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Consistency of personality traits and verbal behaviour in leaderless small group discussion

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CONSISTENCY OF PERSONALITY TRAITS AND VERBAL

BEHAVIOUR IN LEADERLESS SMALL GROUP DISCUSSION

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ABSTRACT

The research was concerned with consistency between three types of trait interaction and verbal behaviour in small student discussion groups. Hypotheses based on trait interactions of varying saliency were tested against samples of verbal behaviour.

Using three successive classes of first-year Psychology students, Ss were selected on the basis of scores on the Spielberger STAI, the Wrenn Study Habits Inventory and the Eysenck Personality Inventory. Nineteen leaderless groups were formed, with two male and two female members. The discussions were scored using Bales' Interaction Process Analysis.

The first study was concerned with extreme trait interactions involving two dimensions, neither of which was considered to be prominent in small group behaviour. The data, supplemented by other measures, provided strong support for the consistency hypothesis.

The second study dealt with extreme trait interactions involving two dimensions, one of which was considered to be prominent in small group behaviour. The data with respect to interactions involving high extraversion provided better support for the consistency hypothesis than those involving low extraversion.

The third study was concerned with trait interactions, involving extreme scores on only one dimension. Consistency was more evident in the high and low anxiety groups, than in the high and low extraversion groups.

The demonstration of consistency depended on the nature of the trait interaction. Interactions involving more than one extreme trait provided strong confirmation of the consistency hypothesis on the basis of the observational record alone; weaker interactions required supplementary data; some trait interactions – notably those involving low extraversion – were associated with unpredictable behavioural correlates.

The reliability of the data was checked using comparison groups, test-retest trials of the personality inventories, tests of the scoring method, and feedback from the Ss.

Taken as a whole, and in the absence of replication, the links between the three types of trait interaction and verbal behaviour were shown to have consistent characteristics across all three studies.

CONSISTENCY OF
PERSONALITY TRAITS AND VERBAL BEHAVIOUR
IN LEADERLESS SMALL GROUP DISCUSSION

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DECLARATION

I HEREBY DECLARE THAT THE FOLLOWING THESIS IS
A RECORD OF RESEARCH CARRIED OUT BY ME, THAT
THE THESIS IS MY OWN COMPOSITION AND HAS NOT
BEEN PREVIOUSLY PRESENTED IN APPLICATION FOR
A HIGHER DEGREE.

NICHOLAS R. HALPIN

CERTIFICATE

I CERTIFY THAT NICHOLAS R. HALPIN

HAS SATISFIED THE CONDITIONS OF THE

ORDINANCES AND REGULATIONS AND

IS THUS QUALIFIED TO SUBMIT THE

ACCOMPANYING APPLICATION FOR THE

DEGREE OF DOCTOR OF PHILOSOPHY

J.M.M. GOOD

DEDICATION

MOIRA ELIZABETH HALPIN

FOR HER UNFAILING PATIENCE AND ENCOURAGEMENT

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

This research arose from an undergraduate dissertation, undertaken by the author, entitled Interpersonal Perception in Small Groups (Psychology Department, University of Durham, 1973-74).

Three groups of ten students participated in a total of twenty sessions. Using the Bales observational system, Interaction Process Analysis (1950), the role of each participant was determined by three interactional dimensions (Bales, 1970), and assigned from a total of 27 group roles. The group role of each member was then matched against a similar range of roles produced by 'Interpersonal Ratings' questionnaires completed by each participant.

No significant correlation was found between the group role (extrapolated from the behavioural record) and subjects' ratings. The results raised doubts about the theoretical validity of Bales' spatial model of group structure, about observer reliability and about the adequate sampling of behaviour. In addressing these problems, the discussion pointed to the need, among other things, for a more thorough appraisal of the nature of consistency in small group behaviour.

1.2 CONSISTENCY

One approach to the study of behavioural consistency in small groups is to examine the personality scores of participants in one medium (e.g. personality inventories) and correlate them with scores in another (e.g. behavioural ratings). As such, the issue belongs to

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that area of controversy highlighted by Mischel (1968), who noted the disappointing results when trait theory was examined in the light of such comparisons. Mischel and others concluded that the accurate prediction of behaviour was better served by:

A. Reference to the subject's behavioural history.

B. A greater awareness of those moderating variables that facilitate consistency.

C. An acknowledgement of the power exercised by situational factors.

In general, personality theorists have sought to account for the predictive deficiencies exposed in classical trait theory by accepting that the evidence for consistency is less absolute than previously claimed or supposed; and their more relative stance has been concerned with identifying cases where consistency is likely to occur, its nature, the qualifying conditions and its degree of pervasiveness.

For instance, satisfactory coefficients of consistency have been demonstrated in the aggregation of specific and appropriate behaviours over time (Epstein 1979, 1980), in certain behaviours for selected individuals (Bem and Allen 1974) and in the identification of prototypical acts (Buss and Craik 1983).

In this research the consistency issue is examined within the context of small group behaviour, in terms of how it is differentially fostered by trait interactions of varying saliency.

Little attention has been paid to behavioural consistency in small groups. The drawbacks include the moderating factors stemming from the well-documented social dynamics of such groups, and the statistical complications that arise when individual behaviour is closely associated with overall group performance. However, the

potential advantage of studying small groups is that they include a
wide range of behaviour, much of it accessible to observation,
measurement and control.

1.3 RESEARCH ISSUES

1.3.1 Purpose

The objective in this research was to examine the behavioural
record in leaderless small group discussion in order to identify the
extent to which predictable behaviour was associated with certain
types of trait interaction.

Consistency studies have typically resorted to matching inventory
scores against tallies of specific behaviours occurring over time
either in similar or different situations. Some behaviours, such as
those expressive of punctuality, can be usefully dichotomised
(presence or absence) and appropriate statistics obtained. With
behaviours associated with more pervasive traits, where consistency
can be identified both at the macro level (e.g. the association
between extraversion and overall activity) and in characteristics at
the micro level (e.g. specific signs of social behaviour), the data is
still amenable to statistical analysis. However, where the
consistency hypothesis depends upon the presence – or absence – of
unique behaviours, support may turn more on the robustness of the
observational system than on the occurrence of the actual behaviour.

Where the focus is on the behavioural correlates of trait
interactions, unique behaviours or single categories of activity while
statistically convenient are more limited in their utility and may
provide inadequate support for the consistency hypothesis. For
instance, ratings of disagreement would demonstrate only partial
evidence of the trait interaction of anxiety and extraversion.

In the search for consistency, trait interactions are more usefully construed in association with behavioural profiles. Such syndromes, involving related and predictable behaviours, depend as much on the absence of certain behaviours as on the presence of others. The statistical analysis of such behavioural patterns is difficult, since the contributing elements will vary in their frequency, and, to a certain extent, their significance will be moderated by context and meaning.

In tandem with the main objective, various factors were examined that were associated with the appraisal of consistency, e.g. the reliability of the observational scheme, the way in which subjects viewed the research, the robustness of the discussion format, the reliability of the criterion measures, etc.

1.3.2 Assumptions

Certain assumptions were made from the outset:

A. Given the limitations of the observational scheme (see Appendix 1.2) it could not be legitimately assumed that the observational record would comprehensively, precisely or invariably document the relevant behaviours. The evidence of the reference behaviours would always remain incomplete. Also, in identifying behaviours concomitant with trait interactions, the presence or absence of unique acts would be insufficient to determine the degree of consistency.

Therefore, evidence for consistency would depend on the aggregation of certain behaviours - selected across specified IPA categories - rather than on unique acts, or on acts falling within a single category.

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B.   The research had a focus that was necessarily restricted and partial: selected trait interactions representing unique dynamics with their potential for behavioural expression, were operating simultaneously within a complex of unknown interactions.

C.   Despite the presence of unknown trait interactions, the trait interactions described in this research were judged to be sufficiently salient to enable the predicted behavioural syndromes to occur and be identified.

D.   In the absence of known clinical pathology among the Ss, the incidence of disturbed and anomalous behaviours associated with conflicting trait interactions, was expected to be minimal.

E.   The expression of consistent behaviours within a small group would be encouraged, and more readily observed, by the inclusion of members sharing similar scores on one or more criterion traits.

F.   Consistency in a small homogeneous group, as determined by the participants' contributions to the overall record of the group's activity, would reflect to some degree the extent to which individual consistency was present.

   This was not to imply, in assigning four Ss with similar traits to a group, that in brief samples of recorded behaviour similar behavioural profiles were expected to emerge. On the contrary, the dynamics of group behaviour involve, among other things, both reciprocated acts and unique acts cued by the

presence of others. In brief samples, the aggregation of relevant behaviours for each individual will be regulated by the interplay between participants. Also, the sequence, clustering and pattern of relevant behaviours for each participant will be tempered by different trait interactions, specific to the individual, many of which will inevitably remain unidentified.

Therefore, in a restricted sample of behaviour, for a group homogeneous on one or more traits, each individual is assumed to contribute only partial evidence of consistency, which is then aggregated across like individuals, to combine in a behavioural profile for the group. This procedure might be unnecessary in a homogeneous group where very extended samples of behaviour were used.

G.   A combination of trait theory and small group theory (see Appendix 1.6) would be sufficient to describe the relevant behavioural syndromes.

1.3.3 Trait Interactions

Behaviour is invariably moderated by a variety of trait interactions, that for the most part will remain unidentified. To examine how consistency is influenced by trait interaction, this research involved three types of trait interaction:

A.   Consistency moderated by the interaction of two extreme traits, one of which has been shown to be prominent in small group behaviour (Study 2).

B.   Consistency moderated by the interaction of two extreme traits, neither of which was prominent in small group behaviour (Study 1).

C.   Consistency moderated by single extreme traits in interaction with two other trait dimensions (Study 3).

It was anticipated that the behavioural evidence for consistency would be strongest for (a) and relatively weaker for (b) and (c).

1.3.4 Trait Dimensions

The choice of trait dimensions was determined by three factors:

A.   The distribution of the trait in the survey population.
B.   The likelihood of consistent patterns of behaviour occurring in relatively brief samples of interaction.
C.   The availability of reliable measuring instruments.

Four trait dimensions were selected using three inventories:

Extraversion and **Neuroticism** (the Eysenck Personality Inventory – EPI)

Trait anxiety (the Spielberger, Gorsuch and Luschene State-Trait Anxiety Inventory – STAI)

Studiousness (the Wrenn Study Habits Inventory – SHI).

Extraversion has been identified by Mann (1959), Borg (1960), Borgatta (1962) and others, as being the single most important determinant of small group activity.

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Anxiety in student populations has been well documented (Eysenck and Eysenck, 1969; Cattell et al, 1970; Gaudry and Spielberger, 1971; Martuza and Kallstrom, 1974; etc.). Neuroticism and trait anxiety were considered to be dispositions likely to be evident in discussions involving novel surroundings and unacquainted participants (see Appendix 1.7).

Several traits could have been studied in interaction with anxiety, e.g. conservatism, dominance, intelligence, etc. However, it was decided that the short timespan of the discussions would preclude the emergence of significant levels of identifiable behaviour associated with such interactions.

The interaction between trait anxiety and study habits offered more promising possibilities (see Appendix 5.1) - particularly in view of the choice of subjects and the format of the discussions - some of which have been reviewed in a different context by Biggs (1970b) and Child (1970).

Both the EPI and the STAI were well-established with high reliability coefficients (also confirmed by the test-retest data reported in Appendix 2).

Of the few published measures of academic study methods, the revised version of the Wrenn Study Habits Inventory was available. An American weighted check-list of study habits, it seeks to distinguish between high scholarship and low scholarship groups of students. As discussed in Appendix 5.2, high scores on the Wrenn SHI appear to be related to a cluster of habits characteristic of a methodical, studious approach to academic work.

1.4 METHODOLOGICAL ISSUES

1.4.1 The Small Group

The Laboratory Group. The behavioural activity of a small experimental laboratory group can provide an exceptionally rich interactional record, that can be inspected and analyzed using well-established observational protocols. Where the representative sampling of behaviour is related to group developmental processes, the necessary phases - which may require several sessions in the therapeutic group - can be encouraged to occur rapidly and spontaneously in the carefully structured laboratory group (see Appendix 1.6).

However, a careful balance needs to be established in a laboratory group between the controlling demands of the 'implacable experimenter' (Wachtel, 1973) and those more relaxed conditions that encourage spontaneity and the expression of personal consistency. As Bowers (1977) put it, "in more permissive circumstances, planned constraints are less pressing and a person can engender as well as respond to an interpersonal environment in a way that is discernibly characteristic of him. Hence we can more readily attribute a pattern of emerging interactive behavior to the **person's** psychological and behavioral organization" (p.72).

Criticism of the laboratory group (Fraser & Foster, 1984) has highlighted the characteristics, definitive of small groups, that are often absent from the laboratory group, namely, "sustained interaction, perception of group membership, shared goals, group norms, role structure, differential power and a network of affective relations" (p.474).

Care was taken in this research to ensure that the constraints characteristic of the laboratory group did not overly impinge on the

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behaviour of the subjects. By incorporating many of the features of the 'syndicate method' (see below) and by providing a relatively familiar context, the format of the group discussions encouraged participants to display a wide range of autonomous, spontaneous and affective behaviours.

The Leaderless Group. The leaderless small group discussion has been extensively examined for its educational relevance as an alternative means (the syndicate group) of providing some of the benefits of a university tutorial. It is clear from the writings of Collier (1966, 1969, 1983) that the autonomy of a well-prepared group encourages a greater sense of participation and more freedom of expression than is common to tutor-led discussion. (see Appendix 6).

Careful preparation is a mandatory feature of the 'syndicate' method proposed by Collier. Without it, the activity of the autonomous group is liable to degenerate into confused, anarchic behaviour.

It was decided that the research groups should have a leaderless, 'syndicate' design. In the absence of the author, the group would be responsible for creating the conditions that enabled it to meet its goals, guided by preparatory reading and the standard briefing (see Chp.4). Preparation would allow the individual to adjust his expectations and personal goals to the experimental demands of the situation. Also, by selecting those aspects of his behavioural repertoire that are likely to conform to the situation, he would be able to rehearse his performance through an awareness of past behaviour in similar groups.

Group Cohesiveness. Research into leaderless small-group behaviour may involve 1) creating an appropriate social climate among the Ss, and 2) eliciting the Ss' willing acceptance of certain demands. These constraints may be congruent with the Ss' personal, covert agendas; they may also be inconsistent with individual attitudes - attitudes that only become apparent in the larger context of everyday behaviour - e.g. extreme anti-authoritarian sentiments, etc. Also, however careful its construction, the laboratory group will inevitably fail to satisfy the expectations of every participant. To some extent each member will have to suppress important feelings in order to accommodate himself to needs of the others. This in turn may influence the manner in which trait behaviours typical of each participant are expressed, i.e. members may be forced into unfamiliar roles which unduly temper their characteristic behaviours.

It was anticipated that the sense of cohesion, fostered by grouping participants on the basis of matching trait dimensions, would offset some of the social limitations of the laboratory group, and encourage group performance (see Terborg et al, 1976).

The Student Group. The groups were formed from a pool of first-year volunteers in the Psychology Department. The disadvantages associated with such populations are well-established: questionable representativeness, developmental immaturity, vulnerability to the experimental press, etc.

However, this particular population was uniquely well-matched to the requirements of the research in terms of its motivation, intellectual ability, homogeneity and availability.

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1.4.2 The IPA System

Various methods have been developed over the past forty years to provide a reliable record of interactional behaviour. Interaction Process Analysis (hereafter referred to as 'IPA'), devised by R.F. Bales (1950), has been used extensively in the study of small group behaviour. In seeking an appropriate observational system for this research, the advantages of using a well-established scheme such as the IPA outweighed the limitations, namely its bias towards instrumental, problem-solving behaviour.

Bales proposed that all interactional behaviour (verbal and non-verbal) be classified in terms of twelve independent categories. The observer's task was to freeze the stream of behaviour into discrete acts (the smallest meaningful segments of behaviour), and allocate each act to a single appropriate category.

The translation of behaviour into acts of theoretical equivalence, permits aggregation within and across categories, as well as within and across groups. Thus the IPA enables differences between individuals to be identified across twelve categories of behaviour. However, for every advantage that an observational system possesses in terms of effectively capturing some aspect of reality, there will be corresponding losses in terms of the abstraction and internal coherence that such a scheme invariably demands. In the IPA system the equivalence of each act ignores information relating to its significance, its intensity, and its salience where individual style and the behavioural repertoire are concerned. Also, in the case of the treatment of non-verbal behaviour, the IPA categories are not consistent with reliable scoring. As McGrath (1966) pointed out, "The Bales system is not equipped adequately to deal with non-verbal actions and seems to be useful primarily for those group situations

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where a problem-solving orientation is appropriate." (for the implications of ignoring the majority of non-verbal behaviours, see discussion in Appendix 1).

1.4.3 Group Size and Composition

In determining the size of the research groups, it was important to ensure that the discussions encouraged participation sufficient to elicit a representative IPA profile for each member.

Slater (1958), in a survey of groups ranging from two to seven members, reported that the smaller groups were significantly inhibited from expressing dissatisfaction or disagreement. However, in larger groups the advantages of a wider behavioural range had to be balanced against the possibility of minimal participation rates from some members. Indeed, Bales et al (1951) noted that as size increased in leaderless groups, there was (a) an increase in the relative discrepancy between the participation of the person ranked first and that of the person ranked second, and (b) a reduction in the percentage of participation for the person ranked second and all those with less participation. In a summary of participation rates in groups of eight members the average total for the lowest four members was 21.1% (Bales, 1970, p.470). Finally, in tandem with a marked imbalance in participation rates, the larger group was also considered to be more vulnerable to disruption: In a review of the effects of group size, Thomas and Fink (1963) noted Berkowitz' comment that, "as size increases, there will be decreasing group cohesiveness, and increasing organization and division of labour in the group, along with the development of cliques and possibly of factions".

To avoid the disadvantages associated with larger group size, it was decided to restrict the size of the discussion groups to four members.

The participation rates in the research groups were in line with data produced by Bales. Appendix 1.3 includes Bales' norms (based on 89 groups) for participation rates expressed in percentage terms for groups of four members, where the average participation rate of the lowest ranking member was 16.1%. In the 19 groups in Studies 1-3 the corresponding rate was 14.7%, a figure equivalent to a minimum of 150 acts over a 30 mins discussion period.

Research into personality and small groups has tended to use single sex groups (Mann 1959, 1961). Single sex committee groups have been reported as usually more efficient with less time spent on socio-emotional activity (South, 1927). However, socio-emotional behaviour plays an important role in small group dynamics (see Appendix 1.6). To encourage a wide range of interactional behaviour across both the task and socio-emotional categories of the IPA system, the interactional stimulus for participants was reinforced by including two males and two females in each group.

1.4.4 Statistical Treatment

Despite various statistics employed in the course of the research - factor analysis, cluster analysis etc. - the significance of much of the IPA data was not amenable to statistical tests (an issue in much of the reported research on small group behaviour, including that of R.F. Bales).

The statistical problem in comparing IPA group profiles centred around several related issues:

A.   The differences between two sets of data across all twelve IPA
     categories were typically quite small.

B.   Some of the larger IPA categories (e.g. cat.5) routinely
     accounted for 30–40% of the total IPA, while others that were
     equally significant (e.g. Cat 1 or Cat.9) were seldom scored.

C.   Only some of the IPA categories were considered to be relevant to
     the behavioural profile associated with a particular trait
     interaction.

D.   Those IPA categories that contributed to a behavioural profile
     for a group at one end of a trait dimension were not necessarily
     important or complementary for the group at the other end.

     It was apparent that statistical procedures such as analysis of
variance would be relatively insensitive to the meaning and scale of
these differences, and would fail to identify those patterns of
behaviour congruent with specific trait interactions.

     In the absence of an appropriate statistic for determining the
significance of the experimental results, it was decided that the most
appropriate way of presenting the data was (a) to describe the
differences as clearly and as accurately as possible, and (b) to use
the data from the relevant comparison groups together with the
normative data collected by Bales (1950, 1970).

1.5   PLAN OF RESEARCH

     Studies 1-3. Three successive years of 1st year Psychology
students were surveyed (Surveys 1-3), and volunteers with appropriate
inventory scores were enlisted to form discussion groups.

     The discussion groups, formed on the basis of the extreme trait
interactions outlined in section 1.5, were examined in three separate

studies (Studies 1-3). The number of groups was dependent in part on the available pool of suitable volunteers. A total of 19 groups was involved: Study 1: 4; Study 2: 6; Study 3: 9.

The reliability of the data. As Carlson (1971) has pointed out, "Clearly, students are **unfinished** personalities. Coherent changes in ego structure within and beyond college years have been demonstrated in a wide variety of studies" (p.212). The inventory scores of the young people used in this research were carefully checked for reliability and temporal stability.

For each participant, the criterion scores for admission to the groups were supported by congruent data obtained via additional inventories.

Also – in Surveys 1 and 2 – a subset of the survey population was subject to a test-retest schedule over periods of two years and one year respectively (see Appendix 2A and 2B).

In addition, the reliability of the IPA scoring procedure was assessed over a one-year period using transcripts of two discussion groups in Study 2 (see Appendix 1 section 2.3).

The Order of Studies 1-3. The order of the three studies was determined by the test-retest schedules of the inventories: The inventory, about which least was known in terms of published norms was the Wrenn Study Habits Inventory. It was therefore decided that the groups selected on the basis of their Wrenn SHI scores would constitute Study 1 to enable a two-year test-retest reliability study to be carried out (reported in Appendix 2).

Comparison Groups. The data from Studies 1-3 was compared with that obtained from six groups of 1st year students, who had been

picked on a random basis from a list of Arts students who were not studying psychology (see Chp.7). In addition, because of the aggregation of the data in Study 3 - resulting in extended samples of behaviour - three extra comparison groups were formed in Study 3, whose inventory scores were close to the norm.

The role of incidental variables. The studies have been carefully reported in considerable detail in order to identify any significant interactive effects exerted by peripheral variables, e.g. gender (see Appendix 1, section 1.4), seating position (see Appendix 1, section 1.5), and subjects' perception of Study 3 and of the author (Chp.12).

Pilot Study. In order to confirm that the overall format of the groups was satisfactory - i.e. that the design stimulated Ss into providing a satisfactory behavioural sample that could be reliably recorded and analyzed - Studies 1-3 were preceded by a pilot study (see Chp. 3) using volunteer 2nd year subjects in the Psychology Department. Later in the research the format was also checked using two tutorial groups (see Appendix 6).

Finally, it should be noted that although this research had a narrow focus on a particular type of consistency, it was also concerned with other areas of inquiry, including statistical theory, personality theory, small group dynamics, psychometrics, educational and clinical psychology. In the course of this thesis references are made to these areas, and the implications for consistency theory are discussed at some length both in the main text and in the appendices.

CHAPTER 2

CONSISTENCY AND PERSONALITY THEORY

2.1 INTRODUCTION

Over the past twenty years, the issue of consistency in relation to personality and behaviour has been reexamined with vigour in the wake of Mischel's 1968 critique of trait theory. The previous meagre yield of satisfactory studies was attributed to the remote linkage between a trait concept and its operational definition, the inadequate reliability of measures and the lack of predictive value associated with trait measures.

At a general level the debate focused attention on the theoretical and operational issues relating to the concept of consistency. It has led to modifications in classical trait theory and trait definition, and it has encouraged a sharper awareness of the distinction between consistency as applied to the description of specific aspects of personality, and consistency as it is actually observed in certain behaviours.

One of the results of this reappraisal is that the concept of absolute consistency has given way to one of relative consistency, carefully qualified in terms of personality domain, behaviour and behavioural analysis.

In attempts to identify the factors that underpin regularities in behaviour — some of which can be reliably predicted — several promising research strategies have been developed.

One approach — the theme of this research — was to look at the kinds of consistency apparent in small-group behaviour. How are the interactive effects of certain traits associated with behaviour in

small group activity ? This line of inquiry represents a potentially useful strategy in clarifying how consistency operates in behaviour.

2.2 CONSISTENCY - THE ISSUES

2.2.1 Trait Definition

An early and influential view, proposed by Allport (1937), defined traits as interdependent 'neuropsychic' entities:

"Traits are not creations in the mind of the observer, nor are they verbal fictions; they are here accepted as biophysical facts, actual psychophysical dispositions related – though as yet no one knows how –to persistent neural systems of stress and determination" (p.274).

In a later modification, Allport redefined his views, namely that a trait (a) had more than nominal existence; (b) might be established empirically; (c) was relatively independent only; (d) was not disproved by inconsistent acts, whose compatibility could be located at the mediational level, e.g. anxiety could be expressed either by withdrawal or by excessive talking.

More recently, Eysenck and others have continued the search for a biological basis to personality, identifying the Introversion-Extraversion and Stability-Neuroticism dimensions with causal processes operating in the CNS.

In contrast, others have sought to disengage the concept of trait from a concern with neuro-structures, preferring to restrict the discussion to the operational utility of traits. For example, the position of Rorer & Widiger (1983) is that traits are essentially probabilistic statements based on their observed frequency. Similarly

Stagner (1977) noted that a trait "acts as a convenient statistical device for summing probabilities across a variety of situations and in turn becomes a useful predictor in new but related situations" (p.200). Thus, although traits don't specify stimulus or response categories that are invariably associated, they have an explanatory purpose due to the probability that a relationship will be demonstrated.

A variant on the latter is that traits are summary statements about behaviour up to the present. Dispositions are seen as frequency concepts (Alston, 1975; Buss and Craik, 1980, 1981, 1983). They deal with the relative frequency of particular behaviours over specific periods of time. Again, they are not predictive, though the coherence and regularities of behaviour reflect a characteristic trend, "the normal implication that [the individual's] character is so far continuing the same" (Hampshire, 1953).

A further position is represented by the view that traits are hypothetical propositions (see Ryle, 1949; Wiggins,1973), that are dependent on specific situational contingencies. As Zuroff (1986) noted, "Dispositions are distinct from summaries because they do not imply anything about the actual occurrence of behaviour; in the absence of a strong eliciting stimulus even a strong disposition will not be manifest in the stream of behaviour" (p.996). Furthermore dispositional assertions are not considered to deal either with causal properties, or to provide a causal explanation of behaviour.

The view taken in this research is that traits are essentially descriptions of surface phenomena based on summary data. This approach shares much with that of Cronbach (1975) who maintained that "propositions about traits are actuarial statements, valid over

situations in the aggregate" (p.120). Nor are traits considered to constitute the only building blocks of personality, whose basic description is probably linked more accurately to various motivational drives. In this respect Alston made a useful distinction (1975) between the fundamental determinants of behaviour (which he termed 'Purposive-Cognitive' concepts) and traits, characterised by the habitual emission of certain types of responses.

However, certain traits, such as extraversion, distinguished by their pervasiveness, generally qualify as more central to the description of personality. Such traits have a predictive utility which operates across situations, and is more likely to be reflected by general trends in behaviour assessed at a molar level, rather than by specific acts.

2.2.2 Trait Theory

Classical trait theory made several assumptions:

* According to the Platonic view, scale scores were important representations of psychological properties that existed elsewhere in a pure form: There was a true score for an individual on a quantifiable dimension for each of a number of traits.

* Secondly, reliable trait scales were seen to have three essential properties: Persons tended to score the same on different occasions; there were variations within a group; variations were associated in a predictable way with other scores (see Hogan et al, 1977).

As Guilford put it, "a trait is any relatively enduring way in which one person differs from others. On a scalable trait, which can be represented by a straight line, each person has a

characteristic position. If individuals have different positions
on a common scale, the scale represents some quality or property
that each person possesses to some degree, in common with other
persons" (1959, p.6).

* Finally, it was assumed that the individual had a latent
disposition to behave in certain ways so that there was a
monotonic, linear relationship between the individual's position
on each personality dimension and his position on a reaction
scale.

According to Mischel (Mischel & Peake, 1982) the assumptions of
trait theory have led to the expectation that operational consistency
is both potentially obtainable, and equivalent to the theoretical
concept of absolute consistency (i.e. **pervasive** consistency across all
or practically all situations).

However in recent years the notion of absolute consistency has
been modified by the recognition that (a) the concept of consistency
includes several types; (b) each type has been qualified and
supported differentially by experimental work; (c) each type is the
subject of specific methodological and theoretical issues.

A useful way of defining consistency in terms of types has been
proposed by Hampson (1982). She suggested four basic types:

		SITUATION	
		same	different
	same	**A**	**B**
BEHAVIOUR			
	different	**C**	**D**

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In types A and B consistency refers to similar behaviours without making inferences about personality structure. In types C and D consistency refers to variations in behaviour that can be reconciled by the existence of hypothetical higher-order personality structures. For example, evidence for type D consistency would be provided by behavioural subsets of a particular disposition occurring in different situations. As Bowers (1977) put it, "variability expresses an underlying consistency" (p.66).

Evidence for consistency varies according to type, ranging from well-supported findings for type A (e.g. test-retest reliability) to more ambiguous results for type D.

This research was concerned with a variant of type D consistency, where behaviour in one situation (completing personality questionnaires) provided hypotheses about small group behaviour, that were subsequently tested against behaviour in another situation (participating in group discussions).

2.2.3 A Paradox

The consistency question in trait theory was vigorously disputed by Mischel (1968), who argued that the evidence was generally weak:

"The initial assumptions of trait-state theory were logical, inherently plausible, and also consistent with common sense and intuitive impressions about personality. Their real limitation turned out to be empirical - they simply have not been supported adequately" (p.147).

Traits were both poorly validated by existing instruments and appeared to be unsupported by the observational record. For Mischel a

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paradox existed in that it was assumed that intuitions about the consistency of traits were inferred from observable consistencies in behaviour. Yet far from substantiating this view, the behavioural evidence was disappointing. As Mischel put it in another paper (1973), "people go rapidly beyond the observation to some consistency which does not exist in behaviour to the attribution of greater perceived consistencies which they construct" (p.263).

Reviewing examples of several approaches in personality research, Mischel pointed out that the weak correlations obtained between questionnaire measures and behaviour sampled in a different medium (typically averaging between .2 and .3) were concerned with less than 10% of the relevant variance. In similar vein, Nisbett (1980) commented on the finding that correlations between scores on dispositional variables and measures of experimental behaviour rarely exceeded .40 (p.124).

Comparable findings were observed in attitudinal research. Wicker (1969) reported: "It is considerably more likely that attitudes will be unrelated or only slightly related to overt behaviors than that attitudes will be closely related to actions. Product Moment correlations are rarely above .30 and often are nearer zero. Only rarely can 10% of the variance in overt behavioral measures be accounted for by attitudinal data" (p.77).

In a brief review of studies of clinical judgement, Kenrick and Stringfield (1980) provided further confirmation that the behavioural evidence for traits was weak, where clinical psychologists often failed "to demonstrate even minimal interjudge reliability" (p.89).

However it should be noted that although dispositional effects were credited with correlations rarely exceeding .40, even powerful situational factors fared no better. In a study by Funder and Ozer

(1983) three well-known experiments were reassessed to test the magnitude of the situational effects: (a) in Festinger & Carlsmith's (1959) study of attitude change under forced compliance, the two estimates of eta associated with the linear trend were .36 and .35; (b) in Darley and Batson's (1973) study of bystander intervention, the linear correlation between the helping scale and degree of hurry was -.39, and the extent to which an individual's helping was a function of the number of bystanders (Darley and Latané, 1968) was -.38; (c) in Milgram's (1975) study of obedience, the correlation between experimenter proximity and obedience was .36 and between victim proximity and obedience was .42. Festinger and Carlsmith concluded, "When measured in terms of linear correlations, the effects on behavior of several of the most prominent situational factors in social psychology seem to average slightly less than .40" (p.110), a coefficient no greater than that obtained with dispositions.

In the interval since Mischel initiated the consistency debate, others have claimed that the problem lay not in questioning the utility of trait theory, but in identifying which levels of behavioural analysis were associated with satisfactory coefficients of consistency.

For them the paradox did not consist in an irreconcilable difference between the intuitive perception and actual observation of consistency, but, depending on the focus of interest, in the degree to which consistency was observable. As Epstein (1983) succinctly wrote, "the paradox lies in the fact that the following three statements are all true: (a) behavior is situationally specific; (b) behavior is cross-situationally general; and (c) there are stable, broad response dispositions, or traits" (p.183). In other words, each individual

item of behaviour is likely to be predominantly determined by the situation, will have a high component of error of measurement and a narrow range of generality. however, in more global terms, significant aggregations of specific acts of behaviour across situations are also obtainable and these in turn are indicative of relatively enduring patterns of response.

In addition to the strategy of aggregation, attention was also paid to the temporal factor. By itself, aggregation across situations does not prevent the possibility of novel rather than recurring behaviours being observed. Referring to measures such as trait anxiety, Spielberger (1977) remarked, "consistency in trait-related behaviors can be observed in natural situations that recur over time, provided that the time sample is long enough for the situation to recur on a number of occasions" (p.175).

At a more general level, it was pointed out that the value of traits, representing constructs abstracted from the stream of observed behaviour, was due partly to the very fact that traits were not invariably reducible to unique behaviours: Indeed, personal consistency, observed at a macro level, was seen as coexisting alongside behavioural specificity (Bowers, 1977, p.14).

Furthermore, Mischel's caveat about the distortion resulting from abstracting traits from the behavioural context was judged to be misplaced: "Objectivity involves discerning how the immediately given is embedded in a continuously evolving pattern and organization that is as much inferred as observed" (Bowers, 1977, p.71).

A more extreme response to Mischel's critique was provided by Alker (1972) who held that personality theories did not require cross-situational consistency. It was enough to show that intrapsychic consistency existed , i.e. that personality characteristics "may be

revealed in a variety of situations by different behaviors exemplifying the same trait" (p.8). Or, as Wachtel (1973) put it, "even where seemingly inconsistent behaviors appear, the viewpoint of most psychodynamic thinkers points toward a search for underlying organizational principles that can account for the phenotypic behavioral differences in terms of a genotypic description of that person's psychic structure" (p.324), a view which echoes Hampson's (1982) classification of consistency.

For Buss & Craik (1983) the consistency paradox was resolved by separating behavioural consistency from dispositional consistency: Whereas the former referred to measures based on single acts at the "molecular" level, the latter was concerned with the "molar" level of aggregated measures bearing on the cognitive structure of trait behaviour.

2.2.4 Personality

The individual's discriminatory capacity for finely tuned responses involves a convergence and interaction of motivation, attitudes and traits. As Allport (1937) put it, "No single trait – nor all traits together – determine behavior all by themselves. The conditions of the moment are also decisive; the special character of the stimulus, the temporary distribution of stresses and tensions within the neuropsychic system, all demand a special form of adaptive response, perhaps never again required in precisely the same way" (p.313).

The healthy, active individual who responds to situations with alert cognitive functioning is likely to display idiosyncratic, discriminatory behaviour, with low cross-situational consistency. Where studies have been successful in demonstrating consistency in a

normal distribution, non-intellective dimensions have tended to be evaluated, such as aggression, attitudes towards authority, etc.

Indeed, as Mischel (1973) has pointed out, variability rather than consistency in the healthy individual is to be expected, since examples of chronic consistency reveal themselves to be essentially maladaptive strategies. Indiscriminate response patterns (e.g. stereotypic behaviours, exhibiting a high degree of consistency) are more frequently encountered among the infirm, the neurotic and the mentally handicapped.

Some aspects of consistent behaviour have been shown to be idiosyncratically organised: For certain individuals (Bem & Allen, 1974; Bem & Funder, 1978) consistency may be associated with specific traits and fields of behaviour. Thus by knowing a person one may be able to identify specific areas of activity associated with predictable behaviour.

For certain traits - e.g. those associated with an ethical awareness (Kohlberg, 1964) - the demonstration of consistency may be influenced by developmental processes. As growth proceeds towards adulthood, the personality achieves more autonomy, greater moral sensitivity, less dependence on the press of situational variables, and a range of more stable responses to environmental cues.

2.2.5 Situations

A useful distinction has been made by investigators (Wachtel, 1973; Mischel, 1973, 1977a; Monson et al, 1982; Pervin, 1985) between situations defined as 'strong' and 'weak'. Strong environments are characterised by explicit or implicit situational cues, aimed at

eliciting high levels of conformist behaviour: e.g. formal, structured situations in which individuals are rehearsed in the performance of socially well-defined roles, threatening situations which elicit defensive reactions, situations of brief duration that inhibit the expression of a wide range of behaviour, or situations whose parameters are influenced by the sequential effects of contiguous occurrences.

In so far as the individual perceives the situation as having structure, recognised demands and established rewards, his behaviour will express a narrow range of consistency. But where the situation is perceived as being too 'strong' and the demands too great, the individual may be inhibited from functioning with even minimal consistency (Block, 1968, p.211).

In experimental conditions in a laboratory environment with a bias towards control and replication, the phenomenon of consistency, - depending in part on a subtle interplay between the individual and his environment - may actually be thwarted by what Wachtel (1973) described as the model of the "implacable experimenter" (p.331). Commenting on the laboratory situation, he noted, "But genuine consistency may also occur in most life situations and yet not be evident in the laboratory. For the typical experiment, with its emphasis on standardized independent variables as antecedents of the behavior to be studied, may short-circuit the mutual influence process described above, which is importantly involved in the generation of consistency" (p.330).

Where structure is ambiguous, roles uncertain and rewards unknown, individual differences will be more prominent, and likely to be associated with a wider range of internal factors. As Mischel put it, "to the degree that the situation is 'unstructured' and each

person expects that virtually any response is equally likely to be equally appropriate (i.e. will lead to similar consequences), the significance of individual differences will be greatest" (1977a, p.347).

There is some evidence that traits are more useful predictors of behaviour when the situational restraints are weak: In an experiment by Mischel et al (1973) individual differences on the Repression-Sensitization Scale were better predictors of behaviour in control conditions where the situational pressures were weak than in two situational conditions where the pressures were stronger. In another experiment by Monson et al (1982) 34 extraverts and 29 introverts were put in three situations, that were randomly assigned. Each subject was put in a group with two confederates who had been primed with pre-test information. In the two situations involving forced extraversion and introversion, variance of behaviour was reduced, and the two groups did not differ significantly in talkativeness. But in the third, neutral condition the extraverts were significantly more talkative.

In tandem with the 'weak-strong' dimension of situations, consistency is also influenced by the internal processes of self-determination. The individual exhibits varying degrees of consistency within environments that he selects and creates, and in those that he will voluntarily enter (Stagner, 1977; Emmons & Diener, 1986; Emmons et al, 1986). As Wachtel (1973) pointed out, "Rather, one can in many cases view consistency as a result of being in particular situations frequently, but situations largely of one's own making and themselves describable as a characteristic of one's personality" (p.330); or, as Kenrick & Dantchik (1983) put it, "the individual selects environments to play out his or her personal characteristics" (p. 293). A fuller

discussion may be found in Bowers (1973, pp.328-330), in Mischel (1977b, pp.248-249) and in Argyle et al (1981, pp.79-82).

However contradictory findings were reported by Diener et al (1984) where 42 Ss completed mood and activity reports over a 6-week period resulting in a total of 3,512 forms. These were analyzed to determine two types of responses: behavioural choice of situations and affective response to situations. They found that in natural settings where Ss chose their situations, consistency was low and relatively small person-situation interactions were the rule.

It is also relevant to note that the selection or creation of a range of familiar situations with a concomitant pattern of predictable, consistent behaviours, does not necessarily mean that the situations share identical trait antecedents (see Bem and Funder, 1978; Borkenau, 1986).

Certain traits are also likely to be associated with higher levels of consistent behaviours if they have been reinforced by childhood rearing practices biassed towards the growth of consistency. In most societies a specific range of behaviours attract strong parental endorsement. Consistency itself is likely to be reinforced in western societies as a desirable trait. "Parents not only instruct the child to behave consistently; they scold him if he is inconsistent, and his peers will ridicule him if he is excessively changeable" (Stagner, 1977 p.202).

2.2.6 Reappraisal

The reaction against trait theory caused its proponents to reexamine the research. Faced with what Wiggins (1973) described as 'lost causes', Block (1977) criticized the quality of many of the

studies in personality psychology. He identified one of the
weaknesses of personality research as a superficial regard for the
complexity of the concepts. "Concepts have to be thought about; they
often have complicated or contingent or interactive implications that
should be but are not respected in psychological research" (p.40).
Block's criticisms were concerned with shortcomings in four areas of
personality research:

* Trait measures have often lacked proper construct validation.

* Behavioural hypotheses have failed to do justice to the
   complexity of the phenomena.

* Measures have suffered from poor reliability.

* Inefficient experimental designs have been employed.

Despite Block's strictures there is evidence that attempts have
been made to clarify the nature of trait concepts, in order to improve
the rigour and prediction of behavioural hypotheses.

Alston (1975) was concerned with establishing the precise
boundary of the trait concept. He differentiated between organizing
trait concepts (frequency dispositions or habits) and causal trait
concepts (termed 'Purposive Cognitive' concepts). Whereas traits were
useful in establishing a general summary of responses, PC concepts
were identified with the basic constituents of personality:
"...Selection from the response repertoire is determined by which
tendency is strongest in the current 'tendency field'; and this in
turn is determined by the relative strength of various desires and
beliefs..." (p.92). For the satisfactory prediction of behaviour, he
considered traits alone to be limited and insufficient.

Buss and Craik (1980, 1981, 1983) sought to clarify the structure

of trait concepts. They proposed an analysis of the internal category structure of traits and their external, vertical relationships. They were also concerned with category breadth and boundary issues that gave rise to 'fuzzy sets', where category membership tended to be continuous rather than discrete (see also Hampson et al, 1986).

Fishbein and Ajzen (1974) described three types of disposition: When a person made a specific response in a particular situation, a specific trait was involved; where response consistency embraced different behaviours, all of which occurred on one side of the trait dimension, a more generic trait was identified; where the individual's behavioural repertoire lay on both sides of the trait dimension, but still had consistent characteristics, an even more general disposition was assumed to be involved.

In a seven-year longitudinal study Schaie and Parham (1976) concluded that neither stability nor a series of regular transformations seemed to fit the data at hand. To accommodate their results, they proposed three kinds of trait : a) 'biostable' (genetically engineered); b) 'acculturated' (overdetermined by the environment); c) 'biocultural' (due to age x sex interaction).

As a cautionary note, it should be pointed out that even in inventories with adequate construct validation many of the items are not linked with actual behaviours. In a content analysis of personality inventory items, Werner and Pervin (1986) examined the CPI, the EPI, the MPI, the MMPI, the 16PF and the PRF. They noted that behaviour was the least frequently represented area of functioning with an overall average of only 27.9% (EPI: 33%; 16PF: 34.3%) compared with situation, which was referred to by an overall average of 55.7% of the items (EPI: 43.3%; 16PF: 72.7%). They

concluded, "the inventories' largely non-behavioral orientation suggests that researchers and practitioners whose primary goal is prediction of action may not be well served by measures such as those studied" (p.626). Likewise, commenting on the poor degree of association between attitude questionnaires and behaviour, Fishbein and Ajzen (1974) wrote, "most behavior has been selected on an intuitive/arbitrary basis with little concern for the behavior's ambiguity or its base rate" (p.65).

2.3 CONSISTENCY - RESEARCH

2.3.1 Early Studies

Although recent papers (Block, 1977; Epstein, 1983b; Mischel, 1984) have introduced fresh conceptual rigour into the consistency debate, and new directions have been proposed (Bem & Allen, 1974; Bem & Funder, 1978; Buss & Craik, 1983; Diener & Larsen, 1984; etc.) many of the key issues had been identified (and solutions proposed) by earlier theorists.

*   Consistency and behavioural specificity. Allport (1937) was aware of the difficulty of observing consistency. "The routine search for the correspondence of measures in order to establish some preconceived measure of unity is often disappointing" (p.367). He concluded that the stream of disparate acts could only be understood by attending to the deeper 'congruence' of behaviour, and pointed to the relevance of the 'idiographic' approach with its emphasis on the uniqueness of the individual's profile.

This concern was also taken up by Newcomb (1929). Dealing with consistency construed from certain behaviours across different situations, he differentiated between such 'specific behavior

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consistency' and 'trait consistency'. The latter referred to the more general, broader dimensions of the personality-behaviour nexus.

*   Consistency and its distribution. In a study that anticipated Bem and Allen's 1974 paper on "Predicting some of the People some of the Time", Dudycha (1936) reported on punctuality among college students. The study was based on 15,000 instances of timed arrival at various college events by 300 students. It reflected the extent to which individuals demonstrated differential degrees of consistency. He concluded that for at least 40% of the students, located at the extreme ends of the distribution, punctuality, or a lack of it, was associated with consistent behaviour.

*   Consistency and situational determinants. The Hartshorne and May (1928) investigations into the determinants of honesty, were based on 100 tests and observations that included 8,000 children over a six-year period. Although they routinely employed repeated observations of each behaviour to increase the reliability of their measures, they concluded that honesty was a function of situational rather than personality factors. The average intercorrelation of 20 subtests used as part of a total character score was found to be only .23 They claimed, "if we use ten tests of classroom deception, however, we can safely predict what a subject will do on average whenever ten similar situations are presented" (p.135). The data was subsequently reanalysed by Burton (1963), and the research was replicated by Nelsen et al (1969) using a new set of situational tests, both of which largely confirmed the original conclusions. However, in the light of Kohlberg's work on ethical awareness, it now seems probable that only with an older cohort would temptation behaviour across a variety of

tasks demonstrate behaviours in line with a consistency hypothesis.

Gradually the emphasis shifted towards a greater recognition of the role played by situational variables. Ichheiser (1943) noted that there was a tendency to overestimate personal factors and underestimate situational factors in interpreting personality (a phenomenon later described by Ross, 1977, as the 'fundamental attribution error'). Writers such as Murphy (1947) pointed out, "the situationist requires that a study of situations that act upon persons should be at least as full and as systematic as is a study of the internal structures which respond to these situations" (p.877).

2.3.2 Situationism

'Situationism' refers to a phase in personality research during which the nature of environmentally determined behavioural specificity was investigated, to the detriment of trait determined personal consistency. Harre and Secord (1972) described it as an explanatory bias that tended "either to ignore organismic factors or to regard them as subsidiary to the primary aspects of the external stimulus" (p.27).

Early studies suggested that personality theory had neglected an important source of variance. Using the S-R Inventory of Anxiousness and analysis of variance, Endler et al (1962) found that in one sample the mean square of situations was 11 times greater than the m.s. of individuals, and concluded that, "knowing the situation is more important for predicting behaviour than knowing personal idiosyncrasies".

Later it was recognised that mean square comparisons were of dubious value because the m.s. of each source of variance was actually a composite of different variance components. In a subsequent study,

reanalysing their own data and comparing the relative contribution of each variance component, Endler and Hunt (1966) concluded that individuals and situations accounted for only 5% of the variance whereas simple interactions accounted for 30%.

In a well-known commentary on the situationist position, Bowers (1973) reviewed 11 anovar studies (1959-73) that included 19 comparisons of variance. The mean percentages of variance due to settings, persons and their interaction were respectively 10.17%, 12.71% and 20.77% Noting that "situationism has served as a necessary and warranted corrective to a trait psychology" (p.307), Bowers' analysis nonetheless suggested that the search for consistency was more likely to be resolved via an interactionist approach, in which situations were as much a function of the person, as the person's behaviour was a function of the situation (see p.327).

2.3.3   Interactionism

In his account of interactionist theory over the previous sixty years, Ekehammar (1974) made it clear that contemporary interest in the interdependency of person and situation echoed earlier thinking in this area. The general prescription, and a view reflected by Rotter (1954), was that personality should be investigated in terms of the interaction of the individual and his meaningful environment.

For instance Lewin (1935) considered the explanation for behaviour to be neither organismic nor contextual, but rather a function of both: "The organism and the environment are seen to influence one another as part of the total transactional field". In his 1939 paper on concepts and methods he summarised his position with the formula $B = f(PE)$, in which behaviour was a function of both individual characteristics and the environmental situation.

The early, comprehensive, theoretical systems gave way to conceptual positions that have had a narrower focus, as the problems associated with an interactionist approach (appropriate statistics, units of measurement, temporal and cognitive issues, etc.) have become more clearly defined (see Moos, 1969; Argyle & Little, 1972; Alker, 1972; Endler 1973; Endler & Magnusson 1976; Pervin, 1978).

Initially, the findings in favour of interactionism were based on anovar studies. However, this statistical approach was criticized for being inappropriate and simplistic (see Golding, 1975), particularly in view of the following:

* The relative magnitude of the main components was easily manipulated. As Mischel (1973) pointed out, "studies could be designed to demonstrate almost any outcome" (p.256).

* Person-situation interactions were not necessarily the most significant effects. In a review of laboratory studies, Sarason et al (1975) found that error variance accounted for most of total variance.

* Data tended to be treated as univariate, whereas it was often multivariate.

* Person and situation were sometimes inevitably confounded, although anovar requires that they be independently specified (Alker, 1977).

* Unidirectional rather than reciprocal interaction data was frequently used. Using a mechanistic analysis, its assumptions were related to a linear, additive model. In contrast, Overton & Reese (1973) suggested that a more appropriate model would be an 'organismic' one that dealt with the dynamics of interdependence.

* Percentage variance was not sensitive to rank order effects (see

Golding, 1975; Cronbach & Snow, 1977).

In order to reinforce and assist in the development of the interactionist position, Magnusson and Endler (1977) recommended that interactional psychology should concern itself with the following issues:

* The multidirectional nature of interaction or feedback between individuals and situations. "The dynamic model stresses an interaction process in which persons and situations form an inextricably interwoven structure" (p.18).

* The individual's role as an active, motivated, intentional agent.

* The recognition that motivational, cognitive factors were essential determinants.

* The psychological meaning of the situation.

Furthermore Magnusson and Endler proposed three types of consistency:

First, they identified consistency as measured by 'reacting variables': This could be defined in terms of (1) absolute consistency, or of (2) relative consistency, where only stable rank orders existed.

Then they pointed to consistency when it was a function of 'mediating variables': When the mediating system showed signs of consistency in the manner in which it selected and processed content and motivational variables (not necessarily linked to types 1 or 2) these indications were described in terms of (3) 'coherence'.

"Coherence means that the individual's pattern of stable and

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changing behavior across situations of different kinds is
characteristic of him or her and may be interpreted in a
meaningful way within the interactional model" (p.7).

Coherence was extrapolated from cross-situational data, whereby
"the total pattern of cross-situational profiles for an individual,
reflects his or her idiographic pattern of stable and changing
reactions across situations. The lawfulness and stability of that
pattern is the basis for the explanation and prediction of individual
behavior" (p.24).

2.3.4 Other Perspectives

In addition to the current interactionist position and working
with a more relative model of consistency, a range of strategies have
been proposed to resolve the operational and conceptual difficulties
that continue to beset the consistency issue:

*   Longitudinal Stability

The results of longitudinal studies (Block, Olweus, etc.)
suggested, despite the inherent difficulties of establishing reliable
indicators, that certain types of data were capable of demonstrating
high coefficients of stability, providing some measure of support for
the concept of 'coherence' proposed by Magnusson and Endler (1977).

In Lives Though Time, Block (1971) reported on the Berkeley
studies initiated in 1929 and 1932, involving a total of 500 Ss.
Three periods were examined - pre-adolescence, adolescence and
adulthood - using a Q sort technique and Q factor analysis.
Relying heavily upon observer personality ratings with clinical
decisions made by three sets of judges, it was found that substantial

and predictable relationships existed between time periods, indicative of enduring personality qualities within the subjects studied. The interjudge reliability of the Q-sort composites averaged .75. For instance, within the male sample over an interval averaging about twenty years (senior high school to mid-thirties), 28% of the CQ items showed consistency significant at the .001 level or better; within the female sample the corresponding percentage of CQ items was higher (30%). The nature of the studies enabled the measures to reflect the interaction of more or less situation-specific personality traits with situations that recurred over time. Strong relationships were found between observer ratings (R data) and self-reports (S data).

The stability of such S data in longitudinal studies has been frequently replicated: Similar results were reported by Shaie and Parham (1976) over a seven-year period using Ss ranging in age from 21 to 84 years of age. In another study over a shorter timescale (1973-77), and as part of a series concerned with personality and aggression, Olweus (1977) arranged for classmates to rate 201 boys in sixth grade and three years later. Ratings for each boy were averaged over 3-10 raters. Controlling for memory and response bias, he reported a mean stability coefficient over three years of .66 (.80, corrected for attenuation due to rater unreliability). In a second study, using 85 thirteen-year olds, even higher coefficients were obtained.

In contrast to the S and R data, Block (1977) found that correlations between S or R data with T data (data from objective, standardised tests) proved unsatisfactory, which led him to conclude, "the evidence for personality consistency as derived from studies using T data is extremely erratic, sometimes positive but often not" (p.45). He ascribed the problem to the 'insufficiences' of T data,

namely their lack of psychological depth and limited technical
sophistication. However, more encouraging relationships between T and
O data (observer ratings) were reported by Buss et al (1980) in a
study of personality correlates in childhood.

*   The Idiographic Approach

The idiographic approach was concerned with the unique
covariation between traits occurring within the individual, in
contrast to the nomothetic view associated with the general laws of
behaviour. It stressed the value of the intensive study of the
individual, clinical rather than statistical prediction, and a
holistic rather than fragmented view of personality.

Bem and Allen (1974) proposed that the low consistency
coefficients evident in many of the findings were due to the
nomothetic fallacy of assuming that all traits were relevant for all
people. Instead, they suggested that an idiographic approach,
involving only a subset of Ss for whom the trait was relevant, would
prove to be a more realistic strategy. As Mischel (1977b) noted,
"there is also considerable support, in my view, for the fact that
while competencies surely exist within each person, they tend to be
idiosyncratically organized (e.g., Bem and Allen, 1974), a
circumstance which makes nomothetic comparisons on common traits
difficult and which highlights the uniqueness that Gordon Allport
(1937) has long emphasized" (1977b, p.253).

In the wake of Bem and Allen's paper, several variants of the
idiographic approach were employed. For example, Pervin (1976)
administered a free response format questionnaire to four subjects
without peer ratings, and concluded that on some dimensions the Ss
were consistent across all or most of their major life situations,

while remaining variable on others (see also Kenrick and Stringfield, 1980).

A more extreme version of the idiographic stance was put forward by De Waele and Harré (1976): For them, the essential preliminary to the study of human social performance and its underpinning competencies consisted in an idiographic appraisal: "It is impossible to validate a nomothetic study, that is to show how its conclusions would be applied to individuals, unless it is grounded upon a prior idiographic investigation of each of those individuals to see whether the patterns which characterize their behaviour and the generative mechanisms which explain it have any unique properties" (p.222). To uncover the individual's cognitive resources and the origin of his behaviour, they suggested the adoption of the 'Systematic Personality Assessment' schedule, including a biographical inventory, a social inquiry, the direct observation of behaviour and the deliberate use of 'problem and conflict' situations.

*   Repeated Measures - Aggregation over Situations

Epstein, Jaccard and others demonstrated across a number of response domains that reliability climbs as one aggregates more occasions over time.

In a series of papers, Epstein (1979, 1980, 1983) proposed that the debate on the consistency issue had been marked by two misconceptions, namely a failure to recognise broad response dispositions, and a failure to identify relevant behavioural items with sufficient care.

In arguing the case that much of the research had been characterised by a concern for single items of behaviour, involving a high error of measurement and a restricted degree of generality, he

suggested that the solution lay in sampling behaviour at an appropriate level of generality, and averaging behaviour over an increasing number of events.

Reporting on four studies dealing with the relationship of personality inventories to behaviour, Epstein (1979) noted that, with data averaged over a number of events, stability coefficients routinely rose to high levels, often above .80; thus indicating that it was possible to predict behaviour with reasonably high accuracy in one sample of everyday situations from a different sample of everyday situations. In contrast, responses to a single event resulted in low stability coefficients, usually below .30.

In Epstein's fourth study, 45 undergraduates kept a 14 day consecutive record of their feelings and behaviour together with a tally of objective aspects of behaviour, and completed a battery of personality inventories. Cross-situational reliability coefficients for internal states were calculated, ranging from .70 to .94, while correlations with self-report inventories averaged about .40.

By aggregating behaviour over situations and occasions, Epstein's data repeatedly demonstrated that satisfactory consistency coefficients could be uncovered provided that sufficient attention was paid to the choice of behavioural items and to period of observation. As he put it (1983), " In any one situation, behavior is apt to be determined primarily by the situation, but it also reflects a small cross-situationally general component. By aggregating behavior over sufficient situations, thereby compounding the cross-situational component and cancelling out the situationally unique component, broad response dispositions can be revealed" (p.183).

*   Act Frequency Analysis

Alston (1975) proposed that trait concepts be viewed as frequency dispositions and that the search for consistency deal with the stability of response frequency across situations. Recognising that "a sober consideration of traits will allow for variations in mood, for satiation effects, and for effects in abnormal situations" (p.86), he advocated that the individual's behavioural repertoire be extensively sampled in order to identify existing consistencies. The careful mapping of behaviours likely to be high in consistency, an approach used by Fishbein and Ajzen (1974) in their attitudinal research, was developed by Jaccard (1974) and Buss and Craik (1980, 1981) in determining the appropriate behavioural correlates of dispositional variables.

In a study of behavioural criteria related to the prediction of attitudes, Fishbein & Ajzen (1974) proposed that careful consideration be given to a method termed 'Multiple Act Criterion' (MAC), rather than to the analysis of single acts (dichotomous or continuous) or to repeated observations of single acts. MAC was concerned with different behaviours, each observed on a single occasion. On the basis of their findings, they reported, "correlations between the attitude towards an object and multiple-act criteria were consistently high, while no systematic relationship was found with respect to single act criteria" (p.72).

As Cronbach (1975) noted, an attitude questionnaire begins to be a good predictor of response in real life, when the criterion is an average over 100 kinds of relevant activity. (See the comments of Werner and Pervin, 1986, relating to the small proportion of behavioural items in certain standard inventories).

Fishbein and Ajzen also proposed that in constructing an inventory, that used appropriate behavioural criteria, an 'index of linearity' should be calculated. For instance, when referring to a trait such as conscientious behaviour, there should be a 'linear trace line', so that the probability of its performance is high for conscientious persons and low for non-conscientious persons.

Jaccard (1974) carried out a dispositional study of MAC using 45 female students, to whom he administered two scales designed to measure dominance, together with a dominance self-report. Another group of 22 female students provided the basis of a forty-item MAC, which was completed by the Ss. Correlations among the three measures of dominance were high, as were the correlations between the scales and MAC (p <.01). The mean correlation between each of the forty behaviours and the three dominance measures was negligible.

Buss and Craik (1980) replicated and extended Jaccard's (1974) study by linking scores on three dominance scales with a self report list of 100 acts associated with dominance and rated for 'prototypicality'. Endorsed acts were also checked for frequency. The mean correlations between the inventory scales and single acts were weak and in line with Jaccard's findings. However the MAC procedure, based on aggregation and prototypical rating, resulted in substantially stronger correlations, partially confirming the prototypicality gradient of the report list. They concluded that prototypicality ratings provided a viable means of examining the 'category structure' of behaviour.

In 1981 Buss and Craik replicated their earlier study on dominance (1980), and included three further traits, aloofness, submissiveness and gregariousness, to check the wider application of the act frequency approach. They found high correlations for

prototypical clusters of dominant, aloof and gregarious behaviours,
and anomalous results for submissiveness, which were partly attributed
to scale selection.

The studies reported by Jaccard (1974) and Buss and Craik (1980,
1981) relied on retrospective accounts rather than directly observed
behaviour. In contrast, Aries et al (1983) observed students in
small-group discussion in order to correlate scores drawn from the CPI
Dominance scale with verbal and nonverbal aspects of dominant
behaviour. The coefficients of multiple correlation between the
scores on all nine behavioural measures and those on the Dominance
scale were .67 for the all-male groups and .65 for the all-female
groups. While the personality measure accounted for less than 10% of
the variability with respect to single behavioural measures, this
increased to 40% when the combined scores were considered.

Buss and Craik (1983) distinguished between behavioural
consistency and dispositional consistency. "Behavioral consistency
refers to indices derived from the molecular level of single-act
analysis" (p.115) In treating selected acts as the building blocks in
behaviour, attention was focused on the anatomy of the act, i.e. its
internal category structure and its position in terms of vertical and
external relationships. In contrast, "dispositional consistency
refers to molar-level multiple-act indices derived from analyzing the
cognitive structure of dispositional categories of acts" (p.115).
Dispositional constructs were regarded as "natural cognitive
categories of topographically dissimilar acts" (p.122).

At an analytical level, Buss and Craik were concerned with three
types of consistency measurement. (1) basic act-trend consistency
(within category rather than the repetition of similar acts); (2)

consistency in the dispositional range and versatility of acts; (3) consistency in dispositional range across situations.

MAC demonstrated its utility in the descriptive mapping of the regularities in behaviour and provided predictive hypotheses on actuarial grounds about future trends, without invoking causal or situational factors.

* Matching Templates

Interactionism also led to a reassessment of situations, their analysis, classification and impact on behaviour (see Moos, 1973; Argyle et al, 1981; Furnham & Argyle, 1981).

Bem and Funder (1978) attributed the poor consistency coefficients obtained in personality research to a confusion about situations, in that to the observer they appeared to be similar and yet for those who were involved they had different meanings.

They sought to resolve the issue by identifying those situations which shared similar psychological functions. They proposed that the individual's personality, described in terms of Q-sort ratings, should be matched to that of the situation, "that situations be characterized as sets of template-behavior pairs, each template being a personality description of an idealized 'type' of person expected to behave in a specified way in that setting" (p.486). They claimed that situations with similar Q-sort portraits would be characterised by highly intercorrelated behaviours.

Using 29 preschool children they carried out a delay gratification experiment. Parents' trait ratings of each child provided 100 Q-sort items, which were correlated with delay time. The portrait of the long-delaying child (not very intelligent, not verbally fluent, etc.) was found to be very different from that

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reported by Block (1977, pp.60-62) despite the equivalence in situation; and they suggested that the nature of this difference could be resolved by the collection of appropriate Q-sort data.

Mischel and Peake (1982) attempted to replicate the Bem and Funder (1978) study, using the same situation, but with two conditions (experimenter present vs absent). In contrast to the original findings, they found that capacity for delay gratification was associated with high intelligence, curiosity, etc. Also, despite the two conditions sharing similar correlates, their correlation was non-significant (.22) and provided no increase in cross-situational consistency. Finally they were unable to cross-validate internally the template-matching technique. They concluded that the prospect of finding a common ground for persons and situations remained attractive, but required to be more than a description of behaviour within a particular context.

* Moderator Variables.

In order to provide an adequate account of behaviour, interactionism turned for explanation to the role of moderator variables. The moderator variable strategy was described by Alker (1972) as "the new paradigm", and sought to link specific demonstrations of consistent behaviour to particular types of individual.

Kogan and Wallach (1964) reported on test-taking anxiety and defensive need for social approval. Although neither anxiety nor defensiveness alone predicted risk-taking behaviour, a combination of the two traits did. High anxiety Ss were found to be consistently risky or not risky, whereas the behaviour of low anxiety Ss was more situation-specific.

Bem (1972) was cautiously optimistic about moderator variables. He noted, "The moderating variable strategy becomes more than an empty analytic or linguistic convention however, only when we can begin to predict on a priori grounds which moderators are likely to divide up the world into useful equivalence classes: What kinds of people might display trait-like consistency ?" (p.21).

Bem and Allen (1974) investigated two traits, friendliness and conscientiousness, in a sample of 64 students using topographically different behaviours (e.g. promptness in submitting evaluations, in completing homework, etc.). As well as Ss completing the Cross-Situational Behavior Survey inventory, ratings were obtained from Ss, their parents and a peer, together with several behavioural indices. They reported that some people were consistently conscientious, although the evidence for friendliness was less clearcut. For conscientiousness in the low variability group the mean correlation across six situations was .45 (high variability group, .09); for friendliness, the corresponding figures were .57 and .27. They concluded that, "individuals who identify themselves as consistent on a particular trait dimension will in fact be more consistent cross-situationally than those who identify themselves as highly variable" (p.512).

Mischel and Peake (1982) repeated Bem and Allen's (1974) research, dividing Ss into high and low variability groups for both traits on the basis of their self-reported variability. Their findings replicated the previous results, with high interrater agreement (.68) for low-variability Ss, against .22 for high variability Ss. However, where the cross-situational consistency of the observed behaviour of low-variability Ss was concerned, interrater confidence was not reflected in significantly higher levels (.11).

In another version of Bem and Allen's (1974) design, Chaplin and Goldberg (1985) compared high and low consistency groups using 112 Ss and eight traits, including the original two. They were unable to replicate Bem and Allen's results, finding little convergence between the three measures of consistency classification (self-rating, ipsatized variance index and Consistency Questionnaire). They also noted that the extent of the differences between the average correlations for the high and low groups was generally at odds with that reported by Bem and Allen, (with some confirmation in respect of conscientiousness, but none for friendliness). They concluded that self-reported consistency in respect of specific traits was ineffective as a moderator variable for strengthening personality measures.

In contrast to Bem and Allen, Kenrick & Stringfield (1980) used consistency ratings to select the most relevant dimension for each subject. They claimed that the procedure was more idiographic because each subject was encouraged to pick the dimension, and yet also nomothetic in that it enabled "a comparison of **all** subjects on data based on dimensions that are similar in principle, although topographically dissimilar (in specific content)" (p.92). Using the 16PF dimensions, 98 Ss rated their behaviour on cross-situationally consistency, and public observability; they were also asked to identify their most consistent dimension. Ratings on similar questionnaires were distributed to parents and peers. The findings were consistent with those of Pervin (1976), in that each subject considered himself or herself cross-situationally consistent on some dimensions, a view confirmed by the observer ratings.

A variant of the moderator approach was concerned with situation selection. Studies by Diener et al (1984), Diener and Larsen (1984),

Emmons et al (1986) and Emmons and Diener (1986) investigated the extent to which situation selection controlled response consistency and stability.

Using data from 42 Ss over a six-week period, Diener and Larsen examined the stability and consistency of feelings and responses both singly and in aggregation. They found that (a) the interaction between responses and situations was complex in that consistency was a function of the response domain, the situation and the particular individual; (b) in common with the findings of Epstein (1979, 1982) aggregation across situations resulted in enhanced stability and consistency estimates; (c) some individuals were more consistent than others.

Emmons and Diener (1986) looked at the stability of situational choices and how these related to personality, and cross-situational consistency in self-selected vs imposed situations. They found that choices were stable over 9 months; also that affect was more consistent in self-selected situations, whereas behaviour occurred more consistently in imposed situations.

However in a retrospective and more sober evaluation, Wallach and Leggett (1972) were less enthusiastic about moderator variables, stating that attempts to replicate Kogan and Wallach's (1964) research, "have not been marked by success in any clear way" (p.312). They were sceptical about research results using this approach because complex internal processes and statistical interactions were prone to poor replication. Nor did they regard the use of selected subsamples as an improvement on the use of total samples, because both were faced with the problem of establishing consistency for conceptual entities of 'dubious' utility.

Instead of moderator variables, Wallach and Leggett proposed that the place to look for consistency was in behaviour itself and in its products, namely "consistency in the exhibition of competencies, and consistency in the style with which performances are carried out or products made". From a total of 235 children of kindergarten age they obtained drawings of Santa Claus and a man, at intervals during the Christmas period. Using indices of size and area they concluded that although the drawings were not significantly affected by the proximity of their execution to Christmas, stylistic consistency was evident, with correlations of .5 to .6 accounting for 25-36% of the variance. However, the evidence for stylistic consistency was tempered by the possibility that test-retest effects were involved.

The approach using moderator variables, involving the selection of relevant interactions, led to an increasingly elaborate version of interactionism, closely associated with an idiographic account of personality. These problems were highlighted by Cronbach (1975): "Once we attend to interactions, we enter a hall of mirrors that extends to infinity. However far we carry our analysis - to third order or fifth order or any other - untested interactions of a still higher order can be envisioned" (p.119). Or as Mischel (1975) put it, "When one examines closely the interactions obtained in research on the effects of dispositions and conditions, the number of moderator variables required to predict behavior and the complexity of their interrelationships (e.g. McGuire, 1968) tend to become most formidable" (p.256).

*   Prototypical Behaviours

In an attempt to move the consistency debate forward, Mischel proposed that research be aimed at identifying prototypical behaviours.

In the 1982 Carleton behaviour study, Mischel and Peake had questioned whether the impression of stability based on the temporal stability of behaviours relevant to prototype was independent of cross-situational consistency. They concluded that the perception and the structure of consistency depended more on the temporal stability of prototypic features than on the observation of cross-situational behavioural consistency, noting, "some impressive coefficients emerge, and coherent patterns of correlations are apparent among some of the variables...So whereas the data reflect behavioral discriminativeness, there is also a positive trend, a coherence or gist among the behaviors sampled" (p. 737). In advancing the merits of the cognitive prototype approach, they suggested, "instead of seeking high levels of cross-situational consistency - instead of looking for broad averages - we may need, instead, to identify unique bundles or sets of temporally stable prototypic behaviors - key features - that characterize the person even over long periods of time but not necessarily across many or all possibly relevant situations" (p.754).

In a later paper, Mischel (1984) consolidated his views by claiming that "people judge their consistency not by seeking the average of all observable features of a category, but by noting the reliable occurrence of some features that are central to the category or are more prototypic" (p.360).

2.4 CONSISTENCY, TRAIT INTERACTION AND SMALL GROUP BEHAVIOUR

Criticism of traditional trait theory has developed beyond the dichotomous stance of the early situationists. Accepting an interactionist framework, it has sought to redefine the operational utility of the concept of consistency. In clarifying the limitations of trait theory, Mischel and others have stressed both the situational and cognitive antecedents of behaviour, in order to draw attention to the sheer complexity of the phenomena.

One aspect of this complexity is that behavioural consistency – where it occurs – is a function, to some extent, of the interplay between traits. Because the internal dynamics interact with situational and social constraints, traits are rarely expressed in the uniform and unalloyed patterns of behaviour that trait measures tend to suggest. Not only will the internal processes vary in salience and in their combined or conflicting articulation, but they will differ also in the range and overlap of their behavioural expression, in their linkage with developmental and physical processes, and in their degree of uniqueness.

It will be apparent from the research reported in this chapter that, despite Block's (1977) caveats, consistency has often been conceptualised in terms of a simple relationship between a trait and its behavioural correlates. Although interactionists' writings have encouraged a growing awareness of the variance contributed by motivational, cognitive and situational factors, much of the research has chosen to ignore the operational implications.

Phenomena such as trait interactions have rarely been examined in an explicit manner, despite Allport's (1937) recommendation that trait interactions should not be overlooked. Trait interactions, despite the complications that they represent, are an inevitable consequence

of a trait description of personality. Trait interactions are likely to be the rule rather than the exception. Indeed – apart from some behaviours associated closely with strong physiological drives – it would be hard to envisage behaviour that was not occasioned by a combination of motivational determinants, and mediated by one or more trait interactions.

Trait interactions were therefore considered in this research to constitute an essential class of mediating variables that assist in the description of behaviour. In line with the work of Kogan and Wallach (1964), where a combination of anxiety and defensiveness successfully predicted risk-taking behaviour, the role of trait interactions was examined in terms of saliency, variation and behavioural correlates.

Apart from recognising some of the complex personality dynamics that contribute to the production of consistency, this research was also concerned with its situational determinants. The context of the leaderless small group discussion was considered to provide the optimum environment for facilitating high levels of personal consistency associated with specific trait interactions.

Some of the reported research (e.g. Mann, 1959, 1961; Aries, 1983, etc.) has looked at consistency in small groups, but often such interactional environments, with their potentially rich source of social behaviours, have been ignored. Indeed for certain trait interactions, e.g. those involving aspects of extraversion, the small group provides a context uniquely suited to the inspection of particular behaviours. However, the search for consistency in small group behaviour is complicated both by the changing internal dynamics of the small group, and the ways in which the interactional process of

mutual influence contribute to the definition of consistency; issues which are discussed in some detail in this research.

2.5 CONCLUSION

Although Epstein (1979) noted that, "interactionists have been no more successful than others in breaking the .30 personality barrier", interactionism nevertheless highlighted the limitations of traditional trait theory, in that the latter was essentially descriptive, tended to ignore cognitive and dynamic processes, and related primarily to overt behaviours. Interactionists have maintained that personality and behaviour are not necessarily linked in an explicitly consistent manner; a consequence of which is that consistency is now generally accepted to be a product of interaction, not the result of main effects. The emphasis has changed from a concern with absolute consistency to one of defining the nature of relative consistency.

As Mischel (1973) noted, "the available data do not imply that different people will not act differently with some consistency in different classes of situations; they do imply that the particular classes of conditions must be taken into account far more carefully than in the past, tend to be much narrower than traditional trait theories have assumed, and for purposes of important decision making, require highly individualized assessments of stimulus meanings" (p.262).

In a study in delay gratification using preschoolers with a mean age 4 years, Mischel & Ebbesen (1973) assessed the children in terms of the number of minutes they were willing to wait by themselves for a preferred but delayed gratification. Using rewards obscured vs rewards exposed, there were three conditions : no ideation, think

'fun', think rewards. The role of cognitive transformation led Mischel to conclude, "because ideation can readily transform the objective external situation to produce opposite results, the predictability of behavior hangs by a precariously thin thread" (1984 p.354).

There is broad agreement that individual consistency and behavioural specificity coexist. These represent, rather than alternative solutions to a common problem, two equally valid approaches to the study of behaviour that start from different, but closely allied viewpoints. As Bowers (1977) put it, "Just where one stops resolving apparent differences (i.e. behavioral specificities) into superordinate similarities (i.e. personal consistency) depends in large part on one's purpose, not upon an appeal to one, indubitably **real** level of behavior" (p.74).

With the demise of traditional trait theory, the concept of consistency has changed. No longer is it assumed to be a robust attribute of behaviour reflecting the internal structure of personality in regular and lawful ways. Instead, it has turned out to be a complex and elusive aspect of behaviour, difficult to describe in operational terms, and mediated by many internal and external factors.

The studies in this research have sought to examine the consistency issue from several different angles. they have been carried out in line with some aspects of the interactionist position and in the wider context of a growing sensitivity to the complexity of the consistency debate, underscored by Mischel's papers (1968, 1969, 1977a). They have used the paradigm of the moderator variable, extended it to include different types of trait interaction, and sought confirmation of consistency within a realistic appraisal of the dynamics of small group behaviour.

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CHAPTER 3

PILOT STUDY

3.1 INTRODUCTION

The research schedule, centred around Studies 1-3, is described in Chp.4. In preparation for Studies 1-3 and to establish the viability of the discussion format, a Pilot Study was carried out with a heterogeneous group of 2nd year Psychology students. It had three aims:

1. To assess the effectiveness of the design and the materials.
2. To explore the utility of the IPA training sessions as an incentive to participation.
3. To examine the relationship between measures of trait anxiety and study habits and interactional behaviour, as measured by the IPA system.

It was important to determine whether the material, the schedule of the meetings and the author's role encouraged or inhibited the participants' verbal behaviour. For example, in the absence of the author during the discussions would the Ss initiate a range of activity sufficient to establish reliable differences in behaviour ?

Also, it was important to assess whether the range of Ss' verbal behaviour and the level of their activity were significantly influenced by the recording methods. For instance, if Ss were introduced to the observational system, would perceptible changes emerge in the IPA record ?

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3.2 SUBJECTS

2nd year students in the Psychology Department were invited to join in a discussion group for three meetings to evaluate a book on study methods. No payment was made. Instead Ss were offered instruction in the IPA system.

11 volunteered from a class of 91. Later, four withdrew because of other commitments.

The Ss included 2 males and 5 females (4 Social Science and 3 Science students), all of whom were studying Single or Joint Honours courses. Apart from one casual friendship, the Ss didn't know each other.

3.3 PREPARATION

A week before the 1st meeting, the Ss were given copies of Learn How To Study (see Appendix 4B) and information about the IPA system. They were asked to prepare the book as follows:

1st Meeting	Chps 1-2	38pp
2nd Meeting	Chps 3-4	40pp
3rd meeting	Chps 5-7	68pp

They were also given the following items:

Digest of the IPA scoring protocol

Description of the IPA categories

Set of 6 scoring exercises

3.4 SCHEDULE

The meetings took place at weekly intervals in the Children's Room (see Chp.4). The meetings began at 7.30p.m. and lasted approximately 2 hours. Each one included a discussion and a training session.

DISCUSSION

This consisted of a 30 mins discussion of the prepared material recorded on audio and video tape. After the standard briefing (see Chp.4) the Ss were left alone. At each meeting the Ss sat in the same positions.

TRAINING SESSION

The group was split in two. While one half remained in the room to continue the discussion, the other one went into the adjoining Laboratory to observe the interaction through a one-way vision panel.

The discussion was relayed via an amplifier and loudspeaker. Using scoring pads, the observing Ss scored the discussants' behaviour. After 15 mins the two groups were switched around.

In the second half the group was reassembled to view a 15 mins excerpt of the recording. The Ss were asked to score this. Finally the difficulties encountered during the session were discussed.

The absence of one subject (S3) at the third meeting resulted in the third dataset having to be discarded. The data for meetings 1 and 2 was treated as a composite record lasting an hour.

3.5 MEASURES

1. IPA of the discussions (see App.1). A transcript was made of each 30 mins discussion. 50% of the transcripts were analyzed, using alternate segments of 2.5 mins duration. For a discussion of sampling issues see App. 1.6

2. C.D.Spielberger, R.L.Gorsuch and R.E.Lushene State-Trait Anxiety Inventory, Form X-2 (trait)

    C.G.Wrenn Study Habits inventory

    Both were completed at the 1st meeting.

TABLE 3.1 PILOT STUDY DATA

QUESTIONNAIRE DATA

	S1	S2	S3	S4	S5	S6	S7	mean	s.d.
SEX	M	M	F	F	F	F	F		
AGE	19	21	20	19	19	21	20	19.9	0.90
SHI	-19	-32	4	44	-29	17	-8	-3.3	27.25
STAI	49	38	35	34	49	39	51	42.1	7.27

IPA FOR INITIATED BEHAVIOUR
IPA UNITS

		S1	S2	S3	S4	S5	S6	S7	Total	%
MEETING 1	CAT 1	0	0	1	0	0	0	0	1	0.2
	2	4	34	17	5	1	12	16	89	18.1
	3	6	15	23	11	7	13	11	86	17.5
	4	1	0	1	0	0	2	0	4	0.8
	5	33	53	56	14	12	21	31	220	44.8
	6	0	1	2	3	1	1	2	10	2.0
	7	1	3	1	0	0	2	3	10	2.0
	8	0	1	1	0	3	7	11	23	4.7
	9	0	0	0	0	0	0	0	0	0.0
	10	0	1	1	0	0	1	1	4	0.8
	11	4	7	11	3	3	9	7	44	9.0
	12	0	0	0	0	0	0	0	0	0.0
	TOT	49	115	114	36	27	68	82	491	
	%	10	23	23	7	6	14	17		100.0%
MEETING 2	CAT 1	0	0	0	0	0	0	0	0	0.0
	2	4	36	4	0	13	11	8	76	13.2
	3	10	14	17	7	12	13	9	82	14.2
	4	0	0	2	0	1	0	0	3	0.5
	5	35	71	43	8	30	34	64	285	49.5
	6	2	6	15	5	10	5	6	49	8.5
	7	2	6	7	3	5	6	1	30	5.2
	8	0	0	4	0	4	0	1	9	1.6
	9	0	0	0	0	0	0	0	0	0.0
	10	1	0	0	0	0	5	0	6	1.0
	11	1	4	8	5	5	6	7	36	6.2
	12	0	0	0	0	0	0	0	0	0.0
	TOT	55	137	100	28	80	80	96	576	
	%	9	24	17	5	14	14	17		100.0%

3.6 ANALYSIS AND DISCUSSION

3.6.1 Format and Methodology

The Ss had no difficulty with the prescribed material for each meeting. None had previously read a book on study methods. Most commented favourably on the text - "stimulating", "helpful" - though noting its dogmatic tone.

As 2nd year students, they were familiar with the department and had participated in other psychology experiments. Although they didn't know each other well, they settled down to the discussions with an obvious sense of purpose. The guidelines were adhered to, and there was no evidence from the entire transcripts that either the tempo or the direction of the discussions faltered during the prescribed period. 76% of the 30 mins composite transcript (in terms of IPA units) dealt directly with the prepared material.

	Chp.	No. of sections	sections discussed	% of discus.
Transcr.1	1	19	6	16%
	2	29	14	24%
Transcr.2	3	39	9	11%
	4	18	9	25%
total		105	38	76%

Few comments were made about the recording equipment, the layout of the room, or the nature/purpose of the meetings.

At the end of the third meeting, after the remaining 6 Ss had each spent a total of 10 hours in preparation and attendance, there were requests from most of the group for further meetings.

No problems were encountered in recording the 7 Ss. the wide-angle lens produced a clear picture of the flattened semi-circle of

Ss. allowing the accurate attribution of behaviour. The 30 mins of sampled discussion resulted in a total of 1067 acts of initiated behaviour, with individual profiles ranging from 6% to 24% of the total IPA.

3.6.2 IPA and the Training Sessions

The Ss were given two hours of training in the rudiments of IPA scoring. The IPA system using live interaction is not easy to master. Borgatta and Bales (1953) suggested that 3-4 months of relatively intensive training is required to enable the observer to score with consistency. McLeish (1973) commented, "fifteen sessions are not sufficient for undergraduate trainees to acquire minimal proficiency in Bales' system" (p.192).

The training sessions did not appear to influence the interactional record in any consistent direction. Although a general increase in task-related acts occurred at the 2nd meeting, associated with a decrement in laughter, this pattern was not sustained at the third meeting. It was concluded that changes in behaviour across meetings were more likely to be due to the processes of social adjustment, than to the direct impact of the training sessions.

The learning that had occurred in the training sessions was assessed as superficial in nature, despite the commitment and enthusiasm of the Ss. It was akin to Entwistle et al's (1979) "surface active" learning, where attention is focused on the memorization of facts rather than on their interpretation and understanding.

3.6.3 IPA of Meetings 1 and 2

IPA CATEGORIES – % OF ACTS PER MEETING

MEETINGS

	1	2
Cat.1	0.2%	0.0%
2	18.1	13.2
3	17.5	14.2
4	0.8	0.5
5	44.8	49.5
6	2.0	8.5
7	2.0	5.2
8	4.7	1.6
9	0.0	0.0
10	0.8	1.0
11	9.0	6.2
12	0.0	0.0

The total percentage of acts in each IPA category did not vary significantly between the meetings, though a slight increase in behaviour scored in the neutral task-related categories (4-9) was evident at the 2nd meeting.

MEETINGS	1	2
Cats 1-3	35.8%	27.4%
Cats 4-9	54.4%	65.4%
Cats 10-12	9.8%	7.2%

No behaviour was recorded in Cat.9 (asks for suggestion) or in Cat.12 (seems unfriendly), and this pattern was widely observed in

subsequent groups. Surprisingly, for a group that appeared to find the discussions stimulating, only one act of behaviour was actually scored in Cat.1 (seems friendly), involving an isolated gesture of reassurance.

3.6.4 IPA and the Questionnaires

In this section the IPA scores refer to the composite IPA record for each subject.

The relationships between the IPA data and the personality measures were inconclusive: The Spearman rho coefficient for IPA Cats. 4-9 and the Wrenn SHI was -.3929; and for IPA Cat.11 and STAI Trait was -.0714.

The lack of agreement between the observational categories and the personality instruments pointed to some of the major themes to be examined in this research, namely (a) the extent to which the personality inventories had a predictive utility; (b) the strengths and limitations of the observational system, and (c) the reliability of the personality and observational measures.

The Pilot Study was in preparation for Studies 1-3, in which three types of trait interaction were examined for the consistency of their behavioural correlates. It suggested that the format of the discussions was sufficiently stimulating to sample a wide range of behaviours, and that the methodology for recording behaviour was adequate to the task and sensitive to individual differences.

3.7 CONCLUSIONS

In preparation for Studies 1-3, the results of the Pilot Study suggested that the format of the discussion group and its methodology were satisfactory in the following respects:

1. The Ss were sufficiently interested and alert to participate in several time-consuming meetings, during which their behaviour remained active and exhibited a wide range of responses.

2. The study methods manual aroused the interest of the Ss and was relevant to their academic experience.

3. The Ss' briefing, the personality tests, the location of the discussions and the author's role did not appear to create any obvious inhibitions in the Ss. This was subsequently supported with more solid evidence in the evaluation of Study 3 (Chp.13).

4. The equipment enabled the author to record the behaviour of all the participants.

5. The IPA record demonstrated a satisfactory level of coherence across the two meetings in terms of the group's aggregated scores.

6. The relationships between the questionnaires and the IPA data were ambiguous: A predictable result in a small heterogeneous group of Ss.

7. The IPA training sessions resulted in minimal levels of proficiency. Although attractive and interesting to the Ss, they created heavy demands in terms of preparation, time and effort. With other groups, payment was offered as an incentive rather than training sessions.

CHAPTER 4

GENERAL PROCEDURE

4.1 RESEARCH SCHEDULE 1974-77

STUDIES 1-3 (Table 4.1)

Three successive classes of 1st year Psychology students were
surveyed (Surveys 1-3) in the third month of the academic year using
standard inventories, the Wrenn Study Habits Inventory, the
Spielberger State-Trait Anxiety Inventory and the EPI, forms A and B
(Chps. 5, 8 and 10).

Studies 1-3, using 19 groups, provided the focus of the research
(Chps. 6, 9 and 11). The number of groups in each study varied,
depending on the available pool of Ss. The Ss were invited to
participate on the basis of their scores in Surveys 1-3. Behavioural
data were obtained by analysing the groups' discussions using R.F.
Bales' IPA system.

SUPPORTING RESEARCH (Table 4.2)

The schedule of supporting research included:

A.   The reliability of the inventories used in Surveys 1 and 2
     (App.2).

B.   Comparison data for Studies 1 and 2 using 1st year Arts Ss
     (Chp.7).

C.   Behavioural data from two academic discussion groups (Appendix
     6).

D.   The reliability of the Author's IPA coding (App.1.2).

E.   Ss' evaluation of Study 3 and of the Author (Chp.12).

1974-75 | **1975-76** | **1976-77**

	NOV	DEC	MAR	NOV	DEC	JAN	FEB	MAR	APR	MAY	DEC	FEB	APR	MAY	JUN
1ST YEAR SURVEYS		SURVEY 1 — n: 94 — chp.5			SURVEY 2 — n: 116 — chp.8						SURVEY 3 — n: 105 — chp.10				
STUDY GROUPS			STUDY1 — 4 Gps. — 16 Ss. — Chp.6					STUDY2 — 6 Gps. — 24 Ss. — Chp.9					STUDY 3 — 9 Groups — 36 Ss. — Chp.11		

The research involved three linked studies & Ss selected from three successive surveys of 1st Year Psychology students.

RESEARCH SCHEDULE 1974-77

TABLE 4.1   RESEARCH SCHEDULE 1974–77

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Table 4.2 — Schedule of Supporting Research

	1974–75			1975–76								1976–77			
	NOV	DEC	MAR	NOV	DEC	JAN	FEB	MAR	APR	MAY	DEC	FEB	APR	MAY	JUN
SURVEYS / *RELIABILITY OF SURVEY QUESTION.* **1**		SURVEY1 — n:94	WRENN SHI STAI TRAIT	1st YR ARTS	SURVEY2 — n:116	WRENN SHI STAI TRAIT EPI FORM A			ONE YEAR INTERVAL *Appendix 2.2*		n:47				
					n:43			TWO YEAR INTERVAL *Appendix 2:1*			n:33				
OTHER GROUPS WITH IPA DATA **2**	PILOT STUDY *Chp. 3*			1st YR ARTS *Chp.7*			PSYCHOLOGY TUTORIAL GRP. *Append. 6*		ECONOMICS TUTORIAL GRP. *Append.6*						
RELIABILITY OF IPA SCORING **3**						1st SET OF SCORES	2 GROUPS: G.4 & G.6 ONE YEAR INTERVAL *Appendix 1.2*				2nd SET OF SCORES				
FOLLOW-UP TO STUDY 3 **4**							STUDY 3							ASSESSMENT *Chp.12*	

Data from SURVEYS 1 & 2 was used in two reliability studies of the questionnaires. The IPA data obtained in STUDIES 1 & 2 was compared with norms from Arts groups. The reliability of the author's IPA CODING was checked. Feedback on STUDY 3 was checked.

SCHEDULE OF WORK SUPPORTING STUDIES 1–3

TABLE 4.2 SCHEDULE OF SUPPORTING RESEARCH

4.2 SUBJECTS

It was decided at the outset to restrict Surveys 1-3 to students
in one department, and to concentrate on achieving a high response
rate from a group that was relatively homogeneous in terms of
university experience. It was impractical to obtain representative
samples from other departments, particularly in view of the related
aim of identifying and persuading Ss with extreme scores to
participate in the discussion groups.

The ratio between the number of students in 1st, 2nd and 3rd year
Psychology was roughly 3:2:1, with 2nd and 3rd year Honours students
working towards split Finals, and for the most part unavailable for
research work. 1st year students were under an obligation to
volunteer a certain number of hours for experiments.

In using volunteer students, the author was aware of the
extensive literature that differentiated between the volunteer and the
non-volunteer subject (Rosenthal and Rosnow, 1975; Silverman, 1977,
etc.). The volunteer subject has been variously described in terms of
"compliancy", "conformity", "a desire to demonstrate normalcy",
"altruistic behaviour", "sociability", "the need for self-disclosure",
etc. Kruglanski (1973) also suggested that the volunteer subject, in
his responsiveness to the demands of the experimenter, exhibited
greater "ego involvement" in the task.

It was important, given the small departmental pool of potential
Ss, to maximise the number of volunteers at the Survey stage, and
later in the formation of the groups. Rosnow and Rosenthal (1976)
suggested that ways of increasing the generalizability from samples of
human Ss lay in inducing "more non-volunteer types of subjects into
the sampling urn" by making the appeal (a) as interesting as
possible, (b) as non-threatening as possible, (c) explicitly stating

the theoretical and practical importance of the research, and (d) by
making a personalised appeal for volunteers. The approach used in
this research was similar to these guidelines, and led to a
satisfactory response.

In the surveys the Ss' interest in the questionnaires resulted
in a mean response rate of 85% (see below). The forms were personally
distributed by the author, and feedback of the class profile was made
within a fortnight of the inventories being processed.

In soliciting volunteers for the Studies, approximately 77% of
those who had assisted in the surveys were approached with letters of
invitation. To induce students to commit themselves to lengthy
preparation and about two hours in the Psychology Department, they
were offered twice the standard rate of payment. The mean volunteer
response rate for Studies 1-3 was 54%.

VOLUNTEER SUBJECTS

	Pilot study	74/75 Stu.1	Arts groups	75/76 Stu.2	76/77 Stu.3
No. in class	91	146		151	134
Total survey response		106 (73%)		135 (89%)	126 (94%)
SAMPLE		94		116	105
No. contacted		61	72	100	80
No. volunteers	11 (12%)	30 (49%)	31 (43%)	44 (44%)	55 (69%)

4.3 AUTHOR

The author had three roles:

1. He acted as a co-ordinator, steering the Ss as unobtrusively as
    possible through the schedule of the meetings.

2. In the surveys, students were required to spend a minimum of 15
    mins completing the inventories, and in the discussion groups Ss

had to allocate a minimum of 4 hours. To ensure maximum cooperation, the author had to canvass support by persuading the students of the value of the research, the utility of the discussion material and the benefits of feedback.

3. In the laboratory setting, he was concerned that the Ss, who were possibly apprehensive about the discussion or the anonymity of the surroundings or about the recording apparatus, were put sufficiently at ease to interact in an active, alert and spontaneous manner.

4.4 LOCATION (Plan 4.3 and Photographs 4.4 and 4.5)

The discussions took place in the Children's Room, which is situated in the north-west corner of the Psychology Department, in a quiet area away from the main concourse. The room was designed as a laboratory for the study of infant behaviour, and was equipped with a one-way vision panel from the adjacent Practical Laboratory. It housed a number of playthings, which were stacked against a wall to clear the room for the discussion groups. When the Ss were seated, the room appeared uncluttered with little to distract the attention. However the presence of the toys, which could be seen on entering the room, had a noticeable effect in reducing the initial apprehension of the Ss.

Four seats were arranged in a semi-circle facing the camera and recording apparatus. The background consisted of panels designed to provide a uniform contrast. Illumination was enhanced with spotlights fixed on runners to the ceiling. The view beyond the windows was screened off with venetian blinds.

4.3 PLAN OF THE CHILDREN' ROOM

practical
lab

cubicle

one-way vision
panel

Tape
recorder

Video
equipment

children's room

75
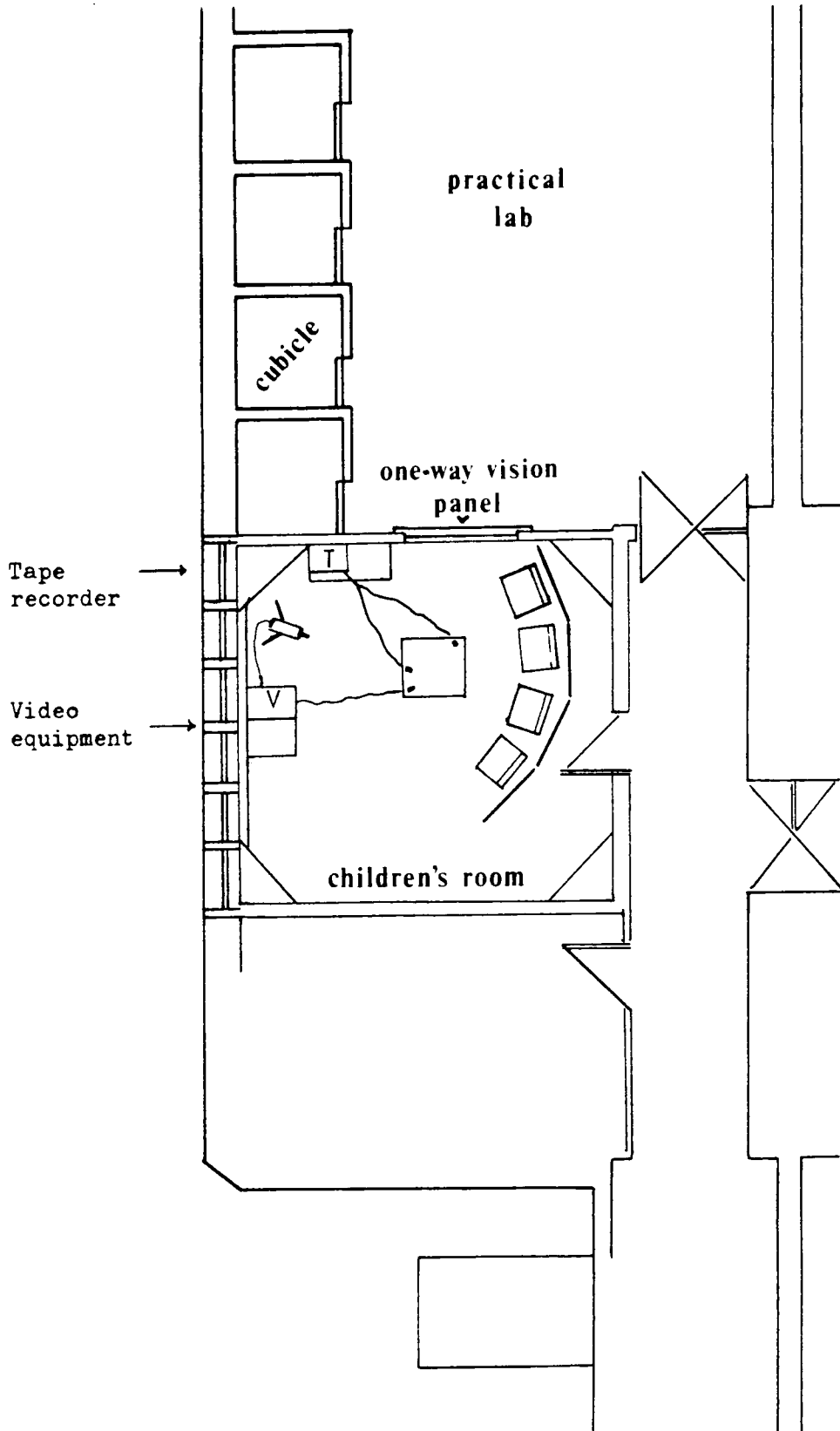
4.5 RECORDING APPARATUS

4.5 BRIEFING

The author was not acquainted with the Ss prior to the meetings; nor were most of the Ss in the groups acquainted with each other, apart from isolated instances identified in the text.

On arrival in the Practical Laboratory, the Ss were shown to the cubicles and given an inventory to fill in. On completing a questionnaire, which was removed by the author, each subject was given another one. Those who completed the forms quickly waited in the cubicles for the others to finish.

Then the Ss were introduced to each other, led to the Children's Room and given the standard briefing. At no stage did the author comment on the selection criteria of the groups, or on any comparison that might be made between them.

The briefing was as follows:

1. The purpose of this study is to look at the relationship between your scores on the personality inventories and your verbal behaviour in the discussion groups.

2. The data, some of which will be presented as profiles, will be sent to you as soon as possible.

3. You may sit where you like, but please don't move the seats from the fixed semi-circle.

4. You have 30 mins to discuss the book/chapters/papers. Discuss the material in whatever way you feel is most constructive. If that includes criticism, laughter, periods of silence, digressions, etc. that is legitimate.

5. Ashtrays are provided if you wish to smoke.

6. Please don't refer to/look at any written material during the discussion.

7. The discussion is being recorded on C90 cassette audio tape and

on video tape. These will be used afterwards to prepare a
transcript for the analysis of verbal behaviour. Both tapes will
be treated in strict confidence. They won't be heard or seen by
anyone but myself, and will be erased after the transcripts have
been made. In the transcripts you will be identified by a
number, not a name.

8. No other means of recording you or observing you are being used.
The one-way vision panel is not being used, and during the
discussions I will be downstairs in my room.

9. I will return and interrupt you after approximately 30 mins, and
switch off the recording apparatus.

The author then switched on the recording apparatus, briefly
checked the video picture using the monitor, switched off the monitor,
and left the Ss to discuss the material. After 31-32 mins he
returned, interrupted the discussion, and led the Ss back to the
cubicles where they were given further questionnaires to complete.

4.6 APPARATUS

The discussions were recorded using:

1. A Hanimex HCD 1020 stereo cassette deck and standard C90
cassettes, which provided two 45 mins audio tracks, on which the
discussions were recorded in stereo using twin microphones.

2. A Shibaden SV700 video tape-recorder using 0.5 inch open reel 60
mins cassettes and recording in monochrome. The video unit was
wired to a microphone and HV15 CCTV camera, mounted on a tripod
and equipped with a wide-angle lens.

3. To ensure that the video equipment was functioning properly, a
Shibaden TU19 BL TV monitor/receiver was used.

4.7 MATERIALS

It was important to encourage the interest and goodwill of the Ss. They had been selected from small contact pools, and could not be replaced at short notice. The absence of one subject could have jeopardised the research. To consolidate their interest, it was decided from the outset that the material should be relevant to their academic work:

1. Surveys 1-3 involved standard inventories of general relevance to 1st year Psychology students.

2. The survey data were presented to each first year class as histograms and statistics in line with the 1st year statistics course.

3. Studies 1-3 used a manual on study methods that had been tested in the Pilot Study.

4. The data from Studies 1-3 (IPA profile, 16PF profile, and general statistics) were sent to each participant.

Encouraging the interest of the students in this way over a three-year period in a small department was reflected in an increasingly high response rate both to the surveys and to participation in the groups. Also, most of the Ss attended the meetings punctually and well-prepared.

CHAPTER 5

SURVEY 1

SURVEY OF THE 1ST YEAR PSYCHOLOGY CLASS

5.1 PURPOSE

Survey 1 was designed to sample the scores of a large number of students, so that individuals with extreme sets of scores could be identified and subsequently invited to participate in small discussion groups.

Spielberger, Gorsuch and Lushene's State-Trait Anxiety Inventory (STAI) Form X-2 (trait) and Wrenn's Study Habits Inventory (SHI) were distributed to the 1st year Psychology class.

By repeatedly handing out the questionnaires, it was anticipated that a large proportion of those who intended to continue with Single or joint Honours Psychology would complete the forms. This would allow the reliability of the questionnaires to be assessed over a two-year follow-up period.

5.2 SCHEDULE

The 1st year Psychology class included 146 students, of whom 10% were 2nd and 3rd year General Science students. The class had three lectures a week, a tutorial once a fortnight, and 59% attended one of three Practical classes held each week in the Department.

The questionnaires, together with pre-addressed envelopes, were distributed in the first week of December at the beginning of the three lectures and three Practical classes. It was made clear that individual results would be available on request, and that the overall

TABLE 5.1   SURVEY 1 – STUDENT DATA

		TOTAL	MALE	FEMALE
1.	No. of students doing 1st year Psychology	146	70 (48%)	76 (52%)
2.	Students in 2nd & 3rd year General Science	15	10	5
	COMPLETED QUESTIONNAIRES 106 (73%)			
	ANONYMOUS		6 (4%)	
	2nd & 3rd Gen. Sc.		6 (4%)	
3.	No. of students in 1st year Psychology less 2nd and 3rd year Gen. Sc.	131	60	71
4.	SAMPLE	94 (72%)	37 (62%)	57 (80%)
5.	Practical classes*	86	38	48
6.	Total less 2nd & 3rd year Gen. Sc.	71	28	43
7.	No. of students in sample doing Practical classes	64 (90%)	22 (79%)	42 (98%)
8.	Total No. of students not doing Practical classes**	60	32	28
9.	Sample not doing Pract. classes	30 (50%)	15 (47%)	15 (54%)
10.	No. in sample who did the Collection exam***	92	56	36

    * 59% of 1st year did Practical classes once a week.
      This group included all students intending to do
      Single and Joint Honours.
  ** 41% of 1st year were not required to do Practical
     classes.   They were all students doing a one-year
     course in Psychology.
 *** The Collection exams took place first week of the
     second term.

TABLE 5.2 SURVEY 1 – GENERAL STATISTICS

		mean	s.d.
SAMPLE	AGE	20.24	3.67
n=94	STAI	41.38	9.10
	SHI	5.43	43.64
MALES	AGE	20.54	3.52
n=37	STAI	41.16	8.08
	SHI	−0.32	45.03
FEMALES	AGE	20.05	3.76
n=57	STAI	41.53	9.69
	SHI	9.16	42.30
PRACTICALS	AGE	20.19	3.53
n=64	STAI	40.27	8.20
	SHI	6.70	44.58
NON-PRACTICALS	AGE	20.37	3.95
n=30	STAI	43.77	10.36
	SHI	2.70	41.42
2nd & 3rd	AGE	19.80	0.41
GENERAL	STAI	40.17	13.63
n=6	SHI	−2.33	54.64
COLLECTION n=92		50.27	6.51

results would be put on display as histograms.

Six weeks after the questionnaires had been distributed, the 1st year class was required to sit the collection exam at the start of 2nd term. This was a short paper to monitor progress, and did not count towards a formal assessment of the year's work. Since high SHI scores are associated with a profile of study habits and attitudes leading to high academic achievement, the results of the Psychology Collection paper have been included in this analysis.

5.3 RESULTS AND DISCUSSION

5.3.1 Response Rates (Tables 5.1 & 5.2)

The results of Survey 1 are shown in Table 5.1.

6 anonymous replies were excluded from the analysis, as well as 6 completed by 2nd and 3rd year general Science students (their SHI scores were based on a different, more extended experience of university work). A satisfactory return of 73% was achieved.

Of those attending only the lectures, 50% completed the questionnaires, whereas the response rate from those also attending Practicals was 90% (excluding 2nd and 3rd year General Science). The difference between the two groups was partly due to the extra canvassing in the Practical classes, and the fact that students attending the Practicals arrived early and found time to complete the questionnaires in the Department.

Of those involved in the Practicals, all 48 students intending to proceed with Single or joint Honours Psychology completed the questionnaires. this group provided the first reliability study, in which 75% completed the same forms a year later, and 65% two years later (Appendix 2A).

1st RELIABILITY STUDY

	MALE	FEMALE	TOTAL
SINGLE HONOURS	4	25	29
JOINT HONOURS	9	10	19
total	13	35	48

The sample of 94 students also included 12 "mature" students aged 23 years and over. Apart from age, there were no significant differences between this group and the younger students.

MATURE STUDENTS

n:12	mean	s.d.
AGE	28.38	4.25
STAI	42.69	8.72
SHI	8.38	53.62
COLLECTION	46.64	8.73

5.3.2 Inventory Norms

TRAIT ANXIETY (see App. 3.2)

The STAI manual gave norms based on 2 samples of freshmen and American undergraduates.

		MALE		FEMALE	
		mean	s.d	mean	s.d.
SURVEY 1	n:94	41.16	8.08	41.53	9.16
Freshmen	n:982	38.07	8.20	38.22	8.20
Undergraduates	n:484	37.68	9.69	38.25	9.14

(Although slightly higher than the American norms, it should be noted that the data for Survey 1 were similar to that subsequently

obtained in Surveys 2 and 3).

STUDY HABITS INVENTORY (see App.3.1)

In the Wrenn SHI manual it was suggested that a total score that

falls below +15 was cause for concern (the possible scores range from

-177 to +175). No conventional norms were supplied. The scores for

Survey 1 were as follows:

		MALE		FEMALE	
		mean	s.d.	mean	s.d.
SURVEY 1	n:94	-0.32	45.03	9.16	42.30

5.3.3 Sex Differences (Table 5.2)

Despite almost equal numbers of male and female students in the

1st year class, 61% of the sample was female. this arose because 73%

of those intending to proceed with Honours Psychology were female, all

of whom were in the Practical class, and all of whom completed the

questionnaires. In the non-practical group the ratio between the

sexes was about equal.

Although the range of female scores on the STAI was wider, there

was no significant sex difference.

On the SHI there was a small sex difference amounting to about

0.25 of an s.d. (this also recurred in Surveys 2 and 3).

Using the SHI, Wrenn and Humber (1941) found lower variability

among female scores. With a different inventory - The Study Behavior

Questionnaire - Biggs (1970a) reported that females were significantly

more organised than males across faculty. Despite the evidence of

reports, using other study habit inventories, that sex differences are

not prevalent in this area (Entwistle and Entwistle, 1970; Entwistle,

Nisbet et al, 1971; Rutkowski and Domino, 1975; Diamond, 1980; etc.)
the data from Survey 1, together with the results from the test-retest
schedule (App.2) suggested that the female students in this cohort
adopted study methods that were more systematic than those of the male
students, and that in the period leading up to their finals they
became increasingly better organised.

5.3.4 Practical vs Non-Practical Groups (Table 5.2)

Two thirds of the sample were involved in the Practical classes.
Despite this imbalance, and possibly a higher commitment to Psychology
in the Practical group, the differences in personality measures
between the two groups were not significant.

5.3.5 Correlation Analysis (Table 5.3)

Neither the STAI nor the SHI scores correlated with age to any
level of significance, or in a meaningful direction. However there
was a strong, linear and negative relationship, uncorrected for
attenuation, between the STAI and the SHI scores. Similar
relationships were found subsequently in Surveys 2 and 3, supported by
a negative correlation between SHI and EPI Neuroticism.

The negative correlation between the STAI and SHI scores, already
apparent in the Pilot Study was in line with the results of other
research (Entwistle and Entwistle, 1970; Cowell and Entwistle, 1971;
Entwistle, Nisbet et al, 1971; Entwistle and Brennan, 1971; etc.)
where strong negative relationships were reported between EPI
Neuroticism and organized study habits.

The Wrenn SHI was designed to distinguish between high and low
scholarship groups. This aim was not strongly supported by the
results of Survey 1, when SHI scores were correlated with the
Psychology Collection marks (for a discussion see Appendix 5).

TABLE 5.3   SURVEY 1 – SUMMARY OF CORRELATIONS

			1	2	3
1. SAMPLE		1 AGE	–		
	n=94	2 STAI	–0.022	–	
		3 SHI	0.022	–0.391***	–
2. MALES		1 AGE	–		
	n=37	2 STAI	0.033	–	
		3 SHI	0.152	–0.510***	–
3. FEMALES		1 AGE	–		
	n=57	2 STAI	–0.048	–	
		3 SHI	–0.050	–0.334**	–
4. PRACTICALS		1 AGE	–		
	n=64	2 STAI	–0.024	–	
		3 SHI	0.177	–0.335**	–
5. NON-PRACT.		1 AGE	–		
	n=30	2 STAI	–0.030	–	
		3 SHI	–0.292	–0.502**	–
6. COLLECTION		1 AGE	–		
	n=92	2 AGE	–0.126		
		3 STAI	–0.051		
		4 SHI	0.151		

Pearson r   **p:< .01;   ***p:< .001

5.4 SUMMARY AND CONCLUSIONS

1. Survey 1 was successful in achieving a response rate of 73% from the 1st year Psychology class.

2. Completed questionnaires by a sample of 94 Ss showed a significant negative correlation between STAI Trait Anxiety and the Wrenn SHI scores.

3. The high response rate enabled two groups of students with extreme scores to be easily identified:

    A. Those with high STAI and low SHI scores.

    B. Those with low STAI and high SHI scores.

    Because of the sample size and the strong negative relationship between the two measures, no students were identified in the remaining two quadrants with sets of scores of at least one s.d. from the mean.

4. The response rate of the students intending to proceed with Psychology Honours was sufficiently high to enable a test-retest reliability study of the two measures to be undertaken.

CHAPTER 6

STUDY 1

6.1 INTRODUCTION

Study 1 was concerned with examining the consistency between the interaction of two traits, trait anxiety and studiousness, and behaviour in small group discussion. Neither trait was considered to play a prominent role in the social behaviour of small groups. However, it was considered that their interaction would be associated with the successful resolution of the psychodynamic issues facing a small group. These issues are basically twofold (see Appendix 1.61 for a more detailed discussion):

1.   Achieving the objective task of the group that is explicitly accepted by each member on joining the group (the public, overt agenda).

2.   Resolving the interpersonal pressures of being part of the group (the private, covert agenda).

It was anticipated that the Wrenn SHI scores would relate to the first issue, i.e. pursuing the discussion topic, behaviour registered by the IPA system in terms of the proportion of behaviour located in the neutral task-related Cats 4-9. Trait anxiety would be primarily concerned with the second issue. Because success in achieving the stated goal was closely dependent on dealing satisfactorily with the group's interpersonal needs, it was anticipated that a significant portion of the group's social behaviours would be attributed to the interactive effects of the two traits.

It was expected that the interaction of the two traits, as defined by scores for STAI Trait Anxiety and Wrenn SHI, would be expressed in the resolution of the Groups' task and socio-emotional goals. However it was not anticipated that the trait interactions would be reflected in easily identifiable patterns of behaviour, for the two traits were not assumed to possess equivalent relevance in the description of personality: Whereas STAI Trait Anxiety correlated closely with other measures of anxiety that are distinguished by their prominent factor analytic status - see Chp.8 - Wrenn SHI was considered to measure the expression of a trait of more peripheral salience. Wrenn SHI was associated with a particular aspect of conscientious behaviour, namely studiousness, and none of the inventory items were directly concerned with small group discussion behaviour.

This imbalance between the two traits was also emphasised by the results of Survey 1, and by the scores of the volunteer Ss: For both populations, the scores for STAI Trait Anxiety were more extreme than those for Wrenn SHI.

Four hypotheses were made:

1. High trait anxiety combined with low SHI scores suggested that anxiety exerted a debilitating role in methodical task activities. It was therefore expected that the group's behaviour would be associated with the inhibition of task performance (low scores for IPA Cats 4-9) and with the failure to resolve interpersonal pressures, i.e. low consensus among participants (low scores for Cats 1 and 3 with high scores for Cat 10).

2. Low trait anxiety combined with low SHI scores would be associated with the neglect of task performance in favour of social relationships. The sociable disposition of Ss would be reflected in high scores for IPA Cats 1-3, correspondingly depressed scores for Cats 10-12, and depressed scores for Cats 4-9.

3. Low trait anxiety combined with high SHI scores would be associated with the subordination of social relationships to the group's task. The conscientious attitudes of the Ss would be reflected in high scores for IPA Cats 4-9, and in reduced scores in the socio-emotional areas (Cats 1-3 and 10-12).

4. High trait anxiety combined with high SHI scores would suggest that anxiety played a facilitating role in methodical task performance. The group's behaviour would be associated with intense activity (high overall IPA scores) both directed at achieving the group's task (high scores in Cats 4-9) and at establishing social relationships (high scores for Cats 1-3 with low scores for Cats 10-12).

In common with Studies 2 and 3, this used groups of students who were relatively homogeneous in terms of certain inventory scores, age and university experience. These Ss were selected on the basis of their scores in Survey 1. Each group included two males and two females in order that the interaction should involve the maximum socio-emotional stimulus for the participants.

To highlight the interaction between trait anxiety and

studiousness in as much detail as possible, two sets of complementary data were obtained:

1. Several questionnaires and assessment forms were completed by the Ss.

2. The discussions were assessed for their adherence to the topic.

Questionnaire data was also collected to provide an indication of the validity of the selection criteria.

Comparisons between the groups formed the focus of the study. It was also considered desirable to compare the groups' behaviour with a more representative sample of behaviour, obtained under similar conditions. To provide such a comparison, a separate study was made (reported in Chp.7) of the discussion behaviour of Arts students, which allowed a mean interactive profile, based on six groups, to be established.

6.2 SUBJECTS

Survey 1 was completed by the end of December. Its aims was to identify Ss with extreme sets of scores for STAI and SHI in order to form 4 groups, each with two male and two female members:

GROUP 1	STAI (high)	and	SHI (low)
GROUP 2	STAI (low)	and	SHI (low)
GROUP 3	STAI (low)	and	SHI (high)
GROUP 4	STAI (high)	and	SHI (high)

The initial criteria were set at one s.d. from the mean, but this resulted in a contact pool of only 10 Ss, restricted to Groups 1 and 3

(Table 6.1, Scatter Plot). To increase the number of volunteers, the contact pool was enlarged by lowering the threshold criteria (Table 6.2).

The mean STAI Trait Anxiety scores and the mean SHI scores for each of the four groups, their respective contact pools and the non-volunteers are set out in Table 6.3. Converting the data in Table 6.3 to standard scores – see overleaf – made it clear that only with Group 3 was it possible to form a group with a mean score on both measures of at least one s.d. from the mean.

MEAN STANDARD SCORES

		4Ss	Pool	Non-vol.
G.1	STAI	1.50	1.32	1.18
	SHI	-0.83	-1.12	-1.18
G.2	STAI	-1.20	-0.81	-0.45
	SHI	-0.59	-0.65	-0.73
G.3	STAI	-1.03	-1.03	-0.86
	SHI	1.82	1.16	1.02
G.4	STAI	1.00	0.71	0.62
	SHI	0.79	0.65	0.50

TABLE 6.1   STUDY 1 – SCATTER PLOT OF SURVEY 1
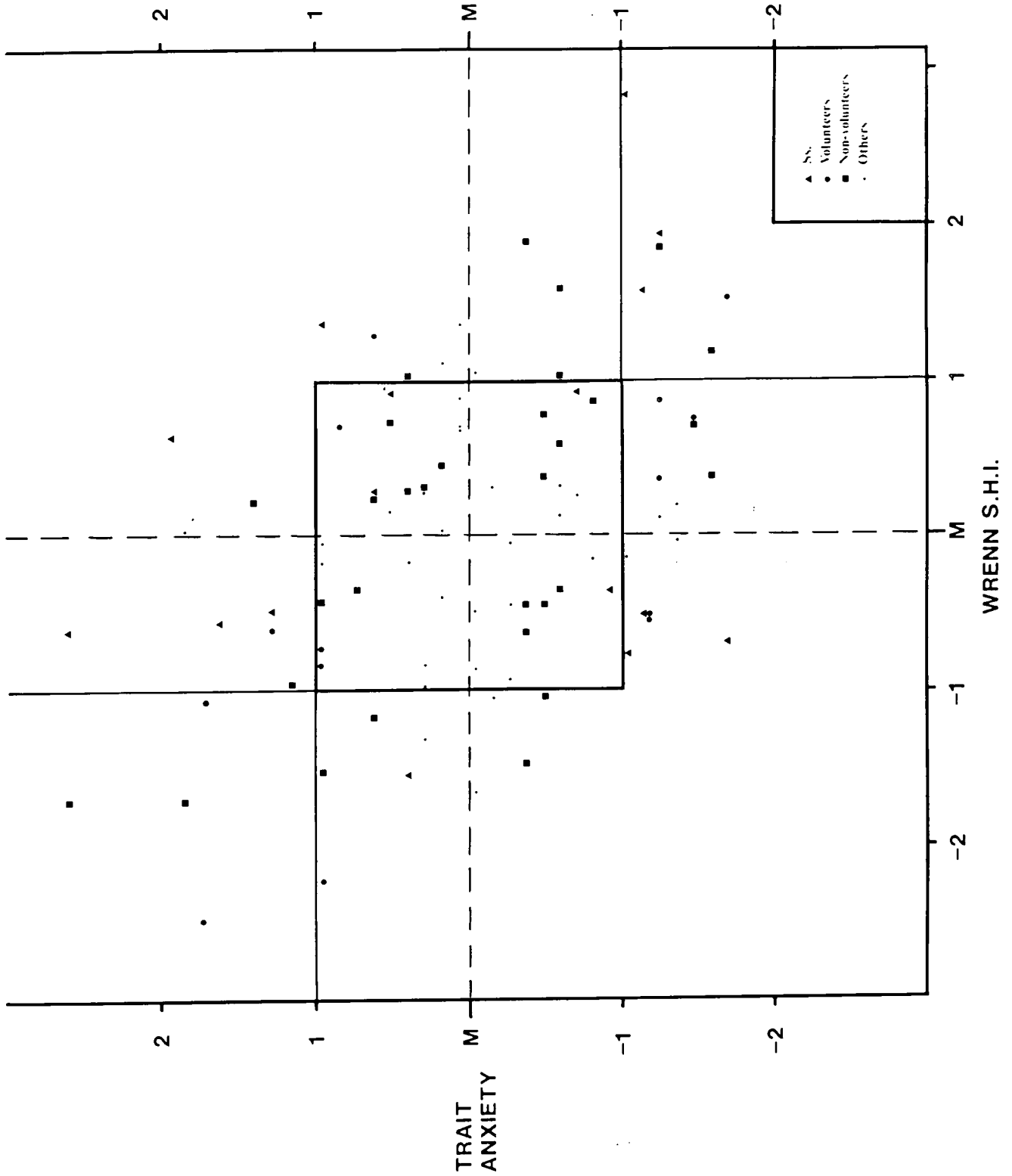
TABLE 6.2 STUDY 1 – CONTACT POOL OF Ss

Dist. from mean	GROUP 1 STAI (HIGH) WRENN (LOW)		GROUP 2 STAI (LOW) WRENN (LOW)		GROUP 3 STAI (LOW) WRENN (HIGH)		GROUP 4 STAI (HIGH) WRENN (HIGH)	
	male	female	male	female	male	female	male	female
1 s.d.								
Pool	2	2			3	3		
Volun.	1	1			1	3		
Ss.	0	0			1	2		
½ s.d.								
Pool	4	5	3	2	3	5	2	4
Volun.	2	3	3	2	1	2	1	3
Ss.	0	2	2	1	1	0	1	2
1/3 s.d.								
Pool	3	1	3	4	1	4	0	1
Volun.	3	0	0	1	0	1	0	1
Ss.	2	0	0	1	0	0	0	0
Pool							2	4
Volun.							1	0
Ss.							1	0
TOTAL								
Pool	9	8	6	6	7	12	4	9
Volun.	6	4	3	3	2	6	2	4
Ss.	2	2	2	2	2	2	2	2

95

TABLE 6.3 STUDY 1 – SELECTION STATISTICS OF Ss

	GROUP 1 STAI TRAIT (H) WRENN SHI (L)		GROUP 2 STAI TRAIT (L) WRENN SHI (L)		GROUP 3 STAI TRAIT (L) WRENN SHI (H)		GROUP 4 STAI TRAIT (H) WRENN SHI (H)	
NON-VOLUNTEERS	(n = 7) mean	s.d.	(n = 6) mean	s.d.	(n = 11) mean	s.d.	(n = 7) mean	s.d.
AGE	20.86	3.72	21.67	7.53	21.18	4.96	20.00	3.16
STAI TRAIT	52.14	3.63	37.33	0.82	33.55	4.01	47.00	3.70
WRENN SHI	-46.14	36.39	-26.33	19.25	49.91	23.96	27.43	16.84
SUBJECT POOL	(n = 17) mean	s.d.	(n = 12) mean	s.d.	(n = 19) mean	s.d.	(n = 13) mean	s.d.
AGE	20.35	2.99	20.58	5.21	20.95	4.70	19.46	2.37
STAI TRAIT	53.41	5.98	34.00	3.88	32.00	3.96	47.85	4.39
WRENN SHI	-43.59	28.02	-22.83	14.07	55.95	28.83	33.77	17.42
GROUP	mean	s.d.	mean	s.d.	mean	s.d.	mean	s.d.
AGE	19.00	0.00	19.25	0.50	19.00	0.00	19.00	0.00
STAI TRAIT	55.00	8.68	30.50	3.11	32.00	2.16	50.50	5.92
WRENN SHI	-31.00	21.18	-20.50	7.33	84.75	34.65	40.00	20.23

67% of Survey 1 were contacted individually by letter and offered £1.20 to volunteer for the group discussions.

	TOTAL	MALE	FEMALE
SURVEY 1	94	37	57
CONTACT POOL	61	26	35
VOLUNTEERS	30	13	17

Of the 30 volunteers, 14 either had less extreme scores than those selected for the groups, or had other commitments on the dates arranged for the meetings. Apart from one casual friendship between S10 and S12, none of the Ss had spoken to each other before the discussions took place.

6.3 PREPARATION

The Ss were told that the research was concerned with personality and behaviour in small groups, that they would be recorded on video tape, that they would be asked to complete several inventories, and that individual results would be sent to each participant at a later date. They were not informed that they had been grouped on the basis of their scores in Survey 1.

A week before the discussions, Ss received copies of Rowntree's Learn how to Study, with instructions to read it in preparation for a 30 mins discussion.

6.4 SCHEDULE

The meetings lasted two hours, and were divided into three parts:

1.   On arrival, Ss were shown to the cubicles in the Practical Laboratory, and completed the following forms: Recall Test,

Entwistle SAI, Pre-discussion Inquiry, STAI State
Anxiety.

2. With all the forms completed, the Ss were introduced to each
   other, and led to the Children's Playroom. There they were given
   the briefing (Chp.4) and left alone for 30 mins to discuss the
   book.

3. After 30 mins, the author returned, led the Ss back to the
   cubicles,and gave them the following forms: Assessment of the
   Discussion, the EPI, the Post-discussion Inquiry.

6.5 MEASURES

1. SELECTION CRITERIA

   A. Spielberger, Gorsuch and Lushene State-Trait Anxiety
      Inventory - STAI Form X-2 Trait Anxiety.

   B. Wrenn Study Habits Inventory.

2. PRE-DISCUSSION MEASURES

   C. Recall Test on Learn how to Study.

   D. Entwistle Student Attitudes Inventory.

   E. Pre-discussion inquiry - 4 open-ended questions.

   F. Spielberger, Gorsuch and Lushene State-Trait Anxiety
      Inventory STAI Form X-1 State Anxiety.

3. POST-DISCUSSION MEASURES

   G. IPA based on the entire transcript of each 30 mins
      discussion.

   H. Assessment of the discussion. 14 scales.

   I. Eysenck Personality Inventory Form A

   J. Post-discussion inquiry - 10 open-ended questions.

   K. Psychology Collection paper. (The results were available in
      2nd term).

6.6 DATA

The data section includes the following tables:

Table 6.4 Questionnaire data

" 6.5 Questionnaire statistics

" 6.6 IPA data

" 6.7 IPA statistics

" 6.8 Recall test

" 6.9 Assessment of the discussion

" 6.10 Post-discussion inquiry

TABLE 6.4   STUDY 1 - QUESTIONNAIRE DATA

		AGE	WRENN SHI	STAI (TR)	RECALL TEST	SAI TOTAL	MOTIVA.	STUDY H.	EXAM T.	LACK DIS.	STAI (ST)	ASSESSMENT	EPI EXTRAV.	NEURO.	LIE SC.	COLLECTIONS
G.1	S1	19	-62	45	2	28	7	12	3	6	51	36	12	19	4	47
	S2	19	-16	53	14	24	6	7	4	7	37	53	7	13	4	26
	S3	19	-19	56	15	20	5	6	5	4	37	52	16	16	2	50
	S4	19	-27	66	23	25	5	9	7	4	65	58	7	19	2	43
G.2	S5	19	-17	31	21	24	7	6	5	6	22	55	15	0	4	56
	S6	19	-28	32	23	30	9	9	5	7	39	73	11	7	3	45
	S7	19	-25	26	21	30	9	9	7	5	31	51	16	2	2	53
	S8	20	-12	33	27	34	9	11	7	7	27	49	13	4	1	59
G.3	S9	19	74	31	24	36	12	11	6	7	31	68	10	6	2	51
	S10	19	46	35	20	27	10	6	7	4	31	70	11	12	1	56
	S11	19	90	30	15	33	12	8	8	5	47	65	11	11	5	48
	S12	19	129	32	29	34	13	9	5	7	35	73	13	14	3	48
G.4	S13	19	17	47	21	33	9	12	5	7	36	44	11	10	2	50
	S14	19	45	46	23	29	10	9	7	3	38	74	13	14	4	54
	S15	19	65	50	27	36	10	13	7	6	45	65	7	13	5	54
	S16	19	33	59	14	28	10	8	4	6	72	31	4	20	2	52
		SELECTION			*PRE-DISCUSSION*							*POST-DISCUSSION*				

TABLE 6.5 STUDY 1 – QUESTIONNAIRE STATISTICS

	G.1 mean	G.1 s.d.	G.2 mean	G.2 s.d.	G.3 mean	G.3 s.d.	G.4 mean	G.4 s.d.
1.AGE	19.00	0.00	19.25	0.50	19.00	0.00	19.00	0.00
2.WRENN SHI	-31.00	21.18	-20.50	7.33	84.75	34.65	40.00	20.23
3.SAI TOTAL	24.25	3.30	29.50	4.12	32.50	3.87	31.50	3.70
MOTIVATION	5.75	0.91	8.50	1.00	11.75	1.26	9.75	0.50
STUDY MET.	8.50	2.65	8.75	2.06	8.50	2.08	10.50	2.38
EXAM TECH.	4.75	1.71	6.00	1.15	6.50	1.29	5.75	1.50
LACK DIS.	5.25	1.50	6.25	0.96	5.75	1.50	5.50	1.73
4.STAI TRAIT	55.00	8.68	30.50	3.11	32.00	2.16	50.50	5.92
STATE	47.50	13.40	29.75	7.18	36.00	7.57	47.75	16.62
5.EPI EXTRA.	10.50	4.36	13.75	2.22	11.25	1.26	8.75	4.03
NEURO.	16.75	2.87	3.25	2.99	10.75	3.40	14.25	4.19
LIE	3.00	1.15	2.50	1.29	2.75	1.71	3.25	1.50
6.RECALL T.	13.50	8.66	23.00	2.83	22.00	5.94	21.25	5.44
7.ASSESS.	49.75	9.54	57.00	10.95	69.00	3.37	53.50	19.57
8.COLLECT.	41.50	10.72	53.25	6.02	50.75	3.77	52.50	1.91

TABLE 6.6   STUDY 1 — IPA DATA

| | | IPA CATEGORIES |
		1	2	3	4	5	6	7	8	9	10	11	12	TOT
G.1	S1	0	27	14	0	79	12	6	5	0	16	44	2	205
	S2	1	13	8	1	83	4	4	2	0	7	14	1	138
	S3	0	65	34	15	172	21	8	10	0	16	49	5	395
	S4	2	30	54	5	98	25	4	12	0	12	35	0	277
G.2	S5	0	19	27	1	98	11	9	5	0	1	25	0	196
	S6	3	18	43	4	67	7	1	2	1	1	39	0	186
	S7	5	64	72	1	192	21	12	8	0	8	47	0	430
	S8	4	47	73	3	118	9	4	0	4	2	34	0	298
G.3	S9	0	4	13	7	171	15	0	5	0	2	12	0	229
	S10	0	58	22	2	176	4	6	3	1	9	19	0	300
	S11	2	2	31	1	81	3	0	1	0	10	22	0	153
	S12	4	21	45	0	76	6	1	14	0	1	26	0	192
G.4	S13	5	38	90	4	187	14	5	7	1	7	32	0	390
	S14	4	122	56	7	212	62	3	6	5	10	40	0	527
	S15	5	41	79	2	87	10	5	4	1	7	33	0	274
	S16	0	2	2	0	26	3	2	0	0	0	45	0	80

TABLE 6.7 STUDY 1 – IPA STATISTICS

		GROUP 1		GROUP 2		GROUP 3		GROUP 4	
		mean	s.d.	mean	s.d.	mean	s.d.	mean	s.d.
BALES IPA CAT.	1.	0.75	0.96	3.00	2.16	1.50	1.91	3.50	2.38
	2.	33.75	22.11	37.00	22.46	21.25	25.94	50.75	50.70
	3.	27.50	20.87	53.75	22.62	27.75	13.65	56.75	39.15
	4.	5.25	6.85	2.25	1.50	2.50	3.11	3.25	2.99
	5.	108.00	43.44	118.75	53.15	126.00	54.92	128.00	86.84
	6.	15.50	9.40	12.00	6.22	7.00	5.48	22.25	26.89
	7.	5.50	1.91	6.50	4.93	1.75	2.87	3.75	1.50
	8.	7.25	4.47	3.75	3.50	5.75	5.74	4.25	3.10
	9.	0.00	0.00	1.25	1.89	0.25	0.50	1.75	2.22
	10.	12.75	4.27	3.00	3.37	5.50	4.65	6.00	4.24
	11.	35.50	15.46	36.25	9.22	19.75	5.91	37.50	6.14
	12.	2.00	2.16	0.00	0.00	0.00	0.00	0.00	0.00
IPA TOTAL		253.75	109.95	277.50	139.09	218.50	62.57	317.75	189.25
CATS	1-3	62.00	36.45	93.75	45.87	50.50	29.51	111.00	75.65
	4-9	141.50	60.45	144.50	64.24	142.75	60.49	163.25	116.60
	10-12	50.25	21.11	39.25	12.04	25.25	7.80	43.50	5.07

TABLE 6.8   STUDY 1 – RECALL TEST

Ques. No.	Total score	G.1 S1	2	3	4	Mean Score	G.2 5	6	7	8	Mean Score	G.3 9	10	11	12	Mean Score	G.4 13	14	15	16	Mean Score
1	2	0	0	0	0	0.00	2	0	2	0	1.00	0	0	0	0	0.00	0	0	0	0	0.00
2	3	2	2	0	1	1.25	3	2	0	2	1.75	3	2	0	3	2.00	1	3	3	2	2.25
3	7	0	2	4	2	2.00	2	6	6	4	4.50	6	3	4	7	5.00	4	4	5	1	3.75
4	4	0	0	1	3	1.00	1	2	2	2	1.75	3	2	1	2	2.00	3	2	3	1	2.25
5	2	0	1	0	1	0.50	2	2	0	2	1.50	2	2	1	2	1.75	2	2	0	2	1.50
6	1	0	1	1	1	0.75	1	1	1	1	1.00	1	1	1	1	1.00	1	1	0	1	0.75
7	4	0	0	0	2	0.50	2	0	0	2	1.00	2	2	1	0	1.25	1	1	1	0	0.75
8	5	0	5	5	5	3.75	5	5	5	5	5.00	5	5	5	5	5.00	5	5	5	5	5.00
9	1	0	1	1	0	0.50	1	1	0	1	0.75	1	0	0	1	0.50	1	0	1	0	0.50
10	1	0	1	1	1	0.75	1	1	1	1	1.00	0	1	1	1	0.75	1	1	1	1	1.00
11	5	0	0	2	5	1.75	0	0	3	4	1.75	0	0	0	4	1.00	1	3	5	0	2.25
12	3	0	1	0	2	0.75	1	3	1	3	2.00	1	2	1	3	1.75	1	1	3	1	1.50
TOTAL 38		2	14	15	23	13.50	21	23	21	27	23.00	24	20	15	29	22.00	21	23	27	14	21.25
%		5	37	24	61	36%	55	61	55	71	61%	63	53	39	76	58%	55	61	71	37	56%

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TABLE 6.9 STUDY 1 – ASSESSMENT OF THE DISCUSSION

The 14 Semantic Differential scales were translated into scores (1-7) weighted towards a positive, potent and active evaluation of the discussions. Scales marked by asterisks were not scored.

		CLEAN	VALUABLE	GOOD	PLEASANT	HONEST	RELAXED	HAPPY	STRONG	RUGGED	DEEP	FAST	HOT	ACTIVE	SHARP	TOTAL
		scale nos.														
		2	3	5	8	9	11	13	4	6	10	1	7	12	14	TOTAL
G.1	S1	*	5	4	3	5	3	*	4	*	1	1	4	2	4	36
	S2	6	2	*	*	7	7	*	4	5	2	5	5	6	4	53
	S3	*	5	3	5	5	7	6	3	*	1	4	5	5	3	52
	S4	7	3	5	5	7	3	4	3	4	3	3	4	3	4	58
G.2	S5	*	4	5	6	6	6	6	5	4	4	1	*	3	5	55
	S6	6	5	6	6	7	3	6	5	5	3	7	3	6	5	73
	S7	6	5	5	5	7	7	*	4	*	4	2	*	6	*	51
	S8	*	5	5	6	7	4	6	3	*	3	2	*	4	4	49
G.3	S9	6	7	6	5	7	5	7	3	3	3	5	*	6	5	68
	S10	6	6	6	5	6	5	6	4	3	5	4	4	7	3	70
	S11	6	5	6	7	7	*	6	3	*	5	5	4	6	5	65
	S12	6	6	6	6	7	6	6	3	3	4	5	4	6	5	73
G.4	S13	*	6	6	6	7	6	6	*	*	3	*	*	*	4	44
	S14	*	6	7	7	7	6	6	4	*	6	7	5	6	7	74
	S15	*	6	6	7	6	6	5	6	*	5	6	*	7	5	65
	S16	*	*	4	4	7	1	*	2	*	2	2	*	6	3	31
		[EVALUATION]							[POTENCY]			[ACTIVITY]				

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TABLE 6.10   STUDY 1 – POST-DISCUSSION INQUIRY

	No. of points recalled	No. of names recalled	Correct Self-assess.	No. of trivia recalled	Surprised by discussion	Surprised by self or others	Discussion useful	Book vs. discussion	Presence of older person?	Views modified by discus.	Any important aspects not explored by discus.
QUESTION No.	1a	1b	2	3	4	5	6	7	8	9	10
G1 STAI (HIGH) SHI (LOW) S1	7	7			YES	YES	YES	D	NO	YES	YES
S2			YES	2	NO	YES	NO	B		NO	YES
S3	15	14	YES	4	YES	NO	YES	B	YES	YES	NO
S4	2	1	YES	4	YES	NO	YES	B	YES	NO	YES
G2 STAI (LOW) SHI (LOW) S5	13	10	YES		NO	NO	NO	D	NO	NO	NO
S6	8	8	YES	1	NO	YES	YES	D	NO	NO	YES
S7	22	12	YES	2	NO	NO	YES	D	NO	NO	NO
S8	7	4		2	NO	NO	NO	D	YES	NO	NO
G3 STAI (LOW) SHI (HIGH) S9	5		YES		NO	YES	YES	D	YES	NO	NO
S10	8	4	YES	2	NO	YES	YES	D	NO	YES	NO
S11	8	3	YES		NO		YES	D	NO	NO	NO
S12	9	5	YES	3	NO	YES	NO	D	NO	YES	NO
G4 STAI (HIGH) SHI (HIGH) S13	14	4	YES	1	NO	YES	YES	B	NO	NO	YES
S14	6	1	YES	2	NO		YES	B	NO	YES	NO
S15	6	6	YES	1	YES	YES	YES	D	NO	YES	YES
S16	9	3	YES	1	YES	YES	NO	B	NO	YES	YES

6.7 ANALYSIS

6.7.1 Questionnaires (see correlations, Table 6.11)

A.   STAI Trait Anxiety

The selection criterion correlated strongly with both STAI State Anxiety and with EPI Neuroticism. The four groups were satisfactorily differentiated by their scores on the latter two measures.

There were no significant correlations between STAI Trait Anxiety and the aggregated IPA scores for socio-emotional behaviour, or between STAI Trait Anxiety and Cat.11.

Correlations using Spearman Rho

STAI Trait Anxiety and Cats 1-3 and 10-12	0.1323 n.s.
" " " and Cat 11	0.2910 n.s.

B.   Wrenn Study Habits Inventory

The selection criterion correlated positively with the second measure of study habits, Entwistle SAI, at the .05 level.

There was no significant correlation between the Ss' scores for Wrenn SHI and IPA behaviour scored as neutral and task-related, i.e. Cats 4-9.

TABLE 6.11 STUDY 1 – SUMMARY OF CORRELATIONS

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. WRENN	–													
2. SAI TOT	0.568*	–												
3. MOT.	0.857**	0.726**	–											
4. STUD.	0.023	0.736**	0.192	–										
5. EXAM.	0.365	0.393	0.333	0.064	–									
6. LACK.	0.093	0.491*	0.149	0.390	-0.446*	–								
7. STAI TR	-0.200	-0.407	-0.440*	-0.013	-0.312	-0.200	–							
8. STATE	-0.151	-0.110	-0.067	0.151	-0.149	-0.260	0.554*	–						
9. EPI NEU	-0.040	-0.310	-0.106	-0.031	-0.322	-0.348	0.756**	0.771**	–					
10. EXTRA.	-0.204	-0.105	-0.149	-0.180	0.095	-0.208	-0.479*	-0.561*	-0.362	–				
11. IPA TOT	-0.124	-0.038	-0.169	0.179	0.439*	-0.480*	0.022	-0.342	-0.146	0.524*	–			
12. 4-9	0.019	-0.138	-0.112	0.140	0.337	-0.212	0.044	-0.396	-0.109	0.409	0.989**	–		
13. 11	-0.559*	-0.232	0.206	0.102	-0.099	-0.335	0.291	0.374	0.374	0.352	0.341	0.100	–	
14. RECALL	0.391	0.661**	0.438*	0.472*	0.439*	0.320	-0.248	-0.319	-0.336	-0.002	0.156	0.193	-0.170	–
15. COLL.	0.299	0.207	0.280	-0.026	0.396	-0.200	-0.247	-0.557*	-0.418	0.335	0.440*	0.431*	0.010	0.270

SPEARMAN rho   *p: < .05   **p: < .01

C.   EPI Extraversion

In terms of the test norms, Group 2 (poor study habits and low anxiety) was almost one s.d. more extravert than Group 4 (good study habits and high anxiety).

EPI EXTRAVERSION

	test norms	G.1	G.2	G.3	G.4
mean	11.09	10.50	13.75	11.25	8.75
s.d.	4.54				

Extraversion correlated negatively with all the measures of anxiety – a finding in line with the results obtained in Surveys 2 and 3 – and was the only trait to correlate significantly with total IPA scores.

D.   Entwistle Study Attitudes Inventory

The mean scores of three of the four groups were in line with the Wrenn SHI selection criterion.

ENTWISTLE SAI

	test norms	G.1	G.2	G.3	G.4
mean	27.63	24.63	29.50	32.50	31.50
s.d.	4.60				
Wrenn SHI		-31.00	-20.50	84.75	40.00

6.7.2 IPA (see Tables 6.12/13)

The IPA profiles for Groups 1–4 were broadly similar, with a high proportion of activity scored in Cats 2, 3, 5 and 11, and relatively moderate scores in the residual categories. On closer inspection it

TABLE 6.12   STUDY 1 – IPA PROFILES FOR GROUPS 1-4

1st COMPARISON WITH IPA PROFILE OF THE ARTS GROUPS

	GROUP 1 STAI – H SHI – L		GROUP 2 STAI – L SHI – L		GROUP 3 STAI – L SHI – H		GROUP 4 STAI – H SHI – H		ARTS GROUPS (Chp.7)	
	ACTS	%	ACTS	%	ACTS	%	ACTS	%	ACTS	%
CAT.1	3	0.3	12	1.1	6	0.7	14	1.1	6.3	0.6
2	135	13.3	148	13.3	85	9.7	203	16.0	167.0	14.5
3	110	10.8	215	19.4	111	12.7	227	17.9	164.7	14.3
4	21	2.1	9	0.8	10	1.1	13	1.0	7.3	0.6
5	432	42.6	475	42.8	502	57.4	512	40.3	518.8	45.1
6	62	6.1	48	4.3	28	3.2	89	7.0	72.8	6.3
7	22	2.2	26	2.3	7	0.8	15	1.2	26.5	2.3
8	29	2.9	15	1.4	23	2.6	17	1.3	44.2	3.8
9	0	–	5	0.5	1	0.1	7	0.6	4.3	0.4
10	51	5.0	12	1.1	22	2.5	24	1.9	18.6	1.6
11	142	14.0	145	13.1	79	9.0	150	11.8	116.5	10.1
12	8	0.8	0	–	0	–	0	–	4.0	0.4
TOTAL	1015		1110		874		1271		1151.0	

TABLE 6.13   STUDY 1 – IPA PROFILES FOR GROUPS 1–4

2nd COMPARISON WITH IPA PROFILE OF THE ARTS GROUPS

IPA CAT	G.1	G.2	G.3	G.4
1	LOW	HIGH	–	HIGH
2	–	–	LOW	–
3	LOW	HIGH	LOW	HIGH
4	HIGH	–	–	–
5	–	–	HIGH	–
6	–	LOW	LOW	–
7	–	–	LOW	–
8	–	LOW	LOW	LOW
9	LOW	–	LOW	–
10	HIGH	–	–	–
11	HIGH	HIGH	–	–
12	HIGH	LOW	LOW	LOW
IPA total	–	–	LOW	HIGH

was evident that the group profiles were characterised by several
salients that differentiated them from the mean profile of the
comparison groups, the Arts groups reported in Chp.7.

Groups 1 and 3 achieved the lowest scores in the positive socio-
emotional cats (24% and 23% of their respective total interaction
profiles). In Group 1 the low scores for Cat.1 were combined with the
highest scores for negative socio-emotional behaviour (20%).

In contrast, most of Group 3's behaviour was coded in the neutral
task-related categories - particularly Cat.5 - scoring about 9% more
in Cats.4-9 than the other three groups.

Groups 2 and 4 were distinguished from the other two by their
greater overall activity, their similar profiles, and a total of 35%
of their interactive profile located in the positive socio-emotional
categories.

These differences can be summarised as follows:

	G.1	G.2	G.3	G.4	Arts
Cats 1-3	24%	34%	23%	35%	29.4%
Cats 4-9	56%	52%	65%	51%	58.5%
Cats 10-12	20%	14%	12%	14%	12.1%

On the basis of the IPA record alone, all four groups provided
some evidence of behaviours congruent with the four hypotheses as
stated in section 6.1.

6.7.3 Discussions - Adherence to the topic

In the previous analysis, Bales' distinction between the task-
related and the socio-emotional categories was used to examine the

groups' behaviour.

The discussions were also assessed for their adherence to the
topic. The IPA acts were reclassified, based on the presence or
absence of topic-relevant material, reducing the twelve categories to
two.

Some behaviours previously classified as socio-emotional (e.g.
dramatic anecdotes that emphasised a line of argument, scored as
Cat.2) were seen to be closely related to the groups' stated task.
While others, previously classed as task-related (e.g. expressing
opinions that reflected a tentative exploration of personal issues,
and therefore scored as Cat.5) appeared as digressions more concerned
with establishing the emotional climate of the group.

Reclassifying the IPA record into IPA acts associated with an
adherence to the discussion topic resulted in the following:

	STAI	SHI	TOPIC acts	%	DIGRESSIONS acts	%
G.1	+	–	802	79%	213	21%
G.2	–	–	954	86%	156	14%
G.3	–	+	821	94%	53	6%
G.4	+	+	1182	93%	89	7%
mean			940	88%	128	12%
ARTS			787	69%	364	31%

From this redistribution of IPA acts, it is evident that (a) the
groups with high SHI scores adhered more closely to the topic, and (b)
that all four groups were more topic-centered than the Arts groups
reported in Chp.7.

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In summarising the differences in adherence to the topic, four distinctive profiles emerged:

GROUP 1. High anxiety and poor study habits

There was an underlying anxiety unique to G.1 that surfaced in the form of anecdotal digressions, criticism of the book and suspicion about possible ways in which the author might be manipulating the group. G.1 was particularly concerned with the organization of time. References to the manner in which members were handling the period of the discussion were made by all the Ss, mostly in a self-critical and destructive vein.

GROUP 2. Low anxiety and poor study habits

The discussion was friendly and unhurried, punctuated by long pauses - there were 8 pauses over 10 secs in length - which none of the Ss seemed eager to repair. There was no criticism of the questionnaires or of the laboratory conditions, and no evidence of anxiety about study methods. Though critical of the book, the Ss were constructive in their suggestions, and the group emerged with the highest rate of agreement and the lowest rate of disagreement. As one member put it, "no strong arguments either way, because we all basically felt the same".

GROUP 3. Low anxiety and good study methods

Of the four groups, the discussion in G.3 was the one most evenly shared between the participants. All the members were enthusiastic about the book, and eager to volunteer examples of their own methods. There were 4 pauses of over 10 secs, no significant digressions and a high proportion of activity spent in expressing opinions.

GROUP 4. High anxiety and good study methods

Compared with the other groups, the pace in G.4 was fast and intense, with no recorded pauses. There was a marked imbalance between the contributions of the members, due to the reticence of S16 and the volubility of S14. The group did not exhibit the cohesion evident in G.2 and G.3, but in terms of emotional involvement in the topic, three of the Ss displayed greater commitment than was the case in the other groups. The Ss were generally in favour of the book and there was little in the way of digressions or criticism.

6.7.4 Subjects - Preparation and Assessment

1.   Preparation

On their arrival in the lab, the Ss handed in the Rowntree book, and the author made a note of how much each participant had read. In Groups 2, 3 and 4 all the Ss had read the book at least once. In G.1 only one person, S4, had adequately prepared the book. Of the other Ss in G.1, S1 hadn't read the book, S2 had read only the first half and S3 had skimmed through chapters 5-7.

As a further check on the Ss' preparation, they were given a Recall Test (App. 3.3). This consisted of 12 items, that had appeared in the programmed text as questions, adjacent to the correct answers. The maximum score was 36, and Ss' results are shown in Tables 6.4 and 6.5. Predictably S1 obtained a score of "2" and the mean score of G.1 was the lowest of the four groups. However it was not evident that G.2, the group with low anxiety and poor study habits, had prepared the text less conscientiously than G.3 or G.4.

B.   Pre-discussion Inquiry (App. 3.3)

This included 4 open-ended questions designed to explore the Ss'

apprehension about the impending discussion. Despite the fact that the Ss had not met each other when they answered the questions, much of the information reflected interests and anxieties common to the specific group, and mostly in agreement with the selection criteria.

G.1 considered the book and the discussion as tests in which personal inadequacy was likely to be exposed, and the Ss' replies were self-critical and disparaging: e.g. "I may appear confident, but I am really quite nervous" (S4), "I argue illogically, subjectively at times" (S3).

In contrast to G.1, the Ss in G.2 exuded confidence: e.g. "perfectly at ease, not really bothered by strangers" (S6). They were unperturbed by the prospect of the discussion, though sceptical of the book's value.

G.3 was clearly inspired by the book's suggestions, but diffident about social behaviour: e.g. "I find it difficult to behave naturally" (S11), "it's difficult not to be slightly constrained in one's behaviour"(S10).

G.4 had mixed reactions about the book and the discussion, and answered with rather lengthy, intense replies: e.g. "(I want to discuss) the detrimental effect of somebody finding that he continually fails to live up to a timetable" (S13).

Whereas G.2 and G.3 were terse and specific, G.1 and G.4 used their answers to enlarge on personal concerns and anxieties.

C.   Post-discussion Inquiry (App. 3.3)

This included 10 open-ended questions, and the Ss' replies have been summarised in Table 6.10.

On the basis of their replies, Ss in G.1 and G.2 appeared to have been equally involved in the task and the groups' socio-emotional

issues, but in different ways:

For G.1 the discussion was almost as much concerned with establishing relationships as with evaluating the book. The Ss were adversely affected by the discussion, conscious of their lack of preparation and their inability to stick to the subject, and aware that the digressions had left several issues unsatisfactorily resolved. Although the Ss claimed that the discussion had been helpful, it had also been unsettling and the book was preferred.

Ss in G.2 were relatively unaffected by the discussion. For them it seemed that the task had been interesting, but irrelevant to their own study behaviour. Their satisfaction derived as much from the social interaction as from the task.

In contrast to G.1 and G.2, the other groups appeared to gain most from an exchange of ideas, closely related to the task, and encouraged by an enthusiastic response to the book. Both G.3 and G.4 considered the discussions useful and influential in modifying the views of participants.

Although the four groups were divided in their response to the book's advocacy of methodical approaches to work, satisfaction with the discussion cut across this distinction, in line with the Wrenn SHI criterion scores: G.1 and G.4, both groups with high trait anxiety, were surprised by various aspects of the discussions, were dissatisfied with the number of issues ignored, and preferred the book to the discussions. G.2 and G.3, the groups with low trait anxiety, were less surprised by the discussions, happier with the outcomes, and preferred the discussions to the book.

D. Assessment of the Discussion (Table 6.9)

The Ss assessed the discussions using 14 seven-interval scales (see App. 3.3) derived from a study on semantic judgement (Osgood et al, 1957, <u>The Measurement of Meaning</u>, p.36). In Osgood's factor analysis of the scales they loaded on three factors, described as:

Factor I   'Evaluative' Scales 2, 3, 5, 8, 9, 11, 13

Factor II   'Potency'   Scales 4, 6, 10

Factor III 'Activity'   Scales 1, 7, 12, 14

MEAN SCORES FOR GROUPS 1-4

Factor	I	II	III	total
No. of scales	7	3	4	14
Max. score	49	21	28	98
G.1	26.75	7.50	15.50	49.75
G.2	35.00	10.00	12.00	57.00
G.3	40.75	9.75	18.50	69.00
G.4	32.00	7.00	14.50	53.50

The results of this assessment, in which the discussions were endorsed more highly by the groups with low trait anxiety, were in line with the replies in the post-discussion inquiry.

6.8 DISCUSSION

6.8.1 Reliability of the Selection Criteria

The average age of the Ss was 19. It was necessary to determine whether the selection criteria were significantly affected by the

maturational processes operating in the transition from adolescence to early adulthood. The results of the 2-year test-retest schedule, reported in Appendix 2, suggested that both instruments demonstrated satisfactory reliability with this age group: With a subset of the original survey sample (n=33) STAI Trait Anxiety achieved a reliability coefficient of .78 (uncorrected for attenuation). Correlations for the Wrenn Shi are complicated by its construction (see Appendix 3.1) but the mean level of response stability across items (58.2%) suggested that most of the items were dealing with relatively stable behaviours.

6.8.2 IPA Data

Despite Bales' claim that the IPA system is capable of recording an infinite range of verbal and non-verbal behaviour, the observer is rapidly made aware that its theoretical comprehensiveness is severely compromised by its unreliability, particularly in respect of non-verbal behaviour. As a consequence of this, the author was restricted in his scoring of non-verbal behaviour to laughter and nods of agreement (see Appendix 1.2).

Laughter, considered by Bales to be a sign of tension, rather than a reducer of it (Bales, 1970, pp125-126) is classified under Cat.11. Thus Cat.11 scores in this research represented the aggregation of acts of laughter that may not have shared a common psychodynamic purpose; also other indications of tension whose scoring reliability proved unsatisfactory were excluded from this category. In view of the selective record of the available behaviours, it was not surprising that the correlation between STAI Trait Anxiety and Cat.11 was minimal, a finding reported throughout this research.

6.8.3 Discussions

In Study 1 the IPA data provided confirmation of most of the behavioural patterns predicted in hypotheses 1-4, although the precise implications were blurred: e.g. it was clear that negative behaviour played a greater role in Group 1 than in Groups 2-4, but the IPA record by itself did not indicate the precise nature and relevance of the behavioural acts.

The evaluation of the topic-related content in the transcripts enabled the behavioural patterns to be more clearly defined: e.g. the anxiety levels in each group exhibited a consistent style that informed both the pace and manner in which social relationships were handled, and how the task was dispatched. It also provided an approach to task-related behaviour that extended beyond the neutral task area to include a wide range of IPA acts, directly associated with the resolution of the task.

6.8.4 Assessment Data

Finally, the open-ended questions in the Pre- and Post-discussion inquiries enabled the conclusions, that were derived from the IPA data and the assessment of the discussions, to be interpreted with greater confidence. In line with hypotheses 1-4, the groups were differentiated both by their approach to the task, and in the manner in which social transactions were negotiated.

Group 1 viewed the task with diffidence having prepared the material in a haphazard way. The discussion was punctuated by tense, awkward exchanges. The Ss appeared uneasy both in dealing with the groups's objective task, and in establishing social relationships.

Group 2 was united in its lack of enthusiasm for the book. Although this consensus was reflected in a diluted sense of purpose,

the discussion was sustained by the Ss' satisfaction with the cohesive social structure that developed quickly and easily.

Group 3's behaviour, of the four groups, was the most task-centered. It was also characterised by a relative economy of activity and a lack of concern for personal issues.

Group 4 enjoyed the most active discussion, covering many of the points raised in the material. Yet the participants failed to create a congenial atmosphere, compared to that of Group 2.

Groups 2 and 3 - with low anxiety - achieved outcomes that were judged satisfactory by their members, the former in meeting social needs, the latter in attaining the specified task. In contrast, in Groups 1 and 4 - with high anxiety - individual satisfaction with the task was reduced, in the former being eroded by interpersonal conflict, and in the latter by the inability to strike a viable balance between task and socio-emotional pressures.

6.8.5 Hypotheses

The four hypotheses were confirmed by a combination of data from different sources.

No.1 GROUP 1 The high level of anxiety appeared to exert a debilitating effect on the Ss. It resulted in a low degree of consensus, reflected in low scores for Cats 1 and 3, high scores for Cat.10 and a high proportion of negative behaviour located in Cats 10-12 in terms of the overall IPA profile. Although anxiety did not prevent the group from adhering to the task with greater persistence than the Arts groups reported in Chp.7, more digressions occurred than in Groups 2-4. Also, from the self-reports it was evident that the discussion had been perceived as unsettling with many issues left

unresolved.

No.2 GROUP 2 The group demonstrated a bias towards positive socio-emotional behaviour. It achieved high scores for Cats 1-3, low scores for Cats 10 and 12, and reported strong social cohesion and general satisfaction with the discussion. However, whereas a decrement in task-related behaviour had been predicted, commitment to the task did not appear to be significantly deflected by social considerations, and 50% fewer digressions actually occurred than in the Arts groups. Although Ss reported a lack of enthusiasm for the topic, scores for Cats 4-9 were only slightly depressed.

No.3 GROUP 3 This hypothesis was confirmed by the preponderant activity - 65% of the IPA record - located in the neutral task-related categories. The discussion also resulted in the highest proportion of topic-related behaviour (94%) of the four groups. This was combined with low scores in the socio-emotional categories, apart from Cat.10. Compared to the other groups, the Ss reported the most positive assessment of the discussion.

No.4 GROUP 4 Anxiety appeared to exert a facilitating effect, producing the highest overall rate of activity, and the highest proportion located in the socio-emotional categories (49%). Although the group's concern for the task was not particularly evident in terms of the IPA record for Cats 4-9, the analysis of topic-related acts indicated that 93% of the discussion had been directed in a purposeful manner. Finally it had been predicted that the need to establish relationships would lead to depressed scores for Cat.10, but this was not the case: Group 4's behaviour in this respect was on a par with that of the Arts groups.

6.9 SUMMARY AND CONCLUSIONS

1. The invitation to participate in the discussions was successful in eliciting a volunteer response of 49%.

2. Four groups of Ss were formed with extreme sets of scores for two inventories, STAI Trait Anxiety and Wrenn Study Habits Inventory.

3. The strong negative correlation between the selection criteria resulted in larger pools of volunteers for G.1 (STAI high/SHI low) and G.3 (STAI low/SHI high) whose mean scores were consequently more extreme than G.2 and G.4.

4. In anticipation of relatively weak interaction effects using the selection traits, neither of which were judged to be prominent in small group behaviour, data was collected from three sources, The IPA record, the discussion content, and self-reports/assessment schedules.

5. There were no statistically significant correlations between the selection criteria and the IPA record of the groups' behaviour, either for single or for aggregated categories.

6. Complementary data established the occurrence of most of the behaviours predicted in hypotheses 1-4. The Ss exhibited behavioural patterns consistent with the predicted trait interactions.

7. The results indicated that the identification of behaviour consistent with trait interactions of modest salience was possible. In small samples, in addition to the IPA record, it required data from other sources.

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CHAPTER 7

ARTS GROUPS

7.1 INTRODUCTION

Studies 1-3 were concerned with establishing the degree of consistency between personality and behaviour in carefully selected groups of Ss, who were relatively homogeneous in respect of one or more inventory scores, were familiar with the Psychology Department, and possessed some knowledge of Psychology as an experimental subject.

Bales has established several normative indices of small group behaviour (Appendix 1.3), but these were concerned with the behaviour of problem-solving groups rather than with the leaderless, relatively evaluative behaviour typical of groups in Studies 1-3.

To establish norms for interactive behaviour against which the research data could be compared, a random sample of 1st year Arts students was invited to participate in small group discussions. The same laboratory setting and format of Study 1 was used.

Because it was intended to use the 1st year Psychology class as a subject pool for Study 2, the random sample was restricted to Ss in the Arts Faculty taking courses in subjects other than Psychology.

7.2 SUBJECTS

Using the 1975/76 University Register of Students and a table of random numbers (Fisher and Yates, 1963), 72 students were identified: 36 males and 36 females, representing 12% of 1st year Honours students in the Arts Faculty. Volunteers were offered £1.70.

Of the 72 students who were contacted by letter, 38 replied and
31 (43%) volunteered:

REPLIES

	male	females	total
Declined	4 (11%)	3 (9%)	7 (10%)
Volunteered	15 (42%)	16 (44%)	31 (43%)

Six groups of 4 Ss (2 males and 2 females) were chosen from the
volunteers. To reduce the possibility of previous association, Ss
from different Honours courses were allocated to each group. It was
subsequently verified that none of the members had been acquainted
with each other before their respective group meetings.

7.3   PREPARATION

A letter was sent to each subject with a copy of Rowntree's _Learn
how to Study_. The Ss were asked to read Chps 2, 3, 6 and 7 in
preparation for a 30 mins discussion with 3 other 1st year students.
They were told that the meeting was designed to provide normative data
for some research groups, and that they would be expected to complete
several questionnaires.

7.4   SCHEDULE

The meetings lasted about two and a half hours, in the course of
which the questionnaires were completed, apart from the Cattell 16PF
which the Ss filled in during the following week in the presence of
the author.

The questionnaires were used to replicate the conditions of Study
1, and included measures employed in Studies 1-3.

On arrival, Ss were shown to the cubicles in the Practical

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laboratory, and completed the following forms: Wrenn SHI, EPI and

STAI State Anxiety.

With the forms completed, the Ss were introduced to each other,

and led to the Children's Playroom.   There were given a briefing

(Chp.4), and left alone for 30 mins to discuss the book.

After 30 mins the author interrupted the discussion, led the Ss

back to the Practical Laboratory, where they were given the AH5 as a

group.   Afterwards they returned to the cubicles to complete the

Entwistle SAI and the STAI Trait Anxiety.

7.5   MEASURES

1.   Wrenn Study Habits Inventory

2.   Eysenck Personality Inventory Form A

3.   Spielberger, Gorsuch and Lushene State-Trait Anxiety Inventory

     Forms X-1, X-2

4.   Heim Group Test of High Grade Intelligence AH5

5.   Entwistle Student Attitudes Inventory

6.   Cattell 16PF Form A

7.   IPA of the discussions.   This was based on the entire transcript

     of each 30 mins discussion.

7.6   DATA

The data section contains the following tables:

        Table 7.1 Questionnaire data

         "   7.2 Questionnaire statistics

         "   7.3 IPA data

         "   7.4 IPA statistics

         "   7.5 16PF data

         "   7.6 16PF statistics

TABLE 7.1 ARTS GROUPS – QUESTIONNAIRE DATA

		PRE-DISCUSSION						POST-DISCUSSION								
		AGE	WRENN SHI	EPI EXT.	EPI NEU.	EPI LIE	STAI (ST)	AH5 TOTAL	VERBAL	SPATIAL	SAI TOTAL	MOT.	STU.	EXA.	L.D.	STAI (TR)
GROUP 1	S1	20	-11	7	15	2	52	41	18	23	23	6	6	6	5	47
	S2	18	29	20	9	1	29	43	19	24	34	11	9	8	6	33
	S3	19	12	11	12	3	39	23	11	12	25	7	8	6	4	40
	S4	19	-25	11	6	3	31	39	21	18	29	8	6	9	6	33
GROUP 2	S5	18	7	16	10	1	34	38	20	18	28	10	9	7	2	46
	S6	19	79	17	4	4	22	34	14	20	31	9	9	8	5	25
	S7	19	39	8	5	6	32	42	21	21	37	11	12	6	8	36
	S8	19	-47	9	11	5	35	40	17	23	27	6	8	7	6	39
GROUP 3	S9	19	18	2	22	2	54	39	19	20	24	7	7	6	4	64
	S10	19	-17	6	12	6	48	30	15	15	27	10	8	4	5	48
	S11	19	21	11	7	4	34	51	23	28	28	8	7	6	7	45
	S12	20	68	4	12	1	40	28	17	11	33	10	12	5	6	49
GROUP 4	S13	18	-3	17	10	1	42	34	17	17	27	10	8	4	5	42
	S14	18	-31	7	9	2	57	37	19	18	26	8	6	4	8	47
	S15	18	33	3	12	4	45	30	9	21	36	10	9	8	9	34
	S16	18	49	8	5	0	38	43	21	22	33	9	10	7	7	39
GROUP 5	S17	18	-36	15	14	0	27	36	20	16	25	7	9	5	4	33
	S18	19	49	12	9	5	46	29	14	15	26	7	8	6	5	42
	S19	19	-1	12	6	6	25	43	22	21	18	5	5	3	5	27
	S20	19	-42	18	12	1	33	27	15	12	23	7	6	4	6	38
GROUP 6	S21	20	-6	12	14	5	41	42	18	24	30	10	6	8	6	34
	S22	19	10	15	13	2	35	28	11	17	22	9	7	5	1	45
	S23	18	-17	5	9	0	33	43	21	22	26	11	2	5	8	41
	S24	21	-40	12	9	3	42	39	17	22	25	8	6	6	5	42

TABLE 7.2   ARTS GROUPS – QUESTIONNAIRE STATISTICS

	24 Ss		MALE		FEMALE	
	mean	*s.d.*	*mean*	*s.d.*	*mean*	*s.d.*
1. AGE	18.88	0.80	19.00	0.85	18.75	0.75
2. WRENN SHI	5.75	35.25	4.17	38.73	7.33	33.06
3. SAI – TOTAL	27.63	4.60	28.33	5.58	26.92	3.45
– MOTIVATION	8.50	1.74	8.33	1.92	8.67	1.61
– STUDY METHODS	7.63	2.18	7.58	2.91	7.67	1.23
– EXAM TECHNIQ.	5.96	1.57	6.00	1.65	5.92	1.56
– LACK/DISTRACT.	5.54	1.84	6.42	1.44	4.67	1.83
4. AH5 – TOTAL	36.63	6.80	37.33	8.37	35.92	5.05
– VERBAL	17.46	3.69	17.92	4.46	17.00	2.86
– SPATIAL	19.17	4.26	19.42	5.20	18.92	3.29
5. STAI TRAIT	40.38	8.21	38.58	5.74	42.17	10.04
STATE	38.08	9.05	35.58	5.47	40.58	11.30
6. EPI – EXTRAVERSION	10.75	4.98	9.33	4.14	12.17	5.51
NEUROTICISM	10.29	3.96	8.83	2.92	11.75	4.43
LIE SCALE	2.79	2.00	3.00	2.13	2.58	1.93

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TABLE 7.3   ARTS GROUPS – IPA DATA

		IPA CATEGORIES
		1	2	3	4	5	6	7	8	9	10	11	12	TOT
GROUP 1	S1	1	10	11	4	40	3	2	4	1	4	14	1	95
	S2	10	59	38	2	219	34	9	11	1	10	18	4	415
	S3	1	19	91	2	159	26	2	4	0	3	32	0	339
	S4	4	11	31	4	121	19	2	3	5	3	22	1	226
GROUP 2	S5	0	30	61	1	246	34	9	6	1	8	11	0	407
	S6	0	53	33	1	179	27	9	4	0	13	21	4	344
	S7	0	46	13	1	111	15	5	8	0	6	15	1	221
	S8	1	24	59	2	137	24	19	8	0	7	29	0	310
GROUP 3	S9	0	22	13	0	105	20	6	2	0	1	33	0	202
	S10	1	12	9	0	23	12	11	25	0	0	36	2	131
	S11	1	37	22	0	187	22	7	9	1	2	32	0	320
	S12	5	16	67	0	106	21	8	31	5	8	38	0	305
GROUP 4	S13	0	17	17	0	121	6	6	3	1	1	47	0	219
	S14	0	87	27	0	107	9	0	4	1	0	54	0	289
	S15	1	64	120	0	162	9	6	13	1	3	53	0	432
	S16	0	15	32	2	51	8	3	1	0	1	39	0	152
GROUP 5	S17	1	63	32	7	125	14	9	21	1	8	30	2	313
	S18	1	12	22	0	127	21	4	9	0	5	23	1	225
	S19	3	152	43	7	140	19	19	26	0	12	64	7	492
	S20	1	58	60	0	130	46	1	2	1	2	17	0	318
GROUP 6	S21	1	23	41	7	119	10	1	34	3	2	6	0	247
	S22	5	106	70	3	147	14	13	14	2	6	20	1	401
	S23	1	29	35	0	83	8	2	11	1	0	20	0	190
	S24	0	37	41	1	168	16	6	12	1	7	25	0	314

TABLE 7.4 ARTS GROUPS – IPA STATISTICS

		24 Ss		MALE		FEMALE	
		mean	s.d.	mean	s.d.	mean	s.d.
IPA CAT.	1	1.58	2.34	1.50	1.62	1.67	2.96
	2	41.75	34.65	42.33	38.49	41.17	32.08
	3	41.17	26.95	51.17	30.49	31.17	19.25
	4	1.83	2.35	1.58	2.11	2.08	2.64
	5	129.71	51.57	129.58	38.34	129.83	63.96
	6	18.21	10.20	19.42	10.36	17.00	10.34
	7	6.63	5.14	6.67	6.18	6.58	4.12
	8	11.04	9.56	10.67	9.27	11.42	10.24
	9	1.08	1.41	1.25	1.82	0.92	0.90
	10	4.67	3.82	4.50	3.50	4.83	4.26
	11	29.13	14.57	32.17	14.66	26.08	14.44
	12	1.00	1.74	0.75	2.01	1.25	1.48
IPA TOTAL		287.80	100.28	301.58	.96.55	274.00	106.25
CATS	1–3	84.50	49.33	95.00	50.57	74.01	47.85
	4–9	168.50	59.87	169.17	46.56	167.83	72.99
	10–12	34.75	15.54	37.42	18.00	32.16	12.89

TABLE 7.5 ARTS GROUPS - 16PF DATA

	A	B	C	E	F	G	H	I	L	M	N	O	Q1	Q2	Q3	Q4	FI	FII	FIII	FIV
G.1																				
S1	10	12	10	7	14	6	9	17	4	11	9	15	11	15	8	13	5.7	4.0	4.5	5.8
S2	11	10	16	16	22	6	23	14	9	17	9	3	16	8	8	10	2.9	8.9	6.5	7.8
S3	6	11	11	7	12	13	3	11	13	11	8	8	11	13	9	15	7.3	1.8	5.9	4.2
S4	9	13	18	10	14	10	16	17	3	13	14	9	4	15	10	8	3.7	4.5	5.1	3.9
G.2																				
S5	15	10	11	18	17	5	17	19	13	15	7	18	6	14	8	18	7.4	7.4	1.9	6.4
S6	9	8	19	20	18	8	25	18	5	18	8	7	11	14	8	11	2.5	8.4	5.3	8.7
S7	6	12	12	14	13	13	10	9	6	19	8	11	13	15	15	10	5.2	3.4	6.3	7.7
S8	11	9	15	10	16	16	15	9	1	18	3	11	10	6	17	5	2.8	7.0	3.5	3.1
G.3																				
S9	7	11	7	2	7	16	0	16	11	4	11	15	6	14	8	23	9.3	0.0	4.9	3.4
S10	8	11	12	6	13	10	4	13	10	13	11	14	14	10	9	15	6.6	2.7	6.5	5.2
S11	8	12	15	15	19	9	2	16	2	16	9	8	16	16	13	11	5.1	3.9	3.7	8.8
S12	12	12	9	13	4	7	4	16	9	16	12	13	15	16	8	20	8.1	2.3	3.5	7.6
G.4																				
S13	6	10	11	15	19	7	15	17	11	12	4	16	14	8	4	19	7.5	7.1	5.5	7.1
S14	10	12	13	3	12	8	0	17	3	8	12	13	6	11	12	18	6.6	1.3	4.5	2.1
S15	7	8	17	11	4	13	8	11	1	11	12	7	6	18	16	11	3.4	1.9	6.7	5.3
S16	15	10	14	14	14	15	9	9	10	22	13	11	5	7	14	13	5.8	6.4	4.1	3.5
G.5																				
S17	10	12	15	14	18	4	19	15	9	12	6	10	9	12	5	15	5.5	7.2	6.3	6.3
S18	6	11	11	13	15	12	13	15	10	16	11	15	9	13	10	17	6.5	5.1	6.5	6.5
S19	8	11	16	17	16	9	18	13	14	17	11	1	10	16	7	11	4.7	6.3	4.7	7.6
S20	11	8	14	16	22	11	18	7	9	13	10	13	11	16	11	9	5.5	7.0	7.9	5.8
G.6																				
S21	13	11	13	13	17	14	11	14	8	9	8	10	11	17	11	9	4.7	5.2	5.7	5.5
S22	11	7	11	16	20	13	23	18	7	17	7	12	0	14	8	22	6.3	7.9	3.9	5.2
S23	8	11	15	12	10	4	11	14	10	20	16	11	7	18	8	8	5.4	3.5	5.7	7.7
S24	9	10	16	14	10	5	14	7	3	17	6	11	9	14	12	10	4.0	4.3	4.5	8.1

16 PRIMARY FACTORS — *2nd-O. F.*

TABLE 7.6 ARTS GROUPS – 16PF STATISTICS

		24 Ss mean	24 Ss s.d.	MALE mean	MALE s.d.	FEMALE mean	FEMALE s.d.
16PF	A	9.42	2.64	9.17	2.66	9.67	2.71
	B	10.50	1.56	10.58	1.62	10.42	1.56
	C	13.38	2.96	14.33	2.57	12.42	3.12
	E	12.33	4.58	12.75	2.86	11.92	5.95
	F	14.42	4.93	12.83	5.37	16.00	4.07
	G	9.75	3.81	10.42	3.80	9.08	3.87
	H	11.96	7.32	10.67	5.68	13.25	8.73
	I	13.83	3.61	11.58	3.55	16.08	1.88
	L	7.54	3.95	6.75	4.67	8.33	3.06
	M	14.38	4.18	16.08	3.50	12.67	4.23
	N	9.38	3.10	10.17	3.61	8.58	2.39
	O	10.92	3.98	9.50	3.29	12.33	4.23
	Q1	9.58	4.04	9.75	3.79	9.42	4.44
	Q2	13.33	3.40	14.17	3.86	12.50	2.78
	Q3	9.96	3.29	11.67	3.37	8.25	2.22
	Q4	13.38	4.80	10.92	3.82	15.83	4.51
2nd Order Factors	FI	5.51	1.73	5.08	1.54	5.96	1.91
	FII	4.90	2.47	4.36	1.92	5.43	2.91
	FIII	5.15	1.35	5.13	1.40	5.17	1.36
	FIV	5.97	1.89	6.11	2.04	5.83	1.80

7.7 ANALYSIS

7.7.1 Inventories

The mean scores and standard deviations were similar to the test norms, apart from the AH5.

In contrast to Studies 1-3 where the Ss had been selected for their extreme scores, few of the Arts Ss had inventory scores that were more than 1 s.d. from the mean. The exceptions included S2 and S6 (high extraversion) and S9 (high anxiety and low extraversion).

		ARTS GROUPS	TEST NORMS
WRENN SHI	mean	4.75	n.a.
	s.d.	35.25	
ENTWISTLE	mean	27.63	26.15
	s.d.	4.60	5.72
STAI TRAIT	mean	40.38	38.15
	s.d.	8.21	8.20
EPI EXTRAV.	mean	10.75	11.09
	s.d.	4.98	4.54
EPI NEURO.	mean	10.29	10.01
	s.d.	3.96	5.01
AH5 total	mean	36.63	39.06
	s.d.	6.80	8.26

The 16PF Sten scores were calculated using the British Undergraduate Norms. In plotting the mean profile of the 24 Ss the pattern of STEN primaries was found to center about the mean, apart from Q.2 where the Ss were rated high on "self-sufficiency".

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7.7.2 IPA

A. IPA Category Distribution

COMPARISON OF THE MEAN IPA PROFILE FOR THE ARTS GROUPS AND THE BALES' IPA NORMATIVE RANGE

	ARTS GROUPS	IPA NORMS✿
IPA Cat.1	0.55%	3.70%
2	14.51	6.40
3	14.30	10.80
4	0.64	5.00
5	45.06	18.85
6	6.33	25.95
7	2.30	5.60
8	3.84	2.95
9	0.38	1.00
10	1.62	4.20
11	10.12	4.70
12	0.35	3.40

✿ IPA norms are derived from the "medium range" reproduced in Appendix 1.3, and represent only an approximate profile.

The distribution of acts between the 12 IPA categories differed from the norms for small problem-solving groups. These differences were due (i) to the group task, and (ii) to the scoring protocol.

The Arts groups were concerned with an evaluative task, in contrast to the more structured and analytical purpose of the Bales' groups. As a result of this, the Arts groups were more opinionated (Cat.5) and initiated more socio-emotional activity.

TABLE 7.7   ARTS GROUPS — COMPARISON WITH THESIS GROUP
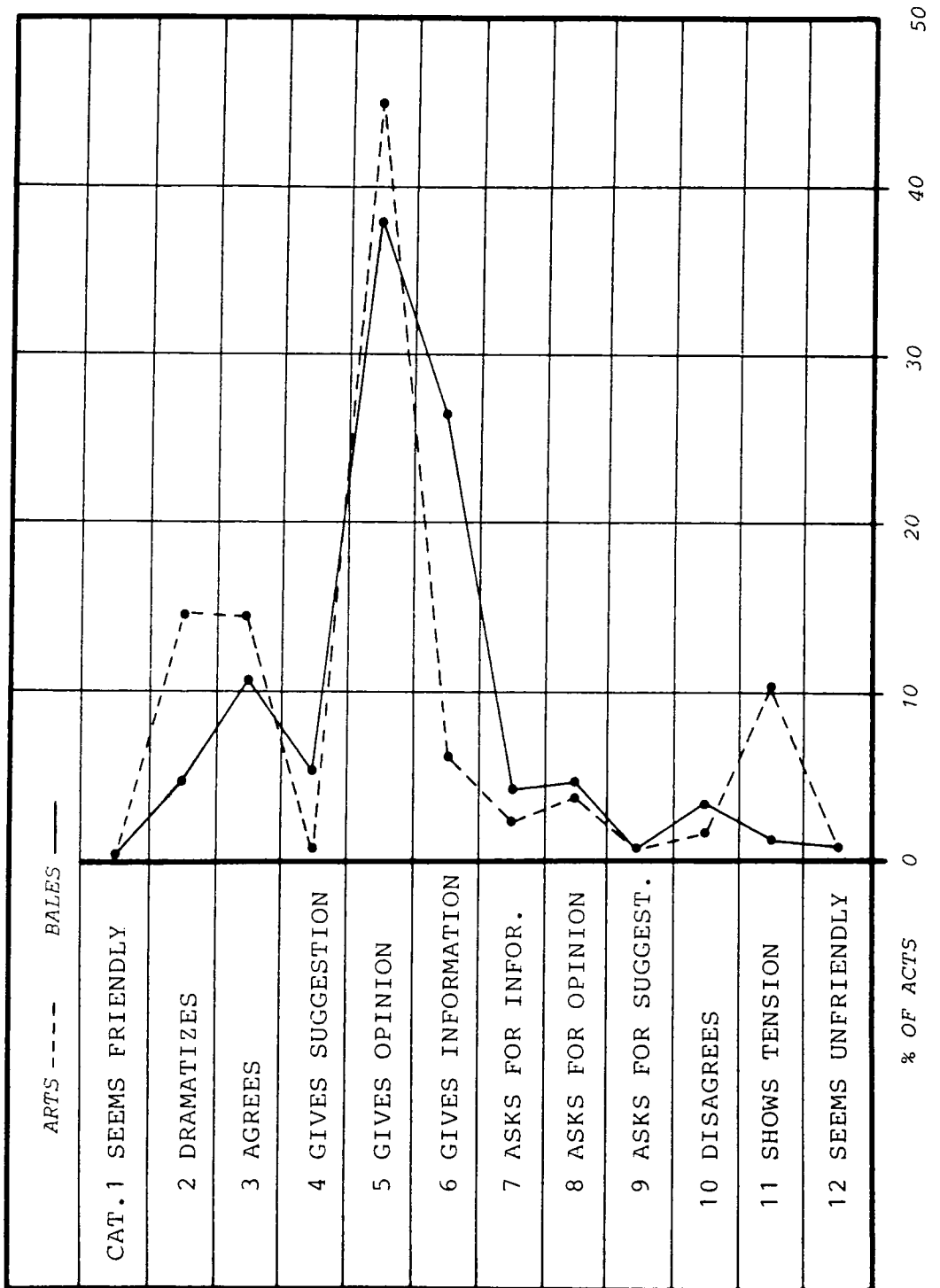
The scoring protocol employed by the author is described in Appendix 1, and differs from Bales' guidelines in terms of its restricted range of non-verbal behaviours, and its attempt to achieve a sharper distinction between the neutral and socio-emotional behaviours.

Apart from the data for small problem-solving groups, Bales has also examined the more evaluative behaviour of a thesis discussion. In _Interaction Process Analysis_ (1950, p.25, Chart 11) Bales plotted the interaction profile of an academic discussion group of six people (four members of staff and two graduate students) over a period of three hours. The topic was concerned with assessing the thesis plans of the students. Bales noted that, "the amount of negative social-emotional activity is at a bare minimum, and the rates of activity dealing with information and analysis are unusually high" (p.26). The profile of the thesis group was plotted against that of the Arts groups (Table 7.7). In this comparison, the Arts' profile still exhibited relatively high activity in the socio-emotional categories, higher rates of opinion-giving, and a relative lack of factual exchange.

B.   IPA Participation Rates (Appendix 1.3)

The format of the Arts groups'discussions, the size of the groups and the nature of the topic did not appear to have encouraged either extreme ascendancy or reserve. When compared with Bales' norms for participation rates, the behaviour of the Arts groups, expressed in percentages, was fairly similar:

RANK	1	2	3	4
BALES' NORMS	32.2%	28.9%	22.8%	16.1%
ARTS GROUPS	36.8%	28.5%	19.6%	16.1%

TABLE 7.8 ARTS GROUPS – SUMMARY OF CORRELATIONS

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 STAI ST	—													
2 STAI TR	.739**	—												
3 EPI EX	-.524**	-.442*	—											
4 EPI NEU	.471*	.404*	-.175	—										
5 CAT G	.247	-.022	-.270	.113	—									
6 CAT FI	.530**	.764**	-.241	.380*	-.002	—								
7 CAT FII	-.605**	-.481*	.853**	-.163	-.216	-.341	—							
8 WRENN	-.053	-.039	-.116	-.317	.185	.105	-.039	—						
9 ENTWIS.	-.165	-.278	-.087	-.441*	.064	-.293	.019	.501**	—					
10 AH5	-.232	-.209	-.081	-.368	-.094	-.410	.057	-.049	.188	—				
11 IPA TOT	-.467*	-.425*	.480*	-.120	-.090	-.376*	.359	.130	-.012	-.146	—			
12 IPA 1-3	-.373*	-.347*	.272	.005	-.049	-.226	.188	-.040	-.152	-.226	.843**	—		
13 IPA 4-9	-.492**	-.349*	.572**	-.147	-.131	-.390*	.442*	.145	.023	-.033	.917**	.613**	—	
14 IPA 10-12	-.079	-.063	-.192	-.172	.027	.055	-.176	.149	.070	-.161	.200	.272	-.008	—
15 IPA 11	.278	.136	-.371*	-.123	.128	.213	-.400*	.087	-.040	-.097	.020	.119	-.157	.927**

SPEARMAN rho   *p: $< .05$ **p: $< .01$

7.7.3 Data and Survey 1

Although the distribution for trait anxiety shared similarities with the Survey 1 data, the SHI scores were markedly lower.

		ARTS	SURVEY 1
WRENN SHI	mean	4.75	5.43
	s.d.	35.25	43.64
STAI Trait	mean	40.38	41.38
	s.d.	8.21	9.10

CORRELATIONS (see Table 7.8) The relationships between the personality scores of the Arts Ss were analysed using the Spearman rho. The correlations supported the strong relationships that were found in Survey 1. It was clear also that there was a significant level of agreement within groups of tests, i.e. the study habit inventories, the anxiety measures and the measures of extraversion.

7.7.4 Inventories and IPA

The total IPA scores were related negatively both to the STAI measures of anxiety and Cattell FI, but correlated positively with EPI extraversion.

There was no significant relationship between any of the four anxiety measures and Cat.11. Nor were there significant relationships between the measures of conscientiousness (Wrenn, Entwistle and Cattell "G") and total scores for the task-relevant IPA Cats 4-9. Similarly, the correlation between the AH5 data and the IPA data proved to be inconclusive.

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FACTOR ANALYSIS

To examine the relationship between the personality data and the IPA data in more detail, a factor analysis was carried out. A description of the procedure, using Kaiser's varimax rotation, is included in Appendix 4a. The analysis included 39 variables (27 questionnaire scales and 12 IPA categories). 13 factors were extracted that accounted for 90% of the total variance. Inspection was restricted to the 6 main factors (64% of the variance) and the rotated loadings are shown in Table 7.9.

Factor I possessed the largest salient aggregation with 18 variables including 5 IPA categories. Predominant salients related to low anxiety, extraversion, stability and ascendancy, and IPA categories indicative of outgoing, assertive behaviour.

Factor II contained aspects of disorganization, anxiety and instability. Although accounting for 12% of the total variance, it included only one IPA category, which was represented by a negative loading for Cat.9.

The three predominant salients loading on Factor III related to intelligence and intellectual independence with a negative loading for Cat.3.

Apart from Factor I, only Factor IV included 5 IPA salients, that were represented in particular by socio-emotional Cats 2 and 11. With negative loadings on two of the SAI subscales and the Cattell primary "O", the salient aggregation marking this factor was associated with negative, anti-social behaviour.

Factor V was characterised by salients related to good study habits and Cattell's primary "G" (indicative of "conscientious, persevering, staid, rulebound" dispositions). Only one IPA category, Cat.10, loaded on this factor.

TABLE 7.9 ARTS GROUPS – FACTOR ANALYSIS

VARIABLES	FACTORS					
	I	II	III	IV	V	VI
1. WRENN SHI					86	
2. SAI MOTIVATION				-29	25	
3. SAI STUDY HABITS					83	26
4. SAI EXAM TECHNIQUE		-58		-55	36	
5. SAI LACK OF DISTRACTIONS		-47				-41
6. AH5 VERBAL			89			
7. AH5 SPATIAL		-49	28			
8. STAI STATE ANXIETY	-86					
9. STAI TRAIT ANXIETY	-90					
10. EPI EXTRAVERSION	64					29
11. EPI NEUROTICISM	-74		-25			
12. 16PF A OUTGOING						
13. B INTELLIGENT	-25		82			
14. C STABLE	74	-51				
15. E ASSERTIVE	81					
16. F CAREFREE	52				-32	25
17. G CONSCIENTIOUS	-30		-39		30	
18. H VENTURESOME	79		-26			
19. I TENDER-MINDED						
20. L SUSPICIOUS		89				
21. M IMAGINATIVE	65					
22. N SHREWD						-90
23. O APPREHENSIVE	-56			-31		
24. Q1 EXPERIMENTING			42			33
25. Q2 SELF-SUFFICIENT						
26. Q3 CONTROLLED		-56				
27. Q4 TENSE	-52	41			26	
28. IPA 1 SEEMS FRIENDLY						
29. 2 DRAMATISES	37			68		
30. 3 AGREES			-68			
31. 4 GIVES SUGGESTION	37					
32. 5 GIVES OPINION	33					
33. 6 GIVES INFORMATION						
34. 7 ASKS FOR INFORMATION				58		47
35. 8 ASKS FOR OPINION						
36. 9 ASKS FOR SUGGESTION			-26			
37. 10 DISAGREES	60			25	35	36
38. 11 SHOWS TENSION				84		
39. 12 SEEMS UNFRIENDLY	59			41		

Decimal points and loadings less than .25 omitted.

FACTOR	EIGENVALUE	% VAR.	CUM. %
I	8.396	21.5	21.5
II	4.690	12.0	33.5
III	3.535	9.1	42.6
IV	3.065	7.9	50.5
V	2.896	7.4	57.9
VI	2.578	6.6	64.5

Salients for Factor VI were associated with aspects of extraversion, including a high negative loading for the Cattell primary "N" (shrewd), which is described in the 16PF manual as "forthright, artless, natural and spontaneous". Factor VI was characterised by sociability and extraversion, with two IPA markers, Cats 7 and 10.

The factor analysis was based on scores obtained from a small sample, with relatively few variables. Despite these deficiencies, it was clear that the salient aggregations of IPA categories were associated with only two factors, Factors I and IV, that accounted for 29% of the total variance. In Factor I, IPA categories 2, 4, 5, 10 and 12 were associated with extraversion.

7.7.5 Discussions

Despite claims by all the groups that the chapters had been read, it was apparent from the transcripts that Groups 3 and 5 made relatively fewer references to the material.

The groups referred to the following number of sections in the material:

CHAPTER/SECTIONS	2/29	3/39	6/27	7/35	total
GROUP 1	18	16	6	4	44
2	20	16	14	3	53
3	9	6	2		17
4	17	13	12	9	51
5	10	3	5		18
6	13	12	14	4	43

The discussions in Groups 3 and 5 were frequently sidetracked

into personal, anecdotal issues, that resulted in over 65% of verbal behaviour in both groups being classed as digressions, compared with the other four groups where the mean percentage of digressions was 13%. However, it was not apparent from an inspection of the questionnaire data why the Ss in Groups 3 and 5 should have been so frequently distracted from the topic.

An analysis of the six transcripts in terms of adherence to the discussion topic, i.e. those IPA acts directly concerned with the topic, was as follows:

	TOPIC			DIGRESSIONS		
GROUP 1	99%	1059	acts	1%	16	acts
2	82%	1042	"	18%	240	"
3	34%	329	"	66%	629	"
4	79%	867	"	21%	225	"
5	31%	415	"	69%	933	"
6	88%	1009	"	12%	143	"
mean	69%			31%		

In contrast to Groups 3 and 5, the Ss in the other groups concentrated on the topic with greater deliberation, and the digressions that occurred were concerned with peripheral subjects, unconnected either with the laboratory environment or with the design employed in the research.

Finally it should be noted that the correspondence between topic-relevant acts, identified above, and acts located by the IPA system within the task-related area was weak: The discussion task was tackled by a wide range of behaviours, including dramatization and various kinds of conciliation. The IPA task-related categories (Cats

4-9) established a useful class of behaviours that were emotionally neutral, but they failed to distinguish between the "topic-centered" groups (G. 1,2,4 and 6) and Groups 3 and 5.

7.8 DISCUSSION

7.8.1 Range of Recorded Behaviour

Some of the Ss, particularly the high interactors such as S2, S19 and S22, exhibited a wide repertoire of behaviours, much it identified by the modified IPA protocol used by the author. However the IPA data did not include much expression of strong feeling. This was due in part to the design of the research and to the Ss' preparation. The topic and format of the discussions preempted heightened or prolonged anxiety, outbursts of antipathy or the formation of manipulative coalitions. In addition, the process of rational discussion was encouraged by the participants' personal experience of the subject matter, and by their extensive preparation, whereby attitudes and opinions had been previously examined and rehearsed.

7.8.2 Extraversion and Small-Group Behaviour

EPI Extraversion was the only measure to correlate significantly with the IPA record. This result was supported by the findings of several other studies:

Bass et al (1953) reported significant correlations between behaviour among 20 sorority girls in small leaderless discussion groups, and 2/10 traits measured by the Guilford-Zimmerman Temperament Survey, namely "A" (Ascendance) and "S" (Sociability).

Mann (1959) examined the behaviour of forty five-man discussion groups under two conditions, using the Bales IPA system adjusted to seven categories. He concluded that altering the conditions did not

greatly alter the relationship between personality and performance, and that the best single predictor of performance was social extraversion (r= 0.25, p: <.05)

In another study concerned with the prediction of role in small groups, Borg (1960) measured the behaviour of 819 air force personnel in the course of 60 seminars. In a factor analysis of the results four main factors were identified. Borg concluded, "by far the most promising of the predictor scores is Factor I, 'Assertiveness'. This score correlated significantly with all six role scores (Popular-Social, Good Follower, Assertive, Creative, Rigid, Leader)" (p.114).

In a careful study of interaction and personality, Borgatta (1962) used a revised IPA system, and concluded that the total interaction score "is the single measure of interaction behaviour that has impressive correlates. 15 of the 48 subtests are significantly related to this score. However it must be emphasized that substantial correlations occur between many of the subtests from the inventories, and the subtests indicated here fall primarily into two major clusters of extraversion and emotional stability. The larger correlations appear to be associated with the former cluster".

Extraversion and its related characteristics of sociability, impulsiveness, risk-taking and ascendancy were considered in the foregoing studies to be powerful determinants of small group behaviour. This conclusion and its implications for the measurement of behaviour associated with less salient personality factors were explored in Studies 1-3.

7.8.3 Anxiety and Laboratory Conditions

Only one of the Ss, S9, showed consistently high scores on all the personality measures. The mean STAI State Anxiety score for the

24 Ss was 38.08, indicating a low level of apprehension about the impending discussions.

As noted in Chp.4, section 3, the intention of the author was to allay transient anxiety to a level compatible with normal discussion outside the laboratory. By making the task interesting, and ensuring that his profile remained unobtrusive (see Chp.12) the author encouraged the Ss (a) to concentrate on the topic to the exclusion of other considerations - in four of the six groups this aim was satisfactorily achieved - and (b) to provide an adequate sample of behaviour within the brief timespan of the discussions.

7.8.4 Comparison with the Study Groups

The schedule and conditions used in the research groups and the Arts groups were identical; and the interest and commitment of the Ss were encouraged by similar factors, i.e. by the relevance of the topic, the novelty of the situation and by the expectation of both feedback and pecuniary reward. Through a process of random selection, it was found that 90% of the Ss in the Arts groups had personality scores that were close to the test norms, in contrast to the research Ss who had been selected for their extreme scores on one or more personality traits.

Although drawn from a slightly different population to the Study groups, the Arts Groups provided a yardstick of interactive behaviour against which the subtle variations exhibited by the study groups could be gauged.

To gain an impression - a full-scale study was inappropriate - of how the Arts Groups' mean IPA profile compared to that of discussion groups operating within a more familiar academic context, the behaviour of students in two tutorial groups was examined and reported in Appendix 6.

7.9 SUMMARY AND CONCLUSIONS

1. The random sample comprising 12% of the 1st year Arts student
    population was successful in eliciting a volunteer response of
    43%.

2. Six groups of 4 Ss were formed – each with 2 males and 2
    females – whose mean scores on 7 standard personality inventories
    used in this research were close to the test norms, in contrast
    to the extreme scores of Ss in Studies 1-3.

3. The relationships between the personality scores of the Ss were
    similar to those established by Survey 1.

4. The IPA record was largely determined by personality traits that
    related to extraversion. The IPA categories were not
    significantly related to any of the measures of anxiety, or to
    the measures of intelligence.

5. The mean IPA profile of the Arts Groups across the 12 IPA
    categories was different to that of the Bales' norms. More
    behaviour in the Arts Groups was located in the socio-emotional
    categories and in Cat.5.

6. The topic-centered behaviour of the Groups varied from 31% to 91%
    of the total IPA record, and was only indirectly related to
    activity scored in the IPA neutral task categories.

7. The data provided by the Arts Groups enabled a mean IPA profile
    to be established against which the behavioural profiles in
    Studies 1 and 2 could be compared.

8. Transcripts of the discussions in Groups 4 and 6 were
    subsequently used in a study of the author's reliability in
    scoring IPA (Appendix 1.2).

CHAPTER 8

SURVEY 2

SURVEY OF THE 1st YEAR PSYCHOLOGY CLASS

8.1 PURPOSE

Like Survey 1, Survey 2 was designed to sample the scores of a large number of students, so that individuals with extreme sets of scores could be identified, and subsequently invited to participate in small discussion groups.

Two questionnaires, Spielberger, Gorsuch and Lushene's STAI, Form X-2 (trait) and the Eysenck Personality Inventory, Form A, were distributed to 1st year Psychology students. The Wrenn SHI was also handed out in order to obtain comparative data for Survey 1. The marks for the Collection paper were included for the same reason.

In view of the high response rate among Psychology Honours students in Survey 1 which resulted in a two-year test-retest schedule, it was hoped that a similar proportion would complete the inventories to enable a second one-year test-retest analysis to be carried out.

8.2 SCHEDULE

The 1st year Psychology class included 151 students, of whom 11% were 2nd and 3rd year General Science students. The class had the same curriculum as the previous year.

The two questionnaires, together with copies of the SHI, were distributed in the first week of December at the beginning of the

TABLE 8.1 SURVEY 2 – STUDENT DATA

SURVEY 2

SURVEY OF 1975/76 1st YEAR PSYCHOLOGY

		MALE	FEMALE
1. No. of students doing 1st year Psychology	151	76 (50%)	75
2. Students in 2nd & 3rd year General Science	17	9	8
COMPLETED QUESTIONNAIRES	135 (89%)		
ANONYMOUS	2 (1%)		
2nd & 3rd Gen. Sc.	17 (11%)		
3. No. of students in 1st year Psychology less 2nd and 3rd year Gen. Sc.	134	67	67
4. SAMPLE	116 (87%)	58 (87%)	58 (87%)
5. Practical classes*	79	40	39
6. Total less 2nd & 3rd year Gen. Sc.	62	31	31
7. No. of students in sample doing Practical classes	60 (97%)	29 (94%)	31 (100%)
8. Total No. of students not doing Practical classes	72	36	36
9. Sample not doing Pract. classes	56 (78%)	29 (81%)	27 (75%)
10. No. in sample who completed the Wrenn SHI and whose Collection results were also available	107	53	54

* 52% of 1st year did Practical
classes once a week

TABLE 8.2 SURVEY 2 - GENERAL STATISTICS

		mean	s.d.
SAMPLE	EXTRAVERSION	11.03	4.72
n=116	NEUROTICISM	10.40	4.30
	STAI	40.55	7.23
MALES	EXTRAVERSION	10.93	4.87
n=58	NEUROTICISM	9.09	4.28
	STAI	40.00	7.58
FEMALES	EXTRAVERSION	11.14	4.55
n=58	NEUROTICISM	11.71	3.90
	STAI	41.10	6.81
PRACTICALS	EXTRAVERSION	11.30	4.78
n=60	NEUROTICISM	10.35	4.53
	STAI	40.60	6.99
NON-PRACTICALS	EXTRAVERSION	10.75	4.63
n=56	NEUROTICISM	10.45	4.03
	STAI	40.50	7.47
SUBSET n=107	AGE	19.81	4.23
	EXTRAVERSION	10.94	4.76
	NEUROTICISM	10.31	4.36
	LIE SCALE	2.36	1.76
	STAI	40.41	7.34
	WRENN SHI	7.89	38.57
	COLLECTION	44.90	7.53

lectures and the three Practical classes. Six weeks after the questionnaires had been handed out, the class sat the Collection paper, whose results are included in the analysis.

8.3 RESULTS AND DISCUSSION

8.3.1 Response Rates (Tables 8.1 & 8.2)

The number of completed questionnaires achieved an 89% response rate (73% in Survey 1). 2 anonymous replies were excluded from the analysis. Following on the decision to exclude 2nd and 3rd year General Science from the Survey 1 sample, 17 completed sets of inventories, representing this total subset in Survey 2, were also excluded, leaving a sample of 116 Ss.

Of the 72 students who attended only the Psychology lectures, 78% completed the questionnaires, compared with 50% in Survey 1.

Of the 62 students (apart from the 2nd and 3rd General Science group) who were approached in the Practical classes, 97% completed the questionnaires, compared with 90% in Survey 1. This group included all 30 students who intended to do Single or Joint Honours Psychology.

2nd RELIABILITY STUDY

	MALE	FEMALE	TOTAL
SINGLE HONOURS	6	15	21
JOINT HONOURS	3	6	12
total	9	21	30

The high response rate from the Practical group provided the basis for a further test-retest analysis over a one-year period (see

Appendix 2B). From a pool, which also included 13 students who later

switched to Honours Psychology and 17 General Arts and Science

students, 47 students took part.

The sample also included 10 "mature" students. Apart from age

and slightly depressed scores for EPI Extraversion, there were no

significant differences between this group and the younger Ss.

MATURE STUDENTS

n:10	mean	s.d.
AGE	30.60	7.83
STAI	42.20	9.26
SHI	0.20	29.51
EPI EXTRA.	8.40	2.84
NEURO.	10.20	5.07
LIE	1.50	1.18
COLLECTION	43.20	11.42

8.3.2 Inventory Norms

A. Trait Anxiety (App. 3.2)

The mean score of 40.55 for the 116 Ss, though higher than the

Spielberger norms, was similar to the figures in Survey 1.

B. Study Habits Inventory (App. 3.1)

The mean score of 7.89 for the 116 Ss was slightly higher than

that of the previous year, due to an increment in the male scores,

while the mean female score remained constant.

C.   EPI Form A (App. 3.2)

The mean score of the 116 Ss was similar to the EPI student

norms, and to the Saville and Blinkhorn data (British Undergraduate

Norms, 1976, Combined Disciplines, Male and Female):

	SAMPLE		MANUAL		S.& B.	
	mean	s.d.	mean	s.d.	mean	s.d.
Extraversion	11.03	4.72	11.095	4.54	11.43	4.38
Neuroticism	10.40	4.30	10.006	5.01	10.09	5.03
Lie Scale	2.36	1.76*	2.263	1.57**	2.76	1.76

(* subset n:107; ** general population)

8.3.3 Sex Differences (Table 8.2)

The Survey sample included an equal number of male and female Ss,

similar in proportion to the 1st year class. Apart from EPI

Neuroticism, there were no significant sex differences in inventory

scores. The difference for EPI Neuroticism was significant at the .01

level. A similar finding, significant also at the .01 level, was

reported by Saville and Blinkhorn (1976, p.71).

8.3.4 Practical vs Non-Practical Groups (Table 8.2)

52% of the sample were involved in Practical classes. There were

no significant differences for EPI Extraversion, Neuroticism or Trait

Anxiety between the two groups.

8.3.5 Correlation Analysis (Tables 8.3 and 8.4)

This analysis was carried out without correcting for attenuation.

Using the Pearson r coefficient, EPI Extraversion and Neuroticism

correlated negatively at the .05 level. Small negative correlations

TABLE 8.3   SURVEY 2 – SUMMARY OF CORRELATIONS

		1	2	3
1. SAMPLE	1 EXTRAVERSION	–		
n=116	2 NEUROTICISM	–0.234*	–	
	3 STAI TRAIT	–0.397***	0.674***	–
2. MALES	1 EXTRAVERSION	–		
n=58	2 NEUROTICISM	–0.266*	–	
	3 STAI TRAIT	–0.438***	0.748***	–
3. FEMALES	1 EXTRAVERSION	–		
n=58	2 NEUROTICISM	–0.236*	–	
	3 STAI TRAIT	–0.355***	0.608***	–
4. PRACTICALS	1 EXTRAVERSION	–		
n=60	2 NEUROTICISM	–0.191	–	
	3 STAI TRAIT	–0.334**	0.678***	–
5. NON-PRACT.	1 EXTRAVERSION	–		
n=56	2 NEUROTICISM	–0.287*	–	
	3 STAI TRAIT	–0.466***	0.675***	–

Pearson r   *p:< .05;   **p:< .01;   ***p:< .001

TABLE 8.4 SURVEY 2 - SUMMARY OF CORRELATIONS

6. SUBSET n=107

	1	2	3	4	5	6
1 AGE	–					
2 EXTRAVER.	–0.090	–				
3 NEURO.	–0.004	–0.228*	–			
4 LIE SCALE	–0.180	–0.280*	–0.037	–		
5 STAI TRAIT	0.005	–0.397***	0.665***	–0.029	–	
6 WRENN SHI	–0.031	0.030	–0.255**	0.118	–0.404***	–
7 COLLECT.	–0.002	0.169	–0.080	–0.084	–0.118	0.253*

2nd & 3rd GENERAL SCIENCE n=17

	mean	s.d.		mean	s.d.
AGE	20.00	0.59	STAI TRAIT	45.59	8.40
EXTRAVERSION	12.06	4.28	WRENN SHI	–28.33	34.74
NEUROTICISM	13.59	5.11	COLLECTIONS	42.41	8.73
LIE SCALE	1.94	1.47			

	1	2	3	4	5	6
1 AGE	–					
2 EXTRAVER.	–0.023	–				
3 NEURO.	0.174	–0.166	–			
4 LIE SCALE	–0.269	0.038	0.254	–		
5 STAI TRAIT	0.189	–0.333	0.797***	0.112	–	
6 WRENN SHI	–0.152	–0.512*	–0.215	0.424	–0.045	–
7 COLLECT.	–0.079	–0.500*	0.215	0.189	0.176	0.220

PEARSON r *p:< .05; **p:< .01; ***p:< .001

have frequently been reported between these two dimensions in student populations, using the A form of the EPI: for instance −0.17 (Entwistle and Entwistle, 1970), −0.14 (Entwistle, Nisbet et al, 1971), −0.12 (Howarth, 1976).

EPI Extraversion also correlated negatively with STAI Trait Anxiety at the .001 level − a result to be repeated in Survey 3.

Both measures of anxiety, EPI Neuroticism and STAI Trait Anxiety, predictably correlated in a positive direction at the .001 level.

The correlations for the male and female groups, and for the Practical and the Non-Practical groups were broadly similar to those of the total sample of 116 Ss.

A subset completed the Wrenn SHI. The negative correlation at the .001 level between the SHI and the STAI Trait Anxiety scores was in line with that obtained in Survey 1. In addition, SHI and EPI Neuroticism were negatively correlated at the .01 level. Although the SHI scores were positively related to the Collection results, this should be viewed with caution for the reasons outlined in App.5.2

The data for 2nd and 3rd General Science were included in Table 8.4. The scores of these 17 Ss were at variance with those of the sample, but nevertheless reflect a similar and consistent pattern of correlations, with a negative relationship between EPI Extraversion and the anxiety measures, and a strong positive relationship between STAI Trait Anxiety and EPI Neuroticism.

8.4 SUMMARY AND CONCLUSIONS

1. Survey 2 was successful in achieving a response rate of 89% from the 1st year Psychology class.

2. Completed questionnaires by a sample of 116 Ss resulted in a significant negative correlation between EPI Extraversion and the two measures of anxiety, EPI Neuroticism and STAI Trait Anxiety.

3. There was a strong positive association between STAI Trait Anxiety and EPI Neuroticism, based on an overlap of approx. 50% between the items of the two inventories.

4. The high response rate enabled two groups of students with extreme scores to be easily identified:

    A. Those with low extraversion and high anxiety.
    B. Those with high extraversion and low anxiety.

    Because of the sample size and the negative relationship between extraversion and anxiety, fewer students were identified in the remaining two quadrants with sets of scores of at least 1 s.d. from the mean.

5. The response rate of the students intending to proceed with Psychology Honours was sufficiently high to enable a test-retest reliability analysis to be carried out using STAI Trait Anxiety, the EPI form A and Wrenn SHI, running in parallel with the reliability schedule initiated in Survey 1.

CHAPTER 9

STUDY 2

9.1 INTRODUCTION

Study 1 was concerned with the interaction of two traits, whose modest prominence in small group behaviour was associated with behaviours identified by data from several sources. In contrast, Study 2 involved the consideration of a major determinant of social activity, namely extraversion, and its interaction with anxiety.

The interaction between extraversion and neuroticism (closely allied to trait anxiety) in terms of primary traits has been summarised in the following diagram taken from the EPI Manual (p6):

UNSTABLE

Moody   Touchy
Anxious   Restless
Rigid   Aggressive
Sober   Excitable
Pessimistic   Changeable
Reserved   Impulsive
Unsociable   Optimistic
Quiet   Active

INTROVERTED   **EXTRAVERTED**

Passive   Sociable
Careful   Outgoing
Thoughtful   Talkative
Peaceful   Responsive
Controlled   Easygoing
Reliable   Lively
Even-tempered   Carefree
Calm   Leadership

STABLE
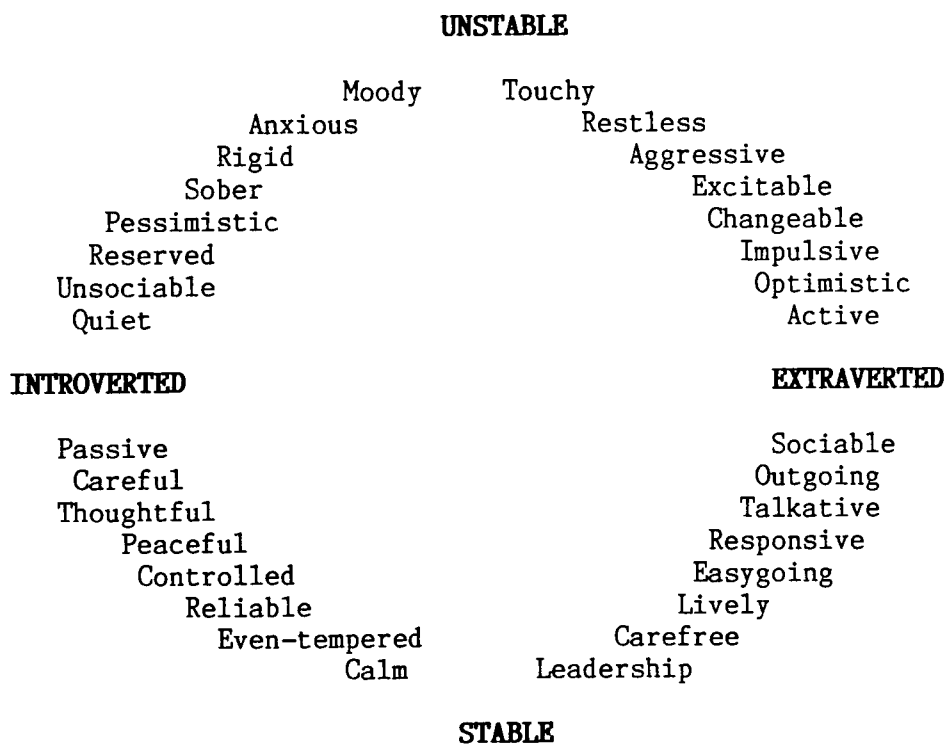
Translating the primary traits located by Eysenck into behavioural correlates operating with relative salience in small group discussion suggested the following four hypotheses:

1. High extraversion combined with low anxiety would be associated with a high overall rate of activity. The sociable disposition of the Ss would be reflected in activity in Cat.1 with depressed scores in the negative socio-emotional categories 10-12.

2. Low extraversion combined with low anxiety would be associated with a low overall rate of activity. The introversion of the Ss would involve a lack of concern for group cohesion, with low scores for Cat.3 and high scores for Cat.10.

3. Low extraversion combined with high anxiety would be associated with a low overall rate of activity. Anxiety would be related to a concern for group cohesion (high scores for Cat.3 and low scores for Cat.10). Concern for task achievement would be tempered by anxiety and result in reduced rates of neutral task-related behaviours (Cats 4-9).

4. High extraversion combined with high anxiety would be associated with a high overall rate of activity. The Ss' anxiety would be reflected in an excitable disposition, with ambivalent needs to establish relationships (high scores for Cat.3 and low scores for Cat.10) and to express aggression (Cats 10-12). Concern for task achievement would be facilitated by anxiety and lead to high rates of behaviour in Cats 4-9.

Four groups were planned initially - later expanded to six - whose members had extreme scores for EPI Extraversion and anxiety, as measured by EPI Neuroticism and STAI Trait Anxiety.

In contrast to Study 1, where the modest scale of the interactions was examined from several viewpoints, the magnitude of the interactions in Study 2 was expected to be satisfactorily associated with consistent behaviours on the basis of the IPA record alone.

In common with Studies 1 and 3, groups of 1st year students, homogeneous in terms of certain inventory scores, age and university experience, were used as Ss. They were selected on the basis of their scores in Survey 2, reported in Chap. 8. Each group included two males and two females, in order that the interaction should involve the maximum socio-emotional stimulus for the participants.

Comparison between the groups formed the focus of the study, but the groups were also compared - as in Study 1 - with the mean profile of the Arts Groups reported in Chap. 7.

9.2 SUBJECTS

Survey 2 was completed by the end of December. Its purpose had been to enable Ss with extreme scores to be identified, so that discussion groups could be formed with the following characteristics:

* STAI & EPI Neuroticism (low), EPI Extraversion (high)

* STAI & EPI Neuroticism (low), EPI Extraversion (low)

* STAI & EPI Neuroticism (high), EPI Extraversion (low)

* STAI & EPI Neuroticism (high), EPI Extraversion (high)

When the results of the survey were inspected, the distribution

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of scores on the anxiety measures was found to be symmetrical and unimodal, with female Ss obtaining slightly higher scores on both measures. The initial expectation of a high level of agreement between the anxiety measures was confirmed with a positive correlation, corrected for attenuation, of 0.824 (Pearson r) significant at the .001 level.

Of the 116 Ss, 60 obtained extreme scores – at least 1 s.d. from the mean – on one or both of the anxiety measures:

	(–1 s.d.)	(+1 s.d.)	total
EPI N. & STAI	10	10	20
EPI N. only	12	11	23
STAI only	10	7	17
		Total	**60**

The total No. of Ss with extreme scores for EPI Extraversion was as follows:

	(–1 s.d.)	(+1 s.d.)	total
EPI EXTRAVERSION	21	24	45

The No. of Ss with extreme scores on all three measures was as follows:

	EXTRAVERSION		
	(–1 s.d.)	(+1 s.d.)	total
EPI NEURO (–1 s.d.) & STAI TRAIT(+1 s.d.)	1	5	6
	5	–	5
		Total	**11**

In order to increase the utility of the anxiety measures in the selection of the Ss, it was decided to combine the two scales into a

composite measure of 'anxiety'. This increased the pool of Ss with
extreme sets of scores for anxiety and extraversion from 11 to 19:

		EXTRAVERSION		
		(-1 s.d.)	(+1 s.d.)	total
ANXIETY	(-1 s.d.)	2	7	9
	(+1 s.d.)	9	1	10
			Total	19

The anxiety measures were combined by transforming the raw scores
for EPI Neuroticism and STAI Trait Anxiety into standard scores, and
restandardising the sum of the two standard scores.

It should be emphasized that this composite measure of 'anxiety'
was only employed in the selection of Ss, and played no part in any
subsequent analysis.

The Pearson r correlation coefficient between the standardised
selection criteria for the 116 Ss was predictably in line with the
negative relationships found in Survey 2:

STUDY 2	EPI Extraversion & Anxiety:	-0.343**
Survey 2	EPI Extraversion & Neuro. :	-0.234*
Survey 2	EPI Extraversion & STAI T.:	-0.397***

*p: <.05   **p: <.01   ***p: <.001

The standardised scores for the 116 Ss in Survey 2 were plotted
on the Scatter plot, Table 9.1. The unequal distribution of Ss with
extreme scores in the four quadrants, due to the strong negative
relationship between the measures, enabled a further two groups to be
included, resulting in a total of six groups: thus the pool for high
extraversion and low anxiety provided two groups, as did the pool for
low extraversion and high anxiety.

TABLE 9.1   STUDY 2 – SCATTER PLOT OF SURVEY 2
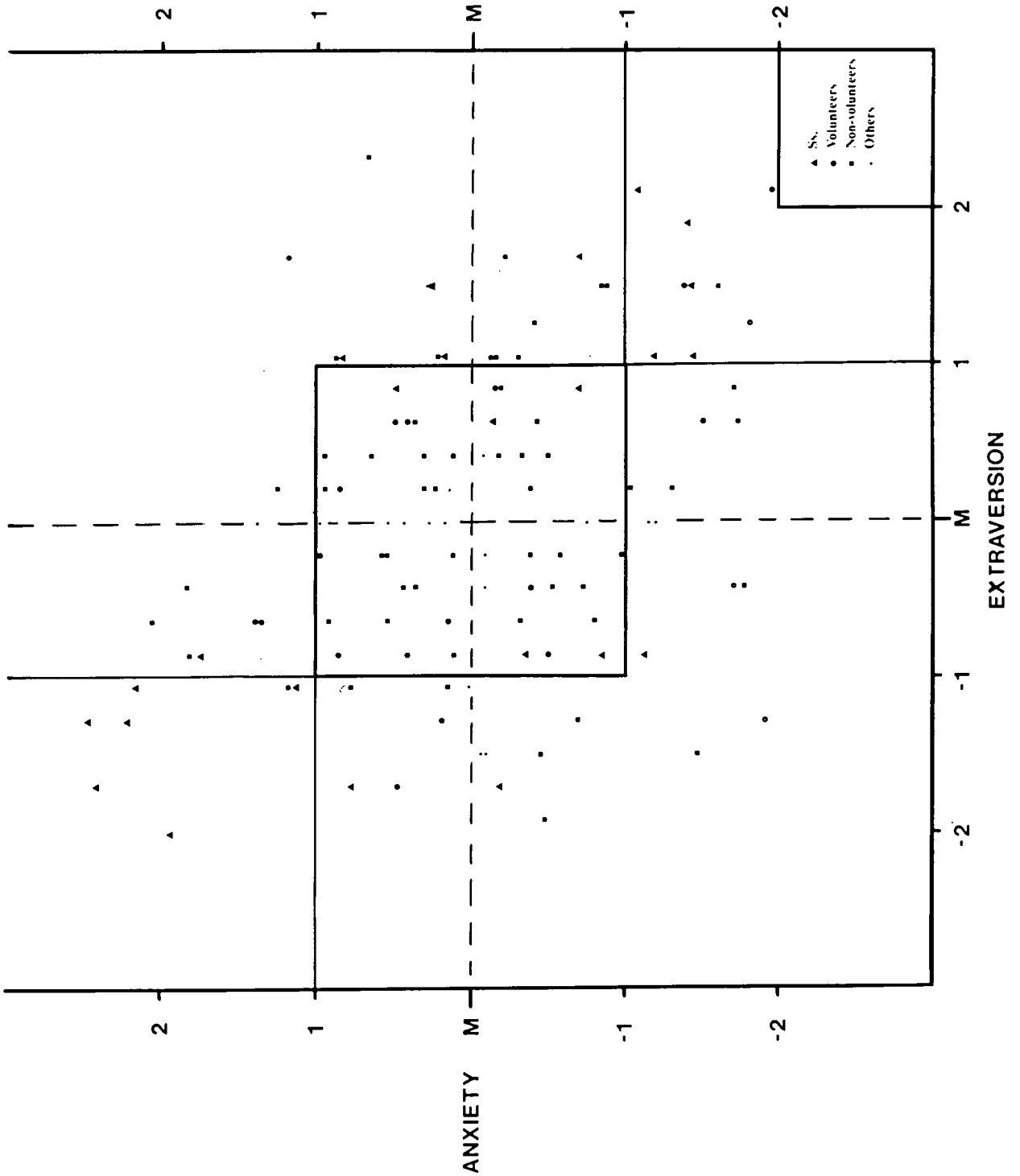
TABLE 9.2   STUDY 2 – CONTACT POOL OF Ss

Dist. from mean	GROUPS 1 & 2 ANXIETY (LOW) EXTRAV. (HIGH)		GROUP 3 ANXIETY (LOW) EXTRAV. (LOW)		GROUPS 4 & 5 ANXIETY (HIGH) EXTRAV. (LOW)		GROUP 6 ANXIETY (HIGH) EXTRAV. (HIGH)	
	male	*female*	*male*	*female*	*male*	*female*	*male*	*female*
1 s.d.								
Pool	7	2	2	0	4	3	0	1
Volun.	6	2	1	0	4	2	0	1
Ss.	3	2	0	0	4	2	0	0
½ s.d.								
Pool	3	4	2	2	3	7	0	3
Volun.	1	2	0	2	1	4	0	1
Ss.	0	2	0	2	0	2	0	1
1/3 s.d.								
Pool	4	0	8	2	2	3	2	4
Volun.	0	0	3	0	1	1	1	2
Ss.	0	0	1	0	0	0	1	0
Pool	6	5	1	3	6	2	3	7
Volun.	1	1	1	0	2	1	1	2
Ss.	1	0	1	0	0	0	1	1
TOTAL								
Pool	20	11	13	7	15	15	5	15
Volun.	8	5	5	2	8	8	2	6
Ss.	4	4	2	2	4	4	2	2

Of the 44 volunteers, 20 had either.le:s extreme scores than those who were selected, or had other commitments on the dates arranged for the meetings.

TABLE 9.3   STUDY 2 – SELECTION STATISTICS OF Ss

GROUPS 1 & 2 — ANXIETY (L), EXTRAVERSION (H)

	NON-VOLUNTEERS (n=18) mean	s.d.	SUBJECT POOL (n=31) mean	s.d.	GROUPS 1 & 2 mean	s.d.
AGE	18.72	0.57	18.74	0.81	18.37	0.52
EPI EXTRAVERSION	15.06	2.31	15.52	3.73	17.37	2.50
NEUROTICISM	8.06	3.02	7.06	3.01	6.50	2.27
STAI TRAIT	35.44	4.76	34.52	4.67	33.75	3.77
EXTRAV. (st.sc.)	0.8528		1.3137		1.3442	
'ANXIETY' (st.sc.)	-0.6838		-1.3841		-1.4245	

GROUP 3 — ANXIETY (L), EXTRAVERSION (L)

	NON-VOLUNTEERS (n=13) mean	s.d.	SUBJECT POOL (n=20) mean	s.d.	GROUP 3 mean	s.d.
AGE	18.23	0.44	18.85	1.78	19.00	0.82
EPI EXTRAVERSION	7.46	2.73	7.10	2.47	6.00	2.00
NEUROTICISM	7.00	3.00	7.40	3.08	9.50	1.29
STAI TRAIT	35.85	5.03	35.30	4.81	33.75	5.68
EXTRAV. (st.sc.)	-0.7560		-0.9748		-1.0657	
'ANXIETY' (st.sc.)	-0.8394		-1.3573		-0.6283	

GROUPS 4 & 5 — ANXIETY (H), EXTRAVERSION (L)

	NON-VOLUNTEERS (n=14) mean	s.d.	SUBJECT POOL (n=30) mean	s.d.	GROUPS 4 & 5 mean	s.d.
AGE	20.71	4.32	19.93	3.18	18.88	0.64
EPI EXTRAVERSION	8.07	1.49	6.83	2.30	4.50	2.00
NEUROTICISM	13.86	3.30	14.37	3.70	17.00	3.02
STAI TRAIT	45.57	4.43	47.70	5.68	54.00	5.32
EXTRAV. (st.sc.)	-1.2535		-1.1186		-1.3834	
'ANXIETY' (st.sc.)	0.8189		1.0446		1.8555	

GROUP 6 — ANXIETY (H), EXTRAVERSION (H)

	NON-VOLUNTEERS (n=12) mean	s.d.	SUBJECT POOL (n=20) mean	s.d.	GROUP 6 mean	s.d.
AGE	19.67	2.31	19.25	1.89	18.50	0.58
EPI EXTRAVERSION	14.00	2.89	14.60	2.70	16.25	1.26
NEUROTICISM	13.00	1.81	12.90	2.19	11.25	2.87
STAI TRAIT	43.75	3.96	44.00	3.82	45.00	4.08
EXTRAV. (st.sc.)	0.6292		0.9470		1.1059	
'ANXIETY' (st.sc.)	0.5723		0.5786		0.4450	

TABLE 9.4   STUDY 2 – Ss' INVENTORY DATA

		sex	age	EPI LIE	EPI EXT.	EPI NEU.	STAI TRAIT	STANDARD SCORES EXTRA.	STANDARD SCORES ANXIETY
G.1	S1	F	19	2	15	10	32	0.8411	-0.6971
	S2	F	19	4	16	6	29	1.0529	-1.4323
	S3	M	19	1	20	5	31	1.9004	-1.4082
	S4	M	18	1	18	3	34	1.4766	-1.4356
G.2	S5	F	19	1	21	7	32	2.1122	-1.0783
	S6	F	19	0	19	7	37	1.6885	-0.7004
	S7	M	19	0	16	5	34	1.0529	-1.1814
	S8	M	19	4	14	9	41	0.6292	-0.1439
G.3	S9	F	19	5	7	10	30	-0.8538	-0.8482
	S10	F	19	5	7	9	28	-0.8538	-1.1265
	S11	M	19	1	3	11	37	-1.7012	-0.1921
	S12	M	19	1	7	8	40	-0.8538	-0.4125
G.4	S13	F	18	1	5	15	62	-1.2775	2.2060
	S14	F	18	2	7	19	49	-0.8538	1.7318
	S15	M	19	3	6	14	50	-1.0656	1.1718
	S16	M	19	4	5	20	57	-1.2775	2.4636
G.5	S17	F	19	5	3	12	48	-1.7012	0.7664
	S18	F	20	4	1	20	50	-2.1250	1.9344
	S19	M	19	1	6	17	58	-1.0656	2.1578
	S20	M	19	4	3	19	58	-1.7012	2.4121
G.6	S21	F	19	5	16	11	42	1.0529	0.1858
	S22	F	18	2	16	15	44	1.0529	0.8453
	S23	M	18	5	15	8	51	0.8411	0.4876
	S24	M	19	2	18	11	43	1.4766	0.2614

Rather than gradually increase the contact pools until the groups were formed – see Study 1 – all Ss with standard scores on both measures of at least .0950 from the mean were contacted.

87% of Survey 2 was contacted with individual letters, and offered £1.50 to participate in the discussion groups:

	TOTAL	MALE	FEMALE
SURVEY 2	116	58	58
CONTACT POOL	101 (87%)	53 (91%)	48 (83%)
VOLUNTEERS	44	23	21

The mean EPI and STAI scores for the groups in each quadrant, their respective contact pools and the non-volunteers are set out in Tables 9.2 & 9.3.

Converting the inventory measures of the six groups into standard scores – see Table 9.4 – shows that half of the groups had mean scores on all three measures (EPI Extraversion & Neuroticism and STAI Trait Anxiety) of at least 1 s.d. from the mean: these included Group 1 (high extraversion/low anxiety), and Groups 4 and 5 (low extraversion/high anxiety).

9.3 PREPARATION

The Ss were told that the research was concerned with personality and behaviour in small groups, that they would be recorded on video tape, that they would be asked to complete several inventories, and that individual results would be sent to each participant at a later date. They were not informed that they had been grouped on the basis of their EPI and STAI scores in Survey 2.

A week before the discussions, Ss received copies of D.

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Rowntree's Learn how to study (Appendix 4B), with instructions to read

Chps 2, 3, 6 and 7 in preparation for a 30 mins discussion.

9.4   SCHEDULE

The meetings lasted about two hours and were divided into three

parts:

1.   On arrival, Ss were shown to cubicles in the Practical Lab., and

completed the following forms: Entwistle SAI, STAI State Anxiety.

2.   When all the forms were completed, the Ss were introduced to each

other and led to the Children's Room. There they were given a

briefing (See Chp.4) and were left alone for 30 mins to discuss

the chapters.

3.   After 30 mins the author returned, led the Ss back to the

Practical Lab. and gave them the Heim AH5.

After the meeting the Ss were invited to return during the

following week and complete the Cattell 16PF in the presence of the

author.

9.5   MEASURES

1.   SELECTION CRITERIA

A.   Spielberger, Gorsuch and Lushene State-Trait Anxiety Inventory -

STAI Form X-2 Trait Anxiety

B.   Eysenck Personality Inventory Form A

2.   PRE-DISCUSSION MEASURES

C.   Wrenn Study Habits Inventory - SHI (See Survey 2)

D.   Entwistle Student Attitudes Inventory - SAI

E.   Spielberger, Gorsuch and Lushene State-Trait Anxiety Inventory -

STAI Form X-1 State Anxiety

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3. POST-DISCUSSION MEASURES

F. IPA (See Appendix 1.1) based on the entire

transcript for each 30 mins. discussion.

G. Heim Group Test of High Grade Intelligence - AH5

H. Cattell 16PF, Form A

9.6 DATA

The data section includes the following tables:

Table 9.5   Questionnaire data

    '' 9.6   Questionnaire statistics

    '' 9.7   16PF data

    '' 9.8   16PF statistics

    '' 9.9   IPA data

    '' 9.10   IPA statistics

In tables 9.6/8/10 the data for Groups 1 and 2 have been combined
and the data for Groups 4 and 5 have been combined.

9.7 ANALYSIS

The data is examined in the following two sections:

9.7.1 Inventories

9.7.2 IPA

9.7.1 Inventories (Table 9.11 - Correlations)

A. STAI X-2 Trait Anxiety

There were strong positive correlations with both STAI X-1 State
Anxiety and the Cattell FI (Anxiety); also, in line with the results
of Survey 2, there was a significant negative relationship with the

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TABLE 9.5 STUDY 2 – QUESTIONNAIRE DATA

		EPI EXTRAV.	EPI NEURO.	EPI LIE SCALE	STAI (TRAIT)	WRENN SHI	SAI TOTAL	MOTIVATION	STUDY HAB.	EXAM TECH.	LACK DIST.	STAI (STATE)	AHS TOTAL	VERBAL	SPATIAL
GROUPS 1 & 2 ANX. (L) EXT. (H)	S1	15	10	2	32	54	33	10	10	8	5	34	31	14	17
	S2	16	6	4	29	0	30	8	10	6	6	22	24	8	16
	S3	20	5	1	31	28	31	8	11	7	5	29	44	18	26
	S4	18	3	1	34	46	20	8	3	3	6	32	41	16	25
	S5	21	7	1	32	34	25	10	7	4	4	31	41	19	22
	S6	19	7	0	37	4	28	9	5	8	6	27	40	22	18
	S7	16	5	0	34	29	30	11	7	6	6	24	45	21	24
	S8	14	9	4	41	19	34	10	11	7	6	28	54	25	29
GROUP 3 ANX. (L) EXT. (L)	S9	7	10	5	30	72	31	8	10	7	6	30	23	10	13
	S10	7	9	5	28	48	31	8	7	8	8	30	32	13	19
	S11	3	11	1	37	38	38	11	11	8	8	38	52	28	24
	S12	7	8	1	40	34	31	8	10	7	6	36	38	17	21
GROUPS 4 & 5 ANX. (H) EXT. (L)	S13	5	15	1	62	-25	30	8	9	7	6	63	26	12	14
	S14	7	19	2	49	48	27	8	9	5	5	45	29	11	18
	S15	6	14	3	50	-2	32	8	11	7	6	46	22	8	14
	S16	5	20	4	57	25	33	10	12	6	5	41	40	21	19
	S17	3	12	5	48	-14	37	9	12	7	9	47	45	22	23
	S18	1	20	4	50	15	23	7	7	4	5	47	30	13	17
	S19	6	17	1	58	4	35	8	11	7	9	43	17	11	6
	S20	3	19	4	58	-43	28	8	10	4	6	40	24	10	14
GROUP 6 ANX. (H) EXT. (H)	S21	16	11	5	42	45	32	9	10	7	6	31	35	16	19
	S22	16	15	2	44	100	34	8	13	6	7	25	44	24	20
	S23	15	8	5	51	-26	25	5	8	6	6	44	30	15	15
	S24	18	11	2	43	5	18	6	5	5	2	41	39	19	20
		SELECTION					*OBTAINED AT THE MEETINGS*								

TABLE 9.6 STUDY 2 – QUESTIONNAIRE STATISTICS

	GROUPS 1 & 2 mean	s.d.	GROUP 3 mean	s.d.	GROUPS 4 & 5 mean	s.d.	GROUP 6 mean	s.d.
1. AGE	18.37	0.52	19.00	0.82	21.00	3.21	18.50	0.58
2. WRENN SHI	26.75	18.77	48.00	17.05	1.00	28.88	31.00	54.41
3. SAI TOTAL	28.88	4.55	32.75	3.50	30.63	4.57	27.25	7.27
MOTIV.	9.25	1.16	8.75	1.50	8.25	0.89	7.00	1.83
STUDY	8.00	2.98	9.50	1.73	10.13	1.73	9.00	3.37
EXAM T.	6.13	1.81	7.50	0.58	5.88	1.36	6.00	0.82
LACK/D.	5.50	0.76	7.00	1.15	6.38	1.69	5.25	2.22
4. AH5 TOTAL	40.00	9.07	36.25	12.18	29.13	9.30	37.00	5.94
VERBAL	17.88	5.28	17.00	7.87	13.50	5.15	18.50	4.04
SPATIAL	22.13	4.70	19.25	4.65	15.63	4.98	18.50	2.38
5. STAI TRAIT	33.75	3.77	33.75	5.68	54.00	5.32	45.00	4.08
STATE	28.38	4.03	33.50	4.12	46.50	7.17	35.25	8.81
6. EPI EXTRAV.	17.37	2.50	6.00	2.00	4.50	2.00	16.25	1.26
NEURO.	6.50	2.27	9.50	1.29	17.00	3.02	11.25	2.87
LIE	1.63	1.60	3.00	2.31	3.00	1.51	3.50	1.73

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TABLE 9.7   STUDY 2 – 16PF DATA

	A	B	C	E	F	G	H	I	L	M	N	O	Q1	Q2	Q3	Q4	FI	FII	FIII	FIV
G.1 & 2																				
S1	12	11	13	16	21	11	21	16	7	17	13	13	7	13	8	15	5.4	8.2	5.9	5.9
S2	9	7	15	15	19	16	24	13	14	9	10	12	9	8	16	14	4.2	9.0	6.5	4.2
S3	11	11	18	15	22	9	17	14	11	17	5	11	8	11	9	9	5.4	6.9	5.1	5.3
S4	12	9	24	19	24	2	19	5	4	12	9	4	4	10	6	6	3.7	8.6	9.9	4.8
S5	16	12	12	20	23	10	25	14	10	14	6	8	10	13	7	15	4.8	10	5.7	6.3
S6	15	12	16	18	20	8	25	17	9	19	9	11	13	5	2	8	4.3	10	3.9	5.8
S7	13	12	15	22	23	14	19	11	13	14	10	6	16	13	13	10	4.6	8.7	7.1	7.6
S8	16	12	13	14	14	7	15	7	11	13	13	6	10	9	11	11	5.2	6.2	6.5	3.6
G.3																				
S9	13	11	17	8	20	12	9	12	10	13	16	10	7	9	14	12	4.5	6.0	7.9	2.7
S10	10	5	19	12	11	10	5	10	5	15	6	11	8	17	16	12	4.1	3.0	7.5	7.1
S11	12	11	14	10	6	8	1	18	6	17	12	14	6	14	16	12	6.3	1.6	0.9	4.5
S12	7	10	11	11	9	14	7	13	11	16	10	9	5	14	3	18	7.5	2.7	4.9	4.4
G.4 & 5																				
S13	12	10	8	12	8	4	4	11	9	12	14	21	7	13	7	21	9.2	3.0	6.5	5.2
S14	14	8	8	17	13	10	5	16	10	18	12	13	12	9	10	22	8.4	5.0	4.3	6.4
S15	5	8	9	10	2	11	10	6	13	15	8	12	11	13	11	17	7.6	1.5	6.5	6.4
S16	7	8	10	10	4	16	4	15	13	16	6	18	14	10	9	20	9.3	2.2	1.3	5.0
S17	11	12	16	9	4	14	3	8	4	13	15	9	9	11	15	13	4.2	2.0	8.3	3.9
S18	6	9	10	8	9	14	3	16	6	16	8	17	4	14	13	13	6.2	2.0	4.7	4.7
S19	12	10	11	6	13	16	10	16	8	17	12	14	12	12	14	20	7.1	3.5	3.5	4.3
S20	7	7	9	16	10	14	8	12	10	16	9	14	8	13	15	14	6.7	4.9	3.9	6.0
G.6																				
S21	7	12	15	11	20	8	17	10	5	13	6	10	6	8	10	18	5.3	6.5	8.7	4.5
S22	6	8	16	19	16	7	20	17	12	15	7	16	12	4	5	20	7.8	8.4	4.7	7.2
S23	10	5	10	11	14	12	9	5	10	9	8	14	9	14	10	18	7.7	4.6	8.7	4.0
S24	8	8	11	16	22	5	15	15	15	19	2	16	13	12	5	18	8.2	6.5	4.1	7.8

TABLE 9.8   STUDY 2 - 16PF STATISTICS

16PF		GROUPS 1 & 2 mean	s.d.	GROUP 3 mean	s.d.	GROUPS 4 & 5 mean	s.d.	GROUP 6 mean	s.d.
	A	13.00	2.51	10.50	2.65	9.25	3.37	7.75	1.71
	B	10.75	1.83	9.25	2.87	9.00	1.60	8.25	2.87
	C	15.75	3.85	15.25	3.50	10.13	2.59	13.00	2.94
	E	17.38	2.83	10.25	1.71	11.00	3.82	14.25	3.95
	F	20.75	3.20	11.50	6.03	7.88	4.19	18.00	3.65
	G	9.63	4.31	11.00	2.58	12.38	4.00	8.00	2.94
	H	20.63	3.78	5.50	3.42	5.88	3.00	15.25	4.65
	I	12.13	4.22	13.25	3.40	12.50	3.93	11.75	5.38
	L	9.88	3.23	8.00	2.94	9.13	3.14	10.50	4.20
	M	14.38	3.20	15.25	1.71	15.38	2.00	14.00	4.16
	N	9.38	2.88	11.00	4.16	10.50	3.21	5.75	2.63
	O	8.88	3.31	11.00	2.16	14.75	3.77	14.00	2.83
	Q1	9.63	3.66	6.50	1.29	9.63	3.25	10.00	3.16
	Q2	10.25	2.87	13.50	3.32	11.88	1.73	9.50	4.43
	Q3	9.00	4.34	12.25	6.24	11.75	2.96	7.50	2.89
	Q4	11.00	3.38	13.50	3.00	17.50	3.74	18.50	1.00
	FI	4.70	0.62	5.60	1.59	7.34	1.70	7.25	1.32
	FII	8.45	1.35	3.33	1.88	3.01	1.35	6.50	1.55
	FIII	6.33	1.75	5.30	3.22	4.88	2.17	6.55	2.49
	FIV	5.44	1.26	4.68	1.82	5.24	0.95	5.88	1.90

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TABLE 9.9 STUDY 2 - IPA DATA

		IPA CATEGORIES												
		1	2	3	4	5	6	7	8	9	10	11	12	TOT
GROUPS 1 & 2 ANX.(L) EXT.(H)	S1	0	58	34	0	87	31	19	14	0	8	48	0	299
	S2	1	38	53	0	84	35	16	9	0	4	36	0	276
	S3	0	35	45	0	66	33	24	10	0	6	34	0	253
	S4	2	89	37	1	347	69	36	30	0	3	15	1	630
	S5	0	115	96	4	269	18	34	28	0	21	26	1	612
	S6	1	132	84	3	263	19	7	17	1	9	28	1	565
	S7	0	30	28	1	180	8	2	1	1	4	19	0	274
	S8	0	72	55	0	88	11	3	2	0	4	42	0	277
GROUP 3 ANX.(L) EXT.(L)	S9	0	36	36	0	111	10	4	8	0	2	21	0	228
	S10	0	37	29	0	132	16	5	5	0	6	43	0	273
	S11	0	23	29	0	120	17	2	8	0	4	15	0	218
	S12	0	113	41	0	134	14	16	41	2	10	30	2	403
GROUPS 4 & 5 ANX.(H) EXT.(L)	S13	1	70	94	0	134	11	3	4	1	0	61	0	379
	S14	1	17	50	0	74	5	2	13	0	1	27	0	190
	S15	0	133	34	0	221	14	0	2	0	3	24	0	431
	S16	0	26	20	3	128	15	6	11	0	0	16	0	225
	S17	2	26	42	0	182	17	8	27	0	9	24	0	337
	S18	0	23	106	0	124	17	8	20	0	3	37	1	339
	S19	2	46	41	1	141	13	4	14	0	3	9	0	274
	S20	0	16	30	0	116	26	3	3	0	3	6	0	203
GROUP 6 ANX.(H) EXT.(H)	S21	1	59	86	0	230	8	8	11	0	13	27	1	444
	S22	0	81	49	0	249	22	13	13	2	12	31	3	475
	S23	0	7	5	0	29	12	0	0	0	0	18	0	71
	S24	3	38	57	0	147	7	15	25	0	4	17	1	314

TABLE 9.10   STUDY 2 – IPA STATISTICS

IPA CAT	GROUPS 1 & 2 mean	s.d.	GROUP 3 mean	s.d.	GROUPS 4 & 5 mean	s.d.	GROUP 6 mean	s.d.
1.	0.50	0.76	0.00	0.00	0.75	0.89	1.00	1.41
2.	71.13	38.20	52.25	41.00	44.63	40.00	46.25	31.51
3.	54.00	24.24	33.75	5.85	52.13	31.02	49.25	33.51
4.	1.13	1.55	0.00	0.00	0.50	1.07	0.00	0.00
5.	173.00	107.00	124.25	10.78	140.00	44.23	163.75	100.16
6.	28.00	19.40	14.25	3.10	14.75	5.97	12.25	6.85
7.	17.63	13.21	6.75	6.29	4.25	2.87	9.00	6.68
8.	13.88	10.79	15.50	17.06	11.75	8.78	12.25	10.24
9.	0.25	0.46	0.50	1.00	0.13	0.35	0.50	1.00
10.	7.38	5.90	5.50	3.42	2.75	2.87	7.25	6.29
11.	31.00	11.20	27.25	12.18	25.50	17.49	23.25	6.85
12.	0.38	0.52	0.50	1.00	0.13	0.35	1.25	1.26
IPA TOTAL	398.25	170.39	280.50	85.10	297.25	87.86	326.00	183.75
CATS 1-3	125.63	59.24	86.00	46.10	97.13	49.24	96.50	59.76
4-9	233.88	134.01	161.25	32.17	171.75	47.18	197.75	113.06
10-12	38.75	12.41	33.25	14.52	28.38	17.09	31.75	13.82

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TABLE 9.11   STUDY 2 – SUMMARY OF CORRELATIONS

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. STAI ST.	—												
2. STAI TR.	0.740**	—											
3. EPI EXT.	-0.645**	-0.550**	—										
4. EPI NEU.	0.652**	0.752**	-0.721**	—									
5. CAT. FI	0.537**	0.720**	-0.325	0.620**	—								
6. CAT.FII	-0.731**	-0.514**	0.872**	-0.612**	-0.396*	—							
7. W. SHI	-0.367*	-0.356*	0.294	-0.146	-0.177	0.270	—						
8. E. SAI	-0.065	0.038	-0.344*	0.243	0.026	-0.351*	0.166	—					
9. AH5	-0.358	-0.291	0.307	-0.363*	-0.238	0.219	0.254	0.223	—				
10. IPA TOT	-0.130	-0.111	0.385*	-0.170	-0.249	0.316	0.103	-0.107	0.193	—			
11. IPA 1-3	-0.037	-0.030	0.352*	-0.136	-0.066	0.265	0.044	-0.134	-0.022	0.894**	—		
12. IPA 4-9	-0.065	-0.006	0.286	-0.096	-0.202	0.209	0.096	-0.064	0.225	0.850**	0.620**	—	
13. 10-12	-0.217	-0.346*	0.218	-0.163	-0.163	0.198	0.315	0.085	0.154	0.472*	0.565**	0.115	—
14. IPA 11	-0.195	-0.297	0.132	-0.120	-0.113	0.130	0.194	0.060	0.141	0.271	0.439*	-0.055	0.921**

Spearman rho   *p: $< .05$ **p: $< .01$

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Cattell FII (Extraversion). There were no significant correlations between STAI Trait Anxiety and the IPA categories, either aggregated or singly.

B.   EPI Neuroticism

In line with the relationships that obtained for STAI Trait Anxiety, there were strong positive correlations with STAI X-1 State Anxiety and with the Cattell FI; also a strong negative relationship with the Cattell FII.

There were no significant relationships between EPI Neuroticism and the IPA categories, either aggregated or singly.

C.   EPI Extraversion

The selection criterion correlated strongly with the Cattell FII (Extraversion).

EPI Extraversion related positively to the total IPA score (Cats 1-12) at the 0.05 level, a finding reported also in Chps.6 and 7.

D.   Other Measures

WRENN SHI and ENTWISTLE SAI - Apart from Groups 4 and 5, the scores on the study habit inventories were superior to either the results in Survey 2 or the test norms:

		SURVEY 2	TEST NORMS	G.1/2	G.3	G.4/5	G.6
WRENN	mean:	7.89		26.75	48.00	1.00	31.00
	s.d.:	38.57		18.77	17.05	28.88	54.41
ENTWISTLE	mean:		26.15	28.88	32.75	30.63	27.25
	s.d.:		5.72	4.55	3.50	4.57	7.27

TABLE 9.12   STUDY 2 – 16PF PROFILES

STANDARD TEN SCORE (STEN)

	1	2	3	4	5	6	7	8	9	10		FACTOR
RESERVED											OUTGOING	[A]
LESS INTELLIGENT											INTELLIGENT	[B]
UNSTABLE											STABLE	[C]
HUMBLE											ASSERTIVE	[E]
SOBER											CAREFREE	[F]
EXPEDIENT											CONSCIENTIOUS	[G]
SHY											VENTURESOME	[H]
TOUGH-MINDED											TENDER-MINDED	[I]
TRUSTING											SUSPICIOUS	[L]
PRACTICAL											IMAGINATIVE	[M]
FORTHRIGHT											SHREWD	[N]
PLACID											APPREHENSIVE	[O]
CONSERVATIVE											EXPERIMENTING	[Q1]
GROUP-DEPENDENT											SELF-SUFFICIENT	[Q2]
UNDISCIPLINED											CONTROLLED	[Q3]
RELAXED											TENSE	[Q4]

Groups 1 & 2 [Stable/Extravert]   : ————————
Group   3   [Stable/Introvert]   : — — — — — —
Groups 4 & 5 [Anxious/Introvert]   : ....
Group   6   [Anxious/Extravert]   : —·—·—·—·—·—

[The raw scores have been standardised using the British Under-
graduate Norms prepared by P. Saville and S. Blinkhorn]

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HEIM AH5 – Apart from Groups 4 and 5 (high anxiety and low extraversion), the mean scores for the other groups compared satisfactorily with the test norms and the results of Survey 3.

	SURVEY 3	TEST NORMS	G.1/2	G.3	G.4/5	G.6
HEIM AH5 mean:	42.36	39.06	40.00	36.25	29.13	37.00
s.d.:	8.14	8.26	9.07	12.18	9.30	5.94

CATTELL 16PF – (See profiles, Table 9.12) – On the basis of the primary factors plotted as STEN scores, the 2nd-order factors were in agreement with the selection criteria, differentiating the groups in terms of their mean scores both for anxiety and extraversion (Tables 9.7 and 9.8).

9.7.2 IPA (Tables 9.9 and 9.10)

The data was first examined using the raw IPA scores to determine whether similarities in the aggregation and distribution of individual behaviours occurred across the six groups.

A biplot analysis was carried out (Table 9.13 & description in Appendix 4A). This was checked against an OSIRIS cluster analysis (Table 9.14 & description in Appendix 4A). In both analyses, similarities within the following sets of Ss were identified:

<div align="center">

Ss 1, 2 and 3

Ss 11 and 20

Ss 19 and 24

</div>

The results of the two analyses suggested that similarities between the Ss' IPA records across groups were minimal.

The matching behaviours in G.1 involving three Ss were exceptional and due to the dominant behaviour of S.4. In the other

TABLE 9.13   STUDY 2 - BIPLOT ANALYSIS

The diagram captures 88.8% of the variability. The Ss are repre-
sented by the points, and the IPA categories by the vectors. The
variance is indicated by the length of each vector, seven of which
have been scaled down by the figure in [].
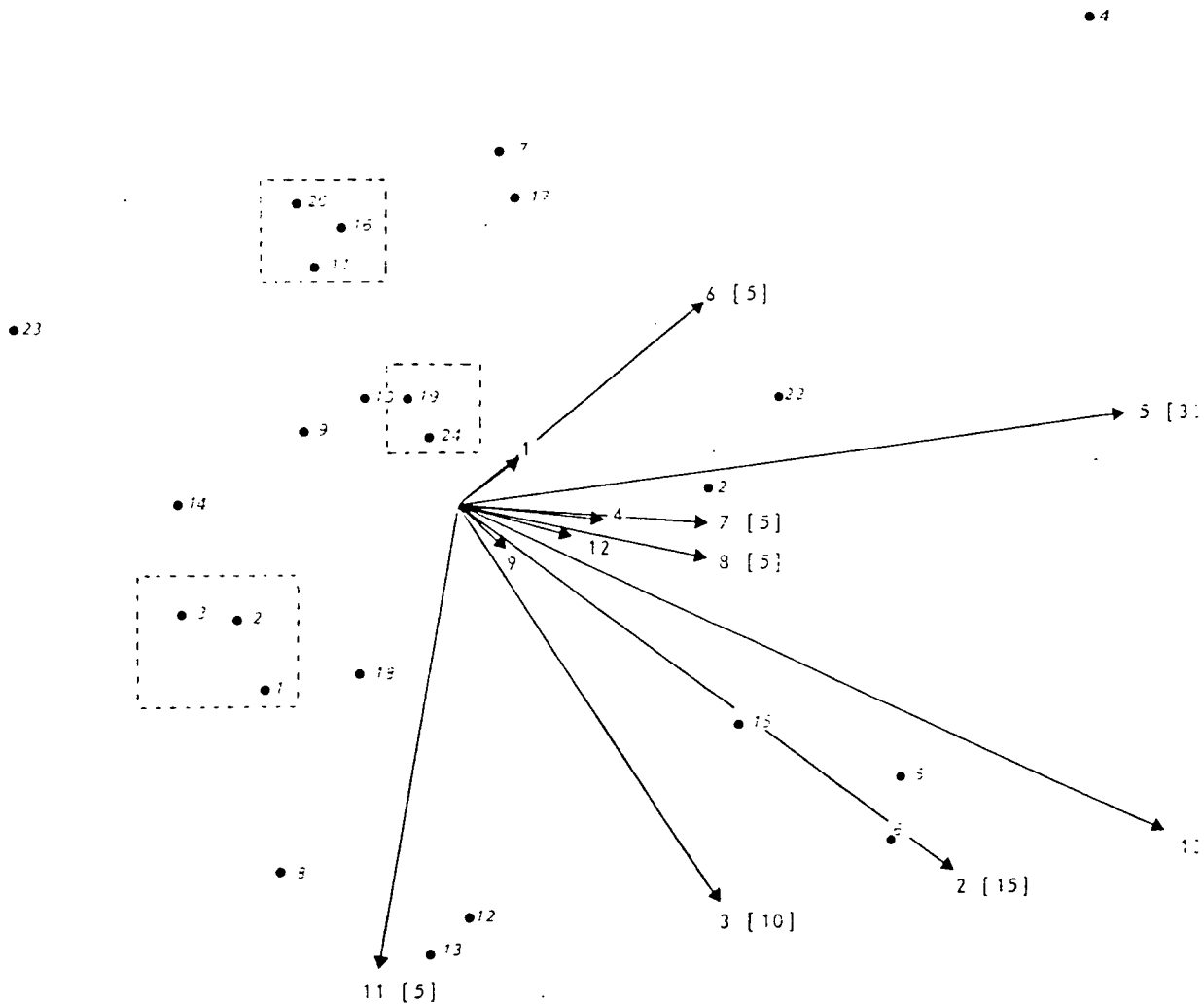
TABLE 9.14   STUDY 2 – CLUSTER ANALYSIS

	S.	group	type	sex	corr.*	order**
CLUSTER 1	S20	G5	AI	M	0.713	1
	S11	G3	SI	M	0.619	2
	S4	G1	SE	M	0.494	3
CLUSTER 2	S1	G1	SE	F	0.737	1
	S3	G1	SE	M	0.656	2
	S2	G1	SE	F	0.594	3
	S10	G3	SI	F	0.454	4
CLUSTER 3	S13	G4	AI	F	0.557	1
	S8	G2	SE	M	0.446	2
	S9	G3	SI	F	0.347	3
	S18	G5	AI	F	0.323	4
CLUSTER 4	S24	G6	AE	M	0.688	1
	S19	G5	AI	M	0.580	2
	S17	G5	AI	F	0.585	3
	S14	G4	AI	F	0.503	4
CLUSTER 5	S22	G6	AE	F	0.626	1
	S12	G3	SI	M	0.626	2
CLUSTER 6	S15	G4	AI	M	0.591	1
	S6	G2	SE	F	0.591	2
CLUSTER 7	S16	G4	AI	M	0.397	1
	S23	G6	AE	M	0.397	2
CLUSTER 8	S21	G6	AE	F	0.330	1
	S5	G2	SE	F	0.330	2
Unclustered:	S7	G2	SE	M		

* average correlation of the item with all the items
in the cluster.

** entry order of items into the cluster.

groups, the different interactive rates of the members, combined with an imbalance in specific behaviours, precluded the occurrence of similar profiles.

<div align="center">*****</div>

The behaviour of the six groups was then examined in broad terms, distinguishing between the socio-emotional categories and the task-related categories. On this basis, the behaviour of the six groups was very similar, and not significantly different from that of the Arts Groups reported in Chp.7.

	G.1/2	G.3	G.4/5	G.6	ARTS
Cats. 1-3	31.6%	30.6%	32.8%	29.6%	29.4%
Cats. 4-9	58.6%	57.5%	57.6%	60.7%	58.5%
Cats. 10-12	9.8%	11.9%	9.6%	9.7%	12.1%

TABLE 9.15 STUDY 2 – IPA PROFILES FOR GROUPS 1–6

1st COMPARISON WITH IPA PROFILE OF THE ARTS GROUPS

	GROUPS 1 & 2 EXTRA.–H ANXIETY–L (mean)		GROUP 3 EXTRA.–L ANXIETY–L		GROUPS 4 & 5 EXTRA.–L ANXIETY–H (mean)		GROUP 6 EXTRA.–H ANXIETY–H		ARTS GROUPS (Chp.7)	
	ACTS	%	ACTS	%	ACTS	%	ACTS	%	ACTS	%
CAT.1	2.0	0.1	0	–	3.0	0.3	4	0.3	6.3	0.6
2	284.5	17.9	209	18.6	178.5	15.0	185	14.2	167.0	14.5
3	216.0	13.6	135	12.0	208.5	17.5	197	15.1	164.7	14.3
4	4.5	0.3	0	–	2.0	0.2	0	–	7.3	0.6
5	692.0	43.4	497	44.3	560.0	47.1	655	50.2	518.8	45.1
6	112.0	7.0	57	5.1	59.0	5.0	49	3.8	72.8	6.3
7	70.5	4.4	27	2.4	17.0	1.4	36	2.8	26.5	2.3
8	55.5	3.5	62	5.5	47.0	4.0	49	3.8	44.2	3.8
9	1.0	0.1	2	0.2	0.5	0.1	2	0.1	4.3	0.4
10	29.5	1.9	22	2.0	11.0	0.9	29	2.2	18.6	1.6
11	124.0	7.8	109	9.7	102.0	8.6	93	7.1	116.5	10.1
12	1.5	0.1	2	0.2	0.5	0.1	5	0.4	4.0	0.4
TOTAL	1593.0		1122		1189.0		1304		1151.0	

TABLE 9.16 STUDY 2 – IPA PROFILES FOR GROUPS 1–6

2nd COMPARISON WITH IPA PROFILE OF THE ARTS GROUPS

IPA CAT	G.1/2	G.3	G.4/5	G.6
1	LOW	LOW	LOW	LOW
2	HIGH	HIGH	*	*
3	*	LOW	HIGH	*
4	LOW	LOW	LOW	LOW
5	*	*	HIGH	HIGH
6	*	*	*	LOW
7	HIGH	*	*	*
8	*	HIGH	*	*
9	LOW	LOW	LOW	LOW
10	*	*	LOW	HIGH
11	LOW	*	*	LOW
12	LOW	LOW	LOW	*
IPA TOTAL	HIGH	*	*	HIGH

However, from a more detailed inspection - Tables 9.15/16 - it was evident that in respect of certain behaviours and overall activity rates the groups were distinctive, both from one another and in comparison with the Arts Groups.

The scores for three of the four IPA residual categories (Cats 1, 4 and 9) were low compared to those of the Arts Groups.

Groups 1 and 2 (high extraversion and low anxiety) achieved exceptionally high overall rates of activity (1458 & 1728 acts respectively), and were scored for a high number of acts in Cat.2. The high rate of activity in Cat. 7 was due largely to G.1's behaviour.

Group 3 (low extraversion and low anxiety), while maintaining a high level of activity in Cat.2, was the only group with no scores in Cat.1, the lowest activity in Cat.3 and the highest scores in Cat.8.

Groups 4 and 5 (low extraversion and high anxiety) were similar to G.3 in scoring a lower IPA total than the groups with high extraversion. They also obtained the highest percentage of scores in Cat. 3 and the lowest in Cat.10.

Group 6 (high extraversion and high anxiety) was similar to Groups 1 and 2 in exhibiting a high rate of overall activity. Within the neutral categories (4-9) it scored the highest percentage rate in Cat.5 and the lowest in Cat.6. Although low in signs of tension - Cat.11 - its discussion included the highest rate of disagreement (Cat.10) and of unfriendly behaviour (Cat.12).

9.8 DISCUSSION

Study 2 was concerned with uncovering consistency in subject behaviour where trait interactions defined by extreme scores for extraversion and anxiety suggested the likely occurrence of specific

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patterns of social behaviour. Despite the limitations of Survey 2 and the restricted pools of volunteer Ss, the samples of recorded behaviour indicated an acceptable level of consistency in Groups 1-6, congruent with predicted individual behaviours.

The methodology and results of Study 2 involved a consideration of several issues.

9.8.1 Selection Criteria

The selection procedure sought to redefine EPI Neuroticism and STAI Trait Anxiety in terms of a common standardised score. This approach was encouraged by the communality of the two scales (see discussion in Chp.8). In theoretical terms Eysenck did not consider Neuroticism and general anxiety to be synonymous. He viewed the latter as arising from a combination of high Neuroticism and low Extraversion.

Using standard scores for EPI Extraversion and 'anxiety', 58% of Survey Ss with extreme scores were included in Groups 1-6, and this number also included 64% of the Ss with extreme scores on all three measures. However the distribution of Survey 2 resulted in Groups 3 and 6 having no Ss with extreme scores for both measures, with consequences for the unambiguous expression of behaviours predicted by hypotheses 2 and 4.

9.8.2 Treatment of the Data

Where two groups shared common selection criteria - Groups 1 and 2, Groups 4 and 5 - the IPA records were combined to produce mean IPA profiles. This enabled comparisons to be made with relative economy between the four quadrants represented by the trait interactions, and identified with greater reliability those IPA categories whose

salience was endorsed by more than one group. For instance, the
formation of two extra groups underlined the differences in total
activity rates between the high and low extraversion groups.

However an IPA profile based on mean percentage rates across two
groups can also result in a distorted presentation of the 'groups'
behaviour. For example, in Groups 1 and 2 the percentage of activity
classed in Cat.7 was 6.5% and 2.7% respectively, resulting in a mean
rate that was high in comparison to the Arts Groups, but
unrepresentative of both groups.

In groups where less powerful trait interactions were involved,
it is questionable whether subtle differences in IPA profile would
survive the averaging effect of combining IPA records from several
groups, and a less parsimonious procedure involving the separate
treatment of each group's behaviour might be required.

9.8.3 Biplot and Cluster Analyses

The biplot and cluster analyses were included in order to control
for similarities in the recorded behaviour of Ss across groups.

The analyses were based on the raw IPA data, as opposed to the
category percentages used to construct the IPA profile. Predictably
few Ss shared similar aggregations of behaviour across groups. Even
within groups - apart from Group 1 - the IPA data reflected a
relatively heterogeneous set of IPA behaviours, in which differential
rates were clearly in evidence.

9.8.4 Extraversion

The groups with high extraversion exhibited exceptionally high
rates of activity. Groups 1,2 and 6 were scored for approximately 50
unit/acts per minute, compared with approximately 39 unit/acts per

minute for Groups 3, 4 and 5. However all six groups were fairly active compared to the Arts Groups reported in Chp.7. The relatively high overall rate of activity reported in the low extraversion groups was also subsequently found in Study 3 (Group 2, low extraversion).

One explanation for the unexpectedly active behaviour of Ss with low extraversion may have been the novel stimulus afforded to Ss of being in groups that included no members with marked signs of social ascendancy - a stimulus with therapeutic properties also employed in the clinical treatment of Ss with poor social skills.

9.8.5 Hypotheses

In comparing Groups 1-6 with the Arts Groups, it was evident that the hypotheses outlined in section 9.1 were partly confirmed by the data:

Hypothesis no.1 (Groups 1/2 - High extraversion/low anxiety) was correct in predicting a high overall rate of activity. Groups 1/2 produced the highest rates of activity reported in this research. Although the rate of positive social behaviours was not as prominent as expected with relatively few acts classed in Cat.1, negative socio-emotional behaviour was comparatively modest.

Hypothesis no.2 (Group 3 - Low extraversion/low anxiety) failed to account for the overall rate of activity that was on a par with that of the Arts Groups. However the social detachment of the Ss was reflected in a lack of behaviours scored for Cat.1, a low proportion in Cat.3 and an average level of disagreement (Cat.10).

Hypothesis no.3 (Groups 4/5 - Low extraversion/high anxiety) failed to account for the relatively high level of activity that was on a par with that of the Arts Groups. Concern for group cohesion was reflected in high scores for Cat.3 and depressed scores for Cat.10.

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Anxiety and task-achievement were associated in Cats 4-9 with behaviours whose overall proportion was slightly lower that of the Arts Groups - in line with anticipated rates.

Hypothesis no.4 (Group 6 - High extraversion/high anxiety) was correct in predicting a high overall rate of activity. Also concern for task-achievement was indicated by a relatively high proportion of behaviour scored in Cats 4-9 - in line with the predicted facilitating effects of anxiety in Ss with high extraversion. However the excitable disposition of the Ss did not express itself in a concern to establish relationships (i.e. scores for Cat.3 were not prominent), and aggression was not prominent with only a moderate level of negative socio-emotional behaviour in Cats 10-12.

9.9 SUMMARY AND CONCLUSIONS

1. The invitation to participate in the discussions was successful
    in eliciting a volunteer response of 44%.

2. Six groups of Ss were formed with extreme scores for Extraversion
    and 'Anxiety'. The 'Anxiety' scores represented a composite
    measure based on Ss' scores for EPI Neuroticism and STAI x-2
    Trait Anxiety.

3. The strong negative correlation between the selection criteria
    resulted in larger pools of volunteers with high extraversion/low
    anxiety and with low extraversion/high anxiety than in the
    remaining quadrants. In addition to the four groups representing
    each quadrant, two further groups were formed. In analyzing
    groups with similar selection criteria, the IPA data was
    combined.

    Mean selection scores for Groups 1/2 and 4/5 were more
    extreme than those for Groups 3 and 6.

4. In anticipation of major interaction effects determined by a
    trait with marked salience in small group activity - extraversion
    - the data was restricted to the IPA record.

5. EPI Extraversion correlated significantly with the Ss' total IPA
    scores, but neither EPI Neuroticism nor STAI x-2 were strongly
    related to the IPA record either for aggregated categories or for
    single categories.

6. An examination of the IPA record indicated that some of
    hypotheses 1-4 were confirmed in terms of the overall activity
    rates in Groups 1/2 and 6, and in terms of many of the predicted
    behaviours for Groups 1-6.

    However the groups with low extraversion (3-5), while less
    active than the groups with high extraversion, were scored for

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greater overall activity than anticipated; also the trait interactions in the high anxiety groups (4-6) were associated with less prominent positive socio-emotional behaviour than anticipated.

7.   The results of Study 2 indicated that the Ss in Groups 1-6 exhibited behaviours, many of which were consistent with the specific trait interactions associated with extreme scores for EPI Extraversion, EPI Neuroticism and STAI X-2 Trait Anxiety.

8.   Study 2 showed that the satisfactory identification of behaviour consistent with the interaction of a trait with major salience in small group behaviour could be achieved on the basis of the IPA observational record alone - in contrast to Study 1, where interactions of more moderate salience required the consideration of several complementary sources of data.

CHAPTER 10

SURVEY 3

SURVEY OF THE 1st YEAR PSYCHOLOGY CLASS

The format of this chapter and some of its content are similar to the text accompanying the data in Surveys 2 and 3. Where repetitions occur, they are included for the sake of clarity.

10.1 PURPOSE

Survey 3 was designed to sample the scores of a large number of students, so that Ss with extreme scores on only **one** measure – Trait Anxiety, EPI Extraversion or Neuroticism – could be identified and invited subsequently to participate in the groups used in Study 3.

Two questionnaires, Spielberger, Gorsuch and Lushene's State-Trait Anxiety Inventory (STAI), Form X-2 measuring Trait Anxiety, and the Eysenck Personality Inventory (EPI), Form B, were distributed to 1st year Psychology students.

The Wrenn Study Habits Inventory (SHI) was also distributed because of its relevance to Survey 1, and the Collection marks were included in the analysis for the same reason.

In addition, the Heim AH5 scores were obtained for 62% of the 1st year class in the course of the Practical classes, in order to provide comparative data for Study 2.

10.2 SURVEY SCHEDULE

The 1st year Psychology included 134 students – a reduction of 11% on the previous year – of whom 13% were 2nd and 3rd year General

TABLE 10.1 SURVEY 3 – STUDENT DATA

		MALE	FEMALE
1. No. of students doing 1st year Psychology	134	60 (45%)	74 (55%)
2. Students in 2nd & 3rd year General Science	18	17	1

COMPLETED QUESTIONNAIRES	126 (94%)
ANONYMOUS	4 (3%)
2nd & 3rd Gen. Sc.	17 (13%)

		MALE	FEMALE
3. No. of students in 1st year Psychology less 2nd & 3rd year Gen. Sc.	116	43	73
4. SAMPLE	105 (91%)	42 (98%)	63 (86%)
5. Practical classes*	86	41	45
6. Total less 2nd & 3rd yr. Gen. Sc.	68	24	44
7. No. of students in sample doing Practical classes	66 (97%)	23 (96%)	43 (98%)
8. Total No. of students not doing Practicals	48	19	29
9. Sample not doing Pract.	39 (81%)	19 (100%)	20 (69%)

* 64% of 1st year did Practical
classes once a week

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TABLE 10.2   SURVEY 3 - GENERAL STATISTICS

		mean	s.d.
SAMPLE	AGE	19.89	3.65
n=105	EXTRAVERSION	14.16	3.73
	NEUROTICISM	12.34	4.13
	LIE SCALE	1.23	1.17
	STAI	41.00	7.75
	WRENN SHI	9.75	43.12
	COLLECTION	46.65	8.18
MALES	AGE	20.90	4.36
n=42	EXTRAVERSION	13.26	3.73
	NEUROTICISM	12.57	3.93
	LIE SCALE	1.02	1.03
	STAI	41.76	8.65
	WRENN SHI	7.10	41.33
FEMALES	AGE	19.21	2.88
n=63	EXTRAVERSION	14.76	3.60
	NEUROTICISM	12.19	4.25
	LIE SCALE	1.37	1.23
	STAI	40.49	7.04
	WRENN SHI	11.52	44.18

TABLE 10.3 SURVEY 3 - GENERAL STATISTICS

		mean	s.d.
PRACTICALS	AGE	19.06	2.41
n=66	EXTRAVERSION	13.85	3.72
	NEUROTICISM	12.50	4.10
	LIE SCALE	1.36	1.25
	STAI	41.73	7.96
	WRENN SHI	4.11	43.29
	COLLECTION	46.24	8.65
NON-PRACTICALS	AGE	21.28	4.78
n=39	EXTRAVERSION	14.69	3.68
	NEUROTICISM	12.08	4.17
	LIE SCALE	1.00	0.96
	STAI	39.77	7.21
	WRENN SHI	19.31	41.09
	COLLECTION	46.95	7.05
2nd & 3rd	AGE	20.00	0.91
GEN. SCIENCE	EXTRAVERSION	13.88	3.92
n=17	NEUROTICISM	11.00	4.65
	LIE SCALE	1.00	1.24
	STAI	39.06	7.48
	WRENN SHI	8.47	43.46
	COLLECTION	37.88	12.39

TABLE 10.4 SURVEY 3 - AH5 STATISTICS

			mean	s.d.
1st YEAR	AH5	TOTAL	42.39	8.14
n=66		VERBAL	19.55	4.16
		SPATIAL	22.85	4.88
MALES	AH5	TOTAL	43.95	8.65
n=23		VERBAL	19.77	5.19
		SPATIAL	24.18	4.41
FEMALES	AH5	TOTAL	41.87	7.69
n=43		VERBAL	19.50	3.50
		SPATIAL	22.37	4.93
2nd & 3rd GEN. SC.	AH5	TOTAL	42.53	3.54
n=17		VERBAL	19.07	3.34
		SPATIAL	23.47	2.39

Science students. The class had three lectures per week, a tutorial once a fortnight, and 64% also attended one of the three Practical classes held each week in the Department.

The two questionnaires, together with copies of the Wrenn SHI were distributed in the first week of December at the beginning of the three lectures and the three Practical classes. It was made clear that individual results would be available on request, and that the overall results would be on display at a later date in the form of histograms.

The AH5 data was obtained a fortnight before the survey during Practical classes attended by 97% of those in the Practical Groups.

10.3 RESULTS AND ANALYSIS

10.3.1 Response Rates (Tables 10.1-4)

The results of the Survey are shown in table 10.1. The number of completed questionnaires was 94% which compared favourably with 73% reported in Survey 1 and 89% in Survey 2. When the 4 anonymous datasets and the 17 sets completed by 2nd and 3rd year General Science students had been discarded, the remainder - a total of 105 - was 9% less than the sample from Survey 2.

Of the 48 students who attended only Psychology lectures, 81% completed the questionnaires, and of the 86 students who were also approached in their Practical classes, 97% (excluding 2nd and 3rd year General Science) completed the inventories. The response rate in both groups - Non-Practical and Practical - was similar to that of the previous year (78% and 97% respectively).

The sample of 105 students also included 10 "mature" students (23 yrs +). Apart from Age, this subset had slightly depressed scores for EPI Extraversion - A finding also made in Survey 2 - and a mean

score for Wrenn SHI that was significantly higher than the sample mean
(25.85 : 9.75). Otherwise there were no significant differences
between this group and the younger students.

MATURE STUDENTS

n:10	mean	s.d.
AGE	29.40	5.23
EPI EXTRAVERSION	12.40	4.84
NEUROTICISM	12.40	4.79
LIE SCALE	1.20	1.23
STAI	42.60	12.30
SHI	25.85	30.40
COLLECTION	45.70	7.29

10.3.2 Inventory Norms

EPI FORM B (Appendix 3.2)

The mean scores of the 105 Ss in the Survey Sample were slightly
higher than the student norms in the EPI Manual.

	SAMPLE		EPI Norms	
	mean	s.d.	mean	s.d.
Extraversion	14.16	3.73	13.44	4.20
Neuroticism	12.34	4.13	11.04	4.82
Lie Scale	1.23	1.17	1.38*	1.35

*general population

TRAIT ANXIETY (Appendix 3.2)

The mean score of 41.00 for the 105 Ss was similar to the figures
obtained in Surveys 1 and 2 (Chps 5 and 8), but was slightly higher
than the norms provided in the STAI Manual for American freshmen and
undergraduates.

STUDY HABITS INVENTORY (Appendix 3.1)

The mean score of 9.75 was the highest of the three surveys.

Comparative data for previous 1st year classes were as follows:

	mean	s.d.
Survey 1	5.43	43.64
Survey 2	7.89	38.57
Survey 3	9.75	32.12

10.3.3 Sex Differences

The percentage of males in the Survey Sample was 40% compared
with 45% in the 1st year Psychology class. Apart from slightly more
organized study habits – see also Survey 1 – the four other mean
female scores were similar to those of the males. In contrast to the
previous year, where the EPI Form A had been used, no significant
differences in scores for neuroticism were evident between the sexes.

10.3.4 Practical vs Non-Practical Groups (Table 10.3)

Of those in 1st Year doing Practical Classes, 97% were included
in the sample, compared with 81% of the Non-Practical Group. There
were no significant differences for EPI Extraversion, Neuroticism or
Trait Anxiety between the two groups.

11.3.5 2nd and 3rd General Science (Table 10.3)

The Ss in this group, with their greater experience of
University, had been originally excluded from Survey 1. In order to
maintain the comparability of the data, the Ss were excluded from the
Survey 3 sample. 94% completed the questionnaires. Unlike the
previous year, the mean inventory scores for this group were similar

to those of the sample. However the marks in the Collection

examination were 1 s.d. below the mean score for the Survey sample.

10.3.6 AH5 (Table 10.4)

The AH5 had been administered to two populations (see Chapters 7,

9) and it was decided to obtain comparative data with a cohort of 1st

year Psychology students. The test was given to students attending

the Practical classes two weeks before Survey 3. 97% of the class

took the test, including 17 2nd and 3rd General Science students. The

mean scores of the 66 1st year students were slightly higher than the

norms in the AH5 Manual, with males scoring higher than females.

	AH5 Norms	PRACTICAL CLASS
n:	946	66
mean:	39.06	42.39
s.d.:	8.26	8.14

10.3.7 Correlation Analysis (Tables 10.5-7)

The computation was performed without correction for attenuation.

Using the Pearson r coefficient, the results were broadly similar to

those of Survey 2. STAI Trait Anxiety was negatively correlated with

EPI Extraversion at the .001 level, and the two measures of anxiety,

EPI Neuroticism and STAI Trait Anxiety were positively related at the

.001 level. The data for the Wrenn SHI resulted in correlations

similar to those obtained in Surveys 1 and 2, with significant

negative correlations between SHI and the two measures of anxiety.

However in using Form B of the EPI, the relationship between

Extraversion and Neuroticism was less clearcut in this survey than in

Survey 2, where Form A had been employed.

TABLE 10.5   SURVEY 3 – SUMMARY OF CORRELATIONS

SAMPLE n=105	1	2	3	4	5	6
1. AGE	–					
2. EXTRAV.	–0.193	–				
3. NEURO.	0.067	–0.070	–			
4. LIE SC.	–0.088	0.022	–0.101	–		
5. STAI	0.134	–0.384***	0.607***	–0.186	–	
6. WR.SHI	0.029	–0.067	–0.378***	0.055	–0.355***	–
7. COLLECT.	–0.073	0.137	0.025	–0.094	0.051	0.102

MALES n=42	1	2	3	4	5
1. AGE	–				
2. EXTRAV.	–0.341*	–			
3. NEURO.	0.242	–0.166	–		
4. LIE SC.	–0.158	0.017	–0.138	–	
5. STAI	0.355*	–0.379*	0.628***	–0.082	–
6. WR.SHI	–0.206	–0.214	–0.333*	0.105	–0.300

FEMALES n=63	1	2	3	4	5
1. AGE	–				
2. EXTRAV.	0.034	–			
3. NEURO.	–0.109	0.004	–		
4. LIE SC.	0.024	–0.020	–0.074	–	
5. STAI	–0.170	–0.378**	0.599***	–0.247	–
6. WR.SHI	0.159	0.235	–0.401**	0.019	–0.399**

Pearson r   *p:< .05;   **p:< .01;   ***p:< .001

TABLE 10.6   SURVEY 3 – SUMMARY OF CORRELATIONS

PRACTICAL CLASSES n=66

	1	2	3	4	5
1. AGE	–				
2. EXTRAV.	0.090	–			
3. NEURO.	–0.163	–0.213	–		
4. LIE SC.	0.191	0.011	–0.077	–	
5. STAI	–0.147	–0.371**	0.626***	–0.186	–
6. WR. SHI	0.075	–0.024	–0.291*	0.003	–0.173

NON-PRACTICAL CLASSES n=39

	1	2	3	4	5
1. AGE	–				
2. EXTRAV.	–0.259	–			
3. NEURO.	0.041	0.281	–		
4. LIE SC.	–0.050	0.000	–0.122	–	
5. STAI	0.119	–0.203	0.550***	–0.174	–
6. WR. SHI	–0.085	0.060	–0.482**	0.215	–0.551***

2nd & 3rd GENERAL SCIENCE n=17

	1	2	3	4	5
1. AGE	–				
2. EXTRAV.	0.050	–			
3. NEURO.	0.251	–0.106	–		
4. LIE SC.	0.157	–0.279	–0.031	–	
5. STAI	–0.139	–0.375	0.730**	0.223	–
6. WR. SHI	–0.260	0.188	–0.586*	0.160	–0.247

Pearson r   *p:< .05;   **p:< .01;   ***p:< .001

TABLE 10.7   SURVEY 3 – SUMMARY OF CORRELATIONS

AH5

1st YEAR			1	2
n=66	1.	TOTAL	–	
	2.	VERBAL	0.862***	–
	3.	SPATIAL	0.895***	0.546***

2nd & 3rd GEN. SC.	1.	TOTAL	–	
n=17	2.	VERBAL	0.760***	–
	3.	SPATIAL	0.420	–0.271

Pearson r   ***p:< .001

The relationships between the scores of the 2nd and 3rd General Science were in line with those of the total sample of 105 Ss, though with fewer significant correlations.

10.4 SUBJECTS WITH SINGLE EXTREME SCORES

In Survey 2 (sample size: 116 Ss) it had been found that 11 Ss (9%) obtained extreme scores ($\pm$ 1 s.d.) on all three measures, EPI Neuroticism, EPI Extraversion and STAI Trait Anxiety, and 36 Ss (31%) obtained extreme scores in respect of only one of the three measures:

SURVEY 2	−1 s.d.	+1 s.d.	tot.
EPI NEUROTICISM	6	6	12
EPI EXTRAVERSION	7	8	15
STAI x-2 (TRAIT)	5	4	9
tot.	18	18	36

In Survey 3 (sample size: 105 Ss) the emphasis was placed on identifying Ss with single extreme scores. Using the B Form of the EPI, 46 Ss (44%) obtained single extreme scores. This result facilitated the formation of groups in Study 3.

SURVEY 3	−1 s.d.	+1 s.d.	tot.
EPI NEUROTICISM	6	8	14
EPI EXTRAVERSION	10	13	23
STAI X-2 (TRAIT)	3	6	9
tot.	19	27	46

10.5 SUMMARY AND CONCLUSIONS

1. Survey 3 was successful in achieving a response rate of 94% from the 1st year Psychology class.

2. Completed questionnaires by a sample of 105 Ss included results that were in line with the scores and the pattern of correlations obtained in Survey 2, although the relationship between the EPI dimensions using Form B was more orthogonal than in the previous year with the Form A.

3. A subset (66 Ss) of the class was scored for the AH5 to provide comparison data for groups reported in Chps 7 and 9.

4. The high response rate of the class allowed the results of Survey 3 to be compared with Surveys 1 and 2.

5. The satisfactory response rate also enabled a contact pool of 78 Ss to be identified in preparation for the groups described in Chp.12. This pool included 46 Ss with single extreme scores and 32 Ss with no extreme scores.

CHAPTER 11

STUDY 3

11.1 INTRODUCTION

This was the final study to be reported. In contrast to Studies 1 and 2, which were concerned with interactions involving extreme traits of varying prominence in small group behaviour, this one examined less extreme interactions, using similar dispositions, some of which were located near the mean. For instance whereas Study 2 examined, among other things, the interaction of high extraversion with low anxiety, some Ss in Study 3 were selected for high extraversion paired with mean levels of anxiety.

Study 3 involved three separate comparisons, in each of which two groups with high and low scores on one trait dimension were compared. Based on the sample described in Survey 3 (Chp.10), six groups of Ss were formed, whose members had extreme scores on only one of three criterion measures. The measures included those traits already considered in studies 1 and 2, namely STAI (X-2) Trait Anxiety and EPI Extraversion and Neuroticism. Wrenn SHI, used in Study 1, was excluded because of its relatively modest salience in small group discussion.

Because it was anticipated that the behaviours associated with trait interactions involving single extreme traits - however factorially prominent - would be relatively attenuated in brief samples of small group activity, the design was extended: Each group had three meetings on three different topics, resulting in a composite IPA record of 90 minutes, in contrast to the 30 minutes per group in Studies 1 and 2.

The following hypotheses were made:

1. HIGH EXTRAVERSION. In Group 1, high extraversion would be marked by a high rate of overall activity; the sociable disposition of members would be reflected in prominent Cat.1 activity and depressed scores in the negative socio-emotional Cats. 10-12.

2. LOW EXTRAVERSION. In Group 2, low extraversion would be associated with a low overall rate of activity compared to Group 1; the introversion of the Ss would involve a lack of concern for group cohesion (low scores for Cat.3 and high scores for Cat.10).

3. HIGH ANXIETY. In Groups 3 and 5, high neuroticism and high trait anxiety would be associated with similar profiles.

   Anxiety would facilitate a high rate of overall activity, and be associated with a concern for group cohesion (high scores for Cat.3 and low scores for Cat.10). Concern for task-achievement would be tempered by anxiety and lead to reduced rates of emotionally-neutral task behaviours (Cats.4-9).

4. LOW ANXIETY. In Groups 4 and 6, low neuroticism and low trait anxiety would be associated with similar profiles.

   Compared to Groups 4 and 5, the stable disposition of the Ss would be associated with less overall activity, prominent Cat.1 behaviour, and a greater proportion of activity located in the task-related Cats.4-9.

In common with the previous studies, Study 3 used groups of 1st year students, relatively homogeneous in terms of certain inventory

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scores, age and university experience. Each group included two males and two females in order that the discussions should involve the maximum socio-emotional stimulus for the participants, and thereby enable the IPA system to sample a wide range of differentiating behaviours.

Comparison Groups. The utility of the Arts Groups' mean profile (Chp.7) was less applicable to Study 3 than to the previous studies (Study 3 included more extended samples of behaviour, a wider range of topics and a slightly different scoring protocol).

It was therefore decided to form three groups, using the Survey 3 data and selecting Ss with scores close to the mean on the three criterion measures (the majority of Ss in the Arts Groups had inventory scores near the mean). This increased the number of groups in Study 3 from six to nine.

Finally, as a postscript to Study 3, and because of its general relevance to the research, two weeks after the final discussion Ss were invited to provide feedback on their experience of Study 3 (Summary in Chp.12).

11.2 SUBJECTS

Survey 3 was completed by the end of December. One of its aims had been to identify Ss with an extreme score on only one of three measures: i.e. a score of at least 1 s.d. from the mean on EPI Extraversion, EPI neuroticism or STAI Trait Anxiety.

TABLE 11.1   STUDY 3 — SCATTER PLOT 1
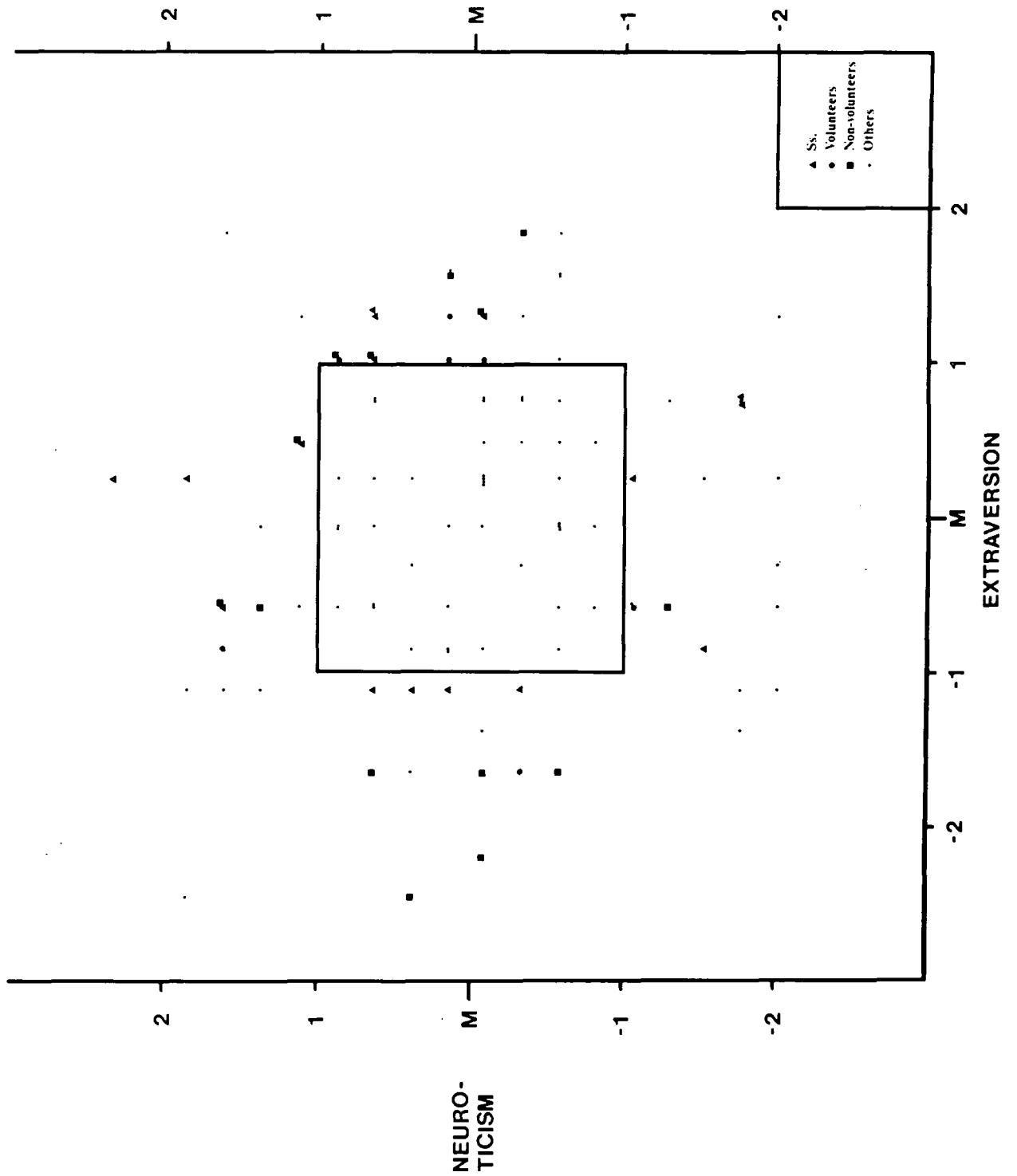
TABLE 11.2   STUDY 3 – SCATTER PLOT 2
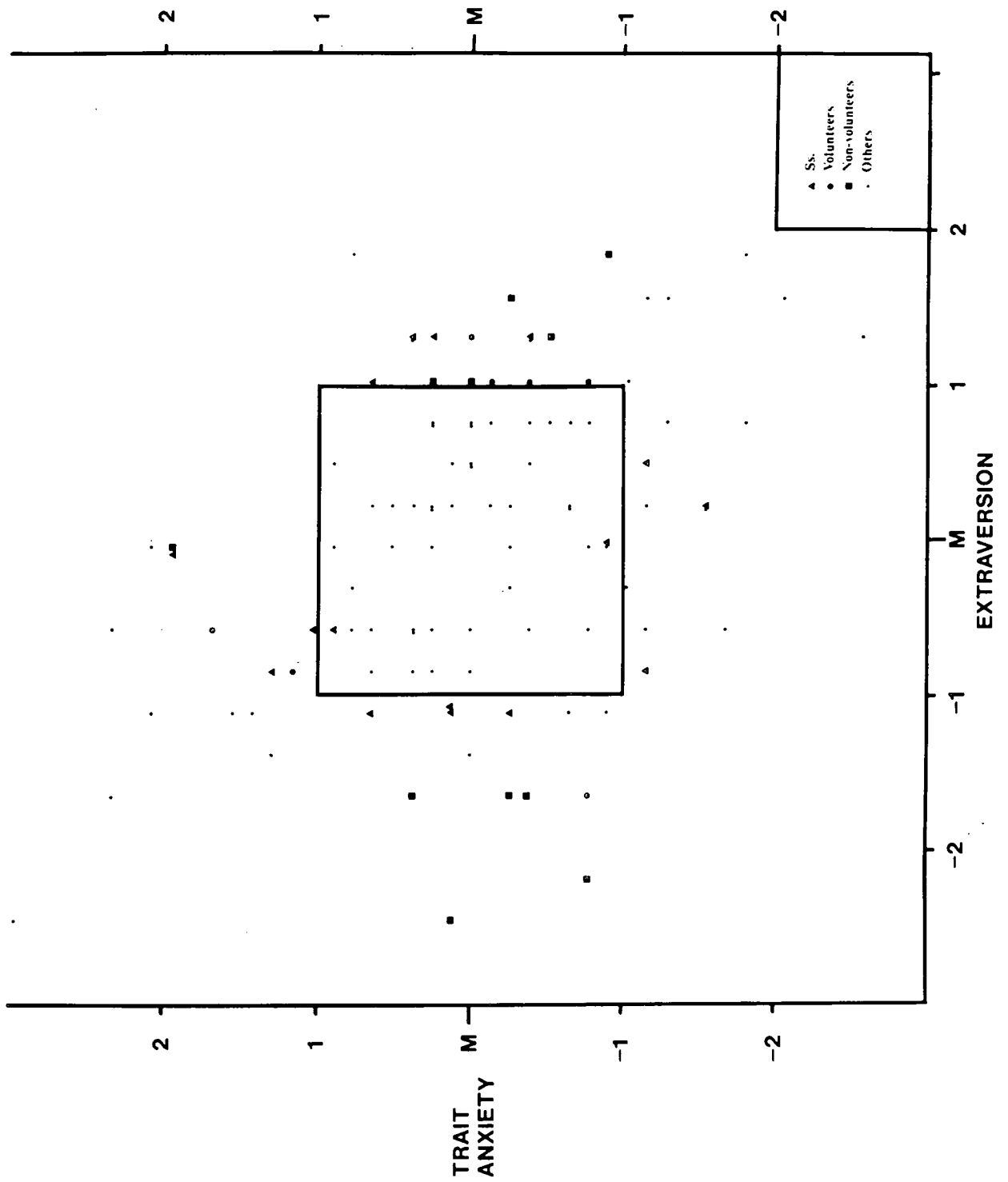
TABLE 11.3   STUDY 3 — SCATTER PLOT 3

NEUROTICISM

TRAIT
ANXIETY

Ss
▲ Volunteers
● Non-volunteers
■ Others
·
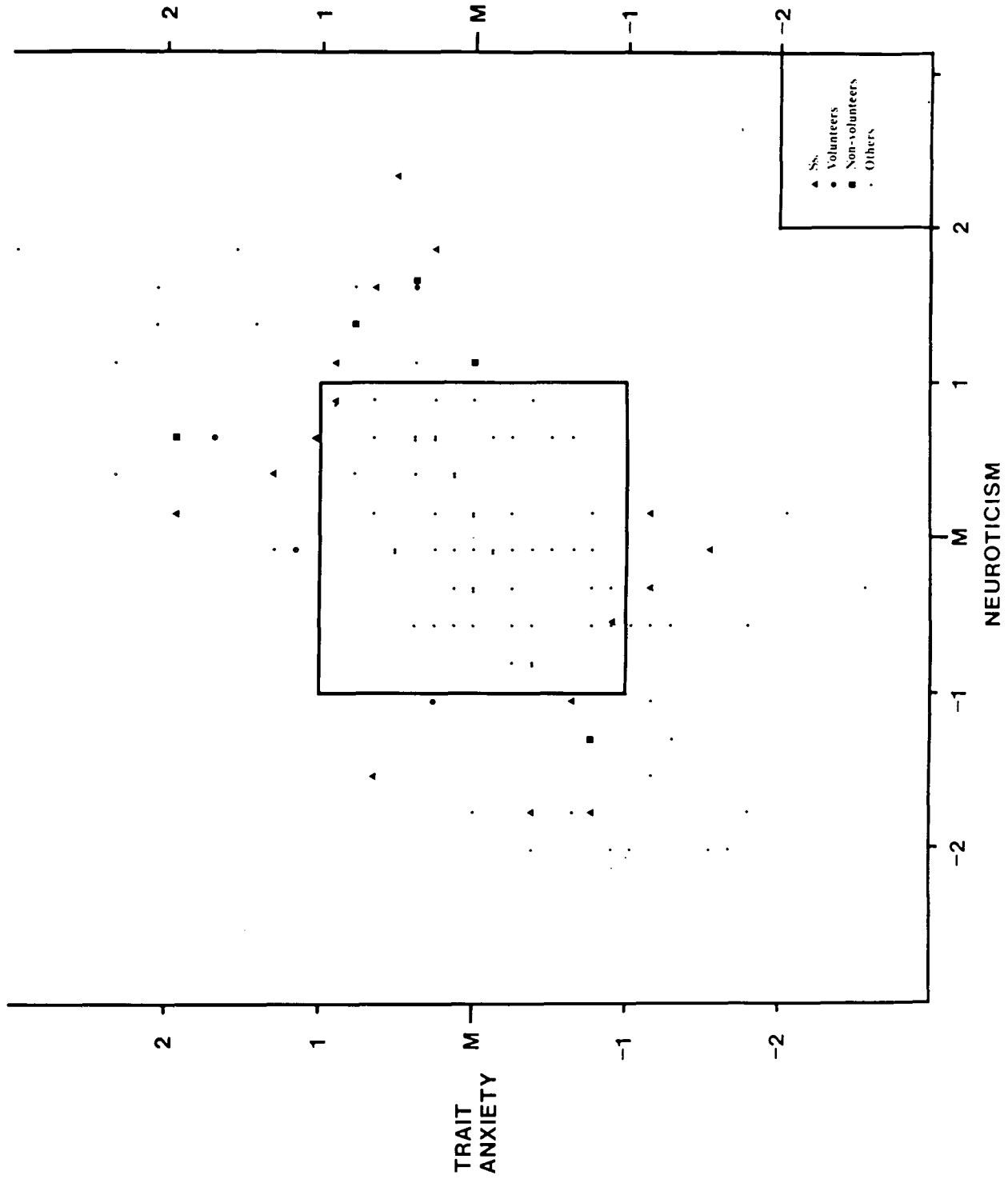
The six groups to be formed were as follows:

G.1 EPI Extraversion (high)

G.2 EPI Extraversion (low)

G.3 EPI Neuroticism (high)

G.4 EPI Neuroticism (low)

G.5 STAI Trait Anxiety (high)

G.6 STAI Trait Anxiety (low)

Survey 3 included 105 Ss, none of whom were discarded on the basis of their EPI Lie Scale scores (see Appendix 5, section 5). The results of Survey 3 were standardised and transferred to three scatter plots (Tables 11.1-3). Where possible, i.e. for 22/24 Ss in Groups 1-6, the criterion of at least 1 s.d. from the mean was achieved.

From an inspection of the data, it was determined, that in addition to contact pools for Groups 1-6, there were sufficient Ss with no extreme scores on the three dimensions to form 3 comparison groups, Groups 7-9.

SURVEY 3

		total
Ss IGNORED		
Ss with 3 extreme scores	4 (4%)	
Ss with 2 extreme scores	23 (22%)	27 (26%)
Ss CONTACTED		
Ss with 1 extreme score	46 (44%)	
Ss with no extreme scores	32 (30%)	78 (74%)

In the selection of Ss for Groups 7-9, the bias operated where possible in favour of those Ss with sets of scores nearest the mean.

In contacting the 78 Ss, seven distinct pools were involved:

		POOL			VOLUNTEERS			SUBJECTS
		TOT	M	F	TOT	M	F	
G.1 EXTRA.	(H)	13	3	10	8	2	6	4
G.2 EXTRA.	(L)	10	7	3	5	3	2	4
G.3 NEURO.	(H)	8	4	4	5	2	3	4
G.4 NEURO.	(L)	6	2	4	5	2	3	4
G.5 STAI	(H)	7	4	3	6	3	3	4
G.6 STAI	(L)	4	2	2	4	2	2	4
G.7-9		30	12	18	20	8	12	12
TOTAL		78	34	44	53	22	31	36

The mean inventory scores for Groups 1-9, their respective pools and the non-volunteers are set out in Tables 11.4-6. From the mean standard scores it will be evident that the contact pools were satisfactorily represented by Groups 1-9.

All 78 Ss in the contact pools were contacted individually by letter, and offered £2.50 to participate in the discussion groups.

Of the 53 volunteers, 17 had either less appropriate scores than the selected Ss, or other commitments on the dates arranged for the meetings.

After six months in the 1st year Psychology class, many of the Ss knew each other by name, but there was no evidence from the discussion transcripts of close relationships in any of the groups; nor did a previously established relationship dominate any of the recorded interaction.

Details of the Ss are included in Table 11.7.

TABLE 11.4   STUDY 3 – SELECTION DATA FOR GROUPS 1 AND 2

GROUP 1 — EXTRAVERSION (H)

	NON-VOLUNTEERS (n=5) mean	s.d.	SUBJECT POOL (n=13) mean	s.d.	GROUP 1 mean	s.d.
AGE	18.80	1.30	20.15	4.95	18.50	1.00
EPI EXTRAVERSION	19.20	1.30	18.77	0.93	18.75	0.50
NEUROTICISM	13.40	2.07	13.69	1.70	14.25	1.50
STAI TRAIT	38.80	3.49	39.92	3.55	42.75	3.40
EXTRAVERSION (st.sc.)	1.3512		1.2357		1.2306	
NEUROTICISM (st.sc.)	0.2567		0.3267		0.4625	
STAI TRAIT (st.sc.)	-0.2839		-0.1389		0.2258	

GROUP 2 — EXTRAVERSION (L)

	NON-VOLUNTEERS (n=5) mean	s.d.	SUBJECT POOL (n=10) mean	s.d.	GROUP 2 mean	s.d.
AGE	20.60	4.16	20.50	4.01	18.50	1.00
EPI EXTRAVERSION	7.00	1.41	8.30	1.77	10.00	0.00
NEUROTICISM	12.60	1.95	12.70	1.77	13.25	1.71
STAI TRAIT	39.60	3.51	40.20	3.65	42.25	2.87
EXTRAVERSION (st.sc.)	-1.9196		-1.5711		-1.1153	
NEUROTICISM (st.sc.)	0.0630		0.0872		0.2203	
STAI TRAIT (st.sc.)	-0.1807		-0.1032		0.1613	

TABLE 11.5   STUDY 3 – SELECTION DATA FOR GROUPS 3 AND 4

GROUP 3 — NEUROTICISM (H)

	NON-VOLUNTEERS (n=3) mean	s.d.	SUBJECT POOL (n=8) mean	s.d.	GROUP 3 mean	s.d.
AGE	18.67	1.15	18.63	0.74	18.75	0.50
EPI EXTRAVERSION	13.33	2.31	13.63	2.07	14.50	1.73
NEUROTICISM	18.00	1.00	18.88	1.64	19.50	2.08
STAI TRAIT	44.00	3.00	44.75	2.25	45.50	2.08
EXTRAVERSION (st.sc.)	-0.2216		-0.1434		0.0912	
NEUROTICISM (st.sc.)	1.3705		1.5823		1.7337	
STAI TRAIT (st.sc.)	0.3871		0.4839		0.5807	

GROUP 4 — NEUROTICISM (L)

	NON-VOLUNTEER (n=1)	SUBJECT POOL (n=6) mean	s.d.	GROUP 3 mean	s.d.
AGE	32	21.00	5.44	18.75	0.96
EPI EXTRAVERSION	12.00	14.00	2.68	15.00	2.83
NEUROTICISM	7.00	6.50	1.38	6.00	1.41
STAI TRAIT	35.00	38.83	4.62	38.75	4.99
EXTRAVERSION (st.sc.)	-0.5791	-0.0429		0.2252	
NEUROTICISM (st.sc.)	-1.2930	-1.4140		-1.5351	
STAI TRAIT (st.sc.)	-0.7742	-0.2796		-0.2903	

TABLE 11.6 STUDY 3 – SELECTION DATA FOR GROUPS 5–9

| | GROUP 5 — STAI TRAIT (H) | | GROUP 6 — STAI TRAIT (L) | | GROUPS 7–9 | |

NON-VOLUNTEER

	GROUP 5 (n=1)	GROUP 6	GROUPS 7–9 (n=10) mean	s.d.
AGE	33	—	20.30	3.68
EPI EXTRAVERSION	14.00		15.00	1.70
NEUROTICISM	15.00		11.90	2.64
STAI TRAIT	56.00		41.40	4.06
EXTRAVERSION (st.sc.)	-0.0429		-0.0429	
NEUROTICISM (st.sc.)	0.6441		0.0630	
STAI TRAIT (st.sc.)	1.9355		-0.0129	

SUBJECT POOL

	GROUP 5 (n=7) mean	s.d.	GROUP 6	GROUPS 7–9 (n=30) mean	s.d.
AGE	22.29	6.10	—	19.27	2.24
EPI EXTRAVERSION	12.29	1.25		14.67	1.86
NEUROTICISM	14.29	1.38		12.03	2.22
STAI TRAIT	52.00	3.32		40.97	3.47
EXTRAVERSION (st.sc.)	-0.5025			0.1358	
NEUROTICISM (st.sc.)	0.4711			-0.0743	
STAI TRAIT (st.sc.)	1.4194			0.0043	

GROUP

	GROUP 5 mean	s.d.	GROUP 6 mean	s.d.	GROUPS 7–9 mean	s.d.
AGE	19.00	0.82	19.00	0.82	18.50	0.52
EPI EXTRAVERSION	12.25	1.26	14.00	2.16	14.67	1.78
NEUROTICISM	14.50	1.29	11.50	1.29	11.83	1.59
STAI TRAIT	51.00	3.56	31.75	2.06	41.83	2.25
EXTRAVERSION (st.sc.)	-0.5121		-0.0429		0.1358	
NEUROTICISM (st.sc.)	0.5230		-0.2034		-0.1229	
STAI TRAIT (st.sc.)	1.2903		-1.1936		0.1290	

	SEX AGE	STANDARD SCORES			COURSE
		STAI TRAIT	EPI EXTRA.	EPI NEURO.	
G.1	S1 M 18	0.3871	1.2976 ⎞	0.6441	1JH PHIL/POL
EXTRA. (H)	S2 M 20	0.6452	1.0295 ⎟	0.6441	1H GEOG (A)
	S3 F 19	-0.3871	1.2976 ⎟	-0.0823	1JH PSY/SOC
	S4 F 19	0.2581	1.2976 ⎠	0.6441	1H SSA
G.2	S5 M 19	0.6452	-1.1153 ⎞	0.1598	1H SSA
EXTRA. (L)	S6 M 20	-0.2581	-1.1153 ⎟	0.6441	1H PSY (SS)
	S7 F 19	0.1290	-1.1153 ⎟	0.4019	1H PSY (SS)
	S8 F 19	0.1290	-1.1153 ⎠	-0.3245	1G SC.
G.3	S9 M 20	0.2581	0.2252	1.8547 ⎞	1H ANTH
NEURO. (H)	S10 M 19	0.9032	0.4933	1.1283 ⎟	1H GEOG (A)
	S11 F 20	0.6452	-0.5791	1.6126 ⎟	1JH PSY/ZOO
	S12 F 19	0.5161	0.2252	2.3390 ⎠	1H PSY (SS)
G.4	S13 M 20	-0.3871	0.7614	-1.7772 ⎞	1H ZOO (SC)
NEURO. (L)	S14 M 19	-0.7742	0.7614	-1.7772 ⎟	1H ZOO
	S15 F 19	0.6452	-0.8472	-1.5351 ⎟	1G SC.
	S16 F 20	-0.6452	0.2252	-1.0508 ⎠	1JH PSY/PHIL
G.5	S17 M 20	0.9032 ⎞	-0.5791	0.8862	1G SC.
STAI TR(H)	S18 M 19	1.9355 ⎟	-0.0429	0.1598	1H PHYSICS
	S19 F 19	1.0323 ⎟	-0.5791	0.6441	1H PSY (SC)
	S20 F 20	1.2903 ⎠	-0.8472	0.4019	1H SSA
G.6	S21 M 20	-1.1613 ⎞	0.4933	-0.3245	1G SC.
STAI TR(L)	S22 M 21	-1.5484 ⎟	0.2252	-0.0823	1JH PSY/PHIL
	S23 F 19	-1.1613 ⎟	-0.8472	0.1598	1H MATHS (SC)
	S24 F 20	-0.9032 ⎠	-0.0429	-0.5666	1G ARTS
G.7	S25 M 19	0.7742	-0.3110	0.4019	1H PSY (SS)
	S26 M 19	0.0000	-0.5791	0.1598	1G ARTS
	S27 F 19	-0.2581	0.2252	-0.5666	1JH PSY/ANTH
	S28 F 20	0.0000	0.7614	-0.3245	1H SSA
G.8	S29 M 19	0.1290	0.2252	-0.0823	1G SC.
	S30 M 20	0.0000	0.4933	-0.0823	1JH PSY/ANTH
	S31 F 19	0.2581	0.7614	-0.0823	1G SC.
	S32 F 19	0.2581	0.2252	-0.0823	1JH PSY/ZOO
G.9	S33 M 19	0.0000	-0.3110	-0.3245	1H PSY (SS)
	S34 M 19	0.3871	-0.5791	-0.5666	1G ARTS
	S35 F 18	-0.1290	0.2252	0.6441	1G SC.
	S36 F 19	0.1290	0.4933	-0.5666	1JH EH/SOC

TABLE 11.7 STUDY 3 – Ss: DETAILS AND STANDARD SCORES

11.3 PREPARATION

The Ss were told that the study was concerned with personality and behaviour in small groups, that they would be recorded on video tape, that they would be asked to complete several inventories, and that individual results would be sent to each participant at a later date. They were not informed that they had been grouped on the basis of their questionnaire scores.

The material for the three discussions was as follows:

1st DISCUSSION

A week before the discussion, Ss received copies of D. Rowntree's <u>Learn how to study</u>, with instructions to read Chps 2, 3, 6 and 7 in preparation for a 30 mins discussion. Nearly all the Ss read the entire book.

2nd DISCUSSION

On arrival in the Lab, Ss were given a questionnaire to complete on '<u>Attitudes to Euthanasia</u>'. The questionnaire included twenty items rated on a Likert-type five-category scale (Agree strongly - disagree strongly). The Ss were then asked to discuss the questionnaire items and their responses for 30 mins.

3rd DISCUSSION

A week before the discussion Ss were given three papers to read. They were currently attending a course in Clinical Psychology. They were asked to make notes and hand these in before the discussion, to provide a check on the extent of their preparation. The papers included:

1.   Szasz, T.S. (1976) Schizophrenia: The sacred symbol of

     psychiatry. <u>Brit. J. Psychiat.</u>, 129, 308-316.

2.   Roth, M. (1976) Schizophrenia and the theories of Thomas Szasz.

Brit. J.Psychiat., 129, 317-325.

3. Comley, M. (1977) Journey through madness. A personal account of psychosis. Community Care, 9.3.77, 14-15.

11.4 SCHEDULE

The 27 discussions took place during a five-week period. The Ss attended three meetings, each of at least one hour's duration.

1st DISCUSSION

On arrival the Ss were shown to cubicles in the Practical Lab and given the Spielberger, Gorsuch and Lushene STAI Form X-1 (State Anxiety) to complete. The author then introduced the Ss to each other, and led them through to the Children's room. There they were given a briefing and left alone for 30 mins discussion. After 30 mins the author interrupted the discussion and led the Ss back to the cubicles where they completed the Brown and Holtzman SSHA.

2nd DISCUSSION

Prior to the discussion the Ss were given a questionnaire 'Attitudes on Euthanasia' to complete. After the discussion the Ss were led back to the Practical Lab, where they filled in the Cattell 16PF.

3rd DISCUSSION

On arrival the Ss handed in their notes on the preparatory material. The meeting was concluded after the discussion.

11.5 MEASURES

1. SELECTION CRITERIA

A. Spielberger, Gorsuch and Lushene <u>State-Trait Anxiety Inventory</u> - STAI Form X-2, Trait Anxiety.

B. <u>Eysenck Personality Inventory</u>, Form B.

2. PRE-DISCUSSION MEASURES

C. Spielberger, Gorsuch and Lushene <u>State-Trait Anxiety Inventory</u> - STAI Form X-1 State Anxiety.

D. Wrenn <u>Study Habits Inventory</u> - SHI (scores obtained in Survey 3).

3. POST-DISCUSSION MEASURES

E. Brown & Holtzman <u>Survey of Study Habits and Attitudes</u>, (C).

F. Cattell <u>16PF</u>, Form A.

G. IPA based on the entire transcript of each 30 mins discussion.

The IPA scoring protocol for Study 3 was altered to cope with the large amount of personal/anecdotal material generated by discussions 2 and 3. In the previous studies this had been scored in Cat.5 (gives opinion). In order to restrict the proportion of units in Cat.5, the scoring method was adjusted so that semi-factual, anecdotal information about the self was scored in Cat.6 (gives information). This involved a transfer of about 10% of the total IPA record between the two task-related categories.

11.6 DATA

This section includes the following tables:

TABLE 11.8 STUDY 3 – QUESTIONNAIRE DATA FOR GROUPS 1-9

		AGE	STAI (TR)	EPI EXT.	EPI NEU.	EPI LIE	WRENN SHI	B&H TOTAL	D.A.	W.M.	T.A.	E.A.	STAI (ST)
GROUP 1	S1	18	44	19	15	0	-7	96	17	24	31	24	34
EXTRAV.(H)	S2	20	46	18	15	0	-5	96	20	27	24	25	34
	S3	19	38	19	12	0	66	116	19	22	41	34	31
	S4	19	43	19	15	1	21	78	19	23	20	16	45
GROUP 2	S5	19	46	10	13	1	100	120	32	31	34	23	61
EXTRAV.(L)	S6	20	39	10	15	0	-6	101	18	17	35	31	33
	S7	19	42	10	14	1	-5	52	7	16	18	11	48
	S8	19	42	10	11	3	-56	96	13	21	38	24	43
GROUP 3	S9	20	43	15	20	1	12	72	12	17	26	17	44
NEURO.(H)	S10	19	48	16	17	0	19	102	16	25	34	27	36
	S11	20	46	12	19	0	18	92	17	19	28	28	40
	S12	19	45	15	22	1	-16	89	21	10	27	31	34
GROUP 4	S13	20	38	17	5	0	-37	66	7	21	25	13	31
NEURO.(L)	S14	19	35	17	5	0	-3	102	18	30	25	29	34
	S15	19	46	11	6	0	-9	110	29	19	33	29	44
	S16	20	36	15	8	2	12	106	18	24	34	30	35
GROUP 5	S17	20	48	12	16	0	-29	66	6	11	33	16	38
T.ANX.(H)	S18	19	56	14	13	4	13	70	4	27	27	12	49
	S19	19	49	12	15	0	28	122	34	29	30	29	51
	S20	20	51	11	14	1	39	117	26	21	37	33	42
GROUP 6	S21	20	32	16	11	3	-69	76	8	23	26	19	34
T.ANX.(L)	S22	21	29	15	12	1	33	118	26	35	27	30	29
	S23	19	32	11	13	1	37	125	37	22	30	36	30
	S24	20	34	14	10	1	33	103	21	26	32	24	38
GROUP 7	S25	19	47	13	14	2	21	86	21	20	23	22	47
	S26	19	41	12	13	0	7	96	17	22	33	24	47
	S27	19	39	15	10	2	15	80	8	30	23	19	45
	S28	20	41	17	11	0	20	115	21	28	39	27	34
GROUP 8	S29	19	42	15	12	2	-35	105	22	26	33	24	35
	S30	20	41	16	12	0	-5	85	13	19	32	21	36
	S31	19	43	17	12	0	-28	113	26	27	31	29	36
	S32	19	43	15	12	1	-92	103	12	21	35	35	35
GROUP 9	S33	19	41	13	11	0	38	70	8	23	21	18	45
	S34	19	44	12	10	2	16	65	9	12	26	18	54
	S35	18	40	15	15	2	13	84	21	17	24	22	39
	S36	19	42	16	10	1	-5	100	17	28	31	24	43
		SELECTION						*OBTAINED AT MEETING 1*					

TABLE 11.9 STUDY 3 – 16PF DATA FOR GROUPS 1–9

| | | | | | | | 16 PRIMARY FACTORS | | | | | | | | | | | 2nd-O.F. | |
		A	B	C	E	F	G	H	I	L	M	N	O	Q1	Q2	Q3	Q4	FI	FII
GROUP 1	S1	8	9	16	19	21	3	17	15	12	17	10	17	12	13	5	14	7.0	6.5
EXTRAV.(H)	S2	11	10	16	24	23	7	23	17	14	14	10	8	15	9	10	9	4.9	10
	S3	10	9	17	11	22	11	15	17	9	17	8	8	7	12	11	13	4.2	6.9
	S4	18	9	11	17	19	13	20	11	10	15	6	16	6	6	14	19	5.9	9.7
GROUP 2	S5	6	11	13	15	17	14	11	10	8	18	9	10	11	15	8	17	6.6	4.6
EXTRAV.(L)	S6	10	10	14	15	11	7	17	17	10	21	8	12	10	14	12	15	6.2	4.9
	S7	19	10	10	11	19	9	5	15	7	7	16	13	11	8	13	15	6.2	5.9
	S8	8	12	16	10	13	5	12	14	5	19	12	7	6	12	13	9	3.3	5.2
GROUP 3	S9	10	9	11	21	17	9	14	12	8	13	6	14	11	9	7	25	8.3	6.4
NEURO.(H)	S10	11	8	11	19	19	9	20	17	11	17	6	16	9	14	6	20	8.0	7.4
	S11	8	10	9	6	21	12	11	16	6	12	8	13	6	10	9	17	7.2	5.5
	S12	9	9	12	8	18	8	8	15	14	12	4	11	6	9	11	20	6.9	4.5
GROUP 4	S13	8	10	15	16	20	9	20	7	11	10	8	8	8	12	9	12	5.7	8.0
NEURO.(L)	S14	9	6	14	17	21	4	20	14	11	15	8	7	11	13	10	12	5.2	8.2
	S15	10	10	10	10	10	8	4	6	8	15	13	11	6	10	11	14	6.7	3.7
	S16	11	9	16	16	15	8	21	13	6	22	11	8	10	12	7	17	4.6	6.8
GROUP 5	S17	6	9	8	9	22	8	9	16	15	16	13	19	8	15	2	18	10	5.6
T.ANX.(H)	S18	8	12	12	21	16	4	20	13	4	22	8	11	10	18	4	15	6.4	7.2
	S19	13	12	10	6	15	13	6	18	10	14	10	16	6	14	12	17	7.8	3.8
	S20	12	7	14	15	22	10	17	16	15	16	10	16	12	8	10	18	6.9	8.1
GROUP 6	S21	17	11	13	8	19	11	17	16	4	16	8	6	7	16	10	12	4.8	6.5
T.ANX.(L)	S22	10	11	23	16	17	12	19	10	12	18	8	5	11	12	15	13	3.5	6.4
	S23	8	8	14	7	11	14	6	13	3	11	9	11	9	15	15	11	4.1	3.1
	S24	9	11	15	10	17	14	19	15	7	16	6	12	6	9	12	20	5.1	6.8
GROUP 7	S25	6	8	9	15	11	15	9	10	13	11	7	16	11	13	10	21	9.0	3.5
	S26	13	7	15	14	13	14	9	12	8	11	12	7	10	17	14	10	4.6	4.0
	S27	9	9	18	12	18	1	15	17	12	14	6	12	10	12	4	11	5.3	6.2
	S28	9	9	13	14	19	11	14	18	10	8	7	12	9	10	10	17	5.7	6.6
GROUP 8	S29	10	11	20	18	19	8	13	14	10	16	6	9	10	9	16	12	4.5	7.4
	S30	4	12	8	23	17	1	13	2	7	17	6	12	18	12	10	20	7.0	5.7
	S31	11	10	18	15	20	10	17	15	9	19	3	9	6	9	8	7	4.0	8.2
	S32	13	10	18	4	18	6	10	11	8	17	7	7	10	10	7	13	4.9	4.8
GROUP 9	S33	7	9	18	16	12	6	8	8	9	17	8	9	13	13	9	10	5.1	3.7
	S34	10	8	12	12	15	10	9	11	7	14	8	10	9	14	9	8	5.6	5.3
	S35	9	8	10	11	12	12	14	14	11	12	6	12	8	16	6	16	7.2	4.5
	S36	13	8	13	18	20	2	14	16	13	17	5	4	15	9	9	13	4.5	7.7

TABLE 11.10 STUDY 3 – QUESTIONNAIRE STATISTICS FOR GROUPS 1 & 2

		GROUP 1 EXTRAVERSION (H)		GROUP 2 EXTRAVERSION (L)	
		mean	s.d.	mean	s.d.
AGE		19.00	0.82	19.25	0.50
WRENN SHI		18.75	33.98	8.25	65.64
B. & H. total		96.50	15.52	92.25	28.76
	DELAY AVOIDANCE	18.75	1.26	17.50	10.66
	WORK METHODS	24.00	2.16	21.25	6.85
	TEACHER APPROVAL	29.00	9.20	31.25	9.00
	EDUC. ACCEPTANCE	24.75	7.37	22.25	8.30
STAI	TRAIT	42.75	3.40	42.25	2.87
	STATE	36.00	6.16	46.25	11.64
EPI	EXTRAVERSION	18.75	0.50	10.00	0.00
	NEUROTICISM	14.25	1.50	13.25	1.17
	LIE SCALE	0.25	0.50	1.25	1.26
16PF	A	11.75	4.35	10.75	5.74
	B	9.25	0.50	10.75	0.96
	C	15.00	2.71	13.25	2.50
	E	17.75	5.38	12.75	2.63
	F	21.25	1.71	15.00	3.65
	G	8.50	4.43	8.75	3.86
	H	18.75	3.50	10.00	4.31
	I	15.00	2.83	14.00	2.94
	L	11.25	2.22	7.50	2.08
	M	15.75	1.50	16.25	6.29
	N	8.50	1.91	11.25	3.59
	O	12.25	4.92	10.50	2.65
	Q1	10.00	4.24	9.50	2.38
	Q2	10.00	3.16	12.25	3.10
	Q3	10.00	3.74	11.50	2.38
	Q4	13.75	4.11	14.00	3.46
	FI	5.50	1.22	5.58	1.53
	FII	8.28	1.83	5.15	0.56
	FIII	5.50	0.59	5.10	1.81
	FIV	6.25	2.61	5.98	2.49

TABLE 11.11   STUDY 3 – QUESTIONNAIRE STATISTICS FOR GROUPS 3 & 4

	GROUP 3 NEUROTICISM (H)		GROUP 4 NEUROTICISM (L)	
	mean	**s.d.**	**mean**	**s.d.**
AGE	19.50	0.58	19.50	0.58
WRENN SHI	8.25	16.49	-9.25	20.50
B. & H. total	88.75	12.47	96.00	20.26
DELAY AVOIDANCE	16.50	3.70	18.00	8.98
WORK METHODS	17.75	6.18	23.50	4.80
TEACHER APPROVAL	28.75	3.59	29.25	4.92
EDUC. ACCEPTANCE	25.75	6.08	25.25	8.18
STAI TRAIT	45.50	2.08	38.75	4.99
STATE	38.50	4.43	36.00	5.60
EPI EXTRAVERSION	14.50	1.73	15.00	2.83
NEUROTICISM	19.50	2.08	6.00	1.41
LIE SCALE	0.50	0.58	0.50	1.00
16PF A	9.50	1.29	9.50	1.29
B	9.00	0.82	8.75	1.89
C	10.75	1.26	13.75	2.63
E	13.50	7.59	14.75	3.20
F	18.75	1.71	16.50	5.07
G	9.50	1.73	7.25	2.22
H	13.25	5.12	16.25	8.18
I	15.00	2.16	10.00	4.08
L	9.75	3.50	9.00	2.45
M	13.50	2.38	15.50	4.93
N	6.00	1.63	10.00	2.45
O	13.50	2.08	8.50	1.73
Q1	8.00	2.45	8.75	2.22
Q2	10.50	2.38	11.75	1.26
Q3	8.25	2.22	9.25	1.71
Q4	20.50	3.32	13.75	2.36
FI	7.60	0.66	5.55	0.89
FII	5.95	1.24	6.68	2.08
FIII	4.80	1.41	6.20	1.43
FIV	4.95	1.55	6.35	1.46

TABLE 11.12 STUDY 3 - QUESTIONNAIRE STATISTICS FOR GROUPS 5 & 6

	GROUP 5 STAI TRAIT (H)		GROUP 6 STAI TRAIT (L)	
	mean	s.d.	mean	s.d.
AGE	19.50	0.58	20.00	0.82
WRENN SHI	12.75	29.80	8.50	51.70
B. & H. total	93.75	29.85	105.50	21.70
DELAY AVOIDANCE	17.50	14.82	23.00	12.03
WORK METHODS	22.00	8.08	26.50	5.92
TEACHER APPROVAL	31.75	4.27	28.75	2.75
EDUC. ACCEPTANCE	22.50	10.08	27.25	7.37
STAI TRAIT	51.00	3.56	31.75	2.06
STATE	45.00	6.06	32.75	4.11
EPI EXTRAVERSION	12.25	1.26	14.00	2.16
NEUROTICISM	14.50	1.29	11.50	1.29
LIE SCALE	1.25	1.89	1.50	1.00
16PF A	9.75	3.30	11.00	4.08
B	10.00	2.45	10.25	1.50
C	11.00	2.58	16.25	4.57
E	12.75	6.65	10.25	4.03
F	18.75	3.77	16.00	3.46
G	8.75	3.77	12.75	1.50
H	13.00	6.58	15.25	6.24
I	15.75	2.06	13.50	2.65
L	11.00	5.23	6.50	4.04
M	17.00	3.46	15.25	2.99
N	10.25	2.06	7.75	1.26
O	15.50	3.32	8.50	3.51
Q1	9.00	2.58	8.25	2.22
Q2	13.75	4.19	13.00	3.16
Q3	7.00	4.76	13.00	2.45
Q4	17.00	1.41	14.00	4.08
FI	7.78	1.59	4.38	0.72
FII	6.18	1.89	5.70	1.74
FIII	4.20	2.22	4.70	2.84
FIV	6.50	2.54	4.90	1.00

TABLE 11.13   STUDY 3 – QUESTIONNAIRE STATISTICS FOR GROUPS 7–9

		GROUP 7		GROUP 8		GROUP 9	
		mean	s.d.	mean	s.d.	mean	s.d.
AGE		19.95	0.50	19.25	0.50	18.75	0.50
WRENN SHI		15.75	6.40	–40.00	36.96	15.50	17.64
B. & H. total		94.25	15.33	101.50	11.82	79.75	15.71
DELAY AVOI.		16.75	6.13	18.25	6.85	13.75	6.29
WORK METH.		25.00	4.76	23.25	3.86	20.00	6.29
TEACHER A.		29.50	7.90	32.75	1.71	25.50	4.20
EDUC. ACC.		23.00	3.37	27.25	6.13	20.50	3.00
STAI TRAIT		42.00	3.46	42.25	0.96	41.75	1.71
STATE		43.25	6.24	35.50	0.58	45.25	6.34
EPI EXTRAV.		14.25	2.22	15.75	0.96	14.00	1.83
NEURO.		12.00	1.83	12.00	0.00	11.50	2.38
LIE SC.		1.00	1.15	0.75	0.96	1.25	0.96
16PF	A	9.25	2.87	9.50	3.87	9.75	2.50
	B	8.25	0.96	10.75	0.96	8.25	0.50
	C	13.75	3.77	16.00	5.42	13.25	3.40
	E	13.75	1.26	15.00	8.04	14.25	3.30
	F	15.25	3.86	18.50	1.29	14.75	3.77
	G	10.25	6.40	6.25	3.86	7.50	4.43
	H	11.75	3.20	13.25	2.87	11.25	3.20
	I	14.25	3.86	10.50	5.92	12.25	3.50
	L	10.75	2.22	8.50	1.29	10.00	2.58
	M	11.00	2.45	17.25	1.26	15.00	2.45
	N	8.00	2.71	5.50	1.73	6.75	1.50
	O	11.75	3.69	9.25	2.06	8.75	3.40
	Q1	10.00	0.82	11.00	5.03	11.25	3.30
	Q2	13.00	2.94	10.00	1.41	13.00	2.94
	Q3	9.50	4.12	10.25	4.03	8.25	1.50
	Q4	14.75	5.19	13.00	5.35	11.75	3.50
	FI	6.15	1.95	5.10	1.32	5.60	1.16
	FII	5.08	1.55	6.53	1.55	5.30	1.73
	FIII	6.00	0.81	5.25	2.70	4.80	1.69
	FIV	5.73	1.09	6.70	2.27	6.93	1.26

TABLE 11.14   STUDY 3 – IPA DATA FOR MEETING 1 OF GROUPS 1–9

| | | IPA CATEGORIES | | | | | | | | | | | | |
		1	2	3	4	5	6	7	8	9	10	11	12	TOT
GROUP 1	S1	5	68	28	0	140	44	2	4	0	1	8	0	300
EXTRAV.(H)	S2	5	38	98	1	114	48	15	2	0	0	41	0	362
	S3	2	10	73	0	46	34	9	0	0	1	46	0	221
	S4	2	35	25	0	43	17	6	3	1	1	37	0	170
GROUP 2	S5	2	70	23	0	81	71	10	1	0	5	53	0	316
EXTRAV.(L)	S6	1	61	95	1	83	67	15	4	0	5	46	0	378
	S7	0	23	32	0	35	17	7	0	0	7	59	0	180
	S8	0	48	50	0	82	74	7	0	0	5	78	0	344
GROUP 3	S9	0	13	61	0	91	21	1	2	0	2	25	0	216
NEURO.(H)	S10	1	133	67	1	158	50	18	4	0	4	39	0	475
	S11	0	33	41	0	89	29	7	10	0	0	17	0	226
	S12	2	44	62	0	78	42	10	4	1	3	26	0	272
GROUP 4	S13	1	49	50	0	146	50	33	7	2	8	14	0	360
NEURO.(L)	S14	2	36	14	0	72	27	8	4	0	3	29	1	196
	S15	0	3	17	0	11	13	3	2	0	1	20	0	70
	S16	1	28	30	0	52	50	8	1	0	1	40	0	211
GROUP 5	S17	0	42	76	0	127	59	10	1	0	5	26	0	346
T.ANX.(H)	S18	1	22	45	0	108	31	7	3	0	3	44	0	264
	S19	0	6	56	0	48	22	5	2	0	2	18	0	159
	S20	2	28	23	2	126	49	5	12	0	5	23	0	275
GROUP 6	S21	0	62	19	0	44	44	13	3	0	5	11	2	203
T.ANX.(L)	S22	0	77	20	0	88	35	26	16	0	1	22	0	285
	S23	0	16	41	0	90	43	7	1	0	3	17	0	218
	S24	1	73	65	3	110	61	20	10	1	8	33	1	386
GROUP 7	S25	0	52	14	3	44	67	18	3	0	4	12	0	217
	S26	0	86	47	1	96	88	64	2	0	4	20	0	408
	S27	1	42	34	0	25	59	4	2	0	3	74	0	244
	S28	0	32	71	5	87	78	37	9	0	9	38	1	367
GROUP 8	S29	0	24	20	1	95	41	11	18	4	2	22	0	238
	S30	0	81	28	1	92	33	11	6	0	6	28	0	286
	S31	0	13	35	0	46	21	10	5	0	2	26	0	158
	S32	0	44	28	0	52	40	16	7	0	2	41	0	230
GROUP 9	S33	3	22	43	1	122	25	9	12	0	8	26	2	273
	S34	0	10	26	0	78	29	17	5	0	3	30	0	198
	S35	0	23	24	1	153	18	11	20	1	4	23	0	278
	S36	1	16	38	0	92	14	13	28	0	2	54	5	263

TABLE 11.15 STUDY 3 – IPA DATA FOR MEETING 2 OF GROUPS 1–9

							IPA	CATEGORIES						
		1	2	3	4	5	6	7	8	9	10	11	12	TOT
GROUP 1	S1	3	41	44	1	87	29	9	11	0	3	8	0	236
EXTRAV.(H)	S2	2	29	75	0	74	27	14	11	0	0	27	0	259
	S3	1	17	68	0	60	8	8	11	0	1	27	0	201
	S4	0	19	42	2	31	33	12	10	0	5	24	0	178
GROUP 2	S5	2	33	45	0	79	85	1	1	0	2	26	2	276
EXTRAV.(L)	S6	2	46	104	0	61	68	6	7	0	2	16	0	312
	S7	0	3	18	0	4	21	4	2	0	0	8	0	60
	S8	0	29	49	2	66	72	4	2	0	5	18	0	247
GROUP 3	S9	0	12	54	2	81	14	4	6	2	7	12	0	194
NEURO.(H)	S10	5	114	48	1	156	50	9	7	1	5	22	2	420
	S11	0	14	31	1	64	13	5	9	1	3	27	1	169
	S12	0	32	19	3	63	36	9	13	1	8	20	4	208
GROUP 4	S13	2	16	39	2	162	17	4	9	1	1	25	0	278
NEURO.(L)	S14	2	13	6	2	77	24	7	2	0	2	5	3	143
	S15	0	0	4	0	3	0	0	3	0	0	5	0	15
	S16	0	24	51	6	61	45	6	3	0	2	14	0	212
GROUP 5	S17	0	25	86	1	116	25	0	22	0	4	16	0	295
T.ANX.(H)	S18	0	25	68	1	105	18	1	4	1	5	21	1	250
	S19	0	1	26	0	36	11	1	9	1	0	7	0	92
	S20	0	39	27	2	121	34	5	11	0	6	26	0	271
GROUP 6	S21	0	27	14	1	51	34	17	5	0	1	6	0	156
T.ANX.(L)	S22	2	22	15	0	122	65	13	20	0	3	6	1	269
	S23	0	4	46	0	45	24	2	2	0	6	12	0	141
	S24	2	21	66	1	92	44	22	25	1	4	19	0	297
GROUP 7	S25	0	5	1	0	15	11	2	2	0	0	5	0	41
	S26	0	106	34	3	121	93	32	10	0	8	23	1	431
	S27	1	25	33	1	34	40	6	1	0	9	52	0	202
	S28	0	38	93	0	69	78	33	9	0	6	40	0	366
GROUP 8	S29	0	18	24	1	70	12	6	25	3	11	20	4	194
	S30	0	70	24	4	133	25	5	10	0	16	15	1	303
	S31	0	9	30	3	66	20	5	24	0	15	13	0	185
	S32	0	9	20	0	55	15	6	5	0	8	4	1	123
GROUP 9	S33	1	26	18	2	79	17	22	38	1	6	21	4	235
	S34	0	8	9	2	37	10	5	9	1	7	44	0	132
	S35	3	30	22	1	172	18	3	20	0	6	13	1	289
	S36	0	18	18	1	82	7	3	21	0	1	21	1	173

TABLE 11.16   STUDY 3 - IPA DATA FOR MEETING 3 OF GROUPS 1-9

		IPA CATEGORIES													
		1	2	3	4	5	6	7	8	9	10	11	12	TOT
GROUP 1	S1	1	10	51	4	94	33	7	4	0	3	3	0	210
EXTRAV.(H)	S2	1	14	99	0	115	52	18	3	1	0	22	0	325
	S3	1	11	85	0	39	27	10	1	0	1	23	0	198
	S4	0	6	40	1	15	15	19	9	0	0	12	0	117
GROUP 2	S5	0	46	36	0	19	74	6	0	0	1	41	0	223
EXTRAV,(L)	S6	0	72	118	0	73	110	35	7	0	8	48	0	471
	S7	1	14	49	0	19	48	14	0	0	3	46	0	194
	S8	0	33	45	0	51	60	14	3	0	4	68	0	278
GROUP 3	S9	1	13	48	0	80	30	3	1	0	8	11	0	195
NEURO.(H)	S10	0	58	37	0	160	63	5	4	0	10	9	0	346
	S11	0	15	11	0	45	14	13	3	0	15	17	0	133
	S12	0	2	32	2	43	11	7	6	0	2	5	0	110
GROUP 4	S13	1	26	38	6	102	45	14	1	0	3	15	0	251
NEURO.(L)	S14	2	15	9	1	56	25	10	1	0	3	36	0	158
	S15	0	1	7	2	3	5	0	0	0	0	21	0	39
	S16	0	22	49	11	26	37	9	1	0	5	52	0	212
GROUP 5	S17	0	13	89	0	105	66	17	12	0	8	18	0	328
T.ANX.(H)	S18	1	49	64	1	146	44	5	2	1	6	22	0	341
	S19	0	3	29	0	24	24	6	5	0	2	11	0	104
	S20	0	18	32	0	99	50	15	10	0	4	11	1	240
GROUP 6	S21	0	13	19	3	66	34	8	1	0	6	6	1	157
T.ANX.(L)	S22	0	27	34	1	82	38	14	13	0	15	6	0	230
	S23	0	1	19	0	29	7	2	5	0	1	8	0	72
	S24	0	18	52	1	106	27	12	18	1	6	15	0	256
GROUP 7	S25	0	5	10	3	34	34	19	1	0	6	13	1	126
	S26	2	10	69	2	34	44	38	4	0	1	15	0	219
	S27	0	8	21	1	39	37	12	0	0	5	23	0	146
	S28	2	13	64	5	51	106	29	10	0	10	49	3	342
GROUP 8	S29	0	12	25	0	18	5	8	12	0	5	14	0	99
	S30	0	87	19	5	60	47	6	4	1	3	44	1	277
	S31	0	16	23	0	53	43	9	12	0	7	35	0	198
	S32	0	21	23	0	55	23	13	5	1	7	38	1	187
GROUP 9	S33	0	14	21	0	76	33	7	13	0	10	8	3	185
	S34	0	5	17	0	24	21	15	5	2	6	17	1	113
	S35	0	21	9	4	129	26	24	14	0	10	24	0	261
	S36	1	6	19	2	47	15	16	12	0	4	9	0	131

TABLE 11.17 STUDY 3 - IPA DATA FOR MEETINGS 1-3 OF GROUPS 1-9

		IPA CATEGORIES												
		1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*TOT*
GROUP 1	S1	9	119	123	5	321	106	18	19	0	7	19	0	746
EXTRAV.(H)	S2	8	81	272	1	303	127	47	16	1	0	90	0	946
	S3	4	38	226	0	145	69	27	12	0	3	96	0	620
	S4	2	60	107	3	89	65	37	22	1	6	73	0	465
GROUP 2	S5	4	149	104	0	179	230	17	2	0	8	120	2	815
EXTRAV.(L)	S6	3	179	317	1	217	245	56	18	0	15	110	0	1161
	S7	1	40	99	0	58	86	25	2	0	10	113	0	434
	S8	0	110	144	2	199	206	25	5	0	14	164	0	869
GROUP 3	S9	1	38	163	2	252	65	8	9	2	17	48	0	605
NEURO.(H)	S10	6	305	152	2	474	163	32	15	1	19	70	2	1241
	S11	0	62	83	1	198	56	25	22	1	18	61	1	528
	S12	2	78	113	5	184	89	26	23	2	13	51	4	590
GROUP 4	S13	4	91	127	8	410	112	51	17	3	12	54	0	889
NEURO.(L)	S14	6	64	29	3	205	76	25	7	0	8	70	4	497
	S15	0	4	28	2	17	18	3	5	0	1	46	0	124
	S16	1	74	130	17	139	132	23	5	0	8	106	0	635
GROUP 5	S17	0	80	251	1	348	150	27	35	0	17	60	0	969
T.ANX.(H)	S18	2	96	177	2	359	93	13	9	2	14	87	1	855
	S19	0	10	111	0	108	57	12	16	1	4	36	0	355
	S20	2	85	82	4	346	133	25	33	0	15	60	1	786
GROUP 6	S21	0	102	52	4	161	112	38	9	0	12	23	3	516
T.ANX.(L)	S22	2	126	69	1	292	138	53	49	0	19	34	1	784
	S23	0	21	106	0	164	74	11	8	0	10	37	0	431
	S24	3	112	183	5	308	132	54	53	3	18	67	1	939
GROUP 7	S25	0	62	25	6	93	112	39	6	0	10	30	1	384
	S26	2	202	150	6	251	225	134	16	0	13	58	1	1058
	S27	2	75	88	2	98	136	22	3	0	17	149	0	592
	S28	2	83	228	10	207	262	99	28	0	25	127	4	1075
GROUP 8	S29	0	54	69	2	183	58	25	55	7	18	56	4	531
	S30	0	238	71	10	285	105	22	20	1	25	87	2	866
	S31	0	38	88	3	165	84	24	41	0	24	74	0	541
	S32	0	74	71	0	162	78	35	17	1	17	83	2	540
GROUP 9	S33	4	62	82	3	277	75	38	63	1	24	55	9	693
	S34	0	23	52	2	139	60	37	19	3	16	91	1	443
	S35	3	74	55	6	454	62	38	54	1	20	60	1	828
	S36	2	40	75	3	221	36	32	61	0	7	84	6	567

TABLE 11.18   STUDY 3 – IPA STATISTICS FOR GROUP 1

IPA CAT.	MEETING 1 mean	MEETING 1 s.d.	MEETING 2 mean	MEETING 2 s.d.	MEETING 3 mean	MEETING 3 s.d.	MEETINGS 1-3 mean	MEETINGS 1-3 s.d.
1	3.50	1.73	1.50	1.29	0.75	0.50	5.75	3.30
2	37.75	23.75	26.50	11.00	10.25	3.30	74.50	34.47
3	56.00	35.58	57.25	16.72	68.75	27.81	182.00	79.88
4	0.25	0.50	0.75	0.96	1.25	1.89	2.25	2.22
5	85.75	48.82	63.00	24.01	65.75	46.60	214.50	115.12
6	35.75	13.82	24.25	11.12	31.75	15.44	91.75	29.88
7	8.00	5.48	10.75	2.75	13.50	5.92	32.25	12.53
8	2.25	1.71	10.75	0.50	4.25	3.40	17.25	4.27
9	0.25	0.50	0.00	0.00	0.25	0.50	0.50	0.58
10	0.75	0.50	2.25	2.22	1.00	1.41	4.00	3.16
11	33.00	17.07	21.50	9.11	15.00	9.42	69.50	35.05
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-12	263.25	84.82	218.50	36.02	212.50	85.62	694.25	203.25
1-3	97.25	33.27	85.25	18.50	79.75	31.22	262.25	78.75
4-9	132.25	61.54	109.50	25.80	141.50	103.97	358.50	143.75
10-12	33.75	16.92	23.75	8.54	11.25	9.29	73.50	32.71

TABLE 11.19 STUDY 3 – IPA STATISTICS FOR GROUP 2

IPA CAT.	MEETING 1 mean	MEETING 1 s.d.	MEETING 2 mean	MEETING 2 s.d.	MEETING 3 mean	MEETING 3 s.d.	MEETINGS 1-3 mean	MEETINGS 1-3 s.d.
1	0.75	0.96	1.00	1.15	0.25	0.50	2.00	1.83
2	50.50	20.44	27.75	18.03	41.25	24.35	119.50	60.06
3	50.00	32.03	54.00	36.06	62.00	37.73	166.00	102.66
4	0.25	0.50	0.50	1.00	0.00	0.00	0.75	0.96
5	70.25	23.51	52.50	33.21	40.50	26.40	163.25	71.86
6	57.25	26.99	61.50	27.96	73.00	26.86	191.75	72.31
7	9.75	3.77	3.75	2.06	17.25	12.42	30.75	17.25
8	1.25	1.89	3.00	2.71	2.50	3.32	6.75	7.63
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	5.50	1.00	2.25	2.06	4.00	2.94	11.75	3.30
11	59.00	13.74	17.00	7.39	50.75	11.87	126.75	25.18
12	0.00	0.00	0.50	1.00	0.00	0.00	0.50	1.00
1-12	304.50	86.79	223.75	112.36	291.50	124.63	819.75	298.72
1-3	101.25	42.02	82.75	53.66	103.50	58.18	287.50	151.15
4-9	138.75	53.27	121.25	61.08	133.25	64.16	393.25	156.18
10-12	64.50	13.77	19.75	9.25	54.75	12.84	139.00	26.17

TABLE 11.20 STUDY 3 - IPA STATISTICS FOR GROUP 3

IPA CAT.	MEETING 1 mean	s.d.	MEETING 2 mean	s.d.	MEETING 3 mean	s.d.	MEETINGS 1-3 mean	s.d.
1	0.75	0.96	1.25	2.50	0.25	0.50	2.25	2.63
2	55.75	53.07	43.00	48.18	22.00	24.67	120.75	123.93
3	57.75	11.47	38.00	15.98	32.00	15.51	127.75	36.75
4	0.25	0.50	1.75	0.96	0.50	1.00	2.50	1.73
5	104.00	36.45	91.00	44.11	82.00	54.71	277.00	134.57
6	35.50	12.97	28.25	17.97	29.50	23.84	93.25	48.54
7	9.00	7.07	6.75	2.63	7.00	4.32	22.75	10.31
8	5.00	3.46	8.75	3.10	3.50	2.08	17.25	6.55
9	0.25	0.50	1.25	0.50	0.00	0.00	1.50	0.58
10	2.25	1.71	5.75	2.22	8.75	5.38	16.75	2.63
11	26.75	9.11	20.25	6.24	10.50	5.00	57.50	10.02
12	0.00	0.00	1.75	1.71	0.00	0.00	1.75	1.71
1-12	297.25	120.98	247.75	115.96	196.00	106.25	741.00	335.00
1-3	114.25	60.01	82.25	57.19	54.25	31.24	250.75	143.69
4-9	154.00	52.19	137.75	58.97	122.50	75.68	414.25	182.44
10-12	29.00	10.71	27.75	5.97	19.25	10.21	76.00	11.92

TABLE 11.21   STUDY 3 – IPA STATISTICS FOR GROUP 4

		MEETING 1		MEETING 2		MEETING 3		MEETINGS 1-3	
		mean	s.d.	mean	s.d.	mean	s.d.	mean	s.d.
IPA CAT.	1	1.00	0.82	1.00	1.15	0.75	0.96	2.75	2.75
	2	29.00	19.37	13.25	9.98	16.00	10.98	58.25	37.85
	3	27.75	16.38	25.00	23.62	25.75	21.00	78.50	57.75
	4	0.00	0.00	2.50	2.52	5.00	4.55	7.50	6.86
	5	70.25	56.52	75.75	65.70	46.75	42.75	192.75	164.44
	6	35.00	18.24	21.50	18.63	28.00	17.40	84.50	50.02
	7	13.00	13.54	4.25	3.10	8.25	5.91	25.50	19.69
	8	3.50	2.65	4.25	3.20	0.75	0.50	8.50	5.74
	9	0.50	1.00	0.25	0.50	0.00	0.00	0.75	1.50
	10	3.25	3.30	1.25	0.96	2.75	2.06	7.25	4.57
	11	25.75	11.32	12.25	9.50	31.00	16.55	69.00	26.61
	12	0.25	0.50	0.75	1.50	0.00	0.00	1.00	2.00
	1-12	209.25	118.74	162.00	112.44	165.00	92.25	536.25	319.20
	1-3	57.75	32.89	39.25	32.50	42.50	30.45	139.50	89.99
	4-9	122.25	86.31	108.50	77.80	88.75	64.61	320.50	227.01
	10-12	29.25	9.54	14.25	9.03	33.75	18.06	76.25	28.22

TABLE 11.22 STUDY 3 - IPA STATISTICS FOR GROUP 5

IPA CAT.	MEETING 1		MEETING 2		MEETING 3		MEETINGS 1-3	
	mean	s.d.	mean	s.d.	mean	s.d.	mean	s.d.
1	0.75	0.96	0.00	0.00	0.25	0.50	1.00	1.15
2	24.50	14.91	22.50	15.78	20.75	19.84	67.75	39.08
3	50.00	22.11	51.75	30.07	53.50	28.48	155.25	75.20
4	0.50	1.00	1.00	0.82	0.25	0.50	1.75	1.71
5	102.25	37.21	94.50	39.57	93.50	50.82	290.25	121.63
6	40.25	16.80	22.00	9.83	46.00	17.36	108.25	41.69
7	6.75	2.36	1.75	2.22	10.75	6.13	19.25	7.85
8	4.50	5.07	11.50	7.59	7.25	4.57	23.25	12.76
9	0.00	0.00	0.50	0.58	0.25	0.50	0.75	0.96
10	3.75	1.50	3.75	2.63	5.00	2.58	12.50	5.80
11	27.75	11.32	17.50	8.10	15.50	5.45	60.75	20.84
12	0.00	0.00	0.25	0.50	0.25	0.50	0.50	0.58
1-12	261.00	77.10	227.00	91.86	253.25	109.15	741.25	268.33
1-3	75.25	29.16	74.25	36.53	74.50	39.68	224.00	96.06
4-9	154.25	55.98	131.25	52.23	155.75	71.52	443.50	170.05
10-12	31.50	11.33	21.50	10.85	20.75	7.37	73.75	25.51

TABLE 11.23   STUDY 3 – IPA STATISTICS FOR GROUP 6

IPA CAT.	MEETING 1 mean	MEETING 1 s.d.	MEETING 2 mean	MEETING 2 s.d.	MEETING 3 mean	MEETING 3 s.d.	MEETINGS 1-3 mean	MEETINGS 1-3 s.d.
1	0.25	0.50	1.00	1.15	0.00	0.00	1.25	1.50
2	57.00	28.06	18.50	10.02	14.75	10.84	90.25	47.20
3	36.25	21.69	35.25	25.32	31.00	15.68	102.50	58.21
4	0.75	1.50	0.50	0.58	1.25	1.26	2.50	2.38
5	83.00	27.83	77.50	36.28	70.75	32.33	231.25	79.66
6	45.75	10.94	41.75	17.52	26.50	13.77	114.00	28.89
7	16.50	8.27	13.50	8.50	9.00	5.29	39.00	20.05
8	7.50	8.86	13.00	11.22	9.25	7.68	29.75	24.60
9	0.25	0.50	0.25	0.50	0.25	0.50	0.75	1.50
10	4.25	2.99	3.50	2.08	7.00	5.83	14.75	4.43
11	20.75	9.32	10.75	6.18	8.75	4.27	40.25	18.82
12	0.75	0.96	0.25	0.50	0.25	0.50	1.25	1.26
1-12	273.00	83.34	215.75	78.73	178.75	82.59	667.50	235.35
1-3	93.50	34.50	54.75	23.33	45.75	23.61	194.00	75.09
4-9	153.75	42.39	146.50	67.75	117.00	54.06	417.25	149.16
10-12	25.75	11.03	14.50	7.33	16.00	6.00	56.25	20.89

TABLE 11.24 STUDY 3 – IPA STATISTICS FOR GROUP 7

IPA CAT.	MEETING 1 mean	MEETING 1 s.d.	MEETING 2 mean	MEETING 2 s.d.	MEETING 3 mean	MEETING 3 s.d.	MEETINGS 1-3 mean	MEETINGS 1-3 s.d.
1	0.25	0.50	0.25	0.50	1.00	1.15	1.50	1.00
2	53.00	23.47	43.50	43.82	9.00	3.37	105.50	64.91
3	41.50	23.90	40.25	38.36	41.00	29.86	122.75	86.76
4	2.25	2.22	1.00	1.41	2.75	1.71	6.00	3.27
5	63.00	34.01	59.75	46.56	39.50	8.02	162.25	79.17
6	73.00	12.68	55.50	37.12	55.25	34.09	183.75	71.30
7	30.75	25.97	18.25	16.54	24.50	11.39	73.50	52.13
8	4.00	3.37	5.50	4.65	3.75	4.50	13.25	11.30
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	5.00	2.71	5.75	4.03	5.50	3.70	16.25	6.50
11	36.00	27.57	30.00	20.48	25.00	16.57	91.00	56.18
12	0.25	0.50	0.25	0.50	1.00	1.41	1.50	1.73
1-12	309.00	92.83	260.00	174.93	208.25	97.72	777.25	344.69
1-3	94.75	29.85	84.00	63.39	51.00	33.98	229.75	125.08
4-9	173.00	73.63	140.00	103.32	125.75	52.39	438.75	208.42
10-12	41.25	27.44	36.00	23.82	31.50	20.94	108.75	61.78

TABLE 11.25 STUDY 3 – IPA STATISTICS FOR GROUP 8

IPA CAT.	MEETING 1		MEETING 2		MEETING 3		MEETINGS 1-3	
	mean	s.d.	mean	s.d.	mean	s.d.	mean	s.d.
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	40.50	29.89	26.50	29.31	34.00	35.52	101.00	92.51
3	27.75	6.13	24.50	4.12	22.50	2.52	74.75	8.88
4	0.50	0.58	2.00	1.83	1.25	2.50	3.75	4.35
5	71.25	25.84	81.00	35.24	46.50	19.23	198.75	58.24
6	33.75	9.22	18.00	5.72	29.50	19.42	81.25	19.35
7	12.00	2.71	5.50	0.58	9.00	2.94	26.50	5.80
8	9.00	6.06	16.00	10.03	8.25	4.35	33.25	18.01
9	1.00	2.00	0.75	1.50	0.50	0.58	2.25	3.20
10	3.00	2.00	12.50	3.70	5.50	1.91	21.00	4.08
11	29.25	8.22	13.00	6.68	32.75	13.05	75.00	13.78
12	0.00	0.00	1.50	1.73	0.50	0.58	2.00	1.63
1-12	228.00	52.81	201.25	74.82	190.25	72.85	619.50	164.39
1-3	68.25	29.85	51.00	29.20	56.50	33.13	175.75	89.37
4-9	127.50	37.74	123.25	39.75	95.00	36.41	345.75	66.62
10-12	32.25	8.26	27.00	9.76	38.75	13.40	98.00	14.97

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TABLE 11.26 STUDY 3 - IPA STATISTICS FOR GROUP 9

IPA CAT.	MEETING 1 mean	MEETING 1 s.d.	MEETING 2 mean	MEETING 2 s.d.	MEETING 3 mean	MEETING 3 s.d.	MEETINGS 1-3 mean	MEETINGS 1-3 s.d.
1	1.00	1.41	1.00	1.41	0.25	0.50	2.25	1.71
2	17.75	6.02	20.50	9.71	11.50	7.51	49.75	22.72
3	32.75	9.22	16.75	5.50	16.50	5.26	66.00	14.76
4	0.50	0.58	1.50	0.58	1.50	1.91	3.50	1.73
5	111.25	33.34	92.50	56.84	69.00	45.31	272.75	133.46
6	21.50	6.76	13.00	5.35	23.75	7.63	58.25	16.26
7	12.50	3.42	8.25	9.22	15.50	6.95	36.25	2.87
8	16.25	9.95	22.00	11.97	11.00	4.08	49.25	20.53
9	0.25	0.50	0.50	0.58	0.50	1.00	1.25	1.26
10	4.25	2.63	5.00	2.71	7.50	3.00	16.75	7.25
11	33.25	14.13	24.75	13.38	14.50	7.51	72.50	17.67
12	1.75	2.36	1.50	1.73	1.00	1.41	4.25	3.95
1-12	253.00	37.19	207.25	69.01	172.50	66.46	632.75	165.41
1-3	51.50	13.48	38.25	16.15	28.25	5.56	118.00	31.34
4-9	162.25	32.28	137.75	63.95	121.25	56.56	443.25	164.90
10-12	39.25	14.97	29.67	19.05	23.00	8.68	93.50	11.68

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11.7 ANALYSIS

The data is examined in the following seven sections:

11.7.1 Meetings 1-3

The total IPA scores of all the groups declined after the first meeting; a trend that continued at the third meeting in six of the groups. Over three meetings the mean total of acts per meeting dropped by 22% (see overleaf). Although the choice of topics may have influenced this process, it's likely that the general high rate of activity at the first meeting was affected by the novelty of the situation. A similar decrease (17%) occurred over the first three meetings of the Psychology Tutorial Group reported in Appendix 6.

TOTAL No. OF IPA ACTS PER MEETING

	1	2	3	% decre.	total
GROUP 1	1053	874	850	19.3%	2777
2	1218	895	1166	4.3%	3279
3	1189	991	784	34.1%	2964
4	837	648	660	21.1%	2145
5	1044	908	1013	3.0%	2965
6	1092	863	715	34.5%	2670
7	1236	1040	833	32.6%	3109
8	912	805	761	16.6%	2478
9	1012	829	690	31.8%	2531
mean	**1066**	**873**	**830**	**22.1%**	**2769**

11.7.2   IPA and Similarities in Individual Profile

The raw IPA scores for Meetings 1-3 were examined to see whether similarities in the aggregation and distribution of individual behaviours occurred across Groups 1-6.

A Biplot analysis was carried out (Table 11.27 & description in Appendix 4A). This was checked against an OSIRIS cluster analysis (Table 11.28 & description in Appendix 4A). In both cases, similarities between only two pairs of Ss were identified (Ss 5 and 8; Ss20 and 22), confirming that similarities in IPA profiles for Ss in Groups 1-6 were minimal.

11.7.3   Groups 7-9

In Studies 1 and 2 comparisons were made with the mean IPA profile of the Arts Groups (Chp.7). In Study 3 three factors precluded the use of the Arts data: (1) the data for Groups 1-6 was based on a total of 90 minutes of sampled behaviour; (2) the data included

TABLE 11.27   STUDY 3 - BIPLOT ANALYSIS

The diagram captures 81.9% of the variability. The 24 Ss in Groups 1-6 are represented by the points, and the IPA categories by the vectors. The variance is indicated by the length of each vector, eight of which have been scaled down by the figure in [].
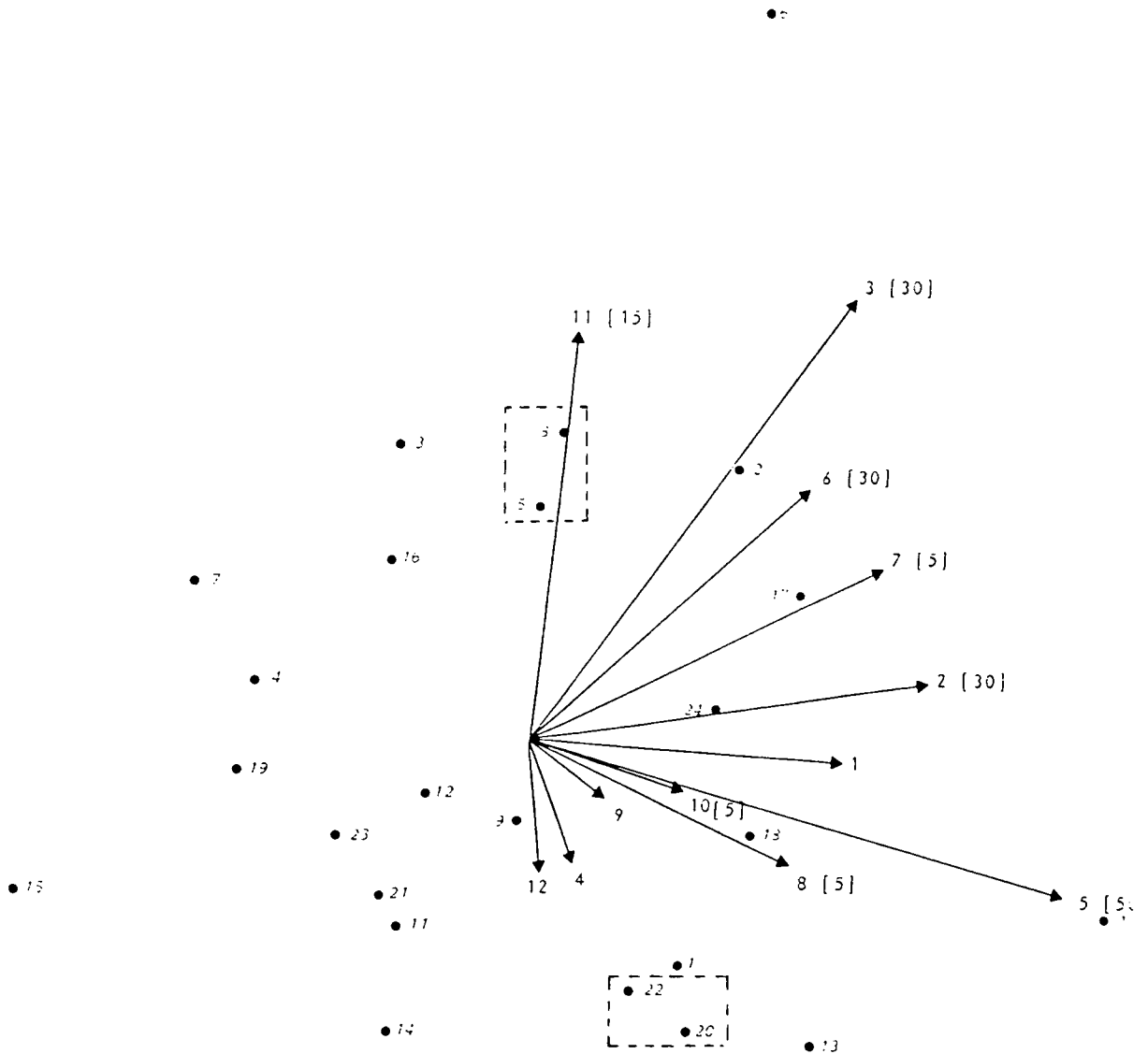
TABLE 11.28

A CLUSTER ANALYSIS OF THE IPA DATA FOR GROUPS 1-9
MEETINGS 1 - 3

	S.	group	type	sex	corr.*	order**
CLUSTER 1	S7	G2	E(L)	F	0.638	1
	S27	G7		F	0.665	2
	S8	G2	E(L)	F	0.715	3
	S5	G2	E(L)	M	0.576	4
	S6	G2	E(L)	M	0.468	5
CLUSTER 2	S2	G1	E(H)	M	0.530	1
	S3	G1	E(H)	F	0.585	2
	S4	G1	E(H)	F	0.464	3
	S19	G5	TA(H)	F	0.411	4
CLUSTER 3	S21	G6	TA(L)	M	0.621	1
	S25	G7		M	0.659	2
	S26	G7		M	0.498	3
CLUSTER 4	S33	G9		M	0.595	1
	S36	G9		F	0.502	2
	S12	G3	N(H)	F	0.564	3
	S29	G8		M	0.438	4
CLUSTER 5	S20	G5	TA(H)	F	0.556	1
	S35	G9		F	0.585	2
	S22	G6	TA(L)	M	0.527	3
	S31	G8		F	0.385	4
CLUSTER 6	S9	G3	N(H)	M	0.626	1
	S23	G6	TA(L)	F	0.656	2
	S18	G5	TA(H)	M	0.529	3
	S17	G5	TA(H)	M	0.496	4
CLUSTER 7	S11	G3	N(H)	F	0.681	1
	S32	G8		F	0.710	2
	S34	G9		M	0.643	3
CLUSTER 8	S1	G1	E(H)	M	0.509	1
	S10	G3	N(H)	M	0.509	2
CLUSTER 9	S15	G4	N(L)	F	0.475	1
	S16	G4	N(L)	F	0.475	2
CLUSTER 10	S13	G4	N(L)	M	0.389	1
	S24	G6	TA(L)	F	0.389	2
Unclustered:	S14	G4	N(L)	M		
	S28	G7		F		
	S30	G8		M		

* average correlation of item with others in cluster.
** entry order of items into cluster.

discussions on three different topics; (3) an alteration in IPA coding was introduced that resulted in a different proportion of units being allocated to Cats 5 and 6. As an alternative to the Arts groups, three groups (Groups 7-9) were formed with no extreme scores.

A)   Inventory Data (Tables 11.8-9 and 11.13)

The mean scores for the group of 12 Ss in Groups 7-9 were similar to the mean results of Survey 3 and the inventory norms. The mean results didn't mask much in the way of individual variation: Most of the individual scores, apart from depressed figures on the Wrenn SHI for Ss in Group 8, were close to the test norms:

| | | GROUPS 7-9 | | SURVEY 3 | | TEST NORMS | |
		mean	s.d.	mean	s.d.	mean	s.d.
STAI	TRAIT	42.00	2.09	41.00	7.75	38.15	8.20
	STATE	41.43	6.40				
EPI	EXTRA.	14.67	1.78	14.16	3.73	13.44	4.20
	NEURO	11.83	1.59	12.34	4.13	11.04	4.82
WRENN	SHI	-2.92	34.91	9.75	43.12		
B. & H.		91.83	16.08			114.20	29.70
CATTELL	F.I	5.62					
(sten)	F.II	5.63					

B)   IPA Data (Tables 11.14-17, 11.24-26)

A comparison (Table 11.29) of the mean IPA profile of the first meeting of Groups 7-9 and the mean IPA profile of the Arts Groups showed that they were similar for nine out of twelve categories: The socio-emotional areas (Cats. 1-3/10-12) were very close, while the main difference in the neutral task-related categories centered on Cat.7 (asks for information) where Groups 7-9 were more active.

	G.7		G.8		G.9		G.7-9 MEAN		ARTS GROUPS	
	ACTS	%	ACTS	%	ACTS	%	ACTS	%	ACTS	%
CAT.1	1	0.1	0	0.0	4	0.4	1.7	0.2	6.3	0.6
2	212	17.2	162	17.8	71	7.0	148.3	14.1	167.0	14.5
3	166	13.4	111	12.2	131	12.9	136.0	12.9	164.7	14.3
4	9	0.7	2	0.2	2	0.2	4.3	0.4	7.3	0.6
5	252	20.4	285	31.3	445	44.0	327.3	31.1	518.8	45.1
5 & 6		44.0%		46.1%		52.5%		47.3%		51.4%
6	292	23.6	135	14.8	86	8.5	171.0	16.2	72.8	6.3
7	123	10.0	48	5.3	50	4.9	73.7	7.0	26.5	2.3
8	16	1.3	36	3.9	65	6.4	39.0	3.7	44.2	3.8
9	0	–	4	0.4	1	0.1	1.7	0.2	4.3	0.4
10	20	1.6	12	1.3	17	1.7	16.3	1.5	18.6	1.6
11	144	11.7	117	12.8	133	13.1	131.3	12.5	116.5	10.1
12	1	0.1	0	–	7	0.7	2.7	0.3	4.0	0.4
	1236		912		1012		1053.3		1151.0	

Although the differences in Cats 5 and 6 look significant, this was largely an artifact of the alteration in coding. With Cats 5 and 6 collapsed into a single category, allowing the data to be directly compared — albeit crudely — with that of the Arts Group (see figures in italics, Table 11.29) the discrepancy between the two profiles was minimal.

Finally, it was clear from the overall IPA profile (meetings 1-3) see below — that there were only marginal differences between this and the profile of the first meeting: These included decreases in activity scored in Cats.2 and 11, and increases in Cats. 8 and 10.

TABLE 11.30 STUDY 3 - IPA FOR GROUPS 7-9 FOR MEETINGS 1-3

| | G.7 | | G.8 | | G.9 | | MEAN | |
	ACTS	%	ACTS	%	ACTS	%	ACTS	%
CAT 1	6	0.2	0	0.0	9	0.4	5.0	0.2
2	422	13.6	404	16.3	199	7.9	314.7	12.6
3	491	15.8	299	12.1	264	10.4	351.3	13.0
4	24	0.8	15	0.6	14	0.6	17.7	0.7
5	649	20.9	795	32.1	1091	43.1	845.0	31.2
6	735	23.6	325	13.1	233	9.2	431.0	15.9
7	294	9.5	106	4.3	145	5.7	181.7	6.7
8	53	1.7	133	5.4	197	7.8	127.7	4.7
9	0	0.0	9	0.4	5	0.2	4.7	0.2
10	65	2.1	84	3.4	67	2.6	72.0	2.7
11	364	11.7	300	12.1	290	11.5	318.0	11.8
12	6	0.2	8	0.3	17	0.7	10.3	0.4
total	3109		2478		2531		2706.0	

11.7.4 Groups 1 and 2 (high and low extraversion)

A)   Inventory Data (Tables 11.8-10)

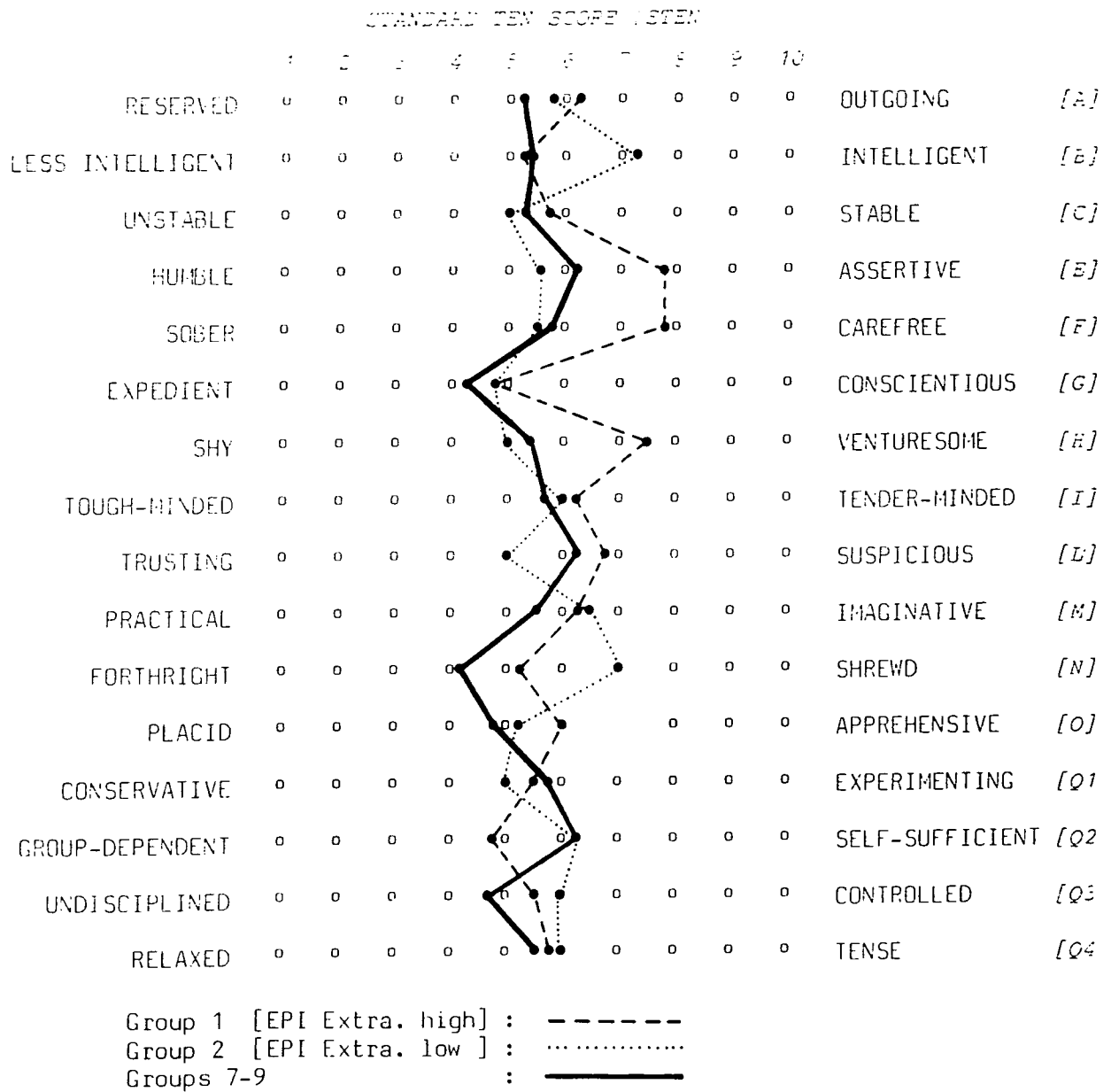The mean scores for Groups 1 and 2 compared to the Test Norms and to the results of Survey 3 were as follows:

	TEST NORMS		SURVEY 3		G.1		G.2	
	mean	s.d.	mean	s.d.	mean	s.d.	mean	s.d.
STAI TR.	38.15	8.20	41.00	7.75	42.75	3.40	42.25	2.87
STAI ST.					36.00	6.16	46.25	11.64
EPI EXT.	13.44	4.20	14.16	3.73	**18.75**	**0.50**	**10.00**	**0.00**
EPI NEU.	11.04	4.82	12.34	4.13	14.25	1.50	13.25	1.17
WRENN			9.75	43.12	18.75	33.98	8.25	65.64
B.& H.	114.20	29.70			96.50	15.52	92.25	28.76
CAT.F.I (anxiety)					5.50	1.22	5.58	1.53
CAT.F.II (extraversion)					8.28	1.83	5.15	0.56

As reported in Section 11.2, the two groups were located at extreme positions in respect of the selection criteria - EPI Extraversion - with scores close to the Survey means for EPI Neuroticism and STAI Trait Anxiety.

From an inspection of the Cattell primary factors (Table 11.31) it was evident on the basis of factors E, F and H that the two groups were distinct, but less so for factors A and Q.2. As a result, although the mean score for G.1 in respect of the Cattell second order factor, Extraversion, was in line with the EPI scores - see above - the location of G.2 in respect of Cattell's extraversion factor was nearer the mean rather than substantially below it.

Scores on the other inventories were satisfactory, and it was clear from the STAI State Anxiety scores obtained at the 1st Meeting that the more extravert group was less anxious about the impending discussion.

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TABLE 11.31   STUDY 3 – GROUPS 1 & 2 – 16PF PROFILES

STANDARD TEN SCORE (STEN)

	1	2	3	4	5	6	7	8	9	10		
RESERVED	o	o	o	o	o		o	o	o	o	OUTGOING	[A]
LESS INTELLIGENT	o	o	o	o	o	o	o	o	o	o	INTELLIGENT	[B]
UNSTABLE	o	o	o	o	o	o	o	o	o	o	STABLE	[C]
HUMBLE	o	o	o	o	o	o	o	o	o	o	ASSERTIVE	[E]
SOBER	o	o	o	o	o	o	o	o	o	o	CAREFREE	[F]
EXPEDIENT	o	o	o	o		o	o	o	o	o	CONSCIENTIOUS	[G]
SHY	o	o	o	o	o	o	o	o	o	o	VENTURESOME	[H]
TOUGH-MINDED	o	o	o	o	o	o	o	o	o	o	TENDER-MINDED	[I]
TRUSTING	o	o	o	o	o	o	o	o	o	o	SUSPICIOUS	[L]
PRACTICAL	o	o	o	o	o	o	o	o	o	o	IMAGINATIVE	[M]
FORTHRIGHT	o	o	o	o	o	o	o	o	o	o	SHREWD	[N]
PLACID	o	o	o	o	o	o	o	o	o	o	APPREHENSIVE	[O]
CONSERVATIVE	o	o	o	o	o	o	o	o	o	o	EXPERIMENTING	[Q1]
GROUP-DEPENDENT	o	o	o	o	o	o	o	o	o	o	SELF-SUFFICIENT	[Q2]
UNDISCIPLINED	o	o	o	o	o	o	o	o	o	o	CONTROLLED	[Q3]
RELAXED	o	o	o	o	o	o	o	o	o	o	TENSE	[Q4]

Group 1 [EPI Extra. high] : – – – – – –
Group 2 [EPI Extra. low] : ....
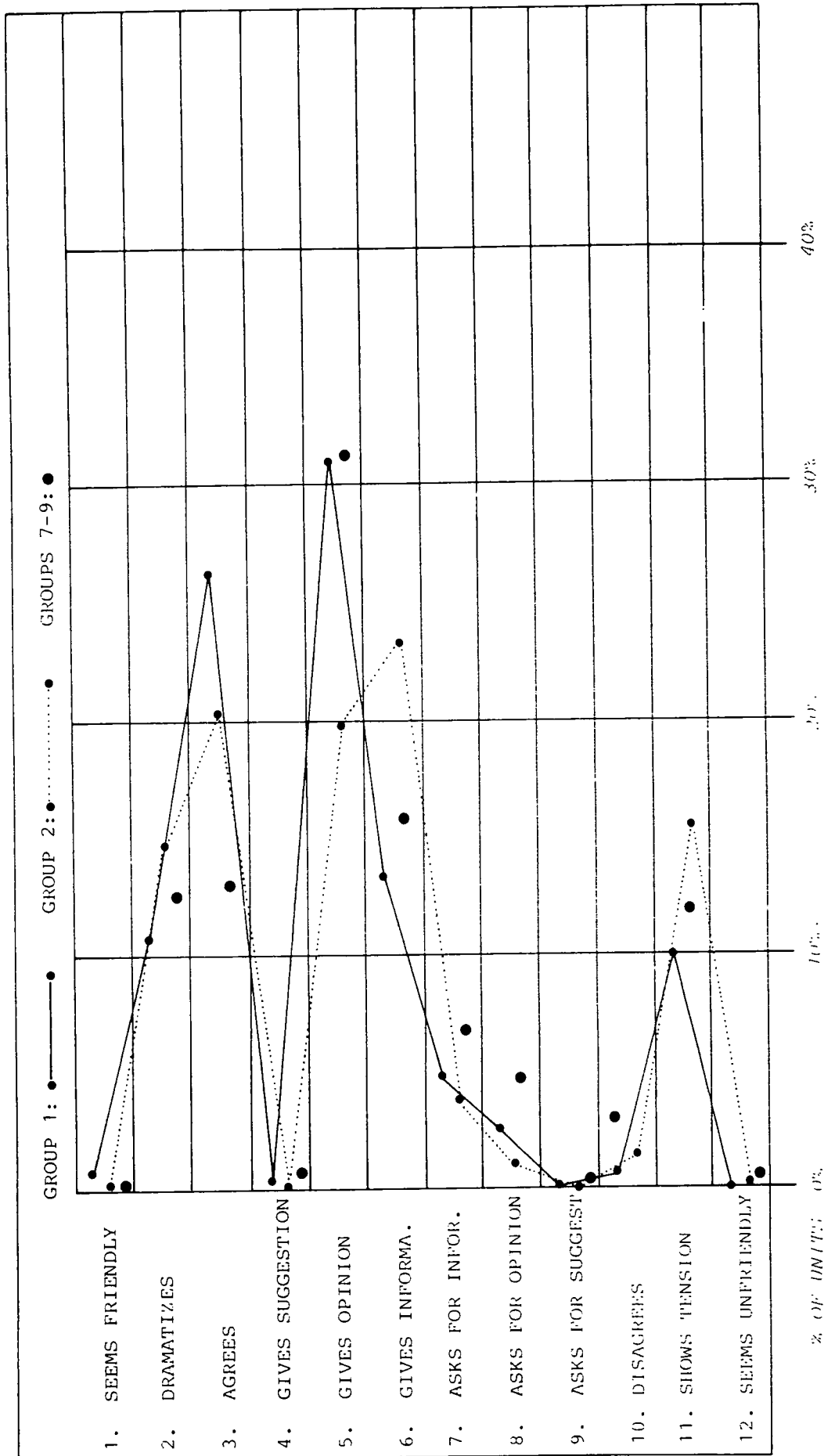Groups 7-9   : ▬▬▬▬▬

[The raw scores have been standardised using the British Under-
graduate Norms prepared by P. Saville and S. Blinkhorn]

TABLE 11.32 STUDY 3 – GROUPS 1 AND 2 – SUMMARY OF CORRELATIONS

	1	2	3	4	5	6	7	8	9	10	11	12
1 STAI ST.	—											
2 STAI TR.	.5714	—										
3 EPI EXTR.	-.3801	-.1667	—									
4 EPI NEU.	-.1429	.0714	.0714	—								
5 CAT FI	.1905	.3810	-.3571	.4286	—							
6 CAT FII	-.2857	.0238	.8333**	.2381	-.3810	—						
7 WRENN	.3095	.0952	.0000	-.0714	.0952	.0238	—					
8 B & H	-.2381	.0000	-.3810	-.3333	-.0476	-.4762	.3095	—				
9 IPA TOT	-.3333	.1667	-.4286	.2143	-.0238	-.2619	-.4286	.5238	—			
10 IPA 1-3	-.5714	-.0952	-.2619	.1905	-.1190	-.0952	-.0238	.7143*	.8333**	—		
11 IPA 4-9	-.5000	.1667	-.2619	.3571	.1666	-.1190	-.5476	.3571	.9286**	.7619*	—	
12 IPA 10-12	.2857	-.1429	-.7381*	-.4762	-.2620	-.7619*	-.0238	.5238	.3571	.2381	.0476	—
13 IPA 11	.4048	-.1190	-.7143*	-.5714	-.2857	-.7143*	-.0238	.4048	.1905	.0714	-.1190	.9762**

SPEARMAN rho   *p: $<$ .05   **p: $<$ .01

TABLE 11.33 STUDY 3 - GROUPS 1 & 2 - IPA PROFILES

Predictably (Table 11.32) the two measures of extraversion, EPI and the Cattell F.II, were positively correlated. However the strong, positive relationship reported elsewhere (Studies 1 & 2 and in the Arts Groups) between extraversion and the total IPA score was not replicated (see below). There was also a negative relationship at the .05 level between EPI Extraversion and activity scored in Cats 10-12 (negative socio-emotional acts).

B) IPA Data (Tables 11.14-19)

The IPA scores for Groups 1 and 2 across Meetings 1-3 were compared with the mean scores for Groups 7-9 in terms of acts per category and categories as a percentage of the total IPA:

	G.1		G.2		GROUPS 7-9 (mean)	
	ACTS	%	ACTS	%	ACTS	%
CAT.1	23	0.8%	8	0.2%	5.0	0.2%
2	298	10.7	478	14.6	314.7	12.6
3	728	26.2	664	20.3	351.3	13.0
4	9	0.3	3	0.1	17.7	0.7
5	858	30.9	653	19.9	845.0	31.2
6	367	13.2	767	23.3	431.0	15.9
7	129	4.7	123	3.8	181.7	6.7
8	69	2.5	27	0.8	127.7	4.7
9	2	0.1	0	0.0	4.7	0.2
10	16	0.6	47	1.4	72.0	2.7
11	278	10.0	507	15.5	318.0	11.8
12	0	0.0	2	0.1	10.3	0.4
total	2777		3279		2706.0	

The absence of a positive correlation between extraversion and the total IPA was due to the behaviour of G.2. The less extravert group, with a mean EPI Extraversion score approximately two s.d. below that of G.1. was 18% more active. Much of the preponderance of G.2's activity derived from behaviour scored in Cat.2 (Dramatizing/fantasising), Cat.6 (Giving information of a factual or semi-anecdotal nature) and Cat.11 (Laughing). In contrast, the behaviour of G.1 was more reserved, with high scores in the positive socio-emotional categories, and lower scores in Cats 10-12. G.1 appeared to be more concerned to reach consensus with unusually high scores for Cat.3 (Agrees) and very low scores for Cat.10 (Disagrees). Finally, the relative lack of tension in G.1 was highlighted by high scores in Cat.1, a residual category where it was significantly more active. The overall differences between the two groups can be summarised as follows:

		G.1	G.2	G.7-9
Cats 1-3	+ socio-emotional	37.7%	35.1%	25.8%
Cats 4-9	neutral task	51.7%	47.9%	59.3%
Cats 10-12	- socio-emotional	10.6%	17.0%	14.9%

Groups 1 & 2 and Groups 7-9 (IPA Profiles, Table 11.33)

G.1 produced a total IPA score similar to that of Groups 7-9. The sociable disposition of the Ss was associated with high scores for Cats 1-3, and correspondingly depressed scores shared evenly between most of the other categories.

G.2, the more introvert group, exhibited far greater divergences from the mean profile of Groups 7-9. It was 21% more active overall, with several high scoring categories, that included Cats 2, 3, 6 and 11. Socio-emotional acts accounted for 52.1% of G.2's total recorded

behaviour, in contrast to 40.7% in the mean profile of Groups 7-9.

It was assumed that extreme scores for extraversion, when paired with scores for anxiety close to the mean, would be associated with **some** of the behaviours reported in Study 2, where a close correlation was obtained between extraversion and the total IPA record. But the restrained behaviour of Group 1 and the voluble behaviour of Group 2 indicated the presence of other factors, not identified either from the questionnaire data or the IPA profiles.

11.7.5 Groups 3 and 4 (high and low neuroticism)

A)   Inventory Data (Tables 11.8/9/11)

The mean scores for Groups 3 and 4 compared to the test norms and to the results of Survey 3 were as follows:

	TEST NORMS		SURVEY 3		G.3		G.4	
	mean	s.d.	mean	s.d.	mean	s.d.	mean	s.d.
STAI TR.	38.15	8.20	41.00	7.75	45.50	2.08	38.75	4.99
STAI ST.					38.50	4.43	36.00	5.60
EPI EXT.	13.44	4.20	14.16	3.73	14.50	1.73	15.00	2.83
EPI NEU.	11.04	4.82	12.34	4.13	**19.50**	**0.50**	**6.00**	**1.41**
WRENN			9.75	43.12	18.75	33.98	8.25	65.64
B.& H.	114.20	29.70			88.75	12.47	96.00	20.26
CAT.F.I (anxiety)					7.60	0.66	5.55	0.89
CAT.F.II (extraversion)					5.95	1.24	6.68	2.08

As reported in section 11.2, the two groups were located in extreme positions with respect to the selection criteria, with scores close to the Survey means for EPI Extraversion and STAI Trait Anxiety.

From an inspection of the Cattell primary factors (Table 11.34) it was evident that only three of the six factors involved in computing F.1 (anxiety) distinguished between the two groups - namely H, O and Q.4 - so that the mean difference between the two groups was less than one STEN, resulting in a positive, but weak correlation between EPI Neuroticism and Cattell F.1 (see below).

Scores on the other inventories were satisfactory, but to judge from the STAI State Anxiety scores, neither of the groups was unduly apprehensive at the first meeting about the impending discussion.

In summary (Table 11.35) there was not a strong association between EPI Neuroticism and either STAI Trait or STAI State Anxiety; there was a positive correlation with Cattell F.I at the .05 level; and there was no clear relationship with the IPA data.

TABLE 11.34   STUDY 3 - GROUPS 3 & 4 - 16PF PROFILES

STANDARD TEN SCORE (STEN)

	1	2	3	4	5	6	7	8	9	10		
RESERVED	o	o	o	o			o	o	o	o	OUTGOING	[A]
LESS INTELLIGENT	o	o	o	o			o	o	o	o	o	INTELLIGENT	[B]
UNSTABLE	o	o	o			o	o	o	o	o	o	STABLE	[C]
HUMBLE	o	o	o	o	o		o	o	o	o	ASSERTIVE	[E]
SOBER	o	o	o	o	o		o	o	o	o	CAREFREE	[F]
EXPEDIENT	o	o	o		o		o	o	o	o	o	CONSCIENTIOUS	[G]
SHY	o	o	o	o	o		o	o	o	o	VENTURESOME	[H]
TOUGH-MINDED	o	o	o	o		o	o	o	o	o	o	TENDER-MINDED	[I]
TRUSTING	o	o	o	o	o		o	o	o	o	SUSPICIOUS	[L]
PRACTICAL	o	o	o	o		o	o	o	o	o	IMAGINATIVE	[M]
FORTHRIGHT	o	o	o			o	o	o	o	o	SHREWD	[N]
PLACID	o	o	o	o			o	o	o	o	APPREHENSIVE	[O]
CONSERVATIVE	o	o	o	o			o	o	o	o	o	EXPERIMENTING	[Q1]
GROUP-DEPENDENT	o	o	o	o			o	o	o	o	SELF-SUFFICIENT	[Q2]
UNDISCIPLINED	o	o	o				o	o	o	o	o	CONTROLLED	[Q3]
RELAXED	o	o	o	o	o		o		o	o	TENSE	[Q4]

Group 3 [EPI Neuro. high] : – – – – – –
Group 4 [EPI Neuro. low] : ·······················
Groups 7-9   : ━━━━━━━

[The raw scores have been standardised using the British Under-
graduate Norms prepared by P. Saville and S. Blinkhorn]

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TABLE 11.35   STUDY 3 - GROUPS 3 AND 4 - SUMMARY OF CORRELATIONS

	1	2	3	4	5	6	7	8	9	10	11	12
1 STAI ST	—											
2 STAI TR	.5238	—										
3 EPI EX.	-.7619*	-.5714	—									
4 EPI NEU	.2619	.3810	-.5000	—								
5 CAT FI	.4762	.6667*	-.4286	.6667*	—							
6 CAT FII	-.5476	-.5714	.9286**	-.5714	-.3333	—						
7 WRENN	.4762	.3333	-.1190	.3095	.3571	.0714	—					
8 B & H	.4286	-.0952	-.1905	-.2381	-.4286	-.1905	.3095	—				
9 IPA TOT	-.3810	-.0476	.4523	-.0238	.1666	.4524	.2381	-.4524	—			
10 IPA 1-3	-.3810	-.0476	.4524	-.0238	.1666	.4524	.2381	-.4524	1.0000**	—		
11 IPA 4-9	-.4286	-.0476	.5238	-.0952	.3333	.4762	-.0472	-.6190	.9048**	.9048**	—	
12 IPA 10-12	-.3333	-.2381	.5238	-.0238	-.3333	.5000	.5952	.2857	.4048	.4048	.1905	—
13 IPA 11	-.4048	-.4524	.6429	-.2619	-.5000	.6667*	.4762	.2619	.3333	.3333	.1190	.9524**

SPEARMAN rho   *p: $<$ .05   **p: $<$ .01

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TABLE 11.36 STUDY 3 – GROUPS 3 & 4 – IPA PROFILES

GROUP 3: ●————●   GROUP 4: ●·········●   GROUPS 7-9: ●

1. SEEMS FRIENDLY
2. DRAMATIZES
3. AGREES
4. GIVES SUGGESTION
5. GIVES OPINION
6. GIVES INFORMA.
7. ASKS FOR INFOR.
8. ASKS FOR OPINION
9. ASKS FOR SUGGEST.
10. DISAGREES
11. SHOWS TENSION
12. SEEMS UNFRIENDLY

% OF UNITS: 0%   10%   20%   30%   40%
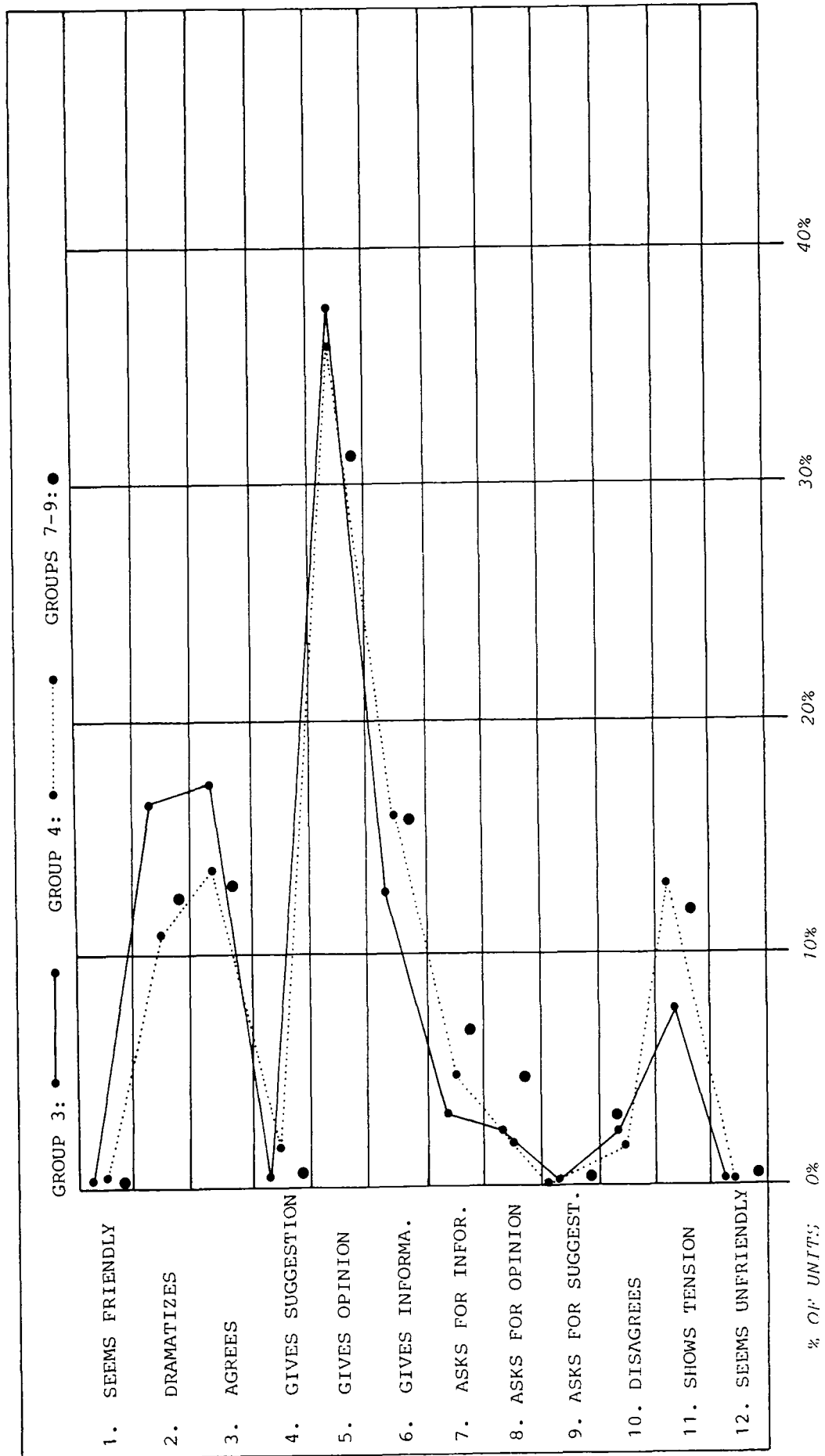
B)   IPA Data (Tables 11.14-17/20-21)

The IPA scores for Groups 3 and 4 across meetings 1-3 were compared with the mean scores for Groups 7-9 in terms of acts per category and categories as a percentage of the IPA total:

	G.3		G.4		GROUPS 7-9 (mean)	
	ACTS	%	ACTS	%	ACTS	%
CAT.1	9	0.3%	11	0.5%	5.0	0.2%
2	483	16.3	233	10.9	314.7	12.6
3	511	17.2	314	14.6	351.3	13.0
4	10	0.3	30	1.4	17.7	0.7
5	1108	37.4	771	35.8	845.0	31.2
6	373	12.6	338	15.8	431.0	15.9
7	91	3.1	102	4.8	181.7	6.7
8	69	2.3	34	1.6	127.7	4.7
9	6	0.2	3	0.1	4.7	0.2
10	67	2.3	29	1.4	72.0	2.7
11	230	7.8	276	12.9	318.0	11.8
12	7	0.2	4	0.2	10.3	0.4
total	2964		2145		2706.0	

Of the two groups, G.3 (high neuroticism) was 38% more active than G.4 (low neuroticism), and its behaviour resulted in higher scores in Cats. 2, 3, 5, 8 and 10.   In grouping these salients it was apparent that a third of G.3's activity was located in the + socio-emotional Cats. 1-3, with the greatest preponderance in Cat.2 (Dramatizes, fantasises).   Also, despite voicing twice as much disagreement as G.4, G.3 generated only 10% of its total IPA in the negative socio-emotional categories.

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In contrast, G.4's behaviour was more moderate, emotionally more neutral and characterised by three salients: Members were more friendly (Cat.1), made more suggestions (Cat.4) and achieved higher scores in Cat.11. The differences between the two groups can be summarised as follows:

			G.3	G.4	G.7-9
Cats.	1-3	+ socio-emotional	33.8%	26.0%	25.8%
Cats.	4-9	neutral task	55.9%	59.5%	59.3%
Cats.	10-12	- socio-emotional	10.3%	14.5%	14.9%

Groups 3 & 4 and Groups 7-9 (IPA Profiles, Table 11.36)

G.3 was 10% more active than Groups 7-9 with high concentrations of behaviour marking Cats. 2, 3 and 5. Of the remaining emotionally neutral categories, activity was low in Cats 4 and 6, and exceptionally low in Cats 7 and 8 where the emphasis lay with questions rather than giving answers. In the negative socio-emotional categories only the rates of disagreement identified by Cat.10 matched the figures for G.7-9, while signs of tension, laughter and unfriendly acts were relatively infrequent.

G.4 was 21% less active than G.7-9. Apart from a high percentage of activity in Cats 1, 4 and 5, much of G.4's activity was relatively depressed, particularly in the case of Cats 2, 7, 8, 10 and 12.

The hypotheses linking extreme scores for EPI Neuroticism with the expression of specific behaviours were confirmed by consistent behavioural profiles. In contrast to Groups 1 and 2, the interaction of EPI Neuroticism and other less extreme traits was not associated with the intrusion of marked distortions in the IPA profile at variance with the hypotheses: high scores for neuroticism facilitated high overall rates of behaviour, a significant proportion of which was

emotionally charged. Low scores for neuroticism were reflected in a greater proportion of friendly behaviours, and more emotionally-neutral behaviour.

11.7.6 Groups 5 and 6 (high and low trait anxiety)

A) Inventory Data (Tables 11.8/9/12)

The mean scores for Groups 5 and 6 compared to the Test Norms and to the results of survey 3 were as follows:

	TEST NORMS		SURVEY 3		G.5		G.6	
	mean	s.d.	mean	s.d.	mean	s.d.	mean	s.d.
STAI TR.	38.15	8.20	41.00	7.75	51.00	3.56	31.75	2.06
STAI ST.					45.00	6.06	32.75	4.11
EPI EXT.	13.44	4.20	14.16	3.73	12.25	1.26	14.00	2.16
EPI NEU.	11.04	4.82	12.34	4.13	14.50	1.29	11.50	1.29
WRENN			9.75	43.12	12.75	29.80	8.50	51.70
B.& H.	114.20	29.70			93.75	29.85	105.50	21.70
CAT.F.I. (anxiety)					7.78	1.59	4.38	0.72
CAT.F.II (extraversion)					6.18	1.89	5.70	1.74

As reported in section 11.2, the two groups were located in extreme positions in respect of the selection criteria, with scores close to the Survey means for EPI Extraversion and Neuroticism.

From an inspection of the Cattell primary factors (16PF profiles, Table 11.37) it was clear that in respect of the factors contributing to the Cattell secondary F.1 (Anxiety) the two groups were relatively distinct; and in respect of the mean STEN scores for F.I (anxiety) there was a difference between G.5 and G.6 of about two s.d.

TABLE 11.37 STUDY 3 – GROUPS 5 & 6 – 16PF PROFILES

STANDARD TEN SCORE (STEN)

	1	2	3	4	5	6	7	8	9	10		
RESERVED	o	o	o	o	o	o	o	o	o	o	OUTGOING	[A]
LESS INTELLIGENT	o	o	o	o	o	o	o	o	o	o	INTELLIGENT	[B]
UNSTABLE	o	o	o	o	o	o	o	o	o	o	STABLE	[C]
HUMBLE	o	o	o	o	o	o	o	o	o	o	ASSERTIVE	[E]
SOBER	o	o	o	o	o	o	o	o	o	o	CAREFREE	[F]
EXPEDIENT	o	o	o	o	o	o	o	o	o	o	CONSCIENTIOUS	[G]
SHY	o	o	o	o	o	o	o	o	o	o	VENTURESOME	[H]
TOUGH-MINDED	o	o	o	o	o	o	o	o	o	o	TENDER-MINDED	[I]
TRUSTING	o	o	o	o	o	o	o	o	o	o	SUSPICIOUS	[L]
PRACTICAL	o	o	o	o	o	o	o	o	o	o	IMAGINATIVE	[M]
FORTHRIGHT	o	o	o	o	o	o	o	o	o	o	SHREWD	[N]
PLACID	o	o	o	o	o	o	o	o	o	o	APPREHENSIVE	[O]
CONSERVATIVE	o	o	o	o	o	o	o	o	o	o	EXPERIMENTING	[Q1]
GROUP-DEPENDENT	o	o	o	o	o	o	o	o	o	o	SELF-SUFFICIENT	[Q2]
UNDISCIPLINED	o	o	o	o	o	o	o	o	o	o	CONTROLLED	[Q3]
RELAXED	o	o	o	o	o	o	o	o	o	o	TENSE	[Q4]

GROUP 5 [STAI Trait high] : – – – – –
GROUP 6 [STAI Trait low] : ....
GROUPS 7-9   : ▬▬▬▬▬

[The raw scores have been standardised using the British Under-
graduate Norms prepared by P. Saville and S. Blinkhorn]

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TABLE 11.38   STUDY 3 – GROUPS 5 AND 6 – SUMMARY OF CORRELATIONS

	1	2	3	4	5	6	7	8	9	10	11	12
1 STAI ST	–											
2 STAI TR	.8810**	–										
3 EPI EX	-.2857	-.5476	–									
4 EPI NEU	.3333	.4762	-.7381*	–								
5 CAT FI	.7381*	.7381*	-.4762	.7143*	–							
6 CAT FII	.3333	.0952	.0952	-.3571	.0954	–						
7 WRENN	-.0238	-.5714	-.5714	.0000	-.2143	.1190	–					
8 B & H	-.1667	-.2857	-.2381	.0238	-.4286	-.4762	.6429	–				
9 IPA TOT	.0476	.2619	-.0238	-.0476	.3333	.5000	-.1190	-.7857*	–			
10 IPA 1-3	-.0714	.1190	.1190	-.1190	.2143	.4048	-.1905	-.7619*	.9762**	–		
11 IPA 4-9	-.1190	.0714	-.0714	-.0238	.2619	.4524	.0476	-.6190	.9286**	.9048**	–	
12 IPA 10-12	.2857	.5238	-.1667	-.0476	.2619	.5238	.1429	-.5238	.8333**	.8095*	.6667*	–
13 IPA 11	.5238	.7381*	-.4048	.0476	.3810	.5238	.3095	-.3571	.6429	.5476	.4524	.9048**

SPEARMAN rho   *p: < .05   **p: < .01

TABLE 11.39   STUDY 3 – GROUPS 5 & 6 – IPA PROFILES

GROUP 5: ●——●   GROUP 6: ●·······●   GROUPS 7-9: ●

1. SEEMS FRIENDLY
2. DRAMATIZES
3. AGREES
4. GIVES SUGGESTION
5. GIVES OPINION
6. GIVES INFORMA.
7. ASKS FOR INFOR.
8. ASKS FOR OPINION
9. ASKS FOR SUGGEST
10. DISAGREES
11. SHOWS TENSION
12. SEEMS UNFRIENDLY

% OF UNITS   0%   10%   20%   30%   40%
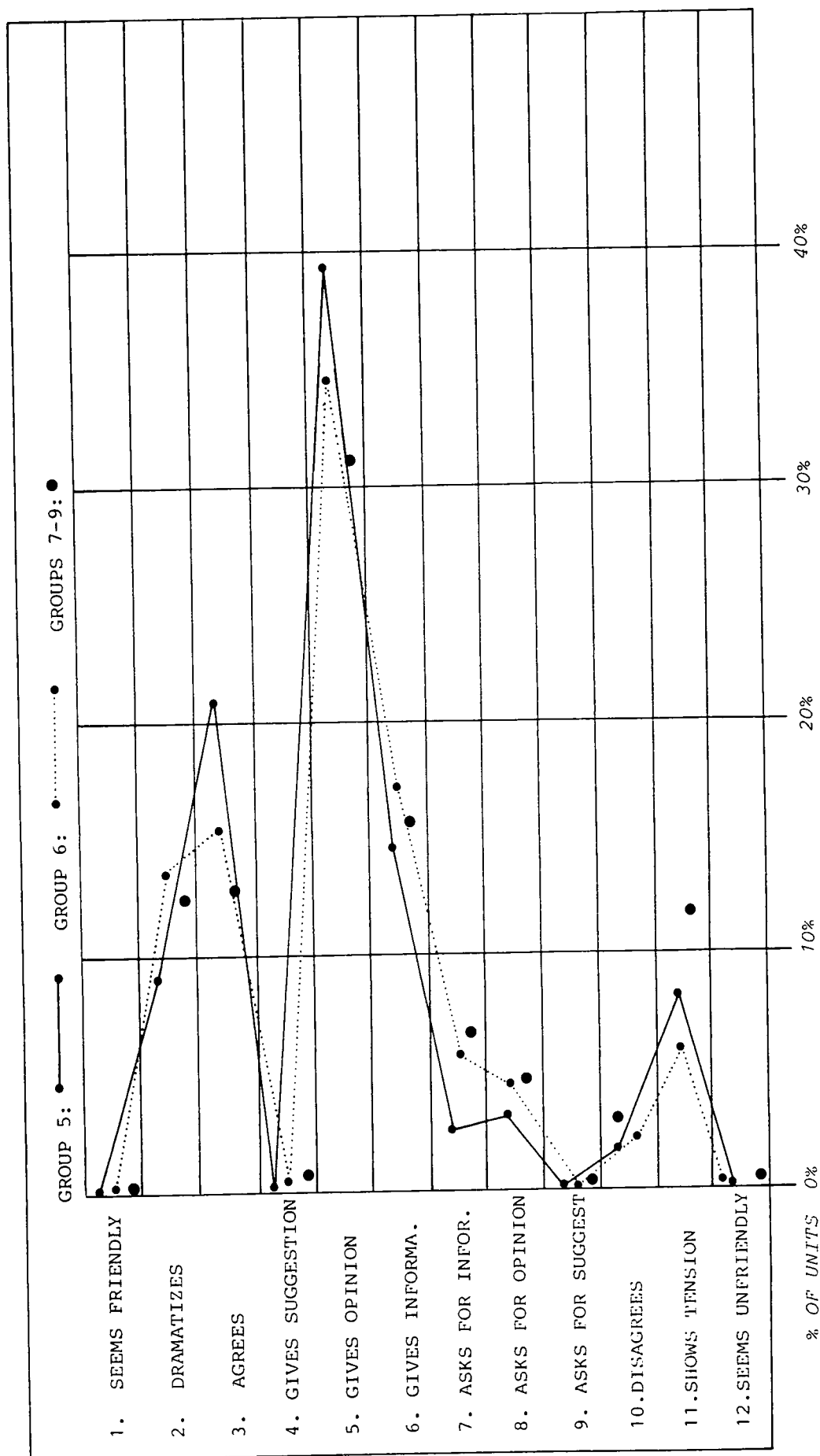
Scores on the other inventories were satisfactory, and the mean STAI State Anxiety scores were in line with STAI Trait Anxiety, indicating that at the first meeting G.5 was significantly more apprehensive than G.6 about the impending discussion.

In the summary of correlations for G.5 and G.6 (Table 11.38) there was a strong positive association between STAI Trait Anxiety and both STAI State Anxiety and Cattell F.I. None of the relationships between STAI Trait Anxiety and the IPA data were significant.

B)   IPA Data (Tables 14-17/22-23)

The IPA scores for Groups 5 and 6 across meetings 1-3 were compared with the mean scores for Groups 7-9 in terms of acts per category and categories as a percentage of total IPA:

	G.5		G.6		GROUPS 7-9 (mean)	
	ACTS	%	ACTS	%	ACTS	%
CAT.1	4	0.1%	5	0.2%	5.0	0.2%
2	271	9.1	361	13.5	314.7	12.6
3	621	20.9	410	15.4	351.3	13.0
4	7	0.2	10	0.4	17.7	0.7
5	1161	39.3	925	34.6	845.0	31.2
6	433	14.6	456	17.1	431.0	15.9
7	77	2.6	156	5.8	181.7	6.7
8	93	3.1	119	4.5	127.7	4.7
9	3	0.1	3	0.1	4.7	0.2
10	50	1.7	59	2.2	72.0	2.7
11	243	8.2	161	6.0	318.0	11.8
12	2	0.1	5	0.2	10.3	0.4
total	2965		2670		2706.0	

G.5 (High Trait Anxiety) was 11% more active than G.6, with high

scores for behaviour in Cat.3 (Agrees), Cat.5 (Gives opinion) and

Cat.11 (Shows tension).

G.6 included more activity in Cat.2 (Dramatizes) and Cats. 6 and 7

(Giving and asking for information).

There were no marked differences between the two groups in the

proportion of activity scored in the socio-emotional areas:

			G.5	G.6	G.7-9
Cats.	1-3	+ socio-emotional	30.1%	29.1%	25.8%
Cats.	4-9	neutral task	59.1%	62.5%	59.3%
Cats.	10.12	- socio-emotional	10.0%	8.4%	14.9%

Groups 5 & 6 and Groups 7-9 (IPA profiles, Table 11.39)

In the socio-emotional categories, G.5 achieved a relatively high

level of activity in Cat.3 (Agrees), with the result that Cats 1-3

claimed 5% more of the total IPA record than in Groups 7-9; and

negative behaviours in Cats 10-12 were correspondingly reduced.

Activity in the neutral task categories centered around high rates of

opinion giving (Cat.5) with low numbers of acts attributed to Cats 4, 7

and 8.

In G.6 the total level of activity and the overall profile was

very similar to that of Groups 7-9, apart from small salients

associated with Cats 3 and 5, and relatively infrequent behaviours

recorded in Cat.11.

The contrasting overall rates of activity in Groups 5 and 6,

together with the predicted patterns of behaviour outlined in

hypotheses 3 and 4 indicated that trait interactions involving extreme

trait anxiety and moderate scores for EPI neuroticism and EPI

extraversion were associated with an acceptable level of behavioural consistency.

11.7.7 A Comparison of Groups 3/4 and 5/6

The IPA scores for Groups 3 and 4 were compared with those for Groups 5 and 6 across meetings 1-3 in terms of acts per category and category percentages:

	G.3		G.4		G.5		G.6		G.7-9	
	ACTS	%	ACTS	%	ACTS	%	ACTS	%	ACTS	%
CAT.1	9	0.3%	11	0.5%	4	0.1%	5	0.2%	5.0	0.2
2	483	16.3	233	10.9	271	9.1	361	13.5	314.7	12.6
3	511	17.2	314	14.6	621	20.9	410	15.4	351.3	13.0
4	10	0.3	30	1.4	7	0.2	10	0.4	17.7	0.7
5	1108	37.4	771	35.8	1161	39.3	925	34.6	845.0	31.2
6	373	12.6	338	15.8	433	14.6	456	17.1	431.0	15.9
7	91	3.1	102	4.8	77	2.6	156	5.8	181.7	6.7
8	69	2.3	34	1.6	93	3.1	119	4.5	127.7	4.7
9	6	0.2	3	0.1	3	0.1	3	0.1	4.7	0.2
10	67	2.3	29	1.4	50	1.7	59	2.2	72.0	2.7
11	230	7.8	276	12.9	243	8.2	161	6.0	318.0	11.8
12	7	0.2	4	0.2	2	0.1	5	0.2	10.3	0.4
	2964		2145		2965		2670		2706.0	

From an inspection of G.3 and G.5 it was apparent that the two high anxiety groups had much in common both in terms of almost identical total behaviour rates and in their profiles across the 12 categories. The most salient difference lay in the greater concern expressed by G.3 for dramatization and fantasy.

Both G.3 and G.5 were distinguished from G.7-9 by 10% higher rate of overall activity, high scores in Cat.3 (Agrees) and Cat.5 (Gives opinion) with low scores in Cat.4 (Gives suggestion) and Cat.11 (shows tension).

Similarities between the low anxiety groups were less pronounced: G.4 was 20% less active overall, and discrepancies between the two profiles involved no less than eight IPA categories, namely Cats 2, 3, 4, 6, 7, 8, 10 and 11. The only common link between G.4 and G.6 lay in the high proportion of Cat.5 behaviour.

11.8 DISCUSSION

11.8.1 The Hypotheses

The hypotheses (section 11.1) were moderately successful in predicting group activity, with confirmation in three out of six cases.

Hypothesis no.1 (Group 1 - High extraversion) was not supported by the results of this study. It failed to account for a total activity rate that was no higher than that of Groups 7-9, and actually lower than that of Group 2. However the sociable disposition of the Ss was associated with high scores for Cat.1 - the highest for Groups 1-9 - and with depressed scores for Cats 10-12, in line with anticipated behaviours.

Nor was hypothesis no.2 (Group 2 - Low extraversion) supported by the data. It failed to account for the high overall rate of activity - the highest of the nine groups in this study. Also the IPA record did not support the predicted lack of concern for social cohesion, i.e. low scores for Cat.3 and high scores for Cat.10.

Hypothesis no.3 (Group 3 - High neuroticism) was confirmed by a high overall rate of activity. Also, anxiety-tempered concern for task

achievement was associated with a relatively low proportion of emotionally-neutral behaviour in Cats 4-9. Concern for social cohesion was marked by a high proportion of behaviour in Cat.3, though not by depressed scores for Cat.10.

Hypothesis no.3 (Group 5 - High trait anxiety) was confirmed by a high overall rate of activity. Concern for social cohesion was associated with a high proportion of behaviour scored in Cat.3 and depressed scores for Cat.10. It should be noted, however, that the proportion of emotionally-neutral task-related behaviours was not reduced by trait anxiety, remaining on a par with that of Groups 7-9.

Hypothesis no.4 (Group 4 - Low neuroticism) was confirmed by a low overall rate of activity, both in comparison to Group 3 and Groups 7-9. The stable disposition of the Ss was associated with high scores for Cat.1, and in comparison to Group 3, a higher proportion of activity was located in the task-related categories 4-9.

Hypothesis no.4 (Group 6 - Low trait anxiety) was not confirmed. The stable disposition of the Ss was not associated with high scores for Cat.1. However, the overall rate of activity was lower than Group 5 and just below that of Groups 7-9. Also, compared to Group 5, a higher proportion of activity in G.6 was located in the task-related Cats. 4-9.

Finally, hypotheses 3 and 4 implied that extreme scores for STAI X-2 Trait Anxiety and EPI Neuroticism would be associated with similar patterns of behaviour. While the correspondence between the IPA profiles of Group 3 and Group 5 was shown to be close, the same did not obtain for Groups 4 and 6, where low anxiety was associated with discrepant IPA profiles involving 2/3 of the IPA categories.

11.8.2 The Implications

Of the three types of interaction, the one examined in this Study was the one that came closest to a profile incorporating no extreme traits, where the prediction of behaviour becomes largely a matter of intuition. As such, trait interactions involving one extreme trait represented a type that is probably well distributed in the population. However, by defining two of the criterion dimensions for group membership near the mean, the precise behavioural consequences for the trait interaction became blurred. The result was that three of the six groups failed to exhibit the predicted behavioural patterns. Where trait interactions involve only one extreme trait, detailed information on the Ss' general trait structure will be required before more realistic hypotheses can be formulated.

11.9 SUMMARY AND CONCLUSIONS

1. The invitation to participate in the discussions was successful
    in eliciting a volunteer response of 68%.

2. Nine groups of Ss were formed, of which six had extreme scores
    on only one of the following scales: STAI X-2 Trait Anxiety,
    EPI Extraversion and EPI Neuroticism. The study also included
    three comparison groups none of whose members obtained extreme
    scores on the three criterion measures.

3. Three separate comparisons were involved, using groups with
    high and low scores on each scale. The six groups were also
    measured against the mean IPA profile of the three groups with
    no extreme scores.

4. In anticipation of weak interaction effects,the behavioural
    sample was increased to 90 minutes. The data was restricted to
    the IPA record.

5. None of the extreme selection criteria in Groups 1-6 correlated
    significantly with the IPA record, either in terms of
    aggregated categories or single categories, apart from a
    negative correlation between EPI Extraversion and IPA Cats 10-
    12 for the high and low extraversion groups (Groups 1 and 2).

6. An examination of the IPA record indicated support for the
    consistency hypothesis in respect of the behaviour of three of
    the six groups.

    Hypotheses no.1 and 2, concerned with high and low
    extraversion were not confirmed, with Group 2 (low
    extraversion) achieving an exceptionally high rate of activity
    and including aggregations of behaviour at variance with the
    predicted IPA profile.

    Although hypothesis no.3 was confirmed in predicting

similar profiles for the two high anxiety groups (Groups 3 and 5) the same did not hold for hypothesis No.4. While predicting many of the behaviours in Groups 4 and 6, it failed to account for the differences between the two low anxiety groups.

7. Study 3 suggested that trait interactions involving single extreme traits – even traits prominent in small group behaviour – constitute a type of interaction whose behavioural consequences are hard to predict, when compared to trait interactions involving extreme scores on more than one dimension.

CHAPTER 12

Ss' EVALUATION OF STUDY 3

12.1 INTRODUCTION

Concern has been expressed in work on the laboratory subject (Rosenthal and Rosnow, 1975; Silverman, 1977) about the divergent ways in which subjects perceive experiments, about the motivational factors underlying their commitment to the experimental task, about the behaviour of subjects where deception is suspected, and the contamination effects resulting from the interaction between subject and experimenter.

To explore these issues and to gain a better understanding of subject behaviour, a questionnaire was mailed to the Ss who took part in Study 3.

At the end of the third meeting of the nine groups in Study 3, the Ss were paid £2.50 for taking part, and were informed that personality and interactional profiles would be made available within six weeks.

A fortnight after the last meeting, the 36 Ss were sent a two-page questionnaire. This included ten items with two sets of scales based on the Semantic Differential [see Osgood, Suci and Tannenbaum, The Measurement of Meaning, 1957]. The items were designed to check on:

1. Previous experience of experiments (items 2.1, 2.2)

2. Perception of Study 3 (items 4.1, 7, 10)

3. Perception of the purpose of Study 3 (items 1, 8)

4 Perception of the author (items 2.3, 3, 4.2, 5, 6, 9)

The forms were anonymous and 26 (72%) were returned completed.

12.2 ANALYSIS

ITEM 1. What was the purpose of this study ?

Replies: No.

    1.   Correct (Study was concerned with

            personality and small group

            behaviour)   10

    2.   Incorrect (Study was concerned

            only with small group

            behaviour)   8

    3.   Incorrect - Other (see below)   5

    4.   No answer   3

                                (26)

Replies in the third group included:

    'To observe how a group handles a controversial subject'

    'To investigate the social conversation of students'

    'Connected with social relationships between students'

    'To see how people perform when not in the company of

    a tutor'

    'To study the way discussions develop within a group of

    students'

ITEM 2.1 Apart from the Practicals, did you take part as a

volunteer in any Psychology experiments ?

If yes, how many ?

Replies: YES   20

                                  NO   6

                                        (26)

     Of the 20 Ss who had taken part in experiments, 7 had been

involved in 3 or more (mean No. of experiments: 2.1 s.d.: 1.02).

ITEM 2.2 Was this study different from the experiments ?

If yes, how was it different ?

Replies: YES   19

                                  NO   1

                                        (20)

Comments on how the study differed included:

     'It required much more active, thinking participation'

     'Ss were left to handle the situation in their own way'

     'You did not feel you were so much under surveillance'

     'Involved more informal discussion'

     'Was not a formal exercise which needed completion'

     'It involved working with people rather than machines'

<u>ITEM 2.3</u> Did the author behave differently ?

If so, how was his behaviour different ?

Replies   YES   16

                            NO   4

                                  (20)

Comments on his behaviour included:

'He was more impersonal'

'He wasn't present during the actual study'

'More communicative and accommodating'

'Took a less obvious role'

'Very unobtrusive, low profile, etc.'

'He was not so domineering; the course of the study

was left to the Ss to determine. The author was

not the key figure'

TABLE 12.1 ASSESSMENT OF AUTHOR

ITEM 3 Please characterize the author using any six adjectives

Adjectives used preceded by frequency:

1	ACADEMIC	14	FRIENDLY	5	PLEASANT
1	ANXIOUS	1	FRUSTRATED	2	POLITE
3	APOLOGETIC	1	GENIAL	1	PUNCTUAL
1	BUSY	1	GENTLE	5	QUIET
3	CALM	12	HELPFUL	1	REASSURING
1	CANDID	3	HONEST*	3	RELAXED
2	CHATTY	1	HUMOUROUS	1	RELIABLE
1	CONCERNED	1	IMPARTIAL	1	SHY
1	CONCISE	4	INFORMAL*	5	SINCERE*
1	CONFIDENT	1	INOFFENSIVE	1	SINGLE-MINDED
1	CONSCIENTIOUS	1	INTELLIGENT	1	SUPPORTIVE
3	CONSIDERATE	2	KIND	1	SYMPATHETIC
1	COURTEOUS	1	KNOWLEDGEABLE	1	TACTFUL
1	CURIOUS	1	MEEK	1	THOROUGH
1	DILIGENT	2	MILD	1	TRUTHFUL
1	DISCREET	1	NERVOUS	2	UNASSUMING
1	EARNEST	1	NEUTRAL	1	UNDEMANDING
1	EASY-GOING	3	OPEN	2	UNDERSTANDING
5	EFFICIENT	1	OPERATIONAL	2	UNIMPOSING
2	ENCOURAGING	1	ORDERED*	4	UNOBTRUSIVE
2	ENTHUSIASTIC	1	ORGANISED	2	VAGUE
1	EVASIVE	1	PASSIVE	1	WARM*
1	FAIR	1	PATIENT	1	WITHDRAWN
1	FRANK	1	PEACEFUL*	1	YOUNG*
		1	PERSISTENT		

*Adjectives used also as polar items in the
scales (see Appendix 3.11/12)*

ITEM 4.1 If this study were continued next year, would you take part

in it again ?

If no, why not ?

If yes, why ?

Replies: YES   17

                            NO   9

                                  (26)

Comments from Ss willing to continue included:

'It felt a good experience and made me feel more confident

about tutorials afterwards'

'I enjoyed the discussions and learnt more about myself'

'I quite enjoyed doing the study and I found it helpful in

understanding the approach towards experiments in

Psychology'

'The study itself was interesting'

'Study itself sufficiently interesting and affords some form

of personal reward other than money'

'Quite interesting, good fun and pays well'

Comments from Ss not willing to continue included:

'Boredom of repetition'

'Does not seem a crucial study; may not give accurate

 data; time consuming'

'I didn't really enjoy taking part and even felt

uncomfortable at times'

'I don't think it would benefit anyone'

'Would prefer a new study rather than repeat'

ITEM 4.2 If this study were to continue next year, but run by someone else, would you take part in it again ?

If no, why not ?

Replies: Of the 17 Ss who answered YES to item 4.1, all 17 answered YES to item 4.2.

'YES' comments included:

'I think the author was only a very supplementary part of the study'

'It would make no difference to me'

'The author had little bearing on the discussion'

'Role of the author did not effect results'

'The author did not really play an important part in the study'

Of the 9 Ss who answered NO to item 4.1, none answered YES to this item or made further comments.

ITEM 5 Can you describe the status of the author ? Did you see him as a fellow student, a postgraduate, a lecturer etc.?

		No.
Replies:	(1) Fellow student	5
	(2) Researcher/P.G.	11
	(3) Lecturer	5
	(4) Other	3
	(5) Not sure	2
		(26)

Examples of replies included:

(1) 'Although he was running the study he was not above us, but knew more and was in command of the situation'

'Fellow student'

'I considered him more as a student one could communicate with on the same level'

(2) 'He was more aloof than a fellow student, but not as formal or remote as a lecturer'

'Seen him as a research student'

'A research student, higher in status than us, although not as formal or as distant as a lecturer'

(3) 'I know he's a research student but I regarded him more as a lecturer'

'Definitely a lecturer - related to him as adolescent to adult, pupil to teacher'

'A lecturer but on a more personal level'

(4) 'Difficult really. Probably not as a fellow student or as a lecturer but somewhere in between, e.g. personal tutor'

'More as a tutor than a fellow student'

'More equivalent to a strict primary school teacher than a lecturer'

<u>ITEM 6</u>   Do you feel the author's personality had any

noticeable effect on your approach to the study ?

If yes, how ?

Replies: YES   12

NO   14

(26)

The following comments were made by those replying YES:

'Initially made one more relaxed'

'I was made to feel relaxed and I did not feel inhibited in

participating in the study'

'By putting me more at ease'

'Friendly informal attitude made me feel easier and more

confident, especially in the first discussion when it was a new

experience'

'Because he was able to coax subjects to relax in a generally

friendly atmosphere'

'His friendly attitude insisting that the study was for the good

of the subjects'

'No problem presenting the right image'

'He was friendly and made me want to conform to the 'rules' and

make the study a 'success' for him'

'Made me make an effort to be cooperative – wanted the study to

go well'

'One felt more ready to take part willingly in the study'

'He put me in a good optimistic sort of mood which may have

effected my attitudes a little'

'I quite enjoyed it'

ITEM 7   Did you gain anything from this study ?

          If yes, what ?

Replies: YES   24

                                  NO   2

                                        (26)

Examples of replies:

    'More insight into myself in discussion'

    'More confidence in talking and £2.50 !'

    'Knowledge about myself in strange group situations and about how

    my attitude changed as I got used to the situation'

    'I found it easier to discuss topics with other subjects'

    'Talking to others on subjects not usually touched on when you

    have only just met people'

    'Insight into interpersonal group interaction'

    'It made me aware of the fact that I frequently have very little

    to say for myself and do not have many very strong opinions'

    'In the discussions I realised that I don't think sufficiently

    before I speak or formulate my ideas sufficiently'

    'More confidence in speaking in tutorials, less inhibited even

    though tutor is still present'

    'It made me think about my participation in discussions'

    'Some interesting information on topics discussed, made clearer

    and memorable by the discussions'

    'The discussions were fairly relevant to the course'

ITEM 8   At any stage did you feel that any deliberate deception

was practiced by the author ?

If yes, what ?

Replies: YES   7

NO   19

(26)

The comments from the 7 Ss who replied YES:

'I decided that the black glass-like surface at the side of the

room was probably a one-way mirror and that you were observing us

without wishing to distract or inhibit us'

'Not knowing that one was going to be filmed and taped; and a 10

mins delay in one session probably was deliberate to gauge

subjects' reactions'

'It wasn't made clear that one of the primary aims of the study

was a personality assessment'

'Uncertain, uneasy at times, as to whether everything should be

taken at face value, but there weren't any moments when I was

sure I was being deceived'

'Perhaps an insistence that the study was purely for the benefit

of the subjects'

'Originally I hadn't realised that the discussions were concerned

with subjects' personalities, but merely on the way student

discussions develop. But of course, the two go together'

'In the early stages, we were given the impression that it was

group discussions that were under investigation, when in fact

individual profiles were going to be produced'

TABLE 12.2 DESCRIPTION OF AUTHOR

ITEM 9 Describe the author

REPLIES: The author was ...

scale ignored by No. of Ss

Left	1	2	3	4	5	6	7	Right	ignored
BELLIGERENT				2	2	10	12	PEACEFUL	
DISCIPLINED	5	13	4	3	1			UNDISCIPLINED	
WEAK		2	4	8	5	4	1	STRONG	2
INSINCERE			1		5	10	10	SINCERE	
INTIMATE	1	8	5	7	4			REMOTE	1
MATURE	6	14	3	1	1			IMMATURE	1
SERIOUS	1	10	6	7	1	1		FRIVOLOUS	
SOFT		5	9	8	2			HARD	2
INDEPENDENT	7	7	4	4	1			DEPENDENT	3
YOUNG	4	9	3	7	1			OLD	2
COLD				2	4	13	6	WARM	1
EXTRAVERT		1		11	7	7		INTROVERT	
TENSE			3	4	5	6	8	RELAXED	
INFORMAL	4	11	4	4	2	1		FORMAL	
AUTHORITARIAN		1	6	3	7	6	3	NON-AUTHORITARIAN	

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TABLE 12.3   DESCRIPTION OF STUDY 3

ITEM 10   Describe Study 3

REPLIES: Study 3 was:

.

scale ignored
by No. of Ss

CHAOTIC :	___ :	___ :	3 :	2 :	3 :	9 :	9 :	ORDERED	
PROFOUND :	___ :	7 :	4 :	5 :	5 :	1 :	1 :	SUPERFICIAL	3
WORTHLESS :	___ :	1 :	2 :	2 :	5 :	12 :	2 :	VALUABLE	2
RATIONAL :	3 :	7 :	4 :	6 :	2 :	1 :	___ :	EMOTIONAL	3
DISHONEST :	___ :	___ :	1 :	1 :	3 :	14 :	6 :	HONEST	1
GOOD :	5 :	10 :	4 :	6 :	___ :	___ :	___ :	BAD	1
INFORMAL :	5 :	11 :	3 :	5 :	1 :	1 :	___ :	FORMAL	
BORING :	___ :	1 :	___ :	1 :	5 :	9 :	10 :	INTERESTING	
PLEASANT :	4 :	9 :	7 :	4 :	1 :	1 :	___ :	UNPLEASANT	
TENSE :	___ :	2 :	6 :	7 :	3 :	6 :	2 :	RELAXED	

12.3 DISCUSSION

The Ss had ample time to reflect on Study 3, its purpose and to form an impression of the author. The total time spent by each of the Ss in preparing for the three meetings, participating in the discussions and completing the questionnaires exceeded ten hours. During this period they were exposed to the discussions for 90 minutes and sporadically to the author over 6 hours. In addition, the meetings took place over a two-week period, and a further fortnight elapsed between the last meeting and this inquiry.

12.3.1 Previous Experience of Psychology Experiments

Most of the respondents had been involved in at least two other experiments during their first year in the Department. Yet 95% of those with previous laboratory experience perceived Study 3 as a departure from the norm, in that it was less formal and seemingly less controlled by the author. In so far as this impression was congruent with the author's intention to encourage relaxed and cooperative behaviour, it probably rests on an inaccurate assessment of how much covert control was actually being exercised.

12.3.2 Perception of Study 3

65% of those who replied were sufficiently interested in the study to wish to continue, if further meetings had been arranged the following year; and their enthusiasm was undiminished by the prospect of a different coordinator. Clearly for most of the respondents, the meetings were seen to have generated their own momentum, largely independent of the author.

95% felt that they had gained something from the groups, and for most of them (item 10) it was considered a useful, pleasant and

interesting experience without much tension.

It is possible that Ss tailored their perceptions in retrospect to match an appropriate expenditure of time and effort, but the replies were consistent and representative of the behaviour shown by Ss at the meetings.

12.3.3 Perception of Study's Aim

In the briefing (Chp.4) the purpose of the research was explained to the Ss. Nevertheless it was apparent from replies to item 1 that many Ss chose to ignore this information. Also, from replies to item 2 it was evident that several Ss were uneasy at times, reflecting perhaps the observation made by Resnick and Schwarz (1973) where telling the subjects too much produced a negative reaction and increased suspicion.

12.3.4 Perception of Author

The Ss described the author as unobtrusive (items 2 and 3), friendly, helpful, quiet, efficient (item 3), and incidental to the activity of the meetings (items 4.2). Despite an age gap of at least fifteen years, few of the respondents appeared to be confused or adversely affected by the role or status of the author (item 5). Also, replies to item 6 suggested that the author was at least partly successful in his aim of inducing a relaxed and constructive approach to the discussions (see Chp.4, section 3).

In the absence of external validation of the Ss' assessment of the author, his inventory scores have been included in this assessment (12.3.5). The author's scores indicated that he was more introvert and more anxious than was suggested by the Ss' descriptions.

TABLE 12.4   16PF − A COMPARISON OF PROFILES

16PF TEST − THE AUTHOR

COMPARED WITH MEAN SCORES FOR 36 Ss.

STANDARD TEN SCORE (STEN)

Left	1	2	3	4	5	6	7	8	9	10	Right
RESERVED				O		●					OUTGOING
LESS INTELLIGENT						●		◎			INTELLIGENT
UNSTABLE					●			◎			STABLE
HUMBLE			◦	◎		●					ASSERTIVE
SOBER			◎		●						CAREFREE
EXPEDIENT					●		◎				CONSCIENTIOUS
SHY			◦	◎		●					VENTURESOME
TOUGH-MINDED				◎		●					TENDER-MINDED
TRUSTING					◎	●					SUSPICIOUS
PRACTICAL						●		◎			IMAGINATIVE
FORTHRIGHT					●				◎		SHREWD
PLACID					●						APPREHENSIVE
CONSERVATIVE		◎			●						EXPERIMENTING
GROUP-DEPENDENT						●		◎			SELF-SUFFICIENT
UNDISCIPLINED					●		◎				CONTROLLED
RELAXED						●	◎				TENSE

AUTHOR :   − − − −

SUBJECTS ▬▬▬▬

The raw scores for the author and the 36 Ss were
standardised using the British Undergraduate Norms.
prepared by P. Saville and S. Blinkhorn.

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12.3.5 Author's Personality

In 1972 the author completed the EPI. His scores compared to the
mean for the 36 Ss in Study 3 were as follows:

EPI (Form B)	Author	Ss' mean
EXTRAVERSION	12	14.3
NEUROTICISM	10	12.7
LIE SCALE	1	0.9

In 1974 he completed the 16PF and the STAI x-2 Trait Anxiety
inventory. The author's profile is compared to the mean profile of
the 36 Ss in Table 12.1. The profiles were prepared using Saville and
Blinkhorn's Undergraduate Norms in preference to Cattell's 1973
Tabular Supplement (2nd edt.)

The 16PF second order factors - STEN scores - and the STAI scores
for the author and the Ss are compared below:

16PF	Author	Ss' mean
1 ANXIETY	5.3	5.9
II EXTRAVERSION	2.5	6.1
III TOUGH-MINDEDNESS	6.9	5.2
IV INDEPENDENCE	5.6	6.0
STAI Trait Anxiety	40.0	42.0

Due to the limited scope of the questionnaire, generalisations
from the Ss' comments should be treated with caution, and may not
reflect the views of Ss in Studies 1 and 2 who had less exposure to
the laboratory situation and to the author.

However the Ss' answers indicated that (a) the author's aim to
adopt an unobtrusive profile, and thereby facilitate group
interaction, was partly realised; (b) far from being neutral in their
approach to the task, most of the Ss displayed interest and
commitment; and (c) the Ss' enthusiasm was matched by a decrement in
general tension with important repercussions for the incidence of
anxious behaviour.

CHAPTER 13

CONCLUSION

13.1 SUMMARY

Studies 1-3, the core of this research, were concerned with examining the general hypothesis that specific types of trait interactions were associated with predictable patterns of behaviour in small group discussions.

The personality measures were based on well-established inventories. The behavioural data was recorded using the IPA observational scheme devised by R.F. Bales. Various strategies were employed to check on the reliability of the measures and procedures.

13.1.1 The Pilot Study

A pilot study was carried out (Chp.3) to assess the format of the discussion groups in preparation for Studies 1-3, and to gauge whether the discussion material would stimulate sufficient interest. The results suggested that the format was appropriate in that it provided an adequate sample (i.e. in terms of participation rates and range of interactive behaviours), and material that was effective in sustaining the interest of participants.

13.1.2 Surveys 1-3

The three successive first year Psychology classes, from which the Study groups were drawn, were surveyed using the EPI and STAI and an inventory of study habits (the Wrenn SHI), better known in North America than in the U.K. The response rates, obtained at the beginning of each academic year, achieved a satisfactory mean of 85%

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(73% in Survey 1 rising to 94% in Survey 3). The data were
statistically consistent: For the most part in line with published
norms, with no marked discrepancies across the three surveys.

13.1.3 Other Inventories

The selection criteria used for Studies 1-3 were compared to
scores using the Cattell 16PF, Brown & Holtzman's Survey of Study
Habits and Attitudes, Entwistle's Student Attitudes Inventory. This
comparison provided a check on the relevance of the criterion scores,
confirming in most cases that participants in the Studies 1-3 were
correctly differentiated.

13.1.4 Inventory Reliability

Surveys 1-3 were carried out using relatively immature
populations. To check on the stability of the results, two test-
retest reliability trials were carried out; the first over a two-year
period (Appendix 2a) with the STAI and the Wrenn SHI; the second over
a one-year period (Appendix 2b) additionally using the EPI (form A).
The reliability coefficients for the STAI and the EPI were on a par
with those reported in the literature.

The coefficients for the Wrenn SHI need to be treated with
caution, due to its construction based on weighted scales. However
the mean stability of response to individual items of the Wrenn SHI
was similar to that of the STAI (.57 to .58).

13.1.5 Studies 1-3

The Hypotheses. The hypotheses were concerned with predicting
specific behavioural syndromes in small groups associated with trait
interaction types of varying degrees of saliency.

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STUDY 1

Study 1 involved the interaction of two traits, neither of which was considered to be salient in small group behaviour. The interaction of trait anxiety and studiousness was examined on the basis of four contrasting groups, whose members obtained extreme scores on the two criteria. Using observational data alone the results were inconclusive. The behaviours predicted in respect of the trait interactions were not evident from the IPA record, either singly or in aggregation. Yet when the IPA data was examined in the context of data from different sources – discussion style and content, self-reports – the evidence converged to differentiate the four groups in line with the predicted behaviours, and provided support for the consistency hypothesis.

STUDY 2

Study 2 involved the interaction of one major determinant of behaviour in small groups – extraversion – with anxiety. Anxiety was measured by EPI Neuroticism and STAI Trait Anxiety. In contrast to Study 1, it was anticipated that a satisfactory case for the consistency hypothesis would be made by the IPA record alone.

High extraversion was associated with very high overall rates of activity, and both ends of the anxiety dimension were reflected in appropriate rates of behaviour in the relevant IPA socio-emotional categories.

The interaction between low extraversion and anxiety was less clearcut. Although the total activity rates of the low extraversion Groups (3, 4 and 5) were lower relative to those obtained with the high extraversion groups, they were not markedly different from the mean activity rate of the Arts comparison groups (Chp.7). The more introvert Ss appeared to be unusually stimulated by the novelty of the

situation.

Overall, despite the prominence of the extraversion dimension, the evidence for consistency proved to be less conclusive than that obtained in Study 1. In only three of the six groups did the predicted behavioural syndromes occur, i.e. in trait interactions that involved high extraversion.

STUDY 3

Study 3 was concerned with exploring a further variant of trait interaction, namely the interaction of one extreme trait with others located near the mean. Using EPI Extraversion, EPI Neuroticism and Trait Anxiety, six groups were formed. Three separate studies included groups at each end of the trait dimensions. Because it was anticipated that the trait interactions would be reflected in more tenuous behavioural correlates, extended samples of 90 mins. duration were obtained. The evidence for the consistency hypothesis was more satisfactory for the high extraversion group (G.1) and the four anxiety groups (G.3-6) than for the low extraversion group (G.2).

13.1.6 Comparison Groups

The Arts Groups provided a mean interactional profile against which the behaviours of groups reported in Studies 1 and 2 were compared. Similarly, in Study 3, which included a more extended behavioural sample, three additional groups, Groups 7-9, provided a mean comparison profile for Groups 1-6.

The data from two tutorial groups, reported in Appendix 6, indicated that groups with a different academic perspective but operating under the same laboratory conditions, produced interactional profiles very similar to the mean profile of the Arts Groups.

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13.1.7 Bales' IPA System

Reliable results using the IPA system depended on (a) transcript accuracy, (b) observer interpretation, and (c) coder reliability. All three issues are discussed in Appendix 1.

Despite comprehensive claims made for the IPA system, the identification and scoring for most categories of nonverbal behaviour was found to be erratic and unsatisfactory. Only certain nonverbal behaviours were shown to have acceptable reliability. Most were ignored. By recording only specific nonverbal behaviours greater consistency was achieved, though at the expense of ignoring much information of potential value. This was particularly the case with anxiety, many of whose signs lie in the nonverbal domain.

The emphasis on verbal behaviour resulted in a high level of act-by-act reliability. The author's coding procedure achieved a mean coefficient of 0.79. Act-by-act reliability involves attending both to segment length and category (most reported reliability coefficients refer only to the latter).

13.1.8 Ss' Feedback

Feedback questionnaires for Study 3 were issued two weeks after the last discussion, with a response rate of 72%. The replies confirmed that the participants did not feel constrained by the design of the study or the format of the discussions.

13.2 THE RESEARCH, ITS DESIGN AND OBJECTIVE

13.2.1 Design

The choice and design of the laboratory setting – despite the cautionary points mentioned in section 2.2.5 – enabled the naturally occurring phenomenon of small group discussion to be compressed into a

manageable format. Particular behaviours were examined under controlled conditions for the presence of relatively small effects. The format was successful in replicating some of the dimensions of everyday discussion activity, e.g. a wide spectrum of behaviours, ranging from the neutral task of questioning a topic's relevance to the affective behaviours that assist in binding a group together.

The purpose of establishing a degree of mundane realism (e.g. inclusion of discussion papers, etc.) was not primarily to increase the external validity of the findings and to generalise from them to other groups. Rather, it was to increase the likelihood that an environment with relatively 'weak structure' (Mischel, 1977a), where Ss felt free to generate their preferred behaviours, would foster the expression of personal consistency; in contrast to the conformist behaviours that are often elicited by the laboratory situation.

The Ss confirmed in their feedback (Chp. 12) that Study 3 had been different to their experience of previous Psychology experiments. As a result of the relatively loose structure of the discussions, the Ss provided adequate evidence of a wide range of interactional behaviour.

Campbell (1957) has drawn attention to various sources of confounding variance, including history, maturation, testing, instrument decay, regression, selection and mortality. With the accent on identifying small behavioural differences between groups, attaining this goal depended on the careful control of extraneous variables; otherwise the internal validity of the results would have been jeopardised. It was evident that the Ss were not unduly inhibited by the laboratory environment. For the most part they were unaffected by the recording apparatus and the spartan conditions of the room (see Chp.4). It was apparent also from the ease with which

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the comparison groups functioned in the same laboratory setting, that the environment was not experienced as particularly oppressive. Finally, neither sex differences nor seating position appeared to exert any significant effect on the IPA record (App.1).

The research made exclusive use of volunteer Ss, a subgroup that has been distinguished from the non-volunteering population (Rosnow and Rosenthal, 1976) with possible consequences for the integrity of research results.

However it was not evident that volunteer bias with its associated tacit acceptance of the author's expectations, was either prominent or resulted in the pseudo-confirmation of the hypotheses. On the contrary, support for some of the predicted behaviours was not confirmed; and the feedback from Ss (Chp.12) suggested that the discussions had developed a momentum, that was independent of the author's control. As Berkowitz and Donnerstein (1982) noted, "while **some** subjects may **occasionally** try to live up to the research expectation...the motive to confirm the experimenter's hypothesis is probably too rare and too weak to be counted as a ready determinant of the experimental outcome" (p.251).

13.2.2 Objective

The research had the objective of "examining the behavioural record in leaderless small group discussion in order to identify the extent to which predictable behaviour was associated with certain types of trait interaction". Trait interactions of varying degrees of saliency provided the hypotheses, and the observational record of small group activity provided the behavioural evidence.

In pursuit of this objective, the research was successful in establishing consistent behavioural evidence for each of the three

types of trait interaction. However, for some specific trait interactions, the evidence for the consistency hypothesis was not forthcoming, and the data contradicted the expected outcomes: For instance, the low extraversion groups appeared to be stimulated by the novelty and context of the discussions, and generated an unexpected amount of verbal activity.

The evidence for consistency varied according to the type of trait interaction: In Study 1 the relatively weak interaction between trait anxiety and studiousness required both the IPA data and complementary sources of data in order to clarify the behavioural correlates. In Study 2 the stronger trait interactions involving high extraversion needed only the IPA aggregates to confirm the consistency hypothesis. In Study 3, which dealt with more elusive trait interactions, an extended behavioural sample was necessary in order to identify consistent behavioural trends in some of the groups.

13.3 CONCLUSIONS

In summary, the evidence provided by Studies 1-3 supported the following conclusions:

1. Consistency was observed in relatively restricted samples of small group behaviour, but varied in saliency depending on the type of trait interaction.

2. Although trait interactions involving high extraversion produced evidence in support of the consistency hypothesis, even less salient trait interactions (e.g. anxiety and studiousness) were successfully linked to clearly differentiated behaviours.

3. The evidence for consistency mediated by trait interactions can
    be uncovered in certain cases, providing sufficient care is given
    to the selection of Ss, their personality structures, the choice
    of data and the situational context.

4. In general a convergence of data from different sources is more
    likely to uncover evidence of consistency that reliance on the
    behavioural record alone, however robust the observational
    system.

5. The search for consistency will be facilitated by examining data
    at the micro and at the macro level: namely the evidence of (a)
    unique behaviours and the aggregation of behaviours in a
    particular category, and (b) behavioural profiles across several
    categories of behaviour.

6. The degree of consistency between a specific trait interaction
    and its behavioural correlates will depend in large part on the
    extent to which activity is facilitated by social and situational
    factors.

13.4 THE RESEARCH AND CURRENT PERSPECTIVES ON CONSISTENCY

By examining consistency in terms of trait interactions and small
group activity, the research attempted to respond to the complexity of
the phenomena. It was concerned with several issues that have not
received much attention in the reported literature.

13.4.1 Group Profiles

Few consistency studies have examined small group behaviour, or

taken the view that individual consistency could be satisfactorily reconciled to profiles of group behaviour. However, one of the assumptions made in this research was that such a procedure could be justified and followed through, provided the interactional group was composed of carefully selected members, sharing a determined degree of homogeneity with regard to the relevant trait dimensions.

It was recognised that individual behaviour in social settings involves reciprocal, complementary processes, that lead to the mutual generation of consistent behaviours. The group profile can be said to correspond to a definition of what individual trait interactions were actually expressed, a consensus of what was permitted. The group profile provided the link between individual trait interactions and group activity.

The clustering procedures used in this research (cluster analysis, biplot analysis) repeatedly failed to recover the selected groups' composition through coefficients of similarity, i.e. despite similarities in personality, group membership was not reinforced by similar IPA profiles. Such similar profiles might have been legitimately expected to emerge - provided the overall personality structure was similar - with greatly extended samples of behaviour. However, within the limited timespan of the discussions the search for consistency depended instead on the fusing of reciprocal behaviours, located in the behavioural record of the group profile.

Epstein (1979, 1980), proposed the aggregation solution whereby appropriate levels of behaviour were sampled over situations. While such an approach may be sufficient to define consistency in relatively straightforward non-interactional situations, it fails to match the complexity of group behaviour, where the demonstration of individual consistency is moderated by group processes.

13.4.2 Behavioural Patterns

Although research using small groups provides a context in which the universe of possible trait interactions is in theory unlimited, in practice the effects are actually quite small, with consequences both for the number of trait interactions involved and their associated behavioural correlates. The procedure used in this research to identify consistent behaviours extended the concept of simple aggregation to include a broader interplay based on different categories of activity.

In Studies 1-3 the search for consistency was considered, both in terms of the aggregation of discrete, molecular acts, and also in terms of behavioural patterns or syndromes, involving complementary behaviours across several observational categories.

Mischel and Peake (1982) and Buss and Craik (1980, 1983) have argued for an act frequency approach to consistency using prototypical behaviours. Likewise, this research advocated a prototypical approach to the choice of relevant behavioural categories, by proposing that consistency could be uncovered in terms of specific aggregations of different behaviours.

Although the hypotheses were derived from an understanding of personality dynamics and group processes, their relevance was strictly proportional to the perceived homogeneity of the groups' membership. In less homogeneous groups, using members with disparate personalities, the prediction of consistent behavioural syndromes would be difficult to formulate and hard to justify theoretically.

13.4.3 External Validity

The interactional outcomes resulted in findings that did not fit the canons of conventional statistical practice. The standard

statistical approaches were found to be inappropriate for small behavioural samples whose contextual validity (Kruglanski, 1975) could only be assessed in terms of the care that their selection had entailed. The data was essentially clinical and idiographic in nature. That did not diminish its validity. On the contrary it was only by recognizing that it was different (e.g. that the data was non-representative of other student groups) that it could be judged in terms of the integrity with which it has been reported.

Over the past twenty years, research into consistency has been largely concerned with the theoretical issue of how classical trait theory's notion of absolute consistency could be reconciled to a relative lack of observable consistency. The debate has narrowed to one of locating the boundaries within which relative consistency can be demonstrated to function satisfactorily: Where consistency occurred, it was shown to be restricted to particular behaviours, moderated by specific traits, and defined according to the level of analysis employed.

The research reported here represents a step towards integrating several difficult methodological issues within an design involving relatively complex samples of behaviour. The concept of trait interactions has been extended to include types of trait interaction and the choice of behavioural nexus has been widened by dealing with the dynamics of small group behaviours.

13.5 LIMITATIONS OF RESEARCH

13.5.1 Selection Criteria

The groups were formed on the basis of scores on several well-established inventory scales. In retrospect the predictive utility of these instruments with regard to specific behaviours was questionable. Werner & Pervin (1986) do not recommend certain inventories (e.g. the EPI) for the prediction of actual behaviour - despite widespread use to the contrary - on the grounds that such inventories include only a relatively small proportion of behavioural items. The same strictures apply with equal validity to the Spielberger STAI and the Wrenn SHI.

The behavioural correlates of trait interactions involving anxiety entailed some subtle methodological issues. The level of state anxiety in the research groups was moderated (a) by the author's efforts to reduce participants' anxiety to a level where they were capable of providing a viable sample of interactive behaviour, and (b) by the sense of group cohesiveness induced by sharing similar trait dimensions. In theory it would have been possible to manipulate the state anxiety of participants by designing tougher situational constraints into the design of the meetings, and raising anxiety to a level where the behavioural evidence would have been more intrusive. For instance De Waele and Harre (1976) have proposed the use of conflict situations in the study of personality. In practice the disadvantages of such an approach were judged to be that (a) any increment in anxiety would have been matched by a corresponding inhibition of other behaviours, and (b) on a practical level, it would have been difficult to induce Ss to return for further sessions.

13.5.2 Subjects

The results of Studies 1-3 suggest that certain types of trait
interactions provide satisfactory demonstrations of consistency in
leaderless small group discussions using specific student populations.
However as Flanagan and Dipboye (1980) have pointed out, "there are
limits on the generalizability of all findings, which can be revealed
only through systematic testing with different Ss, settings and
responses" (p.465).

It was fortunate that this research was able to benefit from the
involvement of well motivated Ss. The groups included intelligent and
very articulate young people, whose behavioural patterns in some cases
were particularly clear-cut. With more average subjects, the results
would probably have been less evident.

For each population from which discussants are drawn, careful
consideration should be given to the types of potential trait
interactions that will be evident from their behavioural correlates.
Each particular population is likely to vary in the types of trait
interaction that demonstrate satisfactory coefficients of consistency.
Even small discussion groups based on the same selection criteria but
drawn from a different population of young Ss will not necessarily
exhibit consistency in respect of the same trait interactions. Groups
drawn from different populations are likely to impart a different
meaning to the laboratory situation and act accordingly.

The design had several properties concerned with facilitating
appropriate samples of behaviour: With young subjects, likely to have
immature personalities and readily influenced by external factors, it
was necessary to discreetly establish a strong sense of purpose. In
less favourable circumstances, the behaviour of young people will tend
to be more situation-specific, with the possibility of correspondingly

fewer signs of consistency in small samples of behaviour.

13.5.3 Comparison Groups

By using different comparison groups, the extent to which the IPA profiles of the groups diverged from interactional 'norms' could be gauged. With less limited resources, greater emphasis could have been directed at establishing a mean profile of interactional behaviour that carried greater external validity. The six groups reported in Chp.7 provided a useful but limited comparative profile. With more groups and more discussions per group, the evidence would have been more compelling.

13.5.4 Replication

It was accepted at the outset that replication of any of the studies was not a practical proposition. Limited resources and restricted pools of Ss did not allow for further groups. To compensate for the lack of replication, particular effort was directed instead towards ensuring that the observational data was carefully checked and that the reliability of the measures was tested.

13.6 SUGGESTIONS FOR FURTHER RESEARCH

13.6.1 Trait Interactions

It is not to be expected that every type of trait interaction will show strong evidence of consistency in small group behaviour. The results of this research show that the behavioural evidence is selective, and that only certain types of trait interaction will be associated with predicted behaviours. Nonetheless there are several trait interactions, that include dimensions subsumed under the headings of extraversion and emotional stability (e.g. the interaction

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of social dominance with anxiety) whose links with small group

behaviour warrant further study. In a review of behaviours that are

characteristic of group members, Shaw (1971) identified five main

categories: Interpersonal orientation, social sensitivity,

ascendancy, dependability and emotional stability (pp.169-180). It

would be of interest to examine which of these kinds of small group

behaviour could be consistently linked to certain types of trait

interaction.

13.6.2 Trait Measures

In further research, the advantages of using well-validated

instruments should be carefully weighed against their predictive

utility. Part of the difficulty in establishing consistency may lie

with an inventory's lack of behavioural items. To improve the

predictive quality of the research hypotheses, selection criteria need

to be carefully checked to ensure that (a) the majority of items have

a behavioural bias, and (b) the inventory items are concerned with the

specific kind of interactional activity that the research is

investigating.

13.6.3 Observational Systems

The data was based on the assumption that the IPA system was

sufficiently flexible to provide an adequate behavioural record.

Attention has been drawn to the limitations of IPA, particularly where

non-verbal and socio-emotional behaviour is concerned. The IPA system

attempts to be comprehensive on the basis of only twelve categories,

and it is constructed using symmetrical categories that don't

necessarily provide an adequate account of the phenomena occurring in

non-problem solving groups. In further research using the IPA system

it would be worthwhile to check the limitations of the IPA system

against another observational scheme by scoring a transcript using

both protocols.

13.6.4 Replication

The search for evidence of consistency in interactional samples of behaviour has been confined in this research to the examination of three types of trait interaction. The evidence for the consistency hypothesis was persuasive, but not irrefutable. Some of the trait interactions were associated with unpredicted behaviours; also in one or two instances the same behavioural data could equally well have been marshalled to make a case for trait interactions involving dimensions other than the selection criteria.

Efforts were made to compensate for the lack of replicated studies by a careful attention to detail, e.g. in the selection of Ss, the recording of behaviour, etc. However, further progress in this area will require such findings to be consolidated by replication.

13.6.5 Internal Validity

Concern has been expressed in this research lest sources of extraneous variance prejudice the internal validity of the findings. The need to take account of such interactions was pointed out by Mischel (1973): " To predict a subject's voluntary delay of gratification, one may have to know how old he is, his sex, the author's sex, the particular objects for which he is waiting...the list gets almost endless" (p.256). However, few reports on consistency have noted a concern for such variables.

This research included data on such extraneous variables as setting, sex differences, seating position, observational and inventory reliability. The research also dealt with the role of the author and how he was perceived by the Ss, issues extensively queried in criticisms of laboratory research.

It would be particularly useful in evaluating the results of

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consistency studies, where generally the effects are likely to be small, if more information on similar sources of variance were to be included.

13.7 RESTATEMENT OF GENERAL CONCLUSIONS

The objective in this research was to determine the extent to which certain types of trait interactions were associated with different degrees of behavioural consistency in leaderless small group discussion.

Studies 1-3 dealt with behavioural effects that were for the most part neither easy to detect and quantify, nor susceptible to satisfactory statistical assessment. Overall, the evidence for consistency was positive, with support for the existence of consistent patterns of behaviour associated with each type of trait interaction, confirmation sufficient to indicate that the results were not by chance. But the evidence was not overwhelming. On the contrary, it was very specific. In the groups reported in Study 1 and in most of the groups characterised by high extraversion the results provided strong support for the consistency hypothesis. While in some groups, particularly with regard to trait interactions involving low extraversion, the results were contradictory and puzzling.

Studies 1-3 demonstrated that the evidence for consistency, linking trait interactions to patterns of interactional behaviour, could be obtained for different types of trait interaction that varied in saliency and complexity. Also, even in the case of relatively weak trait interactions it was possible to establish a satisfactory case for consistency using the convergence of data from different sources.

APPENDIX 1

IPA ISSUES

A1.1 SCORING PROCEDURE

The discussions were recorded on 1/2" open reel video tape and on C90 audio tape using twin tracks. The scoring procedure was as follows:

A.   Audio Tape

A 30 mins period from the start of the recording was established to the nearest sentence, and a transcript prepared in long-hand. The transcript was then carefully checked against the audio-tape. Included were all signs of verbal behaviour, ungrammatical utterances, repetitions, hesitations, stuttering, interruptions, etc. Instances of laughter were noted in the right-hand margin. Numbers assigned to identify each subject were entered in the left-hand margin.

In rechecking the transcript against the audio-tape, the IPA units were scored, with the length of each act demarcated by a slash.

The unit is defined in the IPA system as a communication or indication, either verbal or non-verbal, which in its context may be understood by another member as equivalent to a single simple sentence. The bias is always in favour of more units rather than less.

The next step involved classifying the act and entering the category in the right-hand margin, together with the initiator and the receiver of the act.

B.   Video Tape

The scored transcript was then checked against the video-tape to ensure that the speakers were correctly identified.

Three non-verbal behaviours were scored from the video-tape: laughter, nods of agreement and gestures of reassurance.

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Finally the transcript was checked once more against the audio-tape to ensure that no relevant behaviours had been omitted from the IPA record.

Scoring Protocol

The transcripts were scored using the revised IPA system, as described by Bales in <u>Personality and Interpersonal Behaviour</u>, 1970, pp.91-135. Verbal behaviour was classified according to the directions specified by Bales, with one exception: semi-factual, anecdotal information about the self was assigned to Cat.5, rather than to Cat.2. Loading Cat.5 with this material, which accounted for approximately 10% of the interactional record, enabled a sharper distinction to be drawn between behaviours that were properly classed as socio-emotional and those that were ambiguously related both to the former and to the more neutral task area. Non-verbal behaviour was restricted to a narrow range of signs that could be scored with satisfactory consistency - see App. 1.2.

A1.2 RELIABILITY

The reliability of an observational system depends on the systematic elimination of error at three levels: (a) in the behaviour sample, (b) in the precision of the measuring instrument, and (c) in the consistency of coder performance.

A. Sampling

Several sources or error are possible at the level of the Ss' interaction: inadequate sampling may result in an unrepresentative individual profile; stability of behaviour over time may be ignored or taken for granted; environmental factors may exert a differential effect on the Ss; chance responses, preserved in the observational record, may in the case of residual categories have a disproportionate influence on the interactional profile.

B. Accuracy

In most systems a series of decisions have to be made with regard to the selection of unit length, the choice of category, the attribution of the behaviour to its initiator and the identification of the receiver of a specific behaviour. The accuracy of the system is put to the test with each decision, with the possibility of errors rapidly compounding as a result of a faulty decision.

C. Consistency

At the observer level, the reliability of coding data will be affected by the recording method – live vs transcript vs tape transcript – and by the level of consistency that can be achieved over time either for the same observer or between observers.

A1.2.1 The System

The IPA system was designed to be comprehensive, identifying both initiator and receiver of behaviour, capable of categorizing verbal and non-verbal behaviour, and with categories sufficiently clear-cut to enable high levels of coder reliability to be achieved.

Bales was confident that the construction of the IPA system afforded the possibility of attaining a high level of consistent scoring. He noted (1950b) "very briefly it may be said that satisfactory reliability has been obtained between observers, but requires intensive training which should be regarded as an integral part of the method".

In studies using the IPA system, the appraisal of observer reliability is usually ignored, and where it occurs is often expressed in terms of a coefficient of category reliability, rather than a coefficient of act-by-act reliability, that identifies both act category and act length. Category agreement alone enables quite high coefficients to be obtained. In Personality and Interpersonal Behaviour (1970) Bales stated, "the obvious type of test when Interaction Recorders are available is percentage of agreement in categorization on each act recorded. One should hope for at least 80% agreement, although this is not always easy to obtain" (p.531). In a study by Heinicke and Bales (1953) a coefficient of agreement of .86 in category use between two observers was achieved.

However category coefficients by themselves are relatively crude indices of agreement. In a study of act-by-act agreement using the tape-transcript method (a procedure similar to that employed in this research) Waxler and Mischler (1966) found that the percentage of agreement was 61.9% (6,759 acts out of 10,910), a figure far short of the 80% recommended by Bales. They concluded: "Most researchers set

arbitrary reliability levels, sometimes 85% or 95% agreement, between two coders. It is clear from our findings that the levels of agreement found, for marginal scores as well as for act-by-act comparisons of IPA categories, are relatively low compared to the usual levels required. We have found in our experience with the category system that it is impossible to raise the act-by-act reliability level through training much beyond 60%".

It is relevant to the consideration of act-by-act agreement to note that modern recording methods have made this issue more laborious. Bales designed the IPA system in the late 1940s with the interaction record made directly from live behaviour using mechanical scoring pads called "Interaction Recorders". Scoring in this manner Bales (1950b) achieved a rate of between 10-20 acts per minute.

The tape recorder allows a much more accurate analysis to be made; for instance, Psathas (1961) noted in a comparison of live behaviour versus transcript that 23% of the IPA was lost. In this research, using the tape-transcript method and cross-checking the results against a video-tape, an average of 34 acts per minute was scored, despite the restricted scoring protocol that explicitly excluded the majority of non-verbal behaviour.

A1.2.2 Its Limitations

It was apparent to the author that satisfactory reliability could only be achieved by limiting the IPA record to a narrower range of phenomena than that envisaged by Bales. The IPA system proved to have three inherent difficulties: (a) it was often unclear who was actually the recipient of an initiated act; (b) scoring the intonation of verbal behaviour was haphazard; (c) establishing the threshold criteria for non-verbal behaviour resulted in unsatisfactory

procedures that were difficult to replicate.

A. Attribution of receiver

Using the audio and video-tapes, it was possible to correctly attribute 100% of verbal behaviour to the respective initiators. However it was difficult to identify reliably the receiver(s) in the flattened semi-circle of the discussion group, as recorded on video-tape. Nor was it easy to distinguish between acts addressed to individuals and acts addressed to more than one person. Thus, although the receiver was tentatively tabulated in processing the IPA data, this information was invariably excluded from the analysis, and omitted from the data reported in this research.

B. Intonation

The transcripts, checked against the audio and video record in the analysis of the IPA data, provided a reliable record of the verbal content of the discussions. But the characteristics of speech delivery, a level rich in additional information, that included rising inflection, the tone quality (animated vs depressed), varying degrees of local stress, etc. were awkward to score consistently, and tended to result in intuitive, erratic scoring. As a result, intonation in its different aspects was ignored and not included in the IPA data.

B. Non-verbal behaviour

It was difficult to score non-verbal behaviour consistently. For movements of the body, hand gestures, shrugs, leg-stretching, foot-tapping, etc. it was impractical to establish an operational threshold that was subtle enough to capture the restrained activity of a rather inhibited individual while being sufficiently specific to prevent the observational record from being distorted by more demonstrative participants.

Rather than contaminate the IPA record with unreliable data, only

a restricted range of non-verbal behaviours was scored:

A. Nods of the head indicating agreement. Each nod was scored as one act, Cat.3.

B. Laughter. Each second of laughter was scored as one act. Cat.11.

C. Gestures of solidarity, such as the silent proffering of cigarettes (scored in Cat.1).

Within these limits, non-verbal behaviour contributed 6-10% of acts to the total IPA record. Although this selection of non-verbal behaviours left the author with only a partial record, that ignored possibly as much as 20% of the available data, it did enable satisfactory coefficients of reliability to be achieved - coefficients that would be unattainable using the standard scoring procedures (see the figures already quoted by Waxler and Mischler).

A1.2.3 Reliability Test

To check the reliability of his scoring, the author explored the possibility of comparing his data with that obtained by a trained IPA observer using the same audio and video material. He contacted R.F. Bales, who replied (February 1975) that he knew of only one person in the U.K. who had studied IPA in his laboratory. Unfortunately, this person was unable to volunteer the considerable time and effort required for an inter-coder reliability trial.

The alternative course was to carry out a test-retest of the author's coding reliability over a period of a year.

Two transcripts from the Arts Groups (Chp.7) were chosen at random. The transcripts of Groups 4 and 6 were originally scored in January 1976. Typed copies were made in February 1976, and these were scored a year later in February 1977.

TABLE A1.1 RELIABILITY OF IPA SCORING – GROUP 4

1st SET \ 2nd SET (CATEGORIES)	1	2	3	4	5	6	7	8	9	10	11	12	(b)	(c)
1	1												1	1
2		141			2						21		164	183
3		1	189		1	1							192	196
4			2										2	2
5		2	2		391	3							398	441
6		1	1		2	26							30	32
7							15						15	15
8					1	1		17					19	21
9		1							2				3	3
10		1	1							2			4	5
11		20	2		2	1					137		162	193
12												0	0	0
(b)	1	167	195	2	399	32	15	17	2	2	158	0		
(c)	1	171	209	3	417	38	23	18	2	5	220	0		

(a) No. of units identical both in length & Category: 923 (84%)

(b) No. of units identical only in length: 990 (90%)

(c) No. of units scored per transcript. 1st Set: 1092

                                         2nd Set: 1109

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1st SET	\ 2nd SET IPA SCORES CATEGORIES												(b)	(c)
	1	2	3	4	5	6	7	8	9	10	11	12	(b)	(c)
1	4												4	7
2	1	152			3						14		170	195
3	1		165			1					1		168	187
4				6	2								8	11
5		4			469	1					1		475	517
6					5	41							46	48
7		1					19						20	22
8				1				53			1		55	71
9								1	5				6	7
10		2			2					9			13	15
11		6	3								59		68	71
12												1	1	1
(b)	6	165	168	7	481	43	19	54	5	9	76	1		
(c)	6	208	179	8	499	45	19	67	5	11	83	1		

(a) No. of units identical both in length & Category: 983 (86%)

(b) No. of units identical only in length: 1034 (91%)

(c) No. of units scored per transcript.   1st Set: 1152

2nd Set: 1131

The results of the reliability study are set out in Tables A1.1 and A1.2, and show along the diagonal the number of acts in agreement both for length and category.

The percentage of agreement in terms of both correct unit length and correct category was 84% for the transcripts of Group 4 and 86% for those of Group 6.

Translating the percentages into coefficients of agreement is complicated by the fact that the median Pearson r tends to be relatively insensitive to values with small densities. Bales (1950a) recommended that Chi Square be used as an index of goodness of fit, "applied to a situation which does <u>not</u> represent random sampling".

In preference to Chi Square, the author made use of Scott's (1955) Index of Inter-coder Agreement, which corrects <u>both</u> for the number of categories and for the frequency with which each is used.

SCOTT'S INDEX OF INTER-CODER AGREEMENT

"In the practical coding situation it varies from 0.00 to 1.00 regardless of the number of categories in the dimension, and is thus comparable with the percentage agreement figure.

$$\frac{P(o) - P(e)}{1 - P(e)}$$

"P(o) (observed per cent agreement) represents the percentage of judgments in which 2 coders agree when coding the same data independently; P(e) is the per cent agreement to be expected on the basis of chance. The index is the ratio of the actual difference between obtained and chance agreement to the maximum difference between obtained and chance agreement. It can roughly be interpreted as the extent to which coding reliability exceeds chance".

Using Scott's Index, the following coefficients were obtained: 0.78 for the scoring of Group 4's transcripts and 0.80 for that of Group 6's transcripts. These results indicated a satisfactory level of reliability in respect of the author's scoring for these two sets of data. However, it should be noted that these coefficients were not readily comparable to those obtained under inter-coder conditions, nor were they strictly comparable to coefficients obtained using the unrestricted IPA scoring protocol.

A1.3 IPA NORMS

A1.3.1 Category

Bales used and refined the IPA system in the observation of small problem-solving groups, e.g. three man chess club tackling a 2-move problem. The Ss were under the direct scrutiny of observers, who were scoring the interaction without recourse to tape-recordings. The emphasis in these groups was on the exchange of information and opinion, and on the need to reach consensus within a limited period.

In Personality and Interpersonal Behaviour (1970, p.96, Table 6.1) Bales presented estimated norms for initiated behaviour. These were based on a revision of an earlier table that set out the empirical results of 21 different studies using the original IPA categories (Bales and Hare, 1965). The middle (medium) range used seven cases for each IPA category.

BALES' NORMATIVE RANGE FOR BEHAVIOUR IN EACH IPA CATEGORY

CAT.	DESCRIPTION	RANGE %
1.	Seems friendly	2.6 - 4.8
2.	Dramatizes	5.4 - 7.4
3.	Agrees	8.0 - 13.6
4.	Gives suggestion	3.0 - 7.0
5.	Gives opinion	15.0 - 22.7
6.	Gives information	20.7 - 31.2
7.	Asks for information	4.0 - 7.2
8.	Asks for opinion	2.0 - 3.9
9.	Asks for suggestion	0.6 - 1.4
10.	Disagrees	3.1 - 5.3
11.	Shows tension	3.4 - 6.0
12.	Seems unfriendly	2.4 - 4.4

A1.3.2 Participation Rates

In <u>Personality and Interpersonal Behaviour</u> (1970, Appendix 3, pp.467–470) Bales examined his data for small problem-solving groups in terms of interaction rates, which resulted in a rank order for participants in groups of different sizes. This included the following for groups of four members:

BALES' NORMS FOR PARTICIPATION RATES IN 4-PERSON GROUPS

RANK	%
1st member	32.2%
2nd	28.8%
3rd	22.8%
4th	16.1%

Figures based on 89 four-person groups and a total of 52,218 acts)

A1.4 SEX DIFFERENCES

The studies reported in Chps. 6, 7, 9 and 11 involved 25 groups that included 50 male and 50 female Ss. When the Ss' IPA data was combined into a composite profile in terms of sex, the results were as follows:

	MALE		FEMALE	
Cat 1	89	0.38%	73	0.35%
2	3506	15.01	2536	12.24
3	3594	15.38	3540	17.08
4	110	0.47	122	0.59
5	9094	38.93	7607	36.71
6	2853	12.21	2286	11.03
7	905	3.87	785	3.79
8	694	2.97	764	3.69
9	47	0.20	30	0.14
10	405	1.73	432	2.08
11	2018	8.64	2500	12.06
12	47	0.20	47	0.23

MALE: 23362 (53%)

FEMALE: 20722 (47%)

The male Ss initiated 6% more IPA acts than the females and these were concentrated mainly in Cat.2 (dramatises), Cat.5 (gives opinion) and Cat.6 (gives information). Females initiated more acts in Cat.11 (shows tension). The overall differences were not significant.

A1.5 SEATING POSITION

In this research, described in Chps 6, 7, 9 and 11, forty-three group discussions took place that involved twenty-five groups of four Ss. The setting and seating arrangements for each group were identical (see Chp.4) with four lounge seats arranged in a semi-circle facing a video camera.

The IPA data in terms of seating position was as follows, with position 1 being the left-hand seat as seen by the camera:

POSITION

	1		2		3		4	
IPA Cat.1	46	0.37%	44	0.39%	30	0.30%	42	0.39%
2	1724	14.03	1612	14.47	1217	12.26	1489	13.88
3	1911	15.15	1771	15.89	1515	15.26	1937	18.06
4	69	0.56	51	0.46	45	0.45	67	0.62
5	4804	39.09	4230	37.96	3868	38.97	3799	35.43
6	1415	11.81	1221	10.96	1183	11.92	1284	11.97
7	520	4.23	435	3.90	360	3.63	375	3.50
8	389	3.16	327	2.93	324	3.26	418	3.90
9	15	0.12	21	0.19	13	0.13	28	0.26
10	220	1.79	227	2.04	211	2.13	179	1.67
11	1116	9.08	1179	10.58	1141	11.50	1082	10.09
12	26	0.21	25	0.22	18	0.18	25	0.23
TOTAL	12291		11143		9925		10725	
%	**28%**		**25%**		**23%**		**24%**	

Seating position exerted a slight but not significant effect on overall verbal activity, but percentage distribution of acts between categories remained fairly constant for all positions.

The IPA data lent little support to the conclusions reached by earlier studies where it was suggested that interactive activity and interactive style are associated with specific seating positions within a group.

For instance, Steinzor (1950) reported that members seated in a circle tended to talk more to those opposite than to those seated next to them. This was attributed to the fact that those who were opposite were observed more fully and had greater stimulus value.

In another study, Hare and Bales (1963) brought together five-man groups seated around three sides of a rectangular table. In a review of the literature they noted, "not only does seating position influence the amount of interaction a person will give and receive, but also persons who might be inclined to dominate the discussion choose the more central seats". In fact they found that centre seats were the choice of the socio-emotional leaders "who want to see that all participate", while the individualists, perhaps more task-orientated, sought the end positions in order to face the group and make their points. They concluded that, "centrality of seating position and distance in combination can be used to predict the interaction pattern". A conclusion that echoes the earlier paper by Leavitt (1951), that a person occupying a central position in a communication network is likely to emerge as the group leader.

It was not clear from the data in this research that centrality of seating position was associated either with dominant behaviour, or with behaviour that reflected a bias towards socio-emotional acts. The overall IPA record did not appear to have been significantly affected by seating position.

A1.6 SAMPLING

SMALL GROUP PROCESSES, SEGMENT LOCATION AND LENGTH

Research using measures based on tape recordings of discussions

invariably has to contend with the issue of representativeness - the

extent of which the recorded behaviour accurately reflects the range,

intensity and individuality of each participant's contribution, and

the differences in interaction due to the effects of small group

processes. These problems will be considered in terms of (A1.6.1)

small group processes, (A1.6.2) segment location, and (A1.6.3) segment

length.

A1.6.1 Small-Group Processes

The psychodynamic processes in small group work - evident both in

the therapeutic group and in the laboratory - are concerned with two

main areas: achieving the objective task of the group, and coping with

interpersonal pressures.

A.   The Therapeutic Group

In the therapeutic group, Bion (1959) distinguished between the

'work group' and the 'basic assumption group', the latter deducible

from the emotional state of the group. The group's alternating

preoccupation with these two concerns, combined with external

pressures towards their resolution has been extensively examined

(Bion, 1948, 1959, 1970; Bennis and Shepherd, 1956; Schutz, 1966;

Gibbard, Hartman et al, 1974; Caple, 1978; Near, 1978). Most of the

reports describe similar overlapping processes through which groups

move from anxiety and ambiguity towards consensus and constructive

activity. These processes, neither exclusive nor temporally unique

phases, often manifest a cyclical pattern in which earlier issues are

re-examined with increasing confidence. The transition to the

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'achievement stage' (Caple, 1978) involves an initial phase of testing during which the dominant issues are orientation and dependency. As Bennis and Shepherd (1956) note, 'the first days of group life are filled with behaviour whose remote, as well as immediate, aim is to ward off anxiety'. For Bion (1959) the initial anxiety is primarily a conflict between fight and flight, a struggle described by Schutz (1966) as a concern for 'inclusion', in which the group member wrestles with the feelings of commitment and rejection.

B.   The Laboratory Group

In the laboratory group the same processes are evident. For instance, as Philp and Dunphy (1959) have noted, 'successful group problem-solving depends upon reaching a satisfactory solution to the problem of interpersonal relationships among the group members. This is the group's primary concern on being thrown together for the first time, and takes precedence over the objective problem being dealt with'.

But in contrast to the therapeutic group with its extended pattern of development, the lifespan of the laboratory group is of relatively short duration. Although it might be thought that some of the psychological issues would remain unresolved, the evidence suggests that the well-structured laboratory group is capable of dealing with these concerns more expeditiously, particularly since participants are normally without major psychological problems. In his review of the 'Developmental Sequence in Small Groups' Tuckman (1965) concluded that, 'the laboratory groups such as those run for a few hours by Bales, Strodbeck et al (1951) followed essentially the same course of development as did therapy groups for a period of a year'.

In the Northwestern University Lab, using 'initially leaderless'

groups, Heinicke (Heinicke and Bales, 1953) noted that, 'probably most of the important changes had occurred by the fourth session'. They described the general trends in the Northwestern and Harvard group as follows: 'These groups started in session 1 with a heavier emphasis on task-oriented types of interaction, with inhibition of the more affected types of reaction and with low rates of negative reactions. In session 2 however, overt negative reactions show a sharp rise, task-oriented activities begin to decline, and positive reactions, while maintaining their level, show a shift towards greater affect. It appears that session 2 is, on average, the session of greatest conflict. In sessions 3 and 4 the shift towards greater affect and less emphasis on task-oriented activities continues'.

In an earlier study, Bales and Strodbeck (1951) found that in groups where the issues of orientation, evaluation and control were largely unresolved at the outset, these tended to be dealt with in a predictable sequence, starting with orientation.

A1.6.2 Segment Location

Where decisions on segment location are made - due for instance to a set of recordings - the sampling procedure should reflect accurately the changing patterns of interaction as the group moves towards its goals. Where an entire interview is analysed - as in this research - the representativeness of the behaviour will be related to the group processes that have been identified in reports both of the therapeutic group and of the laboratory group.

For laboratory groups, where the orientation phase is concerned with task definition, task rules and the exercise of roles that are usually familiar to participants, there is generally less ambiguity than is found in analytic groups. Consequently, as Tuckman (1965) has

put it, 'for laboratory groups the stage of emotionality is absent',
whereas for clinical groups, according to Caple (1978), 'moderate to
extremely high anxiety' is initially present.

Thus the well-prepared laboratory group is capable of moving
swiftly from the orientation stage, through the evaluation phase and
onto the achievement stage, enabling a satisfactory range of
representative behaviour to be recorded within a relatively short
timespan; and eliminating the problem of locating relevant segments
for analysis from an extended series of recordings.

In this research the overt purpose of the discussions was to
assess Rowntree's book. It was anticipated that the homogeneous
composition of the groups - in terms of age, personality traits,
academic experience and interests - the familiar nature of the
material and the author's standard briefing (Chp.4) would reduce
initial transient anxiety states to a level compatible with achieving
the stated task.

No emphasis was placed upon developing social relationships apart
from brief introductions prior to the discussions. It was expected
that differences between the groups in trait anxiety and neuroticism
would be reflected in the groups' ability to deal satisfactorily both
with the task pressures and the socio-emotional pressures.

A1.6.3 Segment Length

A.   The Therapeutic Group

In a study of 2, 4, 8 and 16 mins segments from a recorded
therapy interview, Kiesler (1964) identified five criteria in
evaluating segment length: (1) the reliability of the rater; (2) the
representativeness of the segment; (3) the optimum range of the scale
where different populations were included; (4) the presence of bias

in favour of a given scale; (5) the power of the scale to perform meaningful differentiations. Using Gendlin's 1962 Experiencing Scale he concluded that most of the criteria were unaffected by segment length apart from representativeness: 'Ratings of brief segments from therapy hours are not equivalent to or representative of ratings based on longer portions of the therapy hour'.

In contrast to Kiesler's study, Miller and Maley (1969) reported that 'random and stratified time samples, 8 mins in length, accurately reflected the verbal behaviour that occurs during the total therapy hour (43 mins) with little or nor loss of relevant information'.

The problems associated with segment length will vary with the range of behaviour elicited in the interview, and are likely to be severe where the emphasis of the therapist lies in obtaining indications of behavioural change, and where the patient is attempting to develop new responses and greater self-awareness.

B.   The Laboratory Group

In laboratory groups operating over short periods, the representativeness of the segment may be jeopardised by a strategy of short infrequent sampling, particularly where the discussion involves members with different rates of participation.

Also the ratio of segment length to the total record is critically dependent on the measuring instrument: for instance, with sampling totalling 25% or less of the recorded interview/discussion, the IPA system is likely to produce a distorted picture, in which the residual categories (1, 4, 9 and 12) are ignored. In contrast, observational systems such as the two-category instrument proposed by Medley and Smith (1964) allow for greater redundancy.

With the groups used in this research the problem of segment length was resolved by establishing the minimum representative length

of discussion between four Ss that could be analysed in its entirety: namely 30 mins of interaction that required approximately 12-15 hours of processing and resulted in about 1,000 IPA units of behaviour.

In the pilot study (Chp.3) and the Tutorial Groups (Appendix 6) where relatively less time was available, a more restricted sampling method was adopted, whereby 50% of each transcript was analysed.

TEST-RETEST SCHEDULE 1

RELIABILITY OF STAI X-2 AND WRENN SHI 1974-1976

A2.1 INTRODUCTION

This research was concerned with the personality of students
whose average age was nineteen, and who were still involved in the
maturational processes of late adolescence and early adulthood (see
Erikson, 1963).

To obtain information on the reliability of the two self-report
inventories used in Survey 1 and on the relative stability of subject
response to the questionnaire items, it was decided to re-administer
the STAI x-2 and the WRENN SHI at yearly intervals to a subset of the
original sample.

In December '75 the questionnaires were sent to 47 students in
2nd year Psychology who had completed forms in Survey 1, together with
pre-addressed envelopes for return via the internal mailing system.

	No. in 2nd year	No. contacted	Retest group
Hons. Psychology (SS)	20	18	17
Hons. Psychology (SC)	19	16	15
Joint Hons. Psychology	5	5	4
Gen. Arts & Science	18	8	5
total	62	47 (76%)	41(66%)

Of the 47 students, 43 completed forms - a response rate of 91% -
including 2 anonymous sets that had to be discarded, leaving a total
of 41 completed sets of inventories.

In December '76 the questionnaires were sent to those students in 3rd year who had already returned two sets of inventories. 36 students were contacted, and 33 (92%) completed the forms for the third time:

	No. in 3rd year	No. contacted	Retest group
Hons. Psychology (SS)	20	16	15
Hons. Psychology (SC)	22	18	16
Joint Hons. Psychology	1		
Gen. Arts & Science	4	2	2
I.E.S Students	4		
total	51	36(71%)	33(65%)

During the test-retest period of two years the survey sample of 94 students was reduced to 33 at the 3rd administration. The number of male and female students in Survey 1 and at the 3rd administration was as follows:

<div style="text-align:center">

Survey 1:   37 males   57 females

3rd Admin.:   11 "   22 "

</div>

A2.2 RESULTS

1.   STAI TRAIT ANXIETY (Tables A2.1 & A2.3)

(a)   The initial mean STAI score for the subset of 33 was slightly lower than the mean obtained in Survey 1. There was a further small but not significant decrement in the mean score over the two-year period.

(b)   There were no significant sex differences over the test-retest period.

TABLE A2.1   STAI X-2 - STATISTICS

				mean	s.d
1. SURVEY 1			n=94	41.38	9.10
TEST GROUP		'74	n=33	38.55	8.79
		'75		38.27	9.73
		'76		36.94	8.46
2. MALES	AGE	'76	n=11	21.64	1.69
	STAI	'74		39.00	7.62
		'75		37.73	6.28
		'76		37.55	7.22
FEMALES	AGE	'76	n=22	21.36	2.90
	STAI	'74		38.32	9.67
		'75		36.36	12.98
		'76		36.64	9.34

CORRELATIONS

3. TEST GROUP			1	2	3
1. STAI		'74	–		
2.		'75	0.757***	–	
3.		'76	0.784***	0.823***	–
4. STAI & SHI		'74	–0.393*		
		'75	–0.570***		
		'76	–0.474**		

Pearson r   *p:< .01;   **p:< .01;   ***p:< .001

TABLE A2.2   WRENN SHI — STATISTICS

				mean	s.d.
1. SURVEY 1			n=94	5.43	43.64
TEST GROUP		'74	n=33	17.45	39.14
		'75		30.33	34.12
		'76		44.36	41.71
2. MALES	SHI	'74	n=11	22.00	39.70
		'75		31.27	40.06
		'76		35.00	34.96
FEMALES	SHI	'74	n=22	15.18	40.51
		'75		29.86	32.62
		'76		49.05	45.64

CORRELATIONS

			1	2	3
1. SHI	'74		—		
2. SHI	'75		0.683***	—	
3. SHI	'76		0.516***	0.614***	—

Pearson r   **p:< .01;   ***p:< .001

TABLE A2.3   STAI X-2 - ITEM STABILITY

Response stability is indicated by % of Ss who gave identical responses at 2 of the 3 administrations of the inventory.

Rk.	Item	Description	74/76	74/75	75/76
1	(23)	I feel like crying	87.9%	81.8%	75.8%
2	(32)	I lack self-confidence	81.8	63.6	60.6
4	(25)	I am losing out on things because I can't make up my mind soon enough	69.7	60.6	60.6
4	(30)	I am happy	69.7	78.8	63.6
4	(35)	I feel blue	69.7	69.7	69.7
6	(24)	I wish I could be as happy as others seem to be	66.7	66.7	60.6
8.5	(22)	I tire quickly	57.6	63.6	69.7
8.5	(26)	I feel rested	57.6	63.6	48.5
8.5	(37)	Some unimportant thought runs through my mind and bothers me	57.6	57.6	54.5
8.5	(38)	I take disappointments so keenly that I can't put them out of my mind	57.6	48.5	54.5
11.5	(28)	I feel that difficulties are piling up so that I cannot overcome them	54.5	63.6	66.6
11.5	(33)	I feel secure	54.5	66.6	54.5
13.5	(21)	I feel pleasant	51.5	72.7	63.6
13.5	(29)	I worry too much over something that doesn't really matter	51.5	66.6	69.7
15	(27)	I am 'calm, cool and collected'	48.5	54.5	51.5
16	(31)	I am inclined to take things hard	45.5	51.5	75.8
18	(34)	I try to avoid facing a crisis or difficulty	42.5	48.5	54.5
18	(39)	I am a steady person	42.5	48.5	54.5
18	(40)	I get in a state of tension or turmoil as I think over my recent concerns and interests	42.5	57.6	33.3
20	(36)	I am content	36.4	54.5	42.4
		Mean %	57.3%	62.0%	59.2%

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TABLE A2.4 WRENN SHI – ITEM STABILITY

Response stability is indicated by % of Ss who gave identical responses
at 2 of the 3 administrations of the inventory.

Rk. Item	Description	74/76	74/75	75/76
1 (27)	I have to study where I can smoke	90.9%	93.9%	90.9%
2 (20)	I finish exam papers before time	78.8	63.6	84.8
3.5(7)	I tend to day-dream in studying	72.7	66.7	60.6
3.5(14)	I study with others	72.7	72.7	72.7
5 (16)	I read too much fiction etc.	69.7	69.7	69.7
6 (8)	It takes time to get warmed-up	66.7	69.7	57.6
8.5(1)	I have to re-read material	63.6	78.8	72.7
8.5(13)	I find it hard to finish work	63.6	66.7	66.7
8.5(17)	Social life interferes with work	63.6	54.5	75.8
8.5(25)	I try to over-learn	63.6	66.7	69.7
13 (10)	My study periods are too short	57.6	57.6	45.5
13 (15)	Loafing/chatting interrupts work	57.6	66.7	57.6
13 (18)	I get fussed over exams	57.6	63.6	57.6
13 (22)	I relate material between courses	57.6	72.7	72.7
13 (23)	I try to summarize and classify	57.6	48.5	54.5
17.5(4)	I pronounce as I read	54.5	63.6	69.7
17.5(6)	I find it hard to concentrate	54.5	69.7	54.5
17.5(9)	I have to wait for the mood	54.5	51.5	51.5
17.5(26)	I often find myself too tired	54.5	75.8	63.6
21 (2)	I often don't see relevant points	51.5	54.5	63.6
21 (19)	I plan our exam answers	51.5	66.7	60.6
21 (24)	I have been out of school too long	51.5	75.8	63.6
23 (5)	I miss important points in lectures	48.5	60.6	51.5
24.5(11)	My time is unwisely distributed	45.5	45.5	60.6
24.5(12)	Visitors/noises interrupt study	45.5	45.5	48.5
26.5(3)	I check up on doubtful points	42.4	57.6	48.5
26.5(21)	I try to understand first time	42.4	57.6	51.5
28 (28)	Dislike of courses interferes with work	36.4	48.5	48.5
	Mean %	58.2%	63.6%	62.4%

(c) The correlation between the total STAI scores for '74 and '76 was
.78, significant at the .001 level. This compared favourably
with the test-retest correlations reported in the STAI Manual
(1970): Spielberger et al included test-retest correlations
ranging from .73 (104 day period) to .86 (20 day interval).
Other reports over very short periods (Joesting, 1976, 1977)
indicated test-retest correlations varying from .60 to .81.

(d) The correlations between STAI and WRENN SHI over the two-year
period were uniformly negative with significance levels ranging
from .05 to .001.

(e) Between the 1st and 3rd administration, the stability of subject
response to the individual items ranged from 87.9% (item 23) down
to 36.4% (item 36) with a mean of 57.3%. For only six of the
items did less than 50% of the Ss produce a consistent response.

2. WRENN SHI (Tables A2.2 & A2.4)

The WRENN SHI is a weighted check-list of 28 study habits 'of
unknown degrees of discreteness' (SHI Manual, p.5). The reliability
coefficients reported below give only a very approximate measure of
score consistency. A more accurate assessment can be gauged from Ss'
responses to the individual items.

(a) The initial mean score for the subset of 33 Ss was higher than
the mean in Survey 1, and different from that of the remaining 61
Ss. A comparison of the two populations (test-retest group vs
the 61 Ss) indicated a significant difference: $t=2.076$ ($p:<.05$).
Over the two-year period the mean SHI score of the 33 Ss
increased by 0.5 s.d. from 17.45 to 44.36.

(b) Sex differences were evident: there was a greater increase in the
mean female score over the two-year period.

(c) The correlation between the total SHI scores for '74 and '76 was .52 significant at the .01 level. Comparative test-retest data was not available.

(d) Between the 1st and 3rd administrations, the stability of subject response to the 28 items ranged from 90.9% (item 27) down to 36.4% (item 28) with a mean of 58.2%. Ss showed the greatest consistency in dealing with items in section C (items 10-17, concerned with the distribution of time and social relationships). On only six of the items did less than 50% of the Ss produce a consistent response.

A2.3 CONCLUSIONS

1. STAI x-2, measuring Trait Anxiety, demonstrated a satisfactory level of reliability over the two-year period using a sample of 33 Ss.

2. A coefficient was obtained for the Wrenn Study Habits Inventory scores over the two-year period which provided an approximate measure of the inventory's reliability.

3. Subject response to the individual items in both inventories was fairly consistent over the two-year period.

TEST-RETEST SCHEDULE 2

RELIABILITY OF STAI X-2, EPI FORM A AND WRENN SHI 1975-76

A2.4 INTRODUCTION

In addition to the 2 inventories used in Survey 1, Survey 2 included EPI Form A. It was decided to retest a subset of Survey 2 after a year's interval. This provided useful comparisons for the 1974-76 test-retest schedule, and established reliability coefficients for EPI Form A in a small population of Psychology students.

In December '76 the three inventories were sent to 54 students in 2nd year Psychology who had already completed the Survey 2 forms, together with pre-addressed envelopes for return via the internal mailing system.

	No. in 2nd Year.	No contacted.	Retest Group
Hons. Psychology (SS)	21	19	17
Hons. Psychology (SC)	19	17	13
Joint Hons. Psychology	3	3	3
Gen. Arts & Science	17	15	14
total	60	54(90%)	47(78%)

Of the 54 students, 47 completed the inventories: a response rate of 87%. The retest group included 21 males and 26 females. .

<u>A2.5 RESULTS</u>

1. STAI TRAIT ANXIETY (Tables A2.5 & A2.8)

(a) The initial mean and distribution of the 47 Ss were similar to

the mean and distribution of Survey 2. There was a slight but

not significant decrement in the mean score between the two

administrations.

(b) Although the mean male score was similar at both administrations,

a slight but not significant decrement was evident in the mean

female score.

(c) The correlation between the total STAI scores was .73,

significant at the .001 level.

(d) The relationship between STAI and the other inventories

maintained a similar pattern at both administrations, showing a

strong positive correlation with EPI Neuroticism and negative

correlations with EPI Extraversion and WRENN SHI.

(e) The stability of subject response to the 20 items ranged from

72.3% (item 22) down to 40.4% (item 32) with a mean of 57.2%.

Similar results were reported in Appendix 2A.

(f) The results of this test-retest of STAI X-2 supported those

obtained in Appendix 2A.

2. WRENN SHI (Tables A2.6 & A2.9)

(a) Unlike the initial mean score reported in App. 2A, the mean score

of the 47 Ss was not significantly different from that of the

Survey 2 sample. Also in contrast to the Survey 1 subset, the

increase in scores during the test interval was slight.

TABLE A2.5   STAI X-2 - STATISTICS

				mean	s.d.
1. SURVEY 2			n=116	40.55	7.23
TEST GROUP		'75	n=47	40.06	6.46
		'76		38.83	7.76
2. MALES	AGE	'76	n=21	20.81	2.94
	STAI	'75		40.43	7.20
		'76		40.43	8.81
FEMALES	AGE	'76	n=26	21.08	4.52
	STAI	'75		39.77	6.06
		'76		37.54	6.87

CORRELATIONS

3. STAI   75-76 n=47   0.727***

4. 1975 DATA

	1	2	3
1. STAI	–		
2. WR.SHI	–0.164	–	
3. EXTRAV.	–0.664***	0.149	–
4. NEURO.	0.638***	0.070	–0.397**

5. 1976 DATA

	1	2	3
1. STAI	–		
2. WR.SHI	–0.289*	–	
3. EXTRAV.	–0.438**	–0.118	–
4. NEURO.	0.749***	–0.319*	–0.299*

Pearson r   *p:< .05; **p:< .01; ***p:< .001

TABLE A2.6 WRENN SHI - STATISTICS

			mean	s.d.
1. SURVEY 2		n=107	7.89	38.57
TEST GROUP	'75	n=47	5.36	37.08
	'76		9.94	45.07
2. MALES	'75	n=21	-6.19	33.11
	'76		0.00	47.79
FEMALES	'75	n=26	14.69	38.79
	'76		17.96	42.91

3.   **CORRELATION**

WRENN SHI	75-76 n=47	0.596***

Pearson r   ***p:< .001

TABLE 2.7 EPI – STATISTICS

			mean	s.d.
1. EXTRAVERSION				
SURVEY 2		n=116	11.03	4.72
TEST GROUP	'75	n=47	12.45	4.28
	'76		12.13	4.98
2. NEUROTICISM				
SURVEY 2			10.04	4.30
TEST GROUP	'75		10.26	4.28
	'76		9.85	3.89
3. LIE SCALE				
SURVEY 2			2.32	1.73
TEST GROUP	'75		2.23	1.57
	'76		1.57	1.22

4.

		MALES		FEMALES	
		mean	s.d.	mean	s.d.
EXTRAV.	'75	12.19	4.64	12.65	4.14
"	'76	11.62	5.59	12.54	4.62
NEURO.	'75	9.43	4.25	10.92	3.67
"	'76	10.33	4.40	9.46	3.55
LIE SC.	'75	2.19	1.54	2.27	1.66
"	'76	2.00	1.34	1.23	1.03

5. **CORRELATIONS**

EXTRAVERSION	75-76	n=47	0.727***
NEUROTICISM	"	"	0.578***

Pearson r ***p:< .001

(b) Sex differences were evident with the mean male score lying approx. 0.5 s.d. below the mean female score - a distribution in line with the results reported in Appendix 2A.

(c) The correlation between the total SHI scores was .60, significant at the .001 level.

(d) At the first administration the correlations between WRENN SHI and the other inventories were not significant, but on retesting, the negative correlations with STAI X-2 and EPI Neuroticism were evident, relationships in line with the findings reported in Appendix 2A.

(e) The stability of subject response to the 28 items ranged from 83.0% (item 27) down to 38.3% (item 23) with a mean of 57.6%, slightly lower than that obtained in the 1st year of the previous test-retest. On 7 of the items - compared with 4 in Appendix 2A - less than 50% of the subjects produced a consistent response.

(f) Overall, the results of the test-retest of WRENN SHI were similar to the figures reported in Appendix 2A, although the mean SHI score was lower.

3. EPI FORM A - EXTRAVERSION (see Tables A2.7 & A2.10)

(a) The mean and distribution of the retest group were similar to the mean and distribution in the Survey 2 sample. There was no significant difference in scores at the two administrations of the inventory.

(b) The correlation between the total EPI Extraversion scores for 1975-76 was .73, significant at the .001 level. In the

TABLE A2.8   STAI X-2 - ITEM STABILITY

Response stability is indicated by % of Ss who gave identical responses at the 2 administrations of the inventory.   Data for the 1974/75 cohort of 33 Ss is included for comparison.

Rk.	Item	Description	75/76	74/75
1	(22)	I tire quickly	72.3%	63.6%
2	(23)	I feel like crying	70.2	81.8
3	(25)	I am losing out on things because I can't make up my mind soon enough	68.1	60.6
4.5	(24)	I wish I could be as happy as others seem to be	66.0	66.7
4.5	(36)	I am content	66.0	54.5
6.5	(28)	I feel that difficulties are piling up so I cannot overcome them	63.8	63.6
6.5	(30)	I am happy	63.8	78.8
8.5	(26)	I feel rested	61.7	63.6
8.5	(38)	I take disappointments so keenly that I can't put them out of my mind	61.7	48.5
10	(37)	Some unimportant thought runs through my mind and bothers me	59.6	57.6
11	(40)	I get in a state of tension or turmoil as I think over my recent concerns & interests	57.4	57.6
13	(21)	I feel pleasant	53.2	72.7
13	(27)	I am 'calm, cool and collected'	53.2	54.5
13	(29)	I worry too much over something that doesn't really matter	53.2	66.6
15	(35)	I feel blue	48.9	69.7
17	(31)	I am inclined to take things hard	46.8	51.5
17	(33)	I feel secure	46.8	66.6
17	(34)	I try to avoid facing a crisis or difficulty	46.8	48.5
19	(39)	I am a steady person	44.7	47.5
20	(32)	I lack self-confidence	40.4	63.6
		Mean%	57.2%	62.0%

TABLE A2.9 WRENN SHI - ITEM STABILITY

Response stability is indicated by % of Ss who gave identical responses at the 2 administrations of the inventory. Data for the 1974/75 cohort of 33 Ss is included for comparison.

Rk.	Item	Summary description	75/76	74/75
1	(27)	I have to study where I can smoke	83.0%	93.9%
2	(26)	I often find myself too tired	78.7	75.8
3	(20)	I finish exam papers before time	74.5	63.6
4	(14)	I study with others	72.3	72.7
5	(24)	I have been out of school too long	66.0	75.8
7	(4)	I pronounce as I read	63.8	63.6
7	(18)	I get fussed over exams	63.8	63.6
7	(22)	I relate material between courses	63.8	72.7
9.5	(3)	I check up on doubtful points	61.7	57.6
9.5	(11)	My time is unwisely distributed	61.7	45.5
11	(28)	Dislike of my courses interferes with work	59.6	48.5
13	(2)	I often don't see relevant points	57.4	54.5
13	(5)	I miss important points in lectures	57.4	60.6
13	(7)	I tend to day-dream in studying	57.4	66.7
16.5	(6)	I find it hard to concentrate	55.3	69.7
16.5	(10)	My study periods are too short	55.3	57.6
16.5	(13)	I find it hard to finish work	55.3	66.7
16.5	(25)	I try to overlearn	55.3	66.7
19	(16)	I read too much fiction etc.	53.2	69.7
20.5	(8)	It takes time to get warmed-up	51.1	66.7
20.5	(15)	Loafing/chatting interferes with work	51.1	66.7
22.5	(1)	I have to re-read material	48.9	78.8
22.5	(17)	Social life interferes with work	48.9	54.5
24.5	(19)	I plan out my exam answers	46.8	66.7
24.5	(21)	I try to understand first time	46.8	57.6
26	(12)	Visitors/noises interrupt my study	44.7	45.5
27	(9)	I have to wait for the mood	42.6	51.5
28	(23)	I try to summarize and classify	38.3	48.5
		Mean%	57.6%	63.6%

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TABLE A2.10 EPI EXTRAVERSION - ITEM STABILITY

Response stability is indicated by % of Ss who gave identical response.

to the 2 administrations of the inventory. EPI Form A - Extraversion.

Rk.	Item	Description	75/76
1	(15)	Generally do you prefer reading to meeting people?	100%
2	(41)	Are you slow and unhurried in the way you move?	89.4
3	(29)	Are you mostly quiet when you are with other people?	87.2
4.5	(10)	Would you do almost anything for a dare?	85.1
4.5	(17)	Do you like going out a lot?	85.1
7.5	(27)	Do other people think of you as being very lively?	83.0
7.5	(39)	Do you like doing things in which you have to act quickly?	83.0
7.5	(44)	Do you like talking to people so much that you never miss the chance of talking to a stranger?	83.0
7.5	(56)	Do you like playing pranks on others?	83.0
10	(20)	Do you prefer to have few but special friends?	80.9
12	(5)	Do you stop and think things over before acting?	78.7
12	(37)	Do you hate being with a crowd who play practical jokes on one another?	78.7
12	(51)	Do you find it hard to really enjoy yourself at a party?	78.7
14.5	(3)	Are you usually carefree?	76.6
14.5	(53)	Can you easily get some life into a really dull party?	76.6
16	(25)	Can you usually let yourself go and enjoy yourself a lot at a lively party?	74.5
18	(8)	Do you generally do and say things quickly without stopping to think?	72.3
18	(22)	When people shout at you, do you shout back?	72.3
18	(32)	If there is something you want to know about, would you rather look it up in a book than talk to someone about it?	72.3
20	(1)	Do you often long for excitement?	70.2
21	(49)	Would you say you are fairly self-confident?	68.1
22	(46)	Would you be very unhappy if you could not see lots of people most of the time?	66.0
23	(13)	Do you often do things on the spur of the moment?	61.7
24	(34)	Do you like the kind of work that you need to pay close attention to?	57.4
		Mean %	77.8%

TABLE A2.11 EPI NEUROTICISM – ITEM STABILITY

Response stability is indicated by % of Ss who gave identical responses at the 2 administrations of the inventory. EPI Form A – Neuroticism.

Rk.	Item	Description	75/76
2	(43)	Do you have many nightmares?	89.4%
2	(45)	Are you troubled by aches and pains?	89.4
2	(57)	Do you suffer from sleeplessness?	89.4
4.5	(26)	Would you call yourself 'tense' or 'highly strung'?	85.1
4.5	(38)	Are you an irritable person?	85.1
6.5	(19)	Are you sometimes bubbling over with energy and sometimes very sluggish?	83.0
6.5	(47)	Would you call yourself a nervous person?	83.0
8	(21)	Do you day-dream a lot?	80.9
11	(7)	Does your mood often go up and down?	78.7
11	(14)	Do you often worry about things you should not have done or said?	78.7
11	(35)	Do you get attacks of shaking or trembling?	78.7
11	(50)	Are you easily hurt when people find fault with you or your work?	78.7
11	(52)	Are you troubled with feelings of inferiority?	78.7
14	(31)	Do ideas run through your head so that you cannot sleep?	76.6
15.5	(4)	Do you find it very hard to take no for an answer?	74.5
15.5	(40)	Do you worry about awful things that might happen?	74.5
18	(9)	Do you ever feel 'just miserable' for no good reason?	72.3
18	(23)	Are you often troubled with feelings of guilt?	72.3
18	(55)	Do you worry about your health?	72.3
20.5	(28)	After you have done something important, do you often come away feeling that you could have done better?	70.2
20.5	(33)	Do you get palpitations or thumping in your heart?	70.2
22	(11)	Do you suddenly feel shy when you want to talk to an attractive stranger?	68.1
23.5	(2)	Do you often need understanding friends to cheer you up?	66.0
23.5	(16)	Are your feelings rather easily hurt?	66.0
		Mean %	77.6%

1964 EPI Manual, Eysenck reported a test-retest coefficient of .82 for a similar period.

(c) There were no significant sex differences at either administration.

(d) Despite the data reported by Eysenck in support of the independence of extraversion and neuroticism, significant negative correlations with both EPI Neuroticism and STAI Trait Anxiety were obtained at both administrations.

(e) The stability of subject response to the 24 items ranged from 100% (item 15) down to 57.4% (item 34) with a mean of 77.8%.

4. EPI FORM A - NEUROTICISM (see Tables A2.7 & A2.11)

(a) The mean and distribution of the retest group were similar to the mean and distribution in the Survey 2 sample. There was no significant difference in scores at the two administrations.

(b) Although there was no significant sex difference, a slight reversal was apparent with male scores increasing over the year, and female scores decreasing.

(c) The correlation between the total EPI Neuroticism scores for 1975-76 was .58, significant at the .001 level. In the 1964 Manual Eysenck reported a test-retest coefficient of .84 for a similar interval.

(d) For correlations with STAI X-2, WRENN SHI and EPI Extraversion see previous sections.

(e) The stability of subject response to the 24 items ranged from 89.4% (item 43) down to 66.0% (item 16) with a mean of 77.6%. These figures compared well against those obtained with the STAI items.

A2.6 CONCLUSIONS

1. The three inventories, STAI X-2 measuring Trait Anxiety, the Wrenn Study Habits Inventory and the EPI Form A demonstrated satisfactory levels of reliability over a one-year period with a population of 47 Psychology students.

2. The results were in line with the reliability levels reported in the STAI and the EPI Manuals. The results for the WRENN SHI were of interest, but need to be interpreted with caution.

3. The Ss demonstrated satisfactory levels of consistency in their response to individual inventory items.

4. The results provided further support for the reliability coefficients reported in Appendix 2A.

APPENDIX 3

MEASURES

Several measures were used, most of them well-known standard instruments, tests or scales, and some of them short batteries of open-ended questions devised by the author.

A3.1 STUDY METHODS INVENTORIES

A. Student Attitudes Inventory. (SAI) 1971, N.J. Entwistle, J. Nisbet, D.M. Entwistle & M.D. Cowell.

This originally included "slightly modified versions of Eysenck's scales of tendermindedness and radicalism, used as distractors to disguise the purpose of the inventory". Here, the Eysenck items were omitted, leaving 47 items in 4 subscales.

Entwistle's data for university students was as follows:

SUBSCALES	No. of items	MALES mean	s.d.	FEMALES mean	s.d.
1. Motivation	14	8.2	2.23	8.2	2.11
2. Study Methods	14	6.9	2.61	7.1	2.57
3. Lack/distractions	10	5.6	1.87	5.2	1.96
4. Exam techniques	9	5.6	1.60	5.5	1.63
combined score		26.2	5.65	26.1	5.78

B. Study Habits Inventory (SHI) rev.ed. 1941, C.G. Wrenn

This inventory consists of "a weighted check list of 28 specific study habits and attitudes which high scholarship and low scholarship groups of students possess in differing proportions". The weights

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vary from -13 to +10 resulting in a possible combined score ranging from -177 to +175.

The inventory includes four sections: Reading and note taking (5 items); habits of concentration (4 items); distribution of time and social relationships (8 items); general habits and attitudes to work (11 items).

Wrenn reported that the average total score of a large group of college freshmen was +15. In a later study, Waggoner & Ziegler (1946) found that a population of medical freshmen returned figures of -5 to +144 with a mean of +47. Shatin (1967) noted that a 1st year medical class achieved a mean of +37.6 (s.d. 39.7).

C. Survey of Study Habits and Attitudes (SSHA) Form C, 1965, W.F. Brown & W.H. Holtzman.

This was designed to "measure a student's study habits and attitudes of importance in scholastic success". The 100 items, giving a study orientation, deal primarily with the mechanics of studying (delay avoidance and work methods) and attitudes (teacher approval and education acceptance).

The norms for a freshman population (n:3054) are slightly higher than the British figures (n:177) in Cowell & Entwistle's 1971 study:

B.& H. SCALES	B. & H. mean s.d.		C. & E. mean s.d.	
1. Delay avoidance	25.0	10.0	18.5	8.43
2. Work methods	25.1	9.2	24.5	8.06
3. Teacher approval	32.7	8.0	27.9	8.03
4. Education acceptance	31.4	8.3	24.5	7.32

A3.2 PERSONALITY INVENTORIES

A. <u>The State-Trait Anxiety Inventory</u> (STAI) 1970, C.D. Spielberger,

R.L. Gorsuch & R.E. Lushene.

This instrument was originally developed "for investigating

anxiety phenomena in normal (non-psychiatrically disturbed) adults".

The form X-1 State Anxiety scale is "a sensitive indicator of the

level of transitory anxiety". It evaluates feelings of "tension,

nervousness, worry and apprehension" (Manual). The Form X-2 Trait

Anxiety scale provides "a means for screening high school and college

students for anxiety- proneness and for evaluating the extent to which

students who seek counselling and guidance services are troubled by

neurotic anxiety problems" (Manual).

The STAI Manual provides the following norms:

	FRESHMEN		**UNDERGRADUATES**	
	male	female	male	female
No.	332	644	253	231
mean	38.07	· 38.22	37.68	38.25
s.d.	8.20	8.20	9.69	9.14

B. <u>The Eysenck Personality Inventory</u> Forms A and B, 1964, H.J.

Eysenck and S.B.G. Eysenck.

Extraversion is defined in the Manual in terms of its social,

behavioural aspects, and is associated with the equilibrium between

the level of excitation and inhibition in the C.N.S.

Neuroticism is defined as being synonymous with emotionality and

stability-instability. It is considered to be "closely related to the

inherited degree of lability of the A.N.S" (Manual).

The two dimensions are considered to be orthogonal and

independent. In support of this claim, the following correlations are

included in the Manual (n: 2,000):

Form A Extraversion and neuroticism   –0.013

Form B Extraversion and Neuroticism   –0.116

Norms for a student population (n:347):

| | FORM A | | FORM B | |
	mean	s.d.	mean	s.d.
Extraversion	11.095	4.543	13.438	4.198
Neuroticism	10.006	5.006	11.037	4.821

C.   **The 16PF** Form A, 1967–68, R.B. Cattell & Associates.

The inventory includes 16 "unitary, independent personality factors" or "source traits" (Manual). Q1–Q4 are considered to represent "roughly diminishing contribution to behavioral variance".

Forms A and B are normally employed together. In using only Form A in this research, the reliability and diagnostic precision of the second–order factors is reduced: Consequently only F1–F4, the more robust of the eight second–order factors have been retained.

D.   **AH5 Group Test of High Grade Intelligence** 1968, A.W. Heim.

The AH5 is a mixed test, that includes unequal numbers of items biassed towards "literacy", "numeracy" and "visuality". Non-verbal reasoning accounts for half the items.

AH5 norms for university students (n: 946):

	Pt.1	Pt.2	total
Grade A (10%)	25–36	27–36	50–72
" B (20%)	22–24	23–26	44–49
" C (40%)	17–21	18–22	36–43
" D (20%)	14–16	14–17	29–35
" E (10%)	0–13	0–13	0–28

mean: 39.06   s.d.: 8.26

A3.3 OTHER MEASURES

A. 3 Sets of Semantic Differential Scales (Chps. 6 & 12)

B. Recall Test on D. Rowntree's Book (Chp.6)

C. Pre-Discussion Inquiry (Chp.6)

D. Post-Discussion Inquiry (Chp.6)

E. Evaluation of Study 3 (Chp.12)

A3.1 - ASSESSMENT OF THE DISCUSSION

THE DISCUSSION WAS...

SLOW	:___:___:___:___:___:___:___:	FAST
CLEAN	:___:___:___:___:___:___:___:	DIRTY
WORTHLESS	:___:___:___:___:___:___:___:	VALUABLE
STRONG	:___:___:___:___:___:___:___:	WEAK
GOOD	:___:___:___:___:___:___:___:	BAD
DELICATE	:___:___:___:___:___:___:___:	RUGGED
HOT	:___:___:___:___:___:___:___:	COLD
UNPLEASANT	:___:___:___:___:___:___:___:	PLEASANT
HONEST	:___:___:___:___:___:___:___:	DISHONEST
DEEP	:___:___:___:___:___:___:___:	SHALLOW
TENSE	:___:___:___:___:___:___:___:	RELAXED
ACTIVE	:___:___:___:___:___:___:___:	PASSIVE
SAD	:___:___:___:___:___:___:___:	HAPPY
DULL	:___:___:___:___:___:___:___:	SHARP

STUDY 3 WAS ...

CHAOTIC	:___:___:___:___:___:___:___:	ORDERED
PROFOUND	:___:___:___:___:___:___:___:	SUPERFICIAL
WORTHLESS	:___:___:___:___:___:___:___:	VALUABLE
RATIONAL	:___:___:___:___:___:___:___:	EMOTIONAL
DISHONEST	:___:___:___:___:___:___:___:	HONEST
GOOD	:___:___:___:___:___:___:___:	BAD
INFORMAL	:___:___:___:___:___:___:___:	FORMAL
BORING	:___:___:___:___:___:___:___:	INTERESTING
PLEASANT	:___:___:___:___:___:___:___:	UNPLEASANT
TENSE	:___:___:___:___:___:___:___:	RELAXED

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A3.2 – ASSESSMENT OF THE AUTHOR

THE AUTHOR WAS ...

BELLIGERENT	:___:___:___:___:___:___:___:	PEACEFUL
DISCIPLINED	:___:___:___:___:___:___:___:	UNDISCIPLINED
WEAK	:___:___:___:___:___:___:___:	STRONG
INSINCERE	:___:___:___:___:___:___:___:	SINCERE
INTIMATE	:___:___:___:___:___:___:___:	REMOTE
MATURE	:___:___:___:___:___:___:___:	IMMATURE
SERIOUS	:___:___:___:___:___:___:___:	FRIVOLOUS
SOFT	:___:___:___:___:___:___:___:	HARD
INDEPENDENT	:___:___:___:___:___:___:___:	DEPENDENT
YOUNG	:___:___:___:___:___:___:___:	OLD
COLD	:___:___:___:___:___:___:___:	WARM
EXTRAVERT	:___:___:___:___:___:___:___:	INTROVERT
TENSE	:___:___:___:___:___:___:___:	RELAXED
INFORMAL	:___:___:___:___:___:___:___:	FORMAL
AUTHORITARIAN	:___:___:___:___:___:___:___:	NON-AUTHORITARIAN

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A3.3 - ASSESSMENT OF STUDY 3

1. What was the purpose of this study ?

2.1 Apart from the Practicals, did you take part as a volunteer in any Psychology experiments ? If yes, how many ?

2.2 Was this study different from the experiments ? If yes, how was it different ?

3. Did the author behave differently ? If so, how was his behaviour different ?

4.1 If this study were continued next year, would you take part in it again ?

    If no, why not ?

    If yes, why ?

4.2 If this study were continued next year, but run by someone else, would you take part in it again ?

    If no, why not ?

5. Can you describe the status of the author ? Did you see him as a fellow student, a postgraduate, a lecturer, etc. ?

6. Did you feel the author's personality had any noticeable effect on your approach to the study ?

    If yes, how ?

7. Did you gain anything from this study ?

    If yes, what ?

8. At any stage did you feel that any deliberate deception was practiced by the author ?

    If yes, what ?

9. Describe the author - 15 evaluative scales

10. Describe the study - 10 evaluative scales

A3.4 - RECALL TEST OF 'LEARN HOW TO STUDY'

	MARKING KEY	
	Book Section	Score
1. What does Rowntree consider to be the biggest obstacle to effective study?	2.22 p30	2
2. What are Bacon's three approaches to reading?	3.2 p39	3
3. List the titles of the chapters in the book (programmed exercise 3.7 p43)		7
4. What are the four faults associated with poor reading?	5.26 p93	4
5. List two biographical facts about the author (programmed exercise 3.5 p42)		2
6. What is the minimum number of hours' work per week that a student should achieve?	2.4 p17	1
7. What are the four points emphasised about Joe's timetable?	2.14 p24	4
8. What does SQ3R stand for?	3.3 p40	5
9. What is the minimum length of study period that a student should aim at achieving?	2.7 p19	1
10. At which stage of reading a textbook should one begin to make notes?	3.32 p58	1
11. One experiment is described in the book, illustrated by a diagram. What is it concerned with, and what conclusions were reached?	5.13 p85	5
12. What is the definition of study, which Rowntree judges to be satisfactory?	1.9 p7	3
	total	38

[The 12 items in this test appear as questions in the programmed text]

A3.5 - PRE-DISCUSSION INQUIRY

Please answer the following questions on the sheet provided:

1. Which particular aspect of the book would you like to discuss?

2. What sort of conclusions do you anticipate that you and the other persons in the discussion might reach?

3. Can you characterize your normal behaviour in a discussion with a group of students who you do not know?

4. In what way do you think you will react in the following discussion, if, a) you are the centre of attention, or b) you are ignored?

A3.6 – POST-DISCUSSION INQUIRY

Please answer the following questions on the sheet provided:

1. Can you recall the detail of the discussion? In doing so, list the main points that arose and the names of those who made them.

2. Can you characterize your contribution to the discussion?

3. Did any points, arguments etc. arise in the discussion that, at the time or in retrospect, seem trivial, incidental, 'red herrings' etc.? What were they?

4. Do you think that the discussion turned out largely as expected?

5. Did anything during the discussion surprise you, either in your own reactions, or in those of others?

6. Do you think that the discussion helped you to formulate your views clearly?

7. How have you benefited? By reading the book or joining in the discussion?

8. Do you think that the discussion would have been as satisfying in the presence of an older, more knowledgeable person?

9. Have you modified your views as the result of the discussion?

10. If the discussion had continued, are there any points that you would have liked to pursue in greater depth?

APPENDIX 4A

STATISTICAL ANALYSES

A4.1 BIPLOT ANALYSIS (Chps. 9 and 11)

1. Purpose

Biplot analysis was used in Studies 2 and 3 as an informal means of inspecting the IPA data to ascertain the presence of any clusters among the Ss.

2. Description

It is recommended (Gordon, 1981) that biplot analysis be used as a means of uncovering structure when "it is not considered appropriate to test any statistical hypothesis that the data may be regarded as coming from an underlying population with certain properties" (p.80).

Biplot analysis represents "a two rank matrix exactly to the accuracy of plotting" (Gabriel,1971). It provides a simultaneous representation of the relationships obtaining within a set of objects and also the relationships within a set of variables. It also indicates which variables are important to the description of the objects.

3. Method

Using the raw IPA data (persons = variables) a correlation matrix was first established. Then, using a specially prepared programme running on the St. Andrews VAX system, with a standardised measure of dissimilarity - the Mahalanobis squared distance - the location of Ss and the IPA vectors were plotted. The distance between the vectors provided an index of similarity between the IPA categories, while the length of the vectors indicated the degree of variance.

A4.2 CLUSTER ANALYSIS (Chps. 9 and 11)

1. Purpose

Cluster analysis was employed to uncover similarities between the Ss across groups on the basis of the raw IPA data. The use of cluster analysis is more appropriate to the examination of large datasets, and was therefore restricted to the analysis of data in Studies 2 and 3.

2. Description

There were approximately fifteen major clustering programmes available (see Blashfield and Aldenderfer, 1978). The cluster programme from the Osiris package was selected because of its relatively reliable clustering algorithm (see Solomon, 1977) and its satisfactory use on similar datasets within the Department.

The Osiris programme uses a hierarchical agglomerative method whereby each cluster is built up through an "average linkage" procedure until more items render the cluster non-homogeneous. In a review of clustering methods, Aldenderfer and Blashfield (1984) noted that average linkage compared well with other techniques in recovering the structure of datasets with known structure (pp.51-61)

3. Method

The data was standardised, and a transposed matrix with persons = variables was factored using the IBM 1130 Scientific Subroutine Package on NUMAC MTS. The cluster programme was then run on NUMAC MTS with the correlation matrix as input. The direction and polarity of all items (Ss) was specified to define the composition of the clusters more easily, and items were allowed to stay in a cluster only when correlations with previous items exceeded 0.2730.

A4.3 CORRELATION ANALYSES (Chps. 3, 5-11, and App. 1 and 2)

Throughout this research the degree of correspondence between the Ss' inventory scores has been examined using correlation coefficients. In all cases where two sets of scores have been compared, the bivariate distribution has been plotted on a scatter diagram to check the linearity and homoscedasticity of the relationship (e.g. the scatter plots in Studies 1-3). With these conditions met, the Pearson Product-moment Coefficient r was computed, either on the Department's IBM 1132, or in the case of the larger datasets (Surveys 1-3) on NUMAC MTS using the SPSS programme "Pearson Corr". Otherwise the non-parametric statistic, Spearman rho (rs) was employed.

A4.4 FACTOR ANALYSIS (chp.7)

Prior to analysing the data, the distribution of the variables was checked and found to be unimodal and fairly symmetrical. The analysis was carried out on NUMAC MTS using SPSS "Factor".

A principal components analysis was performed, followed by an orthogonal solution using normal varimax rotation (Kaiser, 1958) of the components corresponding to latent roots greater than one. The varimax solution gives a reasonable approximation to Thurstone's simple structure model, which is appropriate when factoring a heterogeneous collection of variables.

An axiom of factor analysis is that the number of variables should not exceed the number of observations, since otherwise there is the increased likelihood of retaining factors that are dependent solely on chance (Aleamoni, 1976). In this instance, with 24 observations of 39 variables, the inspection of the loadings was restricted to the six main factors, and loadings of less than .25 were ignored.

A4.5 FREQUENCY TABLES (Chps. 3, 6, 7, 9, and 11)

Interaction was scored using IPA. The data was processed on NUMAC MTS using a specially written programme. The printout included frequency tables (raw scores) and frequency tables (percentages) for initiator of behaviour against IPA category, and for receiver of behaviour against IPA category. Behaviour directed at the whole group was also tabulated, though problems were encountered in the reliable identification of recipients (see discussion, Appendix 1.2).

APPENDIX 4B

MATERIALS

A4.7 STUDY METHODS MANUAL

Rowntree, D. (1970) <u>Learn How to Study</u>. London: Macdonald

Chapters from this book were used throughout the research as a stimulus to discussion. The book is written as a programmed text, that requires active participation, and includes question, answer and review sections. The seven chapters (145pp) cover seventeen major topics, and provide a good introduction to study techniques. Topics that are ignored include the principles of learning, memory, vocabulary and lectures (see Main, 1980, for a survey of the contents of selected manuals on study techniques).

The chapters include:

1. Why learn to study ?   4. How to write essays

2. How to organise your studying   5. How to read better/faster

3. How to tackle a textbook   6. How to make notes

7. How to deal with examinations

The subject matter was relevant to the Ss' work, and, with one exception, was the first review of study methods encountered by the Ss.

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Apart from Rowntree's book, the Ss in Study 3 were also required to complete a questionnaire on euthanasia (not included) and read three papers (not included).

APPENDIX 5

INVENTORY ISSUES

A5.1 STUDY HABITS AND ANXIETY

The negative correlation between SHI and STAI should not be taken as leading to a broad causal explanation in which anxiety is identified as the determining factor in the development of disorganised study habits.

Besides anxiety, several other factors are necessarily associated with the behaviours and attitudes itemised in the Wrenn inventory. These include intelligence, motivation, previous learning history, current situational reinforcements, etc. For instance, the result of repeated failure in one area of study may result in a generalised decrement in attainment, motivation and study skills, independent of anxiety level. Also the presence of inefficient study habits may reflect mainly the persistence of lazy approaches to learning that developed unchecked at school (see Krathwohl, 1949).

The association between anxiety and disorganised study skills may also be an artifact of the measuring instrument, which will tend to gloss over the presence of effective but idiosyncratic work patterns in favour of single markers that are more commonly distributed in the student population.

Indeed high anxiety may actually promote "habitual anxiety reducing response sets" (Ausubel et al, 1953) that lead to an obsessive concern for organization and method. As Biggs (1962) has remarked, "it is highly likely that the intelligent child may be more able to deal adaptively with his anxiety than the average or unintelligent individual – Perhaps that is why sixth formers and

university students, both highly biassed samples, appear to be more than usually anxious _and_ good attainers".

In specific situations - e.g. examinations - high anxiety may be associated with poor study techniques, where it can act as an interference factor, leading to lower levels of concentration and the impairment of cue storage and cue retrieval. While some moderate level of drive/motivation/arousal level is optimum for efficient performance, increases in anxiety over a certain threshold are associated with a decrement in intellectual discrimination.

This process, first described by Yerkes and Dodson (1908) and later supported by Broadhurst's research (1957, 1959) has been demonstrated in many areas of learning (see review by Broen and Storms, 1961).

The inverted "U" curve that occurs when learning is plotted against drive, has been conceptualised as an association between increased drive and the reduced utilisation of cues (Easterbrook, 1959): Initially, as drive increases, anxiety "tends to sharpen or concentrate action" thereby excluding task-irrelevant cues. With higher levels of anxiety, even task-relevant cues become excluded, resulting in lower levels of performance, and finally in responses that are task-irrelevant and disorganised.

With more moderate levels of anxiety, a carefully structured setting (Grimes and Allinsmith, 1961), and a task that does not involve threats to self-esteem (Gaudry and Spielberger, 1971) anxiety is associated with a facilitating role (e.g. the careful preparation in the pre-exam period among Ss with low anxiety, as noted by Martin and Myers, 1974). Whereas with higher levels of anxiety, Desiderato and Koskinen (1969) have reported a reduction in performance and poor study skills. In conclusion, while the negative correlation between

the SHI and the STAI may be reflected in an association between anxiety and poor study methods, the evidence of previous research points away from a simple causal relationship. Anxious students are not necessarily to be identified with ineffective study methods: it is possible that for certain academic tasks, anxiety in interaction with other traits will promote a wide range of behaviours, some of which will result in successful attainment.

A5.2 STUDY HABITS AND ATTAINMENT

The relationship between study methods and achievement involves many factors such as intelligence, motivation, situational cues, traits such as persistence and conscientiousness, past learning history, etc. Early studies (Wrenn and Humber, 1941; Borow, 1946) described superior students in terms of steady work, careful planning and the even distribution of time. In a later summary of studies, reported for the period 1941–61, Taylor (1961) concluded that, "the overachiever is conservative in setting goals; has persistent and effective study habits; has a capacity for sustained and diligent application; rejects the frivolous and divertive; is orderly and planful, and has a basic seriousness of purpose".

The majority of studies since 1964 have confirmed Taylor's observations (Small, 1966; Desiderato and Koskinen, 1969; Savage, 1970; Lin and McKeachie, 1970; Entwistle and Wilson, 1970; Biggs, 1970b; Rutkowski and Domino, 1975).

However, as the more recent work has also shown, high achievement is not invariably associated with methodical approaches to work. Maddox (1963) commented that some highly successful students will tend to eschew systematic approaches to work, preferring to organise their time in very idiosyncratic cycles. Entwistle and Wilson (1970)

concluded that no single pattern of study habits identified either the good student or the path leading to a successful outcome: "the value of organised study methods comes through clearly in many investigations, but apparently different systems can be used effectively". Indeed Biggs (1970b) noted that, "organisation may be as much a refuge for the poor student as a factor making for success in a good student".

Although the items of the SHI seek to distinguish between the achieving and the non-achieving student, one may reasonably infer from the studies cited above, that the SHI reflects predominantly a disposition to be conscientious and methodical with respect to a particular pattern of habits. High SHI scores may be associated with moderate to high academic achievement, but they are not invariably predictive of high levels of attainment. As Gibbons and Savage (1965) reported, "there is a tendency...for the most and the least successful students to be rather bad in terms of their study habit scores".

Some support for the above may be reflected in the negligible correlation between Ss' SHI scores and the marks in the Collection paper reported in this research. However the relationship is complicated by the ambiguous status of the paper, which students tended to treat as a mock exam, with only moderate implications for their academic future.

A5.3 EPI NEUROTICISM AND STAI TRAIT ANXIETY

In Survey 2 two inventories were employed that exhibited a strong positive correlation, EPI Neuroticism, form A, and STAI Trait Anxiety.

1. EPI Neuroticism

In contrast to traits located on the primary factorial level, Eysenck claimed that EPI Neuroticism represented a 2nd-order type: a

cluster of traits. For him, it was one of four principal descriptors of personality - independent orthogonal factors - that also include extraversion, intelligence and psychoticism.

Despite the convergence between EPI Neuroticism and STAI Trait Anxiety, Eysenck distinguished between neuroticism and general anxiety: neuroticism was regarded as more inclusive, with general anxiety arising from a combination of high neuroticism and low extraversion.

Variously named emotionality or stability-instability, neuroticism was characterised by mood swings, nervousness and the somatic symptoms of anxiety. According to the EPI Manual (p.7) it was considered "to be closely related to the inherited degree of lability of the autonomic nervous system".

2. STAI Trait Anxiety

STAI trait Anxiety refers to relatively stable individual differences in anxiety proneness. The instrument measures the disposition to respond to stressful situations with varying amounts of state anxiety. A transient emotional condition, state anxiety is described in the STAI Manual (p.3) as "characterised by subjective, consciously perceived feelings of tension and apprehension and heightened autonomic nervous system activity".

3. Construction and Wording

In the development of the EPI's predecessors, the M.M.Q. and the M.P.I., item construction was based on analyses of responses from groups that were diagnosed as clinically neurotic. In contrast, the early test construction procedures of the STAI were concerned with investigating the anxiety of non-psychiatrically disturbed populations of undergraduate college students. Despite the differences in construction, the two inventories share common ground in terms of:

(a) Clinical use.

Both inventories are used in clinical practice to evaluate

patients troubled by anxiety symptoms. In the STAI Manual, the

instrument is actually recommended for the assessment of students with

neurotic anxiety. Indeed, as Barker et al (1977) reported in a factor

analysis of STAI Trait Anxiety, "what is actually measured by the A-

Trait scale seems to be indistinguishable from a combination of

remembered, general level of A-State anxiety and neuroticism".

(b) Semantic similarities.

Similar wording of items in the two inventories involves 45% of

the EPI Neuroticism scale (items 4, 7, 9, 14, 16, 26, 28, 30, 31, 47

and 52) and 50% of the STAI Trait Anxiety scale (items 26, 27, 29, 31,

32, 35, 37, 38, 39 and 40).

It should be noted that despite the degree of congruence between

the two inventories, it was found (Study 2) that only half of the Ss

with extreme scores for anxiety had extreme scores on both scales.

This issue was examined further in Study 3.

4. Normal versus Neurotic Anxiety

Although sharing a common descriptive language, normal anxiety

has been differentiated from the anxiety experienced by neurotics in

terms of both psychodynamics and behaviour. It has been postulated

that neurotics develop sundry intrapsychic mechanisms to cope with

extreme, persistent states of arousal. For instance, Crosby (1976)

put forward three criteria to distinguish normal from neurotic

anxiety:

(a) Normal anxiety was not disproportionate to the objective threat.

(b) It did not involve a repression or other mechanism of intrapsychic conflict.

(c) It did not require abnormal defense mechanisms for its management.

Whereas for normal Ss typical and easily identifiable defense mechanisms are seen to play a role in reducing state anxiety, the impaired deployment of such mechanisms is symptomatic of extreme, neurotic anxiety.

The behavioural correlates of neurotic anxiety were observed by Cattell (1974) who noted that "neurotics differ from normals simultaneously on several factors". For Eysenck and Eysenck (1963a) the neurotic can be partly defined in terms of his predisposition "to break down fairly easily given some degrees of stress". However his behaviour may not necessarily exhibit all or even some of the signs of neurotic anxiety. As S.E.B. Eysenck (1962) has commented, "Neuroticism is characterised by subjective internal conditions, such as anxiety and other conditions, which may not give rise to observable differences in behaviour".

In Surveys 2 and 3, where the Ss were drawn from small and relatively well-adjusted populations, it was assumed that extreme scores were not necessarily indicative of pathology. The two scales, EPI Neuroticism and STAI Trait Anxiety, were therefore treated as convergent measures of a broad unidimensional construct of anxiety.

1. Development

As with Neuroticism, Eysenck conceived EPI Extraversion as a "type" dimension of personality, a 2nd-order factor resulting from orthogonal factorial procedures. These factorial studies led to the development of theoretical experimental criteria and of various psycho-neurological hypotheses, whereby extraversion was associated with differences in excitatory and inhibitory potentials linked to the ascending reticular formation.

Extraversion was defined by a cluster of primary traits that includes sociability, impulsiveness, jocularity, liveliness, quick-wittedness, optimism and carefreeness. Whereas the introvert was said to be inhibited, aloof and inclined to pessimism, the extravert was described as stimulus-hungry and expressive.

2. Construction

In the early development of the MPI (the EPI's predecessor) the extraversion scale contained items selected on the basis of factorial analyses of Guilford's primary scales "R" (Rhathymia or freedom from care) and "S" (Sociability). In a subsequent factorial study (Eysenck and Eysenck, 1969) Eysenck concluded that three other scales were also implicated in the cluster of primaries responsible for the extraversion factor. He identified these Guilford scales as "T" (Impulsiveness), "G" (General activity) and "A" (Ascendence).

However the extraversion scale has been criticised in respect of several features, not least in terms of its original dependence on the Guilford scales:

(a) Guilford pointed out (1977) that the correlation between "R" and "S", on which the MPI had been based, "was zero, or near zero";

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a weak relationship that had led Guilford to define extraversion in terms of "R" and "T". Furthermore, Guilford sought to distinguish extraversion from social activity, "SA", basing the latter on the primaries "S", "G" and "A".

(b)   The EPI extraversion items fall into two main clusters, termed "Sociability" and "Impulsiveness", primary factors that were found to be strongly correlated (see Eysenck and Eysenck, 1963b). However, it was noted that the sociability items tended to be biased towards positive adjustment and the impulsivity items towards poor adjustment, with implications for the independence and orthogonal status of the dimension.

(c)   The EPI extraversion scale does not appear to include uniform high item-scale correlations. As Howarth (1976) has pointed out, 7 items (Nos. 1, 5, 10, 22, 34, 41 and 44) have correlations with the scale of less than .30 and 6 items (Nos. 1, 3, 8, 29, 49 and 51) correlate more than .20 with the EPI neuroticism scale. Indeed, item 49 correlates higher with the neuroticism scale than with the extraversion scale.

(d)   Finally, the independence of Eysenck's orthogonal factors has frequently been questioned, and was in fact contradicted in this research by the results reported in Survey 2 and elsewhere. It is relevant to note in this context that the distance or orthogonality between the EPI dimensions may be influenced by maturational factors: In a study of extraversion and neuroticism in children, S.B.G. Eysenck (Eysenck and Eysenck, 1969) observed that, "low, negative correlations are the rule, averaging around

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the -.20 to -.25 mark...it will be noted that as age increases,
i.e. among 15 to 16 year olds, correlations are somewhat lower,
and begin to approach adult values" (p.297).

A5.5 EPI LIE SCALE

Survey 2 included 116 Ss, none of whom were rejected on the basis
of their lie scores. To have done so, using the suggested cut-off
point of 4-5, would have entailed discarding 26% of the sample. It
seemed unlikely that so many Ss were "faking good" (EPI Manual, 1964).
A more plausible interpretation was that the high lie scorers
included, in Kirton's words (1977), both the "knowing dissemblers" and
the "naive but honest".

In a review of lie scales across several inventories, Verma
(1977) concluded that they represented "a powerful independent factor
of personality which needs to be studied in its own right, and not as
a mere response bias to be corrected".

In this research, the lie scale was considered to reflect a
person's degree of emotional maturity. The high incidence of Ss with
high lie scores was judged to be consistent with the age group of the
Ss. In contrast to the younger students in Survey 2, a subset of
"mature" students obtained lower lie scores.

APPENDIX 6

TUTORIAL GROUPS

A6.1 INTRODUCTION

Studies 1-3 were concerned with examining the extent to which the consistency hypothesis was confirmed in the relationship between trait interactions and behaviour in small leaderless groups. To better evaluate the IPA group profiles resulting from these studies, data for randomly selected Arts Ss was reported in Chp.7.

This appendix is a postscript to Chp.7, and is concerned with the IPA record of two tutorial groups. They operated within a similar leaderless small-group discussion format, but with a more familiar academic purpose.

The small group design employed in this research was congruent with the format of the leaderless discussion groups - sometimes referred to as "syndicates" (Collier,1983) - that has been proposed as an alternative method of running tutorial groups.

The educational value of the leaderless group discussion has been extensively examined in the U.K. (Powell & Jackson, 1963; Powell, 1963, 1970; Collier, 1966, 1969, 1983; Lawrence, 1972; Robb, 1973; Chambers, 1973; Evans, 1980). The evidence suggested that this approach possessed certain advantages over the traditional tutor-led discussion. Leaderless groups were associated with lower anxiety, more active participation and greater freedom of expression. Similar conclusions were reached in the U.S. (Beach, 1960, 1962, 1970, 1974; Hovey, 1963; Webb & Gribb, 1967; Baskin, 1962).

However it was clear from the studies reported in both countries that successful outcomes for the leaderless discussion group were

related not only to its apparent autonomy, but also to the sense of structure established by the tutor, i.e. to its careful integration into the course curriculum, to its composition, the existence of well-defined goals and student preparation meticulously monitored by one or more tutors. Some of these conditions were already met by the design used in studies 1-3, and were applied to the tutorial groups.

It was anticipated that the purpose of the tutorial groups (different to that of the groups in studies 1-3) would serve to moderate the level of transient anxiety associated with the discussions. It was also anticipated that the tutorial groups would exhibit a deeper interest in the material. As Boyd and Wilson (1974) have suggested, in recommending the use of "real" groups in experimental studies, "since the work task is integral to the students' (individuals in the experiment) goals, commitment and involvement would be much more in evidence than with volunteer or paid participants" (p.180).

The author's departmental responsibilities involved teaching two tutorial groups. Although the tutees were aware of their tutor's research and had participated in Survey 2, none had taken part in the Study groups. The tutees were encouraged to perceive the leaderless group discussions as an opportunity to being involved in an educational innovation that would enhance their understanding of the course material.

Two other groups were volunteered by a lecturer in the Department of Economics, on the understanding that data relating to his own involvement would be made available. Neither the lecturer nor his students had any formal connection with the Psychology Department or its courses. Initially, the plan had been to analyse the data from four tutorial groups. However, tutee absences in two groups resulted

in incomplete datasets, reducing the available data to one Psychology

tutorial group and one Economics tutorial group.

PSYCHOLOGY TUTORIAL GROUP

A6.2 SUBJECTS

The group of five 1st year students had previously met for four

tutorials in first term. They were on christian name terms, and two

of them – S4 and S5 – were in the same hall of residence. The mean

age of the group – 20.4 – was slightly higher than the mean of 19.10

for the 1st year class (based on Survey 2).

SS	SEX	COURSE
S1	F	1st General Science
S2	M	1st General Science
S3	M	1st General Science
S4	M	1st Joint\Hons SOC\SSA
S5	F	1st Hons SOC

A6.3 SCHEDULE

The four meetings took place at two-week intervals in second

term. They were held in the Children's Room of the Psychology

Department, in conditions identical to those of Studies 1-3. Each

meeting lasted about ninety minutes.

On arrival the Ss were given reading material that complemented

the current lecture courses and was relevant to the essay titles.

After 20 minutes the Ss were instructed to discuss the papers in the

absence of the tutor. The discussions were recorded on audio and

video tape cassette. The tutor returned to the group after 30

minutes, and for the remaining 40 minutes he replayed the audio tape

to the group, picking out, commenting and enlarging on points made by

the Ss.

The Ss were also seen on an individual basis between meetings for essays to be returned and discussed, and progress to be monitored.

At the end of the term the Ss completed six inventories.

A6.4 MEASURES

1.   Inventories

A.   Cattell 16PF Form A

B.   Entwistle Student Attitudes Inventory - SAI

C.   Eysenck Personality Inventory - EPI Form A

D.   Heim AH5

E.   Spielberger, Gorsuch and Lushene State-Trait Anxiety Inventory - STAI Form X-2 Trait Anxiety

F.   Wrenn Study Habits Inventory - SHI

2.   IPA. The recorded discussions were analysed using the sampling method described in Chp.3. The IPA based on a sample of 15 mins per meeting resulted in a total of 60 mins across the four meetings (for a discussion of the sampling procedure see Appendix 1.6).

A6.5 DATA

Tables   A6.1 The questionnaire data

         A6.2 The IPA data

         A6.3 16PF profile

         A6.4 Correlations

         A6.5 Comparison with the Arts Groups
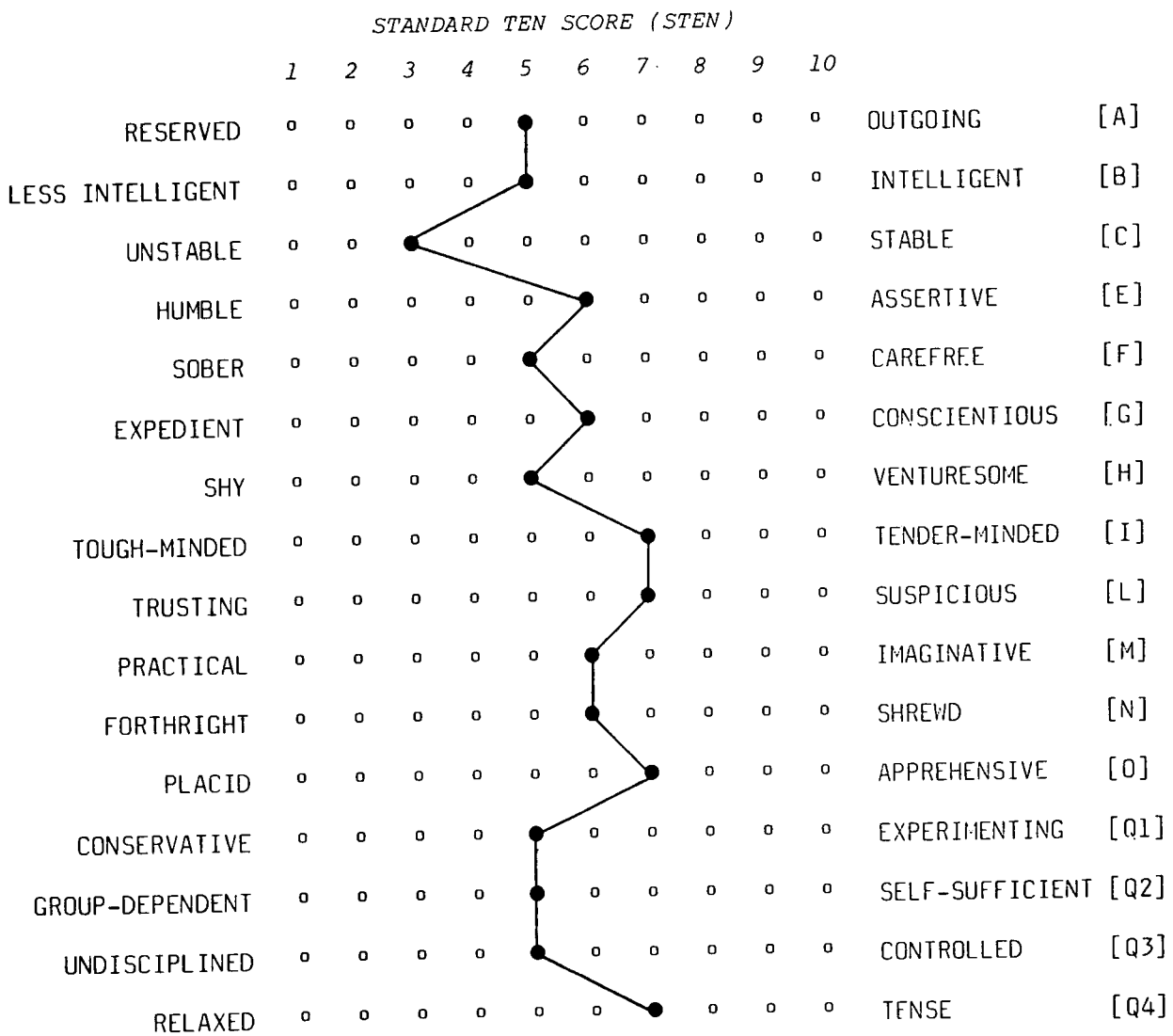
         A6.6 Subject interaction rates per meeting

TABLE A6.1   TUTORIAL GROUP 1 – QUESTIONNAIRE DATA

	S1	S2	S3	S4	S5	mean	s.d.
SEX	F	M	M	M	F		
AGE	22	21	20	19	20	20.40	1.14
WRENN SHI	-34	-54	-47	4	-87	-43.60	33.02
SAI TOTAL	22	18	27	27	13	21.40	6.02
MOTIV.	7	10	6	7	4	6.80	2.17
STUDY M.	3	4	10	10	4	6.20	3.49
EXA. T.	5	2	5	4	1	3.40	1.82
L.D.	7	2	6	6	4	5.00	2.00
AH5 TOTAL	41	34	33	36	23	33.40	6.58
VERBAL	20	14	14	20	13	16.20	3.49
SPATIAL	21	20	19	16	10	17.20	4.44
STAI TRAIT	54	54	38	36	43	45.00	8.60
EPI EXTRAV.	5	11	11	9	12	9.60	2.79
NEURO.	18	21	6	9	10	12.80	6.38
LIE SC.	0	3	4	1	1	1.80	1.64
16PF A	8	7	9	15	8	9.40	3.21
B	10	9	7	9	11	9.20	1.48
C	9	5	15	10	12	10.20	3.70
E	8	12	14	15	11	13.20	3.96
F	6	11	14	19	13	12.60	4.72
G	16	8	17	12	4	11.40	5.46
H	3	5	15	17	10	10.00	6.08
I	16	12	11	19	17	15.00	3.39
L	10	11	11	13	8	10.60	1.82
M	13	19	16	15	17.	16.00	2.24
N	11	7	6	8	12	8.80	2.59
O	19	19	13	7	12	14.00	5.10
Q1	6	14	6	12	9	9.40	3.58
Q2	10	14	5	9	14	10.40	3.78
Q3	10	12	13	9	8	10.40	2.07
Q4	23	20	16	14	18	18.20	3.49
FI	9.5	8.9	6.0	6.0	6.1	7.30	1.75
FII	2.4	3.6	6.3	7.3	4.3	4.78	2.00
FIII	2.7	3.7	3.7	1.7	4.7	3.30	1.14
FIV	3.6	6.9	2.9	4.6	7.1	5.02	1.91

TABLE A6.2 TUTORIAL GROUP 1 – IPA DATA

		IPA CATEGORIES												TOTAL
		1	2	3	4	5	6	7	8	9	10	11	12	
MEETING 1														
	S1	0	5	12	1	40	3	3	5	0	0	14	0	83
	S2	2	26	28	0	73	5	0	5	0	1	22	0	162
	S3	0	11	13	0	55	3	9	10	0	1	20	0	122
	S4	0	9	23	0	77	3	2	2	0	2	34	0	152
	S5	0	8	8	0	26	11	1	1	0	4	17	1	77
MEETING 2														
	S1	0	0	0	0	13	0	0	1	0	1	11	0	26
	S2	0	16	15	0	60	0	0	3	0	2	11	0	107
	S3	0	3	2	0	38	1	1	1	0	2	8	0	56
	S4	0	8	33	0	51	0	2	7	0	2	16	2	121
	S5	0	14	16	1	156	7	1	16	0	7	12	2	232
MEETING 3														
	S1	0	4	0	0	33	0	0	5	0	2	1	0	45
	S2	0	2	19	0	25	1	0	4	0	2	7	2	62
	S3	0	3	10	0	25	0	0	1	1	2	3	1	46
	S4	0	9	39	0	93	3	1	19	0	1	10	1	176
	S5	1	3	2	0	132	1	4	8	0	3	10	2	166
MEETING 4														
	S1	0	4	4	0	25	1	0	4	0	0	4	0	42
	S2	0	17	15	0	24	3	0	3	0	0	18	0	80
	S3	0	8	15	0	17	0	1	2	0	0	10	0	53
	S4	2	27	15	0	161	11	0	5	0	1	23	0	245
	S5	2	1	1	0	11	1	1	0	0	0	1	0	18
MEETINGS 1-4														
	S1	0	13	16	1	111	4	3	15	0	3	30	0	196
	S2	2	61	77	0	182	9	0	15	0	5	58	2	411
	S3	0	25	40	0	135	4	11	14	1	5	41	1	277
	S4	2	53	110	0	382	17	5	33	2	4	83	3	694
	S5	3	26	27	1	325	20	7	25	0	14	40	5	493

TABLE A6.3   TUTORIAL GROUP 1 - 16PF PROFILE

STANDARD TEN SCORE (STEN)

	1	2	3	4	5	6	7	8	9	10		
RESERVED	o	o	o	o	●	o	o	o	o	o	OUTGOING	[A]
LESS INTELLIGENT	o	o	o	o	●	o	o	o	o	o	INTELLIGENT	[B]
UNSTABLE	o	o	●	o	o	o	o	o	o	o	STABLE	[C]
HUMBLE	o	o	o	o	o	●	o	o	o	o	ASSERTIVE	[E]
SOBER	o	o	o	o	●	o	o	o	o	o	CAREFREE	[F]
EXPEDIENT	o	o	o	o	o	●	o	o	o	o	CONSCIENTIOUS	[G]
SHY	o	o	o	o	●	o	o	o	o	o	VENTURESOME	[H]
TOUGH-MINDED	o	o	o	o	o	o	●	o	o	o	TENDER-MINDED	[I]
TRUSTING	o	o	o	o	o	o	●	o	o	o	SUSPICIOUS	[L]
PRACTICAL	o	o	o	o	o	●	o	o	o	o	IMAGINATIVE	[M]
FORTHRIGHT	o	o	o	o	o	●	o	o	o	o	SHREWD	[N]
PLACID	o	o	o	o	o	o	●	o	o	o	APPREHENSIVE	[O]
CONSERVATIVE	o	o	o	o	●	o	o	o	o	o	EXPERIMENTING	[Q1]
GROUP-DEPENDENT	o	o	o	o	●	o	o	o	o	o	SELF-SUFFICIENT	[Q2]
UNDISCIPLINED	o	o	o	o	●	o	o	o	o	o	CONTROLLED	[Q3]
RELAXED	o	o	o	o	o	o	●	o	o	o	TENSE	[Q4]

[The raw scores have been standardised using the British

Undergraduate Norms prepared by P. Saville and S. Blinkhorn]

TABLE A6.4 TUTORIAL GROUP 1 – SUMMARY OF CORRELATIONS

	1	2	3	4	5	6	7	8	9	10	11	12	13
1 STAI TR	–												
2 EPI EX	-.10	–											
3 EPI NEU	.90*	-.30	–										
4 CAT B	.10	.00	.30	–									
5 CAT FI	.80	-.50	.90*	.50	–								
6 CAT FII	-.90*	.30	-.80	-.30	-.90*	–							
7 WRENN	-.50	-.80	-.30	-.20	-.10	.30	–						
8 ENTWIS.	-.70	-.50	-.60	-.50	-.50	.60	.90*	–					
9 AH5	-.10	-1.00**	.30	.00	.50	-.30	.80	.50	–				
10 IPA TOT	-.50	.30	-.20	.20	-.40	.70	.00	.10	-.30	–			
11 IPA 1-3	.00	.10	.10	-.60	-.30	.40	.00	.20	-.10	.50	–		
12 IPA 4-9	-.50	.30	-.20	.20	-.40	.70	.00	.10	-.30	1.00**	.50	–	
13 IPA 10-12	-.30	.10	.00	-.10	-.30	.60	.10	.20	-.10	.90*	.80	.90*	–
14 IPA 11	-.40	.00	-.20	-.50	-.50	.70	.30	.50	.00	.70	.90*	.70	.90*

SPEARMAN rho   *p: $< .05$ **p: $< .01$

TABLE A6.5   TUTORIAL GROUP 1 – COMPARISON WITH ARTS GROUPS

BEHAVIOUR EXPRESSED AS CATEGORY PERCENTAGES

OF THE TOTAL IPA

IPA CAT.	TUTORIALS MEETING 1	MEETING 4	MEETINGS 1 – 4	ARTS Ss Chp. 7
1	0.34%	0.91%	0.34%	0.55%
2	9.90	13.01	8.59	14.51
3	14.09	11.42	13.04	14.30
1-3	24.33%	25.34%	21.97%	29.36%
4	0.17	0.00	0.10	0.64
5	45.47	54.34	54.80	45.06
6	4.19	3.65	2.61	6.33
7	2.52	0.46	1.25	2.30
8	3.86	3.20	4.93	3.84
9	0.00	0.00	0.14	0.38
4-9	56.21%	61.65%	63.83%	58.55%
10	1.34	0.23	1.50	1.62
11	17.95	12.78	12.17	10.12
12	0.17	0.00	0.53	0.35
10-12	19.46%	13.01%	14.20%	12.09%
	100.00%	100.00%	100.00%	100.00%

TABLE A6.6   TUTORIAL GROUP 1 – INTERACTION RATES

% OF INTERACTION PER SUBJECT AT EACH MEETING
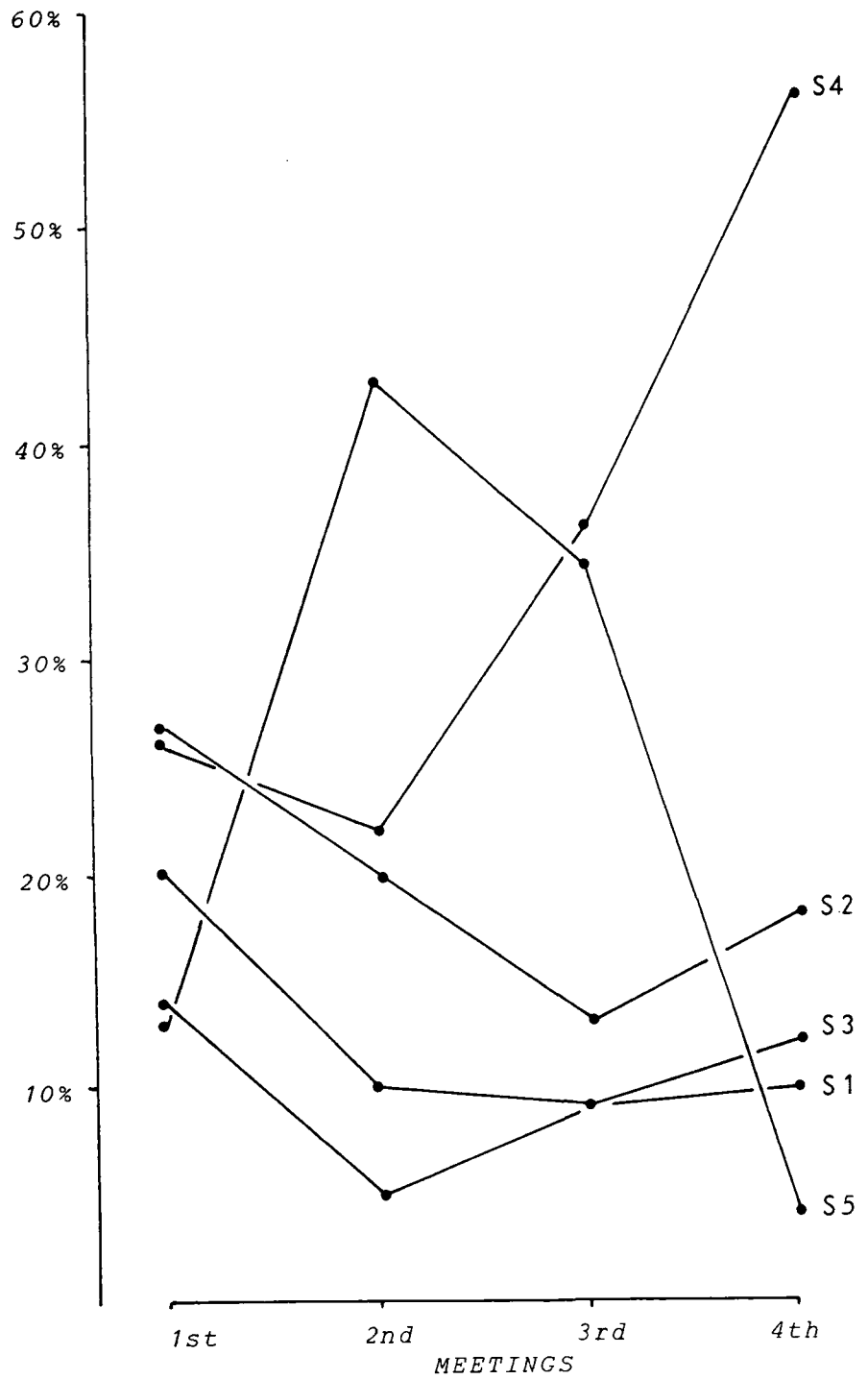
A6.6 ANALYSIS AND DISCUSSION

The four tutorial meetings were treated as a composite record spanning a period of one hour. The IPA scores refer to each tutee's total initiated behaviour for this period.

A6.6.1 Inventories

1.   Comparison with test norms & Survey 2

The mean inventory scores of the five Ss indicated greater introversion, more anxiety and less methodical study habits.

	TUT GROUP		TEST NORMS		SURVEY 2	
	mean	s.d.	mean	s.d.	mean	s.d.
EPI EXTRAVERSION	9.60	2.79	11.09	4.54	11.03	4.72
NEUROTICISM	12.80	6.38	10.01	5.01	10.40	4.30
STAI TRAIT ANXIETY	45.00	8.60	38.15	8.20	40.55	7.23
WRENN SHI	-43.60	33.02			7.89	38.57

The relatively high level of trait anxiety was also reflected in the mean Cattell STEN score for primary 'C' plotted in Table A6.3.

2.   Correlations with IPA data

The relationships between the personality measures, and between the personality measures and the IPA data were examined using the Spearman rho (Table A6.4). The results were in line for both direction and significance level with those obtained with the Arts data and in Surveys 1-3.

A6.6.2 IPA Data

1.   Meetings 1-4

Several changes in the IPA group profile occurred between

meetings 1 and 4 (Tables A6.5 and A6.6). (a) Small shifts in

behaviour were reflected in an overall increase in activity in Cat. 5

(gives opinions) and a decrease in Cat. 11 (shows tension). (b)

Predictably, marked fluctuations were apparent in the participation

rates for members. For instance S5's total IPA contributions per

meeting ranged from 43% to 4%. (c) There was a steady decline in

total activity over the four meetings of 27%.

2.   Comparison with the Arts groups (Table A6.5)

The IPA profiles of the Tutorial group's 1st meeting and that of

the Arts groups (mean profile for groups 1-6) were similar for nine of

the twelve categories.

A6.7 SUMMARY AND CONCLUSIONS

1.   The Psychology Tutorial Group, observed across four meetings

     included Ss with extreme scores for anxiety and poor study

     habits.

2.   Changes occurred in the IPA record between meetings reflecting

     varying participation rates. Changes also occurred in the

     distribution of behaviour across categories.

3.   The IPA profile of the 1st meeting suggested that the academic

     group's behaviour was not significantly different from that of

     the Arts Groups. There was no evidence that the Psychology

     Tutorial Group exhibited a greater sense of purpose, or - due to

     their previous association and different function - that its

     members were less affected by anxiety.

ECONOMICS TUTORIAL GROUP

A6.8 SUBJECTS

The group consisted of three 1st year students, who had met on eight previous occasions in first and second term with their tutor, and who were well-acquainted. They were not following courses in Psychology, nor were they familiar with the Psychology Department. Their mean age was 19.0.

Ss	SEX	COURSE
S1	M	1st General Arts
S2	F	1st General Arts
S3	M	1st General Arts

A6.9 SCHEDULE

In addition to being recorded as a leaderless group, the Ss were also recorded with their tutor, both in the Psychology Department and in the Economics Department, in order to allow the tutor to examine his teaching style. The data from the tutor-led discussions has been omitted from this report.

The two meetings took place at two-week intervals in third term and were located in the Psychology Department. On each occasion the three Ss discussed Economics papers for 30 minutes, and were recorded on audio and video tape in the Children's Room.

A6.10 MEASURES

1. Inventories

A. Wrenn Study Habits Inventory – SHI

B. Entwistle Student Attitudes Inventory – SAI

C. Heim AH5

D. Spielberger, Gorsuch and Lushene State-Trait Anxiety Inventory – STAI Form X-2, Trait Anxiety.

E. Eysenck Personality Inventory – EPI Form A

F. Cattell 16PF, Form A

2. IPA. The IPA record was based on the sampling procedure used in Chp.3 (see discussion in App. 1.6) and resulted in a 15 mins. sample for each discussion.

A6.11 DATA

Tables   A6.7 The questionnaire data

A6.8 The IPA data

A6.9 Comparison with the Arts Groups

TABLE A6.7 TUTORIAL GROUP 2 - QUESTIONNAIRE DATA

	S1	S2	S3	mean	s.d.
SEX	M	F	M		
AGE	19	19	19	19.00	0.00
WRENN SHI	31	-15	-44	-9.33	37.82
SAI TOTAL	32	25	27	28.00	3.61
MOTIV.	9	8	11	9.33	1.53
STUDY M.	9	7	6	7.33	1.53
EXA. T.	8	5	6	6.33	1.53
L.D.	6	5	4	5.00	1.00
AH5 TOTAL	37	38	39	38.00	1.00
VERBAL	15	16	15	15.33	0.58
SPATIAL	22	22	24	22.67	1.15
STAI TRAIT	33	42	34	36.33	4.93
EPI EXTRAV.	10	15	17	14.00	3.61
NEURO.	3	8	11	7.33	4.04
LIE SC.	4	2	2	2.67	1.15
16PF A	9	3	8	6.67	3.21
B	6	7	8	7.00	1.00
C	22	5	11	12.67	8.62
E	11	5	21	12.33	8.08
F	16	8	20	14.67	6.11
G	15	5	10	10.00	5.00
H	17	7	20	14.67	6.81
I	8	7	12	9.00	2.65
L	10	5	11	8.67	3.21
M	5	7	20	10.67	8.14
N	14	4	6	8.00	5.29
O	8	7	11	8.67	2.08
Q1	6	7	10	7.67	2.08
Q2	6	4	14	8.00	5.29
Q3	14	4	10	9.33	5.03
Q4	9	9	14	10.67	2.89
FI	3.1	5.7	6.2	5.00	1.66
FII	5.7	2.6	6.0	4.77	1.88
FIII	9.1	8.1	5.9	7.70	1.64
FIV	0.4	2.6	8.5	3.83	4.19

TABLE A6.8 TUTORIAL GROUP 2 – IPA DATA

	MEETING 1			MEETING 2		
	S 1	S 2	S 3	S 1	S 2	S 3
Cat. 1	0	0	0	0	0	0
2	18	10	8	21	24	16
3	22	30	13	21	32	17
4	0	0	3	0	1	0
5	146	73	63	84	84	58
6	2	4	12	6	2	3
7	0	1	2	2	3	4
8	6	12	8	0	4	6
9	0	1	0	0	0	0
10	2	5	8	2	2	4
11	23	6	1	14	12	6
12	0	0	2	0	0	0
Total	219	142	120	150	164	114

TABLE A6.9   TUTORIAL GROUP 2 — COMPARISON WITH THE ARTS GROUPS

		MEETINGS		TOTAL	ARTS
		1	2		
Cats.	1	0.0%	0.0%	0.0%	0.6%
	2	7.5	14.2	10.7	14.5
	3	13.6	16.4	14.9	14.3
	4	0.6	0.2	0.4	0.6
	5	58.7	52.8	55.9	45.1
	6	3.7	2.6	3.2	6.3
	7	0.6	2.1	1.3	2.3
	8	5.4	2.3	4.0	3.8
	9	0.2	0.0	0.1	0.4
	10	3.1	1.9	2.5	1.6
	11	6.2	7.5	6.8	10.1
	12	0.4	0.0	0.2	0.4

A6.12 ANALYSIS AND DISCUSSION

A6.12.1 Inventories

Compared with the test norms and the data from Survey 2, the mean scores for the 3 Ss indicated greater extraversion and more stability.

	TUT GROUP		TEST NORMS		SURVEY 2	
	mean	s.d.	mean	s.d.	mean	s.d.
EPI EXTRAVERSION	14.00	3.61	11.09	4.54	11.03	4.72
NEUROTICISM	7.33	4.64	10.01	5.01	10.40	4.30
STAI TRAIT ANXIETY	36.33	4.93	38.15	8.20	40.55	7.23
WRENN SHI	-9.33	37.82			7.89	38.57

A6.12.2 IPA Data

Differences between the two meetings were concerned with a 50% increase in the number of acts scored in the socio-emotional categories 1-3, with correspondingly fewer acts scored in the neutral task-related area.

In Comparing the 1st meeting of the Economics Tutorial Group with that of the mean profile of the Arts Groups (Table A6.9) it was evident that 10% more of the Tutorial Group's activity was concentrated in the neutral task-related categories 4-9; and also that its relatively reduced socio-emotional behaviour included less dramatisation and fewer signs of tension, as defined by Bales.

In contrast to the Psychology Tutorial Group, whose profile was similar to that of the mean Arts Groups' profile, the Economics Tutorial Group showed some evidence at its 1st meeting, of the behaviours predicted for an academic group: namely, an emphasis on neutral task-related behaviour with relatively little emotionality.

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A6.13 SUMMARY AND CONCLUSIONS

1. The Economics Tutorial Group, observed across several meetings -
    of which two were reported - included Ss whose scores on the
    personality inventories indicated stable, extravert dispositions.

2. The IPA profile of the 1st meeting was at variance with that of
    the Arts Groups across six of the IPA categories. However, the
    profile was in line with the predicted behaviours for a tutorial
    group.

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This appendix was concerned with small samples of behaviour in
two academic discussion groups, of unequal size, heterogeneous
composition and unknown representativeness. Predictably, the results
were inconclusive and contradictory. The Psychology Tutorial Group's
1st meeting was reflected in an IPA profile that was not significantly
different from that of the Arts Groups. In contrast, the Economics
Tutorial Group behaved with greater reserve at its first meeting.

However, despite all the caveats that must attend this limited
examination of the two Tutorial Groups, it was clear that both groups
functioned effectively in terms of overall activity, and were not
adversely influenced by the laboratory environment or the leaderless
small-group format. The groups also provided evidence of variations
in activity across several meetings both in terms of individual
behaviour and total interaction rates.

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