station by the Police Officer concerned.

The subjects were informed that the data obtained would be treated in the strictest confidence, and that no disclosure of any individuals identity would be made.

4.5.5 Results

Sixty six subjects (Police, victims, witnesses and suspects), responded to the study.

From the 82 requests made to Police Officers, 36 completed questionnaires were returned, this represented 32% response rate.

The results have been analysed as shown in Figures 46-50 by mean score rating, rank correlation, Figure 51, and perceived effect comparison, Figures 52-53. The results of the Police responses are shown in Figure 46 overleaf.

The factor references used are:

F1.	Colour	F7.	Windows
F2.	Location	F8.	Tidiness
F3.	Furniture	F9.	Security
F4.	Lighting	F10.	Decoration
F5.	Noise	F11.	Size
F6.	Heating	F12.	Privacy

Overall Factor Effect Rating Police Subjects

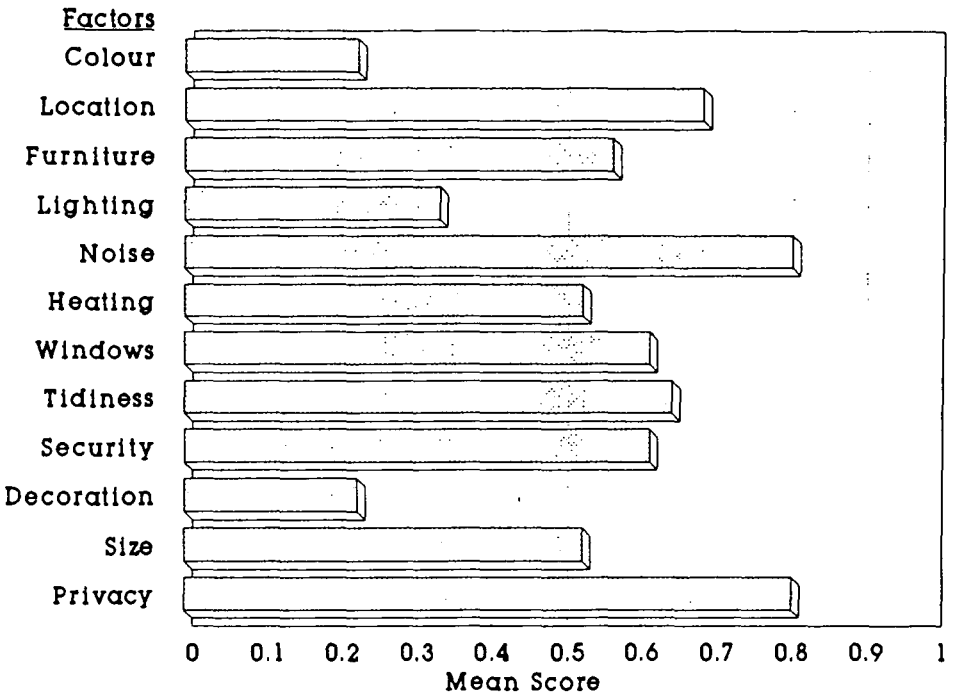


Figure 46

It can be seen that noise (F7) and privacy (F12) are reported by Police Officers as being the factor that has the most effect (Mean Score 0.8) upon their perception of the interview environment.

Tidiness (F8. M.S. 0.7) is shown to be the next factor which has effect on their perception of the interview environment.

Windows (F7) and security (F9) were reported as having similar effects (M.S. 0.6) on the Police Officers perception of the interview environment.

Furniture (F3, M.S. 0.58) together with heating (F6) and size of room (F11), (M.S. 0.57), were reported as having similar effect.

Lighting (F4, M.S. 0.32) was reported as having little effect compared with the other factors.

Colour (F1) and decoration (F11) with a Mean Score of 0.21 were reported to be the factors that least effected Police Officers perceptions of the interview environment.

Forty questionnaires with regards to victims, witnesses and suspects were returned.

Seven victims returned completed questionnaires as did six witnesses and eleven suspects.

The responses in respect to the victims is shown in Figure 47 (overleaf).

The factor references used are:

F1.	Colour	F7.	Windows
F2.	Location	F8.	Tidiness
F3.	Furniture	F9.	Security
F4.	Lighting	F10.	Decoration
F5.	Noise	F11.	Size
F6.	Heating	F12.	Privacy

Overall Factor Effect Rating Victims

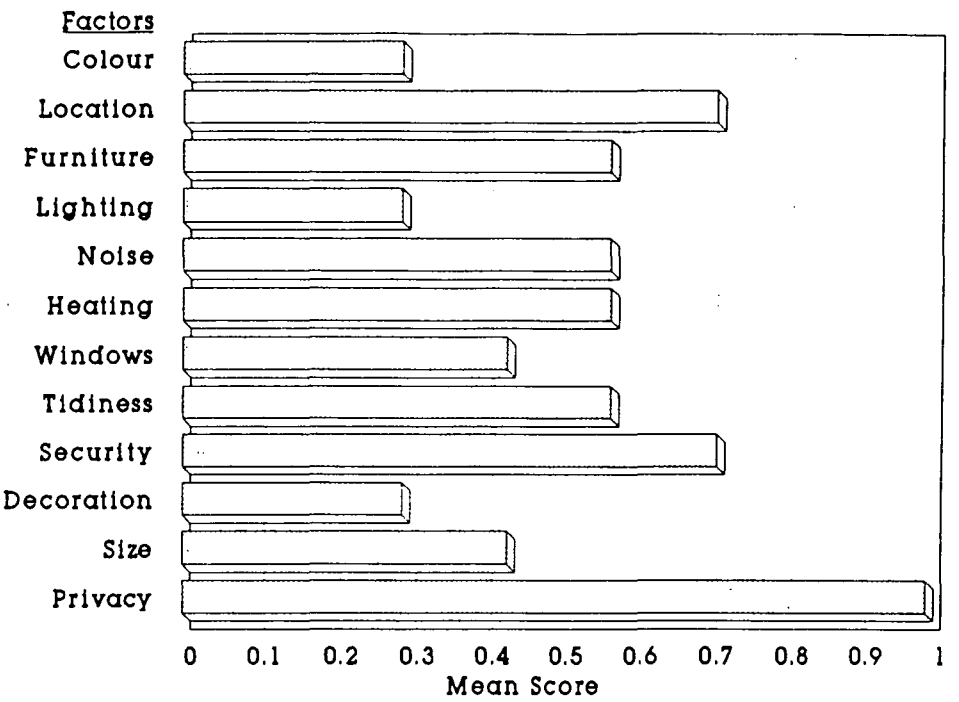


Figure 47

It can be seen that privacy (F12) was reported by victims as being the factor that has the most effect (Mean Score 0.99) upon their perception of the interview environment.

Location (F2) and security (F9) are shown (M.S. 0.7) to be the next factors which effect the victims perception of the interview environment.

Furniture (F3), noise (F5), heating (F6) and tidiness (F8), were all reported as having similar effects (M.S. 0.58) on the victims perception of the interview environment.

Windows (F7) together with size (F11), were reported (M.S. 0.45) as having similar effects.

Colour (F1), lighting (F4) and decoration (F10) with a Mean Score of 0.29, were reported to be the factors that least effected the victims perceptions of the interview environment.

The responses with regards to the witnesses are shown in Figure 48.

The factor references used are:

F1.	Colour	F7.	Windows
F2.	Location	F8.	Tidiness
F3.	Furniture	F9.	Security
F4.	Lighting	F10.	Decoration
F5.	Noise	F11.	Size
F6.	Heating	F12.	Privacy

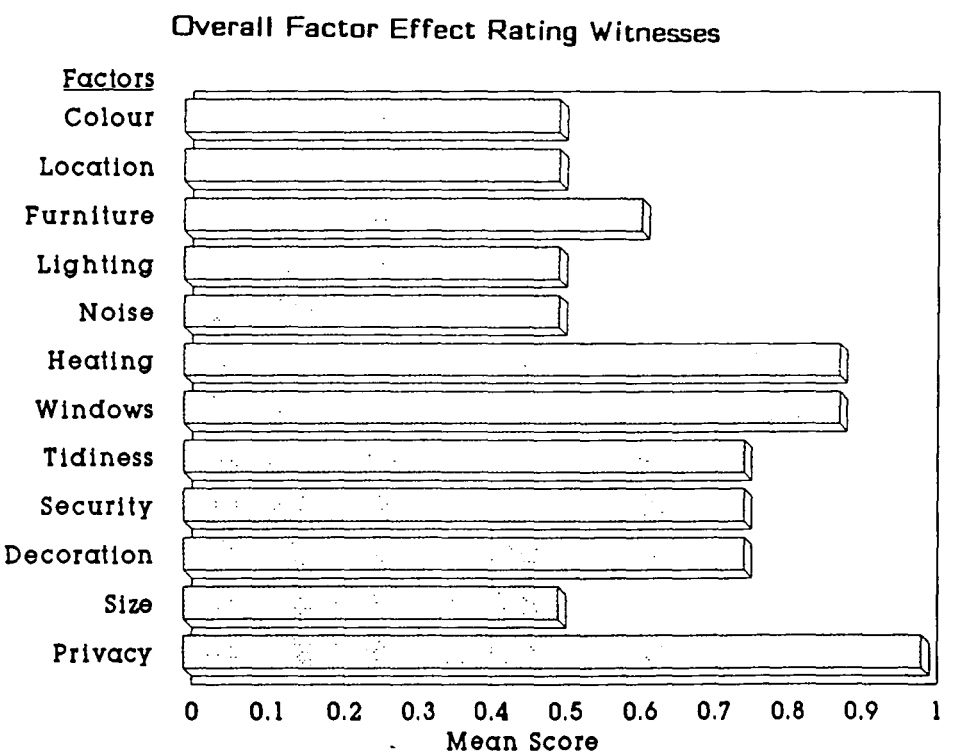


Figure 48

It can be seen that privacy (F12) was reported by witnesses as being the factor that has the most effect (Mean Score 1) upon their perception of the interview environment.

Heating (F6) and windows (F7) are shown (M.S. 0.88) to be the next factors which effect the witnesses perception of the interview environment.

Tidiness (F8), security (F9) and decoration (F10) were all reported as having similar effects (M.S. 0.72) on the witnesses perception of the interview environment.

Furniture (F3, M.S. 0.6) was reported as the next factor having an effect of the witnesses perception of the interview environment.

Colour (F1), location (F2), lighting (F4), noise (F5) and size (F11), with a Mean Score of 0.5, were reported to be the factors that least effected the witnesses perceptions of the interview environment.

The responses with regards to the returns of the suspects are shown in Figure 49 (overleaf).

The factor references used are:

F1.	Colour	F7.	Windows
F2.	Location	F8.	Tidiness
F3.	Furniture	F9.	Security
F4.	Lighting	F10.	Decoration
F5.	Noise	F11.	Size
F6.	Heating	F12.	Privacy

Overall Factor Effect Rating Suspect

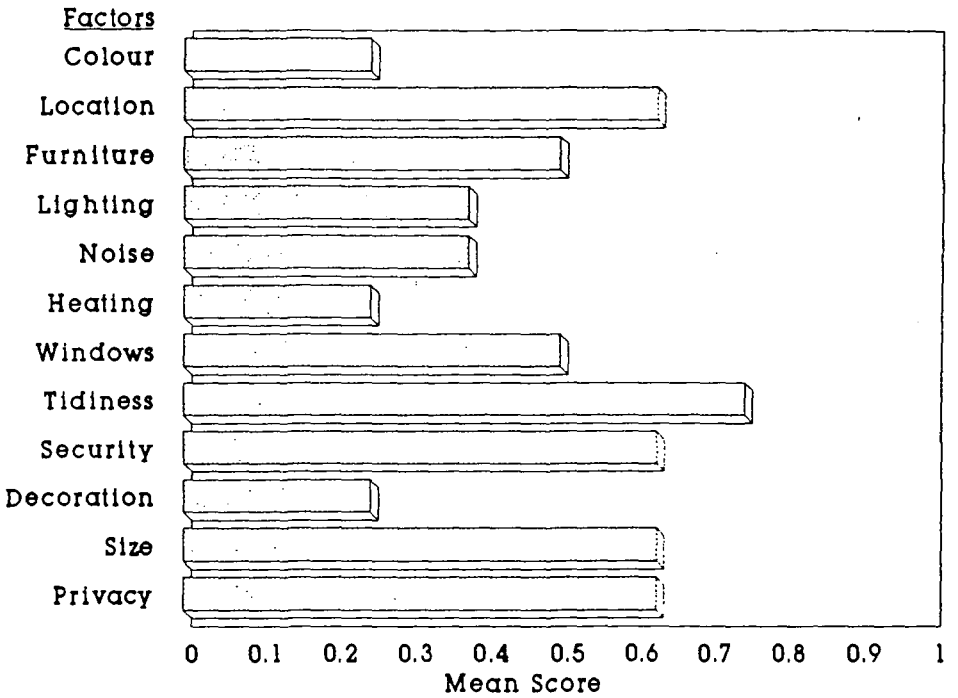


Figure 49

It can be seen that tidiness (F8) was reported by suspects as being the factor that has the most effect (Mean Score 0.73) upon their perception of the interview environment.

Location (F2), security (F9), size (F11) and privacy (F12), are all shown (M.S. 0.61) to be the next factors which effect the suspects perception of the interview environment.

Furniture (F3) and windows (F7) were reported as having similar effects (M.S. 0.5) on the suspects perception of the interview environment.

Lighting (F4), together with noise (F5) were reported (M.S. 0.38) as having similar effects.

Colour (F1), heating (F6) and decoration (F10), with a Mean Score of 0.24, were reported to be the factors that least effected the suspects perceptions of the interview environment.

Figure 51 (overleaf) shows an overall factor effect rating for all subjects.

Five (5%) victims, 7 (7%) witnesses and 4 (4%) suspects declined to complete a questionnaire on request from the Police Officers.

The overall factor effect rating of all subjects is shown in figure 50 (overleaf).

The factor references used are:

F1.	Colour	F7.	Windows
F2.	Location	F8.	Tidiness
F3.	Furniture	F9.	Security
F4.	Lighting	F10.	Decoration
F5.	Noise	F11.	Size
F6.	Heating	F12.	Privacy

Overall Factor Effect Rating All Subjects

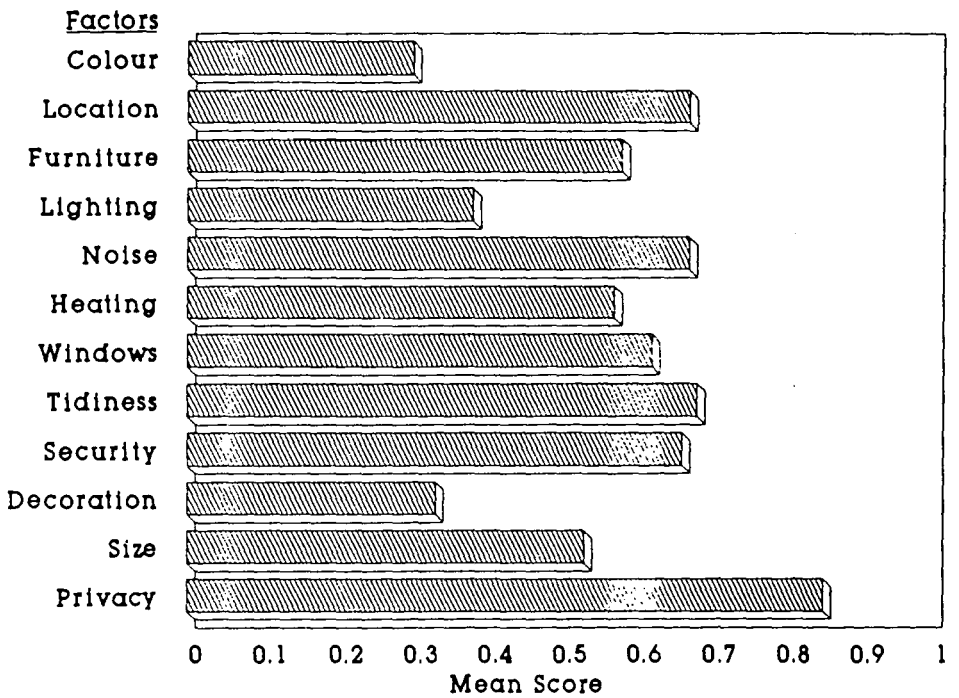


Figure 50

It can be seen that privacy (F12) was reported as the factor that had the most effect (Mean Score 0.84) upon the subjects perception of the interview environment.

Tidiness (F8, M.S. 0.68) is shown to be the next factor which effects the subjects perception of the interview environment.

Location (F2), noise (F5) and security (F9), were all reported as having similar effects (M.S. 0.67) overall on the subjects perception of the interview environment.

Windows (F7, M.S. 0.6) was reported overall as the next factor to effect the subjects perception of the interview environment with furniture (F3, M.S. 5.7) and heating (F6, M.S. 5.6) next.

Lighting (F4, M.S. 0.38) and decoration (F10, M.S. 0.34) being reported overall as one of the least of factors effecting the subjects perception of the interview environment, and colour (F1, M.S. 0.29) being the factor that the subjects report as having the least effect on their perception of the interview environment.

Figure 51 shows a breakdown of the results of the questionnaire.

The breakdown is set out as a table of comparison between the results of the questionnaire in relation to victims, witnesses, suspects and Police Officers.

Column one shows the analysis of the victims questionnaire returns. The environmental factors being ranked in order of preference (i.e. privacy having most preference and windows least). Column two shows the analysis of the witnesses questionnaire, column three the analysis of the suspects questionnaire and column four, an analysis of the Police Officers questionnaire in a similar manner to the analysis carried out in column one.

RANK	VICTIM	WITNESS	SUSPECT	POLICE
1	PRIVACY	PRIVACY	SECURITY	PRIVACY
2	SECURITY	NOISE	PRIVACY	NOISE
3	NOISE	HEATING	TIDINESS	SECURITY
4	TIDINESS	SECURITY	NOISE	SIZE
5	LIGHTING	LIGHTING	LOCATION	LOCATION
6	HEATING	TIDINESS	SIZE	FURNITURE
7	SIZE	LOCATION	WINDOW	TIDINESS
8	LOCATION	FURNITURE	COLOUR	HEATING
9	FURNITURE	SIZE	LIGHTING	LIGHTING
10	DECORATION	WINDOW	DECORATION	COLOUR
11	COLOUR	DECORATION	FURNITURE	DECORATION
12	WINDOWS	COLOUR	HEATING	WINDOWS

Figure 51

Privacy (F12) is ranked as the most important aspect with regards to victims, witnesses, Police and the second most important aspect with regards to suspects.

Security (F9) is ranked most important by suspects, second most important by victims, third by Police and fourth by witnesses.

Noise (F5) is ranked second most important by both witnesses and Police, third by victims and fourth by suspects.

Heating (F6) is ranked third most important by witnesses, sixth by victims, eighth by Police and the lowest ranking (12) by the suspects.

Tidiness (F8) is ranked third by the suspects, fourth by the victims, sixth by the witnesses and seventh by the Police.

Size (F11) is ranked fourth by the Police, sixth by the suspect, seventh by the victim and ninth by the witnesses.

Lighting (F4) is ranked fifth by both the victims and the witnesses, and ninth by the victims and eleventh by the suspects.

Windows (F7) are ranked seventh by the suspects, tenth by the Police, eleventh by the victims and twelfth by the witnesses.

Decoration (F10) is ranked tenth by the victims and suspects, eleventh by the witnesses and the Police.

Figure 52 shows a table of comparison indicating the ranked order of the perceived effect, as shown in Figure 52, but includes positive (+), neutral (N) and negative (-) figures which indicate the % number of the subjects who perceived the factor as having a positive, neutral or negative effect upon them.

VICTIM				WITNESS				SUSPECT				POLICE			
PRIVACY	+	N	-	PRIVACY	+	N	-	SECURITY	+	N	-	PRIVACY	+	N	-
	86	14	0		38	12	50		37	38	25		58	20	22
SECURITY	+	N	-	NOISE	+	N	-	PRIVACY	+	N	-	NOISE	+	N	-
	57	29	14		13	50	37		37	38	25		50	20	30
NOISE	+	N	-	HEATING	+	N	-	TIDINESS	+	N	-	SECURITY	+	N	-
	43	43	13		12	13	75		38	25	37		50	38	12
TIDINESS	+	N	-	SECURITY	+	N	-	NOISE	+	N	-	SIZE	+	N	-
	29	43	28		37	38	25		25	62	13		42	42	16
LIGHTING	+	N	-	LIGHTING	+	N	-	LOCATION	+	N	-	LOCATION	+	N	-
	14	72	14		13	50	37		63	37	0		28	42	30
HEATING	+	N	-	TIDINESS	+	N	-	SIZE	+	N	-	FURNITURE	+	N	-
	29	43	28		13	25	62		50	38	12		28	42	30
SIZE	+	N	-	LOCATION	+	N	-	WINDOW	+	N	-	TIDINESS	+	N	-
	43	57	0		25	63	12		13	50	37		38	34	28
LOCATION	+	N	-	FURNITURE	+	N	-	COLOUR	+	N	-	HEATING	+	N	-
	58	28	14		25	38	37		25	75	0		34	46	20
FURNITURE	+	N	-	SIZE	+	N	-	LIGHTING	+	N	-	LIGHTING	+	N	-
	29	43	28		38	62	0		38	62	0		30	66	4
DECORATION	+	N	-	WINDOW	+	N	-	DECORATION	+	N	-	COLOUR	+	N	-
	0	72	28		37	13	50		25	75	0		7	77	16
COLOUR	+	N	-	DECORATION	+	N	-	FURNITURE	+	N	-	DECORATION	+	N	-
	14	72	14		25	50	25		25	50	25		8	76	16
WINDOWS	+	N	-	COLOUR	+	N	-	HEATING	+	N	-	WINDOWS	+	N	-
	29	43	28		25	50	25		25	75	0		28	38	34

Summary

If we consider that a factor can be perceived to either have an effect on our perception or not, then it is possible to consider that by ranking the accumulative positive and negative scores, as shown in Figure 53, it is possible to show a table of comparison between the subjects showing the rank order of factors having regards to their ability to effect the subjects perception, Figure 53

Rating	All Subjects	Police	Victim	Witnesses	Suspect
1	PRIVACY	PRIVACY NOISE	PRIVACY	PRIVACY	TIDINESS
2	TIDINESS	LOCATION	LOCATION SECURITY	HEATING WINDOWS	PRIVACY SIZE SECURITY LOCATION
3	LOCATION NOISE SECURITY	TIDINESS	TIDINESS NOISE FURNITURE HEATING	TIDINESS SECURITY DECORATION	FURNITURE WINDOWS
4	WINDOWS	WINDOWS SECURITY	WINDOWS SIZE	FURNITURE	NOISE LIGHTING
5	FURNITURE	FURNITURE	COLOUR LIGHTING DECORATION	COLOUR LIGHTING LOCATION NOISE SIZE	COLOUR HEATING DECORATION
6	HEATING	HEATING SIZE			
7	SIZE	LIGHTING			
8	LIGHTING	DECORATION COLOUR			
9	DECORATION				
10	COLOUR				

There was a low response rate, 32% Police, 9% Victims, 7% witnesses and 13% suspects.

The results indicate that whilst selection differed certain factors, such as privacy and location, rated highly as factors effecting the subjects whilst other factors such as decoration and colour rated low.

A comparison with the results of study three and four is considered in the Discussion Section, Chapter 5.

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CHAPTER 5

DISCUSSION SECTION

5. DISCUSSION SECTION

5.1 Introduction

As stated in the introduction to the methodology and results sections, the main concern of this thesis is to examine the effects that environmental stimuli can have on an interview situation, and to provide valid, reliable and useful information to those who plan, design and implement policy decisions with regards to police interview environments.

I consider that in order to understand the psychological interaction that occurs between the environment as a physical setting and the environment as perceived, it is necessary to take into account:

a) The physical setting.
b) The physical attributes.
c) The subjects.
d) The interaction process.

The intention of this chapter is to draw together the information contained in this thesis, to highlight the links between the psychological research and the practical field surveys and in the light of these links to discuss the practical implications of this research.

5.2 Interview Room Developments

In 50% of the cases the rooms used for undertaking interviews were not specifically designed for interview room purposes, and as

such have been adapted where necessary for such use. From the survey of the interview rooms it can be seen that the interview rooms are of differing shapes and sizes. (Ch.4 Figure 29 p.173).

A major factor in the development of interview room environments, is the necessity for cost consciousness as outlined in the Home Office Circular (H.O.C.) 24/77 (Ch.1 p.23-24). The constraint outlined in the circular led to a linear design process (Ch.2 p.57) as opposed to a conceptual design process (Ch.2 p.59). The linear design process does not provide for the development of alternative designs as it does not provide adequate feedback criteria to ensure suitability but is based on a cost-benefit process.

H.O.C. 24/77 points out that an interview room of $6m^2$ is sufficient to accommodate 4 persons (Ch.1 p.24).

Hall's (1966) research into distance zones outlines certain factors with regards to spatial distance in respect to social interaction (Ch.3 p.120-124).

If consideration is given to Hall's research it is possible to understand why the designation of $6m^2$ has been made.

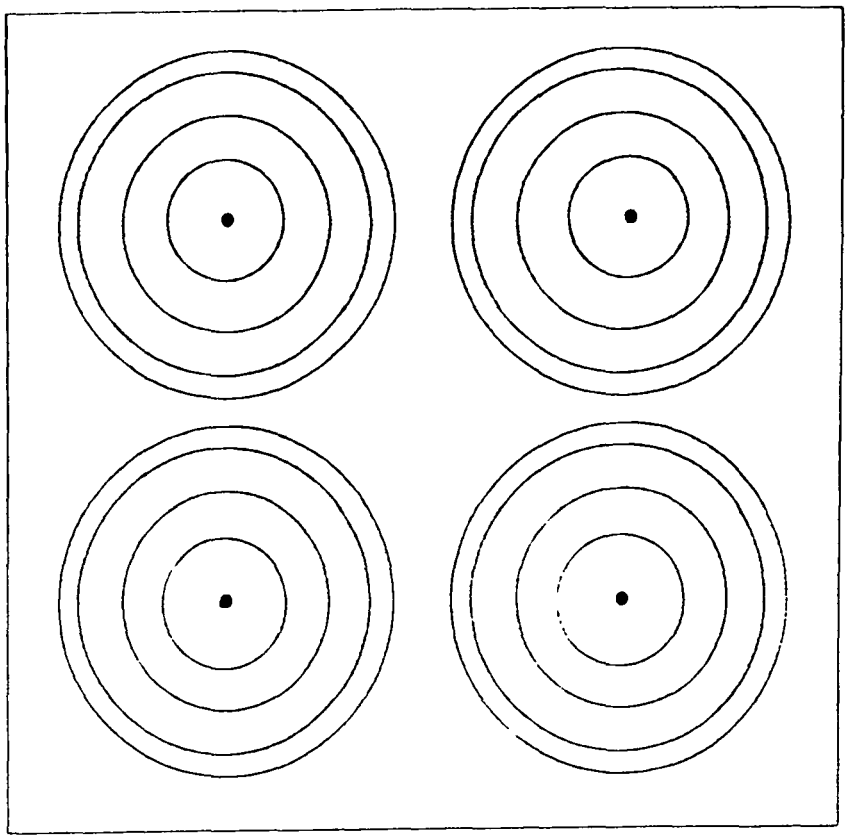

Figure 54

Room Size and Personal Zones

Figure 54 shows to scale the intimate (6" to 1' 6") and personal (1' 6" to 4') distance zone superimposed onto a scaled model of a room 6m^2, we can see that this is in accordance with Hall's concept and would be an appropriately sized room for interviews of four or less persons, taking into account personal and intimate special zones.

The designated room size also takes account of the cost benefit analysis of establishing interview environments to certain standards.

If it is accepted that personal zone interaction differs depending on the size of the room, then one would expect that where the room size falls below the size suggested to allow personal zone security, then subjects would perceive this lack of security.

The implication of this effect would be that if an interview room is designed within Hall's concepts, then by its very nature it should only be used by the number of persons prescribed. If this were the case, then in establishing interview environments, account must be taken of an interview situation where more than four persons would be involved, i.e. suspect, parent(s), solicitor, police officer(s), and possibly social worker(s)) and an interview environment such as custody suite should have at least one interview room larger than $6m^2$.

Police awareness of these interactive zones are outlined in Ch.1 p.15-16.

Initially the designation of $6m^2$ would appear to fit the criteria for the cost-benefit aspects of design and the psychological aspects of human interaction.

5.3 Furniture

Another aspect to take into account when considering room size is the possible effect of furniture within the room. The introduction of furniture to the interview environment not only changes the availability of free space for interaction by a factor between 33% to 50% (Ch.4 p.177-180), but also sets the areas available for such interaction.

If we now consider the table seating preferences and reported results of the studies, as described in Figure 1 (Ch.1 p.15) and Figure 17 (Ch.3 p.131), it is possible to see that the

availability of space and the seating patterns could be seen to affect the physiological and psychological interaction of the interview.

Out of the 37 rooms surveyed in study two, it is possible to see (Figure 33 Ch.4 p.177), that in 33 of the rooms the seating was placed in a confrontational competitive (Ch.1 p.16) or compete/negotiate/sell (Ch.3 p.138) style.

Figure 55 shows the scaled drawings of the interview rooms surveyed in study two (as shown in Figure 33. In Figure 55 a scaled drawing of Hall's interaction zones has been placed on the centre of each of the chairs shown in Figure 33 (p.177)

It is possible to see that not only are the majority of seating patterns in a confrontational style, but also due to the size of some of the rooms, personal interaction zones are infringed. It can also be seen that in seven of the interview rooms surveyed, there had been placed seating for more than four persons.

If we consider as an example, rooms 17 to 20 (Figure 56) these rooms having been built in accordance with H.O.C. 24/77 to approximately $6m^2$.

It can be seen that the furniture found within the actual interview environments would indicate that interviews took place with differing numbers of participants. Room 17 five people, room 19 three and rooms 18/20 two.

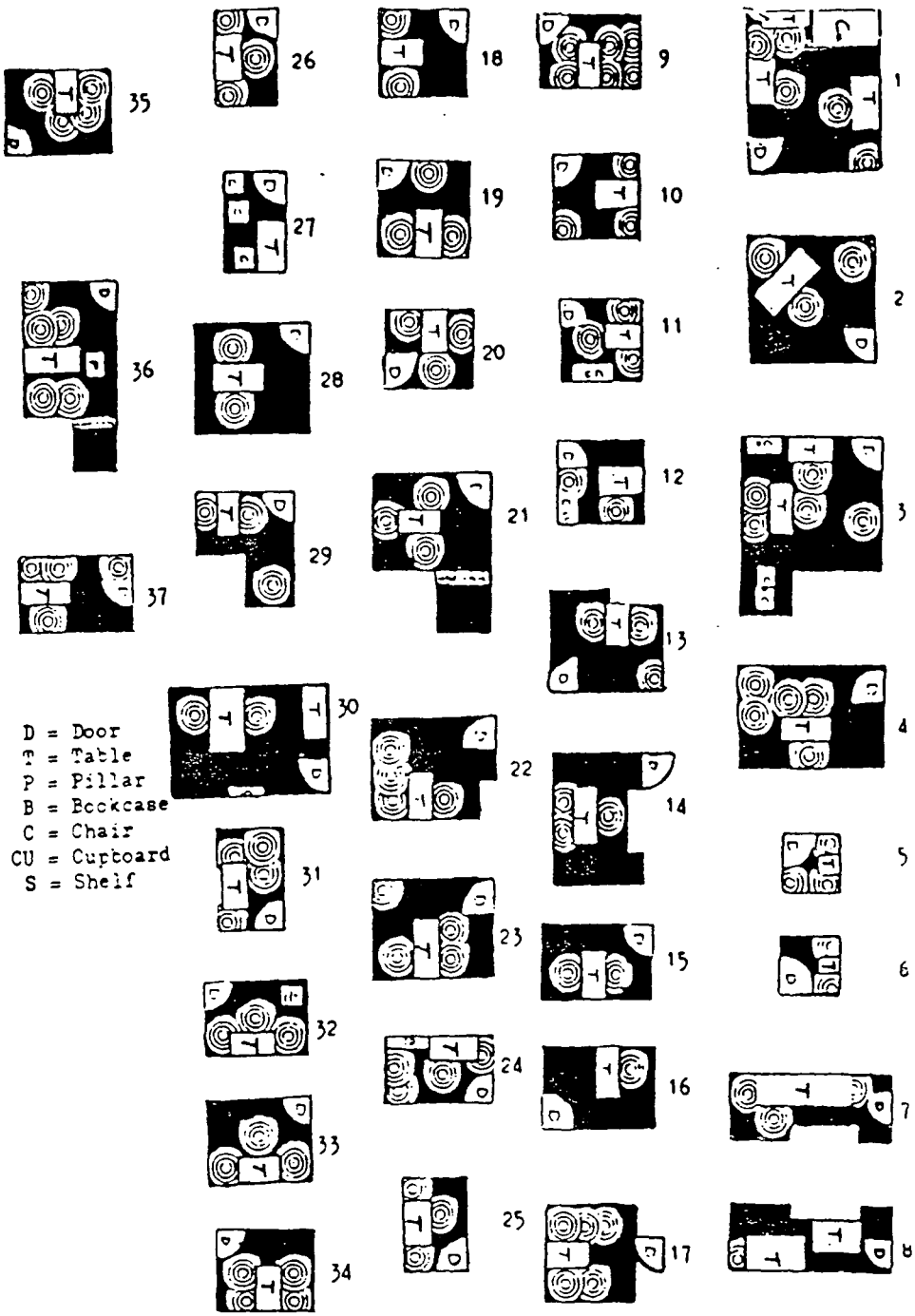

Figure 55

Seating and Interaction Zones

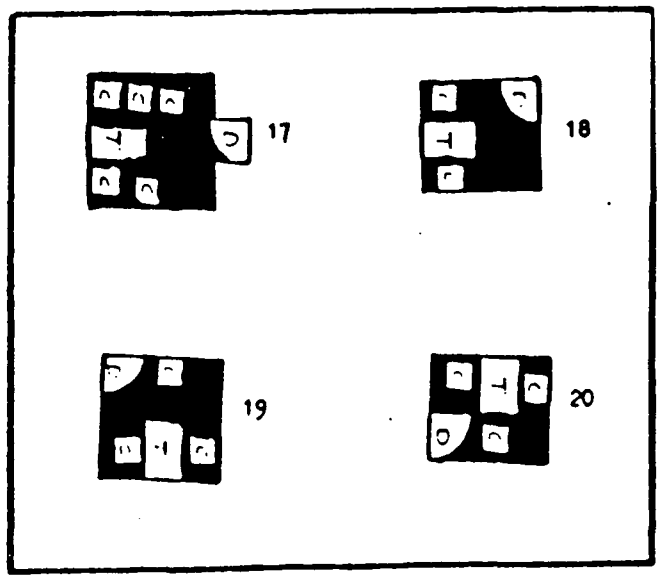

Figure 56

Profile of Interview Rooms 17 - 20

It can also be seen that the size of the room and the furniture layout can dictate the interview style (Ch.1 p.15, Ch.2 p.131).

The tables and chairs used are of a standard size and as such can only be placed in certain positions within the room due to the size of the room.

The placing of the furniture and chairs is controlled in part by the size of the room and the furniture regardless of the physiological and psychological effects this may have.

If we now consider the interaction zones as described (Ch.3 p.120-121) together with figure 56 we can see how the perception of crowding can occur depending on the number of persons present in the interview room.

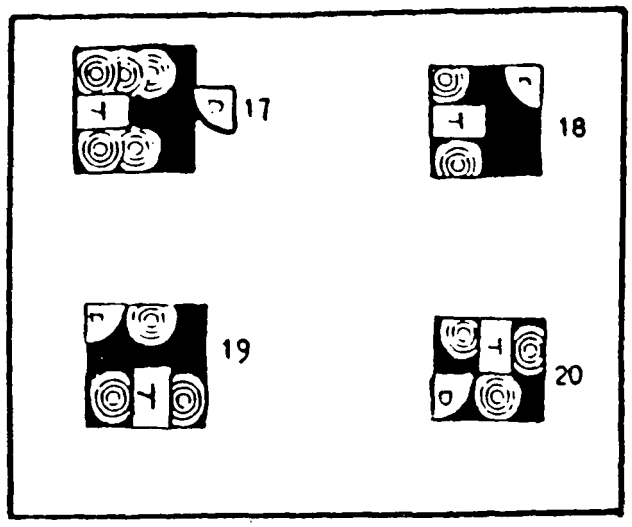

Figure 57

Interview Rooms 17 - 20 Interaction Zones

The effect of furniture within the interview environment was also raised in studies one, three, four and five with the following results:

In the P.E.Q.I. Study (Study 1 Ch.4 p.145) question 6 - 'Have no furniture that cause barriers' produced a 91% agreement level from police officers.

In Study three (Ch.4 p.194) police officers listed furniture as the third most detrimental factor within the interview environment.

In Study four (Ch.4 p.206) solicitors listed furniture as the fifth most detrimental factor to themselves, and sixth most detrimental factor to their client.

In Study five (Ch.4 p.226), furniture was ranked as being ninth by victims, eighth by witnesses, eleventh by suspects and sixth by police officers as a factor (from the list of twelve factors studies), that affects the interview situation.

In the review of police literature (Ch.1 p.15), it was suggested that the furniture layout of an interview room should be moved to suit the style of the interview, seating positions should be considered and there should be no awkward seating arrangements or confusion over who sits where.

The results of survey two (p.177-178) with regards to furniture, indicate that the furniture used in the majority of interview rooms is of a standard type.

Whilst the type of furniture used is adequate for the purpose, the size, style and type of furniture should be given serious consideration in order to enhance the interview interaction.

The positioning and use of a swivel chair for the person conducting the interview, in order that they can adjust their seating position, could facilitate movement without perceived intrusion of environmental space.

The comfort of chairs is another feature that can be taken into account. If a person is experiencing a degree of discomfort from sitting, they are not liable to be concentrating on the interview itself and are liable to become agitated.

From the initial research undertaken it can be seen that room size and furniture size can affect the interview environment and the style of human interaction that can occur.

Recommendations

1. Further research should be undertaken in respect to room size and furniture size with specific reference to personal space interaction.

2. Consideration should be given to the type and comfort of seating used in interview environment.

If consideration is given to the size and type of furniture used in these interview rooms, it could be possible to change the interaction style of the room by changing the style and position of the furniture.

Another method of changing the interaction capability of an interview situation would be at the planning stages to ensure that at least one interview room was larger than the basic $6m^2$ and could accommodate more people.

5.4 Privacy

The results of Study one (Ch.4 p.145), Study two (Ch.4 p.182), and Study three (Ch.4 p.193), all indicate that a lack of privacy is the main factor in the interview environment that people perceive as affecting them.

This would confirm the views of Inbau, Reid and Buckley. (Ch.1 p.11).

Privacy can be affected:

a) Sound Intrusion.
b) Visual Intrusion.
c) Ergonomic Intrusion.

With reference to a lack of sound privacy the psychological literature (Ch.3 p.100) outlines the effects of noise and introduces the concept of 'Speech Privacy' (p.105). If we consider Study 2 (Ch.4 p.168-169) we can see that in the majority of interview rooms there is sound intrusion fluctuating between 20dB(A) and 58dB(A).

The effects of noise intrusion and lack of speech privacy in these cases can lead to an overall perceived lack of general privacy.

Another factor that can be seen to influence privacy is visual perception.

In Study 1 (Ch.4 p.145) there was a 97% agreement that the interview room should be free from interruptions. In Study 2 (Ch.4 p.182) it was reported that interviews were being interrupted and there was a lack of visual privacy due to the presence of windows in the interview rooms.

The effect of spatial intrusion has been discussed with reference to room size, furniture layout and personal space.

One finding of this research is that a lack of privacy is a major factory in respect to

interview environments, but privacy itself is not made up of one specific environmental or psychological factor.

Recommendations

Further research would have to be undertaken in order to establish to what degree different environmental factors affect perceived privacy within interview environments.

It is possible at the design stage to alleviate as far as possible the problem of privacy by:-

a) Ensuring private access to interview environments via a non-public entrance.

b) Location of the interview rooms.

i) Interview facilities away from police stations.

ii) Separate interview rooms for differing categories of people.

c) Adequate levels of sound proofing and design of windows.

Another feature that could assist in the non-interruption of interviews, is the introduction of viewing apertures to enable rooms to be checked without disturbing the people inside.

5.5 Temperature and Humidity

It can be seen from Study two (Ch.4 p.171-172) that the temperatures within the interview rooms fluctuated between 17'C to 24.5'C and the relative humidity levels fluctuated between 25% and 60%.

If we consider the possible effects that temperatures can have both physiologically and psychologically (Ch.3 p.108-119), we can see that it is important to ensure that the temperature and humidity within an interview environment is maintained at a level between 18'C and 23'C, with a humidity level between 30% and 70% depending on the temperature.

Figure 58 shows the temperature levels recorded in Study two and indicates the levels of comfort.

It can be seen in figure 58 that four of the interview environments (11%) had temperature levels that could be classified as being at a warmth discomfort level (Ch.3 p.112).

Fifteen out of thirty seven interview rooms (41%) showed temperature levels at the upper comfort level (Ch.4 p.171).

Sixteen interview rooms (43%) showed temperature levels above the lower comfort level (Ch.3 p.112).

Two interview rooms (5%) showed temperature levels below the lower comfort level (19-21'C) but both were above the lower warmth level of 16'C (Ch.3 p.112).

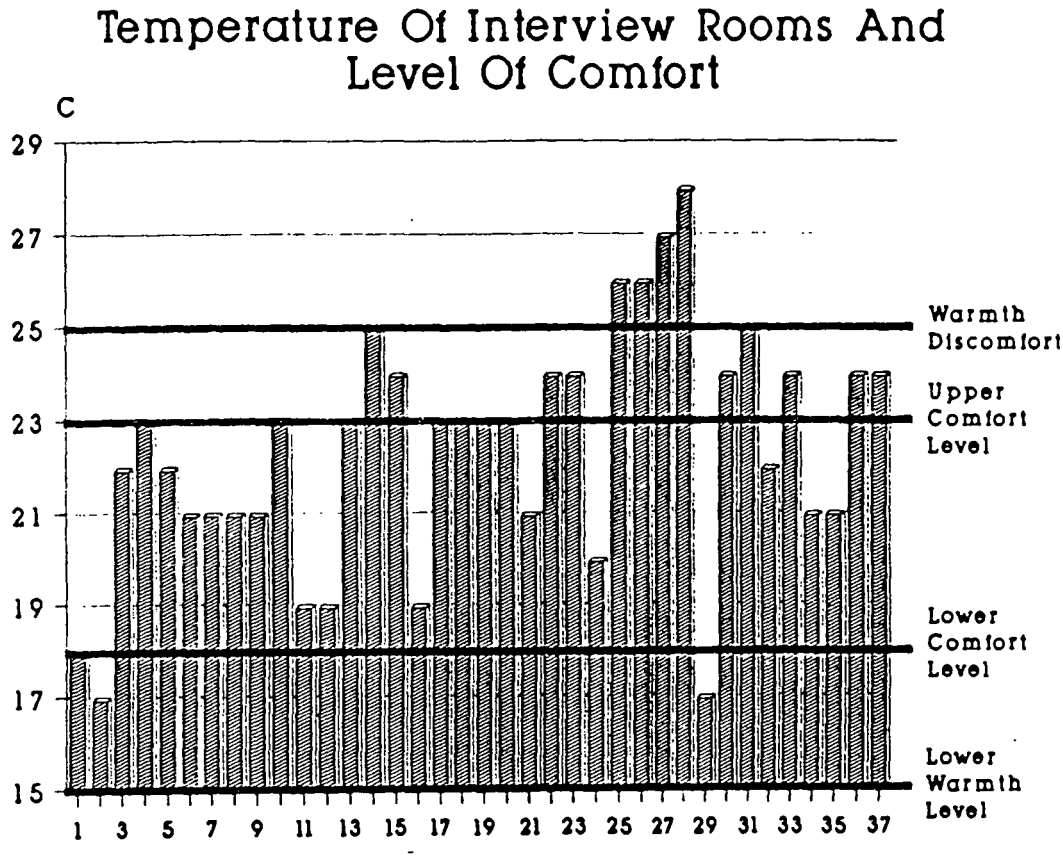

Figure 58

Interview Rooms

Figure 59 shows the relative humidity levels of the interview rooms and also indicates the levels of comfort.

Whilst the majority of interview rooms fell within the levels of comfort as shown on Figures 57 and 58, what is evident is the imbalance between the temperature and the humidity. (Ch.3 p.114).

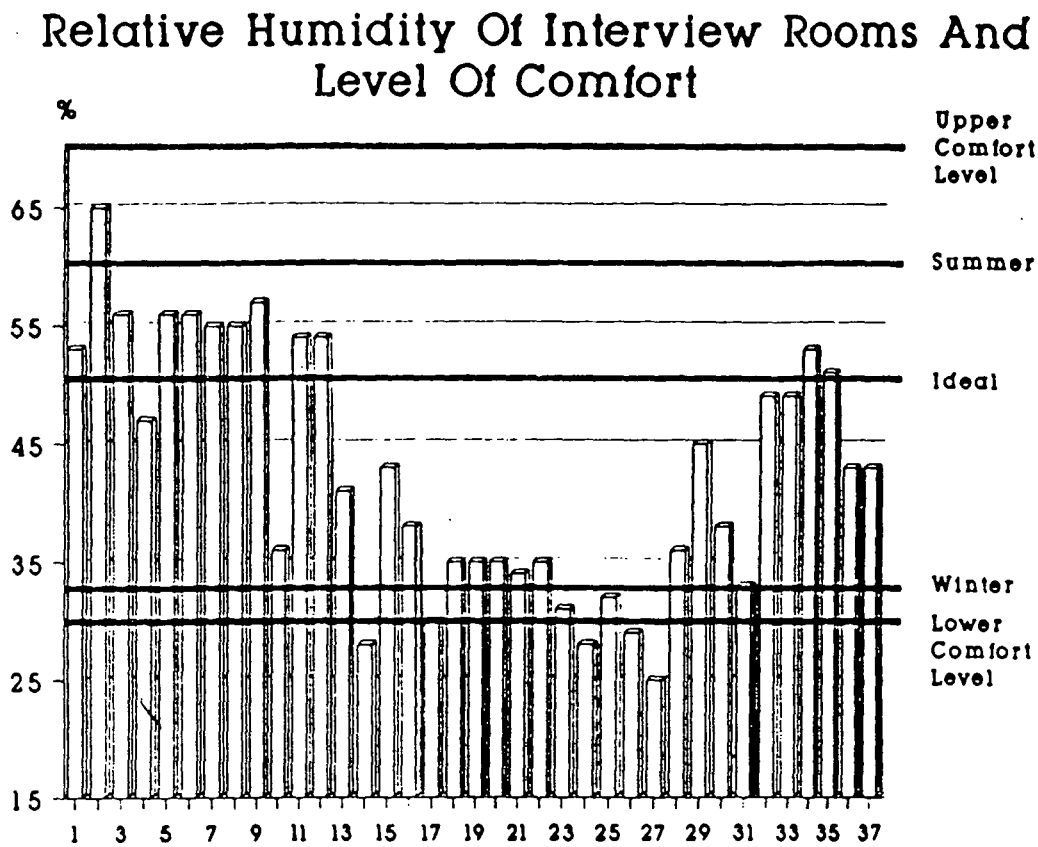

Figure 59

Interview Rooms

Another feature that was evident from the survey carried out in Study two was the lack of control over the temperature that the individuals using the interview rooms had. In many cases the interview rooms were heated by radiators that could be switched on or off, but had no means of actual overall temperature control. A solution to this problem would be to fit thermostatically controlled radiator valves. This would not only give the necessary control over the temperature required, but would also save on heating. An example of this is in interview rooms 25 and 26, where the temperature with the radiator off were 18.3'C and 19.4'C, but with the radiators switched on, were 26'C and 25.7'C. At the time

of the survey the radiators were switched off by officers using these rooms because of the temperature.

Another feature of the more modern interview rooms was a centralised air conditioning system. This in itself created problems because the system was not only for the interview room complex, but served the rest of the building with the control of the system being sited in another part of the building. The interview complex itself was a secure unit with no windows and locked doors. Due to the nature of this type of interview environment, people using it can experience a number of different environmental conditions, such as being in a small room with a person smoking, or with a smelly person or experiencing a temperature rise due to incidental body heat caused by the number of persons in the room. The perceived lack of control over the air conditioning and temperature of the room can create a psychological aversion to an interview environment and an unfavourable attitude towards the interview itself.

The main disadvantage with regards to individually controlled air conditioning in each interview room are:

a) The initial cost of such a system with regards to the Home Office cost-benefit criteria.

b) The availability of suitable systems with regards to possible noise aspects of air conditioning.

Recommendations

When secure custody/interview facilities are being established a separate air conditioning system should be installed. The system should be controllable from within the facility itself.

Further research be undertaken to establish the temperature changes within specified types of interview environments (size, number of persons, etc.) and possible effects of temperature changes.

5.6 Lighting

The result of Study two (Ch.4 p.162-164) indicate that the natural light level fluctuated between 18 and 847 lux and that the artificial light levels fluctuated between 110 and 720 lux. Twenty six interview rooms had some source of natural light and all 37 interview rooms had artificial lights fitted.

The recommended illumination level for routine work is 500 lux (Ch.3 p.82).

Figure 61 indicates that the artificial lighting levels in certain interview rooms fell below the recommended level for routine work. (Ch.3 p.82).

In Study one (Ch.4 p.146) the necessity for having good lighting was rated highest in the P.E.Q.I. questionnaire with all of the police subjects selecting the need to have good lighting as the main aspect of the interview room environment.

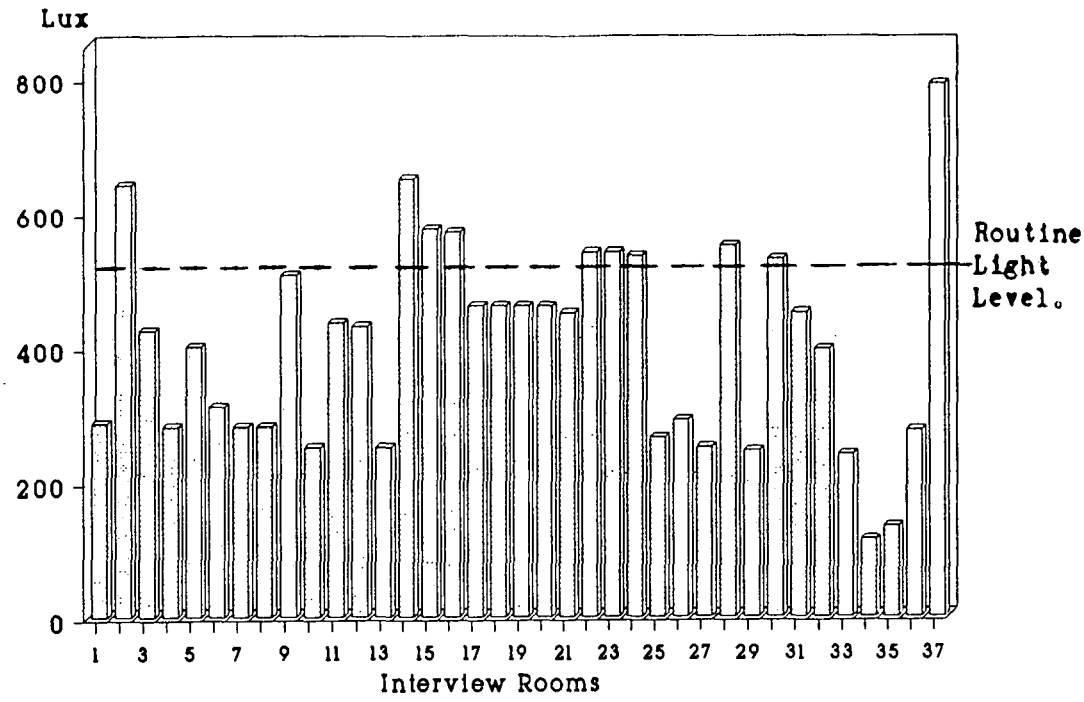

Figure 60

Interview Rooms and Recommended Light Level

In Study three (Ch.4 p.193) lighting was rated ninth as a factor that police officers perceived would be detrimental to victims, witnesses and suspects.

In Study four (Ch.4 p.203), the solicitors rated lighting as the second most detrimental influence on themselves and fourth on their clients.

In Study five (Ch.4 p.215) victims and witnesses rated lighting as fifth in effect whilst suspects and police officers rated lighting as ninth.

All of the interview rooms had fluorescent lighting fitted. No interview rooms had up-lighting spectral distribution lighting or high frequency lighting fitted (Ch.3 p.85-86).

There was no independent control over the light levels within the interview environments.

Recommendations

From the review of the police literature (Ch.1 p.29-31) and the review of lighting effects (Ch.3 p.74) it is evident that lighting is an important factor within the interview environment. I consider that further research should be undertaken within the specific field of police interview rooms and lighting.

5.7 Colour

From the review of the psychological (Ch.3 p.87-93) and police (Ch.1 p.27-28) literature it is evident that colour can have a psychological effect within the interview environment.

From the survey of interview rooms (Study two p.165), it can be seen that the colour schemes used in police interview environments are of a neutral classification. With regards to the neutrality of the existing colour schemes within these interview environments, it could be expected that colour would not be perceived as a major factor. It can be seen from the results of Study three, four and five (Ch.4 p.195, 206, 218), that this is the case and that colour is in fact reported as the least important of the perceived environmental factors. This is not to say that colour is not recognised as a major influencing factor, but would tend to indicate that when the colours used within the environment are neutral then the perception of the persons using the said environment with

regards to colour is also neutral. If this is the case, then the account of the colour schemes involving pink cells and blue rooms, (Ch.1 p.27-28) should be taken into account when trying to establish the most comfortable environment in which to carry out interviews, taking into account the category of person and type of interview to be undertaken.

Having given consideration to the physical and non-physical aspects of the interview environment, I would now like to take into consideration the subjects perceptual experiences of the said environments.

Heft (1988) in discussing a conceptual framework for a functional approach to an examination of a person's environment discusses Gibson's (1979) concept of affordance. Heft points out that "..... the theory that our perceptual experiences includes not only awareness of the structure of objects and events in the environment, but also, and perhaps more fundamentally, an awareness of their functional significance, that is their functional meaning....." (p.29).

Heft op. Cit., points out that "For taxonomic purposes, both the affordance of a place and the psychological habit can be identified in the same way. It is necessary to take into account characteristics of the environment, the person, and in addition, the behaviour of the individual in question." (p.32).

Canter's (1977) model of place (as used in this research and described on p.51-55) takes into account the activities that occur within the place, the physical attributes of the place and the conceptions of the persons using the place.

A large amount of the research data used in this thesis takes into account the physical attributes of the place (room size, temperature, lighting, noise, etc.) and the activities which occur in the place (seating arrangements, etc.), but in the main, is of an objective nature and as such could be obtained independent of the subject whereas the concept of affordance refers to the functional significance of the environment to the individual.

One of the main problems in obtaining perceptual experience data from subjects, as pointed out in the introduction to Chapter 4, is that the subjects are being asked to retrospectively report on past perceptions of their perceptual experiences.

Heft op. Cit. points out, "..... while we can anticipate the likely affordance of a place or the salient features of an individual's psychological habitat based on our knowledge of the setting and the person, the behaviour of the individual will corroborate empirically this functional description of the environment." (p.32).

I would suggest that in future research of this nature, consideration is given to a video record of the interview interaction being made. A recording of the interview could be used by the

researcher in order to analyse the interview interaction, and by the subjects in respect to retrospective self-analysis.

If we can anticipate the likely affordance of a place, then it should be possible to ensure that the place (interview room), offers the most suitable environment for the people who are expected to interact within it.

Why does a person see that certain aspects of an environment (colour, temperature, size, etc.) would affect different categories of people in different ways?

Do different features affect different categories of people in different ways?

What features of the environment do we perceive and why? What do these features afford the individual?

These and many more questions of a similar nature are still to be resolved in respect to police interview environments. I feel that the work carried out within this research helps us to understand a little bit more about the concept of affordances and the police interview environment and provides a base for further research in this field.

Recommendation

Further research should be undertaken to establish the perceived environmental effects of colour within interview environments.

5.8 Overall Conclusion

I consider that in order to establish the perceived affordance level of the interview environment it would be necessary to carry out further more detailed interactive studies of the environment and the subjects at the time of the interaction in order to evaluate the actual with the perceived.

I would suggest that in future studies, account should be taken of:-

a) Changes that occur in the physical aspects of the environment during the Study period. That is to say changes in temperature, humidity, lighting, etc. I feel that this can be achieved by linking measuring devices to a central recording system. This would allow any changes within the environmental conditions to be considered together with other data collected during the Study.

More emphasis should be placed on obtaining perceptual data by interviews than retrospective questionnaires.

b) **Based on the survey returns I consider that a multidiscipline approach to collecting data would achieve a higher response rate from subjects, i.e. Police asking Police 94% response, Solicitors 24%, Victims 9%, Witnesses 7% and Suspects 13%.**

A problem can arise with this type of research due to the fact that the subjects are generally reporting retrospectively, and as such, the reports may be distorted. I consider that a record of the social interaction that occurs should be recorded. This can be achieved by video recording the interaction process. By recording the interaction process, it would be possible to consider the actions in the light of (a) above and of the subject's account of the interaction.

By recording the interaction, it would be possible, having taken into consideration (a) the physical aspects of the environment, and (b) the subject's initial perceived accounts, to carry out further investigative interviews with the subjects by using the data collected and the recording to re-question the subject on their perception of the interaction.

c) **Control interview environments should be created similar to those used in the Pink Cell experiment (Ch.1 p.27) where more specific evaluation could be undertaken, under controlled, variable conditions.**

In conclusion, I consider that this thesis has not fully achieved its initial aim in respect to the ecological approach to understanding the effects of the interview environment. I do consider that it has shown that in order to fully understand the interview environment, then the ecological effects of the environment must be taken into account.

I feel that this research work provides valid, reliable and useful information to those who plan, design and implement policy decisions with regards to police interview environments. I also consider that it provides valid, reliable and useful information for further research within ecological psychology.

APPENDIX

CONTENTS

STATISTICAL APPENDIX

Analysis of Police Selection regarding perceived effect of colour on Victims

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	72	76.6	
Selected	1	22	23.4	
Total		94	100.0	p < 0.001

Mean	Mode	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.234	0.0	0.426	0.181	-0.378	1.277

Analysis of Police Selection regarding perceived effect of Location on Victims

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	46	48.9	
Selected	1	48	51.1	
Total		94	100.0	Not Sig

Mean	Mode	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.511	1.0	0,503	0.253	-2.042	-0.043

Analysis of Police Selection regarding perceived effect of Furniture on Victims

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	33	35.1	
Selected	1	61	64.9	
Total		94	100.0	p < 0.001

Mean	Mode	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.649	1.0	0.480	0.230	-1.633	-0.634

Analysis of Police Selection regarding perceived effect of Lighting on Victims

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	72	76.6	
Selected	1	22	23.4	
Total		94	100.0	p < 0.001

Mean	Mode	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.234	0.0	0.426	0.181	-0.378	1.277

Analysis of Police Selection regarding perceived effect of Security on Victims

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	79	84.0	
Selected	1	15	16.0	
Total		94	100.0	p < 0.001

Mean	Mode	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.160	0.0	0.368	0.136	1.604	1.889

Analysis of Police Selection regarding perceived effect of Decoration on Victims

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	55	58.5	
Selected	1	39	41.5	
Total		94	100.0	Not Sig

Mean	Mode	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.415	0.0	0.495	0.245	-1.918	0.351

Analysis of Police Selection regarding perceived effect of Size on Victims

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	65	69.1	
Selected	1	29	30.9	
Total		94	100.0	Not Si

Mean	Mode	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.309	0.0	0.464	0.216	-1.318	0.843

Analysis of Police Selection regarding perceived effect of Privacy on Victims

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	19	20.2	
Selected	1	75	79.8	
Total		94	100.0	p < 0.001

Mean	Mode	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.798	1.0	0.404	0.163	0.278	-1.508

Analysis of Police Selection regarding perceived effect of Noise on Victims

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	35	37.2	
Selected	1	59	62.8	
Total		94	100.0	p < 0.001

Mean	Mode	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.628	1.0	0.486	0.236	-1.750	-0.537

Analysis of Police Selection regarding perceived effect of Heating on Victims

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	61	64.9	
Selected	1	33	35.1	
Total		94	100.0	Not Sig

Mean	Mode	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.351	0.0	0.480	0.230	-1.633	0.634

Analysis of Police Selection regarding perceived effect of Windows on Victims

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	81	86.2	
Selected	1	13	13.8	
Total		94	100.0	p < 0.001

Mean	Mode	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.138	0.0	0.347	0,120	2.590	2.130

Analysis of Police Selection regarding perceived effect of Tidiness on Victims

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	57	60.6	
Selected	1	37	39.4	
Total		94	100.0	Not Sig

Mean	Mode	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.394	0.0	0.491	0.241	-1.844	0.443

Analysis of Police Selection regarding perceived effect of Colour on Witnesses.

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	82	87.2	
Selected	1	12	12.8	P<0.001

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.128	0.0	0.335	0.113	3.211	2.268

Analysis of Police Selection regarding perceived effect of Location on Witnesses.

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	48	51.1	
Selected	1	46	48.9	Not Sig

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.489	0.0	0.503	0.253	-2.042	0.043

Analysis of Police Selection regarding perceived effect of Furniture on Witnesses.

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	27	28.7	
Selected	1	67	71.3	P<0.001

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.713	1	0.455	0.207	-1.111	-0.956

Analysis of Police Selection regarding perceived effect of Lighting on Witnesses.

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	76	80.9	
				P<0.001
Selected	1	18	19.1	

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.191	0	0.396	0.156	0.551	1.594

Analysis of Police Selection regarding perceived effect of Noise on Witnesses.

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	33	35.1	
				P<0.001
Selected	1	61	64.9	

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.649	1	0.480	0.230	-1.633	-0.634

Analysis of Police Selection regarding perceived effect of Heating on Witnesses.

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	61	64.9	
				Not Sig
Selected	1	33	35.1	

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.351	0	0.480	0.230	-1.633	0.634

Analysis of Police Selection regarding perceived effect of Windows on Witnesses.

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	79	84	
Selected	1	15	16	P<0.001

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.160	0	0.368	0.136	1.604	1.889

Analysis of Police Selection regarding perceived effect of Tidiness on Witnesses.

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	42	44.7	
Selected	1	52	55.3	P<0.001

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.553	1	0.500	0.250	-1.996	-0.217

Analysis of Police Selection regarding perceived effect of Security on Witnesses.

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	85	90.4	
Selected	1	9	9.6	P<0.001

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.096	0	0.296	0.088	5.924	2.793

Analysis of Police Selection regarding perceived effect of Decoration on Witnesses.

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	52	55.3	
				Not Sig
Selected	1	42	44.7	

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.447	0	0.500	0.250	-1.996	0.217

Analysis of Police Selection regarding perceived effect of Size on Witnesses.

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	59	62.8	
				Not Sig
Selected	1	35	37.2	

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.372	0	0.486	0.236	-1.750	0.537

Analysis of Police Selection regarding perceived effect of Privacy on Witnesses.

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	33	35.1	
Selected	1	61	64.9	P<0.001

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.649	1	0.480	0.230	-1.633	=0.634

Analysis of Police Selection regarding perceived effect of Colour on Suspect.

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	85	90.4	
				P<0.001
Selected	1	9.6	9.6	

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.096	0	0.031	0.088	5.924	2.793

Analysis of Police Selection regarding perceived effect of Location on Suspect.

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	59	62.8	
				Not Sig
Selected	1	37.2	37.2	

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.372	0.0	0.486	0.236	-1.750	0.537

Analysis of Police Selection regarding perceived effect of Furniture on Suspect.

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	38	40.4	
				P<0.001
Selected	1	56	59.6	

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.596	1	0.493	0.243	-1.883	-0.397

Analysis of Police Selection regarding perceived effect of Lighting on Suspect.

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	66	70.2	
Selected	1	28	29.8	P<0.025

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.298	0	0.460	0.211	-1.219	0.898

Analysis of Police Selection regarding perceived effect of Noise on Suspect.

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	31	33	
Selected	1	63	67	P<0.001

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.670	1	0.049	0.223	-1.491	-0.736

Analysis of Police Selection regarding perceived effect of Heating on Suspect.

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	63	67	
Selected	1	31	33	Not Sig

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.330	0	0.473	0.223	-1.491	0.736

Analysis of Police Selection regarding perceived effect of Windows on Suspect.

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	70	74.5	
				P<0.001
Selected	1	24	25.5	

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.255	0	0.438	0.192	-0.715	1.141

Analysis of Police Selection regarding perceived effect of Tidiness on Suspect.

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	63	67	
				Not Sig
Selected	1	31	33	

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.330	0	0.473	0.223	-1.491	0.736

Analysis of Police Selection regarding perceived effect of Security on Suspect.

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	65	69.1	
				Not Sig
Selected	1	29	30.9	

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.309	0	0.464	0.216	-1.318	0.843

Analysis of Police Selection regarding perceived effect of Decoration on Suspect.

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	80	85.1	
				P<0.001
Selected	1	14	149	

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.149	0	0.358	0.128	2.060	2.004

Analysis of Police Selection regarding perceived effect of Size on Suspect.

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	32	34	
				P<0.001
Selected	1	62	66	

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.660	1	0.476	0.227	-1.565	-0.684

Analysis of Police Selection regarding perceived effect of Privacy on Suspect.

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	3o	31.9	
				P<0.001
Selected	1	64	68.1	

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.681	1	0.469	0.220	-1.409	-0.789

Analysis of Solicitors Selection regarding perceived effect of Colour.

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	18	78.3	Not Sig
Selected	1	5	21.7	

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.217	0	0.422	0.178	0.161	1.468

Analysis of Solicitors Selection regarding perceived effect of Location.

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	21	91.3	P<0.001
Selected	1	2	8.7	

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.087	0.0	0.288	0.083	8.605	3.140

Analysis o Solicitors Selection regarding perceived effect of Furniture.

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	12	52.2	Not Sig
Selected	1	11	47.8	

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.478	0	0.511	0.261	-2.190	0.093

Analysis of Solicitors Selection regarding perceived effect of Lighting.

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	10	43.5	
Selected	1	13	56.5	Not Sig

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.565	1	0.507	0.257	-2.113	-0.282

Analysis of Solicitors Selection regarding perceived effect of Noise.

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	14	60.9	
Selected	1	9	39.1	Not Sig

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.391	0	0.499	0.249	-1.951	0.477

Analysis of Solicitors Selection regarding perceived effect of Heating .

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	11	47.8	
Selected	1	12	52.2	Not Sig

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.522	1	0.511	0.261	-2.190	-0.093

Analysis of Solicitors Selection regarding perceived effect of Windows .

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	12	52.2	Not Sig
Selected	1	11	47.8	

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.478	0	0.511	0.261	-2.190	0.093

Analysis of Solicitors Selection regarding perceived effect of Tidiness.

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	18	78.3	Not Sig
Selected	1	5	21.7	

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.217	0	0.422	0.178	0.161	1.468

Analysis of Solicitors Selection regarding perceived effect of Security .

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	22	95.7	P<0.001
Selected	1	1	4.3	

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.043	0	0.209	0.043	23.000	4.796

Analysis of Solicitors Selection regarding perceived effect of Decoration.

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	17	73.9	Not Sig
Selected	1	6	26.1	

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.261	0	0.449	0.202	-0.709	1.167

Analysis of Solicitors Selection regarding perceived effect of Size .

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	9	39.1	Not Sig
Selected	1	14	60.9	

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.609	1	0.499	0.249	-1.951	0.477

Analysis of Solicitors Selection regarding perceived effect of Privacy on .

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	10	43.5	Not Sig
Selected	1	13	56.5	

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.565	1	0.507	0.257	-2.113	0.282

Analysis of Solicitors Selection regarding perceived effect of Colour.

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	18	78.3	Not Sig
Selected	1	5	21.7	

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.217	0	0.422	0.178	0.161	1.468

Analysis of Solicitors Selection regarding perceived effect of Location.

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	21	91.3	P<0.001
Selected	1	2	8.7	

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.087	0.0	0.288	0.083	8.605	3.140

Analysis o Solicitors Selection regarding perceived effect of Furniture.

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	12	52.2	Not Sig
Selected	1	11	47.8	

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.478	0	0.511	0.261	-2.190	0.093

Analysis of Solicitors Selection regarding perceived effect of Lighting.

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	10	43.5	
				Not Sig
Selected	1	13	56.5	

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.565	1	0.507	0.257	-2.113	-0.282

Analysis of Solicitors Selection regarding perceived effect of Noise.

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	14	60.9	
				Not Sig
Selected	1	9	39.1	

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.391	0	0.499	0.249	-1.951	0.477

Analysis of Solicitors Selection regarding perceived effect of Heating .

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	11	47.8	
				Not Sig
Selected	1	12	52.2	

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.522	1	0.511	0.261	-2.190	-0.093

Analysis of Solicitors Selection regarding perceived effect of Windows .

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	12	52.2	Not Sig
Selected	1	11	47.8	

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.478	0	0.511	0.261	-2.190	0.093

Analysis of Solicitors Selection regarding perceived effect of Tidiness.

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	18	78.3	Not Sig
Selected	1	5	21.7	

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.217	0	0.422	0.178	0.161	1.468

Analysis of Solicitors Selection regarding perceived effect of Security .

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	22	95.7	P<0.001
Selected	1	1	4.3	

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.043	0	0.209	0.043	23.000	4.796

Analysis of Solicitors Selection regarding perceived effect of Decoration.

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	17	73.9	Not Sig
Selected	1	6	26.1	

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.261	0	0.449	0.202	-0.709	1.167

Analysis of Solicitors Selection regarding perceived effect of Size .

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	9	39.1	Not Sig
Selected	1	14	60.9	

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.609	1	0.499	0.249	-1.951	0.477

Analysis of Solicitors Selection regarding perceived effect of Privacy on .

Category Label	Code	Absolute Freq	Relative Freq(%)	Chi Sq
Not Selected	0	10	43.5	Not Sig
Selected	1	13	56.5	

MEAN	MODE	STD DEV	VARIANCE	KURTOSIS	SKEWNESS
0.565	1	0.507	0.257	-2.113	0.282

APPENDIX 'A'

SURVEY ONE (PILOT SURVEY)

CONTENTS

I am at present researching the effects of the environment on the police interview situation, as part of this research I would like to ask you for your opinion in order that I can establish what you consider as important in this area. I have set out an interview sequence which consists of the following:

1. A short verbal interview

2. A questionnaire (to establish your likes and dislikes with regards to the interview environment).

3. A final verbal interview (in order that you can clarify any points you wish with regards to this subject).

The questions and answers you may give will be treated in the strictest confidence. Your name will not be used in any way and no other person will have access to your identity.

I have a personal environment qualities indices (known as P.E.Q.I.). The idea is that you read the questions on the P.E.Q.I. and answer the questions as instructed on the form. If after reading the instructions you have any problems, please ask for clarification.

If whilst making your judgement you have any observations or comments you may wish to make, please note them in the space provided next to each question.

Once again, I must emphasise that this is not a test, but your chance to help in the future development of the police interview environment.

THANK YOU

P.E.Q.I.

Date..... Subject No..... Cat.....

I have listed below a number of factors that could have an effect on the conduct/outcome of an interview. I would like you to consider these points giving each one a score between 1 and 5 depending on your opinion of the relevance or effect that you feel the comment would have on your interview. This is not a test and there are no right or wrong answers. Please make any observation you wish regarding each comment.

	Disagree Dislike (1)--------->(5) Agree Like	Observations
The Interview room should be:		
1 One set asside for the purpose.	:	:.....
		.....
		.....
2 Free from interuptions.	:	:
	:	:.....
		.....
		.....
3 Condusive to relaxation	:	:
	:	:.....
		.....
		.....
4 Inspire confidence.	:	:
	:	:.....
		.....
		.....

5 Have a pleasent atmosphere. : :
: :.....

.....

.....

6 Have no furniture that could : :
cause barriers. : :.....

.....

.....

7 Have good lighting. : :
: :.....

.....

.....

8 Be ordinary in appearence. : :
: :.....

.....

.....

9 Be adequate in size. : :
: :.....

.....

.....

10 Have no extremerly high : :
ceilings. : :.....

.....

.....

11 Have no mismatched coloured : :
walls. : :.....

.....

12 Have no uneven floors. : :
: :.....

.....

.....

13 Have no bars at the windows. : :
: :.....

.....

.....

14 Have relaxing colour's on the walls. : :
: :.....

.....

.....

15 Have carpets on the floor. : :
: :.....

.....

.....

16 Be sound proofed. : :
: :.....

.....

.....

17 Be kept clean and tidy. : :
: :.....

.....

.....

18 Have comfortable chairs. : :
: :.....

.....

.....

19 Have furniture that matches. : :
(Of a similar colour and type) : :.....

.....

.....

20 Not have a clocks on the wall. : :
: :.....

.....

.....

21 Have no objects that can : :
cause distraction. : :.....

.....

.....

22 Not make the suspect : :
uncomfortable. : :.....

.....

.....

23 Have no police paraphernalia : :
in the room. : :.....

.....

.....

24 Have no noise distraction. : :
: :.....

.....

.....

25 Have no see-through windows. : :
: :.....

.....

26 Have an outside observation room.	:	:
27 Not be devoid of all bric-a-brac.	:	:
28 Have all the furniture fixed to the floor.	:	:

Listed below are some other factors that could influence the outcome of an interview could you also give your opinion on these factors.

29 There should be recording facilities in the room. : :

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.....

.....

30 The temperature of the room has an effect on the interview. : :

.....

.....

.....

31 The type of room used depends on the catergory of person being interviewed(victim,suspect etc.) : :

.....

.....

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32 If the person being interviewed is a suspect the room should not have windows in it. : :

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.....

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33 All chairs should be at the same eye level. : :

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.....

.....

34 Chair arrangement in the room is important. : :

.....

.....

.....

35 There should be no telephone in the room. : : :.....

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.....

36 The room should have air conditioning. : : :.....

.....

.....

37 The physical appearence of the officerinterviewing can affect the interview. : : : :.....

.....

.....

38 Victims should not be interviewed at police stations. : : :.....

.....

.....

39 Witnesses should not be interviewed at police stations. : : :.....

.....

.....

P.T.O.

40 Do you consider that there are any other factors concerning the interview environment that has an effect on the interview that you would like to comment on.

.....

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.....

.....

Thank You For Your Time And Effort

Having completed the questionaire are there any points you would like to add to your previous statement with regards to the police interview environment..

APPENDIX 'B'

SURVEY TWO

CONTENTS

DATE.....

DIVISION.....

STATION.....

ROOM TYPE.....

LOCATION.....

LIGHT

WINDOW YES / NO

COVER FOR WINDOW YES / NO

TYPE.....

.....

ARTIFICIAL LIGHT YES / NO

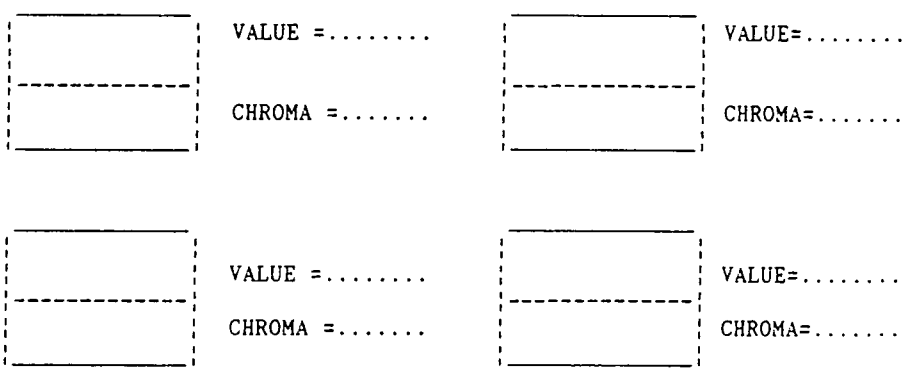
OVERHEAD LIGHTS YES / NO

MAKE.....WATTAGE.....SIZE.....

TABLE/WALL LIGHT YES / NO

MAKE.....WATTAGE.....SIZE.....

MUNSELL COLOUR CODE



Floor

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Ceiling

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OTHER DETAILS.....

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SOUND LEVEL(S)

Description.....

.....

.....

.....

SOURCE.....(Noise Generator).....

Reading.....dB WEIGHTING.....

FREQUENCIES..... ....

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Description.....

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.....

.....

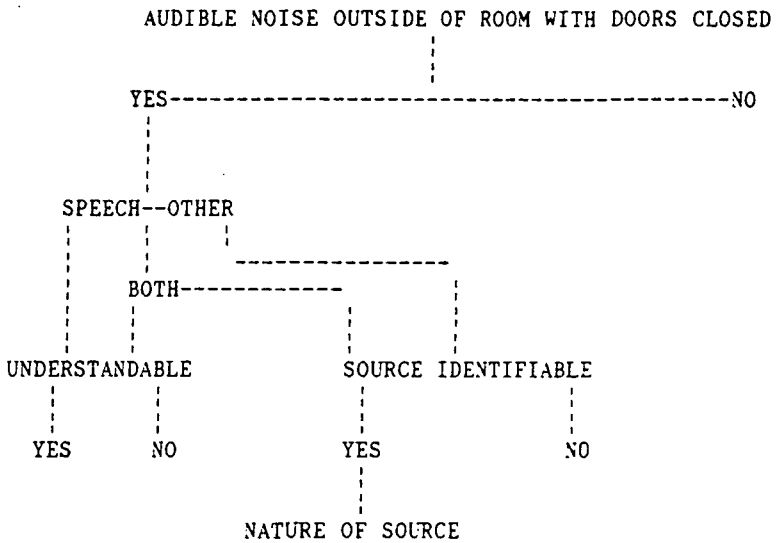
SOURCE.....(Noise Generator).....

Reading.....dB WEIGHTING.....

FREQUENCIES..... ....

....

NOISE



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COMMENTS

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ROOM MEASUREMENTS

LENGTH.....

BREATH.....

L X B = AREA

..... X ..... = ...(Area)

HEIGHT.....

HEIGHT X AREA = VOLUME

..... X ..... = ...(Volume)

.....

.....

.....

.....

FURNITURE MEASUREMENTS

TYPE

TABLE(S).....(Area.....) .....

.....(Area.....) .....

.....(Area.....) .....

.....(Area.....) .....

CHAIR(S).....(Area.....) .....

.....(Area.....) .....

.....(Area.....) .....

.....(Area.....) .....

.....(Area.....) .....

OTHER FURNITURE.....=.....

.....=.....

.....=.....

.....=.....

.....=.....

BUILDING STRUCTURE MEASUREMENTS

Position on Plan

DOOR(S)..... (Area.....)

..... (Area.....)

..... (Area.....)

WINDOW(S)..... (Area.....)

..... (Area.....)

..... (Area.....)

OTHER FEATURES .....=.....

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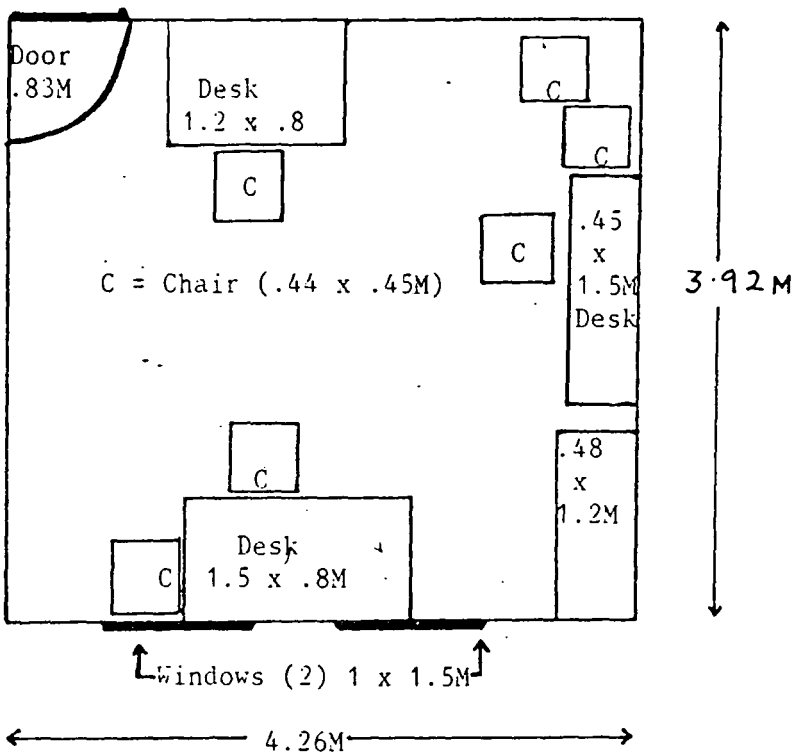
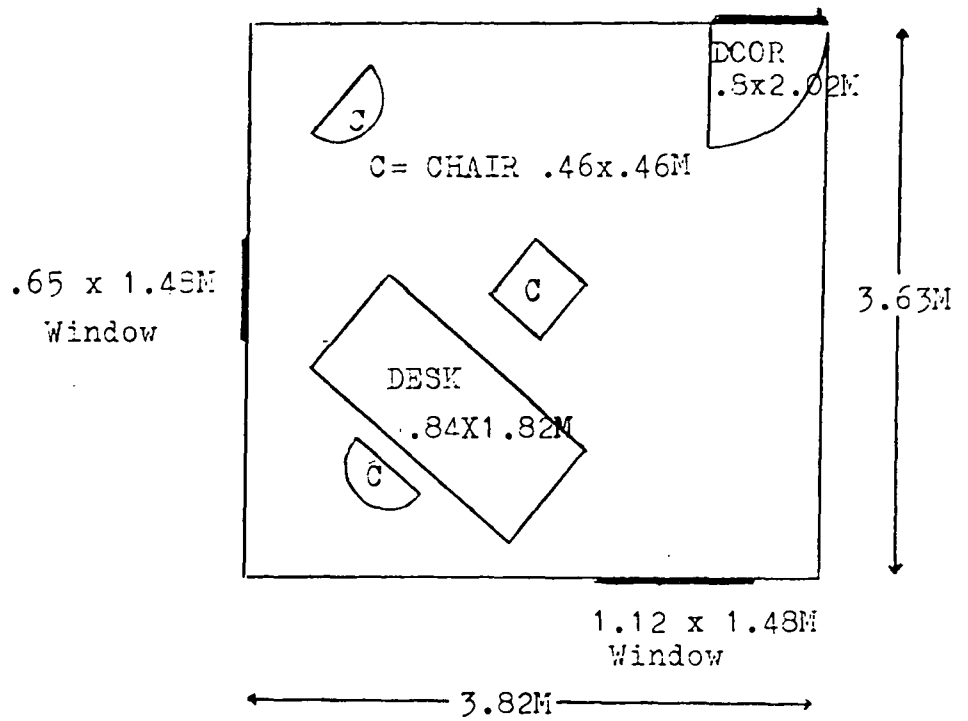
ROOM ONE



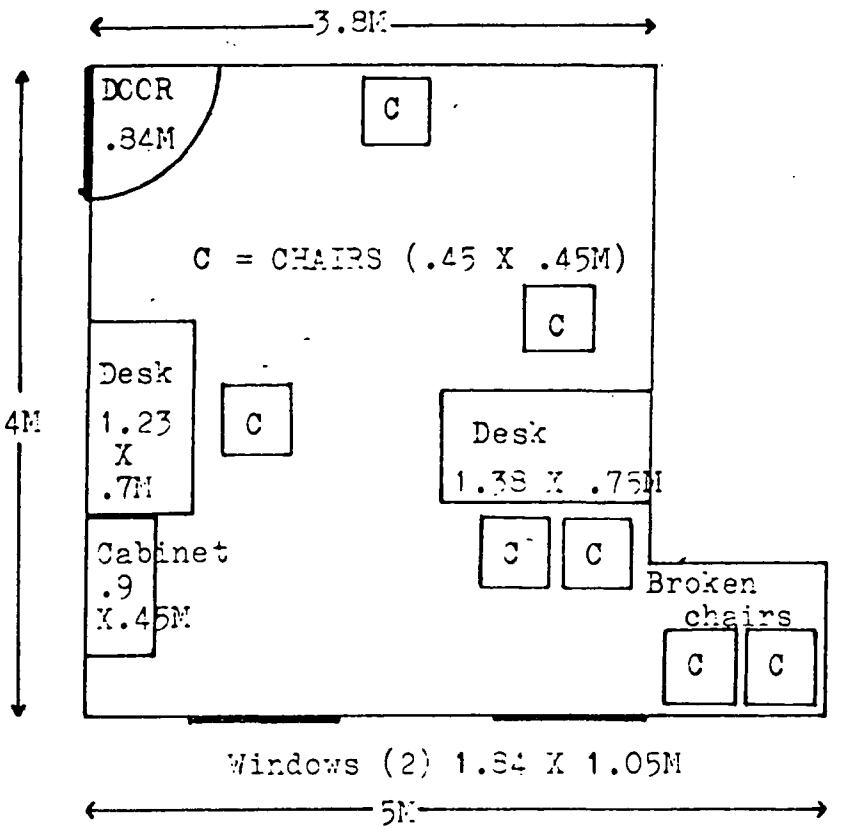
ROOM AREA	Floor	(a)	16.69M^2
	Furniture	(b)	4.63M^2
	Free space	(a-b)	12.06M^2
	Room Height	(c)	2.52M
	Room Volume	(axc)	42.08M^3
TEMPERATURE AND HUMIDITY	Building Temp.		19.1'C
	Room Temp.		18.3'C
	Relative Humidity		54%
SOUND	Within Building		0-44dB(A)
	Outside Building		0-35dB(A)
	Sound audible and understandable		
LIGHT	Natural light level		133 lux
	Artificial light level		205-285 lux
Colour	Walls Munsell colour code		10YR 9/2
	White & Grey floor tiles		
	Ceiling White		

ROOM TWO



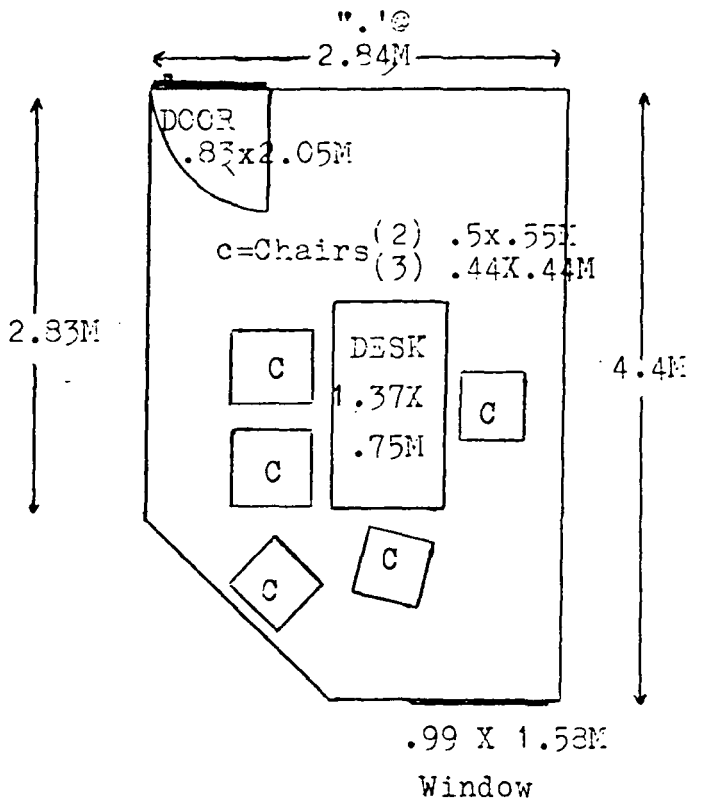
ROOM AREA	Floor	(a)	13.86M^2
	Furniture	(b)	2.46M^2
	Free space	(a-b)	11.40M^2
	Room Height	(c)	2.77M
	Room Volume	(axc)	38.39M^3
TEMPERATURE AND HUMIDITY	Building Temp. Room Temp. Relative Humidity		19.5'C 17.0'C 60%
SOUND	Within Building Outside Building		0-50dB(A) 0-35dB(A)
LIGHT	Natural light level Artificial light level		477 lux 632 lux
Colour	Walls Munsell colour code Light Brown Carpet Ceiling White		10YR 9/2

ROOM THREE



ROOM AREA	Floor	(a)	15.96M^2
	Furniture	(b)	3.30M^2
	Free space	(a-b)	12.66M^2
	Room Height	(c)	3.25M
	Room Volume	(axc)	51.87M^3
TEMPERATURE AND HUMIDITY	Building Temp.		21.9'C
	Room Temp.		21.9'C
	Relative Humidity		56%
SOUND	Within Building		0-44dB(A)
	Outside Building		0-50dB(A)
LIGHT	Natural light level		300 lux
	Artificial light level		420 lux
Colour	Wall paper/ cream and pink		
	Carpet		
	Ceiling White		

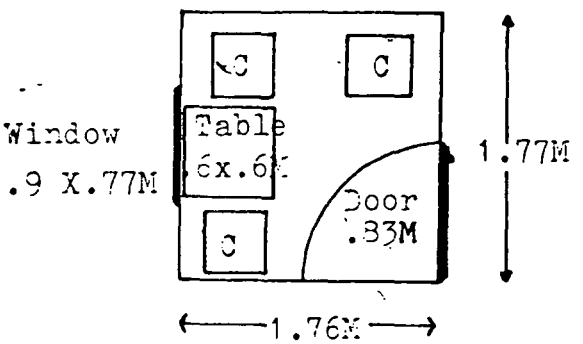
ROOM FOUR



ROOM AREA	Floor	(a)	10.25M^2
	Furniture	(b)	2.16M^2
	Free space	(a-b)	8.09M^2
	Room Height	(c)	3.22M
	Room Volume	(axc)	33.0M^3
TEMPERATURE AND HUMIDITY	Building Temp.		25.7'C
	Room Temp.		23.9'C
	Relative Humidity		47%
SOUND	Within Building		0-51dB(A)
	Outside Building		0-25dB(A)
LIGHT	Natural light level		230 lux
	Artificial light level		280 lux
Colour	Walls Munsell colour code		2.5Y 8.5/2
	Grey lino		
	Ceiling White		

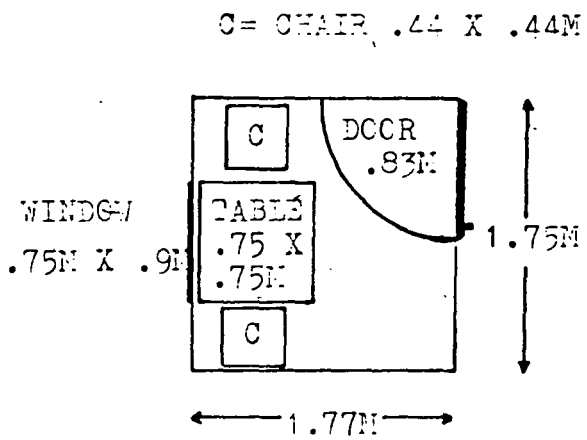
ROOM FIVE

C = CHAIR .44 X .44M



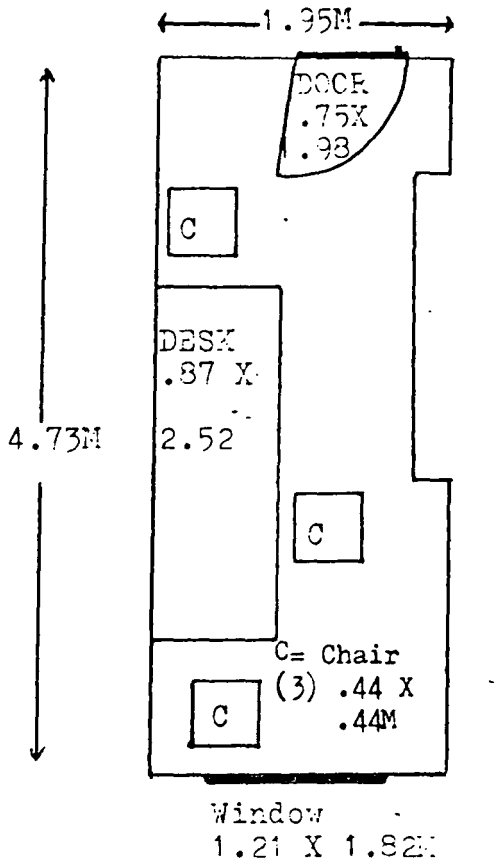
ROOM AREA	Floor	(a)	3.11M^2
	Furniture	(b)	.94M^2
	Free space	(a-b)	2.17M^2
	Room Height	(c)	2.44M
	Room Volume	(axc)	7.58M^3
TEMPERATURE AND HUMIDITY	Building Temp. Room Temp. Relative Humidity		23.0'C 22.0'C 56%
SOUND	Within Building Outside Building		0-54dB(A) 0-58dB(A)
LIGHT	Natural light level Artificial light level		76 lux 396 lux
Colour	Walls Munsell colour code Light Brown Tiles Ceiling White		2.5Y 9/2

ROOM SIX



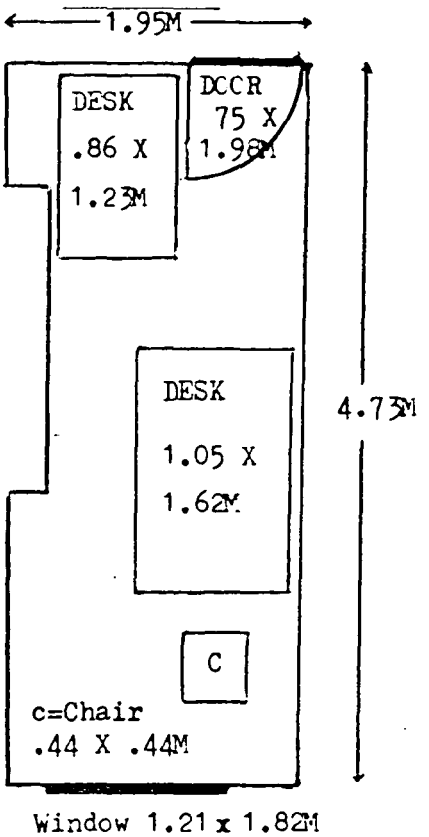
ROOM AREA	Floor	(a)	3.09M^2
	Furniture	(b)	.94M^2
	Free space	(a-b)	2.14M^2
	Room Height	(c)	2.44M
	Room Volume	(axc)	7.53M^3
TEMPERATURE AND HUMIDITY	Building Temp.		22.9'C
	Room Temp.		20.8'C
	Relative Humidity		56%
SOUND	Within Building		0-54dB(A)
	Outside Building		0-35dB(A)
LIGHT	Natural light level		35 lux
	Artificial light level		310 lux
Colour	Walls Munsell colour code		2.5Y 9/2
	Light Brown Tiles		
	Ceiling White		

ROOM SEVEN



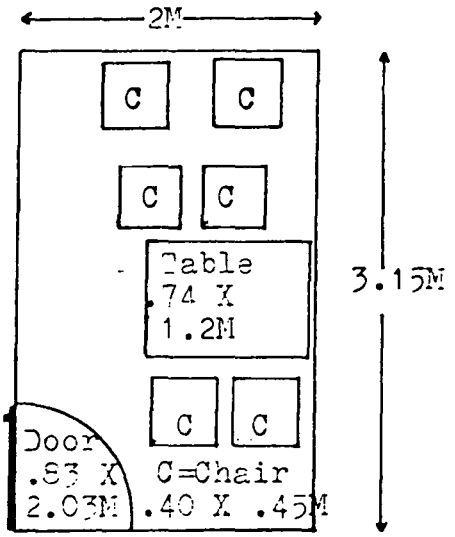
ROOM AREA	Floor	(a)	9.22M^2
	Furniture	(b)	2.77M^2
	Free space	(a-b)	6.44M^2
	Room Height	(c)	3.30M
	Room Volume	(axc)	30.42M^3
TEMPERATURE AND HUMIDITY	Building Temp.		23.3'C
	Room Temp.		21.1'C
	Relative Humidity		55%
SOUND	Within Building		0-56dB(A)
	Outside Building		0-35dB(A)
LIGHT	Natural light level		330 lux
	Artificial light level		279 lux
Colour	Walls Munsell colour code		5Y 9/2
	Wooden Floor Tiles		
	Ceiling White		

ROOM EIGHT



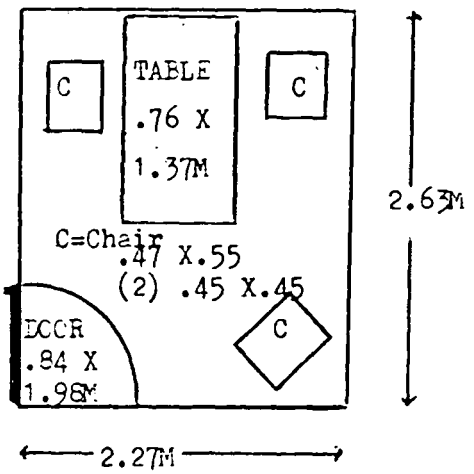
ROOM AREA	Floor	(a)	9.22M^2
	Furniture	(b)	2.95M^2
	Free space	(a-b)	6.26M^2
	Room Height	(c)	3.30M
	Room Volume	(axc)	30.42M^3
TEMPERATURE AND HUMIDITY	Building Temp.		23.3'C
	Room Temp.		21.4'C
	Relative Humidity		55%
SOUND	Within Building		0-56dB(A)
	Outside Building		0-35dB(A)
LIGHT	Natural light level		330 lux
	Artificial light level		280 lux
Colour	Walls Munsell colour code		5Y 9/2
	Wooden Floor Tiles		
	Ceiling White		

ROOM NINE



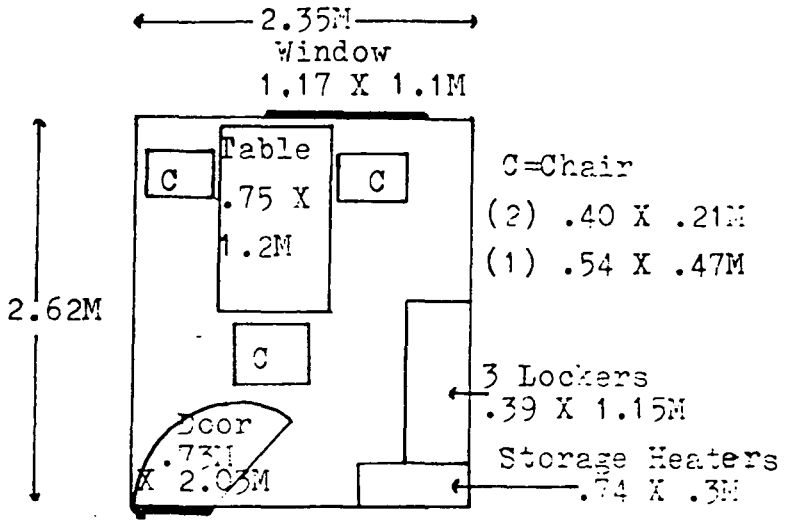
ROOM AREA	Floor	(a)	6.30M^2
	Furniture	(b)	1.96M^2
	Free space	(a-b)	4.33M^2
	Room Height	(c)	2.53M
	Room Volume	(axc)	15.93M^3
TEMPERATURE AND HUMIDITY	Building Temp.		22.3'C
	Room Temp.		20.8'C
	Relative Humidity		57%
SOUND	Within Building		0-45dB(A)
	Outside Building		0-dB(A)
LIGHT	Natural light level		0 lux
	Artificial light level		500 lux
Colour	Walls Munsell colour code		2.5 9/2
	Dark Brown Carpet		
	Ceiling White		

ROOM TEN



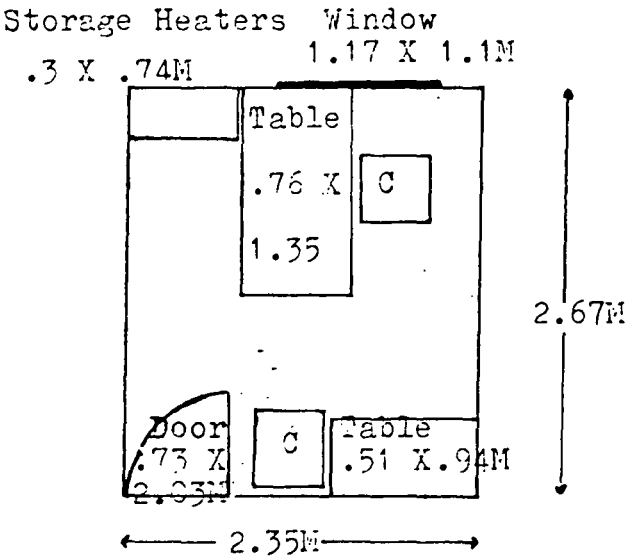
ROOM AREA	Floor	(a)	5.97M^2
	Furniture	(b)	2.24M^2
	Free space	(a-b)	3.72M^2
	Room Height	(c)	3.02M
	Room Volume	(axc)	18.02M^3
TEMPERATURE AND HUMIDITY	Building Temp.		25.3'C
	Room Temp.		23.2'C
	Relative Humidity		36%
SOUND	Within Building		0-52dB(A)
	Outside Building		0-dB(A)
LIGHT	Natural light level		0 lux
	Artificial light level		250 lux
Colour	Walls Munsell colour code		10YR 9/2
	Brown floor tiles		
	Ceiling White		

ROOM ELEVEN



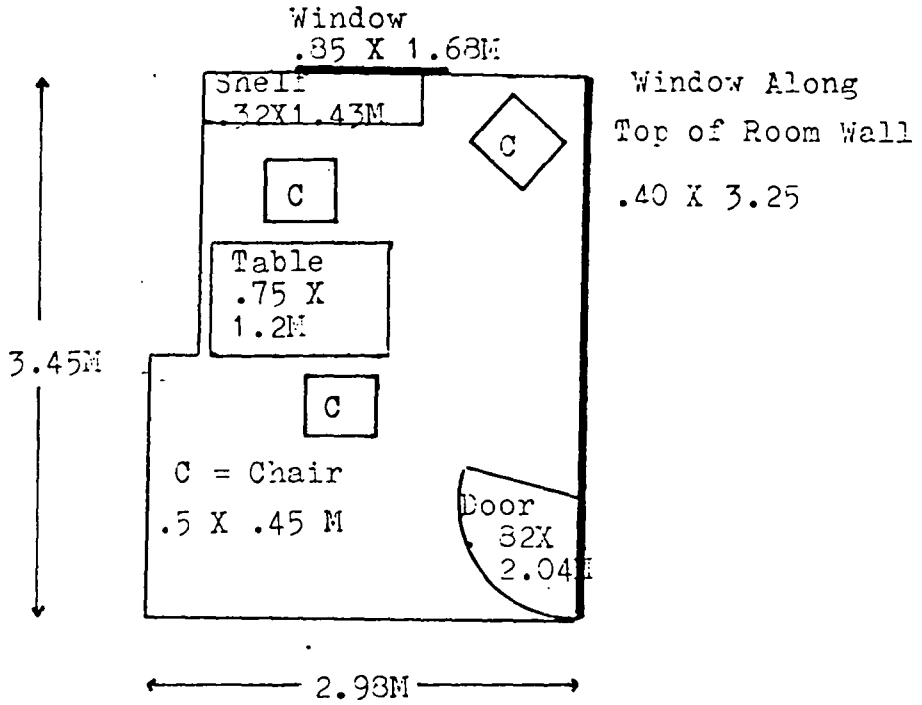
ROOM AREA	Floor	(a)	6.15M^2
	Furniture	(b)	1.90M^2
	Free space	(a-b)	4.24M^2
	Room Height	(c)	2.4M
	Room Volume	(axc)	14.70M^3
TEMPERATURE AND HUMIDITY	Building Temp.		21.5'C
	Room Temp.		19.0'C
	Relative Humidity		54%
SOUND	Within Building		0-42dB(A)
	Outside Building		0-48dB(A)
LIGHT	Natural light level		196 lux
	Artificial light level		427 lux
Colour	Walls Munsell colour code		5G 9/1
	Brown Carpet		
	Ceiling White		

ROOM TWELVE



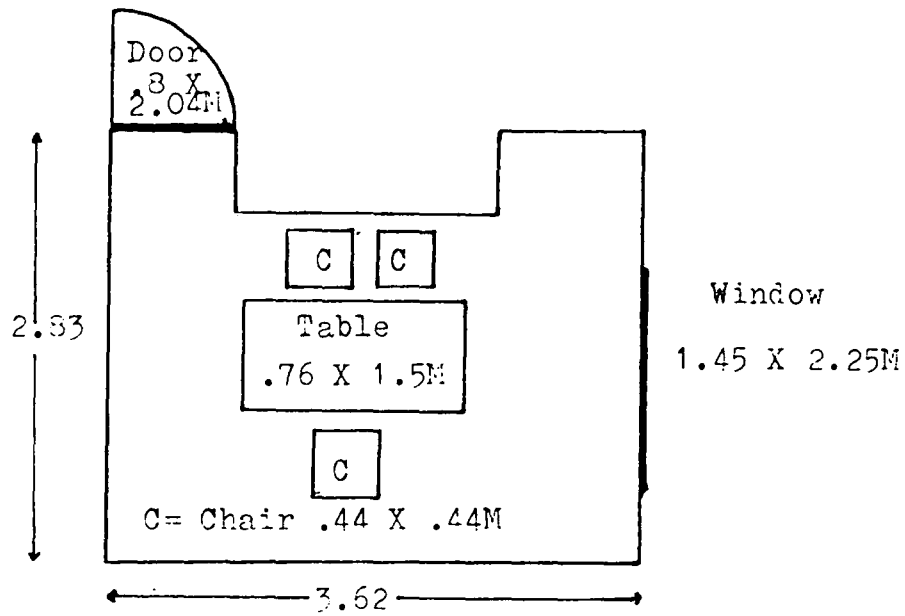
ROOM AREA	Floor	(a)	6.15M^2
	Furniture	(b)	2.22M^2
	Free space	(a-b)	3.92M^2
	Room Height	(c)	2.4M
	Room Volume	(axc)	14.70M^3
TEMPERATURE AND HUMIDITY	Building Temp.		21.5'C
	Room Temp.		19.0'C
	Relative Humidity		54%
SOUND	Within Building		0-42dB(A)
	Outside Building		0-48dB(A)
LIGHT	Natural light level		196 lux
	Artificial light level		420lux
Colour	Walls Munsell colour code		5G 9/1
	Brown Carpet		
	Ceiling White		

ROOM THIRTEEN



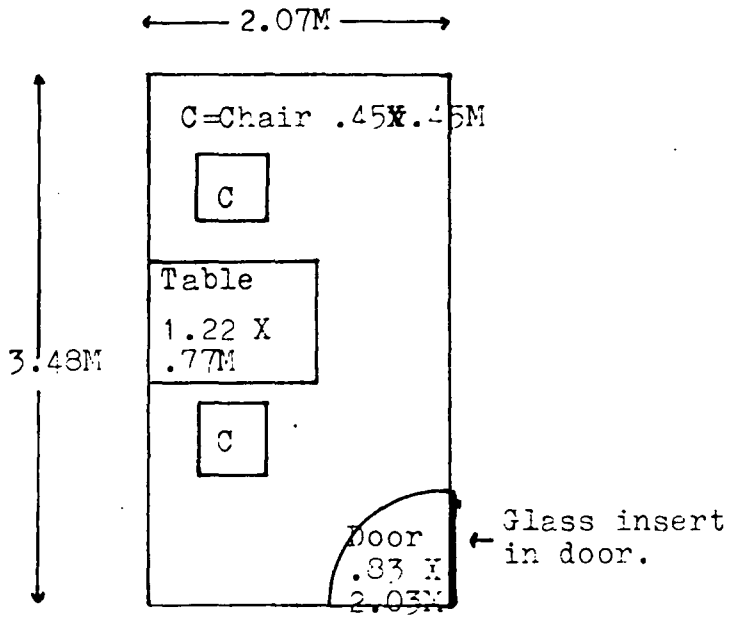
ROOM AREA	Floor	(a)	9.64M^2
	Furniture	(b)	1.57M^2
	Free space	(a-b)	8.06M^2
	Room Height	(c)	2.8M
	Room Volume	(axc)	26.99M^3
TEMPERATURE AND HUMIDITY	Building Temp.		24.5'C
	Room Temp.		22.5'C
	Relative Humidity		41%
SOUND	Within Building		0-58dB(A)
	Outside Building		0-55dB(A)
LIGHT	Natural light level		242 lux
	Artificial light level		242 lux
Colour	Walls Munsell colour code		N 9.0
	Red Carpet		
	Ceiling White		

ROOM FOURTEEN



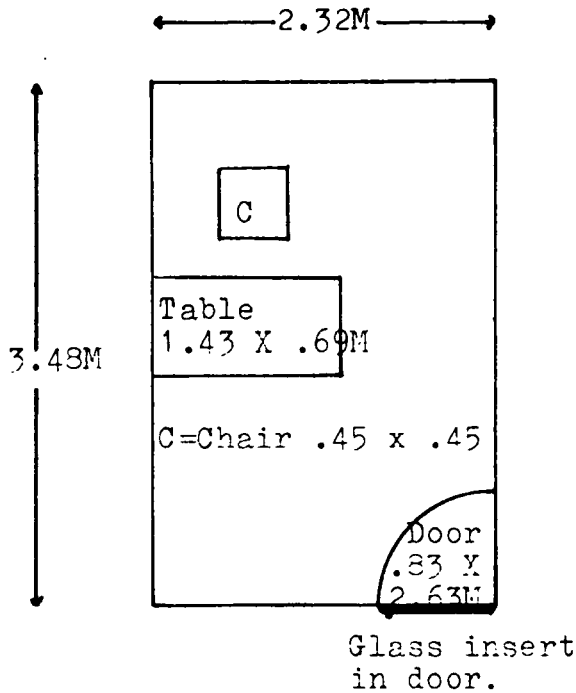
ROOM AREA	Floor	(a)	10.24M^2
	Furniture	(b)	1.72M^2
	Free space	(a-b)	8.51M^2
	Room Height	(c)	3.17M
	Room Volume	(axc)	32.47M^3
TEMPERATURE AND HUMIDITY	Building Temp.		19.1'C
	Room Temp.		24.5'C
	Relative Humidity		28%
SOUND	Within Building		0-52dB(A)
	Outside Building		0-44dB(A)
LIGHT	Natural light level		822 lux
	Artificial light level		645 lux
Colour	Walls Munsell colour code		2.5Y 9/2
	Light Brown		
	Ceiling White		

ROOM FIFTEEN



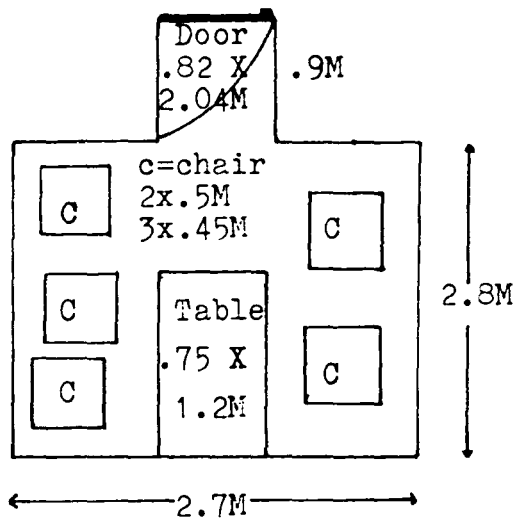
ROOM AREA	Floor	(a)	7.20M^2
	Furniture	(b)	1.34M^2
	Free space	(a-b)	5.85M^2
	Room Height	(c)	2.40M
	Room Volume	(axc)	17.28M^3
TEMPERATURE AND HUMIDITY	Building Temp.		28.2'C
	Room Temp.		23.8'C
	Relative Humidity		44%
SOUND	Within Building		0-32dB(A)
	Outside Building		0dB(A)
LIGHT	Natural light level		0 lux
	Artificial light level		570 lux
Colour	Walls Munsell colour code		10YR 9/2
	Light Grey/Blue carpet tiles		
	Ceiling White		

ROOM SIXTEEN



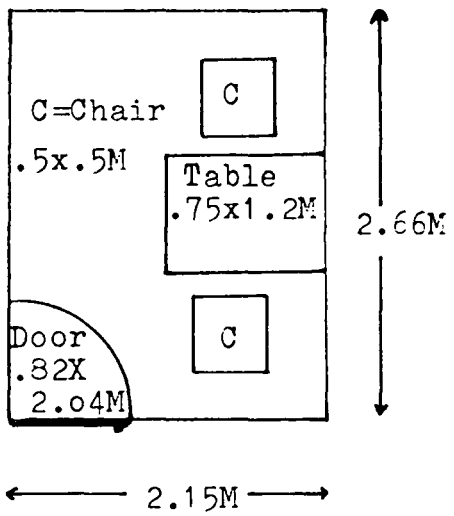
ROOM AREA	Floor	(a)	8.07M^2
	Furniture	(b)	1.18M^2
	Free space	(a-b)	6.88M^2
	Room Height	(c)	2.35M
	Room Volume	(axc)	18.97M^3
TEMPERATURE AND HUMIDITY	Building Temp.		19.7'C
	Room Temp.		18.5'C
	Relative Humidity		39%
SOUND	Within Building		0-46dB(A)
	Outside Building		0dB(A)
LIGHT	Natural light level		0 lux
	Artificial light level		564 lux
Colour	Walls Munsell colour code		10YR 9/2
	Light Grey/Blue carpet tiles		
	Ceiling White		

ROOM SEVENTEEN



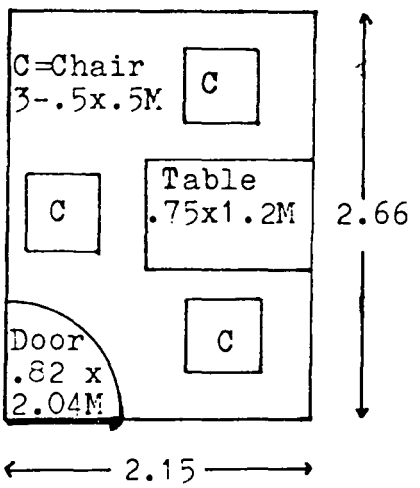
ROOM AREA	Floor	(a)	5.61M^2
	Furniture	(b)	2.04M^2
	Free space	(a-b)	3.56M^2
	Room Height	(c)	2.40M
	Room Volume	(axc)	13.47M^3
TEMPERATURE AND HUMIDITY	Building Temp.		23.0'C
	Room Temp.		23.0'C
	Relative Humidity		30%
SOUND	Within Building		0-38dB(A)
	Outside Building		0dB(A)
LIGHT	Natural light level		0 lux
	Artificial light level		455 lux
Colour	Walls Munsell colour code		(3)10Y 9/2 (1)7.5YR 6/4
	Light coloured floor tiles		
	Ceiling White		

ROOM EIGHTEEN



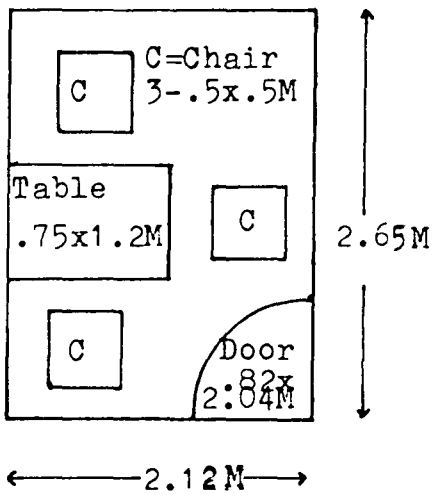
ROOM AREA	Floor	(a)	5.71M^2
	Furniture	(b)	1.40M^2
	Free space	(a-b)	3.31M^2
	Room Height	(c)	2.40M
	Room Volume	(axc)	13.72M^3
TEMPERATURE AND HUMIDITY	Building Temp.		23.0'C
	Room Temp.		18.1'C
	Relative Humidity		35%
SOUND	Within Building		0-44dB(A)
	Outside Building		0dB(A)
LIGHT	Natural light level		0 lux
	Artificial light level		455 lux
Colour	Walls Munsell colour code		(3)10Y 9/2 (1)7.5YR 6/4
	Light coloured floor tiles		
	Ceiling White		

ROOM NINETEEN



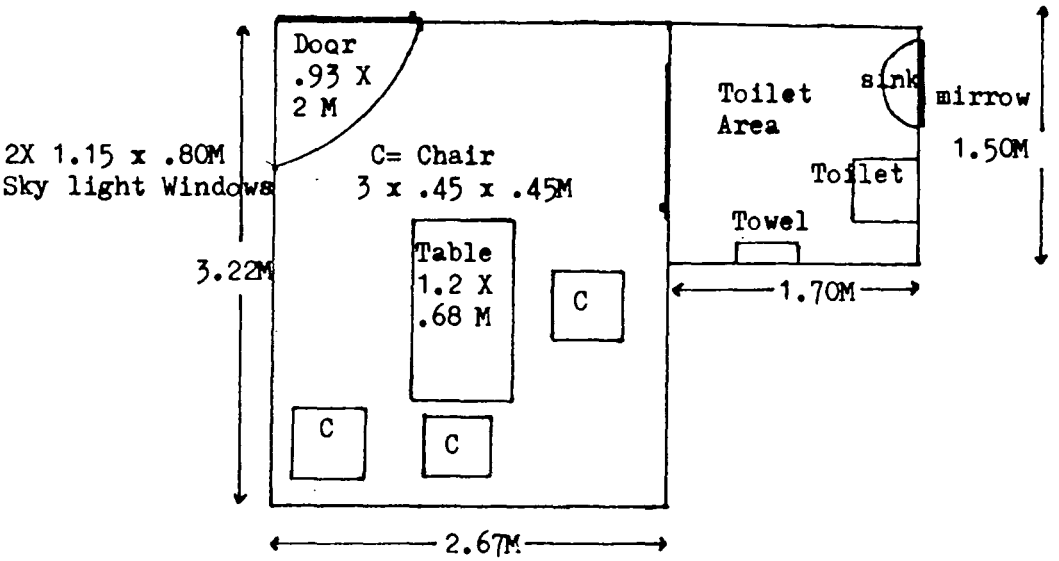
ROOM AREA	Floor	(a)	5.50M^2
	Furniture	(b)	1.65M^2
	Free space	(a-b)	3.85M^2
	Room Height	(c)	2.40M
	Room Volume	(axc)	13.20M^3
TEMPERATURE AND HUMIDITY	Building Temp.		23.0'C
	Room Temp.		19.5'C
	Relative Humidity		35%
SOUND	Within Building		0-40dB(A)
	Outside Building		0dB(A)
LIGHT	Natural light level		0 lux
	Artificial light level		455 lux
Colour	Walls Munsell colour code		(3)10Y 9/2 (1)7.5YR 6/4
	Light coloured floor tiles		
	Ceiling White		

ROOM TWENTY



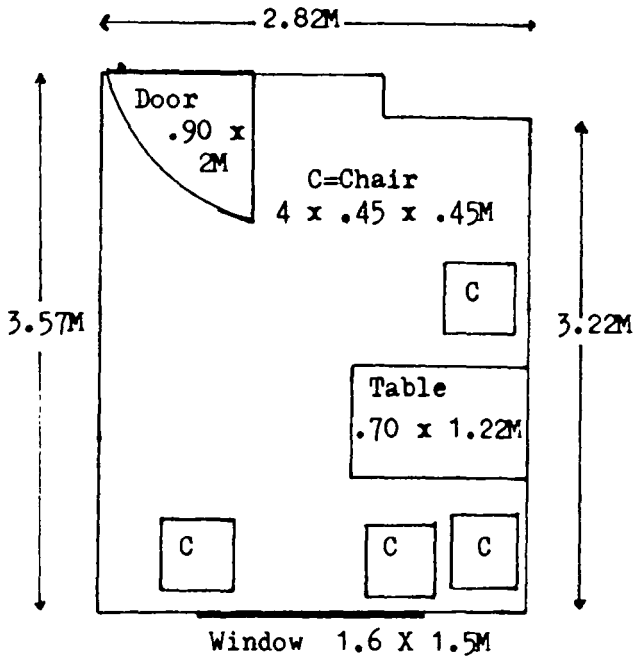
ROOM AREA	Floor	(a)	5.68M^2
	Furniture	(b)	1.65M^2
	Free space	(a-b)	4.03M^2
	Room Height	(c)	2.40M
	Room Volume	(axc)	13.63M^3
TEMPERATURE AND HUMIDITY	Building Temp.		23.0'C
	Room Temp.		19.8'C
	Relative Humidity		30%
SOUND	Within Building		0-40dB(A)
	Outside Building		0dB(A)
LIGHT	Natural light level		0 lux
	Artificial light level		455 lux
Colour	Walls Munsell colour code		(3)10Y 9/2 (1)7.5YR 6/4
	Light coloured floor tiles		
	Ceiling White		

ROOM TWENTYONE



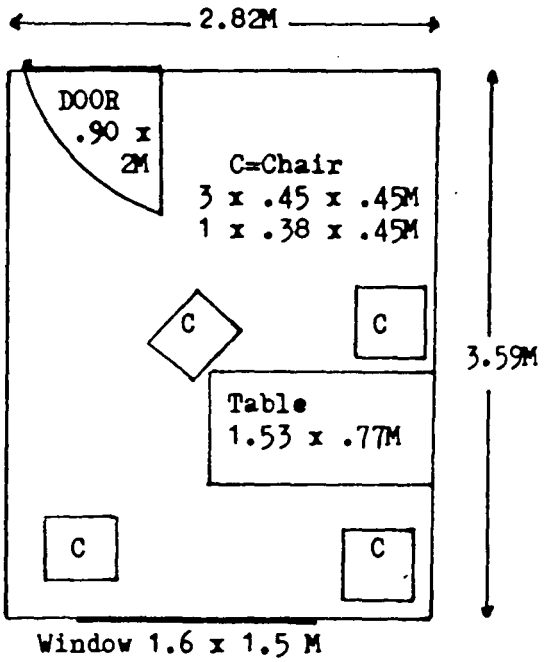
ROOM AREA	Floor	(a)	8.59M^2
	Furniture	(b)	1.42M^2
	Free space	(a-b)	7.16M^2
	Room Height	(c)	2.75M
	Room Volume	(axc)	23.62M^3
TEMPERATURE AND HUMIDITY	Building Temp.		21.4'C
	Room Temp.		17.9'C
	Relative Humidity		34%
SOUND	Within Building		0-52dB(A)
	Outside Building		0dB(A)
LIGHT	Natural light level		16 lux
	Artificial light level		443 lux
Colour	Walls Munsell colour code		5Y 9/2
	Brown carpet		
	Ceiling White		

ROOM TWENTY TWO



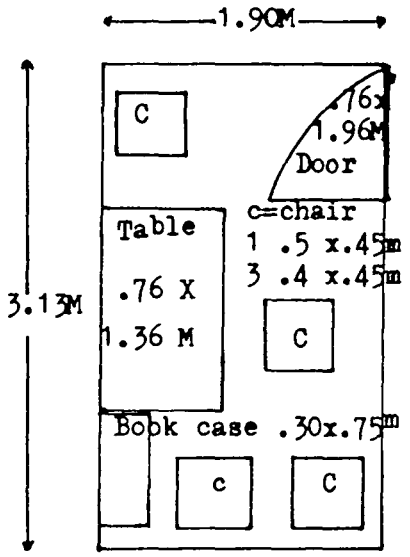
ROOM AREA	Floor	(a)	10.06M^2
	Furniture	(b)	1.66M^2
	Free space	(a-b)	8.40M^2
	Room Height	(c)	2.59M
	Room Volume	(axc)	26.06M^3
TEMPERATURE AND HUMIDITY	Building Temp.		24.0'C
	Room Temp.		22.8'C
	Relative Humidity		35%
SOUND	Within Building		0-50dB(A)
	Outside Building		0-20dB(A)
LIGHT	Natural light level		552 lux
	Artificial light level		523 lux
Colour	Walls Munsell colour code		2.5Y 9/2
	Brown carpet		
	Ceiling White		

ROOM TWENTY THREE



ROOM AREA	Floor	(a)	10.12M^2
	Furniture	(b)	1.96M^2
	Free space	(a-b)	8.16M^2
	Room Height	(c)	2.59M
	Room Volume	(axc)	26.22M^3
TEMPERATURE AND HUMIDITY	Building Temp.		23.8'C
	Room Temp.		22.8'C
	Relative Humidity		31%
SOUND	Within Building		0-42dB(A)
	Outside Building		0-15dB(A)
LIGHT	Natural light level		552 lux
	Artificial light level		523 lux
Colour	Walls Munsell colour code		2.5Y 9/2
	Brown carpet		
	Ceiling White		

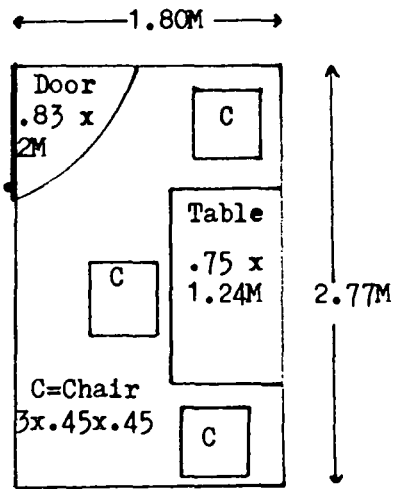
ROOM TWENTY FOUR



Sky Light Windows
2 x .7 x .7 M

ROOM AREA	Floor	(a)	5.94M^2
	Furniture	(b)	2.32M^2
	Free space	(a-b)	3.61M^2
	Room Height	(c)	2.88M
	Room Volume	(axc)	17.10M^3
TEMPERATURE AND HUMIDITY	Building Temp.		20.1'C
	Room Temp.		18.2'C
	Relative Humidity		28%
SOUND	Within Building		0-49dB(A)
	Outside Building		0-53dB(A)
LIGHT	Natural light level		731 lux
	Artificial light level		515 lux
Colour	Walls Munsell colour code		2.5Y 9/2
	Black plastic tiles		
	Ceiling White		

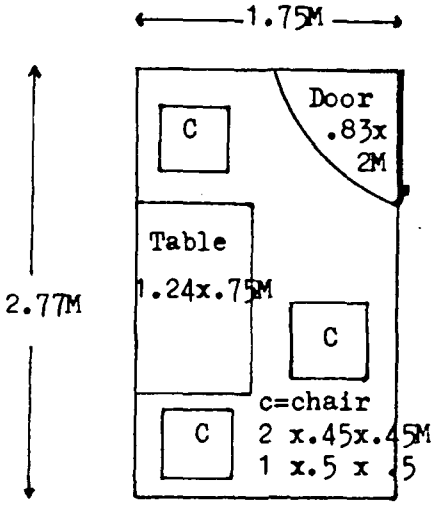
ROOM TWENTY FIVE



Window to passage(Ht 3M) 2.77 x .93M
Sky Light Window (Ht 3M) 2.77 x .58M

ROOM AREA	Floor	(a)	4.98M^2
	Furniture	(b)	1.54M^2
	Free space	(a-b)	3.44M^2
	Room Height	(c)	4.0M
	Room Volume	(axc)	19.92M^3
TEMPERATURE AND HUMIDITY	Building Temp.		26.0'C
	Room Temp.		18.3'C
	Relative Humidity		32%
SOUND	Within Building		0-48dB(A)
	Outside Building		0dB(A)
LIGHT	Natural light level		78 lux
	Artificial light level		260 lux
Colour	Walls Munsell colour code		10YR 8/2
	Grey carpet tiles		
	Ceiling White		

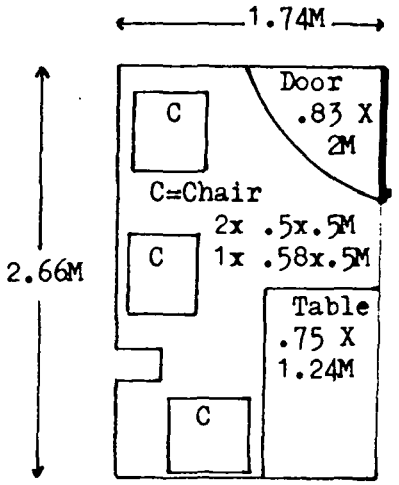
ROOM TWENTY SIX



Window to passage(ht 3m) 2.77 x .93M
Sky Light Window (ht 3m) 2.77 x .58M

ROOM AREA	Floor	(a)	4.84M^2
	Furniture	(b)	1.58M^2
	Free space	(a-b)	3.25M^2
	Room Height	(c)	4.0M
	Room Volume	(axc)	19.36M^3
TEMPERATURE AND HUMIDITY	Building Temp.		25.7'C
	Room Temp.		19.4'C
	Relative Humidity		29%
SOUND	Within Building		0-48dB(A)
	Outside Building		0dB(A)
LIGHT	Natural light level		80 lux
	Artificial light level		283 lux
Colour	Walls Munsell colour code		(3)10YR 8/2 (1)10YR 7/4
	Floor tiles light brown & white		
	Ceiling White		

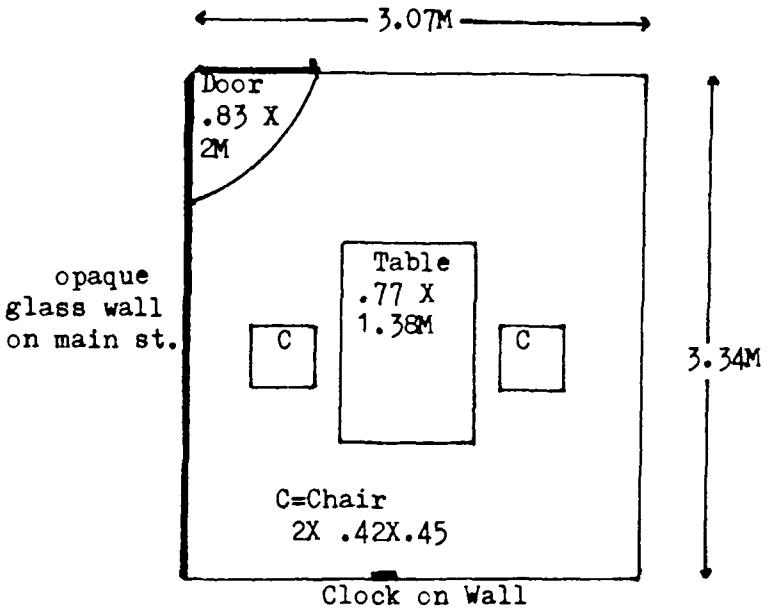
ROOM TWENTY SEVEN



External Window (Ht. 3M) .58 x 2.66M

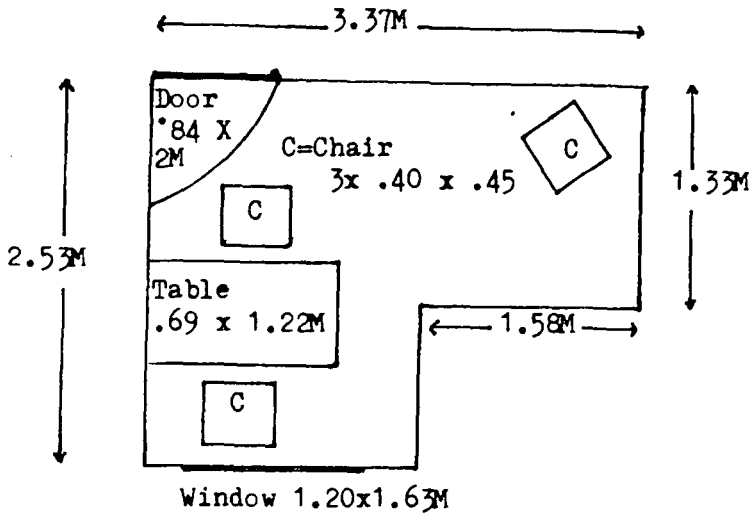
ROOM AREA	Floor	(a)	4.62M^2
	Furniture	(b)	1.72M^2
	Free space	(a-b)	2.90M^2
	Room Height	(c)	4.0M
	Room Volume	(axc)	18.48M^3
TEMPERATURE AND HUMIDITY	Building Temp.		27.2'C
	Room Temp.		19.1'C
	Relative Humidity		25%
SOUND	Within Building		0-48dB(A)
	Outside Building		0dB(A)
LIGHT	Natural light level		80 lux
	Artificial light level		240 lux
Colour	Walls Munsell colour code		(3)10YR 8/2 (1)10YR 7/4
	Floor tiles light brown & white		
	Ceiling White		

ROOM TWENTY EIGHT



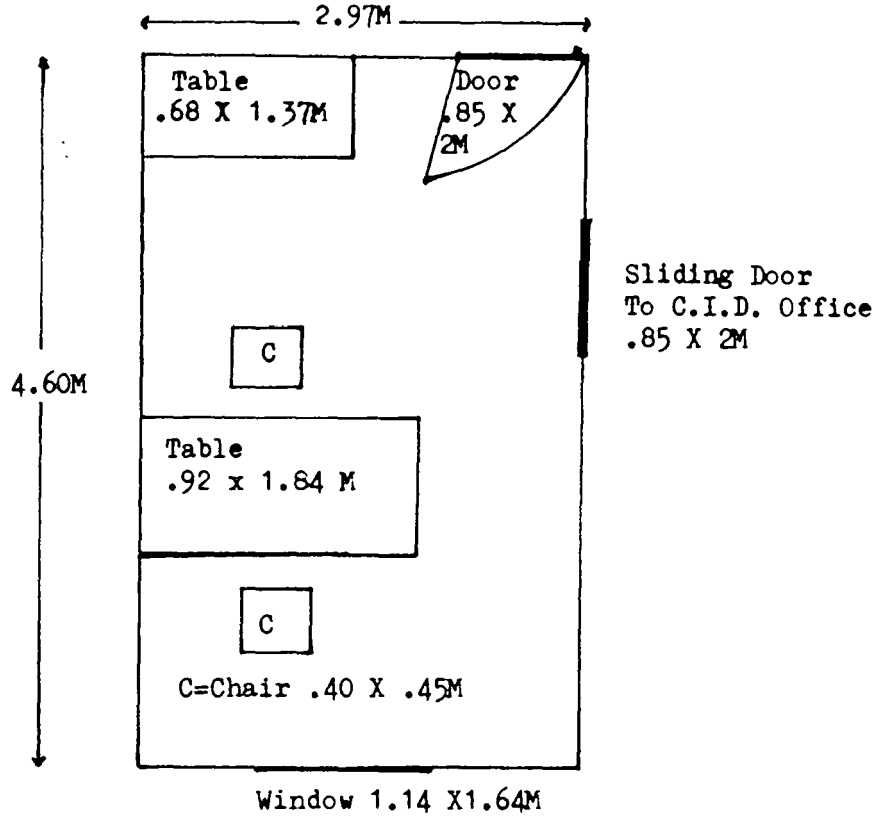
ROOM AREA	Floor	(a)	10.25M^2
	Furniture	(b)	1.44M^2
	Free space	(a-b)	8.80M^2
	Room Height	(c)	2.65M
	Room Volume	(axc)	27.16M^3
TEMPERATURE AND HUMIDITY	Building Temp.		17.4'C
	Room Temp.		23.6'C
	Relative Humidity		36%
SOUND	Within Building		0-39dB(A)
	Outside Building		0-46dB(A)
LIGHT	Natural light level		847 lux
	Artificial light level		535 lux
Colour	Walls Munsell colour code		10Y 8/2
	Red lino		
	Ceiling White		

ROOM TWENTY NINE



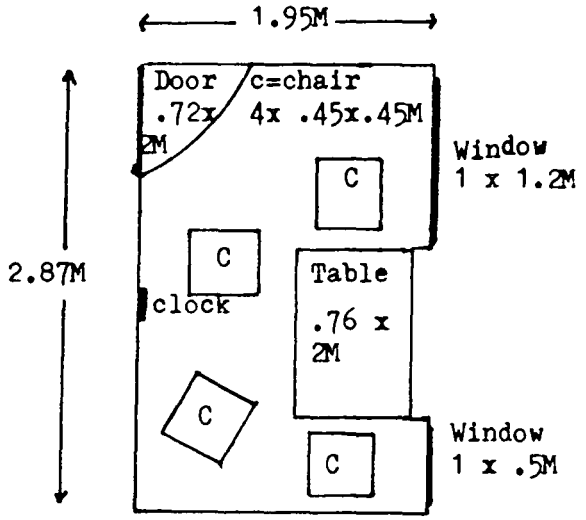
ROOM AREA	Floor	(a)	$8.52M^2$
	Furniture	(b)	$1.38M^2$
	Free space	(a-b)	$6.86M^2$
	Room Height	(c)	2.65M
	Room Volume	(axc)	$22.58M^3$
TEMPERATURE AND HUMIDITY	Building Temp.		24.2'C
	Room Temp.		23.0'C
	Relative Humidity		46%
SOUND	Within Building		0-45dB(A)
	Outside Building		0-38dB(A)
LIGHT	Natural light level		733 lux
	Artificial light level		237 lux
Colour	Walls Munsell colour code		10YR 9/2
	Green carpet		
	Ceiling White		

ROOM THIRTY



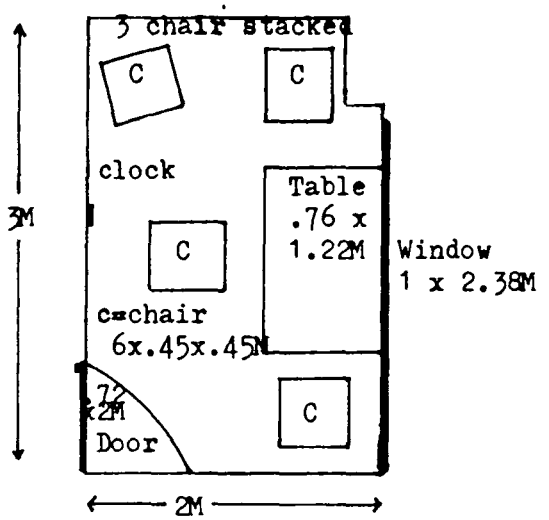
ROOM AREA	Floor	(a)	13.66M^2
	Furniture	(b)	2.98M^2
	Free space	(a-b)	10.67M^2
	Room Height	(c)	2.65M
	Room Volume	(axc)	36.19M^3
TEMPERATURE AND HUMIDITY	Building Temp.		24.5'C
	Room Temp.		23.4'C
	Relative Humidity		39%
SOUND	Within Building		0-56dB(A)
	Outside Building		0-30dB(A)
LIGHT	Natural light level		297 lux
	Artificial light level		510 lux
Colour	Walls Munsell colour code		10YR 8/2
	Red lino		
	Ceiling White		

ROOM THIRTY ONE



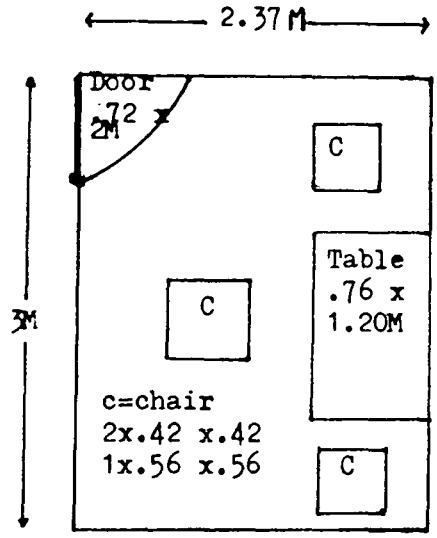
ROOM AREA	Floor	(a)	5.59M^2
	Furniture	(b)	1.72M^2
	Free space	(a-b)	3.86M^2
	Room Height	(c)	2.40M
	Room Volume	(axc)	13.42M^3
TEMPERATURE AND HUMIDITY	Building Temp.		22.3'C
	Room Temp.		21.3'C
	Relative Humidity		33%
SOUND	Within Building		0-45dB(A)
	Outside Building		0dB(A)
LIGHT	Natural light level		100 lux
	Artificial light level		440 lux
Colour	Walls Munsell colour code		2.5Y 8/2
	Grey Brown Carpet		
	Ceiling White		

ROOM THIRTY TWO



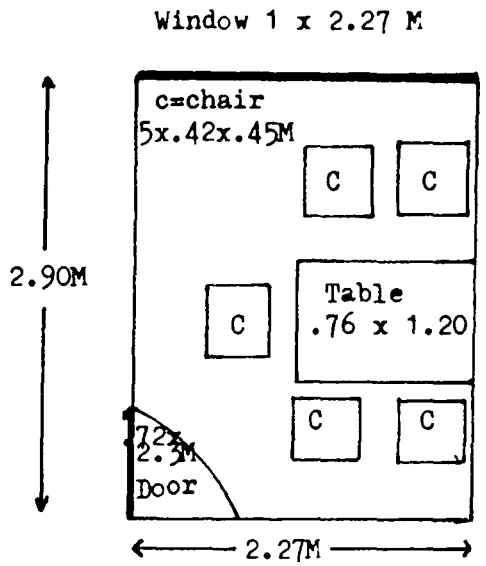
ROOM AREA	Floor	(a)	6.03M^2
	Furniture	(b)	1.78M^2
	Free space	(a-b)	4.24M^2
	Room Height	(c)	2.40M
	Room Volume	(axc)	14.47M^3
TEMPERATURE AND HUMIDITY	Building Temp.		22.3'C
	Room Temp.		21.2'C
	Relative Humidity		50%
SOUND	Within Building		0-38dB(A)
	Outside Building		0dB(A)
LIGHT	Natural light level		81 lux
	Artificial light level		379 lux
Colour	Walls Munsell colour code		2.5Y 9/2
	Grey carpet tiles		
	Ceiling White		

ROOM THIRTY THREE



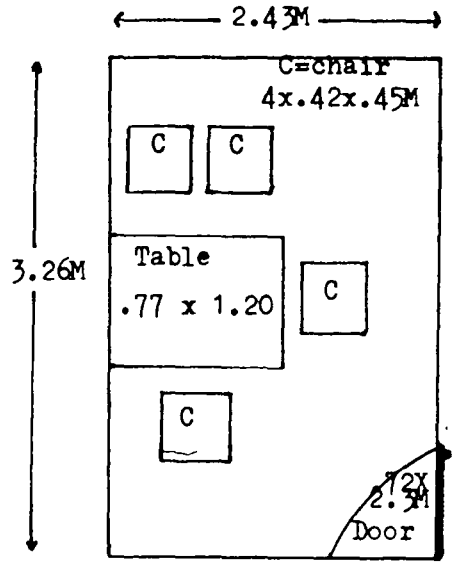
ROOM AREA	Floor	(a)	7.11M^2
	Furniture	(b)	1.58M^2
	Free space	(a-b)	5.53M^2
	Room Height	(c)	2.40M
	Room Volume	(axc)	17.06M^3
TEMPERATURE AND HUMIDITY	Building Temp.		24.1'C
	Room Temp.		22.7'C
	Relative Humidity		50%
SOUND	Within Building		0-35dB(A)
	Outside Building		0dB(A)
LIGHT	Natural light level		0 lux
	Artificial light level		231 lux
Colour	Walls Munsell colour code		2.5Y 9/2
	Grey carpet tiles		
	Ceiling White		

ROOM THIRTY FOUR



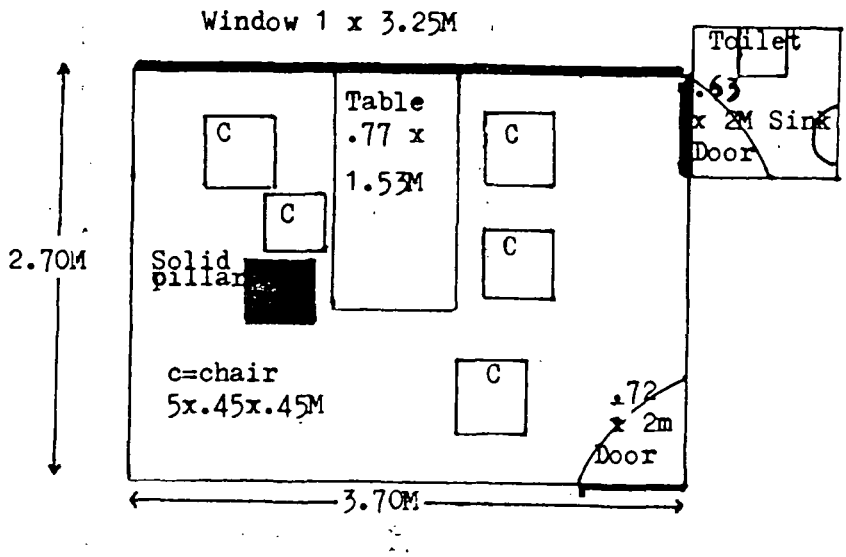
ROOM AREA	Floor	(a)	6.58M^2
	Furniture	(b)	1.85M^2
	Free space	(a-b)	4.72M^2
	Room Height	(c)	2.55M
	Room Volume	(axc)	16.77M^3
TEMPERATURE AND HUMIDITY	Building Temp.		20.5'C
	Room Temp.		22.0'C
	Relative Humidity		54%
SOUND	Within Building		0-44dB(A)
	Outside Building		0dB(A)
LIGHT	Natural light level		41 lux
	Artificial light level		110 lux
Colour	Walls Munsell colour code		2.5Y 9/2
	Light brown carpet tiles		
	Ceiling White		

ROOM THIRTY FIVE



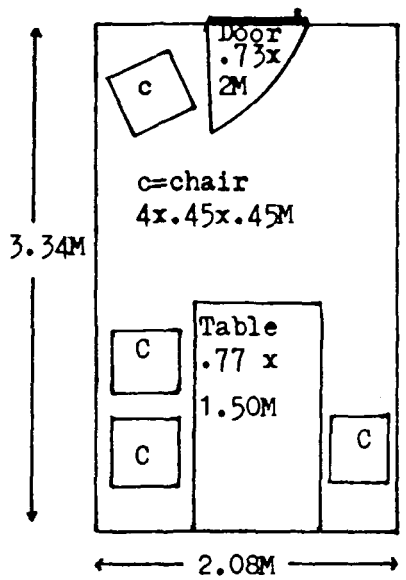
ROOM AREA	Floor	(a)	7.92M^2
	Furniture	(b)	1.68M^2
	Free space	(a-b)	6.24M^2
	Room Height	(c)	2.40M
	Room Volume	(axc)	19.00M^3
TEMPERATURE AND HUMIDITY	Building Temp.		20.7'C
	Room Temp.		21.5'C
	Relative Humidity		52%
SOUND	Within Building		0-48dB(A)
	Outside Building		0dB(A)
LIGHT	Natural light level		0 lux
	Artificial light level		128 lux
Colour	Walls Munsell colour code		2.5Y 9/2
	Light Brown carpet tiles		
	Ceiling White		

ROOM THIRTY SIX



ROOM AREA	Floor	(a)	9.99M^2
	Furniture	(b)	2.19M^2
	Free space	(a-b)	7.79M^2
	Room Height	(c)	2.40M
	Room Volume	(axc)	23.97M^3
TEMPERATURE AND HUMIDITY	Building Temp.		24.4'C
	Room Temp.		17.6'C
	Relative Humidity		44%
SOUND	Within Building		0-42dB(A)
	Outside Building		0dB(A)
LIGHT	Natural light level		336 lux
	Artificial light level		266 lux
Colour	Walls Munsell colour code		2.5Y 8/2
	Green carpet		
	Ceiling White		

ROOM THIRTY SEVEN



ROOM AREA	Floor	(a)	6.94M^2
	Furniture	(b)	1.96M^2
	Free space	(a-b)	4.97M^2
	Room Height	(c)	2.40M
	Room Volume	(axc)	16.65M^3
TEMPERATURE AND HUMIDITY	Building Temp.		24.4'C
	Room Temp.		19.4'C
	Relative Humidity		44%
SOUND	Within Building		0-34dB(A)
	Outside Building		0dB(A)
LIGHT	Natural light level		0 lux
	Artificial light level		720 lux
Colour	Walls Munsell colour code		2.5Y 8/2
	Green carpet		
	Ceiling White		

INTERVIEW ROOMS 1-37 COLOUR DATA

ROOM NO.	ROOM COLOUR	STATION NO.
1	10YR 9/2	1
2	10YR 9/2	2
3	CREAM WALLPAPER	3
4	2.5Y 8.5/2	
5	2.5Y 9/2	4
6	2.5Y 9/2	
7	5Y 9/2	
8	5Y 9/2	
9	2.5Y 9/2	5
10	10YR 9/2	6
11	5G 9/1	7
12	5G 9/1	
13	N 9.0	8
14	2.5Y 9/2	
15	10YR 9/2	9
16	10YR 9/2	
17	(3)10Y 9/2 (1)7.5YR 6/4	
18	(3)10Y 9/2 (1)7.5YR 6/4	
19	(3)10Y 9/2 (1)7.5YR 6/4	
20	(3)10Y 9/2 (1)7.5YR 6/4	10
21	5Y 9/2	
22	2.5Y 9/2	
23	2.5Y 9/2	
24	2.5Y 9/2	11
25	10YR 8/2	12
26	(3)10YR 8/2 (1)10YR 7/4	
27	(3)10YR 8/2 (1)10YR 7/4	
28	10YR 8/2	13
29	10YR 9/2	
30	10YR 9/2	
31	2.5Y 8/2	14
32	2.5Y 9/2	
33	2.5Y 9/2	
34	2.5Y 9/2	
35	2.5Y 9/2	
36	2.5Y 8/2	
37	2.5Y 8/2	

TEMPERATURE AND HUMIDITY DATA

ROOM NO.	BUILDING TEMPERATURE	ROOM TEMPERATURE	RELATIVE HUMIDITY	STATION NO.
1	19.1'C	18.3'C	54%	1
2	19.5'C	17'C	66%	2
3	21.9'C	21.9'C	56%	3
4	25.7'C	23.4'C	47%	
5	23.1'C	22.1'C	56%	4
6	22.9'C	20.8'C	56%	
7	23.3'C	21.1'C	55%	
8	23.3'C	21.4'C	55%	
9	22.3'C	20.8'C	57%	5
10	25.3'C	23'C	36%	6
11	21.5'C	19'C	54%	7
12	21.5'C	19'C	54%	
13	24.5'C	22.5'C	41%	8
14	19.1'C	24.5'C	28%	
15	28.2'C	23.8'C	44%	9
16	19.7'C	18.5'C	39%	
17	23'C	23'C	30%	

18	23'C	18.1'C	35%	9
19	23'C	19.5'C	35%	
20	23'C	19.8'C	35%	10
21	21.4'C	17.9'C	34%	
22	24'C	22.8'C	35%	
23	23.8'C	22.8'C	31%	
24	20.1'C	18.2'C	28%	11
25	26'C	18.3'C	32%	12
26	25.7'C	19.4'C	29%	
27	27.2'C	19.1'C	25%	
28	17.4'C	23.6'C	36%	13
29	24.2'C	23'C	46%	
30	24.5'C	23.4'C	39%	
31	22.3'C	21.3'C	33%	14
32	22.3'C	21.2'C	50%	
33	24.1'C	22.7'C	50%	
34	20.5'C	22'C	54%	
35	20.7'C	21.5'C	52%	
36	24.4'C	17.6'C	44%	
37	24.4'C	19.4'C	44%	

APPENDIX 'C'

SURVEY THREE

CONTENTS PAGE

Division..... Station..... Admin No.....

Having regards to the interview room that you use, from the list of words below, would you please select and place in your order of preference, the five main aspects of the environment which you feel has the most detrimental effect on your interviewing of victims.

Colour	Location	Furniture	Lighting	Noise	Heating
Windows	Tidiness	Security	Decoration	Size	Privacy

1.....

2.....

3.....

4.....

5.....

If you consider that any other environmental aspects has a more detrimental effect please state below.

.....

.....

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.....

.....

Thank You For Your Assistance

Division..... Station..... Admin No.....

Having regards to the interview room that you use, from the list of words below, would you please select and place in your order of preference, the five main aspects of the environment which you feel has the most detrimental effect on your interviewing of witnesses.

Colour	Location	Furniture	Lighting	Noise	Heating
Windows	Tidiness	Security	Decoration	Size	Privacy

1.....

2.....

3.....

4.....

5.....

If you consider that any other environmental aspects has a more detrimental effect please state below.

.....

.....

.....

.....

.....

Thank You For Your Assistance

Division..... Station..... Admin No.....

Having regards to the interview room that you use, from the list of words below, would you please select and place in your order of preference, the five main aspects of the environment which you feel has the most detrimental effect on your interviewing of suspects.

Colour	Location	Furniture	Lighting	Noise	Heating
Windows	Tidiness	Security	Decoration	Size	Privacy

1.....

2.....

3.....

4.....

5.....

If you consider that any other environmental aspects has a more detrimental effect please state below.

.....

.....

.....

.....

.....

Thank You For Your Assistance

APPENDIX 'D'

SURVEY FOUR (SOLICITORS)

CONTENTS

Dear .....

I am a serving Police Inspector in the Cleveland Constabulary. At the present time I am on secondment to Durham University, Department of Psychology, where I am undertaking research into the effects of the interview environment on police interviews.

The purpose of my research is to improve the interview environment for all persons that come into contact with the police. This includes victims, witnesses, and suspects, as well as members of your profession, police officers, social workers, etc.

The purpose of this letter is to ask you if you would be willing to assist in this project by completing the attached questionnaire and sending it back to me in the pre-paid envelope.

Any data obtained will be treated in the strictest confidence and no disclosure of any individuals identity will be made.

As someone who works regularly in such environments your perceptions and views would be of great assistance to my research and indeed, could assist in the development of the police interview environment to the benefit of all.

In anticipation of your co-operation, I would like to thank you for any assistance you may offer.

Yours sincerely

K. Pitt

This survey consists of three stages:-

Stage 1 is to establish which police stations you use and your general opinion of the interview facilities.

Stage 2 gives you an opportunity to make comments on the interview environment at the police stations.

Stage 3 looks at your perception of the interview environment in two ways:

i) From your point of view

ii) With regards to your clients

The survey is set out in a way that it should only take 10 to 20 minutes to complete. If you feel that you do not wish to complete any section of the survey form, this will not detract from the value of any comments you make. However, it would be most helpful to this project and future developments of police interview environments, if you could complete the whole survey.

If you would be available for interview with regards to this survey in the future, would you please place a 'X' in the box below.

I would like to thank you once more for your time and effort.

THANK YOU

Would you please indicate the police stations within the Cleveland Constabulary that you use by placing a 'X' in the first box.

Could you also show which stations you attend the most by ranking the stations in order of attendance, by placing a number in box two, commencing with 1 for the most attended to 14, for the least if necessary.

In box three would you please show the station which you consider has the most suitable interview facilities for you, by placing a letter 'A' to 'N'. 'A' indicating the premises most suitable.

If you do not attend a particular station, just leave the box empty.

	1	2	3
Hartlepool.			
Billingham.			
Stockton.			
Thornaby.			
Yarm.			
Middlesbrough.			
North Ormesby.			
Hemlington.			
South Bank.			
Eston.			
Redcar.			
Guisborough.			
Loftus.			

Do you consider that police interview facilities in general are adequate for your purposes.
****

Yes or NO

.....

Can you say what facilities are lacking , inadequate or require improving

.....

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Do you consider that interview facilities in general are suitable for your clients.
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YES or NO

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If 'NO' can you say what facilities you feel are inadequate, lacking or require improving.

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Station.....

Having regards to the interview room that you use, from the list of words below, would you please select and place in your order of preference, the five main aspects of the environment which you feel has the most detrimental effect on YOU

Colour	Location	Furniture	Lighting	Noise	Heating
Windows	Tidiness	Security	Decoration	Size	Privacy

1.....

2.....

3.....

4.....

5.....

If you consider that other environmental aspects have a more detrimental effect please state below.

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Thank You For Your Assistance

Station.....

Having regards to the interview room that you use, from the list of words below, would you please select and place in your order of preference, the five main aspects of the environment which you feel has the most detrimental effect on your client.

****

Colour	Location	Furniture	Lighting	Noise	Heating
Windows	Tidiness	Security	Decoration	Size	Privacy

1.....

2.....

3.....

4.....

5.....

If you consider that other environmental aspects have a more detrimental effect please state below.

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Thank You For Your Assistance

APPENDIX 'E'

SURVEY FIVE

(POLICE, VICTIMS, WITNESSES AND SUSPECTS)

CONTENTS

Inspector 666 'D' Pitt To: P.C.

ASSISTANCE WITH INTERVIEW SURVEY

As part of a research project I am carrying out, you have already helped me gather information into the effects of the police interview environment. In order to complete my research, some additional information is required from people who are either a victim, witness or suspect.

To obtain this information I need to ask the subjects how they feel about the interview environment. The best time to do that is immediately after they have been interviewed.

As I need to interview 100 persons who fall into each group, 300 in all, you will appreciate I would have difficulty in completing that task without some assistance.

I would like you to help me by completing the attached questionnaire yourself.

Secondly, I would like you to hand to people you are dealing with, a similar questionnaire to the one you completed.

One questionnaire should be given to each subject:
(.....Victim(s) .....Witness(es) .....Suspect(s))

All that is required is that you ask the subjects (as set out in the 'Requests to Subjects' attached) if they would assist in the survey. If they refuse, then the survey form should be endorsed as such and that survey is counted as having been completed.

A refused survey should not be used again.

Permission has been granted by the Chief Constable for this survey to be undertaken.

When you have completed the allocated number of subjects, then the forms should be sent to me via Sgt SLATER, Force Training School, Headquarters, Ladgate Lane, Middlesbrough.

The survey should be completed by 15 July 1989.

In anticipation of your co-operation, I would like to thank you for your assistance.

REQUEST TO SUBJECTS

A serving Police Inspector in the Cleveland Constabulary is at the present time on secondment to Durham University, Department of Psychology, where he is undertaking research into the effects of the interview environment on police interviews.

I would like to ask you if you would be willing to assist in this project by completing this questionnaire.

Any data obtained will be treated in the strictest confidence and no disclosure of any individuals identity will be made.

As someone who has come into contact with the police interview environment, your views and perceptions would be of great assistance to the research.

Having regards to the interview room that you use, from the list of words below, would you please select and rank in your order of preference, (Ranking 1 most effect to 12 least effect) what factors of the interview room environment you consider had the most effect upon you.
(ie. If you think the size of the room has the most effect then rank size 1)
Could you also indicate how you feel these factors have effected you by showing on the scale below the type of effect.(ie. 1 very positive to 5 very negative)

	RANKING	EFFECT SCALE				
		Very Positive	Positive	Neutral	Negative	Very Negative
COLOUR	____	1	2	3	4	5
LOCATION	____	1	2	3	4	5
FURNITURE	____	1	2	3	4	5
LIGHTING	____	1	2	3	4	5
NOISE	____	1	2	3	4	5
HEATING	____	1	2	3	4	5
WINDOWS	____	1	2	3	4	5
TIDINESS	____	1	2	3	4	5
SECURITY	____	1	2	3	4	5
DECORATION	____	1	2	3	4	5
SIZE	____	1	2	3	4	5
PRIVACY	____	1	2	3	4	5

If you consider that any other environmental aspects, other than those listed overleaf, also have an effect on you please describe them (briefly) below.

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Thank You For Your Assistance

Police Officer Admin No.....

Station.....

Having regards to the interview room that you have been interviewed in, from the list of words below, would you please select and rank in your order of preference, (Ranking 1 most effect to 12 least effect) what factors of the interview room environment you consider had the most effect upon you.
(ie. If you think the size of the room has the most effect then rank size 1)
Could you also indicate how you feel these factors have effected you by showing on the scale below the type of effect.(ie. 1 very positive to 5 very negative)

	RANKING	EFFECT SCALE				
		Very Positive	Positive	Neutral	Negative	Very Negative
COLOUR	____	1	2	3	4	5
LOCATION	____	1	2	3	4	5
FURNITURE	____	1	2	3	4	5
LIGHTING	____	1	2	3	4	5
NOISE	____	1	2	3	4	5
HEATING	____	1	2	3	4	5
WINDOWS	____	1	2	3	4	5
TIDINESS	____	1	2	3	4	5
SECURITY	____	1	2	3	4	5
DECORATION	____	1	2	3	4	5
SIZE	____	1	2	3	4	5
PRIVACY	____	1	2	3	4	5

If you consider that any other environmental aspects, other than those listed overleaf, also have an effect on you please describe them (briefly) below.

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Thank You For Your Assistance

Police Officer Supplying Form Admin No.....

Station..... Interview Room No./ Location.....

Subject Category. Victim / Witness / Suspect (Offender)

APPENDIX 'F'

BIBLIOGRAPHY

Aiello J.R. & Thompson D.E. (1980). When compensation fails: Mediating effects on sex and locus of control at extended interaction distance. **Basic and Applied Social Psychology**, 1 (1). 65 - 82.

Albrechtsen O. Clausen V. Christensen F.G... Jensen J.G. & Moeller T. (1978). The influence of small atmospheric ions on human well-being and mental performance. **International Journal of Biometerology, 22**. 249 - 56.

Altman I., & Chemers M.M. (1980). In **Culture and Environment** Cambridge University Press 1984. 44 - 45.

Altman I. & Vinsel A.M. (1977). Personal space: An analysis of E.T. Halls proxemics framework. Found in I. Altman & M.M. Chemers (1980). **Culture & Environment.** Cambridge University Press (1984). 108 - 118.

American Standards Association (1960). **American Standards Acoustical Terminology**. New York.

Annual Review of Psychology (1986). **Vol.37** (ch.ed) C.J. Holahan. Pub. Annual Reviews Ins. 381 - 407.

Appleyard D. (1976). Planning a pluralist city. In I. Altman & M.M. Chemers (1980). **Culture and Environment.** Cambridge University Press. 60.

Argyle M. & Dean J. (1965). Eye-contact, distance and affiliation. Found in I. Altman & M.M. Chemers (1980) **Culture and Environment.** Cambridge University Press (1984). 112.

Argyle M. (1967). **The Psychology of Interpersonal Behaviour.** (4 ed.) Penguin.

Argyle M. (1975). Bodily Communication. London. Methuen. In A.J. Chapman & A. Gale (Ed) (1982). **Psychology and People.** 299.

Argyle M. (1983). **The Psychology of Interpersonal Behaviour.** Pelican. 39.

Ashrae (1972). Physiological principles, comfort and health. In R. Hockey (1983). **Stress and Fatique in Human Performance.** Wiley. 38.

Austin A.W. & Holland J.L. (1961). The environment assessment technique: A way to measure college environments. **Handbook of Environmental Psychology** (1987). Pub. Wiley Interscience. 892.

Baine A.D. (1949). Dominance in the Great Tit. Cited in D. Stokols & I. Altman. (1987 ed). **Handbook of Environmental Psychology. Vol.1.** Wiley Interscience.

Baines P. (1987). Unrelieable Confessions: **Police Review** (6th November 1987). 2208.

Baron R.M. (1978). Aggression and heat: The "long hot summer" revisited. In A. Baum, J. Singer & S. Valins (Eds) **Advances in Environmental Psychology.** Vol.1. 57 - 84.

Barker R.G.D., Wright H.F. (1949). Psychological Ecology and the problems of psycholsocial development. **Child Development 20. 131 - 143.**

Barker R.G.D. (1955). Midwest and its Children: The psychological ecology of an American town. In D. Stokols & I. Altman (1987 ed) **Handbook of Environmental Psychology. Vol. 2.** Wiley Interscience. 896.

Barker R.G.D. (1966) One boys day. In D. Stokols & I. Altman (1987 ed) **Handbook of Environmental Psychology. Vol.2.** Wiley Interscience.

Barker R.G.D. (1968). Ecological psychology: Concepts and methods for studying the environment of human behaviour. In A.W. Wicker. **An Introduction to Ecological Psychology.** Cambridge University press (1984). 204.

Barker R.G. & Schoggen P. (1973). Qualities of community life. In D. Stokols & I. Altman (1987 ed). **Handbook of Environmental Psychology. Vol.2**. Wiley Interscience. 896.

Baum A & Paulus P. (1987). Crowding. In D. Stokols & I. Altman (1987 ed). **Handbook of Environmental Psychology. Vol.1**. New York : Wiley Interscience.

Baum A. Singer J.E. (1980). **Advances in Environmental Psychology. Vol.2**. Application of personal control. pub. Lawrence Erlbaum Ass. N.J. 9.

Bell P. & Greene T (1982). Thermal stress: Physiological comfort, performance and social effects of hot and cold environments. In G.W. Evans **Environmental Stress**. New York : Cambridge University Press. 75 - 1040.

Berry P.C. (1961). The effects of coloured illumination upon perceived temperature. **Journal of Applied Psychology** 45. 248 - 250.

Birren F (1969). **Light, Colour and Environment** (Revised 1982). Van Nostrand Reinhold Co. Inc. 15 - 19.

Bissonnette T.H. (1941). Experimental modification of breeding cycles in goats. In F. Birren (1969). **Light, color and Environment**. (Revised 1982). Van Nostrand Reinhold Co.Inc. 11.

Bissonnette T.H. & Csech A.G. (1939). Sexual photoperiodicity in cottontail rabbits. In F. Birren (1969). **Light, color and Environment**. (Revised 1982). Van Nostrand Reinhold Co. Inc. 11.

Black F.A. & Milroy E.A. (1966). In D.J. Croome-Gale & B.M. Roberts (1975). International Series of Monographs in **Heating, Ventilation and Refridgeration. Vol.10**. Pergamon Press. 26.

Boyce P.R. (1975). The luminous environment. In D. Canter & P. Stringer (Eds), **Environmental Interaction**. London : Surrey University Press.

Brenner P. (1975). Noise and Music. Found in **Greater London** "**London Intelligence Quarterly. No.32** September 1975. 5 - 11.

Broadbent D.E. (1971). Decision and Stress. In **Environmental Health Criteria. 12 Noise** (1980). Pub. World Health Organisation Geneva. 76 - 78.

Brunswick E (1947). Systematic and representative design of psychological experiments. In A.W. Wicker (1979). **An Introduction to Ecological Psychology**. Cambridge University Press. 3.

Buckwalter A (1983). **Interviews and Interrogations**. Woburn Ma, Butterworth.

Buettner (1962). In D.A. McIntyre (1981). Design requirement for a comfortable environment. **In Bioengineering, Thermal Physiology and Comfort**. (ed) E.Cena & J.A. Clark. Elsevier Scientific. Oxford.

Burgess J.A. (1979). Place making: The contribution of environmental perception studies in planning. In D. Stokols & I. Altman (ed) **Handbook of Environmental Psychology. Vol. 2**. Wiley Interscience. 1285.

Burrows A.A. (1960). Acoustic noise, an informational definition. **Human Factors** (1960), **2(3) - 163 - 168**.

Burton I. & Kates R.W. (1964). The perception of natural hazards in resource management. In D. Stokols, & I. Altman (1987) **Handbook of Environmental Psychology**. Pub. Wiley Interscience. 892.

Calhoun J.B. (1962). Population density and social pathology. **Scientific American, 206(2). 139 - 148**.

Campbell J.M. (1983). Ambient stressors. In **Annual Review of Psychology, Vol. 37/86**. (ch.ed). C.J. Holahan. Environmental Psychology. Annual Review Ins. 392.

Cannell C.F. & Kahn (1968). Interviewing. In G. Linzey & E. Arnson (Ed), **Handbook of Social Psychology** (2nd edn), **Vol.2**. Reading Mass : Addison-Wesley.

Canter D. Canter S (1971) Close Together in Tokoyo. In I. Altman & M.M. Chemers (1980) **Culture & Environment.** Cambridge University Press (1984).

Canter D. (1977). **The Psychology of Place.** London : Architectural Press.

Canter D & Craik K.H. (1981). Environmental psychology. In **Annual Review of Psychology Vol. 37/86.** (Ch.ed). C.J. Holahan. Environmental Psychology. 381.

Canter D (1983). The purposive evolution of place: A facet appraoch. Environ. **In Annual Review of Psychology. Vol. 37/86.** (Ch.ed). C.J. Holahan. Environmental Psychology. 383.

Canter D (1983). Way finding and signposting: Penance or prosthesis? In **Annual Review of Psychology. Vol.37/86.** (Ch.ed). C.J. Holahan. Environmental Psychology. 392.

Carp F.M. & Carp A. (1982a). A role for technical environmental assessment in perception of environmental quality and well-being. In D. Stokols & I. Altman. (1987 ed) **Handbook of Environmental Psychology. Vol.2. 893.**

Cavanaugh W.J. Farrell W.R. Hirtle P.W. & Watters B.G. (1962) Speech Privacy in buildings: **Journal of the Acoustical Society of America. 34. 475 - 492.**

Chapman A.J. & Gale A. (1982). **Psychology and People. 299.**

Cherry J.M. & Hawkinshire F.B.W. V (1981). Effects of atmospheric electricity on some substrates of disordered social behaviour. **Journal of Personality and Social Psychology. 41. 185 - 197.**

Cone J.D. & Hayes S.C. (1980). **Environmental Problems Behavioural Solutns,** Cambridge University Press (1984).

Craik K.H. (1970). Environmental psychology. In K.H. Craik et al. (Eds), **New Direction in Psychology. Vol.4. 1 - 121.** New York : Holt, Reinhart & Winston. Also found in D. Stokols & I. Altman. (1987 ed). **Handbook of Environmental Psychology. Vol.2.** Wiley Interscience. 892.

Craik K.H. (1981). Environmental assessment and situational analysis. Found in **Annual Review of Psychology. Vol.37**. 1986. (Ch.ed). C.J. Holahan. Environmental Psychology. Annual Review Inc. 385.

Craik K.H. & Feimer, N.R. (1987). Environmental Assessment. In D. Stokols & I. Altman (1987 ed). **Handbook of Environmental Psychology. Vol.2**. Wiley Interscience. 912.

Craik K.H. & Zube E.H. (1976). Perceiving Environmental Quality. In D. Stokols & I. Altman. (1987 ed). **Handbook of Environmental Psychology. Vol.2**. WIley Interscience. 896.

Cunningham M.R. (1979). Weather, Mood, and Helping Behaviour. **Journal of Personality and Social Psychology. Vol.37. 1947 - 1956.**

Denzin N.K. (1970). The research act: A Theoretical Introduction to Sociological Methods. Chicago: Aldine. In **The Social Context of Method**. (Ed). Brenner, Marsh, Brenner, Croom Helm. London. 126.

Deatherage B.H. & Evans T.R. (1969). Binaural masking: Backward, forward and simultaneous effects. **Journal of Acoustical Society of America, 46. 362 - 371.**

Ditchfield J. (1979). Police questioning of suspects: A pilot study: **Police Review** (9th February 1979). 208 - 209.

Dooley B.B. (1978). Effects of social density on men with "close" or "far" personal space. **Journal of Population, 1 251 - 265.**

Down R.M. & Stea D. (1973). (Ed). Image and environment Cognitive Mapping and spatial behaviour. Chicago: Aldine. In J Zeisel. (1981). 170 - 171. Also Found in I. Altman & M.M. Chemers. (1980). **Culture & Environment**. Cambridge University Press (1984). 44.

Dudycha G.J. (1955). Psychology for law enforcement officers. **Springfield, III.** C C Thomas **Oxford, Blackwell Scientific Publication, 3 - 404.**

Epstein Y. (1982). Crowding Stress and Human Behaviour. In G.W. Evans (Ed), **Environmental Stress, 133 - 148.** New York: Cambridge University Press. Also found in **Annual Review of Psychology. Vol. 37/86** (Ch.ed). C.J. Holahan. Environmental Psychology. Annual Review Ins. **393.**

European Covention on Human Rights. Article 3. Found in J. McGuffin (1984). **Guineapigs (Sensory Deprivation in Interrogation in Northern Ireland).** Hamondsworth. Penquin. **112.**

Evans G.W. & Cohen S (1986). Environmental Stress. In **Annual Review of Psychology, Vol. 37/86.** (Ch.ed). C.J. Holahan. Environmental Psychology. Annual Review Ins. **397.**

Evans M.J. & Tempest W (1972). Some effects of infrasonic noise in transportation. **Journal of Sound and Vibration. Vol 22. 19 - 24.**

Fanger P.O. (1970). **Thermal Comfort.** New York. McGraw-Hill.

Fanger P.O. Breum N.O. & Jerking E. (1977). Can colour and noise influence mans thermal comfort? **Ergonomics. 20. 11 - 18.**

Farr R.M. (1982). Interviewing: The social psychology of the interview. From A.J. Chapman & A. Gale (eds). **Psychology and People. 287 - 305.**

First M.W. (1980). Effects of air ions. Science. 210. p. 714 - 716. In D. Stokols & I. Altman. (ed 1987). **Handbook of environmental Psychology. Vol.1.** Wiley Interscience.

Fisher J.D. & Byrne D. (1975). Too close for comfort: Sex differences in response to invasions of personal space. **Journal of Personality and Social Psychology, 32. 15 - 21.**

Fleming R., Baum A & Singer J.E. (1984). Towards an integrative approach to the study of stress. In **Annual Review of Psychology. Vol. 37/86.** (Ch.ed). C J. Holahan. Environmental Psychology. Annual Review Inc. **392.**

Foley J.E. & Cohen A.J. (1984a). Mental mapping of a megastructure. In **Annual Review of Psychology. Vol. 37.** (Ch.ed). C.J. Holahan. Environmental Psychology. Annual Review Inc. 389.

Ganong W.F. Endrocrinology article. 72.962 - 963. In F. Birren (1969). **Light Color and Environment** (Revised 1982). Van Nostrand Reinhold Co Inc. 12.

Garling T., Lindberg E & Mantyla T. (1983). Orientation in buildings. Effects of familiarity, visual access and orientation aids. In **Annual Review of Psychology. Vol 37/86.** (Ch.ed). C.J. Holahan. Environmental Psychology. Annual Review Co Inc. 388.

Genereus R.L., Ward L.M. & Russell J.A. (1983). The Behavioural compenent in the meaning of place. In **Annual Review of Psychology. Vol.37.** (Ch.ed). C.J. Holahan. Environmental Psychology. Annual Review Co Inc. 388.

Gerard R (1958). Color and emotional arousal. In F.Birren (1969). **Light, Color and Environment.** Van Nostrand Reinhold Co Incs. 19.

Gibson J.J. (1950). The Perceptionof the Visual World. In A.D. Pick (ed) **Perception and Its Development.** Lawrence Evlboum Ass. 45.

Gibson J.J. (1959). Perception as a function of stimulation. Found in A.D. Pick (ed) **Perception and Its Development.** Lawrence Evlboum Ass. 45.

Gibson J.J. (1966). **The Senses Considered as Perceptual Systems.** Boston:Houghton Mifflin.

Gibson J.J. (1979). **The Ecological Approach to Visual Perception.** Boston:Houghton Mifflin.

Gifford R (1982). Projected interpersonal distance and orientation choices : Personality, sex and social situation. In **Annual Review of Psychology. Vol 37/86.** (Ch.ed). C.J. Holahan. Environmental Psychology. Annual Review Inc. 398.

Glass D. & Singer J. (1972). Urban Stress. New York : Academic Press P. 182. In **Environmental Health Criteria 12 Noise** (1980). World Health Organisation Geneva. 76 - 77.

Glorig A. & Nixon J. (1962). Hearing loss as a function of age. Laryngoscope, 72: P. 1596 - 1610. In **Environmental Heaqlth Criteria 12 Noise**. (1980). World Health Organisation Geneva.

Goffman E (1959). The presentation of self in everyday life. In J. Good (1987). **Perception, Acting and Inter-Action.** An ecological social psychology of social knowing. paper presented to symposium on perceptual and cognitive processes in social knowing. Fourth International conference on event perception and action, August 24 - 28. Trieste. 14.

Goldstein K. (1942). Experimental observations concerning the influence of colour on the function of the organism. Occupational therapy and rehabilitation. In F. Birren (1969) **Colur, Light and Environment** (Revised 1982). Van Nostrand Reinhold Co Inc. 18.

Golledge R.G. (1986). Environmental Cognition. In **Annual Review of Psychology. Vol. 37** (Ch.ed). C.J. Holahan. Environmental Psychology. Annual Review Co Inc. 388.

Good J (1987). **Perception, Action and Inter-Action. An ecological social psychology of social knowing.** Paper presented to symposium on perceptual and cognitive processes in social knowing. Fourth international conference on event perception and action, August 24 - 28. Trieste.

Gould P.R. & White R (1974). Mental Maps. In I. Altman & M.M. Chemers (1980). **Culture and Environments.** Cambridge University Press (1984). 59.

Green E.J. **Psychology for Law Enforcement**: New York; Wiley.

Gregory R.L. (1966). Eye and Brain: **The Psychology of Seeing.** (3rd ed). Weidenfled & Nicolson. 34 - 50.

Guyton A C (1974). Function of the human body. In J.R. Leigh (1988). **Temperature Measurement & Control.** Peregrinus Ltd. 155.

Hall E.T. (1966). **The Hidden Dimension**. New York: Doubleday.

Harre R. & Secord P.F. (1972). The explanation of social behaviour. In **The Social Contexts of Method**. (Ed). Brenner, Marsh, Brenner. Croom Helm. London. 125.

Harris C.S. & Johnson D.L. (1978). Effects of infrasound on cognitive performance. In D. Stokols & I. Altman (ed 1987). **Handbook of Environmental Psychology. Vol.1**. Wiley Interscience.

Harris C.S., Sommer H.C. & Johnson D.L. (1976). Review of the effects of infrasound on man. In D.J. Osbourne. (1982). **Ergonomics at Work**. Wiley.

Hawkins L.H. (1981). The influence of air ions, temperature and humidity on subjective well being and comfort. **Journal of Environmental Psychology. Vol.1 279 - 292**.

Hayduk L.A. (1983). Personal space : Where we now stand. In **Annual Review of Psychology. Vol. 37/86**. (Ch.ed). C.J. Holahan. Environmental Psychology. Annual Review Inc. 397.

Health and Safety at Works Act 1984. H.M.S.O.

Hebb D.O. (1955). Drives and C.N.S. (Conceptual Nervous System). In **Environmental Health Criteria 12 Noise** (1980). World Health Organisation Geneva. 76.

Heft H. (1981). An examination of Constructivist and Gibsonian approaches to environmental psychology. In **Population & Enviornment**. (Winter/81). **Vol.4 227 - 245**.

Heft H. (1983). Way-Finding as the perception of information over time. Popul. Environm. 6: 133 - 50. In **Annual Review of Psychology. Vol.37**. (Ch.ed). C.J. Holahan. Environmental Psychology. Annual Review Co Inc. 389.

Heft H. (1988). Affordances of childrens environments: A Functional Approach to Environmental Description. In **Childrens Environments Quarterly. Vol.5 29 - 37**.

Heider F. (1939). Environmental Determinants in Psychological. In J. Good (1987). **Perception, Action and Inter-Action. An ecological social psychology of social knowing.** Paper presented to symposium on perceptual and cognitive processes in social knowing. Fourth international conference on event perception and action, August 24 - 28. Trieste. 24.

Heidiger H. (1950). Wild aminals in captivity. In I. Altman & M.M. Chemers. (1980). **Culture and Environment.** Cambridge University Press (1984). 102 - 105.

Hellman H. (1982). Guiding Light. **Psychology Today. Vol. 10** 22 - 28.

Hockey G.R.J. (1970). Signal probability and spatial location as possible basis for increased selectivity in noise. In **Environmental Health Criteria 12 Noise** (1980). World Health Organisation Geneva. 77.

Hockey R (1983). **Stress and Fatigue in Human Performance.** Wiley.

Holahan J.C. (1986). Review of Environmental Psychology. Found in **Annual Review of Psychology. Vol.37** 381 - 407.

Home Office (1969). **Planning Of Police Buildings Guide.** H.M.S.O. 3.

Home Office (1970). **Police Building Design Guide 2:** (Organisation activities and relationships). H.M.S.O.

Home Office (1977). **Police Buildings - Review of Unit Costs and Procedure.** H.O.C. 24/77. H.M.S.O.

Home Office (1978). Evidence to the Royal Commission on Criminal Procedure. **Memorandum No.5 The Law and Procedures Relating to the Questioning of Persons in the Investigation of Crime.** H.M.S.O.

Home Office (1985). Interview Recording: Equipment Aspects (ed). B.J. Blain & R.W. Walker. **Scientific Research and Development Branch Pub. 7/85.**

Home Office (1986). Interview Recording: Equipment and Room Costs. (Ed) P.A. Stringer. **Scientific Research and Development Branch Pub. 48/86.**

Home Office (1989). **Science and Technology Police Requirements Support Unit Bulletin. Vol. 34. 5 - 6.**

Hopkinson R.G. (1956). Glare discomfort and pupil diameter. **Journal of Optical Society of America. 46. 694 - 656.**

Hopkinson R.G. & Collins J.B. (1970). The ergonomics of lighting. **Macdonalds.** London.

Hopkinson R.G. & Longmore J. (1959). Attention and distraction in the lighting of workplace. **Ergonomics 2 231 - 333.**

Howard E (1920). Territory in bird life. London: In D. Stokols & I. Altman (1987 ed). **Handbook of Environmental Psychology Vol.1.** Wiley Interscience.

Humphreys M.A. & Nicol J.F. (1970). In D.J. Croome-Gale & B.M. Roberts (1975). **International Series of Monographs in Heating, Ventilation and Refridgeration. Vol. 10.** Pergamon Press. **21.**

I.E.C. (1973). Precision sound level meters, Geneva, Central Office of the International Electrotechnical Commission, 26pp (pub.no. 179). In **Environmental Health Criteria 12 Noise.** World Health Organisation. **23 - 25.**

I.E.C. (1973). Precision sound level meters. Additional characteristics for the measurement of impulsive sounds, Geneva, Central Office of the International Electrotechnical Commission, 21pp. (179a First Supplement to Pub. No. 179). In **Environmental Health Criteria 12 Noise** (1980). World Health Organisation Geneva. **24 - 25.**

Illuminating Engineering Society. (1973). **IES Code for Interior Lighting.** Pub. IES.

Inbau F.E., Reid J.E. & Buckley J.P. (1986). **Criminal Interrogation and Confessions.** 3rd ed. Baltimore, London, William & Wilkins.

International Convenant on civil and political rights. Articles 7 and 10. In J. McGuffin (1974). **Guineapigs (Sensory Deprivation in Interrogation in Northern Ireland).** Harmondsworth. Penguin. 111 - 112.

Interview Techniques Manual (1987). Lancashire Constabulary Detective Training Department. Hutton Hall, Hutton, Preston.

Irving B.L. & Hilgendorf L. (1980). Police Interrogation Research Study No.1 : The Psychological Approach. **Research Study No.2: A case study of current practice. (Royal Commission on Criminal Procedure).** H.M.S.O.

Irving B.L. & McKenzie I.K. (1988). Regulating custodial interviews: The effects of the Police and Criminal Evidence Act 1984. Vol.1. Interim fingdings: A comparison of 1986 with 1979. Police Foundation.

Ittelson W.H., Proshansky H.M. Rivlin L.G. & Winkel G.H. (1974). An Introduction to Environmental Psychology. In A.W. Wicker (1979). **An Introduction to Ecological Psychology.** Cambridge University Press (1980). Reprinted 1988. 1 - 2

Jones E.E. & Nisbett R.E. (1971). The actor and the observer divergent perceptions of the causes of behaviour. In J. Good (1987). **Perception, Action and Inter-Action. An ecological social psychology of social knowing.** Paper presented to symposium on perceptual and cognitive processes in social knowing. Fourth international conference on event perception and action. August 24 - 28. Trieste. 14.

Jones S.J. (1983) 'Community policing in Devon and Cornwall'. In Bennett T (ed). The future of policing. Cropwood Conference series No.15. Cambridge: Institute of Criminology. In **Policing Today.** Home Office research and planning unit. (1985) 131 - 139

Jonge D. de. (1972). Images of urban areas, their structure and psychological foundation. In J. Zeisel (1981). **Enquiry by Design.** Pub. Cambridge University Press (1986). 170.

Kaplan S (1982). Where cognition and affect meet: A theoretical analysis of preference. In **Annual Review of Psychology. Vol.37.** (Ch.ed). C.J. Holahan. Environmental Psychology. Annual Review Co Inc. 384

Kaplan S. (1983). A model of person-environment compatability. In **Annual Review of Psychology. Vol. 37**. (Ch.ed). C.J. Holahan. Environmental Psychology. Annual Review Co Inc. 384.

Katz D. (1937). Animals and Men. In D. Stokols & I. Altman (1987 ed). **Handbook of Environmental Psychology. Vol.1** Wiley Interscience.

Kerse C.S. (1975). **The Law Relating to Noise**. Oyez.

Koffka J. (1935). Principles of Gestalt Psychology. In J.D Cone & S.C. Hayes. **Environmental Problems Behavioural Solutions**. Cambridge University Press. 3.

Krueger A.P., Andriese P.C. & Kotaka S. (1963). The biological mechanism of air ion action: The effect of CO+2 in inhaled air on the blood level of 5-hydroxytryptamine in mice. **International Journal of Biometeorology, 7, 3 - 16**.

Krueger A.P., Andriese P.C. & Kotaka S. (1966). The effects of inhaling non-ionized or positively ioinzed air containing 2-4% CO2 on the blood levels of 5-hydroxytryptamine in mice. **International Journal of Biometerology, 10. 17 - 28**.

Kruegar A.P., Andriese P.C. & Kotaka S. (1968). Small air ions: Their effect on blood levels of serotonin in terms of modern physical theory. **International Journal of Biometerology, 12. 225 - 239**.

Kruegar A.P. & Kotaka S. (1969). The effects of air ions on the brain levels of serotonin in mice. **International Journal of Biometeorology, 13. 25 - 28**.

Kryter K.D. (1970). The effect o noise on man. In **Environmental Health Criteria 12 Noise** (1980). World Health Organisation Geneva. 67 - 77

Ladd F.C. (1970). Black youths view their environment Neighbourhood mpas. In J. Zeisel (1981). **Inquiry by Design**. Cambridge University Press. 170.

Lazarus R.S. (1981). The stress and coping paradigm. In **Annual Review of Psychology. Vol. 37/86**. (Ch.ed). C.J. Holahan. Annual Review Inc. 392

Leigh J.R. (1988). **Temperature Measurement & Control.** Peregrinus. 157.

Leventhall H.G. & Kyriakides K. (1976). Environment infrasound: Its occurance and measurement. In D.J. Osbourne (1982). **Ergonomics at Work.** Wiley.

Levine M (1982). You are here maps. Psychological consideration. In **Annual Review of Psychology 37** (Ch.ed). C.J. Holahan. Environmental Psychology. Annual Review Co Inc. 391.

Levine M & Marchon I. (1984). The placement and misplacement of you are here maps. In **Annual Review of Psychology. 37.** (Ch.ed). C.J. Holahan. Annual Review Co Inc. 392.

Lewin K. (1944). Field theory in social science. In A.W. Wicker (1979). An **Introduction to Ecological Psychology.** Cambridge University Press. 2.

Lietz T.L. (1980). Skillful Interviewing: The investigative technique: **Police Chief.** May 80. 16 - 18.

Lind A.R. (1963). A physiological criterion for setting thermal environmental limits for everyday work. In R. Hockey. (1983 ed). **Stress and Fatique in Human Performance.** Wiley. 35.

Logan H.L. (1947). Light for living Illum. Engr. In F. Birren (1969). **Light, Color and Environment.** (Revised 1982). Van Nostrand Reinhold Co Inc. 12.

Logan H.L. (1963). Color is Seeing. Illum. Engr. In F. Birren (1969). **Light, Color and Environment.** (Revised 1982). Van Nostrand Reinhold Co Inc. 12.

Logan H.L. (1965). Amenity Lighting. Holophane in F.Birren (1969). **Light Color and Environment.** (Revised 1982). Van Nostrand Reinhold Co Inc. 12.

Logan H.L. (1968). Lighting Research, Its impact now and future. In F. Birren (1969). **Light Color and Environment.** (Revised 1982). Van Nostrand Reinhold Co Inc. 12.

Loo C. (1972). The effects of spatial density on the social behaviour of children. **Journal of Applied Social Psychology.** 2. 372 - 381.

Loo C.M. (1978). Behaviour problems indices: The differential effects of spatial density on low and high scores. In D. Stokols, & I.Altman (1987 ed). **Handbook of Environmental Psychology. Vol.2.** Wiley Interscience. 896.

Lorenz K. (1955). Man meets dog. Cambridge. In D. Stokols & I. Altman (1987 ed). **Handbook of Environmental Psychology Vol.1.** Wiley Interscience.

Lukiesh M & Guth S.K. (1949). Brightness in the Visual Field at Borderline Between Comfort and Discomfort. (BCD). **Illuminating Engineering. 44. 650 - 670.**

Lundberg U. & Frankenhaeuser M (1978). Psychophysiological reactions to noise as modified by personal control over noise intensity. In D. Stokols & I. Altman (ed. 1987). **Handbook of Environmental Psychology. Vol.1.** Wiley Inter-Science.

Lynch K (1960). The image of the city. In J. Zeisel (1981). **Inquiry by Design.** Cambridge University Press (1986). 170.

Maguire M (1982). Burglary in a dwelling. The offender and the victim. London: Heinemann. In **Policing Today.** Home Office Research and Planning Unit. **Pub. 1985. 137 - 139.**

McConville M.J. & Baldwin J (1982). Role of interrogation in crime discovery. April 1982 : **British Journal of Criminology. 165 - 175**

McCormick E.J. & Sanders M.S. (1984). **Human Factors in Engineering and Design.** 5 ed. McGraw-Hill.

McGrew P (1970). Social and Spacial Density Effects on Spacing Behaviour in Pre-School Children. In. D. Stokols & I. Altman (1987). **Handbook of Environmental Psychology. Vol. 1.** Wiley Interscience.

McGuffin J. (1974). **Guineapigs (Sensory Deprivation in Interrogation - Northern Ireland).** Harmondsworth, Penquin.

McIntyre D.A. (1981). Design requirements for a comfortable environment. In **Bioengineering, Thermal Physiology and Comfort. 195 - 220.** Ed. K. Cena & J.A. Clark. Elsevier.

McKennell A.C. & Hunt E.A. (1966). Noise annoyance in central London: In **Environmental Health Criteria 12 Noise** (1980). World Health Organisation Geneva.

McManus I.C., Jones A.L. & Cottrell J (1981). The aesthetics of color. In D. Stokols & I. Altman (1987 ed). **Handbook of Environemtnal Psychology. Vol.1.** Wiley Interscience.

Mettler G.B. (1977). Criminal Investigation. Holbrook Press. In P. Morris: **Police Interrogation in England and Wales. A Critical Review of the Literature Prepared for the Royal Commission on Criminal Procedure.** Held at Police Staff College, Bramshill. 12.

Middlemist R.D., Knowles E.S. & Matter C.F. (1976). Personal space invasions in the lavatory: Suggestive evidence of arousal. In D. Stokols & I. Altman (1987 ed). **Handbook of Environmental Psychology. Vol.1.** Wiley Interscience.

Mitton R.G. (1936). **Heat, Light and Sound.** Pub. Dent & Sons.

Molinie J (1916). Reflexes oculaires dorigine auditive. In **Environmental Health Criteria 12 Noise** (1980). World Health Organisation Geneva. 62.

Moos R.H. & Lemke S (1984). Supportive residential settings for older people. In **Annual Review of Psychology Vol.37.** (Ch.ed) C.J. Holahan. Annual Review Co. Inc. 386.

Morris P (1978). **Police Interrogation in England and Wales**: A critical review of the literature prepared for the Royal Commission on Criminal Procedure. H.M.S.O.

Moskowitz H (1971). Crashes are caused by slowed up brain function. In D. Stokols & I. Altman (ed 1987). **Handbook of Environmental Psychology. Vol.1.** Wiley Interscience.

Murrell K.F.H. (1971). Ergonomics: **Man in his Working Environment**. Chapman Hall. London.

Neisser U (1985a). Towards an ecologically orientated cognitive science. In J. Good (1987) paper. **Perception, Action and Inter-Action.** Presented to symposium on perceptual and cognitive processes in social knowing. Fourth International Conference on Event Perception and Action. August 24 - 28 1987. Trieste.

Nemecek J & Grandjean E (1973). Noise in landscaped offices. **Applied Ergonomic, 4. 19 - 22.**

Orleans P (1973). Differential cognition of urban residents: Effects of social scale on mapping. In I. Altman & M.M. Chemers (1980). **Culture and Environment.** Cambridge University Press. 60.

Osbourne D.J. (1982). **Ergonomics at Work.** Wiley.

Ott J.N. (1968). Responses of psychological and physiological functions to environmental light - Part 1 and Part 2. In F. Birren (1969). **Light, Color and Environment.** (Revised 1982). Van Nostrand Reinhold Co Inc.

Patterson M.L., Mullens S & Romano J (1971). Compensatory reactions to spatial intrusion. In D. Stokols & I. Altman (1987 ed). **Handbook of Environmental Psychology. Vol.1.** Wiley Interscience.

Pepler R.D (1963). Temperature: Its measurement and control in science and industry 3rd ed. In D.J. Croome-Gale & B.M. Roberts (1975) **International Series of Monographs in Heating, Ventilation and Refridgeration. Vol.10.** Pergamon Press. 23.

Pocock D.C.D (1979). The contribution of mental maps in perception studies. In D.Stokols & I. Altman (1987 ed). **Handbook of Environmental Psychology. Vol.2** Wiley Inter-Science. 1284

Police and Criminal Evidence Act 1984, Codes of Practice. H.M.S.O.

Police Requirement Support Unit. Home Office Science and Technology Group. **Bulletin 34. July 1989.**

Price R.H. & Bouffard D.L. (1974). Behavioural appropriateness and situational constraint as dimensions of social behaviour. In A.W. Wicker. **An Introduction to Ecological Psychology.** Cambridge University Press (1984). 56.

Pugh D.S., Hickson D.J. & Hinings C.R. (1969). An Empirical texonomy of work organisation structure. In D. Stokols & I. Altman (1987 ed). **Handbook of Environmental Psychology. Vol.2.** Wiley Interscience. 896

Ramsey J.D. (1975). Heat stress standards: OSHA'S Advisory Committee Recommendations. In R. Hockey (1983 ed). **Stress and Fatique in Human Performance.** Wiley. 35.

Reber A.S. (1985). **Dictionary of Psychology.** Penguin.

Robert J & Bayliss D (1967). Hearing levels of adults by race, religion and area of residence, United States 1960 - 1962. In **Environmental Health Criteria 12 Noise** (1980). World Health Organisation Geneva. 32.

Rodin J (1976). Density, perceived choice and response to controllable and uncontrollable outcome. In D. Stokols & I. Altman (1987 ed). **Handbook of Environmental Psychology. Vol.1.** Wiley Interscience.

Rohe W.M. (1982). The response to density in residential settings: The mediating effects of social and personal variables. In **Annual Review of Psychology. Vol. 37/86.** (Ch.ed). C.J. Holahan. Environmental Psychology. Annual Review Inc. 393.

Rohles F.H. (1965), J. Environmental Sciences, 8, 18. In D.J. Croome-Gale & B.M. Roberts (1975). **International Series of Monographs in Heating, Ventilation & Refridgeration. Vol.10.** Pergamon Press. 26.

Rourke F (1960). Final report recommendations P.24. New York committee for a quiet city. Pub. in C.S. Kerse (1975) **The Law Relating to Noise**. Oyez.

Russo N (1967). Connotation of seating arrangements: In R. Sommer (1969). **Personal Space - The Behavioural Basis of Design**: Prentice Hall. 21.

Russell J.A. & Lanius U.F. (1984). Adaption level and the effective appraisal of environments. In **Annual Review of Psychology** 1986 **Vol 31**. (Ch.ed). C.J. Holahan. Environmental Psychology. 383.

Russell J.A. & Ward L.M. (1982). Environmental psychology. **Annual Review of Psychology**. 33. 651 - 688.

Saarinen T.F. (1973a). Studen views of the world. In I.Altman & M.M. Chemers (1980). **Culture and Environment**. Cambridge University Press (1984). 58 - 89.

Scaglion R & Condon R (1980). 'Determinants of attitudes towards city police'. In **Policing Today**. Home Office Research and Planning Unit 1985. 137.

Schauss A.G. (1979). Tranquilizing effect of colour reduces aggressive behaviour and potential violence. In D. Stokols & I. Altman (1987 ed). **Handbook of Environmental Psychology Vol.1**. Wiley Interscience.

Schlossberg H & Freeman L (1974). Psychologist with a gun. Found in E.M. Scott & G.L. Griffitts: A suggested paradigm for detectives concerning interviewing and interrogation. **Police Chief** (Jan 1978). 52.

Shapland J (1982). 'The victim in the criminal justice system'. Research Bulletin No. 14, 21 - 23. London. In **Policing Today**. Home Office Research and Planning Unit 1985. 139.

Shepard E. et.al.(1988). **Investigative Interviewing Training. A Facilitators Guide**. Centre for Interview Research and Development. London.

Sheppard J.J. (1968). **Human Color Perception.** A critical study of the experimental foundation. Elsevier. 9 - 10.

Shouksmith G (1978). **Assessment Through Interviwing.** (2nd ed). Oxford, Pergamon Press.

Sochman E.A. (1967). Evaluative research. New York: Russell Sage Foundation. In E.H. Zube (1984 ed). **Environmental Evaluation.** Cambridge University Press. 3.

Softly P., Brown D., Forde B., Mair G & Moxon D (1979). **'Police Interrogation: An Observational Study in Four Police Stations'.** Home Office Research and Planning Unit.

Sokolov E.N. (1963). **Perception and Conditioned Reflex.** Macmillan, New York.

Solicitors Regional Directory (1986). Cleveland, Durham, Northumberland, Tyne & Wear. Law Society, 113 Chancery Lane, London. WC2A 1PI.

Sommer R (1959). Studies in personal space. In D. Stokols & I. Altman (1987 ed). **Handbook of Environmental Psychology. Vol.1.** Wiley Interscience.

Sommer R (1965). Further studies of small group ecology. Sociometry, Vol.28. P.337 - 48. In M. ARgyle. **The Psychology of Interpersonal Behaviour.** Pelican. 39.

Sommer R (1969). **Personal Space: The Behavioural Basis of Design.** Englewood Cliffs, NJ: Prentice-Hall.

Spanier G.B. (1976). Measuring Dyadic Adjustment. New Scales for assessing the quality of marriage and similar dyads. In D.E. Miell **Cognitive and Communicative Strategies in Developing Relationships.** Ph.D. Thesis University of Lancaster (1984). 6 - 13.

Spencer C & Dixon J (1983). Mapping the development of feelings about the city. A longitudinal study of new residents affective maps. In D. Stokols & I. Altman (1987 ed). **Handbook of Environmental Psychology. Vol.2.** Wiley Interscience. **1286.**

Stea D (1974). Architecture in the head: Cognitive mapping. In J. Zeisel. (1981). **Enquiry by Design.** Cambridge University Press. **171.**

Stokols D (1972). On the distinction between density and crowding. In D. Stokols & I. Altman (1987 ed). **Handbook of Environmental Psychology. Vol.1.** Wiley Interscience.

Stokols D (1978). Environmental Psychology. **Annual Review of Psychology, 29. 253 - 295.**

Sundstrom E (1978). Crowding as a sequential process: Review of research on the effects of population density on humans. In A. Baum & Y. Epstein (eds). **Human Response to Crowding.** Hillsdale. NJ: Erlbaum. **32 - 116.**

Thackray R.I. (1972). Sonic boom exposure effects - startle responses. J. Sound Vib. P. 519 - 526. In **Environmental Health Criteria 12 Noise** (1980). World Health Organisation Geneva. **62.**

Thorington L (1975). Artificial lighting - What colour and spectrum? In D. Stokols & I. Altman (1987 ed). **Handbook of Environmental Psychology. Vol.1.** Wiley Interscience.

Tam G., Poole M.F., Galla J., & Berrier J (1981). The influence of negative air ions on human performance and mood. Human In D. Stokols & I. Altman (1987 ed). **Handbook of Environmental Psychology. Vol.1.** Wiley Interscience.

Universal Declaration of Human Rights. Article 5. In J. McGuffin (1974). **Guineapigs (Sensory Deprivation in Interrogation in Northern Ireland).** Harmondsworth. Penquin. **111.**

Unwin C (1978). Interrogation Techniques: **Police Review** 22/29 December 1978. **1874 - 1877**

US. Environmental Protection Agency (1974). Information on levels of environmental noise requisite to protect public health and welfare with an adequate margin of safety. In **Environmental Health Criteria 12 Noise** (1980). World Health Organisation Geneva. 33 & 55.

Van Meter C.H. (1973). **Principles of Police Interrogation.** Springfield, III, Thomas U.S.A.

Viteles M.S. (1966). Ergonomics, 9. In D.J. Croome-Gale & B.M. Roberts (1975). **International Series of Monographs in Heating, Ventilation and Refridgeration. Vol.10.** Pergamon Press. 21.

Walkley J (1982). Police Interrogation. **Police Review**, 2nd April 1982. 630 - 631.

Walkley J (1983). Police interrogation: A study of the psychology, theory and practice of police interrogation and the implications for police training. **M.Sc. Thesis, Cranfield, Inst. of Technology, Department of Social Policy.**

Walkley J (1987) **Police Interrogation: A Handbook for Investigators.** Police Review Publishing.

Wallace L., Bromberg S., Pellizzari E., Hartwell T., Zelon H., & Sheldon L (1984). Plan and preliminary results of U.S. EPA'S Indoor Air Monitoring Program. Found in D. Stokol & I. Altman (ed). **Handbook of Environmental Psychology. Vol.2.** (1987). Pub. Wiley Interscience. 893.

Walter J., Apter M.J & Svebak S (1982). Colour preference arousal, and the theory of psychological reversal. In D. Stokols & I. Altman (1987 ed). **Handbook of Environmental Psychology. Vol.1.** WIley Interscience.

Weins A (1975). The assessment interview in clinical methods in psychology, ed. I. Weiner. In E.M. Scott & G.L. Griffitts: A suggested paradigm for detectives concerning interviewing and interrogation. **The Police Chief** (Jan 1978). 52.

Weinstein E.A. & Deutschberger P. (1984). Task, Bargains and Identities in Social Interaction. In **The Social Context of Method.** (Ed). Brenner, Marsh, Brenner. Croom Helm. London. 124.

Weitz S (1974). Non-Verbal Communication: Readings with commentary. New York : Oxford University Press. In A.J. Chapman & A. Gale (1982) Psychology Of People. 299.

White E.T. (1972). Introduction to Architectural Programming. Tuscon. In E.H. Zube (1984 ed). Environmental Evaluation. Cambridge University Press. 48.

Wicker A.W. (1979). An Introduction to Ecological Psychology. (1984 ed). Cambridge University Press.

Wicks R.J. (1974). Applied Psychology for Law Enforcement and Correction Officers. McGraw Hill. In P. Morris: Police Interrogation in England and Wales: A Critical Review of the Literature prepared for the Royal Commission on Criminal Procedure. Police Staff College Bramshill. 11.

Wilkins A.J., Minno I., Slater A.J. & Bedocs L. (1988). Fluorescent Lighting, Headaches and Eyestrain. Lighting Res. Technol. 21(1) 000 - 000. 1989.

Wilson G.D. (1966). Arousal Properties of Red-vs-Green. Perceptual and Motor Skills 23. 947 - 949.

Wing J.F. (1965). A review of the effects of high ambient temperature on mental performance, AMRL-RT-65-102, vi. In D.J. Croome-Gale & B.M. Roberts (1975). International Series of Monographs in Heating, Ventilation and Refridgeration. Vol.10. Pergamon Press. 21.

Wohlwill J.F., Nasar J.L., Dejoy D.M. & Foruzami H.H. (1976). Behavioural effects of a noisy environment: Task Involvement versus Passive Exposure. In D.J. Osbourne (1982 Ergonomics at Work. Wiley.

Wurtman R.J., & Zacharias L (1964). Blindness: Its Relation to age of Menarche, Obstetrical and Gynecological Survey, Oct 64. In F. Birren (1969). Light, Color and Environment. (Revised 1982). Van Nostrand Reinhold Co Inc. 11.

Wurtman R.J. (1967). Effects of Light and Visual Stimuli on Endocrine Function. In F. Birren (1969) Light, Color and Environment. (Revised 1982). Van Nostrand Reinhold Co Inc. 11.