

THE CLASSIFICATION OF SEXUAL OFFENDERS. AN INVESTIGATION INTO METHODS
OF DISCRIMINATING AMONGST VARIOUS GROUPS IN AN INSTITUTIONAL SETTING.

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Abstract

The Classification of Sexual Offenders. An Investigation into Methods of Discriminating amongst Various Groups in an Institutional Setting

Peter Stanley Pratt

The aim of this research was to investigate the concordance between response systems in the sexual arousal of sexual offenders. The lack of concordance between the physiologically assessed sexual arousal and the simultaneous internal experience of the response was assumed to be specific to sexual offenders and to contribute to their pattern of impulsive, assaultive sexual behaviour. It was intended to examine the form of this desynchrony and to investigate whether it might be due to an inability to "track" or alternatively to the specific demand characteristics of the sexual assessment environment.

A particular relationship between the two response systems was found only in a sub-group (68 %) of the sexual offenders, and this pattern was found, not in response to sexually deviant material, but to films of consenting, legal behaviour. Exposure to explicit depictions of illegal sexual behaviour served mainly to identify the non-sexual offenders. Where materials are not available, or cannot be used, discrimination between groups can be carried out less successfully by using data from an attitude questionnaire. The discrimination between the two pedophile groups was nearly perfect using this method. The accuracy of the various discriminations is compared with similar results from the USA and Canada using related methods of psychophysiological sexual assessment.

Groups of sexual and non-sexual offenders can both equally well track an external moving stimulus using the same manipulandum as in the self-monitoring experiment. Therefore, since the pattern of desynchrony does not appear to be consistent with any attempt to "fake good", and there are less well defined differences between the groups for the attitude data, we are left with the possibility of a valid difference between response systems. This is discussed with reference to other forms of desynchrony described in the scientific literature, and also the literature on sexual dysfunction. Also discussed is the importance of this form of desynchrony within known treatment programmes.

CHAPTER I

INTRODUCTION.

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INTRODUCTION

SECTION A: THE SOCIAL AND LEGAL ENVIRONMENT

A perusal of the national, particularly tabloid, press on any single day in the last year would show that the general public has an insatiable appetite for reading about the offence behaviour, conviction and subsequent disposal of one particular group of offenders. This group is sexual offenders. Paedophilia, the single most stigmatised and abhorred sexual offence, and rape have provided innumerable column inches and have spawned a whole industry for Fleet Street hacks and local reporters alike.

Undoubtedly the general public believe that sexual offending is more "dangerous" than any other types of offending, in that harm to the victim is greater and the perpetrator is less amenable, if at all, to any form of treatment or subsequent intervention. The reassurance which echoed throughout some of the press, when Peter Sutcliffe, known as the Yorkshire Ripper, was found guilty of murder, rather than the psychiatrists being believed resulting in a verdict of manslaughter, was a salutary warning to professionals working in this area. The ordinary man-in-the-street remains unconvinced that "diminished responsibility" was a necessary or justifiable concept within the current legal framework.

However, the current Mental Health Act (1983) does not reflect this opinion and the current definition of Psychopathic Disorder is as follows:-

"A persistent disorder or disability of mind (whether or not including significant impairment of intelligence) which results in abnormally aggressive or seriously irresponsible conduct". (Section 1(2) Mental Health Act, 1983)

The majority of offenders who participated in this research were classified as suffering from Psychopathic Disorder within this meaning and were therefore detained under Section 37, Hospital Order. This section requires that, on the evidence of two doctors, the treatment which such an individual will receive,

"is likely to alleviate or prevent a deterioration of his condition".

It is fortunate perhaps that psychologists do not routinely find themselves in the position of arguing whether the "disability of mind" is the primary cause of the abnormality of behaviour in the adversarial proceedings of a Crown Court or Mental Health Review Tribunal. Very often, the seriously irresponsible behaviour "disappears" when the perpetrator is admitted to hospital, often because of the unavailability of certain key human elements, eg. women and children, in addition to particular reinforcement contingencies and general environmental stresses.

Patients detained under the Mental Health Act have the right to apply to a Mental Health Review Tribunal once in every 12 month period after the original 6 month period of detention has been served. Since the 1983 Act the Tribunal procedures have become much more formal and legalistic, with increased powers being given to the members of the Tribunal panel. Regarding the discharge or otherwise of detained patients the Tribunal is obliged to act according to the following criteria:

"The Tribunal must give a direction for absolute discharge (or Conditional Discharge, Section 73(2) if it is satisfied:

- a. that the patient is not then suffering from mental illness, psychopathic disorder, mental impairment or severe mental impairment or from any of those forms of disorder which makes it appropriate for him to be detained in hospital for medical treatment; or
- b. that it is not necessary for the health and safety of the patient or for the protection of other persons that he should receive such treatment; and
- c. that it is not appropriate that the patient remains liable to be recalled to hospital for further treatment.

I have quoted these rules and guidelines fully in order to highlight three major problems.

1. Those deemed to suffer from Psychopathic Disorder and other forms of "Mental Illness" can be viewed as suffering more from discriminatory legislation than any personal or psychological deficit. It is only this group amongst all the various offending groups which have to satisfy a prediction of harm\risk of future injury criterion before being released from preventative detention. The so-called "normal" offender on a time limited sentence knows that whatever his future risk, he will, by statute, be released at the end of his sentence. Bluglass (1986) has suggested that the right to freedom which was diluted in the 1983 Act should have been more firmly replaced by a right to treatment. Whether consumer demand, legal pressure or improved psychological knowledge will lead to more relevant and widely applied treatment procedures remains to be seen.

2. The second problem applies more to the professionals who work within the system rather than the patients\offenders. These people, psychiatrists, nurses, psychologists, social workers, have the dual responsibility of protecting the interests of the patient and, simultaneously, the safety of the public. Simply, they are being asked to predict "dangerousness". The Butler Report (1975) at least posed the most germane question, if not providing any specific answer. How many "safe" individuals should cautious policy in hospitals continue to detain in the hope of preventing the release of an individual who is still potentially dangerous? Crawford (1984) has computed that if 10% of all detained patients would be dangerous if released, and that if we have a test for "dangerousness" which is 80% accurate, then for every person currently identified as dangerous, two non-dangerous people will also lose their liberty. This assumed and over-optimistic 80% test rate is, however, not supported by the evidence. There is little empirical support for claims from psychiatrists that dangerousness can be forecasted (Rubin 1972, Steadman 1973, Klein 1976, Mulvey and Lidz 1984, Morse 1983, Webster 1984, Werner 1983). Equally, statistical predictions based on clinical, demographic or life history variables (Wenk, Robinson and Smith 1972, Hedlund et al 1973) provide no greater accuracy. Specific psychological tests (Kozol et al 1972) have also been used as a source of clinical judgement, but outcome studies suggest that they too have made little contribution. Black (1977) has shown that the best predictor of future antisocial behaviour is past behaviour, but even here, best is "relative", providing only a weak prediction of future offending behaviour. Werner (1983) found that experienced psychologists and psychiatrists were successful at identifying 2 out of 5 who became dangerous, but also 1 out of every 4 who did not become violent; this comprises a 40% hit rate and a 27% false positive rate.

Predicting dangerous behaviour is made more difficult by poor or inadequate definition of the criterion behaviour. Obviously behaviours with an extremely low base rate produce a large amount of false positives; therefore the more narrowly a clinician defines the dangerous behaviour predicted (eg. a specific type of sexual assault) the less chance the clinician has of obtaining an acceptable true positive/false positive ratio. In addition, the fact that a broad range of variables interact to produce violent or dangerous behaviour makes the prediction problem, from a restricted institutional base, difficult. If an interactive approach is adopted, ie. that behaviour results from the interaction of an individual and the situation with each of these two elements multi-faceted, then the prediction issue becomes even more difficult. If behaviour is relevant only to situations, as Skinnerian environmental determinism suggests, then clinicians might be considered to be wasting their time attempting to assess the "dangerousness" of individuals. However, Mischel (1968, 1973) has attempted to repudiate the strict situationist position, even though he also argues that indices of relevant past behaviour provide the best predictions about future behaviour.

Shah (1978) and Clarke (1977) have suggested that ignoring environmental circumstances could explain why traditional, prediction-orientated assessment has been notably unsuccessful.

"Efforts to understand, assess, predict, prevent and change dangerous behaviours must consider the effects of setting and situational factors as well as the interactions between these and the characteristics of the person" (Shah 1978).

However, Shah (1981) and Werner (1983) point out that evaluating the deemed mentally abnormal offender, against a background of an assumed relationship between mental disorder and violent behaviour is in itself even more error-prone. It is true that some violent "acting-out" behaviour might in certain individuals be attributed to psychotic states and imaginary voices, however, there is little evidence (Monahan and Steadman 1983) that mental illness is a significant predisposing factor for violent behaviour.

3. The third problem is therefore both conceptual and legalistic. Menzies et al (1985) have highlighted the fact that the courts and the Mental Health Review Tribunals have consistently characterised "dangerousness" as both a uni-dimensional and dichotomous phenomenon. How often in reality is the clinician asked the unanswerable question

"Yes, Yes, Dr X, we've heard all the evidence, but we simply want to know whether he's dangerous, Yes or No?!"

When the clinician attempts to reply with a probability estimate, surrounded by other qualifying statements he is viewed as obfuscating and unnecessarily and unhelpfully defensive. Reference to past or future situations can be viewed even by experienced lawyers and judges as making excuses on behalf of the individual themselves. What then is the clinician to do?

There seems only one scientific answer to this question, other than to leave the area and get a more comfortable job. That is to continue to search for better ways to assess the individual offender and at the same time to render the institutional environment even more relevant to the offending environment for that individual. Examples of the

former approach are the studies by Blackburn (1968, 1975, 1979) who has sought a "dispositional" description of aggression, relying on longitudinal stability and the extent to which an individual will show aggression across situations. The multivariate approach seeks to classify offenders by producing discriminations amongst those who have behaved dangerously in the past. However, he himself admits (1983) that it remains to be seen whether such a classification predicts future violence.

SECTION B: RECIDIVISM OF SEXUAL OFFENDERS

The general public are probably convinced that sexual offenders are unique in their resistance to relevant change and are therefore a lifelong risk to women or children. If this were true, then any attempts to apply clinical treatment in the short term and without adequate follow up would inevitably be considered a waste of time given the assumed negative outcome. Psychiatrists, on the basis of their personal clinical evidence usually maintain that sexual offenders do possess a persistent tendency and are fairly likely to repeat the offence on a future occasion. However, their samples are often biased and small and they usually see only the more seriously disturbed or well-experienced offender.

Criminologists, on the other hand, have suggested that on the basis of a 3-5 year follow-up, sexual offenders have a generally lower reconviction rate than other offenders. Christiansen et al (1965) in the most comprehensive follow-up of sexual offenders, examined the records of 2934 convicted sexual offenders for a period of 12-24 years after release. He found that "about 10%" of the sample were reconvicted of another sexual offence and that the likelihood of recidivism was greatest in the most deviant forms of sexual behaviour, eg. indecency towards boys. Soothill and Gibbens (1978) and Soothill (1986) have also shown that the periods of time for an adequate follow-up are quite crucial to the accurate assessment of recidivism. Soothill followed up all those convicted of a serious sexual offence (unlawful sexual intercourse with a girl under the age of 13, incest and rape) in the higher courts of England and Wales in 1951 and 1961. These were followed up for a period of up to 22 years.

About one quarter of the sample (N=216) were reconvicted by the end of the 22nd year for another sexual offence, but of these only half were reconvicted by the end of the first five year period after release. Also, the seriousness of the reconviction offence showed no decline from the original index offence. This considerable lapse of time was also evident in a similar study of rapists (Soothill et al 1976). This long period of risk distinguishes sexual offenders from other offenders, in particular property offenders. It is against this background that one must evaluate the few studies of sexual offenders released from maximum security hospitals.

Robertson and Gibbens (Personal Communication to Bowden 1981) found that after a 15 year follow-up for men convicted under the 1959 Mental Health Act, with those who had originally been diagnosed as mentally ill, subsequent offences of severe violence and of a sexual nature, were about 4%. Acres (1975) estimated that 49% of those discharged from Rampton Hospital and 79% from Moss Side Hospital by Mental Health Review Tribunal, reoffended within two years. However 64% of those reconvictions were for property offences. Black (1977) found that for patients as a whole the following factors were of good prognostic status:

- a charge of homicide
- a victim well known to the patient
- a diagnosis of affective disorder
- an indeterminate restriction order
- older age

Dell (1980) in the most recent systematic follow-up of transferred Special Hospital patients found that at the end of a two year period, only 7 out of 105 patients necessitated recall after their transfer to NHS hospitals and units. None of these seven patients were recalled for reasons concerning their sexual behaviour. Unfortunately the follow-up procedures for 969 Baxtrom patients by Steadman (1971) did not give information about sexual adjustment, but it too questioned the necessity of retaining a civil and criminal population for an average of 13 years in an "institution for the criminally insane".

Given the social and legal framework within which mental health professionals are required to operate, and given the unique difficulties posed by sexual offenders within total institutions and also on release, what can the humble psychologist do? The public expects that simple removal from society will "by osmosis" remove or at least reduce the state of dangerousness. However, even a mild situationist approach would clearly indicate that deviant or criminal behaviour would be restored to a behavioural repertoire when the individual was again exposed to the relevant contingencies. Yet the Draft Code of Practice (DHSS 1985) Section 118 of the Mental Health Act 1983 states in a number of sections quite specifically that all detained patients should receive "treatment".

"5.2.4. The RMO (Responsible Medical Officer) should initiate and co-ordinate the formulation of a treatment plan in close consultation with the multidisciplinary team. The plan should be recorded in the patient's notes.

5.2.5. A plan should generally aim to deal with the programme for a patient in four phases, namely:

the initial assessment of his condition;
the initial acute treatment proposed for him;
the longer term treatment proposed; and
the interval before the plan is to be renewed."

However, where there is little, if any, direct behaviour to be observed (ie. sexual behaviour) how can the psychologist assess the condition? What baselines can be used and in any case are sexual offenders psychologically different from other offenders? Section C reviews some of the evidence in this area, starting first with a description of the "career" of sexual offenders detained in Rampton Hospital and continuing (Section D) with examining some of the evidence which purports to discriminate different types of sexual offenders.

SECTION C

1. SEX OFFENDERS IN RAMPTON HOSPITAL

At 1.1.84 the total male population held within this maximum security hospital, one of four in England and Wales, was 448. This figure represented a large reduction on the figure in 1974 which was 950. This reduction had mainly occurred within the mentally handicapped and the severely mentally handicapped population and was less significant within the deemed mentally ill and psychopathic groups.

The sexual offenders were divided into two groups, namely those with a history of exclusively sexual offences and those with offences of other types against their name. These two groups together comprised 27% (N=120) of the total male population at this date. This compares with a figure of 30% at 19.12.74 (Fowles 1975). The two groups of sexual offenders differed little on most criminological criteria:

Table 1a

Sexual Offenders in Rampton Hospital, Number of Previous Sexual Offences

	<u>No. of Previous Sexual Offences</u>	
	<u>Mean</u>	<u>Standard Deviation</u>
Exclusive Sexual Offenders (N=66)	2.8	3.6
Mixed Sexual Offenders (N=54)	2.6	4.3

There is very little difference in the number of previous sexual offences between these two groups.

Table 1b

Types of Sexual Offence for two Groups of Sexual Offenders x %

	<u>Exclusive Sexual</u>	<u>Mixed Sexual</u>
	<u>Offenders (N=66)</u>	<u>Offenders</u>
		<u>(N=54)</u>
Indecent Assault	63.6	75.5
Rape	15.5	10.8
Buggery	12.8	2.9
Indecent Exposure	4.8	0.7
Attempted Rape	1.6	2.2
Gross Indecency	3.2	2.2
Attempted Buggery	2.7	-
Unlawful Sexual Intercourse	0.5	2.2
Girls 13-16 yrs		
Unlawful Sexual Intercourse	2.1	-
Girls below 13 yrs		
Inciting boys to gross indecency	1.1	-
Other	1.6	3.6

As with Table 1a, the type of sexual offence varies little between these two groups.

However, there was one significant difference between these two groups and that was concerned with length of stay.

Table 1c

Length of Stay, Sexual Offenders and Non-Sexual Offenders,
Rampton Hospital 1984

	<u>Mean (yrs)</u>	<u>Standard Deviation</u>
Exclusive Sexual Offenders	8.96	6.88
Mixed Sexual Offenders	7.22	7.03
Non-Sexual Offenders	7.35	6.52

Certainly Table 1c reflects a significant difference between the exclusive sexual offenders and the other two groups. This difference is probably either a genuine psychological difference, in some way suggesting a delayed or incomplete response to treatment, or alternatively/additionally, a systematically more cautious approach by the decision makers (eg. Home Office, "receiving" psychiatric team in a Secure Unit, local clinical team etc.). There is some evidence to support the proposition of a psychological difference:

Table 1d

Legal Classification, Exclusive Sexual Offenders, Mixed Sexual Offenders
and Non-Sexual Offenders, Rampton Hospital 1984

	P.D.	M.I.	M.IMP	OTHER
Exclusive Sexual Offenders	41%	33%	20%	6%
Sexual Offenders	28%	26%	35%	11%
Non-Sexual Offenders	17%	51%	15%	17%

where P.D. = Psychopathic Disorder

M.I. = Mental Illness

M.Imp. = Mental Impairment

Other = Severe Mental Impairment or combinations

There is clearly an interaction between a singular offending pattern, a classification of psychopathic disorder and an increased average length of stay of about 18 months.

The fact that sexual offenders are still considered by some professionals as difficult to treat and the increased scrutiny of the quality of treatment by the Mental Health Act Commission may be reflected in the apparent increasing reluctance of psychiatrists and managers to admit exclusive sexual offenders to maximum security.

Table 1e

Admission Pattern, Rampton Hospital 1980 - 1984,

x Groups of Offenders

	1980-1	1981-2	1982-3	1983-4
Exclusive Sexual Offenders	6	7	1	3
Sexual Offenders	7	12	8	8
Non-Sexual Offenders	32	29	27	28

The change in policy is most evident between the years 1981-2 and 1982-3 but no specific reason can be offered, other than the appointment of a strong and determined Medical Director about this time, and the impending arrival of the new Mental Health Act (1983).

In conclusion, it can now be seen that the psychology service at Rampton Hospital had "at its disposal" about 120 relatively long stay, recidivist offenders (71% of all sexual offenders had committed 2 or more offences) with a national turnover of about 10 per year. The initial problem, having been able to describe them demographically, is to assess specifically their sexual behaviour and the next section reviews some of the current evidence which purports to use sexual response patterns to discriminate amongst sexual offenders and between sexual offenders and non-sexual offenders.

SECTION D

PSYCHOSEXUAL ASSESSMENT

In the context of sexual offending, the assessment of individual offenders may well have a variety of purposes. These would include

- prediction of future offending risk
- decisions about release from a secure environment
- clinical decisions about "treatability" (in the context of psychopathic disorder)
- evaluation of treatment or therapeutic outcome

Although the method of assessment may vary little according to context, the confidence in the results might well depend on the status of the individual, eg. Freund's (1979) admitters v non-admitters and also the known purpose of the assessment, eg. has my treatment worked or will I be released from maximum security. Whether the individual is a willing participant or a referral from a court of law might well determine some of the actual procedure, eg. the detection of a possibly "faked" response, or the computation of a highly reliable response to sexually explicit material.

Barlow (1976) has emphasised the need for a broad based assessment of identified sexual offenders, to include sexual arousal, social skills, and gender role behaviour. These areas may be assessed at the level of physiological reactions to stimuli, observable behaviour, or additionally cognitive and self-report measures. Because sexual offenders are notorious for their attempts to deny, minimise or rationalise their deviant and illegal sexual behaviour (Groth 1979) emphasis in the last 20 years has been on the assessment of physiological response patterns. The response of penile erection has not only consistently been demonstrated to

be the best index of male sexual arousal, but also has the advantage of being necessary for certain offences to be committed and therefore has a certain validity and directness which would not apply to less specific forms of assessment, for example, personality or attitude measurement.

Freund (1957 onwards) has published a long and detailed series of papers using mainly volumetric measures and has been able to demonstrate that penile changes to rapidly presented visual stimuli provides an adequate basis for a differential diagnosis of adult heterosexuality versus homosexuality (Freund 1963). The original task was to identify "legitimate" draft avoiders from Canadian National Service. This work soon extended to include rape and pedophile offenders, and his research has consistently been based on "volumetric" methods (See Chapter 2) which is generally considered to be a cumbersome but accurate method of penile, psychophysiological assessment.

The early papers of Freund (1965, 1967) on pedophilia were based on individuals with a known history of pedophile behaviour who could be considered as "admitters". In this case the diagnostic accuracy was always above 90%, but in the 1963 paper when subjects were instructed to "fake" discrimination of homosexuality versus heterosexuality fell to the range of 50-75%.

This early indication that the penile response was not simply an autonomic visceral response and that some voluntary control over erections is possible in even the most difficult of sexual assessment situations has challenged the validity of experiments and treatments which rely on penile measures as dependent variables. Research from Abel et al (1975), Henson and Rubin (1971), Laws and Rubin (1969), Freund (1979), Rosen, Shapiro and Schwartz (1975), Avery-Clark and Laws (1984) have cast doubt on the degree

to which basic penile plethysmographic assessment accurately reflects an individual's preferences. A brief examination of some of this work will indicate the theoretical difficulties as well as the procedural chicanery required to identify the method of control, if it is not, in fact, simply individual-specific.

Laws and Rubin (1969) showed 10-12 minutes of film to seven hospital employees concurrently with a signal detection task. When told to inhibit penile erection all the subjects were able to do so, and this was probably not due to looking away from the film since the signal detection rate was the same across all conditions. Nor was it due to satiation, since when instructed not to inhibit, all subjects produced almost full erections to a film which they had seen nine times before. All subjects reported that they used some form of contrary cognitive task to avert their attention. When asked to produce erections in the absence of erotic stimuli, all were able to produce partial erections with generally low peak levels and long latencies. Although only a small sample of non-offenders were used, who were presumably psychologically intact, this early study provided some hope that voluntary control might become the focus of treatment.

Henson and Rubin (1971) took the experimental procedure one stage further when they required five adult males to actually avoid getting an erection. In this experiment all subjects were able to inhibit to the same degree when describing the content, as when they were "free" to produce their own competing asexual stimuli. However, one of the five subjects was totally unable (even with instructions not to inhibit) to produce an erection when he was required to describe the content of the film. It seemed as if the verbal output was an effective competing behaviour, incompatible with the state of sexual arousal.

The degree of reduction obtained by Henson and Rubin was in fact substantial, with percentage erections falling from an average of 85% to the 15-20% level. Increases in the absence of stimulation were limited to about 25-30%. This degree of erection in the absence of "obvious" stimulation was well exceeded by Rosen, Shapiro and Schwartz (1975) who used a straightforward operant procedure to train 20 non-dysfunctional volunteers to produce erections of 65-71% after two 20 minute training sessions. The use of analogue feedback was considered to be crucial. However, there is at least one paper (Quinn et al 1970) to suggest that such a procedure could be used as a treatment procedure for those wishing to change their sexual preference.

Naturally, there is more concern when a supposedly deviant individual shows a "normal" profile whether at the stage of the initial assessment or at a follow-up treatment stage. Various methods have therefore been devised to overcome the tendency to fake and they can be divided into the procedural type and the hardware method. Geer and Fuhr (1976) required groups of male undergraduates to perform increasing complex cognitive processing tasks in a dichotic listening situation. They concluded that the erotic value of a particular stimulus was dependent on the extent to which a subject attends directly to that stimulus. This emphasis on cognition led Abel (1975, 1976) to examine the effect of the stimulus modality on control. Twenty homosexual volunteers were asked to suppress their responses to stimuli presented separately in three modalities, namely, audio tape, slides and video tape. When asked to suppress arousal subjects were able to do so, only to the video tape and slide categories. There were no significant reductions to the audio tape material. However, the audio tapes produced significantly lower levels of arousal and therefore it is possible that self-control may only be a factor when the potential for arousal is high.

The issue of degree of sexual arousal influencing the ability to "fake" has been further challenged by Wydra et al (1981) who, using material previously used by Barbaree (1979) examined the ability of convicted rapists and the ubiquitous college male to inhibit sexual arousal to only audio tape descriptions of mutually consenting sexual behaviour and to rape. Although the levels of arousal were approximately similar to those in Abel (1975), both groups were able to significantly reduce their arousal levels when asked to. They therefore concluded that arousal levels do not have to be high before some voluntary control can be demonstrated.

Generally, the ability to inhibit has been more widely demonstrated than the ability to augment. This may be a necessary skill for a significant proportion of the adult male non-offending population and may be even more relevant to the deviant-sexual behaviour prone individual who may need to attempt some self-control to survive even short periods of time without reoffending. In the psychophysiological laboratory, with issues regarding detection of abnormal sexual interest and possible incarceration at stake, the issue of faking and suppression becomes a very crucial area for both psychological assessor and patient alike. It is hardly surprising that the assessors have gone to some lengths to make voluntary control as difficult as possible. Laws and Holmen (1978) have provided a task which occupies a subject's hands, and in the same study have also employed a surveillance camera to assess eye open-screen contact.

At a theoretical level, Abel (1975) has suggested that more faith is placed in erections than non-erections because

"It has been shown that the subject's ability to generate erections voluntarily is much poorer than their ability to suppress erections".

Abel, perhaps naively given the different system and values in this country, assumes that nobody would want to fake deviant interests, unless they were asked to. Quinsey and Bergersen (1976) and Quinsey and Carrigan (1978) asked heterosexual non-offending volunteers to not only respond normally to slides of adult females and female children, but they were also asked to respond as if they preferred small children, that is, to inhibit arousal to adults and generate responses to children. This design contrasts with Laws and Rubin (1969) who required subjects to generate arousal in the absence of any specific stimuli. Two out of five subjects in the 1976 study and seven out of nine in the 1978 study were able to produce results which were consistent with the instructions. These results indicate that individual differences may be important but only small samples were used in both studies.

If, as Farkas (1978) suggests, therapists in either treatment or assessment situations, particularly with "incarcerated patients subject to contingencies of the judicial system," should assess the degree of inhibitory control at the baseline-assessment stage, then the validity of any statements about the degree or otherwise of sexual preference might be questioned, if some control was demonstrated. However the comments of Abel(1978) regarding the presence of erections rather than their absence, could equally well be applied here.

Firstly if such voluntary control was demonstrated, it would not, by itself, negate the validity of any subsequent decrease in response to children. Such a decrease could either be "genuine" or an improved ability to "fake". Either way the suppression of the response, whether or not it generalises to other environments and other responses, must be considered

as a useful and progressive therapeutic outcome. Secondly if such control is not evident at the baseline-assessment stage, can we necessarily assume that such a skill is not present in the individual at that time? A clever strategy might be to fake only as treatment progressed, to simulate the desired effect.

All the studies, with one exception, which have investigated the voluntary control ability of differing groups of subjects, have relied on a procedure which provides the relevant instructions prior to the stimulus onset. This design clearly allows the subject to "prepare" himself for the task ahead and it is probably easier to prevent arousal rather than suppress it. However, Wydra et al (1983) required inhibition to be attempted to both rape and consenting stimuli, but only signalled this, by a buzzer, after the provocative stimulus had been ongoing, about 30-40 seconds into the tape. They reasoned that this was more like the real-world situation. There was no difference between a rapist group and a normal group in their ability to show some voluntary control to both rape and consenting audiotapes, in these circumstances. However it is not clear whether the % mean reduction was the same as in other studies.

Zuckerman (1971) asked the obvious question "Does the penis lie?". The timing of the publication of articles on self-control indicates that not many researchers thought that the answer could possibly be "Yes, in certain circumstances" but an overview of the research demands that this problem for the internal validity (Farkas 1978) has still to be taken seriously. Although the parameters of this degree of self-control are not yet clearly established, more recent research has concentrated on two related issues. These are:

1. The relationship between self-reported arousal and psychophysiological assessed arousal.
2. The degree to which laboratory assessments can discriminate between offending groups, ie. to identify correctly past deviant sexual behaviour and to be an accurate and reliable predictor of future sexual behaviour.

The next section examines the literature on the use of penile plethysmography as a predictor of future sexual behaviour and also the evidence for accurate retrospective classification. The current interest in synchrony between measures of sexual arousal is examined in Chapter 2.

SECTION E

VALIDITY OF PENILE PLETHYSMOGRAPHY

1. PREDICTION

If one generalised from two well-known studies of an individual treatment programme (Laws and Holmen 1978, Rosen and Kopel (1977)), one might assume that penile measures do not, indeed cannot, predict sexual behaviour in the natural environment. In the Rosen and Kopel study a transvestite who had been treated by laboratory methods for more than a year indicated that he "had deceived the therapists for more than a year". However, the experimenters had only assessed erectile responses up to the end of the initial four month follow-up period and had thereafter relied (!) on the patient's self-report. Rosen in fact admitted that this actually demonstrates the advantage of PPG data as far as the validity of the medium term follow-up procedure is concerned. In the Laws and Holmen study a 37 year old pedophile admitted faking and was subsequently able to demonstrate a variety of methods to achieve an artificial response.

However, Marshall (1973, 1975) found that the most accurate predictions of success or failure at follow-up involved changes in the relative magnitudes of circumferentially measured erections to deviant and non-deviant cues. On this basis he predicted success for 15\17 individuals on the basis of either reductions in deviant arousal or increases in arousal to appropriate cues. At a 3-5 year follow-up, all but one of these patients abstained (or at least were not convicted) from deviant sexual behaviours.

In a complementary study, Csillag (1976) found that the (shaped) ability to generate erections in 6 men with "primary erectile impotence" generalised to the natural environment in all but one individual. This was after 16 treatment sessions at the rate of two per day.

This research was in the area of establishing sexual potency in men who were either already married or who had a regular and available sexual partner. The improvement seems therefore more likely to generalise across situations than the more "major" treatments e.g. modifying age preferences in confirmed pedophiles.

Quinsey (1980) in an attempt to use biofeedback and signalled punishment to modify inappropriate sexual age preferences found that post-treatment sexual preferences, as determined by erectile measures were indeed related to the probability of short-term recidivism but not to long-term outcome. He therefore assumed that laboratory effects were transitory in nature and required additional procedures to maintain acceptable sexual behaviour patterns when offenders were released.

A quite different sort of study was carried out by Malamuth (1983). He assessed the sexual responsiveness to rape stimuli of 69 student volunteers by requiring them to read consenting and non-consenting stories in the standard PPG situation. In addition he asked them to complete two attudinal scales :

Rape Myth Acceptance (19 items, from Burt (1980))

Acceptance of Interpersonal Violence (6 items, from Burt (1980))

Forty-two of these subjects (not rated as different from the original 69) then volunteered for a further experiment into ESP. In fact this was a Milgramesque experiment where punishment delivering behaviour towards a passive, not-learning female confederate was assessed. Malamuth found that the two attitude scales and the arousal to rape, assessed individually, together accounted for 43% of the variance of the dependent factor namely aggression against women. It is interesting to note that greater predictive success is gained by adding the two types of factor together, than by either of them alone. It is probably easier to explain the association between attitudes which condone aggression against women and actual aggressive behaviour, than that between relatively high sexual responsiveness to rape stimuli and relevant aggressive behaviour.

It is not stated how long apart in time the two experiments were but the results do begin to show the "validity" of psychophysiological assessment methods against extra PPG-laboratory behaviour. If the behavioural experiment was a little less contrived, it is hoped that the prediction would be better.

However, the majority of work in this area has concentrated more on identifying, retrospectively, particular types of sexual offender, where the offence pattern is known, ie. inferred from a list of convictions.

2. CLASSIFICATION STUDIES

Table 1f

Classification Studies x "Hit" Rates x Groups

<u>Experimenters</u>	<u>Date</u>	<u>Groups</u>	<u>Hit Rate</u>	<u>Notes</u>
Kercher & Walker	1973	28 Rapists 28 Non-Sexual offenders	Not given	No difference in penile measures, GSR measures significant
Abel et al (Study 1)	1977	13 Rapists 7 Non-Rapists (but sexual offenders)	77% Rapists 72% Non-Rapists	Based on "Rape Index"
Abel et al (Study 3)	1977	9 Rapists (including 3 with young victims)	100% young victim rapists	Based on % full erection
Abel et al	1978	15 Normals 15 Rapists	87% Normals 74% Rapists	Rape Index .7
Barbaree et al	1979	10 Rapists 10 students	Not given	Rape sequences produced differ- ences between groups

Freund et al (Study 1)	1979	(106 pedophiles) 88 "Admitters" 18 "Non-Admitters" 12 Students\ Immigrants	95% Admitters 66% Non- Admitters	Standard Mode
Freund et al (Study 2)	1979	30 Non-Admitters 65 Normals (30 Heterosexual 35 Homosexual)	100% Homosexual 100% Hetero- sexual controls	Non-Admitter Mode
Freund et al	1982	20 Heterosexual pedophiles 25 Homosexual pedophiles 27 Homosexual hebiphilic 79 Volunteers	Not given	Differences on basis of external genitalia
Quinsey et al	1981	20 Rapists 10 Non-Sexual Offenders 20 Non-Patients 20 Rapists 10 Non-Sexual Offenders 20 Non-Patients	80% Rapists 73% Non-Rapists	Rape Index .8 Rape Index 1.0

Malamuth & Check	1983	146 Student Volunteers	Not given	59 High LR (likelihood to rape) sig. different from 86 low LR.
Wydra et al	1983	10 rapists 10 normals	Not given	Rapists Index Mean=0.89 Normals Index Mean=0.46
Freund et al (Study 1)	1986	11 Rapists 11 Paid Volunteers	Not given	Rapists preferred voyeuristic stimuli
Freund et al (Study 2)	1986	12 Rapists 12 Non-Rapist sexual offenders (Courtship disorders) 12 Controls	Not given	Volunteers preferred normal intercourse Sexual offenders not deterred by agonistic component

Although penile responses can be used therapeutically, eg. monitoring treatment progress (Van deventer and Laws (1978), Laws and O'Neil (1981)), there has been considerable research into the diagnostic efficacy of the approach with sexual offenders, non-sexual offenders and non-offenders. Table 1f shows the diversity of methods as well as the range of results which have been obtained. Although Freund (1963) was probably the first to use penile measures to differentially diagnose homosexual preference from heterosexual preference, the use of convicted rapists and pedophiles did not begin until the 1970's, and the seminal paper by Kercher and Walker (1973) indicated that penile volume data did not permit discrimination between sexual and non-sexual offenders.

Kercher and Walker (1973) used convicted sexual offenders and assessed them within 3 weeks of their admission to the "Texas Department of Corrections". They used a small number (7) of slides depicting a range of straightforward sexual behaviours (a romantic pose, a nude female, a male masturbating, heterosexual petting, heterosexual fellatio, heterosexual coitus) and only one slide that could easily be labelled as deviant (sado-masochism (male active)). No specific rape cues were used and the slides were only presented for 20 seconds. These factors seem to explain, in the light of later research, why no discrimination on the basis of penile measures was possible.

However, Kercher and Walker did find significant differences in the ratings of the two groups of the slides, using five semantic differential items taken from Osgood, Suci and Tannenbaum (1957). This method of subjective assessment can be viewed as a distant prototype for the data presented in Chapter 6. Equally interesting was their observation that some subjects (they unfortunately do not specify which) responded with a decrease in tumescence, with in some cases the decrease lasting throughout

the slide presentation, whilst for others the decrease was followed shortly by an increase. Earls and Marshall (1983), a decade later have given this effort further credence by suggesting that an orientation-type decrease may be a more valid index of erotic stimulus value by being impossible to fake, in particular because of its short latency.

Abel et al (1977) have also criticised Kercher and Walker's reliance on slide material, but his early research went too far in the opposite direction by using different, idiosyncratic rape sequences for each of the 13 rapists examined. It is not exactly surprising that the 7 non-rapist offenders responded relatively little to the rape sequences (mean of 15.5%) when compared to the rapists (mean of 61.5%). Unfortunately Abel at this stage did not include a group of non-offenders and a group of 7 "pedophiles, masochists and voyeurs" can hardly be viewed as having a non-deviant sexual preference.

However, the principle of looking at individuals rather than overall differences between large groups is usefully and necessarily established by this researcher, who has pioneered the use of a "Rape Index". Abel et al found that by rank ordering the responses of the 13 convicted rapists they were not able to discriminate the high rape frequency individuals from the other rapists. However, by examining each individual's response to rape sequences against their response to descriptions of mutually consenting intercourse, they found that there was some positive correlation between high ratios and high actual frequency of rape. In this study they found that a 0.5 index separated the two groups with an index of 2.0 as a cut-off point for "excessive" bodily injury to his victim during the rape".

In 1978 Abel and his associates answered some of these criticisms when he presented their standard audio tape package to 15 "normals". However, two of these individuals had rape indices greater than 0.7, one of them with an index of 2.82. Abel suggests that this normal individual just happens to use sadomasochistic fantasies during masturbation. However, the recommended rape index is now 0.7 and this will identify 13\15 rapists. In addition, Abel looked at the issue of cognitive control and using video stimuli found the following results:

Table 1q

Identification of Rapists by Rape Index Results to Video Stimuli

Abel (1978)

	Suppress	Arouse
Normals	19\24 (79%)	18\24 (75%)
Rapists	6\9 (66%)	7\9 (78%)
Rape Index Used	.8	.9

He then claims that suppress conditions are "more accurate", but only in that a smaller cut-off index score can be used. What he fails to explain, or even acknowledge is why neither "suppress" or "arouse" conditions improve on the audio tape discrimination described in the very same study.

Barbaree et al (1979) found that only 3 of their 10 convicted rapists became more aroused to rape sequences than mutually-consenting sequences, but equally importantly their response was not significantly lower either. However, the non-rapists (graduate students, by self-report heterosexual) produced significantly lower arousal to rape sequences than to the mutually-consenting sequences. This result not only confirms the suggestion that rape sequences evoke greater sexual arousal in rapists

than in non-rapists, but suggests that this may be due to the force and violence of the rape sequences failing to inhibit the sexual arousal pattern of rape offenders. It is all too easy to conclude that rapists are deviant because force or violence evoke or enhance their sexual response. This may well not be the case.

Malamuth (1983) further examined the stimulus configuration which was most likely to differentiate a normal but high likelihood of rape (high LR) group (on the basis of orientation, sexual motivation and questionnaire) from a low likelihood group. Both groups consisted of non-offender student volunteers. In rape sequences, where the female victim was portrayed as becoming sexually excited, the high LR group showed greater arousal than the low LR group. Equally it seems as if the non-consenting, non-arousal portrayal of women is most likely to inhibit the arousal in the low LR group. Malamuth (1980, 1981) suggests that a sizeable minority of the adult male population (high LR subjects) are consumers of the rape fantasy in pornography sales where the victim is portraying sexual arousal.

Malamuth therefore suggests that if the rape depiction includes a non-consenting female, who nevertheless becomes sexually aroused, sexual arousal to "rape depictions" can be at least as high as those to consenting sequences in normal males. Malamuth and Donnerstein (1982) propose that pornography sales of rape stimuli almost invariably depict the rape victim as becoming sexually aroused and therefore such material must be reinforcing for a proportion of the population. It is only with depictions where the victim continuously abhors the assault

that discrimination occurs. The research of Malamuth begs the question of whether he has found a method of identifying potential rapists, or at least those who are likely to aggress against women. Given the apparent idiosyncrasy of the sexual experiment volunteer (see Chapter 2 Section C), it seems important to note that high LR subjects are partly identified on the basis of answers to questions about rape "if you could be assured of not being caught or punished". The clear relevance of external, legal contingencies on the actual rape behaviour would therefore be established if this group of individuals were confirmed as "successful" controllers of their sexual interests. (See also the experiment of Malamuth (1983) described in this section under "1. Prediction", on the relationship between arousal to rape and the likelihood of aggressive behaviour towards women, in a similar population)

Emphasis on the precise content of the stimulus is further justified by the work of Blader and Marshall (1984) discussed in Chapter 2 Section D and also the work of Freund (1986). He found that whereas 12 paid volunteers, "recruited in a public area in downtown Toronto" responded more to an intercourse situation with a "genuinely" responding woman, whilst the 12 convicted rapists responded almost equally to intercourse situations whether the woman was genuinely participating or fearful. This would suggest tolerance, if not actual preference, for components of sexual stimuli with strong agonistic overtones.

Despite the small samples used by Abel in his 1977 study, a rape-index in the range of .8 - 1.0 has been confirmed by other researchers. Quinsey and Carrigan (1978) and Quinsey et al (1981) used audio tape descriptions narrated by a male, first person, past tense.

Using 20 rapists, 10 non-sexual offenders and 10 non-patient volunteers, they were able to identify 80% of the rapists and 73% of the non-rapists, with a rape index of 0.8. With a cut-off index of 1.0 the percentage of false negatives declined, with 80% of the non-rapists identified, but only 60% of the rapists. In this study, as in the work of Abel, rapists were found to have greater sexual arousal to rape themes than to consenting themes. Even when the community volunteers were led to believe that sexual responsiveness to "unusual" themes was to be expected in the testing situation, the differentiation was still "possible", although in this case the probability estimate rose above the .05 level.

Wydra et al (1983) provides further support for Abel's use of the "rape index" by showing that for a group of 10 rapists held in a medium security penitentiary the index was substantially higher than for a group of 10 volunteers (See Table 1f).

Probably the best overall classification data published so far is that of Freund (1979). He was able to identify 84\88 (95% hit rate) pedophiles who admitted being pedophilic. However, an additional 21\88 were incorrectly classified as preferring children to adolescents or vice versa, but this can be accepted as a "lesser error". However, amongst the 18 non-admitters (not yet convicted of a sexual assault) a third were misclassified as preferring adult partners. Freund was able to improve on this discrimination by having a "priming" stimulus, a nude female preceded each crucial stimulus. By this procedure 30 non-admitters were all correctly identified as preferring under-age sexual partners when compared to 65 normal controls, 30 heterosexual and 35 homosexual volunteers.

Freund suggests that the priming stimulus is effective because non-admitters will try to feign positive responses to physically mature females, which they claim to prefer, and that when a relevant, ie. pedophilic slide is subsequently presented it is difficult for the patient to turn off his voluntarily induced sexual arousal. It is again interesting to note that 2\65 normal controls were "misclassified" as pedophiles by this revised procedure.

In conclusion, it can be seen that despite great incentives to fake, eg. being on remand for sexual assault, and with a number of alternative methods available (Laws and Holmen 1978) and with the exact stimulus configuration ie. modality, content, etc. not yet standardised, it seems valid to accept that it is possible to detect certain sexual offenders by laboratory means. Whether such discrimination can generalise across the Atlantic remains to be seen, since Abel in particular seems to report on sexual offenders who have either a high number of proven sexual assaults on their record, compared to the patients currently held in British special hospitals, or commit extremely violent sexual offences.

Chapter 2 will examine the methodology of the procedure and also the outcome of various sex-offender treatments. More importantly from this researcher's position, the recent attempts to assess self-reported arousal, whether concurrently or at stimulus offset, will also be examined.

CHAPTER 2.

A REVIEW OF THE METHODOLOGY OF PENILE PLETHYSMOGRAPHY (PPG) AND ITS USE
WITHIN TREATMENT PROGRAMMS FOR SEXUAL OFFENDERS.

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SECTION A : THE EQUIPMENT

The challenge to the use of penile data as a dependent variable for treatment efficacy or prediction of future sexual behaviour is based on two sources of error. These are best described as methodological and conceptual.

The conceptual difficulties are based on the following problems:

1. The main threat to the internal validity is the ability of some males to show some degree of self-inhibitory control over their tumescence. This area has been covered in Chapter 1, Section D.
2. The second problem lies in the fact that penile measures in particular tumescence, are generally found to be poorly related to self reported sexual arousal. This literature is reviewed in the next section.
3. Whether or not penile measures predict or determine subjective arousal, the question of the degree to which they predict external sexual behaviour is crucial for both the conceptual integrity and also the "political" status of the procedure. Chapter 1 Section E reviews the literature on the subsequent behaviour change of "treated" individuals.

The methodological problems are as follows:

1. Different researchers have used different hardware devices which makes comparison across studies difficult. Whether sexual responses are actually the same in terms of timing, magnitude or reliability is unclear.
2. If the measurement of the responses is open to different conclusions the status and relevance of the stimuli is even less researched. Neither slides nor videotapes, with or without auditory overlay, seem to represent in either complexity or relevance the exact community situation in which most sexual offences actually occur. Levin (1977) described a generalisation gradient to non-treatment slides in the treatment of pedophilia, but whether such a gradient would be evident when all the other environmental cues are present and available remains to be seen. It seems likely that inappropriate or deviant sexual behaviours are functionally dependant on external, environmental cues as well as genital/physiological cues. Indeed there is some evidence (eg Rosen and Kopel (1977)) that inappropriate exhibitionist sexual behaviour is functionally independent of the degree of erection. Certainly with pedophilic assaults, there are other behaviours, eg. stroking and fondling which may serve as discriminative stimuli for subsequent sexual behaviours. Certainly the lack of consistency across response systems, whether internal or external, require substantial further research.

Although Abel (1975) has pioneered the use of audiotapes to replicate the specific cues which determine sexual arousal in the laboratory a variety of alternative stimuli have been used, mainly with volunteer homosexuals wishing to change their sexual orientation or transvestites and fetishists. Feldman and MacCulloch (1971), Thorpe et.al (1963), and Freund (1979) all used slides which have the advantage of being both easily reproducible and easily presented. Not until the late 1960's were videotapes used, apparently first by McConaghy (1967, 1969) again with treated homosexuals. But it was Abel who pioneered the examination of multi-modal assessment, combining a replication of the instructions/voluntary control effect with an experiment to determine the relative effectiveness of different stimulus modalities.

Abel et.al (1975) found that video tapes were superior to slides and audiotapes in the generation of erections in 20 homosexuals seeking evaluation or treatment of their patterns of sexual arousal. However, when asked to suppress their sexual response, subjects were not able to suppress to audio descriptions of homosexual behaviour. However, this effect is qualified by the fact that responses were lowest to audio stimuli and it might be suggested that voluntary control is easier (?) at high levels of sexual arousal rather than low levels. See Chapter 1.

A further refinement in the examination of video stimuli is provided by High et. al. (1979) who researched the use of colour. Abel, Barlow, Freund and the other major researchers in this area very rarely, if at all, specify whether their visual materials, in particular their

films are in colour or black and white. They found that each subject(heterosexual volunteer) produced his highest level of arousal to the first (all heterosexual) film regardless of whether the film was in colour or black and white. This order effect contrasts with that found by Kolarsky and Madlafousek (1977) discussed in Section C. Although most of the subjects (6/8) said they preferred the colour film, there was no actual difference in responding. However, this study has been one of many which have shown that order effects must be examined systematically in the assessments of sexual arousal.

3. The third major methodological problem is the experimental design of the assessment procedure. Not only are order effects to be taken into account, but the effect of simple repetition and habituation must also be acknowledged. Only in the last few years has there been any systematic research in this area.

The first and third problems are now further examined in Sections B and C respectively.

SECTION B : HARDWARE

The development of the 'hardware' pivots around the year 1970. Before this date research effort was concentrated on the construction and development of alternative methods with relatively few between-device comparisons. Basically, two devices were developed:

- those which measure change in penile volume
- those which measure change in penile circumference

Table 2a (from Glass 1986) shows the development of these two devices over the period up to 1970 by when all the main devices had been devised.

Table 2a

Historical Development of Erection Measurement Devices

<u>Year</u>	<u>Researchers</u>	<u>Type of Device</u>
1947	Ohlmeyer & Brilmeyer	Electromechanical Gauge
1965	Freund, Sedlacek & Knob	Air Volumetric Plethysmograph.
1965	Fisher, Gross & Zuch	Water Volumetric Plethysmograph/Resistance Gauge
1966	Bancroft, Jones & Pullen	Resistance Gauge
1967	McConaghy	Air Volumetric Plethysmograph (alternative version to Freund)
1969	Karacan	Electromechanical Gauge
1970	Barlow, Becker, Leitenberg & Agras	Electromechanical Gauge

Electromechanical circumferential gauges were first developed in Germany and it was not until 1970 that Barlow and his colleagues produced a commercially available product in conjunction with Farrall Instruments. Resistance strain gauges, usually a mercury-in-rubber loop, were originally developed by Whitney (1949) and substantially refined by Fisher (1965). Freund(1965) and McConaghy(1967) have consistently preferred a volumetric device which involves inserting the penis into a sealed container of known volume, which has a displacement capacity. Changes in volume result in displacement of air or water (Fisher (1965)).

The relative merits and demerits have been thoroughly summarised by Rosen and Keefe (1978) and there has been more recent research to evaluate the various methods.

Table 2b

Advantages and Disadvantages of Alternative Devices for Measuring Penile Change.

1. Electromechanical Strain Gauges.

	<u>Advantages</u>	<u>Disadvantages</u>
Barlow(1970)	Moderately sensitive Rugged, long lasting High reliability within and between sessions. Unobstrusive/Convenient Commercially available Easy to use	Ring may slip
Laws(1977)	Identical measurement characteristics as mercury-in-rubber strain gauge Standard manufacture Expensive (40 \$ in 1977) Easily repaired/durable	Unacceptable for "small" subjects.

2. Resistance Strain Gauges

	<u>Advantages</u>	<u>Disadvantages</u>
Fisher(1965)	Moderately sensitive Least obtrusive Good test/retest reliability Fairly easy to use	Lasts 1-6 months Mercury separates/coagulates
Rosen & Keefe (1978)	"Good reliability"	
McConaghy (1974) Laws (1978)		Would present initial longitudinal response as a decrease
Freund(1974)		Permits only poor discrimination (age-wise) between offending styles
Abel et al (1975)		Circumferential measures falling below 10% of maximum tumescence are due to random fluctuations
Barlow et al (1970)		Gauge only expandable over 10% of its resting length Mercury separates Gauge is temperature sensitive

Laws (1977)	No proprioceptive feedback to wearers Cheap (4.5 \$ in 1977)	Mercury imparted by improper storage
Davidson et al (1981)	Linear response over typical penile range	
Farkas et al (1979)	Reliable (.94) baseline measurement over 7 days apart	
Ditto	Reliable (.75) maximum circumferential measure	
Earls & Marshall (1980)		Room temperature and subject temperature sensitive (Seeley 1980)
Earls & Jackson (1981)	Changes with temperature very small	

3. Volumetric Devices.

	<u>Advantages</u>	<u>Disadvantages</u>
Freund (1974)	Permits a fine age discrimination (only 12/48 produced a full data record)	Problems in attachment Movement artifacts
McConaghy (1974)	High within session reliability	Poor between session reliability. Very expensive. Obtrusive, difficult to use
Earls & Marshall (1983)		Initial length increase balanced by circumferential decrease producing no overall change

4. Length Devices

Earls & Marshall (1982)	Identified early sexual response not under voluntary control	Cumbersome to wear
Laws (1977) McConaghy (1974)		Length changes not important

Table 2b outlines the research which has sought to evaluate the four major devices which have been internationally used. One of the major difficulties has been the wearing of two devices simultaneously (Laws 1977) and in the paper by Freund (1974) 34 out of 48 subjects failed to produce a complete set of data, due to equipment malfunction (!). However this latter paper was attempting to compare the Barlow Strain gauge with the cumbersome Freund volumetric device.

Overall there seems little experimental difference between the two circumferential measures, namely the mercury-in-rubber device and the Barlow Strain Gauge. Given that the ease of handling and to a lesser extent durability are factors which both favour the more robust strain gauge (metal), this is considered the device of choice for this particular, below average intellectual ability, patient population.

Table 2c

Studies of Habituation of Male Sexual Response in Laboratory Settings

<u>Researcher</u>	<u>Subjects</u>	<u>Result</u>	<u>Criticism</u>
Rosen (1973)	Normal Male volunteers	No habituation	Not counterbalanced stimulus presentation
Heiman (1977)	39 male volunteers	No difference two weeks later	Only audiotapes used
Henson and Rubin (1971)	5 normal subjects	No variation over 4 sessions with differing 10 minutes films	Small sample size
Kolarsky and Madlafousek (1977)	Paid volunteers (N not given)	1. First stimulus has weak effect c.f. later presentation	Introductory/warm up stimulus required

		2. Stimulus	Same young female used in affect all films. No variation partly in content other than determined female's behaviour by preceding stimulus
Schaefer and Colgan (1977)	6 male volunteers	1. "Novel" material v. slow habituation	Habituation is better described as extinction
		2. Ejaculatory reinforcement increases response even to constant stimulus over 6 sessions	
Julien and Over (1984)	24 university male volunteers	1. Increased arousal within sessions	Latin Square Design may maintain interest
		2. No habituation over 5 sessions	Self report assessment not concurrent.

Ceniti and Malamuth (1984)	26 volunteers +48volunteers	Satiation to themes for "force- orientated" subjects. i.e. those showing high levels of arousal to rape stimuli. Non- force subjects showed no satiation.	No offenders used
O'Donohue and Geer (1985)	40 male volunteers	<ol style="list-style-type: none"> 1. Constant stimuli produce greater habituation than varied stimuli 2. No difference in habituation rates according to erotic intensity (high/medium) 	Only slides used, short stimulus presentation periods

Table 2c outlines the major research findings in this area. Although Riefler et al (1971) and Howard et.al. (1970) in very poorly designed experiments found that after 90 minutes a day exposure for three consecutive weeks, habituation to a variety of pornography was short lived and that after eight weeks the erection response was indistinguishable from the initial finding. This finding has not been replicated in another laboratory setting.

In the Riefler et al (1971) study the strain gauge was not calibrated and therefore there was no way of knowing how aroused the subjects were at the beginning of the session. It is difficult however to equate results since, for example, Julien and Over (1984) simply state that the sessions "were separated by 24 hours or more". The Julien and Over study is further qualified by the fact that five content-matched stimuli were used in a Latin-Square design and therefore some novelty value was built in to the experimental design. Also only heterosexual stimuli were used and therefore generalisation across stimulus groups is difficult. They did however find that there was a build up in the level of sexual arousal, particularly (c.f. Kolarsky and Madlafousek 1977) from the first to the second presentation. The results from the subjective measure are of little value since the whole range of scores for the whole session were only collected at the end of the session and not concurrently.

However, Ceniti and Malamuth (1984) did use a variety of stimuli. In a previous study (Malamuth et. al. 1980a) they found that repeated exposure to sexually violent behaviour may enhance sexual responsiveness to other

such material, although this was yet another study using student college volunteers. Malamuth and Check (1983) also 'discovered' a group of students whom they labelled as 'high likelihood to rape' and therefore the fact that no other researcher has yet reported such responses amongst normal volunteers raises some doubt about the reliability of the findings. Additionally he reports that the pre-exposure arousal pattern of the force-orientated subjects (N=28) was analagous to that of the rapists used in the study of Abel (1977) with a rape index of .7 or greater. Whether these individuals have a history of any offences against women or subsequently offend is not stated. However, in this study no habituation was shown to stimuli (mutually-consenting heterosexual) in the non-force subjects, with two sessions a week for three consecutive weeks.

A further refinement was attempted by O'Donohue and Geer (1985) who suggested that materials (slides) judged as medium erotic intensity would show more habituation than those judged as high erotic intensity. This was not the case. There was no difference between the groups of slides.

The significance of the O'Donohue and Geer study is that they persevered with up to 27 stimulus presentations until no increase in penile tumescence was detectable. All the presentations were within a single assessment session. It was not surprising that a group of five interchangeable stimuli produced less habituation than a constant stimulus therefore limiting any specific fatigue effect.

The subjective measure of arousal, by intercom after the presentation of each slide on a Likert scale of 'how sexually aroused I felt' correlated

poorly (.47) with the physiological sexual arousal. However, this subjective arousal showed a dissimilar pattern of habituation. For the first 12 presentations stimuli of high erotic intensity were consistently associated with a higher magnitude of subjective responding than stimuli of medium erotic intensity. However from trial 13 to 27 stimuli of medium intensity were associated with the higher magnitude response. O'Donohue and Geer suggest that the degree of physiological habituation would have been higher if a greater level of initial sexual arousal had been obtained. This is a factor which was ignored by Ceniti and Malamuth (1984) and Julian and Over (1984) all of whom failed to elicit a maximum response for each subject and convert their raw scores to %.

The problem with almost all the studies on the effect of habituation are twofold. Firstly experimenters have ignored the reinforcement value of pornography resulting in full tumescence and ejaculation. Laws and Rubin (1979) in a study of the effects of instructions found that their four subjects could produce an almost full erection to a film which they had seen nine times within the single experimental session. Also with visual materials, Tennent et.al. (1974) found that a pornographic film when shown to incarcerated sexual offenders at four, 6 weekly intervals found a tendency for ever greater erections over time. Given that the exposure to pornography is almost always followed by an increase in the frequency of masturbation (e.g. Goldstein et al (1971)), the subsequent sexual behaviour, and in particular between trials in a (so-called) habituation experiment needs to be taken into account. However, this would not explain the Laws and Rubin result.

Schaefer and Colgan (1977) found that both novel and constant material which preceded ejaculation produced greater responses over 6 trials than material which was not "reinforced". However they also found that there was an absence of response decrement to novel pornography and that

researchers into treatment effects should take care not to use identical stimuli as before and after stimuli, since the greatest extinction/habituation effect was found in this condition.

The evidence in favour of novelty, and the lack of any evidence for the habituation of response potential, suggests that, with the exception of the Kolarsky and Madlafousek qualification (with single stimulus type) a configuration of five films of varying sexual activity need not take any specific account of order effects.

The second problem with the habituation studies is that they invariably (see Table 2c) rely on "volunteers". Studies of sexual behaviour, that necessarily include intrusive measures of sexual arousal, must employ volunteers who are fully informed of the nature of the experiment, prior to participation. Rosenthal (1975) has suggested that the sexual experiment volunteer may be more biased than volunteers for other types of experiment. It is not surprising that Farkas (1978) found that volunteers were "less fearful, more sexually experienced, less guilty, and older than non-volunteers. In addition, more volunteers reported erectile difficulties " !

Similarly Wolchik(1985) in the only other study in this area, reported similar findings to Farkas and also that volunteers valued sex-research more than non-volunteers and were more likely to have been exposed to commercial erotica. Naturally volunteer rates dropped , from 67% to 30%, when there was a specific requirement to partially undress and wear a plethysmograph.

If one is to assume generalisation from this self selected sample to a population of sexual offenders, whether of proneness to habituation, ability to self-control or be "conditioned", then additional differences must be acknowledged.

Table 2d

Some Potential Differences : Volunteers for Research v. Sexual Offenders

<u>Volunteers</u>	<u>Sexual Offenders</u>
Normal(psychologically)	Abnormal(psychologically)
Predominantly heterosexual	Mixed sexual behaviour/preference
Student Occupational status	Wide occupational variation
Mean age 23-27	Mean age usually higher
Living in community	Incarcerated
No obvious incentives to fake	Every incentive to "fake" ?
Above average IQ	Average or below average IQ
Sexual behaviour successful	Unsatisfactory (to self) sexual behaviour pattern.

Quite clearly, to assume that the volunteer group are representative of the general population, and therefore that what they can do others can, is an error prone assumption. Equally, to examine the process, e.g. of habituation in one group and then to suggest that this method/process is universal is

also error-prone. Perhaps the most important single difference is that the sexual offenders are living (in Special Hospitals), in a situation with relatively low levels of sexual stimulation, compared to the community, and also exceedingly limited opportunities for sexual contact, and then, on any regular basis, only of a homosexual nature. The effect of such a living situation per se on sexual responsiveness cannot easily be estimated. Such deprivation may make some individuals respond to a wider range of sexual stimuli or conversely general sexual responsiveness may "decay" over time. There are no published studies of changes in penile response patterns in incarcerated sexual offenders over time, and without any specific treatment/intervention. Therefore the effect of institutionalisation alone cannot be assessed.

The only other methodological artifact to be taken into account is from a study by Avery-Clark and Laws (1984). They found that the % of maximum erection obtained after a 4 minute presentation was significantly higher than that obtained after a 2 minute presentation. Since audiotapes were being used, they concluded that child abusers, in particular, required longer stimulus times. Certainly the films used in the research described in Chapter 4 were all of 5 minutes duration and therefore exceeded this experimental requirement.

The next section examines the literature on concurrent and non-concurrent subjective assessment and examines the apparent limits on the desynchrony effect.

SECTION D : THE DESYNCHRONY PHENOMENON

Given that the direct observation of sexual behaviour presents a "Catch 22" situation , in that observers will alter the event being studied, and there is no guarantee that people will act in the same way in front of observers, and yet observers are required for the sake of objectivity. It is not surprising that the emphasis in the current legal and scientific environment is almost entirely on analogue situations. In the Special Hospitals, this means the psychological laboratory and whatever behaviours/attitudes are demonstrated or detected within the institution.

Since the review by Zuckerman (1971) which concluded that the penile response was the best physiological index of sexual arousal in the male and also because sexual arousal and/or penile erection is commonly assumed to be a necessary and integral part of sexual offending, the focus of sexual assessment has been on physiological responses in the laboratory environment. Barlow (1977) summarises the position as follows :

"These procedures have in common a movement back down the behavioural chain to a point where earlier aspects of sexual arousal are measured. The assumption has been that sexual arousal has been a necessary step in the chain leading to the consummation of sexual behaviour. As such, changes in the strength or pattern of sexual arousal will have a direct relation to the strength or patterns of later behaviours in the chain... In view of these relationships assessment (and treatment) of early events in the chain of the genital aspects of sexual behaviour, may be more important to long-lasting sexual satisfaction than assessment of the end point of the chain."

The laboratory situation can therefore consider itself to be relatively "free" from noise from the natural environment and also has the advantage that it permits the examination of the fundamental components of the problem. However it is surprising that the objectivity which physiological procedures purport to demonstrate has served to considerably narrow the focus of psychosexual assessment. Rachman and Hodgson (1974) were among the first researchers to suggest that behavioural, physiological and cognitive/experiential changes may not be synchronous, as least with respect to the learning of adaptive behaviours in a fear-avoidance situation. Although Abel (1977) was the first experimenter to examine the synchrony of self-reported sexual arousal in a controlled laboratory situation, it is only in the last five years that this area has begun to be explored by many different centres of research endeavour.

Because subjective experience can only be assessed by the individual themselves, and because the 1970's zeitgeist emphasised strict reliability and objectivity (e.g. Farkas 1978) research has been slow to ~~and~~ develop. An important additional factor is intrinsic to the assessment situation ; given that the results of any investigations may well have a substantial bearing on the probability of release from secure settings for any one offender, there is every incentive for offenders to deny becoming aroused to "deviant" stimuli, even when this is clearly not the case. Because offenders occasionally reveal current pedophilic interest by their behavior in social situations, clinicians, researchers and decision makers have learnt to regard anything which sexual offenders say about their sexual preference as, at best, suspect and, at worst, irrelevant. These concurrent attitudes to both research and individual

therapeutic endeavour have served to "throw the baby out with the bath water". At last the balance is being redressed and Blader and Marshall(1984) and Owens (1986) and beginning to provide a potential therapeutic framework against which much of the research work in this area can be evaluated.

The need to assess all response systems in the quest to find the best predictor of behaviour (even in another physical and human environment and at another, future time) is clearly vital. Owens (1986) points out that a simple determinist, stimulus-response model is insufficient to explain sexual offending behaviour. Even the most frequent and persistent sexual offender does not take every opportunity to assault and therefore a model

STIMULUS-----RESPONSE

is excluded. The fact that a sexual offence probably requires the presence of some physiological sexual arousal, whether contemporaneous with sexual behaviour or not, and that we have a unique sexual response, namely penile erection, requires that our model includes a physiological component. Hence a model,

STIMULUS-----AROUSAL-----BEHAVIOUR

I

I

I

MEASURABLE RESPONSES

The ability of subjects to alter the pattern of their sexual responses, see Chapter 1, Section D quite clearly indicates that external demand characteristics must also be taken into account. Additionally, the fact that sexual ^{arousal} in the laboratory to a deviant stimulus can occur without the consequent sexual behaviour (except covertly), coupled with the pattern of sexual offending, i.e. not in response to each and every opportunity, means that the contingencies which apply, or at least the subjects perception and understanding of them, are also relevant. Hence Owens (1986) revised model :

STIMULUS-----AROUSAL-----LIKELY NEGATIVE CONSEQUENCES-----NO BEHAVIOUR

I I (yes)

I I (no)

I I

MEASURABLE RESPONSES

BEHAVIOUR

However the problem, not unique to arousal, is that there is no uniform definition or even method of assessment (see Sections B and C this chapter). Not even the objective presence of a full erection necessarily indicates that the maximum experience of full sexual arousal has simultaneously been reached (Sakheim et al 1984). This obvious desynchrony between subjective measures and physiological measures suggests that certain stimuli, e.g. violent or aggressive sexual stimuli, may affect one measure disproportionately or desynchronously from the others. Equally the research of Malamuth (1983) suggests that there may be individuals who experience clear physiological arousal to deviant rape stimuli, with or without subjective experience, who "manage" to avoid sexual offending, perhaps ^{due} to the inevitable adverse consequences. This physiological/behavioural desynchrony is an alternative form to that now described, which concentrates on the subjective/physiological form of desynchrony.

Table 2e

Studies into the Correlation between Subjective and Physiological
Methods of Examining Sexual Arousal

<u>Who</u>	<u>Subjects</u>	<u>Result</u>
McConaghy (1969)	40 homosexuals seeking treatment	Only 4/15 in one treatment group correctly identified that they responded more to male stimuli at the baseline assessment stage.
Kercher & Walker (1973)	28 rapists 28 non-sexual offenders	Rapists showed higher GSR rponses to sexual slides but rated them more negatively on a Semantic Differential.
Abel et al (1977)	13 rapists	Self reported arousal to a stimulus consistently lower than accompanying erection in % terms.
Mavissakalian et al (1975)	6 homosexuals seeking treatment 6 heterosexual volunteers	5/6 in each group produced $r = .61$ or more ; mean of $r = .57$ for homosexual group ; mean of $r = .74$ for heterosexual group

<p>Schaefer et al (1976)</p>	<p>8 volunteers</p>	<p>Underestimate of degree of erection when reading non-erotic material ; for erotic material overestimated degree of erection up to 50% level, underestimate thereafter.</p>
<p>Farkas et al (1979)</p>	<p>32 university volunteers</p>	<p>Av.Corr. Coeff. .46 (attention mode, .25 (distraction mode). Improved correspondence at higher levels. Wide between individual variability (e.g.-.21 to .93 for attention mode).</p>
<p>Wincze et al (1980)</p>	<p>6 university volunteers</p>	<p>Average Corr.Coeff. $r = .69$ (range $-.01$ to $.93$). When "cognitive lever" used, less arousal recorded.</p>
<p>Abel et al (1981) Study 1</p>	<p>21 paid volunteers</p>	<ol style="list-style-type: none"> 1. Self report of sexual arousal & % full erection, mean $r = .735$ 2. Self report of % erection and real % erection, mean = $.768$. 3. Self report of sexual arousal and self report of % erection, mean $r = .824$ 4. 5/21 did not reach sig. r ($.54$ or greater)

Abel et al (1981) Study 2	14 mixed voluntary outpatients seeking & % real erection, treatment	<ol style="list-style-type: none"> 1. Self report of sexual arousal & % real erection, mean $r = .62$ 2. Self report of % erection and real % erection mean $r = .79$ 3. Self report of sexual arousal and self report of % erection mean $r = .764$ 4. 3/14 (21 %) did not reach sig. correlation.
Wincze & Qualls (1984)	8 volunteer homosexuals	Penile circumference and continuous subjective sexual arousal, mean $r =$.86 (range .62 to .98)
Blader & Marshall (1984)	16 male students	<ol style="list-style-type: none"> 1. No sig. diff. in overall physiological response when self reporting. 2. More divergence between measures for the more deviant stimuli (e.g. rape sequences)
O'Donohue & Geer (1985)	40 volunteers mainly heterosexual	Corr. Coeff. = .447 on first trial Correlation decreased over trials (27). Low levels of overall physiological response due to slides not films being used ?

Sakheim
et al
(1984)

8 volunteers

1. High levels of physiological arousal produced less concordance for intensity than low levels
2. High levels of physiological arousal produced more concordance for direction than low levels.
3. Subjects reported that full subjective arousal was not equivalent to full erection.
4. Ability to see erection made no difference.

It was McConaghy (1969) who~~d~~ was probably the first researcher to produce information about the awareness of subjects of their own level of sexual arousal. It was unfortunate that this reporting of underestimate (see Table 7) is buried within a generally poor piece of research. Not only were treatment effects only followed up for two weeks, but a paradoxical result was obtained in that,

"Some subjects who showed a heterosexual orientation before treatment showed a change in the homosexual direction".

and this result was reported with a treatment paradigm for the treatment of homosexual impulses. This seems an early example of the power of simple exposure to change sexual behaviour. Additionally an unspecified number of subjects reported that they had resumed homosexual relations after aversion-relief therapy.

Table 2e therefore charts the development of knowledge in this area since 1969. Table 2f gives further information about the same studies, but concentrates on the method used,, particularly how the self-estimate was obtained and its precise relationship in time with stimulus presentation. Unfortunately not all the studies are comparable with each other.

Table 2f

Method used for Subjective/Physiological Correlation Estimation

<u>Who</u>	<u>How</u>	<u>When</u>
McConaghy (1969)	Verbal questioning by experimenter	Post single assessment session.
Kercher & Walker (1973)	Second presentation of slides for 1 minute each, completed Semantic Differential Scales (7)	Concurrent with slide presentation.
Schaefer et al (1976)	Prompted by buzzer to state degree of erection in 10 % steps.	Buzzer at irregular intervals (i.e. concurrently)
Abel et al (1977)	Scale 0% "not sexually erotic" 100% "extremely erotic" Not clear whether 1 rating per slide or continuous.	Not stated
Mavissakalian et al (1975)	Single rating of "amount of sexual arousal" on a 0 (no arousal) to 100 (max. arousal scale.	Immediately after each film

Farkas et al (1979)	Potentiometer/external dial rotating 120 degrees, end points signifying high and low arousal; 60 data points per subject used. Asked to rate degree of arousal.	Concurrent and continuous with presentation of 2 X 10 minute b/w films 1 sexual and 1 non- sexual.
Wincze et al (1980) & Wincze & Qualls(1984)	Potentiometer rotating 90 degrees ; to monitor "how aroused you think you're feeling".	Concurrent and continuous.
Abel et al (1981) Study 1	Single rating on 0-100 scale of - degree of arousal - degree of erection	After each stimulus (concurrent video and audiotape)
Abel et el (1981) Study 2	ditto but more stimuli used.	ditto
Blader & Marshall (1984)	11 inch lever in groove, with 50 marked intervals. used to monitor their arousal. Discrete measure also.	Continuous. Discrete point measure taken after each stimulus.

Sakheim et al (1984)	Mechanical lever rotating 90 degrees to record how sexually aroused they felt. Degree of concordance estimated i.e. if within 10% (IRSC), or moving in the same direction (DRSC). See text for details.	Continuous
O'Donohue & Geer (1985)	Verbal indication on 7 point Likert Scale of "how sexually aroused they felt".	Immediately after presentation of each slide.

Perhaps the most idiosyncratic procedure is that of Kercher and Walker (1973). Not only did they require a second presentation of the slides, which may or may not have been equivalent to the presentation at the GSR stage, but they selected certain items from the Semantic Differential and therefore attitudes to the stimuli were assessed rather than the direct estimate of their concurrent sexual arousal.

It was Abel (1977) in an otherwise excellent and innovative paper who published the first information about the ability of convicted sexual offenders to monitor their sexual arousal. They simply used a 0-100 scale with both endpoints labelled and found that rapists, but not non-rapists, gave a consistently lower rating of their sexual arousal. However the precise method used and its timing is not clear (Table 6).

Two years earlier, Mavissakalian et al (1975) were the first to produce a correlation coefficient between the two measures, even though the subjective response procedure was simply to ask subjects to give a point on a 0-100 scale of their sexual arousal to a film, immediately after each clip. They also concluded that there was a general tendency to overestimate sexual arousal with the heterosexual group's response to the homosexual film. It seems likely that attitudes to the stimulus might well have determined the response, in that the heterosexuals were all medical students, possibly eager to prove their heterosexuality by highly rating heterosexual stimuli and underreporting the response to the homosexual stimuli; the homosexual group were "seeking evaluation or treatment for their patterns of sexual arousal" and therefore their expectancy can only be guessed at. Unfortunately, Mavissakalian et al do not specify in terms

of desynchrony the homosexual group's response to the homosexual stimuli.

Schaefer et al (1976) introduced three further complications. Firstly and mainly, they found that the level of physiological sexual arousal partly determined the accuracy of the estimates. At levels below 50% erections were overestimated, whereas above the 50% level they were consistently underestimated. This raises the question of determining the basis of the decision. It seems, on the basis of the first result, that subjects are basing their decision on the basis of psychological cues rather than physiological cues. Secondly, they found that when subjects were reading an assumed non-erotic passage (from Sexus by Henry Miller) the erection response was always underestimated. They actually quote an example of a 10-20% subjective estimate to non-erotic material when the measured erection was 100%. Is this an early example of the IMI+ pattern described in Chapter 4? This second finding by Schaefer et al again suggests that psychological cues may determine self-estimates more than physiological cues. In this study (c.f. Sakheim et al (1984)) no attempt was described to prevent subjects from looking at their erection and therefore such desynchrony is remarkable.

The third complication introduced by Schaefer et al is to question what exactly is being rated in the self-estimate response. Although subjects were requested to rate their degree of erection, Schaefer suggests that the results are more explicable if the subjects self-report data are construed as estimates of degree of arousal. Perhaps the magnitude of erection really does fail to reflect the degree of subjective sexual arousal.

This suggestion is supported by the work of Abel et al (1981). They also relied on a post-hoc estimate, but did at least ask volunteers to rate their sexual arousal in addition to their degree of erection. They found that neither a group of 21 normal subjects, nor a group of mixed (sexual problem) outpatients produced very high correlations between self-report of sexual arousal and self-report of erection, namely .824 and .764 respectively (see Table 5). They also found that, for both groups, correlations were slightly higher with estimating erection than "sexual arousal". Although the differences are very small, Abel suggests that subjects are using "built in biofeedback" to judge sexual arousal, although whether subjects were visually able to inspect their degree of erection is not stated.

Earls and Marshall(1983) have suggested that experimenters who simply ask subjects to rate their highest point of sexual arousal during a particular stimulus presentation, are consequently more likely to get a good correlation than those employing a continuous or moment-to-moment method. All the research so far discussed has used a single point method whether concurrent or retrospective (see Table 2f). However Farkas (1979) was the first researcher to use a continuous method, to run throughout the film presentation. Using 60 data points per subject, he found that the overall correlation coefficient was indeed lower (.46) but that there was better correspondence at higher levels of physiological arousal. This contrasts with Schaefer et al (1976) in that Farkas emphasises that if physiological arousal is high individuals are more able to monitor arousal. It is interesting that Farkas found no difference for his manipulation of expectancy, whether for tumescence or subjective rating. However only two stimuli were used and neither of these were sexually deviant. However the

Farkas study does partially support the Schaefer work in that penile tumescence did not discriminate between the two films and that erection responses can be obtained to non-sexual stimuli if sufficiently "sensual".

Wincze et al (1980) found very similar results to Farkas. Again using a rotating potentiometer, permitting continuous Pearson Product Moment Correlations to be computed, they found a reduced (c.f. Abel et al 1981) coefficient of .69. However they also found slightly lower levels of physiological arousal when the "lever" was being used.

Wincze also supports Farkas in postulating an interaction between the degree of arousal and the degree of accuracy. Although a very small sample size was used, he suggested that those people who demonstrated the highest physiological arousal also obtained the highest correlations. However he was careful to ensure that visual cues were eliminated, by the deft use of a sheet, and that only internal cues were therefore available. Perhaps this extra demand was responsible for the lower levels of physiological arousal being obtained when concurrent assessment was required. Wincze and Qualls (1984) in a similar study using 8 volunteer homosexuals reported a higher correlation coefficient (.86) but there was no mention in this latter study of removing visual cues.

O'Donohue and Geer (1985) although they used a relatively large sample, found one of the lowest mean correlation coefficients of all the studies. They attributed the low levels of physiological arousal which they obtained to the stimulus modality (slides) and given the Wincze/Farkas findings, that high levels of physiological response aid accuracy, using

weak stimuli might well produce relatively inaccurate self-estimates.

The most complicated experiment in this area is undoubtedly that of Blader and Marshall(1984). They manipulated all of the following :

1. The demand characteristics i.e. telling the subjects (or not) that arousal to all the stimuli is normal and expected
2. The effect of self-reporting (or not) on penile tumescence.
3. The range of stimuli (audiotape) :

mutually consenting intercourse

rape with restraint

rape with gratuitous physical violence

assault on female without sexual content

Unlike Wincze et al (1980) they found that the requirement to self-report made no difference to the overall physiological arousal, but there was a difference to certain stimuli. "Reporting" subjects showed less response in both channels than "non-reporting" subjects but no such difference was reported for the rape-restraint sequence. Blader and Marshall suggest that the social demands are such that individuals could not claim sexual arousal to such stimuli and that beyond a certain point, i.e. the introduction of clearly gratuitous violence, the self-report task can influence physiological responses. The rape-restraint sequence may simply not be perceived as "deviant" (see Malamuth (1983) discussed in Chapter 1 Section E)

Although two methods, namely the continuous and the discrete point were used, they were highly correlated and therefore continuous measure scores are presented :

Consenting episodes	r = .90
Rape-restraint	r = .96
Rape-assault	r = .98
Assault	r = .93

The instructions/demand characteristics did not affect the two measures "to any meaningful extent across stimuli" although there was a trend for permissive instructions to produce higher indices. Despite these uniformly high correlations, there was some divergence according to the deviance of the stimulus. There was the greatest discrepancy between the two measures for the rape-restraint condition, where a strong effect on the subjective measure was noted, but the erectile response was little affected. The addition of violence to the stimulus did have an inhibitory affect, but because of a floor effect (i.e. both measures down) subjective-objective discrepancies did not occur. The only effect of demand on the discrepancies was in the rape-assault condition where regular (neutral) instructions produce a near significant difference between subjective and objective responses, whilst with the permissive instructions there was no difference. This would suggest, as does the work of Malamuth, that subjective responses to very violent cues are relatively easily influenced by external demands, as compared to purely coercive cues. It is not clear why such a disinhibiting effect is not evident for the rape-restraint condition, given that the levels of erectile response were much higher in

this condition.

Finally, just when it seemed that at least the level of physiological response (Farkas et al (1979), and Wincze et al (1980)) presented a consistent contributory factor to the production of higher levels of concordance, Sakheim et al (1984) describes a result which contradicts this finding. Again using a continuous measure (potentiometer) they found that the DRSC (Directional Response System Concordance) defined as agreement when both measures were increasing, decreasing or staying the same, from one time interval to the next, supported the Farkas/Wincze result in that higher arousal levels produced more agreement. Surprisingly, being able to see one's erection made no difference whatsoever to the DRSC score.

However the IRSC (Intensity Response System Concordance), where agreement was defined as the two measures being within a given % of each other, usually 10%, showed that higher arousal produced less concordance. This was despite the clearly stated expectation on the part of the experimenters that physiological arousal at higher levels should lead subjects to better matching with subjective ratings. However a number of the volunteers suggested that full erection was not equivalent to full subjective arousal. The experimenters noted that full erection often occurred well before maximum subjective responding was reached. Hence if the subject reports increase in subjective arousal after the erection measure has reached its maximum (also similar to IMI +, see Chapter 4), the IRSC will show a disagreement and therefore produce a relatively poor correlation.

Table 2g

Nature and Pattern of Desynchrony in Identified Studies

<u>Who</u>	<u>Materials</u>	<u>Researchers</u>
<u>Overestimate of Physiological Response</u>		
Heterosexual volunteers (N=6)	Single girl/lesbian/ heterosexual films	Mavissakalian et al (1975)
Heterosexual volunteers (N=12)	Reading heterosexual erotica where erection is less than 50%	Schaefer et al (1976)
Heterosexual volunteers (N=6)	Accelerated lever too quickly to heterosexual films	Wincze et el (1980)

Underestimate of Physiological Response

11/15 about-to-be treated homosexuals.	Male nude slides	McConaghy (1969)
Rapists (N=13)	Rape audiotape	Abel(1977)

Heterosexual volunteers (N=6)	Homosexual film	Mavissakalian et al (1975)
Heterosexual volunteers (N=12)	Reading heterosexual erotica where erection greater than 50%	Schaefer et al (1976)
ditto	Reading non-erotic passage at all levels of erection	ditto
Heterosexual student volunteers (N=32)	Rape-restraint film under both permissive and regular instructions	Blader and Marshall (1984)
ditto	Rape-assault film, regular instructions	ditto
Paid volunteers	High arousal film 50% of the time	Sakheim et al (1984)

Accurate Self Report

Non-rapist Offenders (N=7)	Rape audiotape	Abel et el (1977)
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32 volunteers	Heterosexual film	Farkas et al (1979)
Heterosexual student volunteers (N=32)	Rape-assault film, permissive instructions	Blader and Marshall (1984)

Table 2g summarises the findings where the nature of the desynchrony is either stated in the article or can be deduced. It would seem that the only examples of an over-estimated response occur in situations where "normals" i.e. heterosexual volunteers are exposed to "normal" stimuli. In almost any other situation, with offenders or deviant stimuli, the physiological response is either accurately estimated or underestimated.

If offenders are unable or unwilling to recognise and accurately estimate their degree of sexual arousal or % full erection, then this would suggest that such individuals are unlikely to benefit from treatment which concentrates on the alteration of the sexual response as the main focus. The final section briefly outlines such treatments and discusses their effectiveness.

SECTION E : TREATMENT PROGRAMMS

Treatment programmes, at the level of the individual offender, have generally followed the advice of Barlow (1974) and diligently attempted to be comprehensive. Broad-based treatments have assessed the attitudinal, cognitive components of the sexual offending behaviour (Crawford 1981), the social and interpersonal skills (e.g. Segal and Marshall 1985) and, most directly the specific sexual arousal patterns (Abel et al 1978).

Cone (1978) has proposed a continuum between direct and indirect methods of assessment, based on the extent to which the situation from which the observations are taken, resembles the actual situations of clinical interest. He describes three factors which contribute to this directness continuum :

1. The nature of the response observed, with verbal, self-report measures being the most indirect, where the real response is a non-verbal, motor/physiological, psychological response
2. Time - with observations remote in time (either after commission of the offence, or before assumed release) being the most indirect
3. Situation - with observations taken from artificial, institutional environments being more indirect than those from the natural environment.

Quite clearly, institutional custodial treatment must be considered as indirect on criteria 2 and 3 and much psychoanalytically-orientated sexual

offender therapy e.g. Groth (1982) violates criterion 1. Paradoxically, physiological approaches e.g. castration (Hejtm and Hirsch 1979) and anti-androgen chemotherapy (Langevin 1983) could meet the criteria of time and place, were it not for their dubious ethical status, and non-specific locus of effect.

It has been behavioural approaches with the emphasis on specific targets, functional relationships between offending behaviour and the delivery of reinforcement, and individual treatment methodology, which have most utilised the procedures to alter the pattern of sexual arousal. Although Masters and Johnson (1966) have directly assessed sexual behaviour in the laboratory, ethical considerations have precluded such procedures from being used with sexually abnormal offenders. Indeed, the more the focus moves towards sexual and intimacy skills, the more one is urged or required to move away from direct methods of observation and treatment. Hence, the reliance, in the case of sexual offending, on self-report, whether of past sexual acts or current sexual preference. Even the assessment of sexual knowledge, so often hailed as an essential component of the comprehensive program (Barlow 1976, Lanyon 1986) exists in practice only on the basis of face validity, since the relationship, between sexual knowledge and overt deviant and non-deviant sexual behaviour is no clearer than that extracted from individual case summaries.

However behavioural approaches which have sought to examine and alter sexual arousal patterns, continue to attract research attention. Kelly (1982) has come to the conclusion that "therapeutic behavioural reorientation of child molesters has been clearly demonstrated". This

statement was made on the basis of reviewing 32 studies published since 1960, of which the best is probable Maletsky (1980). He found that 34/38 child molesters whose homework included :

- aversive imaginal procedures
- changes in masturbation fantasies
- manipulation of the environment

had remained offence free after a nationwide three year follow up period. Other outcome data show a major reduction in the self-reported frequency of deviant urges and specific masturbation fantasies and also positive changes in plethysmographic records.

Table 2h outlines most of the approaches which have focussed on sexual arousal patterns as the main target for change. Although Barlow (1976), Abel (1978), and Crawford (1979) have repeatedly urged a comprehensive overview, there is a dearth of research evidence into the relative merits/efficacy of the treatments described in Table 2h as compared to the purely social skill type approaches (Segal and Marshall 1985)

Table 2h

Treatment Programmes for Sexual Offenders which have sought to
Suppress or Increase Specific Patterns of Sexual Arousal

Method of Treatment

Outcome

Suppression of Sexual Arousal

Aversion therapy (Electrical/
chemical/olfactory)
(Hallam and Rachman 1976)

33 % success (Bancroft 1974)

Covert sensitization (Cautela
1967, Levin 1977)

Fails to modify deviant fantasies
of sexually aggressive offenders
(Christie et al 1978)

Shame aversion therapy
(Serber 1970)

70 % (Serber and Wolpe 1972, only
for exhibitionists)

Satiation therapy (Marshall
and Barbaree 1978, Marshall
1979)

Very effective with 75 %
pedophiles

Orgasmic reconditioning
(Vandeventer and Laws 1978,
Laws 1985)

Single case studies only

Increasing Sexual Arousal

Aversion relief (Barlow 1973)	Not effective as an independent procedure (Perkins 1983)
Fading (Barlow and Agras 1973, Laws 1974)	Some limited effect on increasing heterosexual interest in homosexual males, Effect lost on follow-up
Orgasmic reconditioning/ masturbatory switching/ alternation (Laws and O'Neil 1981)	Single case studies but useful within a cognitive approach
Biofeedback (Barlow et al 1975)	Unsuccessful with male homosexuals, some success with impotent males

If one adopts the criteria of directness, i.e. that treatment will be specifically for those behaviours which result in incarceration etc., then there is ample justification for taking a narrow and discrete view. If a pedophile is sexually aroused by children, then this is the problem which should be directly addressed. It may be that these individuals are also frightened of adults, have had a restrictive upbringing, and are generally socially deficient, but it is doubtful whether ameliorating any of these secondary problems, will affect, as a spin-off, the pattern of sexual arousal. Barlow himself (1977) quoted in Section D, adds weight to this argument by highlighting the relevance of penile responses to the commission of certain sexual offences. It could be argued that a variety of these non-specific social deficits are often found in populations seeking treatment or intervention from the mental health professional. It is only the specific sexual differences which are distinctive in the sexual offender.

The outcomes of the various treatment procedures, and also their efficiency, might well be vastly improved if the level and accuracy of the subjects awareness was taken into account. One can only speculate that where there is consistent desynchrony between demonstrated sexual arousal and the associated experience, a programme aimed at the alternation of masturbatory fantasy, or the association of previously reinforcing stimuli with unpleasant visual stimuli etc. might well serve to further destroy the essential link between the response systems. Indeed, Leonard and Hayes(1983) point out that although alternation of masturbatory fantasy can easily affect measured sexual arousal, the direction and magnitude of the effects are "unpredictable" ! Since they completely ignored the

possibility of desynchrony in their subjects, this result may not, in retrospect, seem too surprising.

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Introduction

This pilot study is based on four patients, one of whom was the first patient to indicate to me that there was some desynchrony in his pattern of sexual arousal. His self-report, but not his physiological arousal pattern, at the end of a routine penile-plethysmographic session was consistent with the pattern of his own sexual offences, which had led to his admission to a maximum security hospital.

The reported desynchrony was then further investigated in a prototype procedure and became the basis for Experiment I.

Section A

Experimental Hypothesis

That sexual offenders would be equally able to correctly identify periods of sexual arousal, as non-sexual offenders.

Section B: Selection of Subjects

(i) Sexual Offenders

- a. The two sexual offenders used in this Pilot Study included the original client to which reference was made in the introduction. One of them, Subject A, had offended against both boys and girls, with a ratio of approximately 4:1. The other, Subject B, had offended solely against young and adolescent boys. Their ages were 29 and 35 respectively; both had a full-scale level of intelligence between 80 and 90.

(ii) Non-Sexual Offenders

These two subjects had both been convicted of violent offences against people, one in the course of arrest. They were aged 26 (Subject C) and 31 (Subject D) and also had full-scale levels of intelligence between 80 and 90.

(iii) Length of Stay.

All four subjects had been detained in maximum security for at least five years, but none more than 10 years.

iv) Relationship to other concurrent assessments.

The two sexual offenders were both attending the Psychology Department as part of their assessment/treatment programme. They therefore had some experience prior to the experimental session of plethsmographic assessment.

The non-sexual offenders were also being seen on a regular basis for counselling and a self-control programme. The two non-sexual offenders were both asked individually if they would undertake a single-session research experiment, and their acceptance was duly recorded in the ward report. No separate information package/consent form was used.

Section C : Setting/Equipment Details.

1. Setting.

The setting was very similar to that used in Experiment 1.

a) Testing Room

Subjects sat in a comfortable chair in a private room, 12 feet square, adjacent to the equipment room. This room offered very little distraction and consisted only of a portable monitor and table.

b) Operator Room

The operator's room was the same size as the testing room and was adjacent to it. The operator was able to control the delivery of the film sequences via a two-way connection between the two rooms.

c) Psychology Department

Both rooms were housed in the Psychology Department at Moss Side Hospital. The department occupied the first floor of a separate building and in a generally quiet part of the hospital. All the patients had attended the department on a number of previous occasions.

2. Equipment Details

a) Polygraph\Circumferential Device

Penile tumescence was measured using a mercury-in-loop resistance strain gauge (Fisher et al 1965) where resistance was found to be mathematically related to the cross section of the mercury column. However, such a device is exceedingly difficult to calibrate and the mercury was prone to separate\coagulate within the loop and immediately give an infinite resistance to the electrical circuit.

The output from the strain gauge was monitored continuously by connecting the output, via a coupling unit (Electronet 2583) to a polygraph amplifier and recorder (Devices M19\3559). The output from the amplifier was recorded on 10" paper using a standard PDA (pen drive amplifier).

b) Slide Presentation

The slides were presented in the same testing\operating rooms as described in Chapter 4. However, the slides required using a Kodak Carousel Projector (Model No. Carousel S.) which projected directly onto a screen, approximately 7 feet in front of the seated subject. A remote control facility allowed coordination of both the projector and the polygraph. The image on the screen was approximately 2-2.5 feet high.

c) Self-Evaluation

The self-evaluation procedure consisted of two simultaneously operating systems.

(i) Signal Generation

The North Star Horizon Computer was used to generate a Variable Interval 15 second schedule to light according to this schedule a small bulb placed immediately below the screen in the testing room. This light therefore lit for 3 seconds four times a minute (on average). This light served as a signal for a dichotomous response to be made by the subject. It was anticipated at this stage that the delay time in making a response might be a useful measure of distractibility or additionally the "value" of the stimulus for the subject. This VI schedule operated continuously throughout the session and was independent therefore of the stimulus presentation schedule.

(ii) Response Channel

The response channel was simply a two switch manipulandum with one switch marked "1" and the other marked "2". The aim was that "1" would indicate "arousal" and "2" would indicate "no arousal". It was hoped that this numerical scale could be extended to a four or eight point scale allowing\requiring finer discrimination. The pressing of either 1 or 2 was independently recorded.

Section D: Stimulus Materials\Psychophysiological Response Definition

(i) Stimulus Materials

Slides were used at this stage because of two reasons. Firstly, the psychology department had a greater variety of slides in stock at this moment in time, and secondly, it was considered important, clinically, to present some stimuli of young boys and no such material was then available on usable film. Unfortunately some of the slides were in black and white, mainly those of the children, and some, the adult male and female slides, were in colour. For all four Pilot Study patients the slides were as follows:

Table 3a

Slides x Type x Pilot Study

		<u>Individual</u>	<u>Colour\Black & White</u>
Slide No.	1	Adult Female	C
	2	Adult Male	C
	3	Child Male	BW
	4	Adult Female	C
	5	Child Female	BW
	6	Child Female	BW
	7	Adult Male	C
	8	Child Male	BW
	9	Adult Female	C
	10	Adult Male	C
	11	Child Male	BW
	12	Child Female	BW

(ii) Psychophysiological Response Definition

At this stage, no on-line computerised recording and analysis facility was available and therefore a very direct and reliable nominal classification of response was used. The physiological response was classified as:-

High

Medium

Low

These were operationally defined as:-

75% - 100% of maximum = High

25% - 75% of maximum = Medium

0% - 25% of maximum = Low

The maximum for each patient was determined by asking them to masturbate (with or without usual aids) to full erection and after they had wrapped the mercury-in-loop gauge twice around the base of the penis. It was possible in all four patients to reliably confirm this maximum by checking that it was not exceeded during the session.

Section E: Operational Procedure

(i) Consent

The two sex offenders underwent this one session experimental trial as part of their baseline sexual assessment programme. There were substantial clinical grounds on the part of one of them (AH) to suggest that a lack of awareness regarding the nature of sexual responding existed.

The two main non-sexual offenders' consent was recorded in the nursing notes. Consent was considered necessary because of the exposure of non-sexual offenders to sexually explicit materials.

(ii) Information

All four patients were informed that no information regarding the success or not of the task would be entered on their clinical file. They would, however, be recorded as having voluntarily taken part in a one-session research experiment.

(iii) Familiarisation

The patients were shown both the operating room and the testing room and more particularly the response channel apparatus. They were then read the following:-

"The light below the screen (pointed out) will come on for a few seconds and then go off during the session. When it comes on I want you to press either Switch 1 or Switch 2 according to whether you feel sexually aroused or not at that moment. If you feel aroused press 1, if you do not feel aroused press 2. Do you understand? Have you any questions?"

b) Practice Trial

The four patients were then given two minutes practice, without any slides being presented, at responding to the light onset. This meant that the light came on eight times and criterion was that they pressed either 1 or 2 (only 2 was pressed at this stage) within 5 seconds of the light coming on. All the patients were able to respond within this time period and were therefore deemed competent to progress to the two channel task.

c) Stimulus Presentation

The stimuli were presented in the same order for all four subjects. The order of presentation was as listed in Table 3a. There was an inter-stimulus interval to permit any physiological response to return to baseline (or within 5% if necessary).

On the VI 15 second schedule approximately 200 light-on signals were given for each individual session which lasted for about 50 minutes. Each slide was shown for 2 minutes and the inter-stimulus interval varied between a few seconds, if there had been no response at all to the slide, to approximately five minutes.

Section F: Results

1. Stage 1

The first stage was to categorise the degree of sexual, physiological response at each moment of self-evaluative response. This was carried out for the whole sessions' data for each of the four subjects and provided two rows of nominal data, eg.

Self-Evaluative Response	N	N	N	Y	Y	Y	N	N	N
Physiological Response	L	L	L	L	M	H	H	M	L
(Low\Medium\High)									

2. Stage 2

The four sets of data can be put into table form:

Table 3b

Pilot Study	<u>Individual Scores x Degree of Arousal x</u>							
	<u>Self-evaluative Response x Raw Data</u>							
% Physiological arousal	SO A		SO B		SO C		SO D	
	Yes(%)	No(%)	Yes(%)	No(%)	Yes(%)	No(%)	Yes (%)	No (%)
0 - 25	15(20)	72(55)	18(25)	73(66)	4(3)	73(75)	6(8)	79(85)
25 - 75	31(41)	39(29)	26(36)	27(24)	53(37)	21(22)	30(43)	10(11)
75 - 100	29(39)	21(16)	28(39)	11(10)	86(60)	3(3)	33(48)	4(4)
Total	75	132	72	111	143	97	69	93
Individual total	207		183		220		162	

Where:

Individual

total = Number of Yes\No decisions within testing session (ie. at the average rate of 4 per minute)

Total = Number of Yes, Number of No decisions within session

Raw Scores = The classification of the degree of sexual arousal at the moment of the self-evaluation response.

Table 3b indicates the mismatch by indicating the % responses of "No" to states of higher arousal and "Yes" to states of low arousal.

Table 3b(i)

Mismatch Scores x Individuals x Pilot Study

	High Physiological Arousal/ "No" self-evaluation Response % of total "No" Responses	Low Physiological Arousal/ "Yes" self-evaluation Response % of total "Yes" Responses
SO A	16	20
SO B	10	18
NSO C	3	3
NSO D	3	8

From Table 3b(i) it can be seen that SO A has the highest overall "error" rate. However, the self-evaluation responses are not randomly distributed even for this individual.

Table 3b(ii)

Sex Offender A x Self Evaluation Response x Degree of Arousal

Self Evaluation Response	Degree of Arousal		
	Low	Medium	High
Yes	15	31	29
No	72	39	21

A Chi-Square test on the data from Sex Offender A produces the following result:

Chi-Square = 27.02
Significance = greater than .01 (9.21)

Section G: Discussion

1. Subjects

Obviously four subjects are too few to firmly state that certain sexual offenders as a group have some desynchrony in their pattern of sexual arousal. However, on the basis of this evidence there does seem to be some consistent difference between the two groups of offenders. It is also unclear as to whether the nature of the offending and psychological history presupposes a particular scanning or monitoring deficit which might relate causally, to the original offending behaviour. It is important to compare pedophile offenders where reinforcers seem more often sexual (orgasmic) with rapists, for whom current research suggests a multiplicity of contingencies, both sexual and non-sexual.

2. Procedure

The intermittent decision-making prompt, ie. the light signal below the screen, is both potentially distracting and certainly not continuous. Given the current emphasis on initial sexual response (Earls and Marshall 1983) it is possible to fail to prompt at the appropriate moment, because of the relatively (compared to continuous) few decision making prompts on the intermittent schedule.

3. Analysis

The operational definitions of the degree of sexual arousal are arbitrary and far too coarse for any close examination of mismatch to occur. The simple counting of data points, without taking into account the sequence of events gives no information as to, for example, whether the dysynchronous points occur consecutively or to certain potentially relevant sexual stimulation. A continuous correlation coefficient would be better able to examine this interrelationship.

4. Equipment

The mercury in loop strain gauge has been superceded, in the UK, by the Barlow gauge and therefore the physiological response cannot be assumed to be reliably measured. Any further experimental work should use the more easily calibrated equipment.

CHAPTER 4

EXPERIMENT 1.

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Rationale for Subsequent Experiments

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Introduction

Following from the Pilot Study results as presented in Chapter 3, it was decided to investigate the generality of the finding, within the the known sex offender population. The sample sizes are therefore much increased and the monitoring procedure is continuous rather than on a VI schedule. Chapter 4, therefore, represents the main test for the desynchrony concept and compares sex offenders with non-sex offenders on a sexual arousal and self monitoring task.

SECTION A. EXPERIMENTAL HYPOTHESES

1. That sexual offenders would exhibit more impulsive patterns of sexual responding than non-sexual offenders.
2. That the sexual offenders will be a more homogenous group than the non-sexual offenders.
3. That the pedophiles, as a group, will be distinctive from the rapists.
4. That there will be no discrimination above chance level between the two pedophile groups.
5. That deviant material will provide greater discrimination than non-deviant material when differentiating sexual offenders from non-sexual offenders.

SECTION B. SUBJECT SELECTION

i) Sexual Offenders

a) Legal Status

The 25 male sexual offenders were all detained patients, resident in either Moss Side Hospital (85%) or Rampton Hospital (15%). They were detained under the Mental Health Act (1959) and subsequently the Mental Health Act (1983). Most of them (95%) were subject to a Restriction Order, ie. they could only be released with the permission of the Home Office and were subject to compulsory supervision on release. The high proportion of restriction orders (Section 65 and 41 in the two Mental Health Acts) reflects both the seriousness with which the legal system views the offences and also the relatively long term view which is taken in the area of sexual crime.

b) Definition of Sexual Offence (See Appendix 1 for details)

All the sexual offenders had been convicted of at least one offence in their category. The pedophile offenders had all been convicted of assaulting at least one boy or girl under the age of 16 and the rapists had been convicted of at least one offence of rape or attempted rape.

The sexual offenders were selected from the whole sexual offender population in the two hospitals on the basis of offending solely against one particular victim group. This proved more difficult for the pedophile subjects since some of them had offended, perhaps only once or twice, against the alternative gender group, during a consistent offence history of offending against one particular gender class.

Many of the sexual offenders had other types of offence recorded against them and this varied from property acquisitive offences, often in adolescence, to TDA, absconding, assaulting staff\teachers etc.

c) Age (See Appendix 1 for details)

The age range was 22 - 46 with a mean of 27.56 and S.D. 4.68. This reflects the current Special Hospital male offender population where the 20 -30 age range is the modal group.

d) Level of Intelligence (See Appendix 1 for details)

Because of the requirements of the experimental task itself, namely the concurrent monitoring aspect, and also because a clear level of comprehension was required, it was decided to limit the lower level of full scale intelligence to 70. This excluded approximately 30% of the sex offender population from consideration but many of these had offended against more than one victim group and would therefore have been excluded under the definition category (b).

e) Length of Stay

Because subjects were guaranteed that the research data would not be entered on their file, it was decided that it would be more difficult to withhold sexual arousal information from, for example, Mental Health Review Tribunals, if the procedure was completed soon after admission. In addition, there is increasing pressure to conduct a full psychological assessment at this stage and the research procedure needed to be "clear" of other, clinical activity. Only patients who had been in hospital for more than 2 years were consequently tested.

ii) Non-Sexual Offenders

a) Legal Status

The non-sexual offenders were also all detained patients. Although the majority were again resident in Moss Side Hospital (80%) and the minority in Rampton Hospital (20%), fewer of them (75%) were subject to a restriction order under either the 1959 or 1983 Mental Health Acts.

b) Definition of Non-Sexual Offence (See Appendix 2 for details)

These were selected from a population which consisted of about 150 people. It was actually more difficult to define a non sex offender since, although they may have been convicted of an apparently non sexual offence, eg. assault, theft, arson and manslaughter, their subsequent account of the offence and their interactions may well indicate that a sexual outcome was at least considered during or prior to the event. Since only 25 subjects were required, it was possible to examine the case records carefully, to exclude participants where there was a hint or suggestion of some sexual intent. This meant that most of the subjects had been convicted for property offences, assault on non-sexual victims, eg. family members, policemen, or retaliatory-type arson.

c) Age (See Appendix 2 for details)

The age range was 23 - 44 with a mean of 32.4 and a S.D. of 6.51. This is a slightly older group than the sexual offenders (mean of 27.56, S.D. 4.68) but is not considered important in the context of this experiment.

d) Level of Intelligence (See Appendix 2 for details)

The same lower limit of full scale level of intelligence was adopted as for the sexual offenders, namely a full scale I.Q. of 75. There was very little difference between the means of the two groups, although the non-sexual offender group had a greater range of scores.

e) Length of Stay

As with the sexual offenders, the same guarantees were offered to the non-sexual offender group. Understandably, this group were generally much less "suspicious" of the procedure. The subjects had all been originally assessed on admission, although assessment of their sexual response patterns was not considered as part of the baseline procedure. In practice, this meant that all the non-sexual offenders had been detained for at least two years prior to being asked to participate in this experiment.

iii) Summary of Sub-Groups in Experiment 1

a) Summary Table 4(i)

Experiment I, Subject x Offence (See Appendix I for details)

Group 1 N=7 Rapists

Group 2 N=10 Heterosexual Pedophiles

Group 3 N=8 Homosexual Pedophiles

Group 4 N=25 Non-Sexual Offenders

Total Sexual Offenders = 25

Total Non-Sexual Offenders = 25

b) Summary Table 4(ii)

Experiment I, Subjects x Age (See Appendices 1 & 2 for details)

	Mean	Standard Deviation
SO	27.56	4.68
NSO	32.36	6.51

c) Summary Table 4(iii)

Experiment 1, Subjects x Intelligence (See Appendices 1 & 2 for details)

	Mean	Standard Deviation
SO	84.9	8.5
NSO	84.3	9.5

iv) Information Package/Consent Form

Each subject was then given the following Information Package and Consent Form for them to sign, if they were willing to take part in the experiment.

a) Information Package

This project is part of a series of experiments which, hopefully, will help us understand why some people commit a sexual offence. An experiment might be thought of as a task which has not been carried out before, in such a precise way that we can measure very easily the results which we get.

You will see a series of five films which will include a film of a pretend-rape, a homosexual film and a film including some young boys. There will also be two films of adult women. Each of the films will last for about five minutes and there will be a gap between each film. The gaps between the films might be either long or short.

You will see the films, on your own, in one of the small rooms in the Psychology Department. Nobody else, other than myself will be present. I will sit in the room next to the testing room. The testing session will probably be during the afternoon, and you will come down to the department as if you were attending for a regular appointment.

Whilst you are watching the films, I will measure your sexual excitement by means of a small gauge which you will place on your penis. The gauge is entirely safe and is also made sterile before you use it. You will also have another gauge which you will be able to use to tell me how sexually excited you actually feel. I will show you how to use this when you come to the department.

At the end of the session, I will ask you how you feel and will answer any further questions. The results will be stored in the computer and no entry about the results will be made on your file. Of course, the ward notes will show that you attended the Psychology Department on that particular day. The results will only be used by me for my research purposes and will eventually be written up for my degree.

Please ask me for any further information which will help you make up your mind. If you refuse no record will be made of your refusal. Also, if you accept, you will not gain any advantages within the hospital.

b) Consent

Consent to Take Part

If you decide to help, sign this form and give it back to me.

If you do decide to help and later change your mind this will not be held against you. No record of your change of mind will be made.

I agree to take part in this project. I have read and understood the information package (or had it read to me), and understand the nature of the project.

I understand that

- a) Taking part will not affect my position in Rampton/Moss Side, for better or worse.
- b) I can withdraw co-operation at any time.
- c) No information from this project will be entered on my file.

Signature:

Date:

Received by: Peter S Pratt, Principal Clinical Psychologist

Date:

SECTION C. STIMULUS MATERIALS

Originally in the area of sexual physiological assessment, Freund (1965, 1970, 1974) used slides to assess the preference for gender and age. Laws and Rubin (1969) and Henson and Rubin (1971) began their assessment procedures by using 10 minute film and have further researched the use of both film and slides.

Barbaree (1979) and Abel & Barlow (1970) pioneered the use of audiotape, since this method allowed specific sexual uses in individual offenders to be narrowly isolated and in particular, where offenders were not able to pinpoint verbally the most potent features of their arousal to offence-related material. However, Bancroft (1971) and others have suggested that audiotape may not be particularly useful where offenders are low-imagers and also where the demand characteristics of the testing environment on the individual subject are not known.

Previous clinical experience of this patient population showed that they frequently did not respond to audiotape description of a typical offence, and in many cases not even an individualised account of their own offence. Therefore, since it was technologically difficult to adequately synchronise visual and auditory material and because Abel (1976) found that films were the most powerful single stimulus type, it was decided to use 5 minute pieces of film. These segments were related to represent a continuous theme, whilst depicting a variety of different activities within the theme. Unfortunately, no film was available of young girls. This category was therefore the only one, given the sexual offenders criminal behavioural history, which was unrepresented.

The five films which were used were as follows:-

1) Heterosexual

Single male and single female petting, hand-genital manipulation, followed by close-up of sexual intercourse.

2) Female Masturbation

Single female lying on bed, close-up of vaginal area, masturbating.

3) Male Homosexuality

Two adult males, close-up of hand-genital manipulation, oral and anal intercourse.

4) Rape

Two adult males seize a young female, close-up of forced intercourse of one of the males, whilst other holds her arms.

5) Male Pedophilia

One teenage boy fondling two younger boys, aged about 7 and 10. Close-up of genital areas. No intercourse.

SECTION D. DEFINITION OF RESPONSE

i) PPG

It is a long standing and widely accepted convention that circumferential measures falling below 10% of maximal tumescence are due to random fluctuations (Abel et al 1975, Abel & Blanchard (1976)). Laws (1981) disregards changes below 20% of full erection. This convention appears to have arisen through popular use, in earlier experiments, of mercury-in-rubber strain gauges. These experiments often used gauges manufactured by Parks Electronics Limited. The operating instructions for these carried the warning that the gauge must be stretched 10 to 15% of its resting diameter while in use. Why, however, this should invalidate early changes in penile diameter is unclear. Mercury-in-rubber gauges are commonly used in both animal and human surgery to measure extremely small physiological changes, for example, detecting pulse. In any case, caliper gauges do not suffer from this limitation. There is, however, some evidence (Earls & Marshall 1983) that important information can be gained by examining the arousal responses below the 10% level.

As far as this experiment is concerned, a response level of at least 20% full erection in Channel 1 (PPG channel) was necessary for a response to be classified as positive.

ii) Self Estimates

The self-estimate channel (Channel 2) was subject to the same 20% criteria for a positive response to be identified.

SECTION E. OPERATIONAL PROCEDURE

i) Equipment

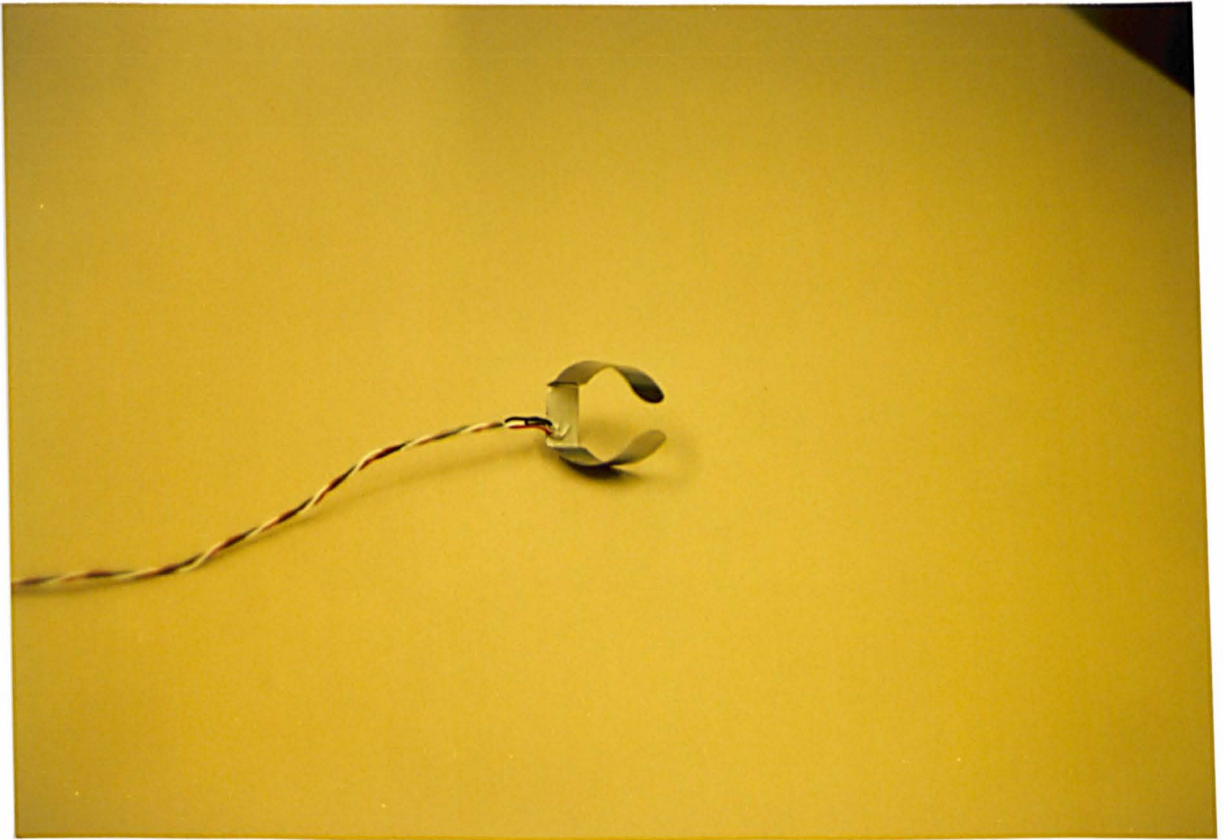
Penile tumescence was measured using a thin Barlow metal strain gauge (See Photograph A), (Model SBG-10, supplier's name and address in Appendix 3). The strain (resistance) measuring element was connected by wires to a balance box (Electronet 2583 - coupling unit) to balance the transducer (Barlow strain gauge) output, to the amplifier. The balance box was connected to a polygraph amplifier and recorder (Devices M19/3559) transducer function unit.

Recordings of conductance changes in the strain gauge resulting from changes in penile circumference were monitored continuously. In addition, an on-line computer, North Star Horizon, was coupled to the polygraph. Sampling rate of the channels was at the rate of x 2/second.

The video tapes were on 3/4" Sony U-matic Video cassette system No.VO2631 and a Sony Triniton Monitor No. KV2040UB. (See Photograph B)

The self assessment channel used a purpose built manipulandum (see photograph C) and resistance was measured via a Devices pre-amplifier (PGR 4130). The output from this channel was also recorded, on-line, by the computer at the same rate of x 2/second.

Photograph A.



Photograph B.



Photograph C.



Photograph D.



ii) Experimental Setting

a) Testing Room

The subjects sat in a reclining and comfortable armchair in a private room adjoining the equipment room. This private room was approximately 1.5 m x 2.5 m and was designed to offer minimal distraction for patient consumers. The monitor was placed at eye level, 1 m off the ground and 2 m away from the patient. Communication between experimenter and subject was via a 2-station intercom. (See Photograph C)

b) Operator Room

The operator's room was the same size as the subject's room, but contained all the equipment. The operator was able to operate the video recorder and computer interface simultaneously and thus ensure synchrony of stimulus onset and stimulus offset. (See Photograph D)

See photographs B and C for visual description of these two rooms.

c) Psychology Department

Both the rooms were housed within the Psychology Departments at Moss Side and Rampton Hospital. Rampton Hospital has a purpose built department and Moss Side adapted, situated on its own within the secure perimeter of the hospital. Most, but not all, of the patients had attended the department for some other reason during their stay in the hospital and were therefore familiar with general layout.

iii) Introduction of Subject

The subject was again shown the suite of rooms. He had in fact seen the room before, since a visit to the department was a part of the original request to be a research subject. He was reminded that he had signed a consent form and was again asked if he wanted to know any more about the experiment.

Then, specifically, he was asked the following questions (not necessarily in the same order for every subject):-

- 1) Was he still willing to take part in the project?
- 2) Did he feel well, and able to cooperate?
- 3) Did he want to go to the toilet?
- 4) Did he remember the general aims of the research?
- 5) Did he remember the instructions as to how to fit the strain gauge?

If he answered appropriately, then he was allowed about five minutes to acclimatise to the testing room and then instructed to fit the transducer.

No subject refused to complete or initiate the task at this stage. However, two subjects had to have their session postponed because of minor infections and on a small number of occasions subjects were reminded that no information would be entered on their hospital file regarding the nature of their sexual response.

iv) Calibration

Prior to the patient arriving in the Psychology Department and before each individual session, both the two response channels were independently calibrated.

The PPG channel was calibrated using the Barlow strain gauge calibration instrument. This is a metal stepped pyramid of 3 fixed circumferences, with radii increasing by increments of .5 mm. By selecting a sensitivity range and adjusting the "window" of the coupling unit (together with the "back-off" unit), it is possible to ensure linear increases of .5 mm at this level are reflected by an on-line, analog-to-digital converted increment of 9 points, ie.

Table 4(a)

North Star Output	
4.5 mm	18
5.0 mm	27
5.5 mm	36

This calibration routine was standardised for all the individual sessions.

The self-assessment channel was calibrated only by ensuring that one complete turn represented full use of the available scale, namely 0 to 127.

At the end of the session, both channels were checked to ensure that the same outputs were being obtained.

v) Presentation of Materials

a) Pre-Stimulus

After the period of acclimatisation, the subject was instructed to masturbate to full erection and then to fit the sterilised gauge. At this point data begins to be collected.

A further baseline period of approximately 5 minutes follows. During this period a numerical baseline for each subject is established to which he must return after each film presentation.

b) Stimulus Sequence

The five films as described in Section C are then shown to the subject, in the order in which they are described. Inter-stimulus baseline must reach the individual's established baseline, before the next film is shown.

At the end of the session the subject was asked to remove the gauge and leave the room. He was also asked if he wished to ask any further questions and thanked for his co-operation.

SECTION F. Results

i) General Description

The results of both channels were stored in two separate ways:-

a) Paper Trace

This is the well known and still most common way of storing PPG data. Although the rate of paper can be easily altered, there is usually little alternative to "counting squares" in order to estimate, for example, the maximum response for each film or slide.

Similarly, the self-assessment results could also be simultaneously recorded on the same recording paper as the PPG results. Indeed, this was how the original pilot study was carried out (See Chapter 3).

b) On Line/Disk Storage

Because both channels were continuously sampled, it was possible to store all the data on 5 1/4" floppy disks. For a session of one and a half hours, allowing for a minimum of 5 minutes between each film, 10,000 data points are collected and stored for each subject, for each of the two response channels.

ii) Initial Correlational Analysis

a) Rationale

A correlational analysis was carried out on the first 20 subjects who were assessed, ie. 13 sex offenders and 7 non-sex offenders. This was designed to assess the degree of correspondence between the two channels.

Therefore, Pearson's Product Moment correlational statistic was used to assess this correspondence over the five film presentations for this sub-group of the total tested groups.

b) Results

The correlational analysis originally involved computing a correlation coefficient for every consecutive second of stimulus onset for each of the five films for all subjects. Since there was quite clearly a "lag" between the two channels, it was possible to select data points at increasing intervals between the two variables. In practice 70 correlations coefficients were computed for each of the first 20 (out of the eventual 50) subjects who were assessed. This series of 70 resulted from time intervals of -10 to +60 seconds: this can be described as taking a data point on Variable 1 (PPG channel) and pairing it with the point 10 seconds earlier on Variable 2 and working progressively through contemporaneousness to a data point 60 seconds in advance.

The following table shows the mean of the highest correlation coefficient for each of these 20 subjects, across the 5 films:-

Table 4b

Mean Correlation Coefficient x All Films x Groups

r =		r =	
SO 1	.72	NSO 1	.34
SO 2	.49	NSO 2	.09
SO 3	.33	NSO 3	.22
SO 4	.53	NSO 4	.17
SO 5	.05	NSO 5	.19
SO 6	.35	NSO 6	.33
SO 7	.76	NSO 7	.35
SO 8	.42		
SO 9	.58		
SO 10	.20		
SO 11	.63		
SO 12	.48		
SO 13	<u>.58</u>		—
Means	.46 (S.D.= .19)		.24 (S.D.=.10)

Conclusions from Table 4(b)

- 1) Although the sex offenders mean correlation coefficient as a group (.46) is higher than that for the non sexual offenders (.24), this does not give an indication of the pattern of the two response channels.
- 2) Taking a mean across all films serves to obscure the wide variation between individuals and films, and also within individuals.

Table 4b(i) gives the individual-by-film data which was averaged to produce Table 4b.

Table 4b(i)

Correlation Coefficient x Films x Groups

	Films 1	2	3	4	5
SO 1	.96	.97	.76	.91	.01
SO 2	.44	.94	.13	.92	.06
SO 3	.28	.25	.29	.92	-.07
SO 4	.39	-.63	.54	.94	.13
SO 5	.06	.00	.14	.01	.02
SO 6	.02	.21	.54	.94	.02
SO 7	.82	.97	.61	.87	.08
SO 8	.09	.87	.76	.29	.09
SO 9	.81	.76	.32	.01	.62
SO 10	.15	.02	.22	.93	.09
SO 11	.93	.81	.51	.80	.10
SO 12	.82	.87	.10	.54	.08
SO 13	.69	.91	.45	.82	.05
NSO 1	.23	.51	-.00	.95	.03
NSO 2	-.03	-.15	.13	-.11	-.04
NSO 3	.38	.37	.15	.21	.01
NSO 4	.10	.65	.14	-.01	.03
NSO 5	.02	.15	.40	.22	.15
NSO 6	.68	.36	.37	.17	.07
NSO 7	.65	.52	-.05	-.11	.44
Means (over 20)	.42	.55	.33	.53	.11
Mean (SO)	.49	.63	.41	.68	.11
Mean (NSO)	.30	.38	.17	.25	.11

Conclusions from Table 4b(i)

1. Clearly there are wide variations not only between the groups as a whole, with the sexual offenders having generally higher correlation coefficients than non-sexual offenders, but also between films. Film 5 (pedophile film) produces markedly different results from any of the other four, and might on the initial perusal, from the view point of discrimination, be discarded.
2. More important is the variation within individuals. Many of the sexual offenders have a range of correlation coefficients even for films 1 - 4 of .1 to .9, namely SO's 6,8,9,10,12,13,
3. However, the pattern of responding can seriously undermine the use of the statistic in determining the acceptance\rejection of Experimental Hypotheses 2,3 or 4. If we examine the pattern closely, we realise that no responding (both channels at or about baseline) and maximal responding (both channels at plateau) both serve to deflate\inflate the coefficient, respectively. The "lag" which produces the highest coefficient gives some indication of this effect.

Table 4b(ii) shows the individual-by-film data for the delay interval (lag) producing the highest correlation coefficient for each subject.

Table 4b(ii)

Lag (in seconds) x Films x Groups

	Films	1	2	3	4	5
SO 1		41	41	51	51	0
SO 2		28	21	56	26	46
SO 3		39	40	45	45	7
SO 4		8	-9	29	44	15
SO 5		10	11	0	10	11
SO 6		10	11	9	0	12
SO 7		31	42	28	23	10
SO 8		32	35	30	36	31
SO 9		15	25	37	41	12
SO 10		13	35	3	12	42
SO 11		37	25	10	33	22
SO 12		51	54	15	21	12
SO 13		23	35	27	39	12
NSO 1		-1	29	39	20	29
NSO 2		26	21	15	11	17
NSO 3		-2	19	8	12	16
NSO 4		5	0	40	31	24
NSO 5		2	34	37	22	35
NSO 6		2	15	12	31	21
NSO 7		-10	-10	37	37	-9
<u>Mean Lag (secs)</u>						
SO's		26	28	26	29	18
NSO's		3	15	27	23	19

Conclusions from Table 4b(ii)

1. With one exception (F3) the mean "lag" was higher for the sexual offenders than for the non-sexual offenders. As a measure of desynchrony, the results would suggest that the higher correlation coefficient is obtained for this group of 13 sexual offenders at the cost of allowing a lag range of 66 seconds.
2. It is difficult to combine the lag information with the information arising from the proportion of the variance accounted for by the coefficient. It seems that high correlations and high lag values are themselves related, since, as a group, the sexual offenders achieved a much higher score on each of these two variables.

c. General Summary of Correlational Analysis

1. The correlational analysis is based only on the first 20 subjects. This represents 40% of the total sample. There is no reason to assume that this sub-sample is in anyway idiosyncratic in terms of its response pattern.
2. The analysis as presented does not allow us to examine the overall group of 50 subjects as 50 unique individuals. What is needed, to accept or reject Experimental Hypothesis 2,3,4 is a procedure which utilises each individual's response to each of the five films.

3. It should also be noted that an experiment which utilises the computing of a correlation coefficient on a moment-to-moment basis, is not using the statistic in an entirely appropriate way. Pearson's method requires the assumption that observations within each variable (penile-tumescence and self-report) are independent. When a subject is asked to report arousal at time N, his report is dependent on his level of tumescence at time N=1. The effect of this particular dependence is to spuriously inflate the value of r. Therefore, the r statistic is appropriate in terms of a "descriptor" of a particular relationship but cannot be interpreted as an exact numerical representation of co-variance and, more importantly, cannot be justifiably used within an inferential statistical model.

The correlation coefficient will not however offer any discrimination between the groups and will therefore not allow the acceptance or rejection of Experimental Hypotheses 2, 3 or 4.

4. The plateau\baseline problem also seems to inflate the coefficient beyond its valid time score. No correlation can take into account the precise interaction between the two variables and hence potentially important distinctions, eg. IMI+ v NIM2 v NoP (see pages ¹³⁹⁻¹⁴⁶ for description of terms) are lost.

On the basis of the above initial analysis using correlational procedures and the criticisms arising from this approach, the decision was made to look for a simpler and more relevant method of analysis.

ANOVA Table 4b(ii)

	SOS	DF	MS	F
Row variable	1427.3	1	1427.3	6.44 (p = .05)
Column Variable	1934.8	4	483.7	2.2
Interaction	1852.2	4	463	2.1
Error	19946.9	90	221.63	

Cell means

Row 1	Column 1	26.0
1	2	28.2
1	3	26.2
1	4	29.3
1	5	17.9
2	1	3.1
2	2	15.4
2	3	26.9
2	4	23.4
2	5	19.0

Mean Row 1	25.5
2	17.6
Mean Column 1	14.6
2	21.8
3	26.5
4	26.4
5	18.4

- a. The mean lag (row variable) shows a significant difference between the groups, with the sexual offenders having longer "lags" than the non-sexual offender group.
- b. This difference between the groups is independent of the stimulus film.
- c. Pattern data, as described on pages 139 onwards, show that IMI+ require a distinct lag to be so identified and the longer lag in Table 4b(ii) is consistent with this pattern.
- d. The fact that there seems to be an increasing lag for both groups as the films are presented, at least from film 1 to film 4, suggests some habituation to the attention demands of the task. Film 5 produced a reversal of this pattern and suggests that a more random type of response was made, also supported by the later pattern data.

From further consideration of the nature of the data and the original theoretical analysis of the clinical problem, it was felt that a number of "physiological" and "self-report" changes could be identified. Attention was therefore paid to defining specific "response patterns".

iii) Description of Response Patterns

There were eight, mutually exclusive, response patterns for tumescence/film presentation.

For all patterns the points were labelled as follows:-

Point A Where PPG channel exceeds 20% criterion

Point B Maximum point (obtained for at least 3 consecutive data points, ie. 1.5 seconds) of PPG channel

Point C Where self-estimate channel exceeds 20% criterion

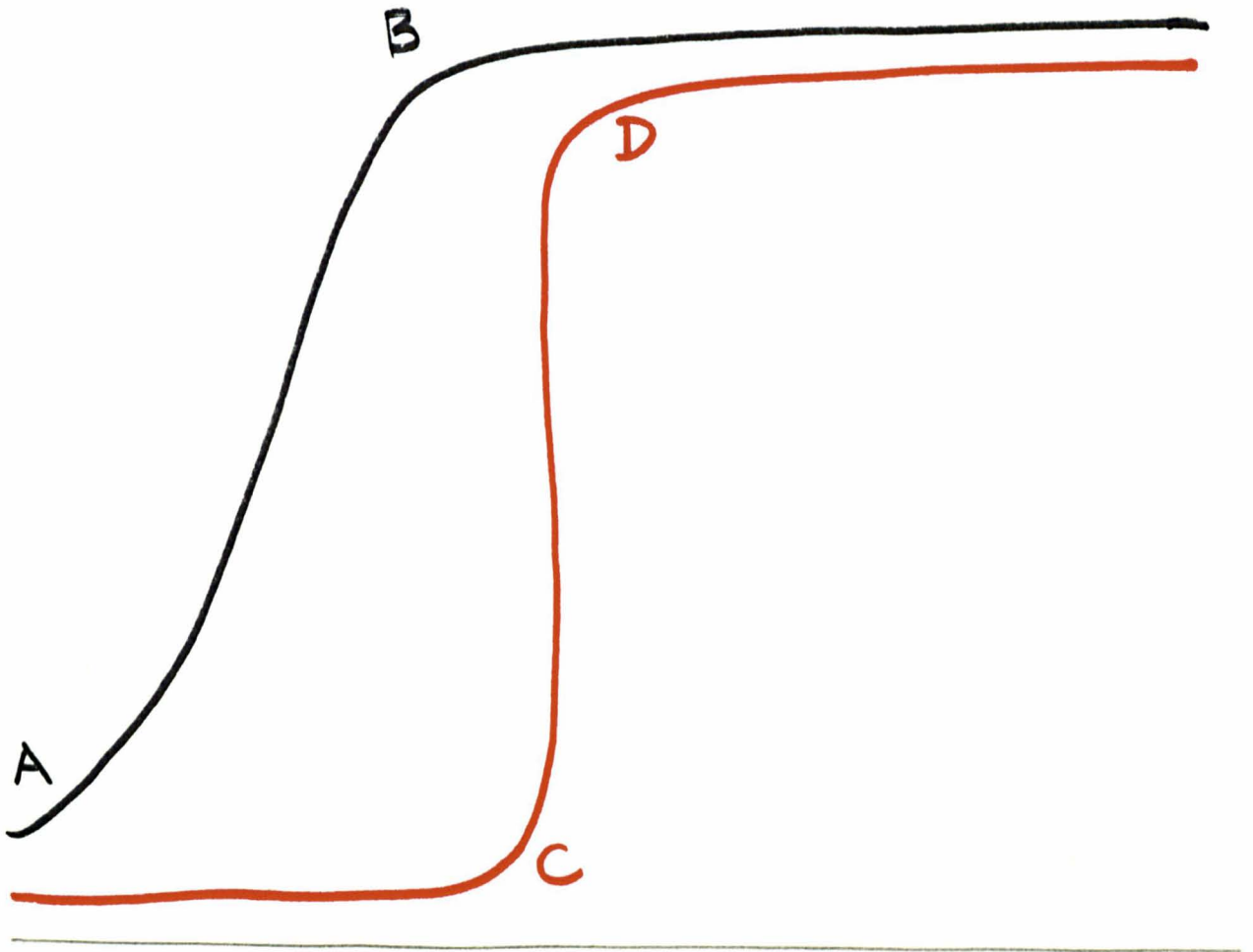
Point D Maximum point of self-estimate channel

The eight response patterns identified were as follows:

Pattern 1 (IMI+)

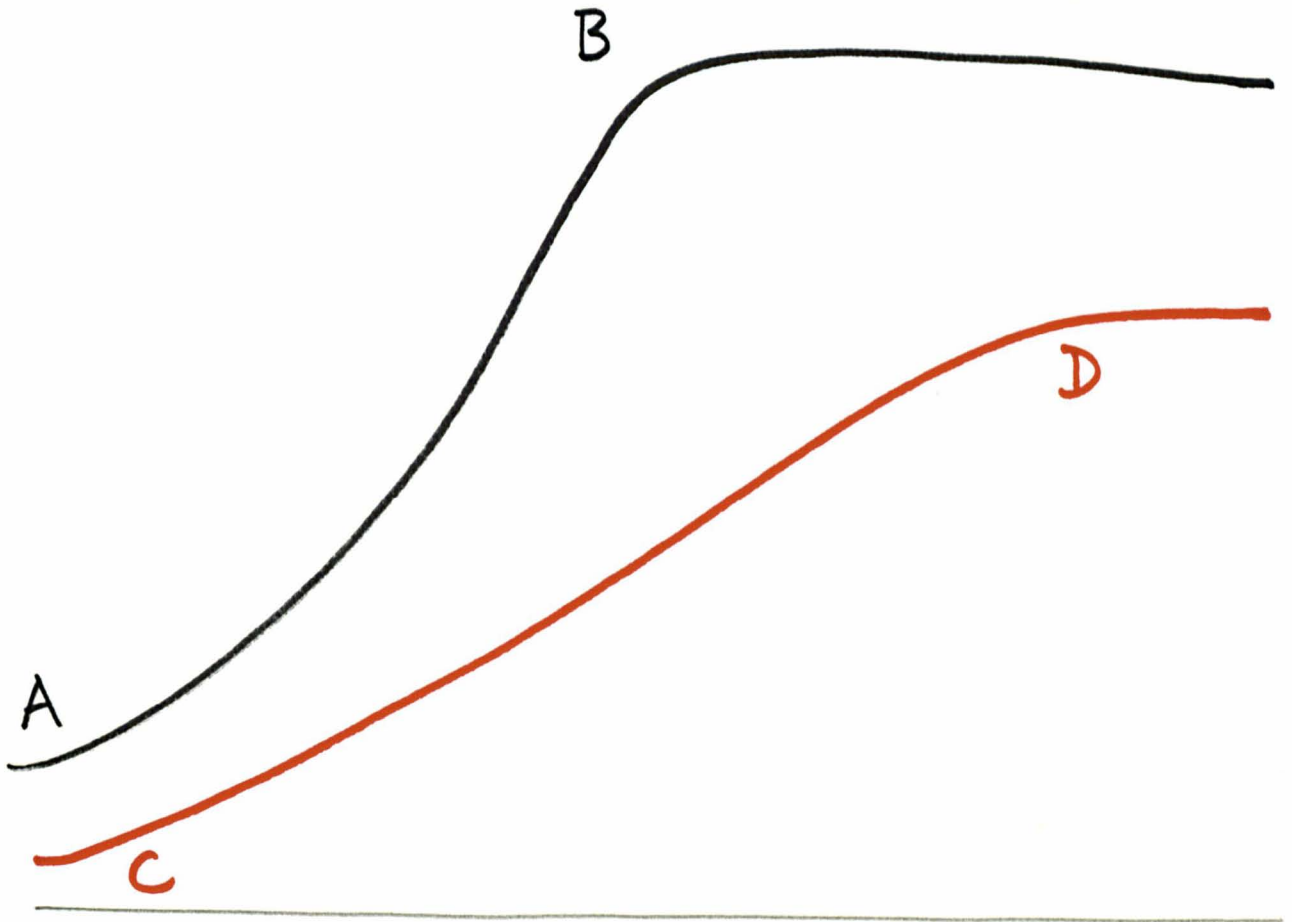
This was the pattern that was first identified in the original pilot study. For this pattern to be identified, Point C must occur after Point A and also after the point of maximum penile inflation (Point B) has also been reached.

Secondly, the rate of increase of the self-assessment channel must be greater (sharper) than the increase for the penile channel.



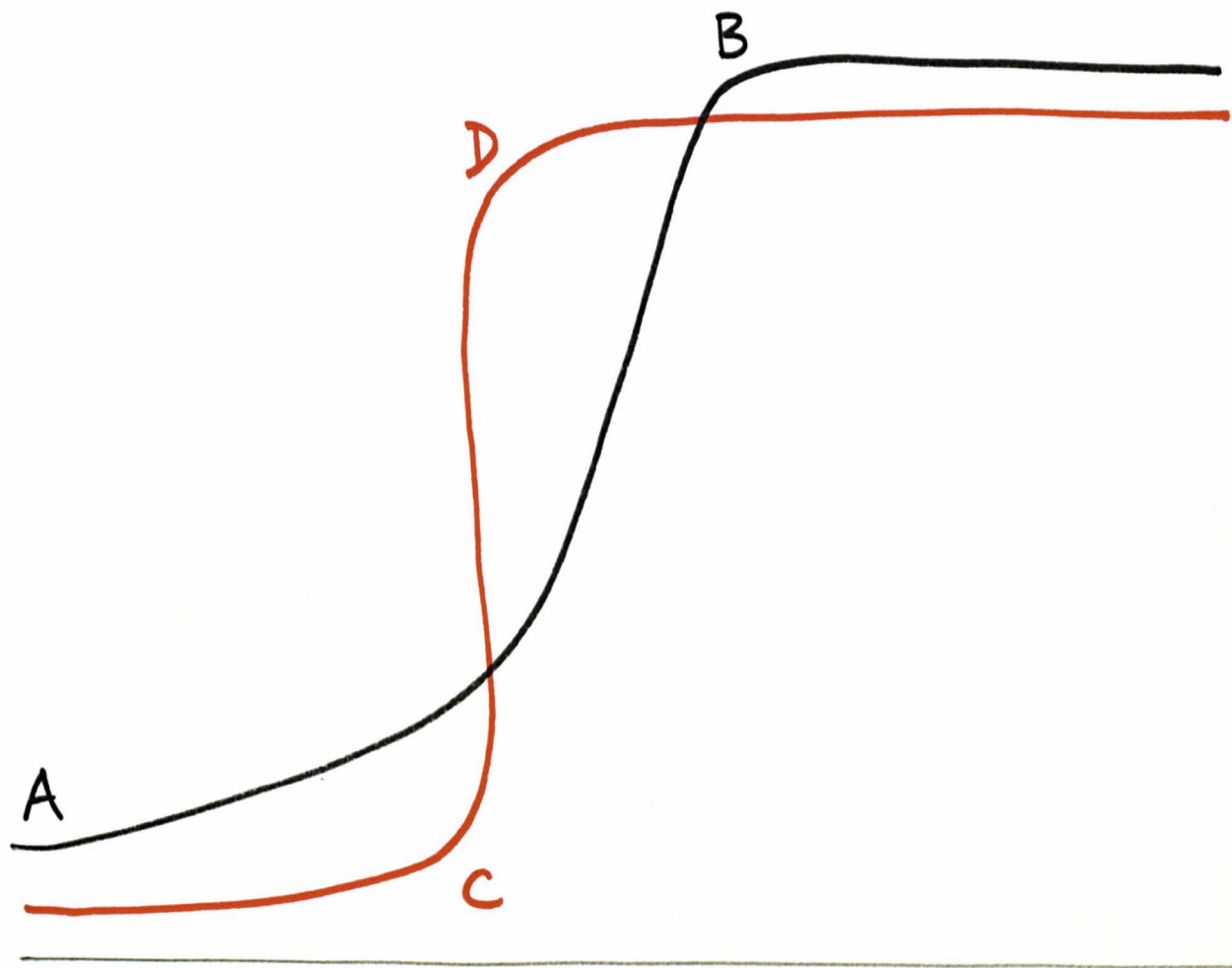
Pattern 2 (IMI-)

This pattern is different from Pattern 1. The self awareness channel does indeed move later than the physiological change but with a much slower acceleration.



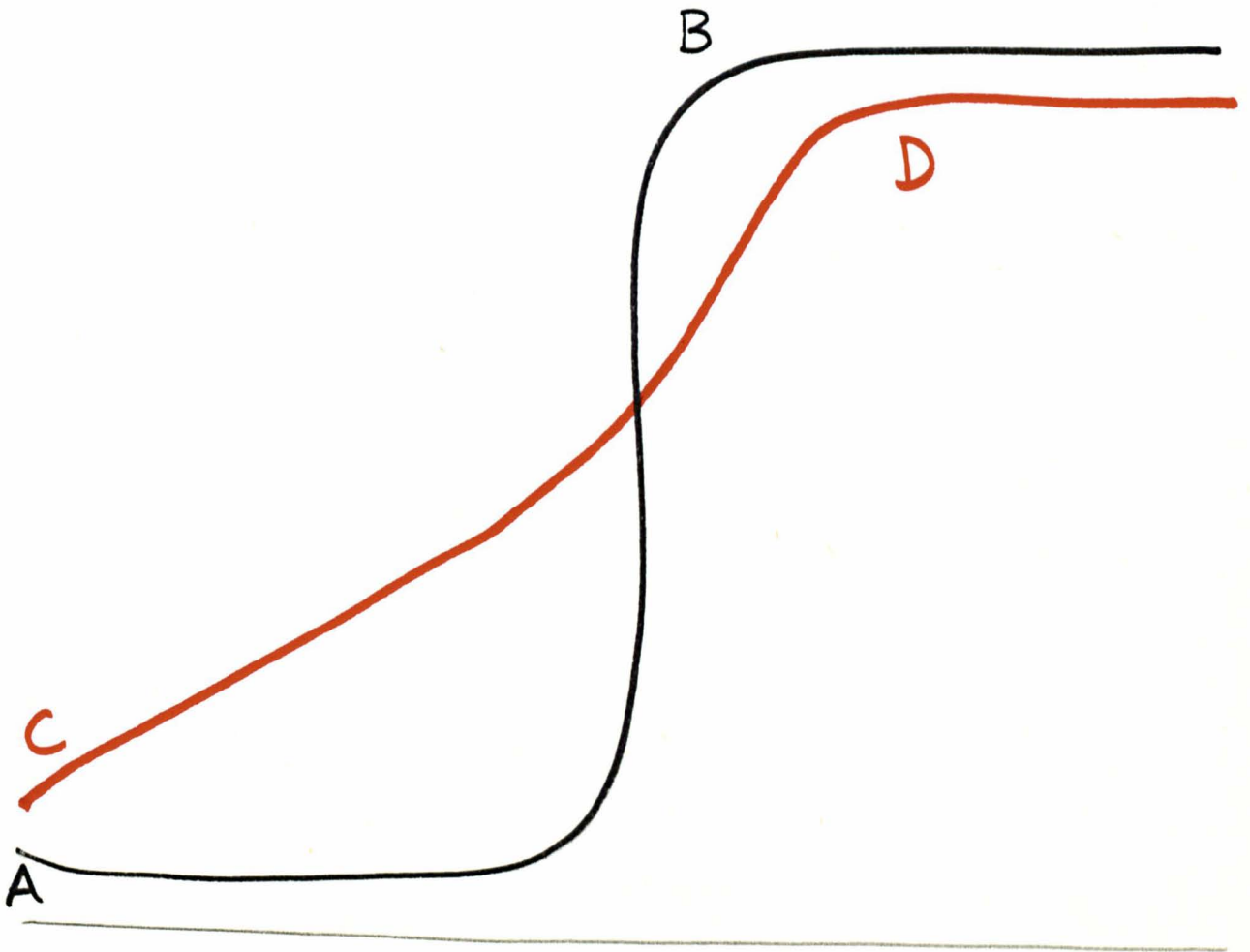
Pattern 3 (IM2)

This is another variation on Pattern 1, when C-D accelerates faster than A-B, and also where Point C occurs after Point A. However, the physiological increase continues after Point D has been reached and reaches asymptote at a later point in time.



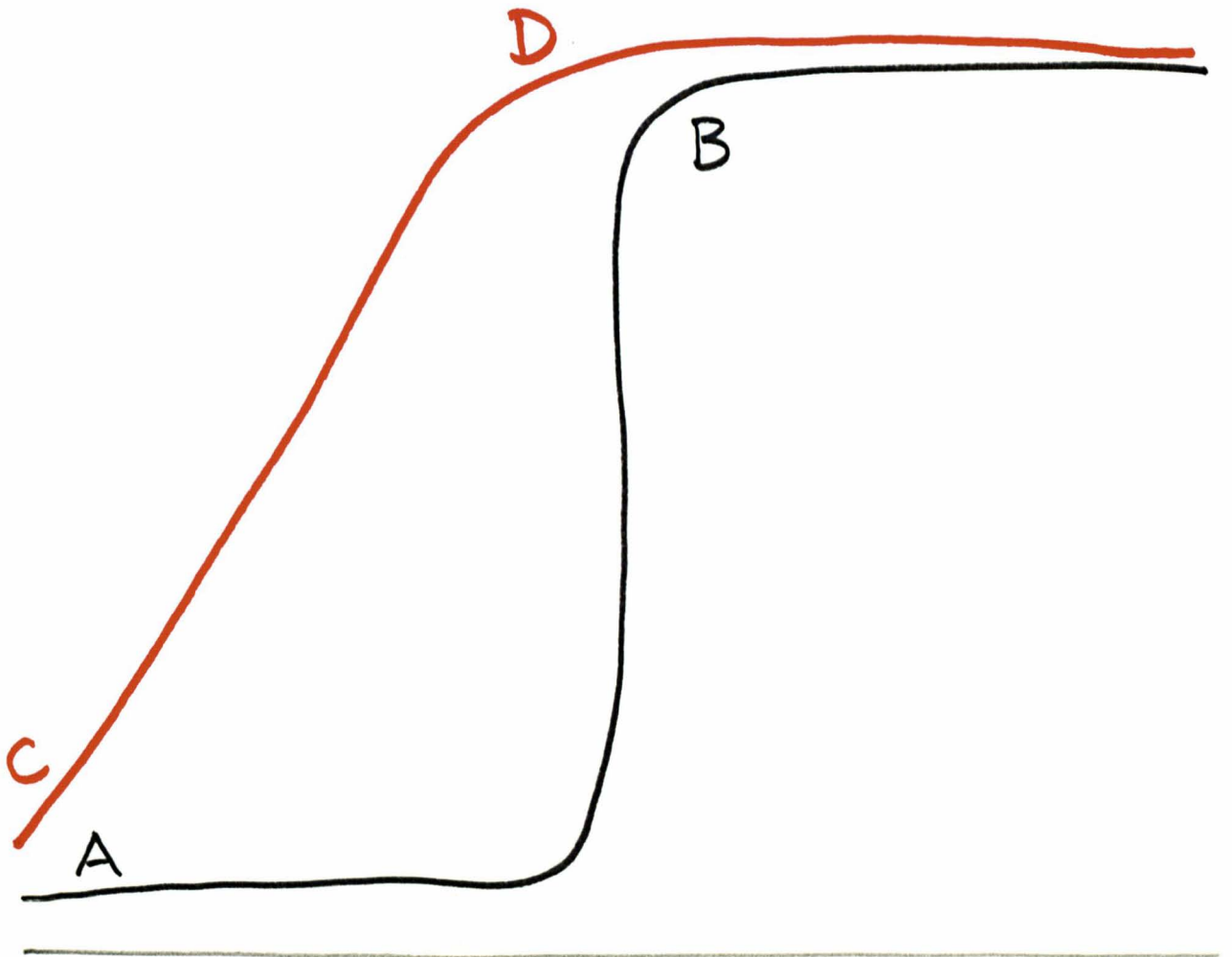
Pattern 4 (NIML)

This is different from previous patterns in that the self-awareness channel moves first (C-D) and completely crosses over the more rapidly increasing physiological channel.



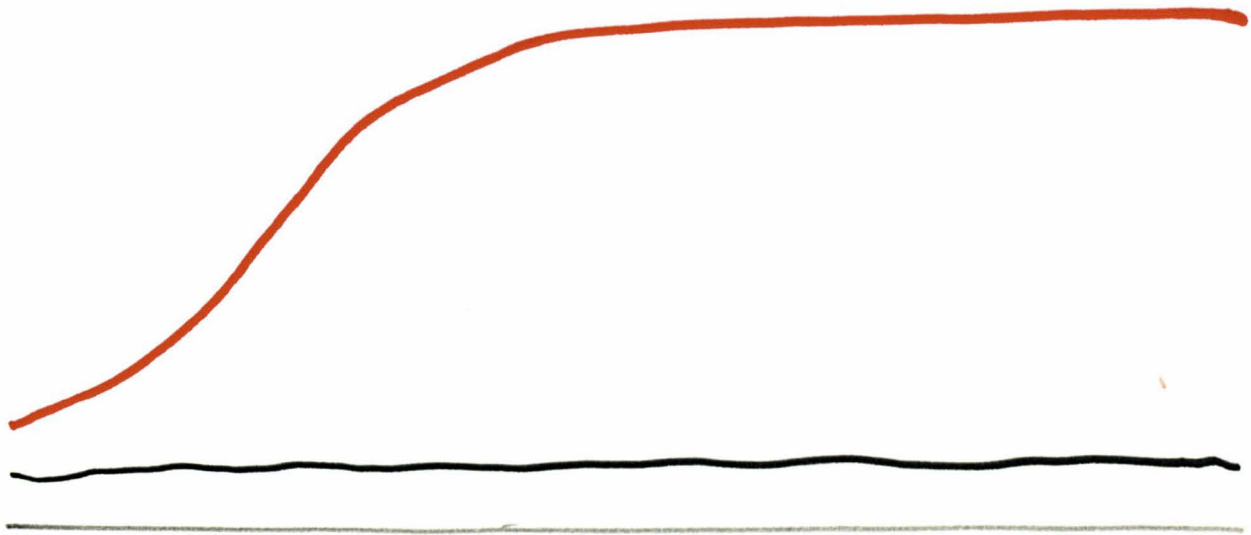
Pattern 5 (NIM2)

This is the inverse of pattern 2, in that C-D moves first and may even reach asymptote before there has been any change in the physiological channel A-B.



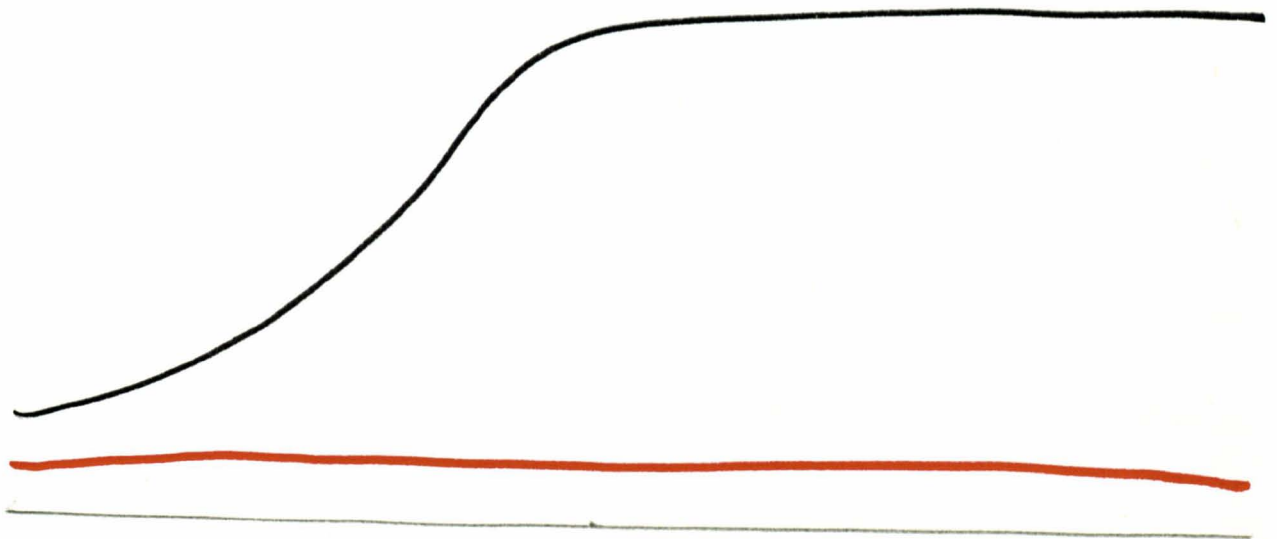
Pattern 6 (No P)

This pattern is different from the first five in that only one channel showed any evidence of change. "No P" means that there were no physiological changes above the 20% criterion level during or after the presentation of any of the five film stimuli. However, there was a criterion change on the rating (self-assessment) channel.



Pattern 7 (No R)

This is also not a pattern in the same style as the first five patterns. This is because there was no use of the self-assessment channel (the Rating channel) and hence the only observed changes were in the physiological channel.



Pattern 8 (No P/No R)

This was when there was no change in either of the two channels throughout the session.



iv) Frequency of Pattern

Each subject's response pattern for each film was classified according to one of the above eight response patterns. The frequency of these eight response patterns for the non-sex offender and sex offender groups is shown in Table 4c and 4c(i).

Table 4c

(See Appendices 4a and 4b for raw data)

Total Frequency of Pattern (1 - 8) by Groups

	NSO	(%)	SO	(%)
Pattern 1 (IMI+)	0	(0)	33	(26)
Pattern 2 (IMI-)	6	(5)	15	(12)
Pattern 3 (IM2)	10	(8)	1	(1)
Pattern 4 (NIM1)	3	(2)	1	(1)
Pattern 5 (NIM2)	13	(10)	12	(10)
Pattern 6 (No P)	10	(8)	17	(14)
Pattern 7 (No R)	31	(25)	29	(23)
Pattern 8 (No P,R)	52	(42)	17	(14)
Total	125		125	

Where SO = Sexual Offender (N=25)

NSO = Non Sexual Offender (N=25)

125 = 5 films x 25 subjects

Table 4c(i)

Frequency of Pattern x Groups x Films

	Film									
	1		2		3		4		5	
	NSO	SO	NSO	SO	NSO	SO	NSO	SO	NSO	SO
Pattern 1	0	10	0	12	0	6	0	5	0	0
Pattern 2	1	3	4	4	1	0	0	8	0	0
Pattern 3	4	0	3	0	1	0	1	1	1	0
Pattern 4	0	0	1	0	0	0	1	1	1	0
Pattern 5	8	5	4	2	1	3	0	1	0	1
Pattern 6	2	1	3	1	2	4	3	2	0	9
Pattern 7	9	3	3	3	3	8	11	6	5	9
Pattern 8	1	3	7	3	17	4	9	1	18	6
Total	25	25	25	25	25	25	25	25	25	25

Conclusions from Table 4c and 4c(i)

- 1) Assuming that Pattern 1 from Table 4c most clearly represents the impulsivity pattern, then it can be seen that this pattern is provided exclusively by sexual offenders. No non-sexual offenders produced this pattern of response.
- 2) Table 4c also shows that an absence of response in either channel (No P,R) is probably more likely to be found in non-sexual offenders than in sexual offenders.
- 3) The figures in Table 4c cannot be set against the experimental hypotheses directly because they do not refer to people, only to patterns. It is possible, for example, that 18/25 non-sexual offenders were responsible for the 52 patterns of No P,R and similarly 6/25 sexual offenders were responsible for the 17 No P,R patterns found amongst their group. This is because each pair of columns for any one film can also be viewed as a measure of people as well as pattern. Hence 18 non-sexual offenders and 6 sexual offenders represent the minimum number of people producing the No P,R pattern of responding i.e. responses to Film 5.
- 4) Therefore, an analysis is needed which will take into account whole individuals rather than single patterns of response.

Table 4c(ii)

(See also 4d(iii) and text)

People x Pattern x Total Film

This table gives the number of people producing at least one example of each of the eight possible patterns to any of the five films.

	Sexual Offenders	% of all Sexual Offenders	Non-Sexual Offenders	% of all Non-Sexual Offenders
Pattern 1	17	(68)	0	(0)
2	12	(48)	6	(24)
3	1	(4)	7	(28)
4	2	(8)	3	(12)
5	7	(28)	10	(40)
6	9	(36)	6	(24)
7	14	(56)	15	(60)
8	9	(36)	23	(92)

The % columns give the % of the total sample (N=25) for each group.

The discriminant function analysis described on the following pages attempts to discriminate the two groups of people taking all the pattern information into account.

v) Discriminant Function Analysis

a) Rationale

In order to discriminate amongst the 50 subjects of Experiment 1, we require a rule or set of rules to classify each subject into one of a finite number of mutually exclusive classes. There are five main classification decisions which are necessary to test the Experimental Hypotheses:

Classification

A1: Sex offenders against non-sexual offenders

(Groups 1,2,3 v Group 4)

A2: Individual sex offender categories against each other

(Group 1 v Group 2 v Group 3)

A3: Individual offender categories against each

other (Group 1 v Group 2 v Group 3 v Group 4)

A4: Pedophiles against rapists (Groups 2,3 v Group 1)

A5: Male pedophiles v female pedophiles (Group 3 v Group

4)

The allocation to one of these categories can be based on a number of observations, which in this case is as follows:-

1) The pattern of response to any one film, ie.

Film 1	Heterosexual
Film 2	Single Female
Film 3	Homosexual
Film 4	Rape
Film 5	Pedophile

2) A combination of films. For the purpose of this experiment the first three films have been classified as non-deviant and the last two as deviant, ie.

Films 1,2,3

Films 4,5

The discriminant function or key takes the form of a sequence of rules for the classification of an, as yet, unclassified, data set. Each variable (here - film) can have up to 10 values which need not be ordinal. In fact they are only at nominal level.

The computer program (Sturt 1981) will search for "rules" which will reduce the misclassification error rate by a finite number. Where more than one variable is being used, two criteria for using the new rule are possible.

"Stringent" (S)

This criteria only allows for new rules to be generated when the error rate is reduced by 5. Generally this criterion is most applicable with larger samples of subjects (eg. 50) or the maximum number of variables (5).

"Relaxed" (R)

This criterion allows new rules to be generated if the error rate can be improved by 2

Obviously, the more stringent rule allows for safer generalisation to other groups and guards against the possibility of the group being idiosyncratic in its response style.

b) Results

Table 4d shows the error rate for each of the five classifications and each of the single films and the four combinations of film. It also gives the best (minimum) error rate for the five classification tasks and compares the overall error across all the tasks for each of the sources.

Table 4d

% Error Experiment 1 Classifications 1,2,3,4,5

Classification	A1	A2	A3	A4	A5	Total % Error
Film 1	22	28	32	12	28	122
Film 2	26	36	40	12	34	148
Film 3	20	40	36	28	28	152
Film 4	24	44	38	20	34	160
Film 5	22	48	38	28	34	170
123(S)	20	-	32	-	-	
123(R)	16	20	22	4	28	90
12345(S)	20	-	32	-	-	
12345(R)	16	20	22	4	28	90
N	50	25	50	25	18	
% Minimum Error	16	20	22	4	28	90

SECTION G CONCLUSIONS

1) Classification A1

Experimental hypothesis 2 stated that, as a result of this data collection, the sex offenders should be identifiable as a homogenous group. In fact, 8 errors were made (16%), on the basis of a "relaxed" rule and using a combination of the first 3 films. It is interesting to note that it is a combination of films and not one particular film which was responsible for the discriminating role.

The 16% error rate means that 8/50 people are incorrectly classified. Examination of the actual misclassifications is show below:

Table 4d(i)

Classification A1, Misclassification Pattern x Stringent Rule

		Predicted	
		SO	NSO
Actual	SO	21	4
	NSO	6	19

(Best 5 error rule, Film 3 (Homosexual Film), 80% "hit" rate, 40/50 correctly classified)

Table 4d(ii)

Classification A1, Misclassification Pattern x Relaxed Rule

		Predicted	
		SO	NSO
Actual	SO	21	4
	NSO	4	21

(Best 2 error rule, combination of films (2 and 3), 84% "hit" rate, 42/50 correctly classified).

The best rule for classification A1 was to classify on the basis of the response to Film 3, and if the pattern was 6 (no physiological response) to examine response to Film 2.

From Table 4c(i) it can be seen that no non-sexual offenders produced pattern No 1 (IMI+). This ad hoc rule could be used on its own and compared against the discriminant function rule described above.

Table 4d(iii)

Classification A1 by Pattern Rule

	Sexual Offenders (Groups 1,2,3)	Non-Sexual Offenders (Group 4)
N	25	25
Pattern 1	17	-
2	12	6
3	1	7
4	2	3
5	7	10
6	9	6
7	14	15
8	9	23

The numbers in the two columns represent the actual number of people demonstrating on at least one occasion each of the eight patterns. Using the ad hoc rule (1) which states that:

"IMI+ indicates a sexual offender and an absence of IMI+ indicates that the individual is not a sexual offender" -

we would have the following classification table.

Table 4d(iv)

Classification A1, Misclassification Pattern x Ad hoc rule (1)

		Predicted	
		SO	NSO
Actual	SO	17	8
	NSO	0	25

(84% "Hit" rate, 8 SO's would be classified as NSO, all NSO's correctly classified)

This hit rate is exactly the same as the much more complicated rule as developed by the analysis. However, if one was not compelled to make a decision on every individual, a 100% hit rate could be established by identifying the "known" sex offenders and leaving the remaining 33 people unclassified. In this case the ad hoc rule named ad hoc rule (2) would only state that:

"IMI+ indicates a sexual offender".

A refined ad hoc rule, ad hoc rule (3) would state that:

"If IMI+, classify as a Sex Offender; if absence IMI+, but presence of No P,R (Pattern 8), classify as a Non-Sexual Offender".

This rule produces the following classification table.

Table 4d(v)

Classification A1, Misclassification Pattern x Ad hoc rule (3)

		Prediction		
		SO	NSO	Total
Actual	SO	17	4	21
	NSO	-	23	23
	Total	17	27	

By this rule, a 92% "hit" rate for classification A1 is obtained (ie. 4 errors out of 45 classifications) but 12% of the sample (N=6) cannot be classified at all by the rule. The four errors cannot be further reduced by, for example, concentrating on an individual film, or combination of films.

Ad hoc rule (3) and the best discrimination function rule are together taken as a partial refutation of Experiment Hypothesis (2), in that homogeneity of the non-sex offender group is more apparent than that of the sex offender group.

Table 4d(vi)

Summary of rules, Classification A1

Misclassifications

	NSO	SO	Total	"Hit" rate (%)	% of sample classified
Best Discrimi- nant Function Rule, Stringent	6	4	10	80	100
Best Discrimi- nant Function Rule, Relaxed	4	4	8	84	100
Ad hoc rule (1)	0	8	8	84	100
Ad hoc rule (2)	0	0	0	100	34
Ad hoc rule (3)	0	4	4	92	88

Experimental Hypothesis 1 stated that sexual offenders would exhibit more "impulsive" patterns than non-sexual offenders. Defining patterns 1, 2 and 3 as impulsive, from Table 4c(ii) we can extract the following information:-

Table 4d(vii)

Classification A1, "Impulsive" Patterns (1-3) x Groups

	SO (N=25)	NSO (N=25)
Pattern 1	17	-
2	12	6
3	1	7
	—	—
Total	30	13

Chi-Square Test = 6.72 (Sig. at .01 (76.64))

The Chi-Square result shows that impulsive patterns are indeed more frequent amongst the sexual offender group and therefore Experimental Hypothesis 1 receives support.

2. Classifications A2 and A4

Classification A2, individual sex offender categories against each other and Classification A4, pedophiles against rapist will, if taken together, provide the information to test Experimental Hypothesis 3.

Classification A2 for the subject sample of 25 has a hit rate of 80%, with 20 out of 25 correctly classified. See Table 4d(viii).

Table 4d(viii)

Classification A2, Misclassification Pattern x Stringent Rule

		Predicted		
		1	2	3
Actual	1	7	-	-
	2	-	8	2
	3	1	2	5

Group 1 = Rapists

Group 2 = Heterosexual Pedophiles

Group 3 = Homosexual Pedophiles

(Best 2 error rule, 80% hit rate, by a combination of Film 1 and 3)

However, Classification 4 by taking the two sets of pedophiles as a unitary group produces fewer classification errors.

Table 4d(1x)

Classification A2, Misclassification Pattern x Relaxed Rule

		Predicted	
		1	2
Actual	1	7	-
	2	1	17

1 = Rapist

2 = Pedophile

(Best 2 error rule 96% hit rate (only 1 misclassification) by a combination of Film 1 and Film 3)

This particular discrimination task produces the most accurate discrimination of all the five classifications which were proposed.

Classification A2 has a best error which is very little above the mean of the best error rates (18%). Therefore, Experimental Hypothesis 3 is supported.

3. Classification A3

Classification A3, individual offender categories against each other, did not contain any specific data related to the Experimental Hypotheses. However, treating the four groups as equally important produces an above-average best error rate even with relaxed 2 error rule.

Table 4d(x)

Classification A3, Misclassification Pattern x Stringent Rule

		Predicted			
		1	2	3	4
Actual	1	7	-	-	-
	2	1	-	2	7
	3	2	-	4	2
	4	-	-	2	23

(Best 5 error hit rate = 68%, 34/50 correctly classified, classification by Film 1)

Table 4d(xi)

Classification A3, Misclassification Pattern x Relaxed Rule

		Predicted			
		1	2	3	4
Actual	1	7	-	-	-
	2	1	4	2	3
	3	1	1	5	1
	4	-	-	2	23

(Best 2 error rule hit rate = 78%, 39/50 correctly classified, classification by Film 1 followed by Film 2 and 3)

4. Classification A5

Classification A5, male pedophiles against female pedophiles further explores the differences between the two groups. It is known (See Classifications 2 and 4) that combining the two pedophile categories produces fewer errors. It is therefore expected that Experimental Hypothesis 4 will be supported.

Table 4d(xii)

Classification A5, Misclassification Pattern x Stringent Rule

	Predicted	
	1	2
Actual	1 7	3
	2 2	6

(Best 2 error rule 72% hit rate, 13/18 correctly classified using Film 1 or Film 3)

This classification produces the worst, best error rate of the five classifications. Five of the sample of pedophiles were misclassified. This is relevant to the issue of the nature of the films, especially since one of the films was exclusively a male pedophile film.

However, this is a better than chance discrimination, and therefore Experimental Hypothesis (4) is rejected.

5. Deviant v Non-Deviant Material

Table 4d(xiii) shows that for the 5 classifications taken as a whole, the more deviant the material, the worse the relevant discrimination. This is discussed further in Section B (3) in Chapter 7.

Table 4d(xiii)

Total % error for Classifications 1 - 5 x films

	% error
Film 1	122
2	148
3	152
4	160
5	170
123(R)	90
12345(R)	90

The best single material (film) for 4 out of the 5 classifications was a consenting heterosexual film. However, a combination of films permits a clear improvement in the discrimination.

Table 4d(xiv)

Combination of films for Rule 123(R) x Classification

Classification	A1	A2	A3	A4	A5
Film basis	3,2	1,3	3,2	1,3	1

None of the hit rates for the classification tasks was improved by the addition of films 4 and 5. As can be seen from Table 4c(xiv), only the first 3 films, in particular, Films 1 and 3 formed the basis for a 2 or 3 film "rule".

Therefore, Experimental Hypothesis 5, that there would be fewer errors when discriminating sexual offenders from non-sexual offenders (ie. A1) using deviant material than when using non-deviant material is rejected. Only if Film 3 is classified as deviant can this Experimental Hypothesis be accepted.

A similar pattern of increasing error can be seen for classification A4. The first two films are much better than the last when discriminating pedophiles from rapists. However, the best rule is with a combination of Film 1 and Film 3 producing one error amongst the 25 subjects in the sample. Classification A5 (male pedophiles v female pedophiles) does not even rely on the pedophile, all male film when producing its best discrimination. These two results taken together lead to the rejection of Experimental Hypothesis 6.

However, the rape sequence (Film 4) was best, amongst the five classifications, at A4 with an error rate of 20% compared to its mean error rate of 32. A4 is, in fact, the pedophile v rapist classification and although other sources of information do this task more efficiently (eg. Film 1 or Film 2), Film 4 should obviously be more useful here than any other classification. However, despite these findings, Experimental Hypothesis 7 must be rejected because the rape sequence is clearly not the best information source.

SECTION H. RATIONALE FOR SUBSEQUENT EXPERIMENTS

Self recording is the most common procedure for the collection of data on the frequency and intensity of covert events. As a result of the increasing popularity of "Cognitive Behaviour Modification" (Mahoney 1974), self monitoring is used during the baseline and intervention stages of various treatment procedures.

However, there are four main problems regarding the use of self-monitoring:-

1. Reactivity
2. Accuracy
3. Expectations
4. Labelling

The first is the problem of reactivity. It is never possible to estimate the effect of the monitoring procedure on the frequency of the covert event. More problematic though, is the sexual problem namely that covert events are only directly observable for accuracy, by the subject themselves. Various attempts have been made to corroborate self-recording skills.

Kanfer (1970) was the first to point out the need to make this connection and since then various researchers have investigated this relationship. Hannum et al (1974) found only a minimal relationship between teachers self repeated positive and negative self statements and their actual classroom behaviour as recorded by observers. Conversely, Williams (1976) found a good correspondence between self-recordings of paranoid thoughts and episodes of clear paranoid behaviour.

It is possible that the correspondence between the physiological channel and the self-estimate is low because the two events are not related. Zuckerman (1971) states quite categorically that penile tumescence is recognised as the most reliable index of male sexual arousal. However, he does not make any statements about the degree of correspondence between objective, external assessment and self-assessment. One would expect, however, that if physiological measures are detecting sexual arousal, these measures would correlate highly with subject's self-reported arousal. As the literature review has already mentioned, some investigators have found a reasonable agreement between the two indices (Abel et al 1977, Mavissakalian et al 1975) while others have found the relationship to be quite low (Farkas et al 1979, McConaghy 1979, Wincze et al 1980).

"Good" correlations have generally been found in experiments where subjects have been asked to simply indicate the highest percentage erection achieved during a particular stimulus presentation. Conversely, experiments resulting in lower correlations have most often employed a continuous self-report measure. It seems likely that at least some of the between experiment discrepancies may be due to their differing procedures. It is possibly easier for a subject to report a single estimate of maximal arousal than to maintain a precise tracking of changes in tumescence or perceived-arousal.

The third problem, after reactivity and accuracy, is that of expectations and labelling. the subjective experience of sexual arousal requires both physiological arousal and appropriate labelling. The physiological must not only occur and be accurately detected, but it must be ascribed some "erotic" meaning for the total event to be perceived as sexual. These are the maximum requirements, although the precise order of events for any one particular subject is unclear, and may even vary within subjects, for example, over time or according to environmental cues. Given that sexual arousal has both physiological and subjective components, which may be symbiotically related, the environment may well provide sexual stimuli which may enhance the subjective experience of the situation. Zuckerman (1971) has noted that the early phases of the sexual response are non-specific and resemble the type of physiological responses elicited in other emotional reactions.

Mis-attribution errors can be of two major types. Firstly, physiological arousal that is in fact evoked by a non-erotic stimulus may be labelled as sexual under certain conditions. In Experiment 1 all the stimuli were de facto "sexual" and therefore this possibility does not arise.

However, the second possibility is that arousal elicited by an erotic stimulus may be labelled as non-erotic. Table 4c(i) shows that this was indeed a possibility in Experiment 1.

Table 4e

Analysis of "No R" (Pattern 7) Response

	Sexual Offenders (N=25)	Non-Sexual Offenders (N=25)
% of each group producing at least one No R type response	56% (14/25)	60% (15/25)
No of patterns (No R) produced by above individuals (Max=125) as % of total	24% (30/125)	23.2% (29/125)

Table 4e shows that approximately 25% of all the patterns produced were of the "No R" type. This means that despite "evidence" of physiological arousal, 60% of the non-sexual offenders and 56% of the sexual offenders "produced" a situation where sexual arousal was either not experienced or misattributed. Also, Appendices 4a and 4b, partly reproduced in Table 4f show that for only three individuals (2 non-sexual offenders and one sexual offender) was this a consistent response (ie. for every film).

Table 4f

	Sexual Offenders	Non-Sexual Offenders
Number of subjects producing only Pattern 7 (No R)	1	2
Number of additional subjects producing a mixture of incomplete responses (ie. Patterns 6,7,8)	3	4
Total	4	6
Remainder (from N=25)	21	19

Therefore, there remained 10 (14-4) sexual offenders and 9 (15-6) non-sexual offenders, who despite producing at least 1 complete response (Patterns 1-5) also produced at least one "No R".

There have been several social psychological studies of misattribution in the area of sexual responsiveness. For example, Cantor, Zillman & Bryant (1975) found that residual physiological arousal produced by physical exercise enhanced male subjects self-reported sexual arousal and liking for an erotic film. The time interval between the exercise and the viewing of the film was systematically varied and the self rated arousal was most pronounced when there was measurable residual physiological activation that the men did not attribute to the exercise. Also, Bercheid & Walster (1974) found that in a laboratory setting male subjects who experienced fear-induced arousal or residual arousal following fear reduction reported more attraction to a female confederate than did control subjects.

If one looks at the number of individuals in each group who demonstrated a zero response in both channels (ie. No P,R Pattern 8) to at least one of the five films, it is possible to suggest that group differences regarding the way in which the experimental situation is perceived may be revealing.

Table 4g

Analysis of No P,R (Pattern 8) Response

	Sexual Offenders	Non-Sexual Offenders
% of each group producing at least one No P,R type response	30% (9/25)	92% (23/25)
% of patterns of No P,R produced by above individuals	13.6% (17/125)	42.4% (53/125)

Table 4f shows that although each group could anticipate sexual arousal in the experimental situation, they differed in the frequency with which they found the various films "not arousing". This would suggest that a subsequent experiment should attempt to examine the differing contextual demand characteristics for these two groups.

These four problems produce numerous further experiments of which only two have been carried out. The first of these is therefore to assess whether two marked groups of offenders can track, accurately, an external, objectively verifiable stimulus. This procedure would employ a continuous or moment-to-moment monitoring requirement and would act as control experiment for this skill.

Secondly, an experiment is needed to carry out a number of further classification and demand/labelling tasks. An attitude scale would enable the same classifications to be performed and would assess the degree to which the "standard" model of monitoring penile circumference, with the addition of the concurrent self-monitoring requirement, in a sexual stimulation situation produces the most valid method for discriminating amongst the various groups. An attitude scale would also describe the varying perceptions of at least two groups of offenders towards differing sexual behaviours and might allow some idea as to whether they considered it "desirable" or "not" to respond in any systematic way in the two-channel task.

CHAPTER 5

EXPERIMENT 2

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INTRODUCTION

This chapter describes the first follow-up experiment proposed at the end of Chapter 4. It tests whether two groups of known offenders, one sexual offenders and one non-sexual offenders, can track accurately an external stimulus, on a moment to moment basis. The desynchrony evidenced by at least 17\25 sexual offenders, could be due to the inability to detect stimuli, particularly at low levels of intensity, and hence the sharper acceleration of IMI+ when a "threshold" has been reached. Subjects were drawn from the same large pool and were selected according to similar criteria as the subjects for Experiment I.

SECTION A : EXPERIMENTAL HYPOTHESES

1. That acceleration and deceleration periods would produce higher correlation between measures (synchrony) than periods of baselines and plateaux.
2. That sexual offenders and non-sexual offenders will be equally able to track an external visual stimulus.

SECTION B : SELECTION OF SUBJECTS

- (i) Sexual Offenders (See Appendix 5a for details)

a. Definition of Sexual Offence

The same definition of a sexual offence as used in Experiment I was employed, in that pedophiles had been convicted of at least one sexual assault on an individual below the age of 16, whilst rapists had been convicted of at least one rape or attempted rape. However, there was one difference with the pedophile offenders. Because "pure" pedophiles were by definition needed for Experiments 1 and 3, ie. those who had consistently offended against only one gender\victim group, a number of individuals had to be discarded because of perhaps only one offence against the alternative group. It was simultaneously realised that because the captive sexual offender population was not in fact, ever expanding, there would not be enough volunteer subjects to carry out the three experiments. Therefore the decision was made to include some of these mixed pedophiles in this group, where comparisons between different groups of offenders was not necessary.

b. Age

The age range was 20 - 50 with a mean of 35.9 and a standard deviation of 8.5. This is higher than the mean for sexual offender subjects in Experiment I (27.6), mainly because of the inclusion of a number of mixed pedophile offenders who because of the difficulty in both assessing and treating them are over-represented in the older, longer stay sexual offender population.

c. Level of Intelligence

The lower limit of 70 was again used, to be consistent with Experiment I.

d. Length of Stay

The same size of population constraints, also affected the length of stay criteria. Because the task would not be seen as "decision-making-sensitive", the non-inclusion of newly admitted patients had less justification. In fact 4\20 sexual offenders had been in maximum security for less than 2 years.

(ii) Non-Sexual Offenders (See Appendix 5b for details)

a. Definition of a Non-Sexual Offence

The same search criteria were used as in Experiment I. Because of the larger pool of potential recruits (about 150) it was not difficult to select a further 20. The offending histories therefore included the usual range of property offences, arson, assault and homicide.

b. Age

The age range was 21 - 51 with a mean of 33.6 and a standard deviation of 8.9. Although the range is wider than for the non-sexual offenders in Experiment I, the mean of the group is almost identical (Experiment I, mean = 32.4 standard deviation = 6.5).

c. Level of Intelligence

The lower limit of 70 was adopted for the same reasons as outlined in Section I (c) above.

d. Length of Stay

Because the population constraints did not affect the non-sexual offender population, it was possible to adopt the criterion that subjects had to be in the hospital for at least two years.

(iii) Consent\Information Package

Patients were individually invited to participate in this short experiment. Because of the very short time requirements to carry out the task and the non-invasive, non-personal nature of the procedure, a formal information package was issued. However, all patients' agreement to participate in the research was recorded in their clinical files.

Each patient was given, orally, the following information:

1. The experiment would take about 5 minutes and would be carried out in the Psychology Department.
2. No sexual materials would be used and no part of any sexual response on their part would be recorded.
3. Subjects would be required to look at a moving pen-trace on continuous paper and operate a manipulandum to correspond with the movement of the pen.
4. No details of the experiment would be entered on their files, and their success or otherwise at the task would not affect the probability of a recommendation to leave the hospital.

SECTION C : EQUIPMENT DETAILS

1. Setting

Subjects sat in the Operator Room, described in Chapter 4 (Experiment I). They sat directly in front of the polygraph in direct line of vision with paper trace readout, normally used in penile plethysmographic sessions. The experimenter was therefore able to use the testing room to manipulate the signal. The subject was therefore alone in the operator's room and free from human distraction.

2. Hardware

A spare Barlow metal strain gauge (Model SBG-10) was used to increase or decrease resistance. This strain gauge was connected to a balance box (Electronet 2583 - coupling unit) and then to the polygraph amplifier (Model No. 3559) and PDA 3380 (pen drive amplifier) onto 10" wide recording paper.

The assessment "channel" included the same manipulation as used in Experiment 1, and the change in resistance was into a PGR Pre-amplifier (4130). Naturally no "competing" paper readout was arranged and the output of this channel was stored on floppy disk via the on-line North Star Horizon Computer.

3. Storage of Data

Data was stored on 2 x 5 1/4" floppy disks in 40 separate files, against the patient's name. The data was "chunked", ie. 12 separate sections of data were stored for each subject.

SECTION D : OPERATIONAL PROCEDURE

1. Subjects

Subjects were tested individually, but were arranged that up to 5 could be seen in any one morning or afternoon. Each subject was reminded of the information which he had been given and asked whether he had any questions which he would like to ask.

Subjects were then shown the operating room and directed to concentrate their attention on the paper readout. They were then asked to hold the manipulandum and shown that the knob would in fact turn for one full circle. They were then told to turn the knob from left to right according to the amount which the pen moved.

2. Stimulus Presentation

It was decided to simulate a penile increase and subsequent decrease and then to replicate this on two further occasions. With a little practice it was possible to produce, manually, a trace which was visually very similar to the "standard" penile increase response found in most penile plethysmographic sessions, ie. 70-100% increase, over approximately 30 seconds. The stimulus presentation sequence was therefore made up of the following 12 segments:

Baseline	:	30 seconds
Increase I	:	30 seconds
Plateau	:	15 seconds
Decrease I	:	30 seconds
Baseline	:	30 seconds
Increase II	:	30 seconds
Plateau	:	30 seconds
Decrease II	:	30 seconds
Baseline	:	30 seconds
Increase III	:	30 seconds
Plateau	:	45 seconds
Decrease III	:	30 seconds
Baseline	:	30 seconds

Therefore, three separate trials of tracking increases were followed by plateaux of varying duration and then three separate trials of tracking decreases.

3. Debriefing

At the end of the procedure, subjects were again asked for any questions and thanked cordially for their participation. None of the subjects reported that they found the experience at all stressful, indeed most of them seemed to expect something which was more exciting. They were advised at this stage not to discuss the procedure with any of the patients in the hospital.

SECTION E : RESULTS

1. General Description

Thirteen chunks of data were recorded against each individual subject. Seven chunks referred to baseline\plateaux periods and six to periods of increase (3) or decrease (3).

The sampling rate from the two channels, ie.

- a. Signal
- b. Tracking response

was twice a second; therefore for a period of 30 seconds, 60 pairs of scores were stored.

2. Correlation Coefficient

A series of Pearson's Product Moment Correlation Coefficients were computed, for each of the thirteen chunks of data, for each of the 40 subjects, a total of 520 separate coefficients.

3. Baselines\Plateaux

It was anticipated that the correlation coefficients for these 6 periods would be close to zero, either positive or negative.

Table 5a

(See Appendices 6a and 6b for details)

Experiment 2 x Mean Correlation Coefficient x Offender Group

x Baseline\Plateau

	Mean Correlation Coefficient <u>Sexual Offenders (N=20)</u>	Mean Correlation Coefficient <u>Non-Sexual Offenders (N=20)</u>
Baseline 1	.001	.052
Plateau 1	.018	.043
Baseline 2	-.006	.002
Plateau 2	-.091	.088
Baseline 3	.017	.009
Plateau 3	.177	.004
Baseline 4	<u>-.061</u>	<u>.011</u>
Mean	.008	.029

Both these sets of correlation coefficients are predictably close to zero and because the ability to track a constant-level signal is of little importance when compared to the ability to track, for example, a constant increase, this data does not merit any further discussion.

4. Increase\Decrease Correlation Coefficients

Table 5b

Mean Group Correlation Coefficient x Increase or Decrease x

Offending Group

	Mean Correlation Coefficient (N=20) Sexual Offenders	Mean Correlation (N=20) Non-Sexual Offenders
Increase 1	.7985	.7955
Decrease 1	.7955	.7700
Increase 2	.7455	.7485
Decrease 2	.7565	.8210
Increase 3	.8030	.8065
Decrease 3	<u>.8415</u>	<u>.8325</u>
Mean	.7900	.7956

Table 5c

Mean Correlation Coefficient x Increase or Decrease x Baseline or Plateau
x Offending Group

	<u>Mean Correlation Coefficient</u>	
	Sexual Offenders	Non-Sexual Offenders
	(N=20)	(N=20)
Increase Periods (1,2,3)	.7823	.7835
Decrease Periods (1,2,3)	.7978	.8078
Baseline Periods (1,2,3,4)	-.0122	.0185
Plateaux (1,2,3)	.0347	.0450

Conclusion from Table 5b and Table 5c

1. The mean correlation coefficients from both sexual offenders and non-sexual offenders are much higher for periods of increase and decrease than for periods of no change, ie. baselines and plateaux (Table 5a). Clearly, this group of subjects can discriminate change from no change, and produce a consequently much higher "tracking zone".

2. The differences between the two groups for periods of baseline and plateau are clearly very small and therefore do not justify any further analysis.
3. The most important difference, with reference to Experimental Hypothesis 2, between the two groups would be their ability to detect change in stimulus value and therefore an Analysis of Variance was performed on the data excluding baseline and plateau periods.
4. On the basis of table 5c, Experimental Hypothesis receives considerable support. The periods requiring synchronous monitoring produce much greater correlation between measures than periods of stability.
5. Analysis of Variance (See Appendices 6 & 7 for raw scores)

Table 5d

Analysis of Variance Table

Factor	Sum of Squares	Degees of Freedom	Mean Square	F
A	18.70	1	18.70	0.03
B	1731.64	5	346.33	1.94
AB	473.47	5	94.69	0.53
Sub	24572.29	38	646.64	
SB	33963.06	190	178.75	

6. Conclusions from Analysis of Variance

1. Factor A, difference between the two groups (ie. Sexual Offenders and Non-Sexual Offenders) is not significant at the $P=.05$ level. This supports Experimental Hypothesis 2 that both groups would be equally able to track an external visual stimulus.
2. Factor B, differences between the columns is also not significant at the $P=.05$ level. The columns refer to the six periods of change, namely 3 increases and 3 decreases, and excludes baselines and plateaux.
3. The first order interaction is, not surprisingly, not significant.

SECTION F: OVERALL CONCLUSIONS

1. This experiment supports the statement that the two groups of sexual offenders are equally able to track an external stimulus.
2. It is an assumption that this capacity would extend to an internal stimulus. Naturally, it is extremely difficult, if not impossible, to externally control such a physiological variable and to manipulate it from baseline to maximum on at least 3 separate occasions.

3. One advantage of using a simulated PPG trace is that such a stimulus has at least some relevance to the situation where desynchronous patterns are so important. It was not only carried in the same testing environment within the same hospital, and should therefore be sensitive to similar demand characteristics as Experiment I, but also is exactly the same event which is a component of the response in the first experiment. The only desynchrony is that the stimulus is not produced by the individuals themselves.

4. If, therefore, there are no differences in ability to track between the two groups, we are left with the second possibility, itemised at the end of chapter 4, that there are important differences in the relevance and meaning of the stimuli for the two subject groups. Experiment 3 attempts to investigate the attitudes towards relevant sexual behaviour and to use this type of data to discover improved discrimination can occur using non-physiological data.

CHAPTER 6

EXPERIMENT 3.

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INTRODUCTION

This chapter describes the second of the two further experiments proposed in Chapter 4. It is designed to investigate the attitudes of a further group of sexual and non-sexual offenders, together with a group of non-offenders, to the sexual behaviours, some of which were depicted in the films used in Experiment 1. Clearly if it is possible to discriminate between the same types of groups using very different material, it will give further validity to the difference between the two populations. The general aims were therefore not only to elucidate the demand "set" which offenders bring to the sexual monitoring task, but also to replicate the discrimination tasks using attitude questionnaire data. The same discrimination tasks which were attempted in Experiment 1 are repeated, with the addition of tasks which involve non-offenders.

SECTION A

Experimental Hypotheses

1. That attitude measures will permit classification discrimination on the following five tasks at a level better than chance:
 - i. A1 : Sex offenders against other offenders
 - ii. A2 : Individual sex offender categories against each other
 - iii. A3 : Individual offender categories against each other
 - iv. A4 : Pedophiles against rapists
 - v. A5 : Male pedophiles against female pedophiles

2. That attitude measures will permit more accurate discrimination on the above five tasks, than discrimination based on patterns of penile and self assessment responding.

3. That attitude measure will discriminate, at a better than chance level, between the following groups:
 - i. A6 : All categories of offenders against staff
 - ii. A7 : Sex offenders against offenders and staff
 - iii. A8 : All categories against all others

SECTION B

Subject Selection

The general aim was to produce a matched sample of sexual and non-sexual offenders selected within the same parameters as those in Experiment One. This was only possible because the majority of Rampton Hospital's long stay population had an index offence of a sexual nature. In addition, it was necessary to include a non-patient group, the data from which would permit an evaluation of the uniqueness of the patients as a group.

i. Sexual Offenders

a. Legal Status

All the subjects of Experiment 3 were taken from Rampton's captive sex offender population (N=146). This means that all were detained involuntarily. The allocation of sexual offenders to either Moss Side Hospital, from where the majority of subjects for Experiment One came, or Rampton Hospital is based on loose geographical criteria and in no way reflects any degree of security risk or particular aspect of a client's history, for example, recidivism.

b. Definition of Sexual Offence (See Appendix 8 for details)

The same definition of a sexual offence was used as in Experiment 1. All sexual offenders had been committed of at least one indecent assault or a more serious sexual offence prior to admission to Rampton Hospital. Many of the sexual offenders had other types of conviction, for example, property offences or other assaultive offences, but their sexual offences were against one consistent victim group.

c. Age (See Appendix 8 for details)

The age range was 23-60 with a mean of 34.9 and a S.D. of 8.9. This is higher than the sexual offender population for Experiment 1, but not those in Experiment 2 and reflects differences in the overall patient population (and by inference DHSS administrative policy), between Moss Side and Rampton Hospitals.

Summary Table 6(i)

Age X Sexual Offenders X Experiments 1,2,3

	<u>Mean</u>	<u>Standard Deviation</u>
Experiment 1	27.6	4.7
Experiment 2	35.9	8.5
Experiment 3	34.9	8.9

d. Level of Intelligence (See Appendix 8 for details)

The full-scale level of intelligence is almost the same as that for the non-sexual offenders in this group, and exactly (!) the same as the subjects for Experiment 2.

Summary Table 6 (ii)

Level of Intelligence X Sexual Offenders X Experiment 1, 2 3

	<u>Mean</u>	<u>Standard Deviation</u>
Experiment 1	84.9	8.5
Experiment 2	85.0	9.1
Experiment 3	85.0	8.5

e. Length of Stay

As with Experiment I, patients had been resident in maximum security for at least 2 years. However, it can be assumed that length of stay for this population, for the same reasons as for their increased age, is generally longer.

ii. Non-Sexual Offenders

a. Legal Status

These patients were all detained in Rampton Hospital; 10 were detained under the 1983 Mental Health Act, whilst a further five, also detained under the same act were transferred from prison under Section 47\49.

b. Definition of Non-Sexual Offence (See Appendix 9 for details)

As in Experiment I, it was possible to exclude individuals with a known sexual motive to their offence, eg. any assaults on non-familial (or in some cases familial) women. Participants were therefore convicted of the usual range of offences, arson, theft, assault, manslaughter etc.

c. Age (See Appendix 9 for details)

Subjects had an age range from 27-53 with a mean of 34 and a standard deviation of 7.4. This is very similar to the sexual offender population, (see Summary Table 6(i)), but is slightly older than the non-sexual offenders in Experiment I.

Summary Table 6(iii)

Age X Non-Sexual Offenders X Experiment 1,2,3

	<u>Mean</u>	<u>Standard Deviation</u>
Experiment 1	86.9	9.2
Experiment 2	84.0	9.5
Experiment 3	84.3	9.5

d. Level of Intelligence (See Appendix 9 for details)

The level of intelligence for this group was in fact the highest of all the groups in all the experiments. This may be due to the relatively high IQ of some of the Section 47/49 patients, transferred from the prison system.

Summary Table 6(iv)

Level of Intelligence X Non-S^{ex}ial Offender X Experiment 1,2,3

	<u>Mean</u>	<u>Standard Deviation</u>
Experiment 1	84.3	9.5
Experiment 2	84.0	9.5
Experiment 3	86.9	9.2

e. Length of Stay

The 2 year criterion was again utilised. However, because of the 5 prison transfer subjects, length of stay is less relevant because of the time-served nature of detention in the prison system.

f. Non-Patient Subjects (See Appendix 10)

Because Experiment 3 is based on data from attitude questionnaires, and not plethysmographic data, it was relatively easy to include a non-patient group in the sample. Such a group is obviously essential to test Experimental Hypothesis 3 (A6 and A7).

A wide variety of staff groups were "available" for this experiment. For example, occupational staff (mainly ex-tradesmen and ex-nurses), other professional staff (social workers, medical staff, library staff etc), non-professional staff (porters, auxiliaries, maintenance staff) were all potential target groups. However, the following principles \exigencies led to the choice of qualified nursing staff as the selected group.

- i. The group should be as close as possible, in terms of therapeutic and day-to-day input to the patient group. Clinical practice in Special Hospitals often suggests that patients' verbal statements (but not necessarily their "infrastructure") mimics modal and expressed attitudes held by nursing staff. For example, a pedophiliac patient will often state that he considers sexual assault on young children to be quite unacceptable and abhorrent, but is at the same time quite unable to give any explicit reasons at to why this view is held.
- ii. The group should be as homogenous as possible. Because Rampton Hospital currently employs about 800 nursing staff it would be easy to select a relatively uniform group of subjects.
- iii Individuals in the group should be willing to participate and not likely to refuse.

As a result of these three principles, it was decided to target qualified, male nursing staff, below the grade of Nursing Officer, (ie. currently working on the wards) and currently working on days. Every respondent was at one of the following grades:

Charge Nurse

Staff Nurse

Enrolled Nurse

Senior Enrolled Nurse

iii. Summary

Because of the larger pool referred to in Section B(i)a, it was expected that a much larger number of subjects would volunteer for the project. In addition, the nature of the task, namely a pen and paper questionnaire task was obviously much less "invasive" than the PPG procedure and only 3 subjects refused (all sex offender patients) to take part. Therefore, the following totals of participants were obtained.

Group 1	N = 15	Homosexual Pedophiles
Group 2	N = 15	Heterosexual Pedophiles
Group 3	N = 15	Rapists
Group 4	N = 20	Nursing Staff
Group 5	N = 15	Non-Sexual Offenders

SECTION C

Stimulus Materials

The semantic differential (Osgood 1957) was chosen as the best instrument for measuring the meanings of words and activities which are subject to verbal description. One can select any scales appropriate for the task in hand and these scales must be selected in advance.

The questionnaire consisted of seven response sheets aiming at eliciting attitudes toward the following seven concepts.

- A. Heterosexual Intercourse
- B. Homosexual Intercourse
- C. Female Masturbation
- D. Male Masturbation
- E. Rape
- F. Sexual Intercourse with Young Boys
- G. Sexual Intercourse with Young Girls

Of these seven concepts, five (ABCEF) were also closely represented by the contents of the five films used in Experiment 1.

The following 20 constructs were selected from Jenkins, Russell and Suci (1958) and were as follows:-

Constructs Experiment 3

1. Cruel-----Kind
2. Curved-----Straight
3. Masculine-----Feminine
4. Untimely-----Timely
5. Active-----Passive
6. Savoury-----Tasteless
7. Unsuccessful-----Successful
8. Hard-----Soft
9. Wise-----Foolish
10. New-----Old
11. Good-----Bad
12. Weak-----Strong
13. Important-----Unimportant

14. Angular-----Rounded

15. Calm-----Excitable

16. False-----True

17. Colourless-----Colourful

18. Usual-----Unusual

19. Beautiful-----Ugly

20. Slow-----Fast

Each questionnaire was prefaced by a general introduction and a specific "Instructions" page. These are reproduced in Appendices 11 and 12 respectively.

SECTION D

Operational Procedure

a. Sexual and Non-Sexual Offenders

The 60 patient subjects were all asked individually about the research procedure. When all the verbal acceptances had been gathered the subjects were "re-classified" according to their current villa or ward. This enabled all subjects housed in any one location to complete their questionnaires in a group and supervised so that each completed sample consisted only of individual efforts. The seven different locations had a range of 5-9 patients taking part at each one.

The subjects were asked not to discuss the project with any other patient in the hospital and most of them replied along the lines of "they did not particularly want to anyway!"

b. Nursing Staff

This group was considered before the administration of the questionnaires to be more difficult. Because of the suspicious political climate amongst the profession in the hospital at the time, it was decided to use an intermediary (the Charge Nurse seconded to the Psychology Department) who would approach nursing staff, selected by him, on behalf of the main experimenter.

It was decided to use nursing staff who were not based in any of the seven locations from which the patient population had been drawn. This, in itself, was not difficult in view of the fact that Rampton Hospital has 33 different wards\ villas housing its patient population. The intermediary therefore approached all the appropriately qualified staff on 6 of the male wards\ villas and asked them to read the introduction (Appendix 11) and then decide whether to take part. Approximately 40 nurses were asked in order to get 25 definite acceptances. For these 25 people, they were then given the instructions and reply sheets and asked to return the questionnaire via the internal mail within seven days.

SECTION E

Results

i. Raw Data

The raw data for the seven concepts are summarised in Appendices 13 to 19.

ii. Classifications

The same five classification tasks as carried out in Experiment 1 can be repeated here. These are:-

- A1: Sex offenders against other offenders (Groups 1,2,3 v 5)
- A2: Individual sex offender categories against each other (Group 1 v Group 2 v Group 3)
- A3: Individual offender categories against each other (Group 1 v Group 2 v Group 3 v Group 5)
- A4: Pedophiles against rapists (Groups 1,2 v Group 3)
- A5: Male pedophiles against female pedophiles (Group 1 v Group 2)

iii. Information Base

Each of the eight classifications could be based on the following seven information bases (Sets of Attitudes) for the discriminant function analysis:

1. A: Heterosexual Intercourse
2. B: Homosexual Intercourse
3. C: Female Masturbation
4. D: Male Masturbation
5. E: Rape
6. F: Sexual Intercourse with Young Boys
7. G: Sexual Intercourse with Young Girls

In addition, sets of attitudes could be combined in order to increase the power of the discrimination and also because of an "a priori" commonality.

The following 6 combinations would seem to be the most useful:

8. ABCD: (Non-criminal Sexual Behaviour)
9. EFG: (Criminal Sexual Behaviour)
10. FG: (Pedophile Behaviour)
11. AB: (Intercourse only)
12. CD: (Masturbation only)
13. ABCDEFG: (Total set of attitudes)

Unfortunately the software programme could not produce "rules" from the largest combination of 140 variables and therefore only 5 subsets of attitudes were examined.

iv) Discriminant Function Analysis

The same discriminant analysis was used with the Semantic Differential data as was used with the pattern data of Experiment 1 (Sturt 1981). Only stringent rules were used in Experiment 3, due to the much larger sample sizes and the more abstract nature of the data. For the five classification tasks of Experiment 1 (A1,2,3,4,5), the results are as follows:-

Table 6(a)

Minimum % Error for Classifications A1,2,3,4,5

Information Base x Classification

Classification.

	<u>A1</u>	<u>A2</u>	<u>A3</u>	<u>A4</u>	<u>A5</u>	<u>Total</u>
Information						
Base						
A	26.6	31.1	28.3	13.3	16.6	116.0
B	50.0	31.1	45.0	33.3	10.0	169.4
C	23.3	22.2	36.67	15.5	3.3	100.9
D	21.7	28.8	30.0	15.5	13.3	109.3
E	50.0	28.8	43.3	17.7	13.3	153.1
F	28.3	26.7	36.7	13.3	13.3	118.3
G	28.3	31.1	46.7	33.3	13.3	152.7
ABCD	21.7	22.2	36.7	13.3	3.3	97.1
EFG	28.3	26.7	43.3	13.3	13.3	124.9
FG	28.3	26.7	36.7	13.3	13.3	131.6
AB	26.6	31.1	31.7	13.3	10.0	112.7
CD	21.7	22.2	36.7	15.5	3.3	99.3
Subjects	60	45	60	45	30	
Minimum % error	22	22	28	13	3	

v) Conclusions from Table 6(a)

a) Classification A1

Experimental hypothesis for Experiment 3, 1(i) stated that attitude measures would provide better chance discrimination for sex offenders against other offenders. It is clear, from Table 6(a), Column A1 that only Concept B (Homosexual Intercourse) and Concept E (Rape) fail to provide a better than chance discrimination. In fact, the 50% "error rate" simply states that no discriminating rule could be generated, and therefore chance provides the "best rule".

The best rule is based on Concept D (Male Masturbation) and, using the "stringent" criterion, ie. improvements by a factor of 5, gives the following error pattern.

Table 6a(i)

Classification A1, Misclassification Pattern x Stringent Rule

		Prediction		Total
		1	2	
Actual	1	39	6	45
	2	27	8	35
Total		66	14	

where 1 = Sex Offender

2 = Non-Sex Offender

Although there are 13 errors out of the sample of 60, it can be seen that the non-sex offenders are much more likely to be mis-classified (7 errors out of 15, 46% error rate) than the sexual offender (6 errors out of 45, 13% error rate).

However, the overall error rate for Concept D (and other concepts involving D, for example, ABCD and CD) is clearly much better than chance and therefore Experimental Hypothesis 1(i) is accepted.

b) Classification A2

Classification A2, individual sex offender categories against each other is an improvement on Classification A1 in that all the concepts provided a better-than-chance discrimination. The best information base was C, attitudes to female masturbation, or variables including C, with an overall 22% error rate.

Table 6a(ii)

Classification A2, Misclassification Pattern x Stringent Rule

		Predicted			Total
		1	2	3	
Actual	1	12	-	3	15
	2	-	11	4	15
	3	1	2	12	15
Total		13	13	19	

where 1 = Homosexual Pedophiles

2 = Heterosexual Pedophiles

3 = Rapists

The three groups had 3,4,3 errors respectively, but the pattern of errors is that misplacements of the first two categories are usually placed in the third category (7 out of 10 errors are of this type).

Because of the total number of errors, Experimental Hypothesis 1(ii) is accepted.

c) Classification A3

Like Classification A2, any of the individual concepts and also all the combinations improve on chance. Individual offender categories against each other has the "worst" minimum % error rate, with Concept A (Heterosexual Intercourse) producing a 28% error rate.

Table 6a(iii)

Classification A3, Misclassification Pattern x Stringent Rule

		Prediction				Totals
		1	2	3	4	
Actual	1	11	1	3	-	15
	2	-	9	4	2	15
	3	-	2	12	1	15
	4	-	2	2	11	15
Totals		11	14	21	14	

where 1 = Homosexual Pedophiles

2 = Heterosexual Pedophiles

3 = Rapists

4 = Non-sexual Offenders

Although Experimental Hypothesis 1(iii) can be accepted, since this discrimination is clearly greater than chance, the same pattern of over-inclusion in the "Rape" category is seen as in Classification A2. Also, as in the previous classification, the Homosexual Pedophile category contains the fewest number of false positives (See Classification A5).

d) Classification A4

This classification is the first of the two within sex offender categories. Although there are only 45 subjects, the best error rate of 13% is much better than the mean for classification 1,2 and 3 ($\bar{x} = 24\%$). Concept A (Heterosexual Intercourse) and Concept F (Sexual Intercourse with Young Boys) both provide rules which produce only 6 (13%) classification errors.

Table 6a(iv)

Classification A4, Misclassification Pattern x Stringent Rule
x Concept A, F

1. Concept A (5 error rule)

		Prediction		Total
		1	2	
Actual	1	29	1	30
	2	5	10	15
Total		34	11	

where 1 = Pedophiles

2 = Rapists

2. Concept F (5 error rule)

		Prediction		Total
		1	2	
Actual	1	28	2	30
	2	4	11	15
Total		32	13	

where 1 = Pedophiles

2 = Rapists

The following points are of interest when evaluating Tables 6a.

Firstly, the pattern of errors is the converse of that for Classifications A2 and A3. Namely, that it is the undifferentiated pedophile category which contains the majority of the false positives. Using Concept A, 5/15 (33%) of the rape offenders are classified as pedophile and using Concept F this number is only reduced to 4.

Secondly, the pedophile offenders who are misclassified, 1 using Concept A and 2 using Concept F are 3 separate individuals.

Thirdly, the only individual within the rapist category is misclassified using either of the best two information bases.

However, despite these notes and reservations, Experimental Hypothesis 1(iv) is accepted since any of the concepts produces a classification error rate which is significantly better than chance.

e) Classification A5

Classification A5 (male pedophiles against female pedophiles) produces by far the closest approximation to perfect classification with Concept C (attitudes to female masturbation) producing only 1 error amongst the 30 subjects.

Table 6a(v)

Classification A5, Misclassification Pattern x Stringent Rule

		Prediction		Totals
		1	2	
Actual	1	15	-	15
	2	1	14	15
Totals		16	14	

where 1 = male pedophiles

2 = female pedophiles

vi) Classifications Unique to Experiment 3

In addition to the five classification tasks, common to Experiments 1 and 3, three additional classifications are possible, because of the inclusion of a non-patient group. These are, briefly:-

- To evaluate whether patients as a homogenous group can be differentiated from a non-patient group,

A6: All offenders against staff (Groups 1,2,3,5 v Group 4)

- To evaluate whether sexual offenders can be differentiated from a group of non-sexual offenders and non-offenders,

A7: Sex offenders against non-sex offenders and staff (Groups 1,2,3 v Groups 4,5)

- To discriminate between all five groups equally,

A8: All categories against all others.

Table 6b

Minimum % Error (Overall) X Classifications involving Non-Patients

Classification	A6	A7	A8	Total
Information Base A	18.7	15.0	47.5	81.2
B	12.5	20.0	45.0	77.5
C	7.5	15.0	26.3	58.8
D	25.0	23.75	47.5	96.25
E	11.3	22.5	40.0	73.8
F	28.5	28.5	53.8	110.8
G	25.0	43.75	45.0	113.75
ABCD	15.0	10.0	36.3	61.3
EFG	11.3	26.25	40.0	77.55
FG	25.0	26.25	53.8	105.1
AB	18.8	20.0	47.5	86.3
CD	7.5	16.3	36.3	60.1
Subjects (N)	80	80	80	
Minimum % error	7.5	10.0	36.3	

Conclusions from Table 6b

a) Classification A6

Experimental Hypothesis 3(i) stated that attitude measures would produce better than chance discrimination between all categories of offenders as one group and the non-patient group as the other. As can be seen, the best rule produces 6 errors (7.5% error rate) out of the 80 sample. These were distributed as follows:

Table 6b(i)

Classification A6, Misclassification Pattern x Stringent Rule

		Prediction		
		1	2	Total
Actual	1	58	2	60
	2	4	16	20
Total		62	18	

where 1 = offenders

2 = non-offenders

In fact this error rate, or the 92.5% hit rate is the second best discrimination in Experiment 3, second only to classification A5 with 29/30 people correctly classified. This rule is based on Information Base C (attitudes to female masturbation). Obviously, the Experimental Hypothesis 3 can be accepted on the basis of this information.

b) Classification A7

If the sex offenders are separated from other subjects and rules are generated between the two groups, the error rate increases slightly.

Table 6b(ii)

Classification A7, Misclassification Pattern x Stringent Rule

		Prediction		
		1	2	Total
Actual	1	43	2	45
	2	6	29	35
Totals		49	31	

where 1 = sex offenders

2 = Non sex offenders and non-offenders (staff)

These eight errors, comprising a 90% hit rate for the sample of 80, are made on an information base of ABCD. In fact only two of these sets of variables are used to generate the rule, namely A (Heterosexual Intercourse) and C (Female Masturbation); this is to be expected given that these two single variables had the smallest error rate (15%). Table 6b(ii) which indicates that sex offenders can be discriminated from a mixed group at a much better chance level, and therefore Experimental Hypothesis A7 can be accepted.

c) Classification A8

Experimental Hypothesis 3iii states that attitude measures will produce a better than chance discrimination amongst all five categories. The best "hit" rate is 64% using Information Base c (or combinations involving C).

Table 6b(iii)

Classification A8, Misclassification Pattern x Stringent Rule

		Prediction					Total
		1	2	3	4	5	
Actual	1	12	0	2	1	0	15
	2	0	13	1	1	0	15
	3	1	9	5	0	0	15
	4	2	2	0	16	0	20
	5	3	4	0	3	5	15
Total		18	28	8	25	5	

Of these three classification tasks involving staff (A6, A7, A8) this hit rate is by far the worst of the three. In this respect, it resembles the relative hit rate for classification of this experiment (individual offender categories against each other). Clearly, introducing a non-patient group serves only to add error to an already weak discriminant rule.

CHAPTER 7

COMPARISON OF RESULTS, EXPERIMENT 1 AND EXPERIMENT 3

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Introduction

Chapter 4 and Chapter 6 both described the collection and collation of data which was used to discriminate between the same offending groups, although with different subjects. This chapter compares the success rates for the two sources of data and also examines the types of rules which were generated and also the alternative information bases which could be used. It also describes the trade-off between the overt parsimonious data collection procedures and the utility of the information base.

At the end of the chapter, the data from the non-patient subjects is further examined and the discriminations compared for accuracy and parsimony with those only utilising patient data.

SECTION A

Discrimination Tasks

The two experiments each attempt to provide "perfect" discrimination on five common classification tasks. To remind the reader, these are as follows:-

- A1: Sex offenders against other offenders
- A2: Individual sex offender categories against each other
- A3: Individual offender categories against each other
- A4: Pedophiles against rapists
- A5: Male pedophiles against female pedophiles.

Each of these five tasks has been based on the two available information bases and therefore the first section of this chapter discusses the suitability and power of these two bases for each of these tasks.

Summary Table 7i

Best Error rates, Experiments 1 and 3 x Information Base

Classification	Expt 1	Base	Expt 3	Base
	(% error)		(% error)	
A1	16	123(R)	21.7	D
A2	20	123(R)	22.2	C
A3	22	123(R)	28.3	A
A4	4	123(R)	12.0	A
A5	28	Film 1	3.0	C

Summary Table 7i reviews the best error rates for the give common tasks and also gives the sources on which the best rules are based.

1. Classification A1

The comparative hit rates for this very important classification are very similar as far as the best rules are concerned. The presentation of a homosexual film coupled with a film of a single woman masturbating produces a 16% error rate (8 errors\50 subjects). The second film gives two errors from the 6 non-sexual offenders who are misclassified because they produced Pattern 6 (no physiological response, but use of the self rating scale). Two of these misclassified individuals produce a positive response in both channels (Pattern 2 and 5) to the single female film (film 2).

This rule is intrinsically interesting, in that seven of the correctly classified 21 sexual offenders were classified on the basis of presence of pattern 1 (IMI+) and a further eight on the basis of pattern 7 (No P but R). The four misclassifications are all on the basis of a total lack of responding in either channel (pattern 8) which was much more predominant amongst the non-sexual offenders. Also, the four misclassifications were all in the pedophile categories (two homosexual and two heterosexual).

From this basis, one might expect that homosexual behaviour (Concept B) should equally well discriminate if presented via an attitude questionnaire. Examination of Table 6(a) partly reproduced here shows this not to be the case.

Table 7a (from 6a)

Classification A1 x Experiment 3 x Minimum % Error.

Information Base	Minimum % Error
A	26.6
B	50.0
C	23.3
D	21.7
E	50.0
F	28.3
G	28.3
ABCD	21.7
EFG	28.3
AB	28.3
CD	21.7

Table 7a shows that attitudes to homosexual intercourse do not allow a better than chance discrimination and is one of only two sets of information which does not allow any improvement on chance. By contrast, attitudes to male masturbation produce the best discrimination rate of 22%, closely followed by attitudes to female masturbation. In fact the difference between this hit rate and the 16% hit rate of Experiment I is negligible when one takes into account the "relaxed rule" criteria of Experiment I allowing new rules to be generated if they reduce the total number of errors by at least two. A stringent rule, which insists on an improvement by at least five, produces a comparison of 20% for Experiment I as opposed to 22% for Experiment 3.

The different stimulus content for each of the two rules may well be a result of the differing experiences and imagery-ability of the subjects. In Experiment I no "effort" is required of the individual to, for example, recall any individual experience and their attitudes, in retrospect, towards it, nor are subjects required to respond to "activity", of which they have had no direct experience. Indeed, the presentation of the five films, might seem to concentrate attention on the context of the films and not require any self-evaluation regarding any defined "attitude".

However, the attitude task relies on the subject's consideration of each activity, whether or not they have had direct experience of it. Therefore, homosexual intercourse and also rape (Concept E, 50% hit rate) which are the behaviours which are probably least common amongst the group of subjects as a whole, provide no improvement over chance. Conversely, male masturbation which is almost certainly the most widely currently experienced sexual behavior amongst the group of subjects provides the best discrimination of the seven sets of attitude questionnaires.

2. Classification A2

The pattern of misclassification for A1 should give some indication regarding the expected results for classification A2.

Table 7b

Misclassification by Best Rule for Classification A1

Experiments 1 and 3 in %

	Experiment 1	Experiment 3
	%	%
Heterosexual	20 (2\10)	33 (5\15)
Pedophiles		
Homosexual	25 (2\8)	7 (1\15)
Pedophiles		
Rapists	0 (0\7)	0 (0\15)
Non-Sexual	16 (4\25)	47 (7\15)
Offenders		

Given from Experiment 1 that viewing homosexual behaviour and attitudes to male masturbation are respectively responsible for the two rules, we might expect that classification A2 would not only rely on the same information bases, but would be equally able to identify rapists, even if the pedophile offenders are interchanged.

The ability to "detect" rapists was indeed maintained in classification A2, but only for Experiment I. In Experiment 1 two films were again needed, on this occasion Film 3 and Film 1 (Heterosexual Intercourse) producing an overall 80% hit rate and this was almost matched by the 78% hit rate of Experiment 3 using attitudes to female masturbation (Concept C).

Table 7c

Misclassification by Best Rule for Classification A2

Experiments 1 and 3 in %

	Experiment 1	Experiment 3
	%	%
Heterosexual Pedophiles	20 (2\10)	27 (4\15)
Homosexual Pedophiles	38 (3\8)	20 (3\15)
Rapists	0 (0\7)	20 (3\15)

3. Classification A4

Classification A4 should show a similar pattern of results to A2, given that it is a derivation of the task. By combining the two pedophile categories the joint-simplest requirement (ie. smallest number of categories) of the five classifications which are attempted both in Experiments 1 and 3 is produced, namely, is the known sexual offender a pedophile or a rapist.

The misclassifications of A2 in Experiment 1 are mainly within the pedophile category with 4 errors and only 1 pedophile patient placed within the rapist category. The pattern of misclassifications in Experiment 3 is the converse with all 10 misplacements between the pedophile and rape categories, ie.

Table 7d

Misplacements Classification A2, Experiments 1 and 3 in %

	Experiment 1	Experiment 3
Between categories		
(ie. Pedophile - Rapist		
Rapist - Pedophile)	20% (1)	100% (10)
Within Pedophile categories	80% (4)	0% (0)

Hence classification A4, Experiment 1 produces the single error pedophile misclassified as rapist (out of 25 subjects) using the same two films (1 and 3).

Experiment 3 cannot match the single error misclassification rate (4%) of Experiment 1. Indeed, Tables 6a (iv) parts 1 and 2 seem to contradict the homogeneity of the two categories.

Table 7e

Classification A4, Experiment 3 in 8, Type of Errors

<u>Concept A</u>	%
Pedophiles misclassified as rapists	17 (1)
Rapists misclassified as pedophiles	83 (5)

Concept F

Pedophiles misclassified as rapists	33 (2)
Rapists misclassified as pedophiles	66 (4)

Either of these two concepts produces an error rate of 13% and for both concepts the more common error is to misclassify rapists as pedophiles. There are two main reasons to attach greater weight to this finding than to the superficially more attractive greater discrimination of Experiment 1.

Firstly, the fact that only 1 individual rapist appears in both the 5 misclassifications with concept A and the 4 misclassifications with Concept F suggests that only one individual lies "consistently" outside any perimeter or space.

Table 7f

Individuals Misclassified, Experiment 3, Concepts A,F,C,D

	Concept A (13% error)	Concept F (13% error)	Concept C (15% error)	Concept D (15% error)
Rapist No				
43	-	-		
42		-	-	-
38	-			
39		-		
37		-		
36	-			
34	-			
32	-			
41			-	
44			-	
35			-	
33			-	
Pedophile				
No				
26	-	-		-
19			-	-
29			-	-
10				-
12				-
28				-
11		-		

However, rapist no. 43 is not identified by the slightly more error-prone Concept C or Concept D, and therefore may not be as idiosyncratic as Concepts A and F would suggest. Of the 15 rapists in the sample 12 (80%) would be misclassified by at least one of the four best discrimination rules. This would suggest that it is the pedophile category which is actually more homogenous since only 7\30 (23%) would appear using the same four best rules.

Secondly, Experiment 3 is based on 45 subjects compared to the 25 subjects of Experiment 1. In addition, a "stringent" rule (rules produce improvements in the error by at least five) was adopted for this larger sample size and these two factors taken together add weight to the generality of the findings.

Conversely, the remnant of the rape category, namely those 3 individuals who are identifiable by any of the four best concepts of Experiment 3 might be considered to represent a small but distinct homogenous rape category. It is true that the pedophile category is more homogenous in that the "never-misclassified" proportion is much larger than in the rape category. However, misclassifications might be better identified as not-rapist or not-pedophile than a valid identification of the only alternative category.

Classification A5

From a clinical perspective, differentiating male pedophiles from female pedophiles is often an essential and crucial part of designing and implementing any treatment program. A response towards children of both genders is generally considered to be more difficult to alter than to one gender only, which often suggests deficient adult-orientated social skills, in particular towards peer group women.

Subjects for both Experiment 1 and 3 were chosen on the basis of offending solely against one particular group; of course, this does not predict any particular sexual response pattern but might serve to select at the extremes from a continuum on the lines of:-

Exclusively male	-----Pedophiles towards-----	Exclusively
pedophiles	children of either	female
	sex	pedophiles

Traditionally, (eg. Abel 1981), video materials show greater discrimination both between and within individual sexual offenders. However, Abel et al 1975 and 1977 suggests that audiotape is appropriate for differentiating sexual aggressiveness and also it enables precise variation, for example, of victim's age and quality of interaction which is pre-determined by the use of video\visual materials. Many of the research subjects presented in the research literature are not homogenous offenders with regard to victim gender and therefore the task is rarely one of differentiating male pedophiles from female pedophiles, but rather one of discriminating pedophiles from non-pedophiles (normals). Since one of the five films used in Experiment 1 was a film of male pedophilic content, it was expected that this film would probably provide the best discrimination for classification A5.

Firstly, it can be seen that this was not, in fact, the case.

Table 7g (from Table 4d)
% Error, Experiment 1, Classification A5

	% error
Film 1	28
2	34
3	28
4	34
5	34
123 (R)	28
12345 (R)	28

Not only does Film 5 not discriminate better than the other four films, but the mean error rate (30.6) and the "best" rate are by far the worst discriminations within Experiment 1 (See Table 4d).

Table 7g(i) (from 4d)
Best Error Rate, Experiment 1. in %

	% Error
Classification A4	4
A1	16
A2	20
A3	22
A5	28

The errors (Film 1) are distributed almost equally between the two categories.

Table 7g(ii)

Experiment 1, Classification A5, Error Pattern (Film 1)

Heterosexual Pedophiles	30% error	(3 out of 10)
Homosexual Pedophiles	25% error	(2 out of 8)

By comparison Film 3, also producing a 28% error rate (5 errors out of 18 subjects), can produce a very different error pattern. This is because the discriminant analysis requires that a decision is made on every individual and if equal probability exists then the inevitable 50% error will result. The matrix of response patterns for Film 3 is shown in Table 7h.

Table 7h

Film 3, Experiment 1, Obtained Patterns

	Group 2 (Heterosexual Pedophiles (10))	Group 3 (Homosexual Pedophiles (8))
Pattern 1	1	3*
2	1*	0
3	0	0
4	0	1*
5	2*	0
6	3*	0
7	2	2
8	2	2

The asterisk indicates the decision based on the presentation of that particular pattern. Four of the five errors arise because the computer program is obliged to make a decision where Pattern 7 (No R but P) and Pattern 8 (No P or R). If no decision was made in these cases the following "error" rate would result:-

	Prediction	
	2	3
Actual 2	5	1
3		4

where 2 = Heterosexual Pedophiles

3 = Homosexual Pedophiles

and where 4 individuals remain unclassifiable

Film 5 classification would, necessarily, be based on the following patterns:

Table 7i

	Group 2	Group 3
Pattern 5	1*	0
6	5*	3
7	3*	2
8	1	3*

where asterisk indicates the decision for each pattern. The overall error rate (34%) is little worse than that for the best film. However, Table 4c(i) shows that Film 5 is indeed distinct, with regard to the fact that it "produces" only 1 2-channel response (Pattern 5).

Table 7j

§ 2 Channel Response v Incomplete Responses (Patterns 6,7,8)

for Experiment 1 x film x Pedophile Groups (N=18)

	2 Channel Response		Incomplete Response	
		(%)		(%)
Film 1	11	(61)	7	(39)
2	11	(61)	7	(39)
3	7	(39)	11	(61)
4	9	(50)	9	(50)
5	1	(6)	17	(94)

This increased probability of incomplete responses to film might suggest some "voluntary" control for material which might be very sensitive with regard to the probability of future release (See Chapter 1).

However, Experiment 3 produces a very different picture (See Table 6a). Firstly, none of the error-rates was worse than even the best error rate (28%) for Experiment 1. The concept least able to discriminate between the two groups, Concept A, attitudes to heterosexual intercourse produces 5 errors amongst the 30 subjects (16.6%) whilst Concept C, attitudes to female masturbation, produces a single error (97% "hit" rate) with a solitary homosexual pedophile classified as a heterosexual pedophile.

The diametrically opposed error pattern of Experiment 3 against Experiment 1 is further highlighted by the fact that classification A5 is the best performed task within Experiment 3, as opposed to being the worst performed task of Experiment 1.

5. Classification A3

This classification task is, clinically, the least important amongst the five tasks common to Experiment 1 and 3. It is also the most difficult since it requires classification into the largest number of groups (4). On this basis it should produce the most error-prone discrimination.

This expectation is confirmed for Experiment 3, since Table 6a shows that the 28% best error rate is indeed worse than for the other four classifications (See Table 7k).

Table 7k (from Table 6a)

Best Error Rate, Experiment 3

Classification A5	3
A4	13
A2	22
A1	22
A3	28

In Experiment 1 it is in fourth position above one of the two-category tasks, namely male pedophiles v female pedophiles, see Table 7g(i).

However, classification A3 allows a type of error which is distinct from its nearest cousin, classification A1 (Sex offenders against non-sex offenders). Unlike A3, classification A1 allows a particular type of sexual offender to be misclassified into the non-sexual offender category. In classification A3, Experiment 3 only three sexual offenders (2 heterosexual pedophiles and 1 rapist) are misplaced and four non-sexual offenders are misplaced, two into the heterosexual pedophile category and two into the rape category.

Paradoxically, the misplacement of non-sexual offenders (4 out of 15) is actually better than for classification A1, when the sex offender categories were combined and 7 of the 15 non sexual offenders were misplaced (See Table 6a(i)). Overall, the attitude data, see Table 6a(iii), does not suggest that a further classification, for example, rapists and non-sexual offenders (ie. all "acquisitive" offenders) against a "pure" sexual offender category, (ie. a deviant pedophile category) is justified by this data. Classification A3, Experiment 3, only suggests that Group 1 (Homosexual Pedophiles) are relatively distinct but this is not fully supported by classification A2.

Experiment 1 (Table 4d(viii)) also provides little support for a more rational classification. However, the same paradoxical pattern of misclassification occur, when only 2\23 non sexual offenders are misplaced when the sex offender categories are sub-divided as against 4 (Classification A1) when they are not. Similarly, 9 of the sexual offenders are misplaced into the non sexual offender category as opposed to 4 in the two-category task. Additionally, the homogeneity of the homosexual pedophile category is not preserved in Experiment 1, when, in fact, they are all misplaced using the best error rule.

SECTION B

Information Sources

1. Overall

From paragraphs 1-5 of Section A, it can be seen that the two different sources of information are not of equal utility in decision making.

Experiment 1 permits up to 9 possible information bases, namely:

Film 1	Heterosexual film
Film 2	Female masturbation
Film 3	Homosexual film
Film 4	Rape film
Film 5	Pedophile film
1,2,3 (R)	Combination of non-deviant films
1,2,3,4,5 (R)	Combination of all films
1,2,3 (S)	Combination of non-deviant films (stringent)
1,2,3,4,5 (S)	Combination of all films (stringent)

(Stringent rules only apply where sample sizes permit)

Experiment 3 permits a similarly wide choice of information bases (12):

- A: Heterosexual Intercourse
- B: Homosexual Intercourse
- C: Female Masturbation
- D: Male Masturbation
- E: Rape
- F: Sexual Intercourse with Young Boys
- G: Sexual Intercourse with Young Girls
- ABCD: Non-Criminal Sexual Behaviour
- EFG: Criminal Sexual Behaviour
- FG: Pedophile Behaviour
- AB: Intercourse only
- CD: Masturbation only

If the combined 21 sources are rank ordered for each of the five classification tasks, the following results are obtained:

Table 7L (i)

Information Base x 5 Classification Tasks

x Rank Order X Non-Deviant Material

Classification

A1 (% error)

A2 (% error)

A3 (% error)

Information Base

123(R)	16	123(R)	20	123(R)	22
12345(R)	16	12345(R)	20	12345(R)	22
123(S)	20	C	22.5	A	28.3
12345(s)	20	CD	22.5	D	30
Film 3	20	ABCD	22.2	AB	31.7
D	21.7	F	26.7	Film 1	32
CD	21.7	EFG	26.7	123(S)	32
ABCD	21.7	FG	26.7	12345(S)	32
Film 1	22	Film 1	28	Film 3	36
Film 5	22	D	28.8	C	36.7
C	23.3	E	28.8	F	36.7
Film 4	24.0	A	31.1	ABCD	36.7
Film 2	26.0	B	31.1	FG	36.7
A	26.6	G	31.1	CD	36.7
AB	26.6	AB	31.1	Film 4	38
F	28.3	Film 2	36	Film 5	38
G	28.3	Film 3	40	Film 2	40
EFG	28.3	Film 4	44	E	43.3
FG	28.3	Film 5	48	EFG	43.3
E	50.0			B	45
B	50.0			G	46.7

Table 7L (ii)

Information Base X 5 Classification Tasks

X Rank Order X Deviant Material

Classification

A4 (% error)

A5 (% error)

Information Base

123(R)	4	C	3
12345(R)	4	CD	3
Film 1	12	ABCD	3
Film 2	12	B	10
A	13.3	AB	10
F	13.3	D	13.3
ABCD	13.3	E	13.3
EFG	13.3	F	13.3
FG	13.3	G	13.3
AB	13.3	EFG	13.3
C	15.5	FG	13.3
D	15.5	A	16.6
CD	15.5	Film 1	28
E	17.7	Film 3	28
Film 4	20	123(R)	28
Film 3	28	12345(R)	28
Film 5	28	Film 4	34
B	33.3	Film 5	34
G	33.3	Film 2	43

Conclusions from Tables 7L (i) and 7L (ii)

1. Classifications A1,A2,A3,A4 are clearly best carried out by rules generated from sharing a combination of the first three films. For classification A1, even the stringent rule of 123(S) is better than the best effort of the attitude data.

This is consistent, for classification A1, with the "ad hoc rule(3)" which relied on the presence of a sexual response (IMI+) to identify a sexual offender and the total absence of a response in either channel to designate a non-sexual offender.

2. Classification A5 is quite different in a number of ways:

- a. All the sets of attitude data provide better rules than any of the films, either singly or in combination.
- b. Discriminating between male pedophiles and female pedophiles is what the attitude data does best of all and the film data does worst of all.
- c. The attitude data has a much larger sample (N=30) from which to discriminate the two populations, than the film data (N=18) and therefore the high success rate is even more remarkable.

3. Table 7L can be revised to answer the question as to what each information does best, if that is all one has at one's disposal.

Table 7m

Smallest Error x Information Base x Rank

	Within Sexual Offender Population		Between Sexual and Non-Sexual Offenders		General
	A4	A5	A2	A1	A3
Film 1	1	3=	3=	2	5
2	1	3	4	2	5
3	2=	2=	5	1	4
4	1	3	5	2	4
5	2	3	5	1	4
123(R)	1	5	3	2	4
Attitude A	1	2	5	3	4
B	3	1	2	5	4
B	2	1	3	4	5
D	2	1	4	3	5
E	2	1	3	5	4
F	1=	1=	3	4	5
G	4	1	3	2	5
ABCD	2	1	4	3	5
EFG	1=	1=	3	4	5
AB	2	1	4	3	5
CD	2	1	4	3	5
FG	1=	1=	3	4	5

It is consistent that no one information base is particularly good (within itself) at differentiating individual offender categories against each other (A3) and that films generally are best at discriminating pedophiles from rapists (A4) or sexual offenders from non-sexual offenders (A1).

2. Combination v Non-Combination

An additional conclusion from Table 7L is that films are much more likely to be used in combination than sets of attitudes. Naturally the power of an individual information base is contributed to the combination but it is not apparent why this should be so for film data and not attitude data.

Table 7n(i)

Best Combination x Best Single Information Base x Classifications A1-A5,

Experiments 1 and 3 x % error

1. Experiment 1 (Film)

	Best Single Film % error	Best Combination % error	Improvement of Combination % error
A1	20 (film 3)	16 (123(R))	+4
A2	28 (film 1)	20 (123(R))	+8
A3	32 (film 1)	22 (123(R))	+10
A4	12 (film 1 or 2)	4 (123(R))	+8
A5	28 (film 3)	28 (123(R))	0

Table 7n(ii)

2. Experiment 3

	Best Single Source % error	Best Combination % error	Improvement of Combination % error
A1	21.7 (D)	21.7 (CD)	0
A2	22.2 (C)	22.2 (CD)	0
A3	28.3 (A)	31.7 (AB)	-2.4
A4	13.3 (A)	13.3 (AB & others)	0
A5	3.0 (C)	3.0 (CD)	0

One possible explanation is that a single film does not provide an equivalent number of data points on which to make a discrimination. The reason could therefore be quantitative rather than qualitative.

Table 7o(i) (from Table 4d(xiv))

Data Points x Best Rules x Experiment I x Classification

Classification	Films used	Data points	Total Data Points
A1	3	8	
	2	4	12
A2	1	6	
	3	4	10
A3	1	7	
	3	4	17
A4	7	6	
	1	6	
A5	3	4	10
	1	6	6

Excluding the apparently idiosyncratic classification A5, a range of 10-17 data points are used from 2 or 3 films to reach the best rule and maximum discrimination.

Table 7o(ii)

Data Points x Best Rules x Experiment 3 x Classification

Classification	Attitude used	Variable used	Data Points	Total Data Points
A1	D	10 (new-old)	7	7
A2	C	1 (cruel-kind)	7	7
A3	A	7 (unsuccessful- successful)	7	7
A4	A	1 (cruel-kind)	7	7
A5	C	8 (hard-soft)	7	7

Table 7o(ii) shows that less information is used to generate the best rule in that only one of the 20 constructs is required. However, this one construct is in itself selected from the 20 which are available and therefore the quantitative hypothesis of film combination remains a viable possibility.

3. Deviant v Non-Deviant

Tables 7L(i) and 7L(ii) clearly show that the use of apparently deviant material does not enhance the discrimination obtained, for either films or attitude basis.

Table 7p(i)

Addition of Deviant Film x Best Single Film

x Experiment I x Classification

	123(R)	12345(R)	Best Single Film
	% error	% error	% error
A1	16	16	Film 3 (20)
A2	20	20	Film 1 (28)
A3	22	22	Film 1 (32)
A4	4	4	Film 1 (12)
A5	28	28	Film 1 or 3 (28)

Table 7p(ii)

Mean % Error Films 1,2,3 v Mean % error films 4,5 x Classification

	Films 1,2,3	Films 4,5
A1	22.6	23
A2	34.6	46
A3	36.0	38
A4	17.3	24
A5	33	34

Tables 7p(i) and 7p(ii) show that offence-related films do not contribute to the "hit" rate, indeed they are distinctly worse than the non-deviant material. Two particular points must also be made here. Firstly the "rape" sequence (film 4) is worse even on Classification A4 (Pedophiles v Rapists) than most of the attitude data (Table 7c) and also films 1 and 2. Secondly, film 5 is the second worst discriminator between male pedophiles and female pedophiles. This is in contrast with the prevailing ethos that material should match the offence of the consumer.

Table 7p(iii)

Deviant Attitudes X Non-Deviant Attitudes

X Experiment 3 X Classification

	ABCD	Base	EFG	Base
	(% error)		(% error)	
A1	21.7	D	28.3	F
A2	22.5	C	26.7	F
A3	28.3	A	36.7	F
A4	13.3	A	13.3	F
A5	3.0	C	13.3	E

The attitude confirms the results of the film data, in that the use of "deviant" concepts does not add to the power of the discrimination.

4. Best Rule and Smallest Information Base

Section B2 and Section B3 indicate that some information can clearly be discarded without impairing the discrimination. For Experiment 1 using a computer generated rule, the same combination of films 1,2 and 3 will be sufficient. However, the ad hoc rules, in particular ad hoc (3), see Table 4d(v) and 4c(i) requires that all the films must be shown. If, however, films 4 and 5 were not shown, then 3 further individuals, all non-sexual offenders would not be classifiable.

Table 7g (c.f. Table 4d(v))

Classification A1, Misclassification x Ad hoc rule (3) x Films 1,2,3

		Prediction	
		SO	NSO
Actual	SO	17	4
	NSO		20

where 9\50 (18%) of the sample would not be classifiable. (See also Appendix 4b).

The most parsimonious information base, whilst retaining the power of the discriminant rules would be as follows:

Table 7r

Classification x Film x Information Base x Error Rate

		Basis		Error Rate (%)	% Sample Classified
Classi- fication	A1	Film	123	16	100
	A2	Film	123	20	100
	A3	Film	123	22	100
	A4	Film	123	4	100
	A5	Film	123	28	100
A1 (Ad hoc 1)		Film	12345	16	100
A1 (Ad hoc 2)		Film	12345	0	34
A1 (Ad hoc 3)		Film	12345	8	88
A1 (Ad hoc 3)		Film	123	8	82
	A1	Attitude	ABCD	21.7	100
	A2	Attitude	ABCD	22.2	100
	A3	Attitude	ABCD	31.7	100
	A4	Attitude	ABCD	13.3	100
	A5	Attitude	ABCD	3.0	100

The consequences of a misclassification will also determine which rule (and therefore which information base) is adopted. The "political" dimension will be discussed in the next chapter.

SECTION C

NON-PATIENT DATA

1. Comparison with Patient Data for Accuracy

Table 6a, partly reproduced below, gives the range of accurate discrimination for data not including non-patient sources.

Table 7s(i) (from Table 6a)

Minimum % Error for Classifications A1-A5 using Attitude Data

	% Error	Number of Subjects
A1	22	60
A2	22	45
A3	28	60
A4	13	45
A5	3	30

By comparison, classifications involving non-patient data, not only result in larger subject pools, but also produce, in two cases, more accurate discrimination.

Table 7s(ii) (from table 6b)

Minimum % Error for Classification A6-A8 using Attitude Data

	% Error	Number of Subjects
A6	7.5	80
A7	10.0	80
A8	36.3	80

Classification A6 provides gratifying data in that, firstly, only four of the non-offenders are "misclassified" as offenders, whereas, secondly, only two of the offenders are classified as non-offenders. If only the classification of offenders is considered important, then this level of discrimination compares very favourably with the other best discriminations of the series of experiments.

Table 7t

Best Discriminations, Experiment 1 and 3 x Number in Sample

	Hit Rate (%)	% of Sample Classified	(No. of Sample)	Type of Misclassification
Ad hoc rule 3 (Expt. 1)	92	90	(50)	4 SO's as NSO's
A5, Attitude Data	97	100	(30)	1 female pedophile as male pedophile
A6, Attitude Data	97	100	(60)	2 offenders classified as non-offenders

The power of the discrimination between offenders and non-offenders helps to improve the discrimination between sexual offenders and other offenders and non-offenders. A comparison of A7 and A1 is as follows:

Table 7u (from Table 6a,6b)

Comparison of Discriminations involving Sexual Offender, A1 and A7
using Attitude Data

	% Error	No. of Sample
A1	22	60
A7	10	80

The pattern of errors between the two tasks as in fact similar, in that in A1 (Table 6a(i)) 7/15 (47%) non-sexual offenders are misclassified, and a much smaller proportion 4/45 (13%) of the sexual offenders are misclassified. In Classification A7, only two of the sexual offenders, 2/45 (4%) are misclassified, whereas 6/35 (17%) of the non-sexual offenders and non-offenders are misclassified. Curiously, only two of the non-offenders misclassified under A6, remain misclassified under A7, ie. 4/6 misclassifications are non-sexual offenders.

2. Comparison for use of Combination Data

Classification A₇ actually breaks the rule that combination of data sources for attitude data produces no improvement of discrimination;

Table 7v(cf. Table 7n(ii))

Best Combinations x Best Single Information Base x Classification A₆-A₈,

Experiment 3 x % Error

	Best Single Source (% error)	Best Combination (% error)	Improvement of Combination (%)
A ₆	7.5 (C)	7.5 (CD)	0.0
A ₇	15.0 (A or C)	10.0 (ABCD)	+5.0
A ₈	26.3 (C)	36.3 (ABCD or CD)	-10.0

SECTION D.

CONCLUSIONS

1. For the classification between sexual offenders and non-sexual offenders, and all but one of the within-sexual offender categories, a combination of three, non-deviant films provides the best stimulus configuration for the production of response patterns which produce the most accurate discrimination.
2. The discrimination by film, but not the discrimination by attitude, relies on combinations of responses, rather than on a single response. This applies when all the individuals must be classified as sexual offender or non-sexual offender.
3. An errorless discrimination, for Classification A1, is possible at the cost of only correctly identifying 68% of the sexual offender group, and not being able to make any decision about the rest of the sample.
4. The discrimination of male pedophiles from female pedophiles is an error-prone task, if a male pedophile film is used. However attitude data, in particular, attitudes to female masturbation, produced a rule which allowed 29/30 subjects to be correctly classified into one of the two categories.

CHAPTER 8

DISCUSSION

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Accuracy of Decision

Although there are no published studies which have tested rape offenders and pedophiles within the same category, it is possible to compare the overall result for differentiating sexual offenders from non-sexual offenders. Both the best discriminant function rule and the best ad-hoc rule produces a hit rate of 84% for the group of 25 sexual offenders and 25 non-sexual offenders taken as a whole. The 16% errors are, however, differently divided according to which rule is used, ie. with the discriminant rule each group had four individuals who were misplaced, and with the ad hoc rule the eight errors were all sexual offenders who were categorised as non-sexual offenders.

This result can be very favourably compared with that of Quinsey et al (1981) and Abel (1977, 1978) who found, at best, an overall hit rate of 76%, 74% and 80% respectively when differentiating rapists from non-rapists (either offenders or normals). These comparisons can only be made, when all the subjects are required to be classified, and therefore the ad hoc rule (3) which permits only 17\25 sexual offenders to be classified but without error, is matched only by the work of Freund (1979), where all members of a non-pedophilic group were accurately identified. Although the four individuals misclassified by the best discriminant rule were all in the pedophile category, there is no suggestion from the literature that rapists are any more detectable than any other single group of sexual offenders, and therefore raise the overall hit rate to the 84% level.

Classification A2 does suggest that it is the two pedophile categories which are causing problems; see Table 7c. Using non-pedophile material, ie. Film 1 (Heterosexual Intercourse) and Film 3 (Homosexual Intercourse) only the pedophiles are misplaced, see Table 4d(viii) and the 4\5 are in the wrong pedophile category. It is surprising that the rape sequence (Film 4) and the pedophile sequence (Film 5) not only provide the worst individual discrimination between the two groups, but also are not required in the generation of the "best-rule". This is partly because Ad hoc (3) rule is based on the presence of pattern IMI+ and this occurred mainly in response to the first three films.

This lack of relevance for pedophiles and rape material is consistent in that Classification A4 (the two pedophile groups together against the rape group) and Classification A5 (male pedophiles v female pedophiles) produced relatively poor results using these two single films. One possibility is that the films were both of general low arousal value for the two groups and therefore did not produce a sufficient response in either channel for discrimination to occur. Freund (1979,1982) has sought simply to detect pedophiles from normals and has not attempted to discriminate female from male pedophiles. The non-availability of a specifically female pedophile film does not impair the discrimination because the 72% hit rate was based on the response to two of the consenting films (1 and 3).

Classification A5 is unique amongst the five joint (Experiment 1 and 3) classifications, in that any combination of attitudes, the ostensibly more easily "faked" method, permits greater discrimination than the physiological data. It is Concept C, attitudes to female masturbation which permits an almost error-less (97%) decision and the fact that all the single and combined attitude scales improve on the

physiological-generated rule suggest that demand characteristics may be influencing the sexual and subjective response over and above the relevance of the stimuli.

SECTION B

The Individuality of Rapists?

There has been a considerable amount of recent research into the response patterns of rape offenders. At a theoretical level, this has stemmed from the work of Abel et al (1977) who found that there was a positive correlation ($r = .98$) between the mean erection response to rape scenes and the mean erection response to purely aggressive descriptions with a female victim, for a group of 12 selected rapists. Abel then postulated two ends of a "rapist" continuum.

1. The non-rapist has aversion to the thought of forcing himself on a woman and his erection responses to mutually enjoyable intercourse are ample, ie. similar to non-offenders; if elements of force are added, his erection is suppressed and then non-rapists fail to respond to scenes of non-sexual aggression.
2. The rapist, on the other hand, also has ample erection responses to mutual intercourse, but the addition of "force" cues have little, if any, depressing effect on his erectile response (Failure of Inhibition Hypothesis).
3. The more-extreme rapist is an individual who does not get erections to mutually enjoyable intercourse, and the addition of violent cues actually increase his level of response. He also responds substantially to purely aggressive cues, without any sexual content (The Preference Hypothesis).

The data from Experiment 3 would support the sub-group preference concept, in that 3/15 rapists would be correctly classifiable by any of the four single attitude sub-sets. It is not clear whether these individuals are the more determined, experienced or persistent rapists amongst this group.

This distinction between lack of inhibition and the positive preference has itself generated considerable argument and further research. Barbaree et al (1979) have suggested that it is the violence and force within the rape (audio) sequences which inhibits or suppresses erectile responses, which would in other circumstances be evoked by the descriptions of sexual behaviour. The fact that the non-rapists in this study showed a differential response to the various rape sequences, ie. they showed least response to the most violent rape sequence supports this argument. The corollary of this argument for identified rapists, is not that rapists' sexual arousal is enhanced by depicted force, violence or non-compliance but rather that such events fail to inhibit such responses. It might well be that rapists are extremely selective and concentrate entirely on the sexual descriptions of the female, whether or not she is consenting or victimised.

The main alternative hypothesis is that rapists prefer rape cues and therefore respond more to rape stimuli than non-rape stimuli. Although Abel et al (1977) has used a rape index of less than 1.0, Quinsey et al (1981, 1984) have found that their rapists do respond more to rape stimuli than non-rape stimuli. Quinsey has sought to differentiate between the possibility that it is the violence itself which is indirectly sexually arousing in that it is consistent with certain aspects of violent sexual fantasies or other sadistic thoughts, and the second possibility that violence in any context is sexually arousing. By changing the victims in rape sequences from female to male, he has been able to show that the

context is crucial in determining whether or not a clear sexual response is demonstrated. Quinsey et al (1984) supports the Abel (1977) finding that there was a positive correlation between response to stories involving non-sexual violence with a female victim and the response to rape of a female victim ($r=.34$) and therefore the degree of correspondence between the two determines the sexual response.

In the work here presented, the seven rapists who viewed the rape film responded in a very similar pattern to the consenting heterosexual sequence.

Table 8a

Physiological\Cognitive Responses (by Pattern) of Rapists (N=7)
to Rape and Non-Rape Films

	Film 1 (Consenting)	Film 4 (Rape)	Film 5 (Pedophile)
Pattern 1	3	7	-
2	3	-	-
6	-	-	2
7	1	-	4
8	-	-	1

From Table 8a it can be seen that this small group of rapists differ little in the pattern of their responding to the two heterosexual intercourse (consenting and rape) films. Given that IMI- is simply a slower acceleration of the self-estimate response and is in the same temporal relationship to the physical response as IMI+, it can be seen that only one individual fails to give an IMI+\LMI- to the rape film. However, this small group were uniform in giving an incomplete response to the pedophile film, with consenting but deviant content. It is interesting to note that pattern 7 (No R but P) was the modal response; perhaps such a film could be interpreted as "non-consenting" and therefore have some stimulus value (eg. similar to the arousal value of non-sexual violence) but this is not recognised\admitted because of the demand, self-report requirement, hence a physiological but not cognitive response.

Table 8b

Pattern of Response for Non-Sexual Offenders (N=25) to Film 1 and Film 4

	Film 1	Film 4
	N	N
Pattern 1	-	-
2	1	-
3	4	1
4	-	1
5	8	-
6	2	3
7	9	11
8	1	9
Total	25	25

Table 8b shows that the non-sexual offenders, in addition to never demonstrating pattern 1 (See Ad hoc rules, Chapter 4) also fail to exhibit an example of Pattern 2 to Film 4. Overall only 3 from this group of 25 did not physiologically respond (Pattern 6 or 8) to Film 1, but 12 of the same group failed to respond to the rape film.

These data do not conclusively allow us to decide between the "preference" and "inhibitory" hypotheses in that a single example of a rape sequence was used, where the female participant was clearly not consenting, or becoming aroused. However, the fact that almost 50% of the non-sexual offenders did show some inhibition (Pattern 7) to the rape film adds weight to the inhibitory hypothesis. The rapists' sexual response was clearly more convergent, even if desynchronised, and therefore the effect of the "violence" for the non-rapists revealed itself mainly in the subjective measure, in that where there was an erectile response, it was unrecognised or not recorded by the individual (Pattern 7). Although it is impossible to separate the "coercive" from the "violent" elements in determining the likely cause of any inhibitory effect, the attitude data suggests that pre-existing attitudes to rape differentiate poorly between the two groups (See Table 7ⁱⁱ), and therefore either element may be the more powerful.

Further support for the inhibition rather than the preference hypothesis comes from the recent studies which examined between and within group differences. Quinsey (1984) found that a group of rapists did not respond more than non-sex offenders to sadistic or masochistic bondage and spanking stories. The inhibition hypothesis would suggest that non-consenting bondage stimuli should depress the sexual response of non-sexual offenders, but this was not so. However, where descriptions of violence and victim injury are clear, ie. a non-sexual but violent

sequence, the non-sexual offender's erectile response is depressed, whilst the rapists' sexual response is very similar to the non-consenting, bondage sequence, Baxter (1986) also suggests that only stories which involve vicious attacks and clear victim injury discriminate rapists from non-rapists.

A "hit" rate of 82.3% for differentiating rapists from pedophiles according to their attitudes to rape can be set against the somewhat better discrimination (96%) based on the physiological response to consenting, non-deviant films. There is a further difficulty to be explained, in that the attitudes to rape (Concept E) did not permit any better discrimination than by chance alone (ie. 50%) in differentiating sexual offenders as a whole from non-sexual offenders. However, the effect of a coercive stimulus is much more evident in the self-report experiment. Clearly, the coercive element had an inhibitory effect in the subjective response channel, where non-sexual offenders were more sensitive to the social demands and may have reflected these rather than the evidence of their own, if detected, state of physiological arousal. It is quite possible to speculate as to why the differentiation between the groups only occurs in the subjective channel.

Firstly, the questionnaire may simply not "trigger" an individual's valid attitudes towards rape behaviour in either others or himself. Therefore such a pencil and paper method fails to elicit the lack of inhibition of one particular group. Secondly, the physiological\objective response setting does provide a more graphic\visual example of rape and the higher face validity of this situation, coupled with the obvious (or not?) erectile response, may determine a clear denial response (ie. Pattern 7) from the non-sexual offenders.

Additionally, the sex offender group may not discriminate between the rape film and the consenting film and give the same desynchronous response for entirely different reasons to both films. If sexual offenders are generally not inhibited, then high levels of subjective sexual arousal may be a consequence of consistent orgasmic reinforcement for the subsequent deviant and dangerous sexual behaviour. Owens (1986) has suggested that all types of sexual arousal (whether behavioural, subjective or physiological) will be influenced by the relationship between the stimuli being presented and the delivery (historically, and for each individual offender) of reinforcement. Given that Malamuth (1983) has proposed that non-offenders can and do respond physiologically to rape stimuli, then the actual commission of rape might have the effect of synchronising or disinhibiting the subjective response to rape stimuli. The longer (and more frequent) the history of rape behaviour, it seems possible that what might be a learnt, disinhibited response, becomes a "preference".

However the lag data suggest that the delay for sexual offenders is actually longer (29 v. 23 seconds) than for the non-sexual offenders. The lag estimation does not, unfortunately, take into account the magnitude of the response, and therefore the effect of "acting out" on subsequent desynchrony remains speculative.

Although the rapists in this study had, on average, only committed one or two rapes, and/or one or two attempts, Baxter (1986) proposes that not all "rapists" are necessarily equivalent. For example, the individuals used by Abel (1977) and Quinsey (1984) were both from a maximum security psychiatric hospital where there was a possibility of "criminal insanity". In both cases the subject population had committed the more brutal, sadistic and persistent assaults, often involving a large number of victims. For example, 6/13 rape subjects in the Abel (1977) study had

committed 10 or more (up to 100 or more !) rapes. This is clearly a qualitatively different offending pattern from that found in the subjects for these experiments.

Baxter, however, reports the results of 60 rapists, where 90% of the group responded less to the rape audiotape than to the mutually consenting sequence. Baxter explains this unexpected result by stating that there were some rapists who failed to discriminate and did respond equally and that these individuals were masked by the group mean. Baxter also suggests that this group of rapists were unselected and had only attacked adult women. It could be assumed that the more persistent the offender, the higher their relative response to rape stimuli and the more likely production of an "IMI+" type pattern, rather than Pattern 7. This would suggest that some of the non-sexual offenders (See Table 8b) are not unlike Malamuth's subjects, in that they are "rape-prone", and if ever they were to commit such an assault, the consequent result of self-labelling, for example on their subjective response, would resemble an IMI+ pattern.

There is some supporting evidence for this idea from the pedophile literature (Avery-Clark and Laws 1984) to suggest that offenders who used excessive force, and simultaneously physically abused the victim, were much more likely to have high coercion: consent ratios, suggesting a positive preference in the well practiced and sadistic group. This might suggest that the individual's self-perception, based on positive feedback, might serve to further enhance the response to deviant stimuli.

There was, unfortunately, no attempt to disinhibit this response in this experiment by an experimenter manipulation; Quinsey et al (1981) was able to show a raised physiological response in a non-offender group to rape sequences, by informing them that

"normal males become sexually aroused to depictions of sexual situations which they have never encountered in their own lives".

and Blader and Marshall (1984) told non-offender subjects

"Previous research in this area shows that most adult males show sexual arousal to all types of these sexual activities; apparently because of their common sexual elements; therefore, it would be quite appropriate for you to show response to all or none of these fantasies. Your becoming aroused is perfectly normal and expected."

The "Information Package" described in Chapter 4, does not give any specific hint or suggestion that arousal to any one film might be expected or normal. However, it is stated that sexual excitement will be measured and therefore this could be considered as a non-specific demand. Both Quinsey and Blader and Marshall found that stated expectations did make a significant difference, in the former study on level of erectile response (still differentiable from genuine rapists) and in the latter study, on subjective responses to very violent sequences, but not to mildly violent ones. Blader and Marshall suggest that there may be two types of discrepancy,

1. to mild rape stimuli, where despite encouraging demands, penile responses are not indicated, although clearly present
- cf. 2. to more violent rape stimuli, where social expectation has depressed the subjective response, which is then redeemed by altering the environmental contingencies which apply to making such a subjective response.

Given that the Experiment 3 data, in particular the attitudes to rape differentiate poorly between rapists and pedophiles, and not at all between sexual offenders and non-sexual offenders, it seems more likely that the examples of Pattern 7 (No R but P) are examples of the first type of desynchrony or discrepancy. If depressed subjective responding was determined by the social unacceptability of the stimulus, then one would expect that this should apply to all groups, given that there is no difference in attitude between them.

Blader and Marshall (1984) also suggest that such discrepancy is more likely in the less violent rape sequence and, from published verbal descriptions of the enactment, the rape sequence used in Experiment 1 resembles the less-violent rape which Blader and Marshall used, more than the rape-assault sequence.

This discrepancy in the two response channels to Film 4 was mainly found in the non sexual offender group. The work of Malamuth (eg. 1983) suggests that there is some significant erectile response amongst non-offender\$ to rape stimuli and therefore such a response amongst the non-sexual offender group should not be unexpected. Yates (1984) found that "insulted" students altered their physiological pattern of response to rape stimuli after the insult had been delivered by a confederate of the experiment. In this "aroused and angry" state, their response to mutually consenting material was reduced and increased for the rape audio tapes. Such an event produced a "Rape Index" of (51.9 : 54) for eight student volunteers. This experiment demonstrates the power of external variables on willing, non-offender subjects; the contingencies which apply when a\$, as yet, non-sexual offender is in a similar situation, ie. exposed and responding to a sexually explicit rape sequence require further examination.

Finally, the rapist group were more likely to produce an IMI+ pattern to the heterosexual stimuli, whether the female participant was apparently willing or not. The next section considers the nature of this form of desynchrony, as well as some of the possible factors which might determine it.

SECTION C

Desynchrony

Hodgson and Rachman (1974) have suggested that concordance is high

"during strong emotional arousal while discordance is more evident when emotional responses are relatively mild".

In the context of sexual arousal this would suggest that increased sexual arousal would lead to greater response system agreement. To test this proposal we need to assess, simultaneously, the subjective and physiological response to sexual cues. When subjects are then required to self-report, ie. "track" own physiological arousal by diverting attention from external cues to internal systems, concordance should also be higher. More problematic is the fact that there are two types of discordance:

1. The first of these is described by the correlation coefficient and can be described as the extent to which systems co-vary. The presence of a "ceiling effect\floor effect" on the correlation can make such a statistic, from a clinical perspective, useless. The preliminary analysis described in Chapter 4 points out that the price for using such a measure is that all information about "time\lag" is lost, and the individual pattern of the co-variance, eg. in relation to lag (in seconds) is lost.
2. The second desynchrony is in the differential level of response. A dysfunctional male (or female) might show a high correlation in time between physiological arousal and self reported arousal, but the two responses could be quite divergent in terms of intensity.

There are, apart from the results of Experiment 1, four separate examples in the scientific literature of some form of desynchrony. Schaefer et al (1976) found that with young male volunteers, reading an erotic passage:

"Estimates (concurrent but intermittent) of 10% and 20% total erection were not uncommon at 90% measured erection".

They concluded that if males think that they have an erection, they probably do, but they may also have one without realising it. Given that subjects were prompted by a buzzer, to make an irregular but distinct decision about their degree of erection (the more accurate measure, see Abel et al 1981), it is not clear for how long this state of desynchrony actually lasted, although we do know that there was no improvement over time. Regardless of the exact pattern of desynchrony, it is surprising that subjects did not simply visually inspect themselves in order to make a decision since Schaefer et al did not attempt to screen the genital area; indeed they specifically state that the area was unrestricted by clothing.

This was, however, considered by Sakheim et al (1984) but the opportunity to see one's erection again made no difference either to the Directional Response-System Concordance Measure (DRSCM) or the Intensity Response-System Concordance Measure (IRSCM). More important is the non-statistical descriptive comment quoted by Sakheim volunteered by some of his subjects that, for them, full erection usually occurred well before maximum subjective responding, in particular for a high arousal film; in this case the % of genital responding surpassed the % of subjective responding for 59% of the time. Naturally pattern 2, (IMI-) where subjective responding is, relative to genital responding, slower to reach its maximum, would play havoc with a statistic resembling the correlation coefficient, eg. the IRSCM.

The Sakheim et al study does not permit a temporal examination of the desynchrony in that we do not know whether it was continuous, at early stages of tumescence, or irregular throughout the film presentations. However, the results suggest that the sexual offenders who produce desynchronous patterns may be rather more "normal" than hitherto considered i.e. producing IMI+ and IMI-. The results (eg. Table 4c(i)) would suggest that the non-sexual offenders are the more idiosyncratic, at least in terms of providing "Pattern 7" type of desynchrony.

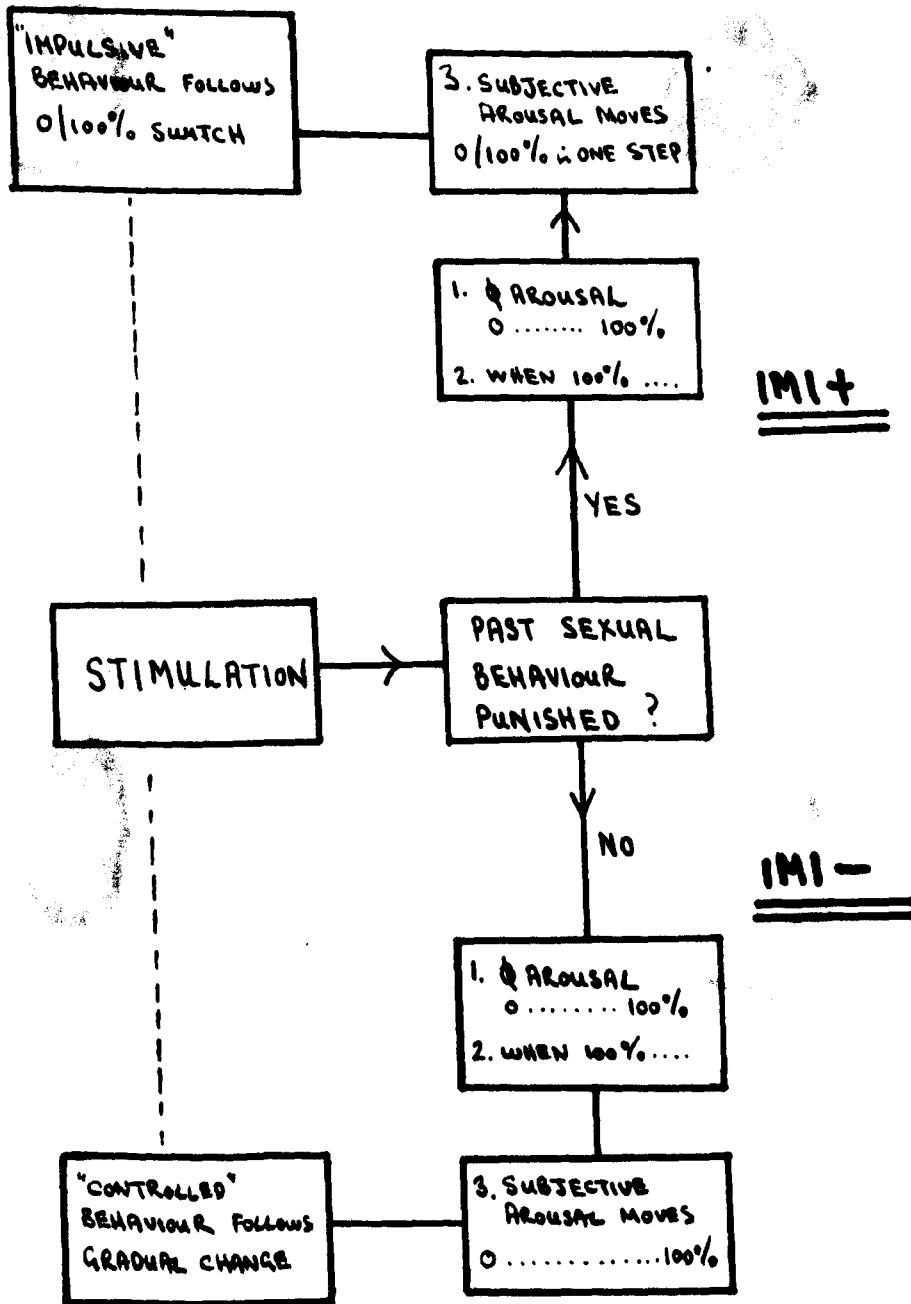
Abel et al (1978) describes one individual who denied any sexual arousal (Pattern 7) to a film where he displayed 40 % of full erection. This individual was proud of the fact that he could control his sexual "urges" and his response pattern was therefore more consistent with his beliefs than his concurrent physiological state.

The fourth example is from the area of evaluating subjective responding in women. Heiman (1977) suggested that many women report no arousal when there is obvious physiological response, because they need an external validation to label an internal event. Although they do have internal signals during arousal, they have been taught to pay less attention to physiological reactions; therefore training or instructing women to direct their attention to bodily cues should produce greater correspondence between the two measures. Korff and Geer (1983) did find that alerting female subjects to their internal arousal cues did increase the mean correlation (from .48 to .86).

Since the apparent desynchrony of IMI+, if not of Pattern 7 seems an inability to detect, rather than an unwillingness to report, it is interesting to speculate on the effect of instructions\directions on measures of male concordance. If individuals are not attending to the actual physiological changes which accompany arousal, then is it possible that he is attending to other physiological cues. There are a number of potential sources of feedback available to the individual who is required to self-report, for example, heart rate, muscular tension, respiration, skin temperature, in addition to the specifically sexual, for example, degree of erection and lubrication. If subjective levels of sexual arousal are desynchronous with external measurements of erection, it is quite possible that they are synchronous with a single or combination of other physiological changes. There is no guarantee that the selection of cues should be universal, in that some individuals may scan only certain "dials" in order to decide where they are in the process of developmental onset of sexual arousal, whilst others may scan different indices.

A multiple cue model has some advantages over the single cue model. Firstly it could incorporate the effect of "positive feedback" in that detection of change in one channel could quite easily act as a trigger for change in another; it might simply reduce "discriminability" for early and slight change in another channel. The notion of reciprocity might partially explain the lag-desynchrony of IMI+, in that it is only when erectile arousal has almost reached its maximum that the decision to scan "psychological states" is made; this then results in an immediate acceleration as if a dichotomous state is detected (not sexually aroused or fully sexually aroused) or the onset of a gradual increase in subjective response (IMI-) which seems to resemble the "normals" response of Sakheim et al (1984), see diagram.

Diagram 1



If IMI- is the "normal" response in functional males, then it is also possible that IMI+ is pathological in origin. The effect of punishment (partner response at one end of a continuum to incarceration for sexual offending\behaviour at the other) on the subjective feelings of sexual arousal is, according to the research evidence, unclear. However, the precise patterns of IMI+ might suggest that some form of desynchrony has been taught, in that sexual arousal is simply repressed or ignored until it reaches such a level that the the subjective state is simply switched from "off" to "on", hence impulsive sexual behaviour. We know that social demand characteristics differentially affect subjective responding and erectile responding and therefore the effect of punishment might simply be to increase the degree to which physiological arousal must rise before the subjective all-or-nothing response is triggered.

One of explicit experimental proposals of Wincze (1980), the originator of the "cognitive lever", has been met in part by Experiment 2. This showed that both sexual offenders and non-sexual offenders were equally able to estimate magnitude systematically and accurately. This alone suggests that observed desynchrony is not due to a practice effect or scaling deficit.

A useful follow-up experiment would be to monitor a range of psychophysiological response channels, in addition to the self-monitoring channel, and to examine the consistent changes in order to "detect" the determinants for that individual, at that time, and for that degree of sexual arousal, of his subjective sexual experience. A therapeutic procedure might then be to encourage the individual to alter his monitoring procedure, a variant of which might be termed "cognitive sensate-focus" (?).

SECTION D

Is IMI+ Dysfunctional?

Masters and Johnson (1970) have suggested that self-focussing, particularly from a third-person perspective, is a distracting process and produces (or helps to produce) a dissociation between subjective sexual thoughts and feelings, from sexual activity itself. Abrahamson (1985) manipulated both the object of the focus, ie. focussing on one's own sexual response and focussing on the level of partner's response and also the actual level of partner responsiveness, (high, low or ambiguous) in an experiment where sexually functional men listened to heterosexual-content audiotape and required to monitor their sexual arousal by using a concurrent potentiometer. They found a similar, desynchronous response pattern to an audiotape which depicted high partner responsiveness, and the requirement to self-focus.

In this condition, the physiological response was very low, whilst the subjective response was the highest for all the conditions or stimuli. This situation is very similar to the heterosexual film used in Experiment 1, in that a high level of partner responsiveness is depicted (also in Film 2) yet subjects are required, not to identify with the individual in the film, but to monitor their own level of response. This spectating effect might be explained by again examining the sexual reinforcement history of the experimental subjects. Wolchik (1980) has suggested that volunteers for a sexual experiment are probably atypical, particularly in the extent of their sexual experience. One might assume that having to self-focus when faced with a partner depicting a high state of responsiveness might be a relatively novel experience, since self-focus seems to be much more associated with dysfunction than successful

functioning (Beck and Barlow 1986). Similarly, the incarcerated sexual offender, with a probable history of contingent punishment for sexual behaviour, has learnt to deny all sexual arousal until it is unavoidable.

The relevance of desynchrony between response systems is further increased by recent research in the study of anxiety disorders. Grey et al (1979, 1981) have shown that desynchrony may predict relapse during treatment for intense fears and avoidance behaviours. Their desynchrony was also between a physiological measure, namely heart rate, and a subjective rating of "fear". However, it was manifest not within assessment sessions but between sessions, in that subjective fear increased between sessions, whilst heart rate, in the "high demand condition resembling flooding" did not. If high levels of demand are more likely to produce discordance, then the fact that desynchrony does appear to be evident within sexual assessment sessions, and possibly at times of natural sexual arousal, whether or not preceding sexual assault, does not after all seem quite so surprising.

SECTION E

Clinical Application

Apart from the potential of teaching synchrony as a means of enabling desynchronous individuals to become, for themselves, more predictable and hopefully, if responding to deviant stimuli, controllable, this research begins to answer some of the important clinical questions which are relevant in this area.

Firstly, the relationship between what subjects think they see i.e. according to their perceptual constructs, and the elicited sexual arousal seems crucial. Only the dysfunctional literature (Cole 1985) has identified this area as the most fruitful avenue for further research. The work of Sakheim, Barlow and Abrahamson is gradually following similar lines of development, but there has been little application of the results to the population of rapists and pedophiles.

Secondly the political "masters" of the Special Hospitals, the Home Office, have recently issued (1986) "guidelines" for their own examination of the case of release of a restricted patient. These are partly reproduced here :

CHECK LIST OF POINTS CONSIDERED BY THE HOME OFFICE IN EXAMINING THE CASES OF RESTRICTED PATIENTS

1. Has any information come to light since the last report which increases understanding of the circumstances surrounding the index offence ?
2. Is the motivation for behaviour that has put others at risk understood?

3. Is there any evidence that the patient has a persistent pre-occupation with a particular type of victim or a particular type of violent/sexual/arsonist activity ?

4. What are the chances of circumstances similar to those surrounding the offence arising again and similar offences occurring ?

7. In cases of psychopathic disorder, is the patient now more mature, predictable and concerned about others ? Is he more tolerant of frustration and stress ? Does he now take into account the consequences of his action ? Does he learn from experience ?

8. Does the patient now have a greater insight into his condition ?

11. If the patient is a sex offender, has he shown in the hospital an undesirable interest in the type of person he has previously been known to favour as his victim ? What form has any sexual activity taken ? What have been the results of any psychological tests ?

Any reply to all these guidelines could and should use data, demonstrating either synchrony or desynchrony, to be both complete and comprehensive.

• Appendices

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Appendix 1

Age x IQ x Index Offence x Sexual Offenders (Experiment 1)

<u>Number</u>	<u>Age</u>	<u>IQ</u>	<u>Index Offence</u>
SO 1	22	78	Rape x 1, attempted x 2
2	25	80	IA girl aged 5
3	29	77	IA x 3, girls aged 6-9
4	28	92	IA girl aged 7
5	32	93	USI girl aged 12, IA girl 10
6	24	102	IA girls x 3, aged 7-9
7	31	72	Buggery on boy 11 years
8	46	85	IA x 3, boys 6-10 years
9	27	89	Gross indecency x 3
10	28	90	IA x 2, buggery x 1
11	26	90	IA girl aged 8
12	28	89	IA x 4, girls 6-15
13	26	78	IA boy age 10
14	25	87	Attempted rape x 2
15	28	93	IA girls x 3, aged 4-8 years
16	31	89	Rape x 1, attempted x 1
17	30	70	IA x 2, boys aged 8, 10
18	23	72	IA boy aged 7
19	27	73	IA x 6, girls aged 6-9

20	29	78	Attempted rape x 2
21	26	93	Attempted rape x 1, rape x 2, IA x 3
22	23	95	Rape x 1
23	24	85	Rape x 2, attempted x 1
24	27	85	IA x 3, girls aged 11-13
25	24	89	Buggery x 2, IA x 3, boys age 13-15
Mean	27.56	84.9	
SD	4.68	8.5	

Appendix 2

Age x IQ x Index Offence x Non-Sexual Offenders (Experiment 1)

	<u>Number</u>	<u>Age</u>	<u>IQ</u>	<u>Index Offence</u>
NSO	1	42	89	Assault x 3
	2	25	90	GBH x 2, TDA x 3
	3	26	83	Manslaughter of parent
	4	41	78	Theft x 3, burglary
	5	30	73	Absconding, assault x 2
	6	32	75	Carrying offensive weapon
	7	29	85	Criminal damage, assault
	8	26	78	Attempted murder
	9	34	97	Assault, ABH
	10	36	94	Burglary, theft x 5
	11	23	93	Manslaughter, assault
	12	28	84	Assault on policeman
	13	27	78	TDA, GBH, wounding
	14	44	90	Offensive weapon, assault
	15	36	80	Theft x 5, assault x 1
	16	36	76	Assault x 2, theft
	17	33	71	Theft, forgery, assault
	18	29	87	Assault x 4, wounding
	19	40	81	Wounding with intent x 2

20	42	82	Manslaughter of woman
21	25	94	Assault x 3, burglary
22	26	113	Carrying offensive weapon
23	36	72	Assault occ. ABH
24	24	78	Theft, TDA x 5
25	39	89	Wounding, assault x 2
Mean	32.36	84.3	
SD	6.51	9.5	

One-way ANOVA Experiment 1

<u>Age</u>	SOS	DF	MS	F
Within	288	1	288	8.95 (p=.01)
Between	1543	48	32.1	
 <u>IQ</u>				
Between	3.92	1	3.94	.05 (n.s.)
Within	3892.9	48	8.05	

Appendix 3

Suppliers' Name and Addresses

1. Barlow Strain Gauge

Farrall Instruments Inc.

P.O.Box 1037

Grand Island

Nebraska 68801

USA.

Local Agents :

Aleph One Ltd.

The Old Courthouse

High Street

Bottisham

Cambridge CB5 9BA.

2. Polygraph (Devices M19 and Balance Box)

Devices Ltd.

Hyde Way

Welwyn Garden City

Hertfordshire AL7 3AP.

Appendix 4a

Patterns of Response x Sexual Offenders x Groups (Experiment 1)

<u>Film</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>Group</u>
SO 1	1	1	1	2	7	1
2	2	1	6	2	6	2
3	5	1	6	3	6	2
4	5	7	5	2	6	2
5	6	6	6	6	6	2
6	7	7	7	7	7	2
7	1	1	4	4	6	3
8	7	1	7	6	6	3
9	2	1	1	2	6	3
10	8	8	8	8	8	3
11	1	1	5	1	6	2
12	5	1	1	7	7	2
13	5	7	7	7	7	3
14	1	1	7	2	7	1
15	5	5	8	4	5	2
16	1	2	7	1	7	1
17	8	8	1	2	8	3
18	1	1	7	7	8	3
19	8	5	7	7	8	2

20	1	2	1	1	6	1
21	1	2	7	7	8	1
22	1	1	1	2	7	1
23	1	2	7	1	8	1
24	7	8	8	7	7	2
25	2	1	8	2	7	3

Appendix 4b

Patterns of Response x Non-Sexual Offenders (Experiment 1)

<u>Film</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
NSO 1	7	6	8	4	8
2	7	7	7	7	7
3	5	3	8	7	8
4	5	2	8	7	7
5	7	8	8	8	8
6	3	2	6	8	8
7	6	6	8	8	3
8	3	2	8	7	7
9	5	8	3	8	8
10	5	3	8	8	8
11	6	6	8	6	8
12	5	5	6	6	8
13	2	4	8	8	8
14	7	5	8	7	8
15	7	7	7	7	7
16	3	8	8	7	8
17	8	8	8	8	8
18	5	5	8	7	8
19	7	7	8	8	4

20	7	8	8	7	8
21	7	8	2	6	8
22	5	2	7	7	8
23	5	8	5	8	8
24	3	3	8	3	8
25	7	5	8	7	7

Appendix 5a

Age x IQ x Index Offence x Sexual Offenders (Experiment 2)

	<u>Number</u>	<u>Age</u>	<u>FSIQ</u>	<u>Offences</u>
SO	1	32	78	1A Boys x 3, Girls x 1
	2	44	98	1A Girls x 15
	3	31	77	1A Girls x 7, Boys x 2
	4	35	80	1A Girls x 3, Ind. Exposure
	5	50	95	Rape Girl age 15
*	6	23	73	Att. Rape, 1A women x 5
	7	27	76	1A Boys x 8, Girls x 4
	8	29	82	Rape x 2
	9	42	93	Rape x 1, Att. Rape x 3
	10	36	90	1A Boys x 3
*	11	31	81	1A Girls x 8, 1A Women x 2
	12	43	78	Att. Rape x 2
	13	44	79	Att. Rape x 1, Rape x 1
*	14	20	82	1A Women x 5
	15	48	90	1A Girls x 6
	16	37	103	1A Girls x 3, Ind. Tel. Calls x 8
	17	32	95	1A Girls x 2
	18	29	70	1A Girls x 1, Boy x 1
*	19	38	89	Att. Rape x 2
	20	47	92	1A Women x 9
	Mean	35.9	85.0	
	SD	8.5	9.1	

* = length of stay less than 2 yrs.

Appendix 5b

Age x IQ x Index Offence x Non-Sexual Offenders (Experiment 2)

<u>Number</u>	<u>Age</u>	<u>FSIQ</u>	<u>Index Offence</u>
NSO 1	38	72	Theft x 3, assault x 2, TDA
2	26	91	Assault, GBH, burglary
3	28	90	ABH, criminal damage, assault
4	32	78	Wounding with intent, assault
5	35	85	Manslaughter
6	51	83	Carrying offensive weapon, assault
7	42	80	Assault, theft x 5
8	45	90	GBH, burglary, theft
9	49	111	Assault x 3, TDA, assaulting police
10	39	73	Asault occasioning ABH, assault x 2
11	21	76	Murder of common law wife
12	23	79	Theft x 2, resisting arrest
13	29	94	Carrying offensive weapon, ABH
14	40	85	Theft, TDA, unlawful wounding
15	33	86	Manslaughter
16	23	82	Manslaughter of girlfriend
17	37	80	GBH x 2, assault
18	30	97	Burglary x 2, theft x 3, assault
19	29	73	Wounding with intent, theft x 6
20	22	77	Assault x 5, ABH
Mean	33.6	84	
SD	8.9	9.5	

Appendix 5b (Contd.)

One -way ANOVA Experiment 2.

Age

	SOS	DF	MS	F
Between	52.9	1	52.9	.70 (n.s.)
Within	2874.6	38	75.64	

IQ

Between	9.0	1	9.0	.10 (n.s.)
Within	3300.75	38	86.86	

Appendix 6a

Correlation Coefficients x Sexual Offenders x Baselines
and Plateaux (Experiment 2)

	<u>Base. 1</u>	<u>Plat. 1</u>	<u>Base. 2</u>	<u>Plat. 2</u>	<u>Base. 3</u>	<u>Plat. 3</u>	<u>Base.4</u>
SO 1	.34	-.68	-.14	.03	.08	.74	.15
2	-.07	-.50	.28	-.23	-.30	.24	-.52
3	-.11	.68	-.27	-.54	-.56	.54	-.42
4	-.05	1.00	.14	-.03	-.02	.05	-.13
5	.11	.22	.43	.56	.60	.32	-.02
6	-.02	.49	.20	-.11	.17	.12	-.13
7	-.13	.52	-.11	-.08	-.23	.11	-.13
8	.07	-.43	-.13	-.46	-.11	.07	.10
9	-.09	-.18	.20	-.35	-.10	-.03	.08
10	.21	-.43	-.23	-.41	.30	-.04	.01
11	.19	-.61	-.28	.20	.21	.36	-.02
12	.17	-.57	-.01	-.05	.18	.21	-.03
13	-.05	.41	.03	-.09	.16	.20	-.11
14	-.03	-.29	.06	.02	.15	.42	-.10
15	-.02	.23	-.21	-.04	-.21	.54	-.08
16	.11	.17	-.12	.06	-.19	-.10	-.21
17	-.12	.35	-.08	-.21	-.02	-.12	.17
18	-.04	.38	.06	-.18	-.17	-.23	-.15
19	.01	.69	-.03	-.01	-.16	.03	.16
20	-.04	-.09	-.02	.11	.01	.12	.15

Appendix 6 b

Correlation Coefficients x Sexual Offenders x Increase\Decrease

Periods (Experiment 2)

<u>Period</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
SO 1	.98	.90	.95	.97	.97	.89
2	.83	.37	.39	-.20	.22	.49
3	.96	.94	.78	.82	.81	.97
4	.87	.94	.83	.91	.94	.90
5	.50	.94	.43	.61	.87	.89
6	.34	.94	.97	.94	.96	.86
7	.92	.82	.92	.87	.91	.90
8	.89	.88	.93	.85	.89	.91
9	.97	.43	.77	.92	.96	.83
10	.58	.68	.85	.67	.62	.87
11	.62	.72	.42	.69	.76	.88
12	.67	.73	.45	.70	.69	.68
13	.91	.85	.79	.92	.93	.75
14	.89	.92	.80	.94	.87	.93
15	.71	.93	.81	.89	.72	.93
16	.90	.90	.82	.68	.88	.88
17	.89	.71	.65	.66	.90	.87
18	.88	.79	.49	.39	.63	.88
19	.71	.56	.92	.94	.76	.90
20	.95	.96	.94	.96	.77	.62

Appendix 7a

Correlation Coefficients x Non-Sexual Offenders x Baselines
and Plateaux (Experiment 2)

	<u>Base. 1</u>	<u>Plat. 1</u>	<u>Base. 2</u>	<u>Plat. 2</u>	<u>Base. 3</u>	<u>Plat. 3</u>	<u>Base.4</u>
NSO 1	-.07	.23	-.20	-.11	-.11	.02	.02
2	-.11	.45	-.17	-.11	.03	.17	.04
3	-.12	.12	-.02	.21	.07	.15	.07
4	.08	-.31	.21	.18	.12	.03	-.17
5	.15	.21	.17	.19	.41	-.05	-.12
6	.06	-.40	.19	-.20	-.26	-.06	.07
7	.03	.31	.01	-.03	.20	.18	.31
8	.42	.32	-.01	.17	.21	.17	-.27
9	-.07	-.17	.09	-.05	-.05	-.21	-.21
10	-.06	-.08	.07	.08	-.02	-.25	.08
11	-.01	-.12	-.02	.12	.01	.01	.08
12	-.08	.18	-.43	-.07	.07	.02	-.10
13	.12	.21	.28	-.08	.17	.17	-.12
14	.21	.08	.17	.17	.12	-.13	-.14
15	.18	.09	.23	.19	.15	-.41	.07
16	.02	-.13	.07	-.08	.18	-.36	.06
17	.03	-.14	-.15	.21	-.18	.25	.21
18	-.02	-.07	.13	-.23	-.16	.17	.17
19	.01	.05	.21	-.18	.12	.19	.10
20	.13	.04	.18	-.19	.20	-.20	.07

Appendix 7b

Correlation Coefficient x Non-Sexual Offenders x Periods of
Increase\Decrease Periods (Experiment 2)

<u>Period</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
NSO 1	.87	.87	.80	.91	.87	.87
2	.72	.81	.62	.96	.81	.86
3	.65	.62	.96	.90	.98	.54
4	.91	.90	.71	.81	.83	.82
5	.90	.63	.68	.54	.76	.91
6	.87	.76	.71	.76	.67	.96
7	.72	.72	.63	.87	.90	.92
8	.65	.70	.56	.88	.85	.82
9	.72	.96	.87	.81	.86	.71
10	.87	.82	.82	.71	.71	.70
11	.91	.81	.78	.68	.69	.69
12	.90	.92	.91	.92	.90	.96
13	.83	.71	.89	.83	.91	.93
14	.84	.62	.71	.85	.92	.92
15	.75	.49	.69	.96	.83	.94
16	.67	.87	.69	.88	.54	.76
17	.72	.88	.93	.92	.91	.83
18	.78	.70	.68	.54	.36	.86
19	.71	.69	.61	.88	.92	.77
20	.92	.92	.72	.81	.91	.88

Appendix 8

Age x IQ x Offence x Sexual Offenders (Experiment 3)

	<u>Age</u>	<u>IQ</u>	<u>Index Offence</u>
SO 1	32	90	IA on 8 year old boy x 2
2	49	85	Buggery 10 year old boy, IA x 2
3	26	93	Gross Indecency 9 year old boy, IA x 1
4	31	72	IA x 6 boys age 6-12
5	35	87	IA x 2, buggery on 8 year old boy
6	40	85	IA 10 year old boy
7	42	93	Indecent exposure, gross indecency 10 year old boy
8	22	76	Buggery x 3, 8 year old boy
9	53	79	IA boys aged 6 and 11
10	48	78	IA x 6, boys aged 2-8
11	27	83	IA x 3 boys aged 7-8
12	31	74	Buggery, IA boy age 13
13	35	81	Buggery x 2, boys aged 14 and 15
14	34	97	IA on boy age 5
15	26	102	Indecent exposure x 4, IA boy aged 12
16	29	85	IA girl aged 12, indecent exposure x 2
17	42	84	Unlawful sexual intercourse with a minor age 14
18	23	78	IA x 5, girls aged 6-11
19	38	91	Attempted rape of girl age 10, IA x 2
20	43	91	IA x 2, girls aged 7 and 12

21	30	82	IA on a girl age 6, indecent telephone calls
22	51	85	Indecent exposure, IA x 6, girls 9-10
23	37	76	IA x 1, girl age 12
24	37	78	Attempted rape girl age 8, IA x 3
25	29	112	IA x 6, girls aged 4-14
26	34	74	Buggery on dead girl aged 8
27	37	77	IA x 3, girl aged 13
28	23	82	Unlawful sexual intercourse, girl age 9
29	33	83	IA x 2, sisters aged 8 and 9
30	35	94	IA x 4, girls aged 4-15
31	27	92	Attempted rape on woman, IA x 2
32	29	85	Rape x 1, IA x 14
33	51	101	IA on woman, rape x 2
34	60	98	Indecent exposure x 3, rape x 1
35	24	91	Rape x 1, assault x 3
36	27	82	Assault x 4, Attempted rape x 2
37	30	85	Rape x 1, indecent telephone calls
38	31	76	Attempted rape x 1, GBH, assault
39	42	79	Burglary, attempted rape x 2
40	29	84	Rape x 1, assault x 3
41	35	82	Attempted rape x 3
42	37	90	Attempted rape x 2, IA x 3
43	43	74	Rape x 3, assault x 5, IA x 3
44	37	78	Attempted rape x 3, IA x 2
45	25	84	IA x 2, kidnapping, attempted rape
Mean	34.9	85.0	
SD	8.9	8.5	

Appendix 9

Age x IQ x Offence x Non-Sexual Offender, Patients (Experiment 3)

	<u>Age</u>	<u>IQ</u>	<u>Index Offence</u>
NSO 1	32	82	Assault x 3, absconding
2	37	91	Arson x 2
3	29	76	Assault occasioning ABH
4	28	79	GBH x 2
5	41	101	Manslaughter of wife
6	36	83	Arson x 4
7	36	87	Burglary x 6, TDA x 2, assault
8	24	79	Robbery x 2, assault, assault on a policeman
9	31	92	Carrying offensive weapon
10	42	74	Arson x 2, TDA, assault
11	27	80	Assault x 3, theft x 7
12	53	91	Manslaughter of neighbour, assault x 2
13	28	89	Arson x 2, criminal damage
14	34	107	GBH, robbery, assault in course of arrest
15	37	92	Theft x2, absconding, assault
Mean	34.3	86.9	
SD	7.4	9.2	

Appendix 9 (Contd.)

One way ANOVA Experiment 3

<u>Age</u>	SOS	DF	MS	F
Between	36.45	1	36.45	.48 (n.s.)
Within	4366.5	58	75.3	

IQ

Between	6.42	1	6.42	.09 (n.s.)
Within	4200.9	58	72.43	

Appendix 10

Status of Non-Patient Subjects (Experiment 3)

1. Charge Nurse
2. Charge Nurse
3. Staff Nurse
4. Staff Nurse
5. Staff Nurse
6. Staff Nurse
7. Charge Nurse
8. Enrolled Nurse
9. Enrolled Nurse
10. Enrolled Nurse
11. Staff Nurse
12. Charge Nurse
13. Staff Nurse
14. Staff Nurse
15. Enrolled Nurse
16. Senior Enrolled Nurse
17. Staff Nurse
18. Staff Nurse
19. Staff Nurse
20. Charge Nurse

Semantic Differential (Experiment 3) Introduction Page

INTRODUCTION TO RESEARCH PROJECT

The attached sheets represent part of my research dissertation endeavour. I hope you will be able to help me by completing them returning them to the person who gave them to you. If you have any doubt about taking part in this project, perhaps the following points will put your mind at rest:

- (1) The result sheets do not require your name, nor indeed should you volunteer it, and therefore the results are received by me completely anonymously.
- (2) You have been chosen as a representative of a particular group of people and I am therefore not interested in your results individually.
- (3) The area of concern is one of personal attitude towards various social behaviours and is a necessary part of the research as a whole. Your results will therefore be integrated with other results.

PETER S PRATT

Principal Clinical Psychologist

July, 1984

Appendix 12

Semantic Differential (Experiment 3) Instructions Sheet

INSTRUCTIONS

The purpose of this study is to measure the meanings of certain things to various people by having them judge them against a series of descriptive scales. In taking this test, please make your judgements on the basis of what these things mean to you. On each page of this booklet you will find a different concept to be judged and beneath it a set of scales. You are to rate the concept on each of these scales in order.

Here is how you are to use these scales:

If you feel that the concept at the top of the page is very closely related to one end of the scale, you should place your check-mark as follows:

fair X _____ _____ _____ _____ _____ unfair

OR

fair _____ _____ _____ _____ _____ X unfair

IMPORTANT:

(1) Place your check-marks in the middle of spaces, not on the boundaries:

	THIS		NOT THIS	
_____	_____	X	_____	X
_____				_____

(2) Be sure you check every scale for every concept - do not omit any.

(3) Never put more than one check-mark on a single scale.

Sometimes you may feel as though you have had the same item before on the test. This will not be the case, so do not look back and forth through the items. Do not try to remember how you checked similar items earlier in the test. Make each item a separate and independent judgement. Work at a fairly high speed through this test. Do not worry or puzzle over individual items. It is your first impressions, the immediate "feelings" about the items, that we want. On the other hand, please do not be careless, because we want your true impressions.

Appendix 13

Raw Data x Heterosexual Intercourse x Groups (Experiment 3)

Mean (Standard Deviation) x Group

Group	1	2	3	4	5
Construct 1	4.9(2.6)	5.4(1.6)	3.3(1.7)	5.5(1.2)	4.9(1.2)
2	4.9(2.3)	5.2(1.7)	3.9(1.5)	5.0(1.8)	4.7(1.5)
3	2.8(2.1)	3.6(1.7)	2.9(0.6)	3.4(1.3)	3.1(1.9)
4	5.0(2.5)	5.0(1.3)	5.5(1.2)	5.0(1.5)	4.6(1.7)
5	5.5(2.0)	4.2(1.5)	2.3(1.3)	2.9(1.2)	3.5(1.8)
6	3.2(2.3)	3.7(1.5)	3.6(1.4)	3.2(1.8)	3.4(1.8)
7	2.7(2.0)	4.2(2.0)	5.1(1.0)	5.1(1.2)	4.1(1.8)
8	2.7(2.5)	3.5(1.2)	3.4(1.5)	4.1(1.3)	3.7(2.0)
9	3.0(2.1)	3.6(1.4)	3.0(0.8)	3.5(1.5)	3.7(2.1)
10	3.5(2.4)	5.0(1.90)	4.7(1.9)	4.6(1.7)	4.2(2.0)
11	3.3(2.1)	2.9(0.7)	4.0(1.4)	2.5(2.00)	3.0(1.6)
12	4.9(2.3)	4.0(1.1)	3.8(1.3)	4.8(1.8)	4.5(1.3)
13	3.3(2.0)	3.0(0.8)	3.4(1.1)	2.5(1.6)	3.5(1.5)
14	5.5(1.1)	4.5(1.2)	4.1(1.0)	4.1(1.3)	4.5(1.2)
15	4.9(1.7)	4.8(1.8)	4.1(1.3)	5.2(1.7)	4.3(1.9)
16	5.4(1.8)	4.7(1.3)	4.6(1.1)	4.9(1.8)	4.7(1.3)
17	4.2(2.2)	4.1(1.40)	3.6(1.2)	4.6(1.9)	4.1(1.3)
18	3.9(1.9)	4.1(1.2)	4.0(1.2)	2.6(1.7)	3.6(1.4)
19	3.5(2.2)	3.1(1.0)	3.2(0.6)	2.6(2.0)	3.8(1.5)
20	4.3(2.5)	3.9(1.5)	4.7(1.3)	4.3(1.1)	3.4(1.2)

Appendix 14

Raw Data x Homosexual Intercourse x Groups (Experiment 3)

Mean (Standard Deviation) x Group

Group	1	2	3	4	5
Construct 1	4.7(2.2)	3.7(1.3)	2.9(0.8)	3.6(1.5)	4.1(1.7)
2	3.9(2.0)	3.7(1.5)	3.9(1.2)	3.3(1.8)	4.1(1.3)
3	4.4(2.1)	3.6(1.5)	3.2(1.2)	3.5(1.8)	4.2(1.7)
4	2.7(1.9)	3.5(1.4)	3.9(1.2)	3.8(1.5)	4.5(1.8)
5	3.3(2.3)	3.7(1.2)	3.5(1.4)	3.4(1.7)	3.3(2.1)
6	3.8(2.1)	3.7(1.3)	4.3(1.4)	4.2(2.3)	3.6(2.0)
7	4.3(2.2)	4.7(1.5)	4.3(1.5)	3.6(1.9)	4.8(1.7)
8	2.7(1.7)	3.3(1.4)	3.9(1.4)	4.8(1.6)	4.5(2.0)
9	3.6(2.2)	3.3(1.6)	4.5(1.3)	4.9(2.0)	3.7(1.8)
10	3.9(1.8)	3.5(1.6)	4.3(1.5)	5.3(1.5)	4.7(2.2)
11	3.8(2.0)	4.5(1.5)	2.3(1.1)	4.8(2.4)	3.592.1)
12	4.1(2.0)	4.2(1.1)	3.9(1.1)	3.0(1.9)	4.2(1.7)
13	4.2(2.4)	3.991.3)	3.9(1.2)	3.7(1.6)	2.9(1.1)
14	5.5(1.5)	3.9(1.2)	3.9(0.8)	4.0(1.4)	4.7(1.4)
15	4.3(2.1)	4.1(1.5)	3.9(1.2)	4.2(1.6)	4.5(1.7)
16	4.5(2.0)	3.7(1.1)	4.2(1.2)	3.0(2.0)	4.1(2.1)
17	3.5(1.7)	3.9(1.2)	3.5(1.2)	3.2(2.2)	4.3(1.4)
18	3.8(1.6)	4.2(0.9)	5.1(1.0)	4.5(1.9)	3.5(1.7)
19	4.4(2.1)	3.5(1.3)	4.0(1.0)	4.9(2.1)	3.6(1.7)
20	4.6(2.4)	4.3(1.1)	4.5(1.0)	4.0(1.20)	4.1(1.7)

Appendix 15

Raw Data x Female Maturation x Groups (Experiment 3)

Mean (Standard Deviation) x Group

Group	1	2	3	4	5
Construct 1	4.7(2.7)	5.0(1.0)	3.6(1.0)	4.3(1.0)	4.9(2.0)
2	5.6(1.6)	3.8(1.2)	3.7(1.3)	4.3(1.1)	4.8(1.7)
3	4.9(1.8)	4.2(1.4)	3.7(1.2)	5.7(1.6)	3.6(1.8)
4	3.9(2.1)	4.1(1.2)	4.0(1.1)	4.3(1.5)	4.3(2.0)
5	2.5(1.0)	3.5(1.2)	3.9(1.4)	3.9(2.2)	3.3(1.9)
6	4.9(2.4)	3.5(1.2)	4.5(0.9)	3.2(1.2)	3.1(1.9)
7	4.9(2.2)	4.3(1.3)	4.3(1.4)	5.0(1.6)	4.3(1.9)
8	3.9(2.5)	4.1(1.1)	3.5(1.4)	4.9(1.4)	4.9(1.5)
9	3.0(2.3)	3.3(1.2)	4.9(1.0)	4.2(1.3)	3.3(1.5)
10	2.7(1.5)	3.2(1.2)	3.6(1.4)	5.5(1.6)	4.1(2.2)
11	3.5(2.3)	3.2(1.2)	4.1(1.3)	3.3(1.5)	3.4(2.3)
12	3.3(2.1)	4.4(1.3)	4.1(1.0)	4.4(1.5)	3.7(1.8)
13	3.8(2.2)	3.5(1.5)	3.6(1.3)	3.4(1.2)	3.1(1.6)
14	5.3(1.7)	4.5(1.5)	4.2(0.6)	3.9(1.8)	4.0(1.5)
15	5.1(2.1)	4.4(1.4)	3.8(1.0)	5.0(1.5)	4.9(2.3)
16	6.1(1.1)	4.4(1.3)	4.0(1.3)	3.7(1.2)	4.5(1.9)
17	4.3(2.2)	3.9(1.2)	4.0(0.7)	4.1(1.2)	3.9(2.1)
18	3.7(2.0)	3.5(1.0)	4.4(1.1)	3.2(1.7)	3.9(2.1)
19	3.9(2.1)	4.2(1.3)	4.1(1.0)	3.6(1.6)	3.7(1.9)
20	3.8(1.6)	3.5(1.1)	3.9(1.0)	3.8(0.9)	3.7(1.5)

Appendix 16

Raw Data x Male Masturbation x Groups (Experiment 3)

Mean (Standard Deviation) x Group

Group	1	2	3	4	5
Construct 1	5.7(1.0)	4.1(1.7)	3.8(1.1)	4.8(1.6)	4.0(0.9)
2	5.0(1.5)	4.8(1.2)	4.2(1.3)	4.2(1.5)	3.8(1.4)
3	3.8(2.0)	3.0(1.3)	3.0(0.2)	1.9(1.2)	2.6(1.9)
4	2.9(1.6)	4.3(1.7)	4.6(0.6)	4.4(1.4)	3.9(1.5)
5	2.4(1.4)	4.8(1.6)	3.3(0.6)	2.3(1.2)	3.2(1.6)
6	4.1(2.1)	3.9(1.4)	4.0(1.0)	3.1(1.4)	4.5(1.6)
7	4.3(2.2)	3.3(1.4)	4.8(1.7)	4.7(1.2)	4.1(1.8)
8	3.1(2.2)	3.9(1.3)	2.7(1.0)	3.5(1.6)	4.3(2.0)
9	3.3(2.6)	3.5(1.6)	4.6(1.2)	3.3(1.4)	4.2(1.8)
10	4.1(1.8)	4.4(1.7)	5.1(1.9)	5.8(1.6)	5.3(2.0)
11	2.4(1.6)	3.3(1.0)	3.1(1.5)	2.8(1.3)	3.7(2.1)
12	3.5(2.3)	4.8(0.9)	4.7(0.9)	4.4(1.3)	4.892.1)
13	3.6(2.6)	3.3(1.1)	3.1(1.4)	3.2(1.0)	3.6(1.3)
14	4.5(1.5)	4.9(1.1)	4.2(0.9)	4.2(1.1)	4.1(1.6)
15	4.5(1.5)	4.1(1.1)	3.9(1.1)	5.0(1.0)	4.7(2.0)
16	5.5(1.3)	4.1(1.5)	3.5(1.1)	4.5(1.0)	3.6(1.9)
17	2.9(1.6)	4.2(1.3)	3.9(0.9)	4.3(1.1)	4.7(1.7)
18	3.2(1.5)	3.6(1.5)	3.3(1.5)	2.6(0.9)	3.9(1.9)
19	4.8(2.0)	3.7(1.0)	4.1(1.3)	3.2(1.2)	3.5(1.8)
20	2.6(1.4)	4.2(1.1)	4.1(0.9)	3.8(0.6)	3.7(1.2)

Appendix 17

Raw Data x Rape x Groups (Experiment 3)

Mean (Standard Deviation) x Group

Group	1	2	3	4	5
Construct 1	1.3(1.3)	2.3(1.4)	2.5(1.0)	1.2(0.5)	1.8(0.9)
2	2.7(2.2)	2.7(1.7)	2.8(1.3)	2.6(1.5)	3.2(1.6)
3	3.7(1.6)	2.8(1.4)	4.0(0.9)	3.7(1.2)	3.6(1.6)
4	1.9(1.9)	2.2(0.9)	3.3(1.6)	2.4(1.4)	2.8(1.7)
5	3.7(2.9)	2.7(1.9)	2.2(1.3)	2.3(1.5)	3.6(1.8)
6	6.7(0.8)	5.7(0.8)	4.8(1.1)	6.6(0.7)	5.7(1.4)
7	2.1(2.2)	2.3(1.5)	4.3(1.6)	2.9(1.3)	2.9(1.9)
8	3.3(2.0)	2.4(1.5)	3.8(1.3)	2.8(1.4)	3.2(1.6)
9	6.5(1.3)	6.0(0.8)	5.3(0.7)	6.4(0.9)	6.0(1.2)
10	4.7(1.3)	4.4(1.8)	3.9(1.4)	5.5(1.4)	5.3(1.4)
11	6.5(1.1)	5.8(0.8)	5.3(2.1)	6.5(0.6)	6.3(1.1)
12	3.4(1.9)	5.0(1.5)	5.1(1.6)	3.0(1.9)	3.5(2.1)
13	3.0(2.6)	3.4(1.3)	2.8(1.7)	3.0(1.8)	3.8(1.9)
14	3.6(0.8)	4.2(1.8)	3.9(1.1)	3.6(1.2)	3.7(1.5)
15	3.2(2.2)	4.4(1.5)	5.1(1.5)	4.7(1.5)	3.9(1.6)
16	2.7(1.5)	4.4(1.9)	3.1(1.7)	2.9(1.2)	3.0(1.7)
17	2.6(1.8)	3.5(1.6)	4.1(1.2)	2.8(1.7)	2.7(1.4)
18	4.5(1.7)	5.7(1.0)	4.4(1.5)	5.4(1.3)	4.6(1.7)
19	6.1(1.8)	5.7(1.0)	5.9(1.3)	6.1(1.2)	5.7(1.7)
20	3.3(2.2)	4.6(1.5)	3.9(1.6)	4.7(1.4)	4.4(1.5)

Appendix 18

Raw Data x Sexual Intercourse with Young Boys x Groups (Experiment 3)

Mean (Standard Deviation) x Group

Group	1	2	3	4	5
Construct 1	1.8(1.6)	3.5(1.6)	3.1(1.6)	2.0(1.5)	2.3(1.7)
2	2.9(1.9)	3.2(1.4)	3.3(1.6)	2.8(1.0)	3.0(1.6)
3	3.1(1.4)	2.5(0.7)	4.1(1.4)	3.4(1.2)	3.0(1.5)
4	2.3(2.2)	3.7(1.9)	3.9(1.3)	3.0(1.2)	3.3(1.7)
5	4.5(2.2)	3.7(1.8)	3.5(0.9)	3.4(1.2)	2.9(1.8)
6	5.8(1.9)	4.5(1.6)	4.7(1.2)	5.5(1.7)	5.7(1.9)
7	2.9(2.4)	3.3(1.3)	4.7(1.2)	3.1(1.5)	2.7(1.6)
8	3.0(1.6)	3.3(1.3)	4.4(1.4)	3.1(1.3)	3.6(2.2)
9	5.4(2.1)	5.4(1.2)	5.1(1.4)	6.1(1.0)	5.7(1.5)
10	4.3(1.9)	5.1(1.6)	4.0(1.8)	5.3(1.3)	5.3(1.6)
11	5.5(1.8)	5.1(1.4)	4.7(1.7)	6.1(1.1)	5.5(2.0)
12	3.6(1.8)	3.3(1.2)	5.3(1.3)	2.8(1.8)	3.7(2.2)
13	3.2(1.6)	3.1(1.4)	3.7(1.4)	4.0(2.0)	3.1(1.7)
14	4.3(1.5)	3.5(1.5)	3.7(0.9)	4.1(1.4)	3.8(1.6)
15	3.4(2.2)	4.0(1.4)	4.8(1.5)	4.3(1.3)	4.1(2.1)
16	3.7(2.0)	3.1(1.3)	3.3(1.9)	3.1(1.7)	3.2(1.8)
17	3.5(1.9)	4.2(1.6)	4.1(1.4)	3.3(2.3)	3.3(2.5)
18	4.1(1.6)	4.8(1.4)	4.9(1.0)	4.7(2.0)	5.0(1.7)
19	5.4(2.0)	5.7(1.2)	4.8(1.6)	5.8(1.6)	5.7(1.9)
20	4.1(2.0)	3.9(2.1)	4.5(2.0)	4.4(1.5)	4.3(1.5)

Appendix 19

Raw Data x Sexual Intercourse with Young Girls x Groups (Experiment 3)

Mean (Standard Deviation) x Group

Group	1	2	3	4	5
Construct 1	2.3(1.8)	3.1(1.0)	3.0(1.8)	2.7(1.6)	2.7(1.8)
2	2.2(1.8)	2.7(1.1)	3.5(1.5)	3.2(1.5)	2.4(1.2)
3	2.7(1.8)	3.9(1.7)	3.6(1.6)	3.2(1.3)	3.1(1.4)
4	3.0(2.2)	3.3(1.7)	3.2(1.5)	2.9(1.8)	2.7(2.1)
5	4.5(2.6)	5.8(1.2)	3.0(1.7)	3.6(1.9)	3.7(2.2)
6	5.5(2.2)	4.5(2.1)	5.2(1.6)	4.2(2.5)	4.9(2.3)
7	3.0(2.3)	4.7(2.2)	3.9(2.2)	3.8(2.0)	4.4(2.0)
8	2.9(2.3)	4.7(1.4)	4.8(1.6)	3.7(1.4)	4.3(1.8)
9	5.1(2.5)	6.0(1.1)	5.1(1.6)	6.0(1.2)	5.6(1.7)
10	4.2(1.9)	5.0(1.1)	4.7(1.9)	4.7(1.9)	5.0(1.9)
11	5.7(2.0)	5.7(1.5)	5.2(1.8)	5.9(1.6)	5.4(2.0)
12	3.3(2.3)	3.2(1.5)	4.2(2.0)	3.3(1.9)	3.7(2.0)
13	2.8(2.1)	3.7(1.2)	3.0(1.5)	4.0(1.8)	3.9(1.6)
14	4.0(1.7)	3.4(1.0)	4.0(1.2)	3.7(1.4)	3.7(1.2)
15	3.5(2.7)	3.6(2.1)	4.3(1.7)	4.3(1.5)	3.4(1.8)
16	3.8(2.4)	3.6(1.6)	3.3(1.7)	3.2(2.0)	3.9(1.7)
17	4.0(2.5)	3.7(1.8)	3.3(1.1)	3.2(2.0)	3.4(2.2)
18	4.2(2.2)	4.7(1.4)	5.1(0.9)	4.8(1.5)	4.3(2.0)
19	5.5(1.6)	5.3(1.3)	4.9(1.6)	5.5(1.4)	5.8(1.5)
20	4.4(1.8)	4.7(1.5)	4.3(1.7)	4.7(1.1)	4.6(1.1)

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