"PERCEIVED PLEASANTNESS:

EXPLORATION OF INDIVIDUAL DIFFERENCES IN THE

INTERPRETATION OF SOCIAL COMMUNICATION."

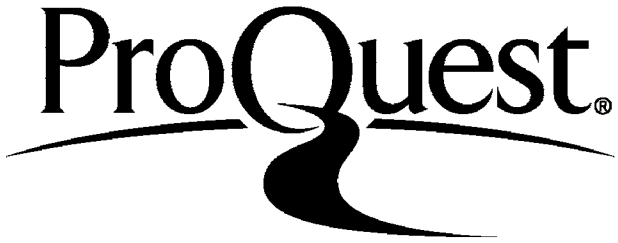
BY

ROBERT HALLETT

FOR PhD.

BEDFORD COLLEGE,

LONDON UNIVERSITY.



ABSTRACT

In a series of experimental investigations using videotaped stimulus materials, individuals evaluated pieces of social behaviour for 'pleasantness'. Some of the pieces of social behaviour were consistently pleasant, others were consistently unpleasant and some were inconsistent (ie. pleasant verbally and unpleasant nonverbally, and vice versa.) Evaluations of pleasantness proved to be very consistent across both individuals and experiments and appeared unaffected by variations in measured personality traits, with the sole exception of Machiavellianism (Mach.) High-Machs. tended to give more positive pleasantness judgements. Two other factors caused slight but consistent variations in pleasantness judgements. Females were found to exhibit a tendency to give more positive judgements than males. Older individuals showed the same tendency, regardless of sex. In some experiments, Mach. and sex of individual were found to interact: female high-Machs. tended to give more positive evaluations than all other individuals. Taking these factors into account, little remaining variation is left in the judgements of pleasantness; so little that it was hypothesized that the process of judging pleasantness is supra-personal and likely to be culturally determined.

A second series of investigations looked at the relative importance of the visual-facial, verbal and vocal-nonverbal aspects of the communications. Results were compared with those obtained in similar experiments in the U.S.A. Both English and American individuals place greatest emphasis on the visual-facial nonverbal component of communications when evaluating pleasantness; but the next most important component for the American is the vocal-nonverbal, while for the English individual it is the verbal (actual words spoken) element. Though the process of evaluating interpersonal pleasantness appears to be a detectable social skill or process, it seems to vary from culture to culture.* This finding adds weight to the findings of other workers who suggested that many of our communicative (and interpretative) skills might be culture-specific.

(* 'Culture' is not used, in this thesis, as an explanatory cause of these differences; these inter-cultural differences are merely observed.)

CONTENTS

INTRODUCTION

One of the major problems in social psychology is the analysis and interpretation of interpersonal behaviour, and the main element of this problem is the role played by both verbal and non-verbal communication. Earlier work on the study of communication was mainly concerned with cataloguing and classifying the various types and incidence of aspects of communicative behaviour. This type of research continues to an extent even today, but there has been a growing tide of research concerned to place communicative behaviour in its context, to overcome the inevitable atomism of the cataloguing approach, and to relate these lists of behaviours to 'everyday' human behaviour. This trend has been very noticeable in the increasing interest given to trying to relate situational variables to quality, quantity, strategy and ability in communicative behaviour.

This thesis forms part of this latter approach to social communicative behaviour and is an attempt to examine two main themes; firstly, whether people respond to types of communication in a predictable fashion and what form this response takes and, secondly, whether any particular personality variables (among those particularly related to social behaviour) relate in a predictable way to the responses made.

As the range of social behaviour is large it is necessary to select some particular aspect to investigate. It was this choice that provided the initial idea for this thesis. This choice was based on the commonplace observation that people see others as more or less pleasant. The basic question is therefore, "what processes are involved in making a judgement of 'pleasantness'?"

The basic method developed to investigate this question was based on having several actors and actresses attempting to say

pleasant or unpleasant sentences in pleasant or unpleasant ways. The possible permutations of sentence and the way it is said inevitably include contradictory communications; where, for example, the sentence is pleasant while it is said in an unpleasant way. Subjects responded to these communications by rating how well several descriptive adjectives fitted them. In this way it was possible to examine the process of pleasantness judgements.

CHAPTER ONE

"INTRODUCTION"

INTRODUCTION

1) A GENERAL INTRODUCTION TO THE STUDY OF COMMUNICATION.

Before considering those aspects of communicative behaviour of particular relevance to this thesis, it is necessary to be clear about what is meant by 'communication', together with some brief knowledge of the history of its study.

a) What is Communication? In today's society, one of the most frequently used words is "communication". We hear of communication problems, gaps and breakdowns, and worry about the effects of the mass-communication media on our children, education and society as a whole. But what is this ubiquitous thing "communication"? Attempts at defining the meaning and use of this word go back at least as far as the Greeks (Lin 1973), but it is only since about 1940 that modern scientific attempts at kinds of definition have happened.

Although communication may be thought of as ubiquitous, it is also certainly equivocal. Definitions are rife. However, it is possible to perceive certain properties of "communication" which seem to receive the greatest emphasis in typical definitions. For example, Berelson and Steiner (1964) concentrate on the "transmission" property when they define communication as;

"the transmission of information, ideas, emotions, skills etc., by the use of symbols - words, pictures, figures, graphs etc."

This property of "transmission" is probably the most frequently occuring of the elements in the definition of communication.

Shannon and Weaver (1949) extend the above definition by adding that any definition of communication must;

> "include all of the procedures by which one mind may affect another."

Colin Cherry (1957) brings out the third aspect of any necessary definition ;

> "Communication is essentially a social affair. Man has evolved a host of different systems of communication which render his social life possible . . . Communication renders true social life practicable, for communication means organization."

The last aspect of defining communication that I wish to touch on concerns intentionality. A.J. Ayer (1955) points out that we may not always be aware of giving off any kind of information in our behaviour - yet others are able to make inferences concerning our mood state, arousal etc. from cues which we are not conscious of providing. Gahagan (1975) makes a useful distinction on this problem by suggesting that most behaviour which is a source of information for others but of which we tend to not be aware is "informative behaviour"; whereas that behaviour which is intended to be a source of information for any observor is "communicative behaviour".

From the above brief excursion into the realm of definition, it is clear that any definition of the meaning of communication with reference to human beings must be along the following lines: Communication is the general term for numerous processes, mainly social in nature, by which information is intentionally transmitted from one individual or group to another. A corollary of this definition is that much behaviour is not intentional as

such, and although it involves the transmission of information should be classified as informative behaviour rather than communicative behaviour.

Much of the work contained in this thesis can be seen as relating to both communicative behaviour and to informative behaviour.

b) Brief history of the study of Communication. It has been said that psychology has a long past but a short history; very much the same could be said of the study of communication. Fisher (1978) points out that as an area of study, communication draws on many influences, but can be seen as stemming directly from the Greek study of "rhetoric". Fisher goes on to say;

> "Some evidence suggests that the study of rhetoric predates Greece and existed in the ancient Egyptian culture . . ."

The Greeks existed in a culture with a mainly oral tradition, and therefore rhetoric was seen to include all available means of persuasive verbal discourse (Aristotle). There was no explicit study of what we would now call "non-verbal communicative behaviour". Other cultures, notably in the far-East, were very concerned with the communicative function of non-verbal behaviour (Benthall and Polhemus 1975) and developed formalised gestural repertoires. In post-Greek Western culture, the emphasis continued to be on language per se, and the study of the structure and development of written and spoken languages both "living" and "dead" (Wardhaugh 1972).

It was not until the twentieth century that these diverse influences converged with several new themes (notably telecommunications engineering, mathematical models of communicative events and communication with computers) to form a coherent, but wide, study of commuication. The psychologist, sociologist, linguist, communications engineer and educationalist are all, to a greater or lesser extent, involved in this field of study.

2) MAIN AREAS IN THE STUDY OF COMMUNICATION.

The two major elements studied in this thesis are fundamentally the verbal and non-verbal components of any given communication. The actual linguistic nature of the verbal element is not the prime concern here (the non-verbal element is) but it is necessary to make a preliminary survey of the primary characteristics of both.

a) Verbal Communication: The species 'homo sapiens' appears to be unique in the animal world in developing a whole cluster of communicative codes which utilize the vocal channel - in short, language. Hockett (1960) demonstrates that human speech shares numerous properties with vocal communicative systems in other animals, but has at least three unique characteristics not shared with any other communication system. It appears that language was developed in humans to cope with increased amounts of information transmission and to provide increased communicative accuracy. Keen (1978) points out that;

> ". . . speech is a human's highest capacity output channel."

The primary characteristic of human speech is that it is intentioanal. As Sapir puts it;

> "language is a purely human and non-instinctive method of communicating ideas, emotions and desires, by means of a system of voluntarily produced symbols."

This intentionality implies some kind of structure, and it is provided by means of rules. These production rules are the intrinsic grammars of languages and govern the conjunction and utilisation of word units. (Chomsky 1959; Brown 1973; Slobin 1971) The conjunction of intentionality with rule-governed verbal behaviour allows for the predictability of language - essential for any kind of regularised social interaction. Not suprisingly, language is mainly a social tool, and its acquisition is by means of social learning processes (Brown 1973, 1973b) though the nature of these processes and the contribution of hereditary factors is not finally clarified.

Though rule-bound and predictable, spoken language does have (in theory at least) the capacity for infinite development, extension and a certain amount of 'rule-bending'. The last of these three refers to the more poetic and neologistic uses to which words can be put.

There are three main approaches to the study of spoken language. The first linguistic; the main concern is the grammatical structure of the language, how the language developed, and how it changes over time. The second area is more the province of sociologists and anthropologists, and their main concern is how language is used for the transmission and maintenance of social structures, rules, roles, codes, traditions and practices. The third approach is psycholinguistic, the main concerns

of which are the production, comprehension and storage of sentences; the relationship between language and the perception of the world about us; and the development of computer models of sentence production and comprehension.

b) Non-Verbal communication (NVC): In a review of the NVC literature, Harrison et al (1972) state that;

> "Sharp changes have taken place in the nonverbal communication literature, in the past decade, and in particular in the last two years. A decade ago, few books existed; and the early works tended to be speculative, anecdotal, and tentative. Recently, a flurry of popular books have caught the attention of the layman. Perhaps somewhat unfortunately, these books have drawn largely on the early anecdotal state of knowledge. But behind this popular fad is a growing body of solid research literature."

Despite earlier precedents (for example Allport and Vernon 1933) the study of NVC is a comparatively recent phenomenon. As might be conjectured, the relative novelty of this field of study has led to a wide variety of definitions of just what NVC is or might be. Knapp (1972) states;

> "Traditionally, educators, researchers, and laymen have used the following definition when discussing nonverbal communication: Nonverbal communication designates all those human responses which are not described as overtly manifested words (either spoken or written)."

Similarly, Harrison (1973) comments;

> "The term nonverbal communication has been applied to a broad range of phenomena: everything from facial expression and gesture to fashion and status symbol, from dance and drama to music and mime, from flow of affect to flow of traffic, from the territoriality of animals to the protocol of diplomats, from extrasensory perception to analog computers, from the rhetoric of violence to the rhetoric of topless dancers."

These definitions do not get us very far, as they seem sufficiently broad to include almost all human behaviour. This diversity stems in part from the lack of agreement on the boundary between verbal and nonverbal and the distinction between communicative or noncommunicative behaviour. The most relevant article in this area is that by Wiener, Devoe, Rubinow and Geller (1972), which sets out to clarify the issue of nonverbal behaviour versus nonverbal communication. The authors begin with an outline of the basic human communicative situation: a person (encoder) who transmits behaviour (code) that is understood by another person (decoder). Nonverbal behaviour consists of signs and communications. The term "nonverbal communication" itself implies

a) a socially shared signal system, that is, a code;

b) an encoder who makes something public via that code;

c) a decoder who is able to respond systematically to that code.

In contrast to this, a "nonverbal sign" implies only that

a decoder has made an inference concerning a behaviour or set of behaviours, or has attached some "significance" to a behaviour. Nothing is implied as to what goes on at the encoding end of the system. Unfortunately, in NVC research, most studies have involved decoding paradigms where inferences are made about certain behaviours, following which the inferred meanings of these behaviours are taken as "communications". Wiener et al (1972) argued that there was no justifiable basis for calling any nonverbal behaviour communicative unless both encoding and decoding processes are taken into account. An experimental method which is limited to decoding only, therefore, does not permit differentiation of nonverbal signs from nonverbal communications.

According to Wiener et al (1972), before a behaviour can be thought of as "communicative" encoding on the part of the sender must be demonstrated. Inherent in the term "encoding" is the use of a code. A code;

> ". . . is taken to be a set of behaviours which have referents other than themselves." (Ibid, p.201)

Rather unfortunately, as the authors point out, most workers have not specified referents to behaviour that they consider to be communicative, and instead have;

> "fallen back on the conscious intentions of the subject as a criterion for considering a behaviour to be communicative." (Ibid, p.202)

This latter criterion presents methodological problems in that an observer cannot always determine a subject's intention and a subject's self-report could be a lie or a mistake in addition to being the truth! The key to demonstrating non-verbal communication was code usage. Wiener et al (1972) defined a code as;

> "If a set of behaviours will be considered to be a code, it must be demonstrated both that the behaviours have referents and that the referents of the behaviour are known and used by a group; that is, used by at least two persons who emit (encode) the behaviour to stand for the agreed-on referent and take (decode) the emitted behaviour of the other to stand for the agreed-on referent." (Ibid, p.204)

Code usage is defined as follows;

> "Code usage will be posited on the basis of a set of inter-related predicted findings when manipulation of the experiences to be made public, of the forms available to the addressor, or of the responsiveness of the addressor to communication conditions results in the predicted effect on the emitted behaviours as a function of such manipulations." (Ibid, p.205-206)

From these definitions it is possible to specify a plan whereby code usage can operationally be demonstrated.

Having attempted to clarify the issue regarding what NVC can be considered to be, it is now relevant to turn to

a functional classification of the main areas of NVC.

Poyatos (1974) proposed a broad classification of nonverbal phenomena according to the sensory channels involved (ie. acoustic, visual, olfactory and tactile); the classes of verbal-vocal, nonverbal-vocal and nonverbal-nonvocal; and whether they are interactional or noninteractional in nature. That this classification system is 'total' is evident when one considers that Poyatos even includes expulsion of body gases, bodily secretions of all types and odours from objects used such as tobacco, alcohol etc.

Argyle (1969, 1975) lists the following as nonverbal behaviours; bodily contact, posture, physical appearance, facial and gestural movement, direction of gaze, and the paralinguistic variables of emotional tone, timing and accent. Knapp (1978) identified the following; body motion or kinesic behaviour, facial expression, physical characteristics, eye behaviour, touching behaviour, paralanguage, proxemics, artifacts, and environmental factors. Duncan's (1969) list of "nonverbal modes" included body movement or kinesic behaviour, paralanguage, proxemics, olfaction, skin sensitivity to temperature and touch, and the use of artifacts. Scheflen (1964) described kinesic and postural behaviours and tactile, odorific, territorial, proxemic, and artifactual categories as "non-language modalities" in addition to the nonlexical vocal modalities of paralinguistic behaviours.

The above authors classified nonverbal behaviours or modalities primarily in terms of body area or body activities.

Some other communication researchers have thought of nonverbal behaviour in more abstract terms. Ruesch and Kees (1972) for example, describe nonverbal communication in terms of "action language", "sign language", and "object language". As can be seen, any attempt at defining the scope of research in the area of nonverbal behaviour in general, and nonverbal communication in particular tends to run into the problem of total inclusiveness. In an attempt to utilize a workable definition, while the areas defined above are salient, all should be viewed in the light of the Wiener et al (1972) paper.

In this thesis the method employed is one which takes into account the problems raised by Wiener et al (1972). Primarily, the method is based on the 'encoding' paradigm in that the content and structure of the communication to be encoded is pre-set by the experimenter and acted out by the actors and actresses. The 'decoding' part of the method is also taken into account by providing the subjects with a framework within which to respond to the encoded messages. In this way it is hoped that the content of the encoded messages can be considered, under the Wiener et al (1972) classification to be 'communications' or 'communicative behaviour'.

Inevitably, when studying communication, there is some point at which the message itself must be broken down into artificial elements. This is done in this thesis, but it

is necessary to provide a cautionary note. Psychology, unlike many other subjects, deals with behaviours that are in themselves meaningless, but which have meaning attributed to them by common consensus or by individualistic interpretation. One product of this ongoing analysis of behaviour is the establishment of 'models' of the structure and possible functions of these elements. The caution is necessary because numerous investigators have fallen into what James (1890) called "the Psychologist's fallacy" - the confusing of the idea of something with that thing itself. In this case the fallacy appears to have been perpetrated by those who would draw up explanatory diagrams of human communicative events, usually broken down into the form of; sender/encoder transmits message/communication to receiver/decoder who interprets/ deciphers and if necessary acts. This scheme of things is all very well, and 'boxologies' of this sort are plentiful in communications research (see, for example, Lin 1973), probably because of the roots of the subject being in communications engineering, but they represent human communication as a relatively linear phenomenon. I would assert that in ordinary social intercourse, human communication (within the definition proposed above) and sign behaviour is a multi-modal, multi-layered, simultaneous, nonlinear, dynamic process. The decomposition of this complex process is necessary for purposes of analysis and definition - but it is important to realise that the theoretical structures which are drawn up to describe communicative events are abstractions which do not bear much

direct resemblance to the interwoven dynamic structure of the actual process. In this thesis some attempt is made to take account of the interwoven, interactive nature of communication by using a complex evaluative dimension which seems to be used in 'real life'; namely, 'pleasantness'.

3) APPROACHES TO COMMUNICATION RESEARCH

As has already been mentioned with respect to Wiener et al (1972), there are numerous approaches to the problem of investigating communicative behaviour. While basically adopting the Wiener strategy and argument, it is important to look at other possible analyses and classifications of research strategies.

The approaches to communication research can very broadly be divided into three major stages (after Duncan 1969). In the first of these stages, research into non-verbal communicative behaviour was mainly involved with the development of methods of transcription for the categorization of the various non-verbal behaviours. At first linguists broke the vocal aspect of non-verbal communication (paralanguage) down into vocalizations and voice qualities, and ethologically oriented workers such as Birdwhistell (1952) developed numerous transcription systems for all aspects of non-verbal behaviour. On a less general scale, Hall (1963) developed a notation system for proxemic behaviour.

The second phase of research development can be called the 'structural approach.' Here, non-verbal communicative behaviour is studied as;

> ". . . a tightly organized and self-contained social system like language . . . (which) operates according to a definite set of rules." (Duncan 1969)

The third phase of research can be called the 'external variable' approach, which was primarily concerned with studying the relationship between non-verbal variables and other behaviours,

such as the characteristics of the people involved in the interaction or the nature of the verbal element. The major difference between the second and third phases is concerned with the use of statistical methods. The structuralists did not concern themselves with whether or not individual elements occurred together; if they were natural elements of a communicative structure they would be present every time. The sorts of questions structuralists asked include;

> " a) Out of all behaviours which are possible to perform, which ones actually occur in communication in a given situation in a given culture? b) Do these selected communicative behaviours occur in characteristic sequences or clusters with other behaviours in the same or a different modality?" (Duncan 1969)

At their most typical, these types of structural study involved the minute descriptions of tiny segments of behavioural sequences (e.g. Scheflen 1966) Retrospectively this approach may seem highly unproductive and tedious, but Duncan (1969) is at pains to point out that both the structural and the external variable approach were complementary and needed to be pursued in parallel. He also stated;

> "It is clear that extensive research on the function of non-verbal behaviours in communication and on their personality and situational concomitants will be necessarily encumbered until larger structural units, perhaps analogous to known linguistic units, can be discovered."

Despite Duncan's plea, the inherent limitations of the structural approach led most workers in the field of non-verbal communication to pursue the external variable approach. It became necessary to classify this type of study, in turn, into two basically different approaches. Ekman and Friesen (1968) classified them as 'indicative' or 'communicative' studies within the external variable tradition.

The indicative studies focussed on the association between psychological states and non-verbal behaviours that were indicative of those states. The communicative studies focussed on observers accurately interpreting the 'meaning' of particular non-verbal behaviours in terms of particular psychological states. There are significant problems associated with this approach relating to whether or not 'communication' is being studied. Under the Wiener criterion, most of these types of study are concerned solely with the 'decoder' and his interpretation of any given message. As it is often unclear whether any common code is in operation, under Wiener the majority of these types of study are dealing with non-verbal signs, not communications.

Ekman and Friesen noted five implicit and interrelated assumptions why non-verbal behaviours are studied from an external variable approach. First, nonverbal behaviour can function as a 'relationship language',

> ". . . sensitive to, and the primary means of, signalling changes in the quality of an ongoing interpersonal relationship."

Second, nonverbal behaviour is;

> ". . . the primary means of expressing or communicating emotion."

Third, 'body language' may convey in some instances symbolic messages concerning a person's attitudes towards others or himself. Fourth, nonverbal behaviours can serve metacommunicative functions in regulating human disclosure, such as through regulation of speaking and listening. A fifth, final assumption, is that certain nonverbal behaviours are less susceptible to attempts at censorship of communication.

Ekman and Friesen (1968) also described five indicative research methods. Indicative studies measure statistical relationships between specific nonverbal behaviours and other variables (for example, spoken language, personality characteristics, or other nonverbal measures). First, 'rate measures', or frequency of nonverbal behaviours over time, can yield information concerning the characteristics of the sender (eg. race, sex) or the sender's emotional state (angry, guilty). Second, rate measures can also be related to 'situational or role context', such as location of interaction (eg. hospital versus home) or the fact that the person is the interviewer rather than the interviewee. Third, frequency of nonverbal behaviours can be related to the other interaction participants' behaviour or characteristics. Fourth, nonverbal behaviour can be related to spoken language (ie. verbal content.)

In their discussion of communicative methods, Ekman and Friesen (1968) identified four basic types. As was noted,

communicative studies are concerned with the meanings attributed by observers to various nonverbal behaviours. One method is to use selected or complete samples of nonverbal behaviour in a judgement task concerning the observed person's characteristics or situation (eg. was the film taken at the patient's time of admission or at discharge). A second communicative method evaluates differential communication from different sources of nonverbal behaviour (hands, face, etc.). Third, a single nonverbal act (eg. static facial expression, a posture) can be presented and judgements obtained as to its meaning. Fourthly, different channels or modes of behaviour can be examined as to their relative information value (eg. script versus audio, versus video, versus audio-visual modes of presentation).

To summarize, Ekman and Friesen's categorization of communicative studies really described studies that involve decoding of nonverbal behaviours presented to observers. Mehrabian (1972) noted a number of advantages of decoding studies;

> "Such a method is advantageous since it allows a comparion of the effects of a number of cues, singly or in combination, on inferred attitudes. It also allows the investigation of the relative effects of these cues for various communicator and addressee groups (eg., different sex or personality). Finally, possible confounding effects of communications in other channels (eg., facial expressions, verbalizations, or gestures) can be eliminated. A decoding method yields

considerable information because it makes possible the systematic control of a large number of variables." In contrast, encoding studies, as described by Mehrabian, are those in which subjects are placed in situations that elicit different attitude-related behaviours, which are then measured. Mehrabian has also often favoured role-playing in his encoding studies, where a person would assume an attitude (eg., like-dislike). An encoding study does not permit the systematic study of interactions among communication cues. Although with an encoding method one is limited to the study of interaction between one cue, addressee, and communicator characteristic, there is, however, no limit to the number of nonverbal behaviours that can be studied in this way. Mehrabian in particular, employed multiple regression or discriminant analysis to assess the relative information value of different encoded nonverbal cues. Decoding methods, while allowing factorial designs with multiple interactions, are limited by the fact that only so many variables (nonverbal behaviours) can be included in a factorial design before it becomes unmanageable.

Mehrabian also described a third procedure where encoded nonverbal behaviours were presented to subjects who were then asked to indicate which they would prefer to use in various social situations. In a sense, the subjects were choosing among forms or combinations of behaviour to be used to communicate various attitudes. This procedure permits use of factorial designs, as in decoding studies, with analysis of

the independent and interactive effects of encoded behaviours in communicating attitudes. It additionally permits the investigator easily to test out nonverbal behaviours that he thinks communicate certain messages, without requiring special knowledge necessary to prepare appropriately encoded messages for decoding study. In summary, Mehrabian noted;

> "Whereas encoding methods are appropriate in the beginning stages of communication research, the proposed encoding-decoding method is appropriate for intermediate stages, and decoding methods are appropriate during the highly developed phases of such research."

Having examined the various strategies and sub-strategies available, it is important to put this thesis into its relevant group. This, however, does pose something of a problem. At first, it seems that this thesis falls squarely in the external variable approach and in the communicative rather than indicative sub-group. After taking both the Mehrabian (1972) and Wiener et al (1972) arguments into account, it is clear that the communicative approach is, on the whole, decoder oriented, while this thesis has a considerable bias towards the encoder as well. Perhaps still under the general heading of the external variable approach it is necessary to create a third category to describe this thesis. This could be called the 'integrated' approach as it takes account of both the encoder and decoder ends of the relevant communicative behaviour. What is being

attempted is to examine a more 'real-life' interpersonal evaluative situation by controlling the encoded nature of the message along a dimension which has been shown to be of great significance, and by ensuring that decoders evaluate the message along the same dimension, namely, pleasantness. This means that both encoder and decoder are operating under a common 'code', and hence we are dealing with communicative behaviour.

4) SOCIAL PROCESSES AND COMMUNICATION: PERSON PERCEPTION

a) Introduction to the concept of person perception. So far, in this review of the pertinent literature, mention has been made of the theory of communication, the special problems of examining non-verbal behaviour, the possible theoretical solutions to these problems and the types of approach which have been utilized in the study of communicative behaviour. It is now relevant to examine an area where all these more specialized topics have common ground; that is, the study of interpersonal perception. In his classic (1969) paper on the subject, Tagiuri stated that

> "Person perception refers to the processes by which man comes to know and think about other persons, their characteristics, qualities, and inner states . . . Whatever the label, we are concerned with how we perceive and know the characteristics of other persons."

This definition does not convey the active nature of the process of interpersonal perception. Warr and Knapper (1968) state

> "In forming impressions of others we certainly process information received from them and their environment, but we do more than this. We respond by deriving expectancies about the other people and their relationships to us. And our responses have a component with a strongly affective nature: attraction, anxiety, love, hate, happiness, despair can all be involved in person perception."

It is this attempt to derive expectancies about the behaviour of others, in short to make predictions about their behaviour, which contains the area studied in this thesis. Interpersonal perception can be seen as having many components, one of which is the perception of pleasantness. People may be attracted to, repelled from or influenced by others for a multitude of possible reasons, but one significant dimension of evaluation must be something corresponding to the notion of 'pleasantness'. The aim of this thesis is to clarify the nature of the process whereby others are judged as pleasant, what behavioural (and in particular, non-verbal) factors are important in the 'sender' for a 'receiver' to judge them as being pleasant, what personality characteristics co-vary with types of perception and judgement as well as encoding (or 'sending') ability, and to attempt to establish, within the framework of communication studies some kind of theoretical model for this particular process within communication in general. It should be stressed that this thesis is not concerned with what makes a person attractive, though by its very nature this topic is closely related to the one under study.

The importance of the dimension of pleasantness is discussed by Roth (1976)

> "If I decide that somebody is pleasant, this has implications for my behaviour towards him/her

> and my behaviour will, in turn, influence his or hers, which may then influence my impression! All of this must somehow be reflected in the conceptual system which we possess for describing people and behaviour towards them."

In non-verbal terms, the areas (other than straightforward appearance) which need to be examined in particular detail for their relevance to person perception are eye contact, voice quality, proxemic information and facial expression. I have intentionally avoided the mention of appearance or 'attractiveness' as both lead to relatively untrodden paths in the philosophy of aesthetic appreciation.

b) The role of eye-contact. Ellsworth and Ludwig (1972) described the general purpose of research into eye-contact behaviour as follows;

> "In studying visual behaviour as a source of attribution we are asking what the visual behaviour tells the receiver (as opposed to the more general influence question: 'how does the visual behaviour affect the receiver?') A person may attribute stable characteristics, or more transient moods, reactions, or attitudes to the other person on the basis of his visual behaviour. He will rarely hold the other person accountable for information received in this manner, however, and he will usually assume that the other person did not deliberately intend to

convey this type of information." (p.390)

One of the commonest situations in which attributions occur is when we are looked at. Referring back to the work of Wiener et al (1972) it is suprising that little work has been done on the roles played by the observer and the observed. In a series of experiments, Argyle and Williams (1969) studied how being either an observer or one of the observed affected subjects' behaviour. An interviewing set-up was used where subjects were interviewer or interviewee. Sex, age and amount of looking (by a condederate subject) were varied. It was found that all subjects tended to feel more 'observed' if role-playing an interviewee, felt more observed in opposite sex encounters (especially females), and that the more a subject felt himself to be observed the more the other subject felt an observer. Discussing this study, Ellsworth and Ludwig (1972) noted;

> "A person who feels himself an observer will interpret the other's visual behaviour and other nonverbal cues as indicators of the other's stable dispositions or internally-motivated moods, while a person who feels himself observed will interpret the same cues as reactions to himself and as influences on his own behaviour." (p.392)

Numerous studies relating to the topic of interpersonal attribution have focussed upon interpersonal

attraction as a variable. Looking by another is (generally speaking) a signal of attraction or interest.

For example, Kleck and Rubenstein (1975) varied the attractiveness of female confederates by changing their hairstyle and make-up and found, not suprisingly, that male subjects increased their gaze at attractive females. Coutts and Schneider (1975) had hidden observers rate the attractiveness of two subjects in a nonconversational waiting room situation and found that both females and males glanced more at attractive opposite sex persons. Wiener and Mehrabian (1968) reported that when an interviewer spent more time looking at one of two interviewees, the subject looked at more judged the interviewer as more positive toward her than toward the other interviewee. It is, however, sometimes the case that in opposite sex encounters the apparent meaning of gaze may be modified. Several experiments (for example Kleinke, Bustos, Meeker and Staneski 1973) have shown that males tend to rate females as more attractive when the females give them lower levels of gaze, while females themselves rate high-gazing males as most attractive. In addition to providing some support for the notion that our perceptions of behaviour influence our attitudes, the complimentary nature of the findings for males and females suggests that there are strong and commonly shared norms for gazing behaviour (in communicating interpersonal attraction.)

Most impression formation studies based on visual behaviour have used observer judges rating interpersonal behaviour or interactions of others. In such studies, increased gaze leads to stronger impressions of interpersonal influence and communication effectiveness. LeCompte and Rosenfeld (1971) found that observers who viewed videotapes of a speaker rated the speaker as less nervous and less formal when the speaker glanced at the observers than when he did not look up at all. Beebe (1974) found that as gaze towards an audience increased, a speaker was viewed as more skilled, informed, and experienced, and also more honest, friendly and kind. LaCrosse (1975) trained confederates to role-play counselors and engage in 'affiliative' and 'nonaffiliative' behaviours, which included 80% and 40% eye contact respectively. As predicted, subjects viewing videotapes of the confederate-counselors rated those displaying affiliative behaviour as more attractive and persuasive, citing the frequency of eye contact as a primary cue for affiliativeness. The above studies used noninteracting observers rather than participant raters.

The overall pattern of findings so far suggests that there is some general trend in interactive gaze behaviour with potentially large sex differences. Work by Cook and Smith (1975) suggests that this is at least a partially false conclusion. Confederates of both sexes interacted with subjects of both sexes with varying degrees of

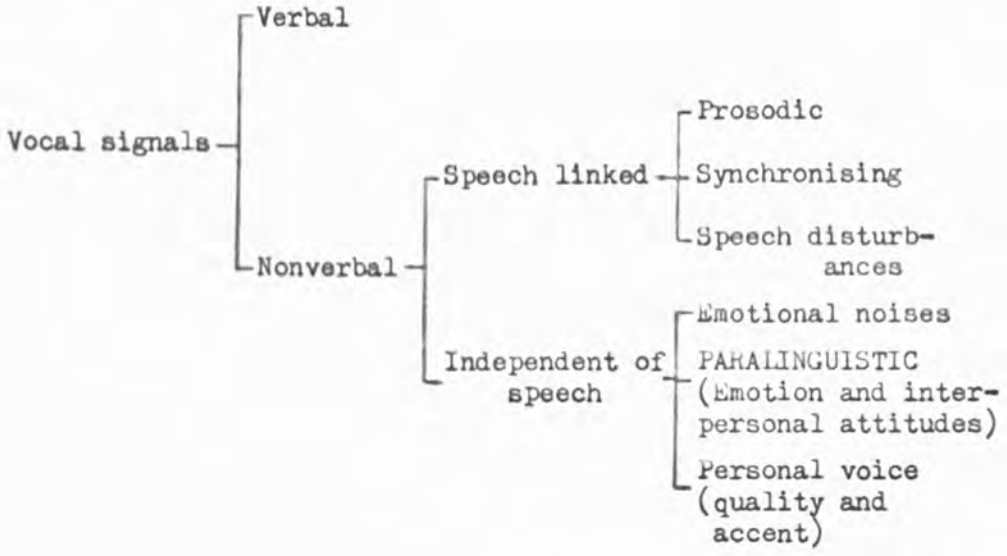
normal or gaze-averted behaviour. It was found that when subjects were given a semantic differential to deliniate their response to and evaluation of the confederates, the actual amount of gaze shown by confederates had very little effect on their impressions. Even more interesting was that less than half the subjects actually mentioned gaze at all in their free descriptions of the confederates. Overall, it seemed that confederates who averted gaze were less pleasant, confident and liked, and as gaze increased so did perceived pleasantness. These findings were very general and the authors noted that the

> ". . . amount of gaze does not have such a strong effect on impressions as we had been led to suppose, by popular stereotypes and by previous research." (p.23)

c) <u>The role of paralinguistic cues.</u> A significant amount of information about people is conveyed by the nonlinguistic content of their speech. Mehrabian and Wiener (1967) found that;

> "The variability of inferences about communicator attitude on the basis of information available in content and tone combined is mainly contributed by variations in tone alone. For example, when the attitude communicated in content contradicted the attitude communicated by negative tone, the total message was judged as communicating negative attitude."

Trager (1958) and Argyle (1975) propose a division of nonlinguistically communicated information as follows;



The area of greatest relevance to the present research is that of 'paralinguistic' cues. Argyle (1975), Scherer (1974), Davitz (1964) and Lalljee (1971) all agree that aspects of paralinguistic information which seem to be relevant in the communication of emotional meaning are loudness, pitch, and types of speech disturbance. Several methods have been utilized to eliminate or control the verbal information which usually accompanies paralinguistic cues. Some studies (notably Davitz and Davitz 1959) attempt to use what is assumed to be 'meaningless content'. This method usually involves taking a speaker and asking them to try to convey various emotional states by simply reciting letters or numbers. Generally speaking, findings from this type of study indicated that communication of

emotions or feelings occured at above chance expectation (Knapp 1978). It is not, however, clear whether the subjects used the same type of paralinguistic cues to convey emotions that they would use in 'real-life' emotional reactions. Other studies have tried to control the verbal cues by having subjects all reading a standard passage while attempting to convey some kind of emotional state. The underlying assumption of this type of method is that the passage itself is of neutral emotional 'tone'. Finally, some (more recent) studies have utilized electronic band-pass filters to eliminate verbal content, while leaving the paralinguistic information intact. However, it has been demonstrated (Knapp 1978) that this type of filtering may, in fact, eliminate some of the nonverbal cues thus creating artifactual stimuli.

Starkweather (1961) stated that many workers felt that interpersonal perception of emotional information transmitted via paralinguistic cues was a fairly reliable process. Davitz (1964) stated;

> "Regardless of the technique used, all studies of adults thus far reported in the literature agree that emotional meanings can be communicated accurately by vocal expression."

It should be stressed that this does not mean that the aforementioned authors imply that there is invariably consistency in judging emotions accurately. There are further reasons why it is necessary to be critical of

the findings of the above studies.

Firstly, speakers vary greatly in their ability to produce expressed emotion. Numerous studies indicate that there are distinct differences in the perceived accuracy of speakers. In the Davitz and Davitz (1959) one of the speaker's expressed emotions were correctly identified only 23% of the time while another speaker's were identified accurately over 50% of the time. Knapp (1978) states:

> "It is clear there are distinct differences in encoding behaviour for emotional expressions, but we know very little about this phenomenon from empirical studies conducted so far."

Secondly, it is known that listeners also vary in their ability to interpret or perceive emotional expressions. In the Davitz and Davitz (1959) study, accuracy ranged from 20% to 50%. Davitz (1964) found that subjects who were good at identifying emotions were characterized as having high verbal intelligence and above average abstract, symbolic ability. Further, listeners who were sensitive to expressed emotions were more likely to be able to accurately express emotions themselves, and to identify their own vocal expressions of feeling. These sujects would also be able to accurately express emotions facially as well as vocally. Davitz (1964) suggested that there might be a general factor of 'emotional sensitivity', and that it might be possible to train people to be increasingly sensitive to the relevant cues.

Thirdly, there appears to be a general lack of accuracy in judging emotional vocal expressions, depending on the types of emotion being examined. There appears to be some considerable confusion of emotions such as fear and nervousness; love and sadness; pride and satisfaction. Overall it seems that the hardest emotions to identify are shame and love (Knapp 1978). The findings of Williams and Sundene (1965) suggest that perhaps to talk in terms of identifying specific emotions is spurious. Is it at all realistic to talk of the emotion of 'love' occuring in some isolated form? It seems that in 'real-life' situations people may evaluate paralinguistic cues on a much wider spectrum of possible emotive states than the studies which are concerned with identifying very specific emotional states would lead us to believe. People may not, in everyday functioning, interpret paralinguistic cues under the headings of "is hate/love/fear/rage. . .etc. present?" A more global form of evaluation may be in operation, which takes greater account of many other supplementary cues (conversational and environmental) which occur in the context of everyday communication.

Despite the above cautions, much useful information has been derived from the study of the paralinguistic communication of emotion.

Nonverbal vocal cues are not solely utilized for estimating the emotional state of another. The second

relevant area of nonverbal information utilization is in judgements about the personality of the speaker, Knapp (1978) says;

> "There have been numerous research efforts aimed at determining whether certain personality traits are expressed in one's voice and whether others are sensitive to these cues. The results of these studies have been mixed. It is common to find: 1) a great amount of agreement among judges of the voices regarding the presence of certain personality characteristics; 2) little agreement between judges' personality perceptions and the speaker's actual score on personality tests; 3) for some voices and some personality traits, a very high correspondence between the judges' perceptions and actual criterion measures."

This type of data has been interpreted by Kramer (1964) who makes several suggestions. Firstly, the personality tests used are far from being perfect measures - ie. a judge may rate a voice as being representative of some particular personality trait, and yet this correlates with the personality test score at or below chance level. However, since the personality test is not necessarily a 'perfect' measure there might actually be a much higher degree of correspondance than the data indicates. Kramer secondly points out that almost all studies have a speaker/sender saying a few words or sentences, to which

the judges respond. It is possible that some personality characteristics associated with vocal cues are only expressed in a dialogue format. Thirdly, Kramer shows that research has generally ignored differences among listeners of (for example) personality, culture and psychophysical traits - all of which may have a possible effect on the listener's ability to accurately perceive characteristics based on vocalized cues.

Turning to the internal consistency of vocal characteristics, Philips et al (1957), Saslow et al (1955) and Tuason et al (1961) all demonstrated that individual speech patterns were fairly stable. Despite this apparent stability, there has been little success in relating judgements of vocal cues and personality test scores on extraversion, introversion, sociability, intelligence, and leadership (Kramer, 1963; Weaver and Anderson 1973).

In a more recent study, Hunt and Lin (1967) found that their student judges rated individuals from their voice samples similarly to these individuals' ratings of themselves. While large differences in accuracy were noted among the judges, there was similarity among ratings regardless of lexical content of the voice sample. In general, there was greater accuracy for affective-connotative personality attributes than for attributes describing behavioural physical characteristics.

In a classic study, Addington (1968) also had judges rate the standard-content speech of two male and two female speakers, who also simulated seven voice

characteristics (tense, thin, flat, breathy, throaty, nasal, orotund), three variations of speaking rate (normal, fast, slow), and pitch variation (normal and above and below normal). Ratings were made of perceived personality characteristics as selected from a list of forty bi- polar adjectives on 7-point scales. Good interrater reliability scores were obtained on the vocal characteristics of a single speaker, ranging from .75 for tense to .99 for rate of speech. Interrater reliability coefficients for perceived personality characteristics ranged from .94 for feminine-masculine to a low of .64 for extraverted-introverted. Some additional findings suggested that changes in male voices affected personality perception differently than changes in female voices. A factor analysis of the rated personality characteristics suggested that the male personality was perceived in terms of physical and emotional power, the female in terms of social faculties. Analysis of individual voice characteristics and personality dimensions yielded many more significant correlations than could be obtained by chance alone, making possible descriptions of the perceived attributes of the different voice characteristics. For example, increased breathiness in male voices was associated significantly with ratings of youth and artistic ability; females using increased vocal tension were perceived as being younger, less intelligent, more emotional, feminine, and highly strung. Although Addington

was investigating "vocal stereotypes" rather than personality itself (as measured by some inventory), his findings are still important to the extent that raters appeared to agree on some personality characteristics associated with voice qualities. It seems that how reliably one is perceived (and related to) is important, even if the perceptions are not completely valid.

There is also evidence to suggest that vocal characteristics may be linked with certain psychiatric disorders, though it is unclear as to whether the characteristics are due to the nature of the disorder or the role of psychiatric patient that the subject inevitably fulfils. (Markel, Meisels and Houck 1964; Markel 1969). More recent studies (Scherer 1971, 1972) have not acheived the same measure of success in relating several personality characteristics and voice variables.

In summary, then, several studies have successfully related some vocal characteristics to personality. Relationships have been demonstrated between selected qualities and inferred personality characteristics (eg. Addington 1968), between personality type and voice (eg. Friedman, Brown, and Hoseman 1969; Markel 1969; Markel, Meisels, and Houck 1964), and between personality characteristics (eg. dominance) and paralinguistic cues. Overall there seems to also be some degree of inaccuracy in the interpretation of the paralinguistically expressed emotional states, and there is some doubt as to whether the actual principle behind the research is, in fact, valid.

There also appear to be certain individual differences in the ability to portray various emotional states, though again this type of methodology itself also appears dubious as it is uncertain as to when, how much, and how successfully individuals consciously attempt to portray emotional states in "real life". It seems reasonable to conclude that one major factor missing from the study of the paralinguistic cue system is an experiment which utilizes these cues within a context of overall communicative behaviour. In other words, it seems increasingly unlikely that it is either possible or feasible to take communicative elements out of their overall context and request rather artificial evaluations of their emotional etc. content. The series of experiments in this thesis, while taking note of the findings outlined above, eschew any kind of piecemeal analysis of responses to communicative behaviour.

d) Proxemic information. Of less direct relevance to the series of experiments undertaken in this thesis than eye-contact and paralinguistic data is proxemic information. Nevertheless, in the interests of completeness the information available to the observer must be explored in all its aspects; one especially important area being that of proxemic data. Proxemics can briefly be defined as the study of the manner in which individuals use physical space in their interactions with others and how physical space influences behaviour. Weitz (1974) says;

> "Proxemics. . .is clearly linked to anthropology. The meaning and use of space in different cultures is a primary focus of study, and naturalistic methods of observation are generally used."

The general area of proxemics does however contain an area of more psychological interest; namely, 'personal space'. This is, as Weitz (1974) notes;

> ". . . the meaning of space to the individual in terms of the effects of crowding, territoriality, architectural design and so on, and is only peripherally concerned with intercultural variations."

The concept of 'personal space' is of greatest relevance to the topic of pleasantness perception in that one major theme running through this area of research is violation of personal space. This violation may be intentional in an aggressive, affectionate or status oriented way. These basic parameters may themselves be affected by cultural and individual factors (notably sex, age, personality and psychopathology). Though many factors may influence the extent and permeability of the 'personal space' one underlying postulate is that

> ". . . the more familiar and/or liked another is, the closer one interacts with him." (Harper et al 1978)

Numerous studies employing various experimental paradigms have shown that this does in fact appear to be the case

(Lett, Clark, Altman 1969; Little 1965; Little, Uleha, Henderson 1968; Rosenfeld 1965; Mehrabian 1968a, 1968b; Mehrabian and Friar 1969).

Despite this encouraging finding, few workers have employed interpersonal distance as an independent variable in their experiments. The few findings which do exist suggest that there is no simple relationship between judgements made about another and interpersonal distance. The major weakness of these types of finding are that any effect on interpersonal evaluations tends to be swamped by other uncontrolled variables like confederate behaviour or subject role. The way in which subjects will respond to the evaluative situation in hand is closely related to the perceived task demands of the situation. Till more appropriate, and controlled paradigms are developed the precise relationship between personal space and interpersonal evaluative processes will remain unclear.

It is, however, useful to examine the main attempts that have been made to synthesize what is known about proxemic behaviour into a more general theory. Pederson and Shears (1973) conceptualized proxemic behaviour as being based on a kind of homeostatic feedback loop. The ideal distance to stand from another is evaluated in terms of internal states (ie. whether the other is liked or not) and modified by social restrictions.

Duke and Nowicki (1972) applied social learning theory and Rotter's idea of 'locus of control' to their theory of the functioning of personal space. Interpersonal

distancing is seen as a function of the individual's social reinforcement history and his current expectancies for reinforcement. If a person meets another individual to who he feels he ought to respond (ie. whom he knows) then there should be no relationship between preferred interpersonal distance and the locus of control orientation. When meeting a stranger, however, the person's locus of control should be related to their interpersonal distance choice. The majority of other models relating to proxemic research are concerned with crowding behaviour (to put it another way, interpersonal privacy violation). The most prevelant theoretical construct used in these theories (for example, Evans and Eichelman 1975; Edney 1974; Stokols 1974; Sundstrom 1975) seems to be the 'information overload' model (Hall 1968). Evans and Eichelman (1975) point out that social and physical expectations are important aspects of spatial behaviour in that they are derivative of our 'cognitive social maps' which, in turn, help make out world predictable. Individual differences in responses to crowding could therefore be viewed as a function of individual differences in cognitive mapping ability.

The most direct implication of this work for this thesis is that proxemic variables were partially controlled in the first five experimental investigations, and wholly controlled in the last four.

a) The Role of Facial Expression. It seems to be generally agreed among workers in the field of non-verbal communication that the human face is the most important single channel of non-verbal information. Knapp (1972) states;

> "The face is rich in communicative potential. It is the primary site for communicating emotional states; it reflects interpersonal attitudes; it provides nonverbal feedback on the comments of others; and some may say that, next to human speech, it is the primary source of information. For these reasons and because of its visibility, we pay a great deal of attention to what we see in the faces of others."

Therefore the face is an important channel in the total non-verbal network for two main reasons; capacity (types of communication) and quality. It is also important in that there is some evidence to suggest that (at least) some of the simpler facial expressions of (for example) anger, suprise, fear, disgust, happiness may be trans-cultural - in a sense 'universals'. The extreme form of this hypothesis is that these expressions are in some way innate (an idea mainly originating with Darwin in 1872). Numerous other contemporary researchers have, however, pointed out the contribution of cultural influences on the control of emotional expression (eg. Ekman 1972; Izard 1971).

With particular reference to the main theme of this

thesis, the role of the face in expressing emotions and attitudes which will influence the judgement of an observer is crucial. The main methodology employed in this thesis means that the observer only sees the head and shoulders of the actors and actresses. Therefore it is relevant to pursue the whole topic of facial expression at some length. Harrison (1973) categorized researchers on the face into

a) those who are primarily interested in the face as an area where emotions are expressed, and
b) those who are interested in other factors (eg. the face as a regulator).

This thesis is mainly concerned with the former category, which means that it is necessary to examine the work of Ekman and related researchers. Most of the early work on the facial expression of emotion was concerned with the identification of categories of expression, or dimensions of expression. Much of this work was not successful, but led on to the central research question - could these emotions be reliably identified? To answer this question it was necessary to clarify the nature of contextual cues in this identification process. Lastly, since it became apparent that facial expression was at least partly under conscious control, it was important to quantify the extent to which censorship of facial affect was influencing the results of identification processes.

Attempts to provide answers to the first of these

questions (ie. how to analyse the facially expressed emotions and attitudes) fall into two broad categories; the dimensional approach and the categorical approach.

The basic task of the dimensional approach was outlined by Ekman, Friesen and Ellsworth (1972);

> (to establish) "the vocabulary which can be utilized by observers of facial behaviour."

The dimensional approach is characterized by the concept that behind the general categories of emotions we are familiar with there lie continuous scales or dimensions. Clearly, a few of these dimensions would be sufficient to locate all the various classes and categories of emotions. Schlosberg was the first researcher to apply this approach, and proposed that there were three dimensions - pleasant/unpleasant; attention/rejection; sleep/tension. Schlosberg showed that there was good agreement amongst subjects on the identification of dimensions from still photographs, but more recent work using live subjects failed to replicate his findings (Thompson and Meltzer 1964). Several other workers have attempted to apply some kind of factor-analytic approach to identifying the potential dimensions. Osgood (1966) used live performances and obtained pleasant/unpleasant; quiet/active; quiet/intense and 'interest'. Dittmann (1972) obtained four factors - pleasant/unpleasant; activation; trust/mistrust and a fourth unidentifiable one. Though highly selective, these findings are representative in

that there is little agreement on how many dimensions there are and what the dimensions actually represent. It seems clear that one of the main problems underlying this difference of opinion is the use of widely differing methodologies (particularly the use of still photographs versus live actors) Another problem is that some of the stimulus persons may have had very idiosyncratic methods of expressing various emotional states which would tend to curtail the generality of any findings. Ekman, Friesen and Ellsworth (1972) noted;

> "It seems doubtful that consistent findings about dimensions of emotion will be found until investigators utilize stimuli which have been shown by other means to represent a number of different emotion categories. . . until they sample the behaviour of many different persons, and until they select scales which systematically represent all or, at least, many of the aspects of emotion which might be judged from the face - appearance, feeling, action, consequences, etc."

The categorical approach to the study of facially expressed emotion rests on the assumption that there is a set of basic emotions. Once these have been identified there is no possibility of further reduction in the number of categories. This idea goes back at least as far as Allport (1924), who developed the (basic) methodology underlying this approach. The typical strategy was to

get samples of facial emotional behaviour and have observers label them. This was originally done solely with still photographs of actors posing a set of emotions. The observer then has to select which of a set of emotion names fits each photograph. Woodworth (1938) proposed, on the basis of this type of methodology, that there were ten basic categories: love, mirth, happiness, suprise, fear, suffering, anger, determination, disgust, contempt.

Other workers have proposed different numbers of categories (eg. Plutchick 1962; Osgood 1966; Frijda 1968), yet despite these variations there is in fact considerable agreement. Ekman, Friesen and Ellsworth (1972) noted;

> "It is a tribute to the robustness of the phenomena that, despite the span of time over which this research was done and the very different theoretical viewpoints of the investigators, the results are by and large consistent."

These workers also suggested that there were seven major affect categories - happiness, suprise, fear, sadness, anger, disgust/contempt, interest. They also suggested that there were several methodological reasons why the results obtained might vary.

a) many of the studies provide the judges with too few samples of facial affect expression;
b) most judgements were made of still photographs;
c) judges only had a limited number of descriptive categories they could use, and the number of categories made available to judges varied widely.

Beyond these straightforward methodological problems lies the more complex issue of confusion of one state for another by the judges. Some emotions are frequently confused; for example, fear, suprise and interest; similarly, anger and disgust/contempt. This may simply be because the facial expressions referring to each of these states are in some sense 'related'. A more likely reason is that in 'real life' one rarely encounters pure expressions of single emotional states; instead we are confronted by 'affect blends'; mixtures (in ever-varying proportions) of various component emotions. Kiritz and Ekman (1971) allowed their observers to indicate affect blends and found that they did so for stimuli which, in previous studies, had given a distribution of judgement of about 60-40% between the two categories which made up the chosen affect blend. The more skewed this distribution becomes, the less able their judges were to choose affect blends.

This latter finding is significant in that it points up an important area of confusion in the whole area of facial expression research. An underlying assumption of much work in this field is that in some way, the facial expression of emotion is a discontinuous phenomenon ie. that emotional states may be expressed in any order but that the actual expressions are discrete. This may be termed the 'linear' approach. The work just examined and the methodological points raised by Ekman, Friesen

and Ellsworth (1972) indicate that it is necessary to think of facial affect expression in a much more flexible way, in that the actual expression may be a blend of many components - this may be termed the multiphasic approach. Yet in a sense even this appraoch does not go far enough. The conceptualization of 'categories' of emotion is essentially an academic exercise in 'cutting up' a continuous phenomenon into discontinuous segments which may or may not overlap. Therefore to assume that subjects are 'identifying' these components is not correct; subjects are merely responding to the task demands of the situation. In short, to ask people to identify emotional categories of expression is to presuppose that they exist; is to presuppose that some similar process of discontinuous identification goes on in everyday situations. It seems, in conclusion, that the only really satisfactory way to conceive of affective expression is in some kind of combination of dimensions and categories, or by making the identification task more naturalistic.

The second major question posed at the beginning of this section was, are observers able to recognize (not categorize or dimensionalize) facially expressed emotions? Levitt (1964) filmed fifty peoples' reactions when enacting different emotions, which twenty-four judges then attempted to recognise. Recognition accuracy was above chance level, with happiness being the easiest emotion to recognize, followed by sadness, anger, fear disgust/contempt and suprise. Other studies (eg. Ekman

and Friesen 1965) also reported above chance accuracy in recognition, with the recognition of happiness seeming to be the easiest. Findings by Drag and Shaw (1967) also indicated that females were easier to judge than males when they were attempting to communicate happiness, love, fear and anger. Zuckerman et al (1975) found that females were more expressive than males overall in this type of task.

A different type of experimental paradigm has been used to reach the same types of result concerning sex differences. In these experiments, subjects are presented with pleasant, unpleasant or neutral information (usually in the form of slide pictures or films) and their reactions are recorded on film or videotape. It is then the task of the judges to identify the nature of the stimulus materials from the subjects' facial expressions. Studies by Lanzetta and Kleck (1970), Buck et al (1974, 1969, 1972) have demonstrated that a significant amount of 'communication' of the subjects' state occurs. Females were found to be better 'senders' than males, while in male senders skin conductance measures correlated significantly with communicative accuracy. On the basis of these findings, Buck et al (1974) divided their 'senders' into two groups - internalizers, who tended to be male and physiologically more reactive to the slide stimuli but were less facially expressive than the second group. These were called externalizers and they tended to have the opposite characteristics to those listed above while also scoring

lower on introversion and higher on self-esteem scales. From these findings it seems likely that there are personality characteristics which may correlate well with judgemental tasks relating to interpersonal communicative ability and is a theme which is taken up in this thesis.

Given that observers are able (subject to certain variables within the actor and situation) to identify facial expressions of emotion with a certain degree of reliability, it seems logical to investigate

> ". . . whether specific components of facial expression . . . are differentially important in communicating emotional states." (Harper, Wiens, Matarazzo 1978)

Ekman, Friesen and Ellsworth (1972) described this componential approach in these terms;

> "In component studies facial behaviour is the dependent variable . . . rather than the independent variable or stimulus as it is in judgement studies. We are not attempting to determine what observers can say about faces, but what the measurement of facial components can indicate about some aspect of a persons' experience."

The main method for fulfilling this approach has been developed by Ekman, Friesen and Tomkins (1971) and is known by the acronym 'FAST' (Facial Affect Scoring Technique). The technique involves the training of

'coders' who separate the various facial zones (brows/ forehead, eyelids, lower face) note the movements of these zones and then compare these with master photographs and written descriptions. Utilization of this technique enables the above mentioned researchers to point out that in part, some of the inconsistency of the earlier findings could be attributed to the fact that there was no recognition that there might be a number of alternative affective expression movements within each facial area for the same emotional state, and that some of these movements are not affect related at all (such as twitches, or facial gestures). A subsequent study by Boucher and Ekman (1975) showed that the various facial areas were indeed differentially involved in the expression of emotion. Fear tended to be best predicted from the eyes/eyelid area, sadness was best judged from the same area; happiness from both the mouth and eye area etc. What is most striking about the overall result is that the student judges were being required to identify (or predict) what emotions were being expressed by the actor from only a segment of the photograph. Overall, the accuracy of emotion predictions from these facial areas was similar in the extent of interjudge agreement to those values obtained from judgements of the whole face.

The third of the three major questions set at the beginning of this section related to how self-censorship of facial expression would affect the judgement of affective states. This, is, in a sense, a question about how the

observer may make use of the available situational cues. As was stated earlier, it is unnatural to observe faces in isolation from context. Most work has shown that, apparently, facial cues are of greater significance to any judgement than context cues (like the story accompanying a still photograph). This type of finding is most apparent when observers are dealing with expression and context which are disharmonious eg. face happy, story sad (eg. Frijda 1969).

The main problem about generalizing from these types of finding is that it is not clear what the 'source clarity' is (Ekman, Friesen and Ellsworth 1972). Source clarity refers to how much information about emotion either a facial or contextual cue will provide an observer with. Ekman, Friesen and Ellsworth (1972) suggests that clarity may vary as a function of cue ambiguity, complexity and strength and that it is necessary to control for all these elements in any design aimed at clarifying the nature of the role played by context. No work which attempts to apply this sort of control to 'live' acted or filmed situations has been done, though one experiment has been performed using a written description of the situation (Watson 1972).

Having so consistently referred to the work of Ekman and his associates in this section it seems appropriate to devote some space to a brief outlining of Ekman's theory of facial expression, which seeks to set out the role of affective facial behaviour in the context of interpersonal behaviour. Put at its simplest, Ekman's

theory is that we are all in possession of certain innate factors which tend to be triggered off by specific non-verbal stimuli from others. How this reaction is expressed is modified to a greater or lesser extent by the particular culture one happens to be in. These constraints are known as 'display rules'. Equally, the precise nature of the stimuli which trigger off the appropriate facially expressed states may vary from culture to culture.

Ekman (1972) states;

> ". . . what is universal in facial expressions of emotion is the particular set of facial muscular movements triggered when a given emotion is elicited."

The display rules themselves derive from four factors;

a) invariant personal characteristics (sex, age etc.)

b) invariant social characteristics (formal versus informal situations etc.)

c) variable personal characteristics (roles, attitudes etc.)

d) transient interaction requirements (saying hello versus saying goodbye, etc.)

Ekman (1972) summarizes his theory thus;

> "Our view then is that most of the immediate behavioural consequences of any emotion - the masking facial behaviour, the reactive facial behaviour, the verbal-vocal behaviour, and the motor adaptive patterns - are socially learned ways of coping with emotion and emotion-eliciting events. They will vary across as well as within

> cultures. The physiological changes which accompany emotion may be less socially programmed, although some may be subject to interference by learned habits or instituted solely by learning. And the facial expressions of emotion . . . distinguish among emotions and are universal, but they can be interfered with by display rules, and elicited by culturally variable events."

To conclude this section, it is relevant to make a brief survey of the main methodologies. These can be subsumed under two basic designs; judgement designs (face as stimulus) and component designs (face as response to specific emotion). These designs are both subject to four main methodological problems; affect blends, uncertainty as to whether observers are responding to the correct facial and situational cues, faulty encoding of the required emotion, and the problem of whether it is important for the encoders to actually be experiencing the emotions they are trying to portray.

Overall, the study of facially expressed and conveyed affect has contributed signally to the study of interpersonal perception and evaluation. It appears clear that the extent and subtlety of emotional information which may be carried by the various facial areas, working in either an integrated or independent fashion, is large. It also seems likely that at least part of the gamut of affective expression may be innate and transcultural,

though modified in terms of its expression by individual culture's display rules.

The main findings and variables in the area of facial expression of emotion were taken into consideration when developing the methodology used in this thesis. Overall, individual differences in encoding skill and situational variables were held constant in the design, together with incorporating the idea of "affect blends" into the type of evaluative responses observer subjects could make.

f) The Contribution of the four previous areas to this thesis.

While not being exclusively concerned with interpersonal perception as a topic, this thesis is heavily involved in the exploitation and development of some of the paradigms employed by research workers in this area, and in the closer examination of some of the underlying ideas. One theme which runs through all the four areas examined is the problem of how to produce the stimulus material which will have the greatest similarity to 'real life' situations. The problem with this is that to produce stimuli which are primarily concerned, let us say, with the role of eye contact it is necessary to at least partially divorce the stimulus material from the overall communicative context. In other words, it is necessary to reduce the stimulus array of a complete message to one or two components. While this does produce results, as the four areas reviewed have shown, one wonders just how these relate to 'complete' communicative

situations. No real integration of these fragmentary approaches has been attempted, other than in general theoretical terms.

While not, at present, attempting this kind of integration, this thesis in methodological terms seeks to overcome some of the problems inherent in the somewhat atomistic approach outlined above. The first way in which this is attempted is by the use of dynamic, not static or written stimuli. Videotaped material is the most life-like, and allows for the full range of communicative information to be transmitted by the encoder. Secondly, to avoid the problem of intentionality (ie. did the encoder really do what I asked?) only very broad parameters were set for the encoding of the stimulus material in a maximally idiosyncratic way. Thus any variation between encoders is a matter of intention on the part of the encoders, and it becomes spurious to wonder or ask if the encoders actually experienced the emotions they were trying to transmit as they were not required to encode emotions, but rather whole communicative situations, of which emotional expression was merely one element. Thirdly, and lastly, the role of contextual cues has proven to be of great significance in all the areas reviewed in this section. To overcome, in part, this problem the stimulus material was all recorded in such a way that apart from different encoders being visible to subjects, there was no variation in the environmental context of the message. Any variance in decoders'

perceptions of the communication is therefore unlikely to have derived from any difference in the situation.

5) APPLIED ASPECTS OF PERSON PERCEPTION.

a) Interpersonal attraction. The four major factors studied in the previous section were; eye contact, voice quality, proxemic information and facial expression. Within the general context of this thesis it is now useful to make a brief survey of how each of these main areas relate to interpersonal attraction. That the actual process of attraction is itself vital to the formation of any kind of relationship is not in question; what is important is to attempt to identify those characteristics within the chosen four nonverbal areas which tend to be attractive to others. Warr and Knapper (1968) state;

> "Narrowing our interest down to person perception per se, there is much empirical evidence for the central importance of attraction . . . our impressions of other people are very much dependent upon whether we find them attractive or unattractive." (pp. 233-234)

A statement one frequently encounters when discussing relationships is something like "I know he/she liked me. I could tell by the way he/she looked at me." Visual interaction per se can, of course, have numerous potential meanings including threat, but for the purpose of this thesis, attraction is the most important variable. Several methods have been developed to examine the role of gaze in expressing attraction (or attractiveness) (eg. Le Compte and Rosenfeld 1971; Kleinke et al 1974; Exline and Winters 1965). These usually include experimental

confederates varying their amount of gaze either to another confederate or an observer subject. The subject then usually rates the confederate(s) for attractiveness.

The amount of gaze one person exhibits to another is not unlimited; Argyle (1975) suggests that this is due to gaze being related closely to the degree of intimacy of the relationship. Argyle states;

> "Why do people look more at those they like? It has been found that subjects look more at those who reward them in some way, for example by making approving remarks. Since approval is partly expressed in the face, it is likely that the gaze itself has been rewarded; the eyes have seen rewarding signals." (p.234)

To summarize then, it seems that increased amounts of mutual gaze (possibly coupled with pupillary dilation: Hess 1972) are important factors in the perception of another person as attractive.

It is not quite so easy to isolate those characteristics of speech which may contribute to interpersonal attraction. Knapp (1978) says;

> ". . . our responses to vocal cues are often based on stereotypes."

This means that while subscribing to certain gross preferences individuals will have 'sound preferences' which are likely to be idiosyncratic. Deep, unaccented voices are likely to be more attractive in males (Knapp 1978; Anisfeld et al 1962; Addington 1968), while a more

'breathy', higher pitched voice is likely to be more attractive in females (Addington 1968), but beyond these rather vague generalizations it is not really possible to go. What is known is that the majority of people do, in fact, perceive and correctly recognize emotional data contained in non-verbal vocalizations (Davitz 1964). Further, in studies where speakers were required to convey an unpleasant or pleasant state, which had both a verbal and non-verbal component Bugenthal, Kaswan and Love (1970) reported;

> "Actors were given scripts and instructions as to whether the visual and vocal channels should be positive or negative. . . As far as possible, we let actors select whatever way of expressing visual and vocal components that came to them."

This implied to the present researcher that it was, at present, fruitless to attempt any precise quantification and description of the components of non-verbal vocal behaviour which would prove to be positively or negatively evaluable, when it came to making the stimulus videotaped material used in the experiments undertaken in this thesis. It seemed, in the light of the precedents cited above, that it was more 'realistic' and 'natural' to allow the actors used in the making of the stimulus videotapes to express the required states in the way ". . . that came naturally to them."

As with speech, so it is with proximity behaviour. In different circumstances different degrees of interpersonal distance may be judged as pleasant or attractive. There is a great deal of evidence on what is not attractive in the manipulation of proximity (Sommer and Becker 1969), and this includes intrusions into the 'personal space' by someone one does not feel attracted to. The right to intrude in this fashion varies considerably with status and role, but does not alter the fundamental observation that any overencroachment into another's personal space is regarded as unpleasant and disturbing (Argyle 1975). With increasing affiliation or attraction the permitted degree of interpersonal distance is reduced. Orientation (Sommer 1969; Cook 1970) is also quite a powerful indicator of whether or not attraction is in the process of occuring. To conclude, though there are wide cultural, situational and status-related variations, closer proximity is both indicative of, and suggested by, greater attraction. Within the series of experiments undertaken in this thesis this variable was kept constant in that the stimulus videotaped subjects were (visually) at a constant distance from the experimental subjects.

The last, and in many ways the most complex, of the four areas reviewed was facial expression. In terms of the 'gestalt' impression conveyed by the whole face to the observer of pleasantness or likeability, not much can be said. It is necessary to break the face down into components and to see how these interact to convey

overall impressions.

Even so, to say in advance what will be found attractive can only be suggested in the most general terms, and is related in some ways to the idea of transcultural universals in expression (Ekman 1972). One particularly well-documented example of a transcultural facial behaviour which is related strongly to (at least initial) attraction is the eyebrow flash (Eibl-Eibesfeldt, 1972) which appears to be used by almost all cultures to greet friends or relatives (with the possible exception of the Japanese), although it can (in isolation) be related to expressions of suprise and inquisitiveness. Smiling is a rather more obvious candidate for interpersonal attraction, and there is a great deal of evidence which catalogues both the types of smile available to us and the meaning they tend to express (Blurton Jones 1972; Van Hooff 1972). Beyond these two very broad categories of expression one begins to run into both cultural and personal variation.

Beyond the contributions that researchers have made to some attempt at cataloguing those behaviours which are likely to be attractive to others, there has been much work on the concept of interpersonal attraction itself. The main theories include

a) similarity and balance theory (Newcomb 1961)

b) mutual need gratification and attraction to an ego ideal (Winch 1958)

c) exchange theory (Thibaut and Kelley 1959) and dissonance

reduction (Homans 1961).

Duck and Craig (1977) surveyed the above theories and concluded that there were two main paradigms for interpersonal attraction - affect reinforcement and information processing. In both of these paradigms, three main types of information about others was used (in order of increasing 'depth' or 'intimacy' of information) - external (physical properties, sociological status); impersonal (evidence about others' attitudes to objects or events); interpersonal (evidence about attitudes towards other individuals). The disparate results obtained from the three theories can be explained in terms of their concentrating on information about others from different levels of 'depth' or 'intimacy'. Duck (1977) demonstrated that the 'deeper' revealed information is, and the greater its similarity to the observer's own attitudes etc., the greater the attraction. In short, intimacy is a consequence of attraction, not vice versa.

Personality measures do not relate clearly to attraction. In 1979 (in press) Duck and Craig proposed that this contradiction existed because personality itself is not a unitary thing, and the way in which it relates to 'attraction' as a process is almost certainly not linear. They suggested,

> ". . . that a search not for the correct measure of personality but for the relative place of each measure in developing acquaintance will lead towards the resolution of several

existing ambiguities in the attraction literature."

In what way does all this relate to the main purpose of this thesis? In this section it has been shown that there are definite non-verbal constituents in interpersonal attraction and liking, and the work of Duck suggests that this type of information may have a crucial effect on the initial attraction between two people; that it is in fact "precipitative". Thus within the more general context of interpersonal attraction, this thesis seeks to demonstrate that non-verbal components of brief messages may indeed have a crucial effect on the way in which observers will react to an other, even though the actual duration of the message may be very short.

b) Social style.

"We form distinct first impressions of many people whom we meet; we feel that they are extroverted, introverted, domineering, obnoxious, self-assured, argumentative and hostile, or even bland. There is something about each person, a pervasive style that applies to almost everything he does and that enables us to form an impression before any exchange of words." (p.57)

This definition of social style (from Mehrabian 1971) leads to a consideration of what these elements are which allow us to make such decisions. Many factors interact in a complex way; personality, mode of dress,

appearance, gender, general non-verbal behaviour, status signs, age and race may all contribute to an averall social style for any given individual. Referring to Mehrabian (1971) again;

> "The gestures and movements of . . . different persons somehow suggest the character or style of their personalities without the aid of words."
>
> (p.57)

One of the primary factors in this kind of interpersonal evaluative process is appearance, and notably dress. This is certainly the most easily observable and is laden with cues to status, personality and likely behaviour and allows us to exercise our developed social stereotypes (Argyle 1975). This is, in a sense, the heart of the idea of social style; utilizing stereotypes allows us to make fairly general predictions about the behaviour and likely personality of people we happen to meet. Predictions enable us to behave appropriately in varying situations with varying people. People who are unfortunate to not have this system of prediction, or who have severely abberent ones tend to be classified as in some way psychologically abnormal, and there is a considerable body of research aimed at instructing these people who are deficient in these types of social skill so that they can acquire them (eg: Argyle, Trower and Bryant 1974). 'Normal' people tend to have the same types of difficulty when attempting to interact with individuals from other cultures which have different

sets of nonverbal norms (Collett, 1971). In a series of experiments, Mehrabian (1971) videotaped spontaneous interactions between strangers in a waiting situation (subjects were told they were to hear and evaluate a piece of music, were ushered into a waiting room with another subject, and were then left alone for a few minutes while being videotaped through a two-way mirror.) Variour measures of personality were taken, including affiliative tendency, sensitivity to rejection, need achievement, aggressiveness and impulsivity. The data from the waiting situation provided Mehrabian with actual social behaviour while the questionnaires gave him some measure of the personalities involved in the interaction. In scoring the videotape, several clusters of behaviours came to light. The most important was 'Affiliative Behaviour', followed by 'Responsiveness', 'Dominance-Submission', 'Ingratiating-Aggressive' and 'Benevolent-Fearful'. (Each of these clusters could be conceived of as a dimension.)

From Mehrabian's findings it is possible to build-up a profile of characteristic behaviours for characteristic personality types. Therefore an individual's social style can be described in terms of its affiliative, responsive, relaxed, ingratiating, or even distressed quality. Each of these qualities on their own is a composite of numerous interrelated behaviours that tend to all 'describe' a common theme. Individuals differ from each other with regard to how much of each of these

qualities they consistently exhibit across a variety of situations. Clearly, people may exhibit blends of these qualities, or may actually be very inconsistent. Thus, though the Mehrabian findings provide a cue for analysing social behaviour, they cannot say a great deal about anyone but those people in those situations which are relatively constant. Mehrabian concludes;

> "These social styles, which are uncontrolled and often unintended parts of our behaviour, can have persistently beneficial or disturbing effects not only in social but also in work-related situations."

Though not actually stated by Mehrabian, the implication of his model is that some similar process may be operating along similar dimensions in situations where there is any kind of interpersonal evaluation in progress. This model is therefore of especial interest as it is the only attempt to delineate the main axes of evaluation which might be used on a non-conscious level by individuals during person perception.

The preceding two sections on interpersonal attraction and social style provide the 'applied' aspects of the theoretical information given in the previous section (4). Inevitably, when dealing with aspects of interpersonal communication which are concerned with the perception of pleasantness it is important to show which particular behaviours may be related to this process and how they link-in with major determinants of how people are likely to interact. These are, in a sense, the 'external'

determinants of interaction. In the next section (6) the internal determinants (personality characteristics) are examined. In this way, sections 4, 5, and 6 provide a complete survey of those non-verbal factors which may influence the way in which individuals go about the process of evaluating others in terms of a specific evaluative dimension, namely pleasantness.

6) PERSONALITY CHARACTERISTICS AND PERCEPTION

a) Personality characteristics in the perceived. The number of dimensions along which others can be perceived vary greatly, but Argyle (1975) suggests that there are three main ones; physical characteristics, roles played and personality traits. While all three are relevant to this thesis, the last is of especial interest yet presents the most problems as personality traits themselves do not appear to predict social behaviour very well (Mischel 1969). Though this is a major difficulty and has led to a debate on the nature of the consistency of personality, this section is more concerned with those characteristics of others which perceivers are able to detect; whether these characteristics are predictive or 'right' is not the main concern. As Argyle (1975) says;

> "Our impression of another's 'personality' are based on the particular patterns, not only of speech, but of his entire social performance."

For personality characteristics to be used in a predictive way they must be put into context. An observer may use many other cues in evaluating the meaning of a message than personality, and therefore personality per se may be of only minor significance overall.

The findings regarding eye-contact are fairly consistent. Kleck and Nuessle (1968) arranged that their experimental confederates look at subjects either 15% or 80% of the time and found that the subjects rated the longer-looking confederates as more pleasant along several dimensions.

Argyle (1975), reviewing numerous studies, found that extraverts tend to look more, especially while talking, than introverts. Exline (1963) found that people with high degrees of need-affiliation spend more time looking than those with low need-affiliation. Exline et al (1966) demonstrated that subjects with high machiavellianism scores showed less of a decrease in amount of eye contact than low machia vellian subjects when in a situation where they are forced to lie. Argyle (1975) also reports that females tend to indulge in more eye-contact than males. Maye and LaFrance (1973) pointed out that sustained gaze is often interpreted as a sign of aggressiveness or intrusiveness. Despite these findings, Cook and Smith (1975) showed that there seemed to be little or no effect attributable to gaze in person perception.

The main personality factors which seem to be communicable in speech are related to three main vocal characteristics:

a) loudness, pitch

b) personal voice qualities (eg. resonance, breathiness)

c) accent - both region and class related.

Harper, Wiens and Matarazzo (1978) state:

> ". . . several recent studies have successfully related some vocal characteristics to personality. Relation-ships have been demonstrated between selected qualities and <u>inferred personal characteristics</u> (eg. Addington 1968), between personality type and voice (eg. Friedman, Brown and Rosenman 1969;

Markel 1969) and between personal characteristics (eg. dominance) and paralinguistic cues."

Some studies (eg. Mallory and Miller 1958) have shown a significant relationship between dominance, and voice loudness, resonance and low pitch, while submissiveness is inversely related to these. The same study also showed that introversion was also negatively related to loudness, low pitch and resonance, but was unrelated to rate, while submissiveness was related to a rapid rate of speech. Ellis (1967) found that social class was very easily transmitted by voice quality, and other studies (eg. Anisfield et al 1962) showed that voice types are associated with racial and cultural group membership and bring their own cluster of stereotypical expectancies with them (in the Anisfield et al study, both Jews and gentiles rated a Jewish accented speaker as being shorter, less good-looking and lower in leadership qualities.) More recently, Gardner and Taylor (1968) demonstrated that these types of stereotypes would always be applied by a listener unless the speaker made it very plain that they did not apply to him/her. Hunt and Lin (1967) had judges rate personality characteristics of subjects, while subjects themselves rated their own personality characteristics. Judges scored above chance on some ratings compared with the subjects' ratings of their own personality characteristics conveyed by speech.

Work on kinesic aspects of perceived personality go

back many years, though the early studies were extremely subjective in both their evaluations and methodology. However, one famous study (Allport and Vernon 1933) concluded, in general terms, that for each individual the basic patterns of gesture were probably unique and invariant. Little work has been done on the relationship of posture to personality, but Jurich and Jurich (1974) showed a relationship between measures of postures, postural relaxation and postural shifts which seems to provide a reliably objective measure of anxiety. Scheflen and Scheflen (1972) have also attempted to relate body postures to personal states. There are two main difficulties with any attempt to analyse posture in this way; firstly, gesture and posture are under far greater conscious and cultural control than (for example) facial cues, which therefore makes any findings difficult to generalize. Secondly, the way in which posture is related to either personal state or personality is somewhat questionable in that the intention behind the posture may not be clear ie. a man may be sitting up straight and stiff not because he is anxious or authoritarian but because he is an ex-soldier.

With regard to proxemic data, Williams (1971) found that introverts and extraverts do not differ in their actual seating behaviour distance preferences, but extraverts did indicate (on an accompanying questionnaire) that they could tolerate closer seating distances and interaction distances than introverts. Mehrabian

and Diamond (1971) showed that high affiliative subjects tended to approach others more closely than low affiliatives. Patterson (1974) in a review of this area stated;

> "While the results on social anxiety, extraversion, and affiliation may seem somewhat unrelated, there is evidence indicating substantial correlations between test measures of these three dimensions . . . Thus these nominally different scales may all be tapping a common underlying dimension which is at least marginally predictive of interaction distances."

Exactly what this underlying dimension is has not yet been clarified.

Recently there have been a series of studies examining the behaviours associated with certain personality characteristics. Campbell and Rushton (1978) found that extraverts tend to speak more than introverts; that lower I.Q. was associated with smiling while listening; and that neuroticism was associated with gaze aversion during conversations. Lippa (1976) found that subjects who scored high on 'self-monitoring' tended to be more consistent in their non-verbal behaviour across various role-playing situations, and 'leaked' more affective information through body behaviour (kinesic cues). Lippa (1978) found that self-monitoring was significantly related to subjects' expressive behaviours and judged personalities, while extraversion and anxiety were not. High self-monitors were perceived as more ". . . friendly, outgoing and

extraverted." Low self-monitors were perceived as more ". . . worried, anxious, and nervous." LaFrance and Mayo (1979) in a review of the literature on non-verbal communication and women concluded that females are more emotionally expressive than males, and that they were more sensitive to non-verbal cues while being able to exhibit a wider range (or 'vocabulary') of non-verbal behaviours. In other words, they concluded, females are reactive while males are proactive. This rather 'classical' view of the sex differences relating to non-verbal production and perceptions were, however, altered somewhat by the findings of Rosenthal and DePaulo (1979), who, while acknowledging that it seems to be the case in general that women are both more expressive and sensitive non-verbally than men, discovered some important modifications to the 'classic' view. If communications were made very short (median duration of 250msecs.) and as the cues themselves became less intended (ie. 'leaky') the advantage females had over males diminished considerably. Even more interesting was that females were substantially less good at interpreting deceptive cues, tending to interpret them in the way the communicator wanted, than males, while still exhibiting much higher accuracy than males when confronted with a normal duration non-contradictory communication. It was also noted that females' non-verbal cues were more easily 'read' than mens', and that females tended to rely more on face/voice cues than kinesic cues when trying to

convey information.

Overall then it appears that there is some relationship between certain categories of non-verbal behaviour and perceived personal qualities or traits. But how these cues are interpreted depends to a large extent on the ability of the perceiver. It is to this aspect that we now turn.

b) Personality characteristics in the perceiver. Most work on skill in the perceiver relates to the expression of affect by the 'sender'. Gahagan (1975) posits the useful question, is skill at decoding these nonverbal cues general or specific (ie. socially acquired or an individual 'gift')? Knapp (1978) notes;

> ". . . we readily note there are some people who seem to be more sensitive to nonverbal cues than others; some people seem more proficient at expressing their feelings and attitudes nonverbally. And it is eminently clear that the ability to send and receive these nonverbal cues accurately, like verbal cues, is essential for developing social competance. . . How did these people become effective?" (p.411)

What developmental data are available to explore this question further? DePaulo and Rosenthal (1978) studied eight age groups ranging from eight to thirty-three years old. A test of nonverbal decoding ability called the 'P.O.N.S.' test (Profile of Nonverbal Sensitivity, developed

by Rosenthal et al 1975, unpublished MS) was given, and it was found that, in general, females were more accurate than males, older subjects more than younger ones and that when given more information all age groups improved in accuracy, but this improvement was most pronounced among the older subjects. DePaulo and Rosenthal (in press) also found that the younger subjects were more likely to be able to perceive differences in expressed 'positivity' between pairs of nonverbal cues than differences in expressed dominance, pointing to the centrality of the interpretation of positive or negative expressed affect in the development of nonverbal skills. This, in itself, seems contrary to what Bugenthal et al (1970) found; they showed that 'joking' messages (criticisms said with a smile) were interpreted more negatively by children than adults. However, the increased sensitivity to 'expressive' cues noted by DePaulo and Rosenthal (in press) should work both ways; ie. both positively and negatively loaded affect should be picked up more quickly/easily by the young subjects than the complex social cues relating to the nonverbal messages (like 'joking' or 'sarcasm'). Overall, Knapp (1978) notes that total skill in interpreting nonverbal messages seems to increase up to about twenty years of age and then levels off. Knapp also notes that children seem to be better at vocal discriminations of nonverbal cues than visual ones.

There do therefore, appear to be developmental

components in the progress of sensitivity to the range and interpretation of nonverbal cues. This seems to suggest that this may be a general skill.

In a large and important review, Taft (1955) concluded that accuracy in judging others was positively correlated with higher than average intelligence, good emotional adjustment and well developed social skills. He also noted that good judges tend to be poor senders. Cline and Richards (1960) detected a slight tendency for some few subjects to be consistently better than others at predicting. Lanzetta and Kleck (1970) demonstrated that skin conductance recordings (SCR's) were inversely related to the ability of an individual to 'send' or decode information. Individuals with high SCR's tended to be good decoders but poor 'senders', while those with low SCR's were associated with poor decoding and good 'sending' ability. Buck (1975, 1977) reported similar findings using both children and adults. There also appeared to be sex-related individual differences in encoding and decoding skills. Buck et al (1972, 1974) found that, overall, females tend to be rather better 'senders' than males.

Zuckerman (1976) found that females were more accurate decoders than males. Hall (1978) in a review and re-analysis of seventy-five studies showed that women do appear to have a distinct advantage over men in decoding ability, and that whatever the sex of the sender this effective difference remained. Knapp (1978), in an extensive review of work done using the P.O.N.S. test

also found that females are better at judging than men, and that men rarely, if ever, score more highly. Though not changing this overall finding, Rosenthal and DePaulo (1979), referred to extensively in the previous section, point out that this skill discrepancy between the sexes can vary considerably depending on the particular judging task in hand, and point out that females appear to be more easily deceived than men when interpreting contradictory communications.

Apart from sex differences, what are the main characteristics of the skilled decoder? Knapp (1978) reviews a large number of studies and finds the following. Race (in the U.S.A. at least) does not seem to provide any great advantage or disadvantage in judging nonverbal cues. Higher intelligence (contrary to what Taft 1955 thought) and academic ability do not characterize effective decoders. In line with Taft (1955) though, those who do well on the P.O.N.S. test seem to have the following personality profile;

> ". . . better adjusted, more interpersonally democratic and encouraging, less dogmatic and more extraverted."

These same skilled decoders also tend to be judged as more popular and interpersonally sensitive by others. Three occupational groups tend to score highest on the P.O.N.S.; actors, students studying nonverbal communication and students studying the visual arts. Also, parents with

preverbal children seem to show greater nonverbal sensitivity than couples with no children. One last personality factor has been proposed as being related to this ability; that of 'self-monitoring' (Snyder 1974). The basic hypothesis is that self-monitoring behaviour is characteristic of accurate decoders of nonverbal information. Self-monitors are sensitive to, and exert strong control over, their own behaviour and are therefore more sensitive to the nonverbal behaviour of others.

To conclude, there does seem to be a fairly consistent profile which relates to nonverbal sensitivity and decoding skill. The investigation of the relationship between the personality of the decoder and his skill at interpreting non-verbal messages is especially relevant to this thesis. Whether this skill is socially shaped or is a matter of individual propensities is, as yet unclear.

7) INCONSISTENT COMMUNICATIONS; DECEPTION AND DOUBLE-BINDING.

> "A number of recent studies have been concerned with the resolution of evaluative inconsistencies between verbal and nonverbal channels of communication. When confronted with a message that contains approval in one channel and disapproval in another channel, what does the listener do? Does he give credence to the nonverbal component? Does he place more faith in the actual words spoken? Or does he respond to the inconsistency itself as negative?" Bugenthal (1974)

These questions and many other similar ones, have been asked regarding how people respond to contradictory communications. The contradictory communications themselves can be of two basic types; 'deception' and 'double-binding'. Studies of both these areas reveal information about how the receiver of these types of communication attach significance to the various aspects of the message; ie. how they portion out 'weights' to the various possible 'channels' in resolving the inconsistency.

Studies of deception have become increasingly numerous in recent years. It was Darwin (1872) who wrote;

> "Some actions ordinarily associated through habit with certain states of mind may be partially repressed through the will, and in such cases the muscles which are least under control of the will are the most liable still to act, causing movements which we recognise as expressive. In certain other cases the checking of one habitual

movement requires other slight movements; and these are likewise expressive."

Freud (1959) also gave a clue to how the deception process may fail;

"He that has eyes to see and ears to hear may convince himself that no mortal can keep a secret. If his lips are silent, he chatters with his fingertips; betrayal oozes out of him at every pore."

Much of the early work in this field did, in fact, relate to psychiatric patients. Ekman and Friesen (1969a, 1974) showed that most deception cues are 'leaked' through body movements in both psychiatric patients and normals.

This type of research finding illustrates one of the two main 'rules' observers can apply when trying to establish the truthfulness of a communication. This rule can be called the 'controllability rule' and has been indirectly mentioned in the Darwin (1872) and Freud (1959) quotes. According to this rule, one can believe most in those aspects of a person's communicative performance that the person is least able to consciously and deliberately control (Goffman 1959). The logic behind this is that if one cannot control it, one cannot fake it. Those individuals professionally involved in distinguishing between the truth or falsity of statements often use this method; for example, psychiatrists rely on dream content, associations, forgettings, slips of the tongue; police forces sometimes use S.C.R. measures. What other non-controllable behaviours are therefore usable in this way?

Paralinguistic cues appear to be a rich source of information for the detection of deceit. Mehrabian (1971a, 1972) reports that subjects engaging in deceitful behaviour show a decreased amount of speech, a lower speech rate and make more speech errors. Kraut (1978) found that when actors were required to lie in a job-interview situation they gave less plausible, shorter answers with longer latencies. Ekman, Friesen and Scherer (1976) found that when liars speak they do so in a higher pitched voice than normal. In an interesting study by Littlepage and Pineault (1978) observers were shown videotapes of actors either telling the truth or lying. The videotapes were edited to present four conditions;

a) total information (facial, verbal content and paralinguistic cues)

b) verbal and paralinguistic cues (ie. sound only)

c) facial and verbal

d) facial

Results found that deleting verbal and paralinguistic cues led to a decrease in accuracy of deception detection, while deletion of only facial or paralinguistic cues did not affect accuracy at all. The eyes, and eye-contact per se, are also a source of cues to deceit. Knapp, Hart and Dennis (1974) found that liars look significantly less than subjects telling the truth. Exline et al (1966) found that subjects with a high degree of 'Machiavellianism' showed a smaller degree of loss of eye contact than low 'Machia vellian' subjects when implicated in cheating and having to lie as a consequence. Clark (1975) had subjects involved in role-playing 'secret

agents'. Subjects were required to memorize a 'secret code' to which they were subsequently exposed during a lie-detection session. Close observation of the subject's pupils showed that they dilated when the 'secret code' was mentioned, and they had to deny it thus lying. There was an 80% 'hit rate' for detecting deception from pupillary dilation.

The second of the two main 'rules' for detecting deception can be called the 'ulterior motive rule'. According to this rule, one should discount behaviours as a reflection of the actors' true nature to the extent that the behaviour furthers the actors short-term interests (Kraut 1978).

Work relating to contradictory or inconsistent communications per se, have tended to be more related to psychiatric work. For example, Bugenthal et al (1971) found that clinically disturbed mothers tend to produce messages containing evaluative conflicts between channels more than normal mothers (59% of messages as opposed to 10%). No similar difference was found for normal and disturbed fathers. Most work in this area has been concerned with how individuals react to, and resolve, these contradictory messages, and what variables (if any) affect their ability to do so. Kraut (1978) found that 'actors' tended to be either consistently good or consistently poor liars, while observers were not at all consistent in their ability to detect deceit. Kraut noted, however, that the observers seemed to focus on latency and plausibility as well as how vague a communication was, and interpreted excessive smiling or postural shifting and grooming as indicative of deception. Bugenthal, Kaswan and Love (1970) made one of the first attempts to determine what role was played, in

proportional terms, by the verbal, nonverbal and paralinguistic elements in contradictory communications, and how these related to observer variables (notably age) and how the sex of the 'sender' affected evaluations. The method used was to produce various types of communication, some being 'double-binding', others not, using actors and actresses saying various sentences in varying voice tones (friendly, unfriendly and neutral) with varying visual cues (smiling or not smiling etc.) Videotapes were made of the numerous possible interactions between these three channels, and were then shown to eighty children and eighty adults who rated each 'scene' by indicating how well each of eleven adjectives matched the communicative content. It was found that when the adults and children were shown the videotapes of actors saying the sentences, the 'joking' messages (in other words, criticisms said with a smile) were interpreted more negatively by the children than the adults. There was also a difference in the ratings given for conflicting messages enacted by males and females; females were rated as more unfriendly (negative) than males. Overall, Rugenthal et al found that there was a strong interaction between the verbal channel (the actual words spoken) and the vocal channel (how the words were actually said) - a positive input in one channel was discounted if the other channel contained a negative input.

The age-related finding was backed up by a recent study (DePaulo and Rosenthal, in press) which found that young subjects were more sensitive to differences and contradictions in expressed positivity between pairs of nonverbal cues than

they were to more socially related cues, such as dominance. It appears (as was noted in aprevious section) that young children (under twelve years old) are particularly sensitive to contradictory communications, especially with regard to negatively loaded messages.

DePaulo et al (1978) split up a videotape of subjects communicating in a contradictory way into its auditory and visual components. It was found that subjects were more influenced by video cues than audio ones; this was called the 'video primacy effect'. Three age groups (twelve, sixteen and twenty) were used and it was found that the video primacy effect applied to all of them. However, the effect was greater for females than males; for discrepancies concerning degree of positivity rather than degree of dominance; and for descrepancies of the face than the body. The effect did not hold true for very contradictory messages (eg. extreme sarcasm) where it was found;

> ". . . subjects adopted a strategy characteristic of judges of deception: They attended relatively more to the audio cues than the video cues."

Mehrabian (1971, 1972) attempted to integrate most of the findings on the interpretation of contradictory communications into an overall theory. He suggested that the various channels in any message carry the following weighted proportions; 7% verbal (ie. the actual words spoken, 38% vocal (paralinguistic cues) and 55% facial. Therefore, he concluded;

> ". . . the impact of facial expression is greatest,

> then the impact of tone of voice . . . , and finally that of words. If the facial expression is inconsistent with the words, the degree of liking conveyed by the facial expression will dominate and determine the impact of the total message. On the other hand, in an audiorecorded message . . . if the vocal expression happens to contradict the words, then the former determines the total impact. This can work either way: The words may be positive and the vocal expression negative, in which case the total sarcastic message is a negative one; or the vocal expression may be positive and the words negative, in which case the total message is a positive one." (1971, p.43)

Mehrabian's findings were confirmed by Argyle, Alkema and Gilmour (1971). Other workers using slightly different methodologies have not altogether supported Mehrabian's theory (eg. Domangue 1978).

To conclude, it appears that certain cues are salient for the detection of deceit, and that individuals will attach varying degrees of significance to aspects of a contradictory communication. The way in which individuals respond to contradictory and noncontradictory communications is central to this thesis, and is the main subject explored in the experiments. However, not all aspects of communication are explored; one aspect in particular (that of perceived pleasantness) is the main theme. A consideration of just what constitutes 'pleasantness' will be outlined after a brief survey of the personality characteristics investigated in this thesis.

8) A BRIEF SURVEY OF THE MAIN PERSONALITY CHARACTERISTICS INVESTIGATED IN THIS THESIS.

One of the main aims of this thesis was to examine whether or not there was any relationship between certain personality characteristics and the interpretation of social communications. In discussing, briefly, the personality dimensions chosen, the theoretical and methodological problems surrounding their assessment have not been discussed. Instead the focus has been on elaborating those aspects of these dimensions which are of most relevance to the thesis. Namely, their relationship to a certain aspect of social performance. The actual controversies over the assessment of personality are evaluated in the 'Discussion' of this thesis.

a) Extraversion/Introversion and Neuroticism: Though the terms Introversion and Extraversion (hereafter I and E) are usually associated with C.G.Jung they may, in fact, be found in even the earliest English dictionaries. Dr. Johnson's 1755 dictionary, for example, used the terms in reference to the physical world, but by the nineteenth century usage was very similar to current practice and we arrive at the meanings of E and I as "turning outward of the mind, impulsiveness, sociable tendencies" and "inner directedness, self-control, unsocial" respectively.

Eysenck and Eysenck (1964) developed one of the first factor analytic profiles of E/I, and developed the Eysenck Personality Inventory (EPI) as a paper-and-pencil questionnaire measure. Certain physiological measures appeared

to correlate well with measured E/I (for example, the amount of saliva produced in response to a measured amount of lemon juice placed on the tongue has a correlation of up to 0.7 - Eysenck 1970b - to questionnaire measures.) The main items in the questionnaire relate to 'Sociability' and 'Impulsiveness'. Both these areas are important in overall social performance and competence and some attempts have been made to relate these factors to some kind of genetic or biological base. Should there, in fact, be a significant genetic substrate for level of E/I, it would have profound consequences for any understanding of social behaviour. The extent of any genetic involvement has yet to be shown or determined satisfactorily.

Of primary interest is the major feature of E/I discussed by Eysenck (1967) - that of 'Arousability'. Wilson (1977) states that Eysenck;

> ". . . believes the differences between E's and I's are due to individual differences in the functioning of the reticular activating system. This structure in the brain stem is thought by neurophysiologists to be responsible for producing non-specific arousal in the cerebral cortex in response to external stimulation, and Eysenck hypothesises that I's are more highly aroused than E's given the same conditions of stimulation. Paradoxically, this results in the I's showing more restrained or 'inhibited' behaviour because the cortex is exercising control over the more primitive, impulsive, lower brain centres."

This idea has numerous consequences which have led to considerable experimentation. The findings can be summarized by stating that (extreme) E's are 'stimulus hungry' while (extreme) I's are 'stimulus aversive.' (Gale 1973; Claridge and Herrington 1963; Eysenck 1971a, 1974b; Hill 1975; Gray 1972, 1973.)

The social correlates of these aspects of the E/I dimension have yet to be fully explored. In some circumstances E's appear to be more open to social influence, and change their opinions/judgements under the influence of prestige suggestions (Sinha and Ojha 1963), and E children seem more responsive to peer influences regarding antisocial behaviour (Kim and Seidenross 1971). Paradoxically though, if an E meets an I with whose views he disagrees, the I is more likely to modify has position - perhaps because the I is anxious to avoid an over-arousing situation that an argument would constitute (Carment, Miles and Cervin 1965). As was noted in an earlier section, E's will also engage in more eye contact and will tolerate (indeed, gravitate towards) closer proximity to others. Wilson (1977) reviewing a large number of studies concludes;

> "There is some evidence . . . that E's are more interested in making contact with other people . . . in terms of Eysenck's theory, E's seeking social contact as a means of maintaining cortical arousal and I's seeking solitude to keep their arousal down to a tolerable level."

Peck and Whitlow (1975) state;

> "The Neuroticism dimension is similar to the notion of emotional instability. Those individuals who fall at the extreme neuroticism end of the dimension tend to be more prone to worries and anxieties and more easily upset.
>
> They are also likely to complain of headaches, and eating or sleeping difficulties. Although they may be more likely to develop neurotic disorders under stressful conditions the frequency of such problems is low and most individuals function adequately in their work and in their family and social life." (p.71)

Once again, questionnaire measures of neuroticism are typified by the EPI, and the fundamental assumption relates to the conditionability and lability of the autonomic nervous system (ANS). Individuals who have a more labile ANS are liable to respond strongly to unpleasant or frightening experiences by increases in heart-rate, muscle tension, etc. Those people who are high on neuroticism will therefore tend to have low thresholds of emotional arousal. This, in turn, will lead to the more frequent activation of their ANS which in turn triggers the reticular activating system. This means that these people will tend to resemble I's who are generally more 'aroused' than E's.

b) Self Monitoring: The idea that there might be a personality dimension relating to the ability to observe one's own

behaviour (especially affective expression) was mainly originated by Snyder (1974). It is clear that individuals are able, to a certain extent, to 'edit' their nonverbal behaviour to enable certain impressions to be conveyed to others. This idea has a long history in theory (eg. Goffman 1955) and evidence in practice (eg. Davitz 1964, Ekman and Friesen 1969), while evidence had also accumulated that of all available channels the face is most easily brought under conscious control. Snyder (1974) points out;

> "There are, however, striking and important individual differences in the extent to which individuals can and do monitor their self-presentation, expressive behaviour, and nonverbal affective display . . . Yet little research has directly concerned such individual differences in the self-control of expressive behaviour."

Snyder speculates that differences in ability to 'monitor' may develop through individuals noticing their affective expressions were either socially inappropriate or lacking, which would lead to their attempting to observe and control this behaviour. It is also necessary not to be only aware of one's communications, but also to be aware of the social cues which would indicate what the most effective and appropriate expressions would be. Those who, for whatever reason, are not self-monitors will therefore be less sensitive to such cues. These individuals' affective expression is controlled by their internal affective states (ie. ". . . they express it as they feel it. . .").

Self-monitoring individuals are unlikely to be able to monitor all the possible channels and therefore contradiction between these channels is likely to occur - in theory, more than for the non self-monitor. (This may offer a partial explanation of why people appear to be inconsistent across situations). How, then, is self-monitoring to be measured?

> "Self-monitoring would probably best be measured by an instrument designed to discriminate individual differences in concern for social appropriateness, sensitivity to the expression and self-presentation of others in social situations as cues to social appropriateness of self-expression, and use of these cues as guidelines for monitoring and managing self-presentation and expressive behaviour." (Snyder 1974)

This aim was realized in the construction of the 'Self-Monitoring' scale. The scale itself showed little relationship to other personality scales, including Machiavellianism and 'inner-other directedness' (similar to E/I). Snyder (1974) reported that psychiatric patients tended to score low on the self-monitoring scale; that individuals who scored high on self-monitoring were better able to communicate arbitrarily chosen affective states, and that these same people also tend to be better judges than low self-monitors. In a subsequent study, Snyder and Monson (1975) found that subjects scoring high on self-monitoring and low on neuroticism were likely to vary their degrees of social conformity to various situations whereas low self-monitors with high neuroticism subjects showed little variability.

c) Machiavelliansim:

"Traditionally, the 'Machiavellian' is someone who views and manipulates others for his own purpose."

Christie and Geis, 1970.

In their work, which attempted to explore whether 'Machiavellians' (hereafter Mach.) existed, Christie and Geis (1970) described the four main characteristics of the Mach. as being;

1) relative lack of affect in interpersonal relationships,
2) lack of concern with conventional morality,
3) lack of gross psychopathology, and
4) low ideological commitment.

These basic characteristics were reached after a considerable survey of historical political literature (including the classic work by Niccolo Machiavelli, 1532) which yielded two rather interesting premises about human behaviour; namely, that most men are weak, fallible and gullible and that therefore a rational man can take easy advantage of these feeble beings for his own ends. It was these ideas together with the set of four major characteristics which were central to the construction of a scale suitable for measuring Mach. tendencies.

Several scales were constructed and tested to check for validity and reliability, ending with the construction of the 'Mach. V' scale, which is utilized in this thesis.

The relationship of Mach. scores to other measures of personality was explored by Christie (1970). No significant

correlation was found between Mach. score and I.Q., measures of Authoritarianism (though there was a slight, reliable negative correlation of -0.2), measures of political preference, racial attitudes, Need for Achievement, anxiety and psychopathology. There was a significant correlation for generalized hostility to others (+0.6), but this could have been a function of the high Mach.'s ability to recognize and admit hostility in himself towards others. This led Christie to suggest that perhaps high Mach.'s were more 'candid' in their perceptions of both themselves and others.

More interestingly, perhaps, is the view the high and low Machs tend to have of each other (Christie and Geis 1970);

> "It is not too great an oversimplification to say that high Machs feel that people who score low on the Mach tests are naive, not with it, and behave unrealistically in the real world. Low Machs, on the other hand, think agreement with Machiavelli reflects a deplorable lack of compassion and faith in others, and is immoral, if not inhuman." (p.340)

In summary, the characteristics of the high and low Machs are described as follows by Christie and Geis (1970);

> "The high Mach's salient characteristic is viewed as coolness and detachment. In pursuit of largely self-defined goals, he disregards both his own and others' affect states and therefore attacks the problem with all the logical ability he possesses. He reads the situation in terms of perceived possibilities and

then proceeds to act on the basis of what action will lead to what results.

The low Mach is hypothesized as being much more open to others and liable to becoming affectively involved with them or with his own concerns. He becomes more engrossed in the content of a conversation rather than its ultimate purpose in terms of his individual goals. He is more likely to get carried away in the process of interacting with others and acting on the basis of noncognitive reactions to the situation." (p.350)

Above all the characteristics the apparent lack of affective involvement in social situations is most important to the work carried out in this thesis. Though high Machs appear to function best in unstructured situations, the experimental paradigm used left no need, or possibility, for cheating or manipulation. Therefore any variance in the results attributable to a difference between high and low Machs would be a consequence of the personal behaviours associated with the degree of Mach, not with the scope available for cheating or manipulation within the experimental environment.

d) Conclusion: The four main personality dimensions chosen for investigation (Extraversion/Introversion, Neuroticism, Self-Monitoring and Machiavellianism) were mainly used because each has, in its own way, been related to aspects of social performance.

Extraversion and Introversion give some measure of the

social reactance of individuals; neuroticism the quality of that reaction; self-monitoring the extent of the individual's perception of his behaviour in the situation and his degree of cross-situational consistency; and Machiavellianism the degree of interpersonal manipulativeness that is available to the individual. All these dimensions will bear directly on the sensitivity of the individual to nonverbal cues: In theory the Extravert, high Self-Monitor and high Mach. should be especially sensitive. But how will these factors relate to the quality of the response to specific types of nonverbal communication? Furthermore, will the interaction of these various factors blanket out any effect due to a single factor? The first of these two questions will be answered by an analysis of subjects' responses to four basic communicative conditions related to their scores on various personality questionnaires. The second question requires a multivariate analysis which is beyond the scope of this thesis, the primary reason being that the actual number of personality dimensions investigated increased during the execution of the experiments as data became available indicating that these other measures might be salient. Hence, an insufficient quantity of data was collected for all four main dimensions simultaneously to permit a multivariate analysis.

One further problem relating to the personality dimensions used is that the features of social behaviour relating to them, as discussed in previous sections, tend to have

been drawn from the extreme ends of the personality distributions, and without reference to the other aspects of these individuals' personalities. Therefore it is unclear how a more normal sample of the available population of subjects will respond with reference to these various social skill indices.

9) 'PLEASANTNESS' AS A SALIENT EVALUATIVE DIMENSION.

What is meant by 'pleasantness'? The Concise Oxford English Dictionary (1964) defines 'pleasant' as;

". . . agreeable to mind, feelings, or senses."

Therefore to examine what is pleasant within the context of interpersonal affective communication would require a cataloguing of those behaviours generally regarded as 'agreeable'. Clearly this is not practicable as (if for no other reason) individual differences in the choice of what is or is not pleasant are of at least as great import as interpersonal similarities. However, in a previous section (6a, 'Interpersonal attraction') some attempt was made to categorize those aspects of behaviour which could be recognized as likely to be attractive, on a nomothetic level. This is not to say that what is 'attractive' is necessarily also perceived as 'pleasant', though it seems logical that there should be a fair amount of overlap. In one sense, therefore, an adequate level of definition has already been reached; ie. 'pleasantness' is likely to refer to those behaviours which people find attractive. It seems relevant, however, to attempt to pursue a definition (or at least a deliniation of the area under study) along a different route. DePaulo and Rosenthal (in press) stated that;

> "Studies of the dimensions of experience have varied not only in specific substantive foci, but also in the types of subjects that were sampled, the kinds of data gathered . . . and in the types of evaluative technique used . . . In every one of these studies, one particular dimension has consistently emerged. That dimension is the evaluative

> one, alternatively labelled as positivity-negativity, pleasantness-unpleasantness, hostility-friendliness, and love-hate. The significance of this dimension is evidenced not only by its invariable emergence, but also by its frequent priority in salience and centrality over other important dimensions such as dominance-submissiveness and activity."

In other words, there is a dimension of human experience which relates to interpersonal perception but boils down to 'pleasantness-unpleasantness'. In the same paper, DePaulo and Rosenthal established that this evaluative dimension seems to appear early in social development, thus showing its priority.

One type of attempt to map this dimension directly onto actual behaviour is to simply ask subjects for evaluations of the nature of the communications they receive - were they pleasant/unpleasant? Sarcastic? etc. A more controlled method of gaining the same end is to utilize the adjective check list approach. This was done to particular effect by Bugenthal, Kaswan and Love (1970). The actual procedure by which they produced their communicative 'scenes' is described in section 7c. One aspect of the methodology used bears particular examination - the recording of the videotapes themselves;

> "Actors were given scripts and instructions as to whether the visual or vocal channels should be positive or negative . . . As far as possible, we let actors select whatever way of expressing the visual and vocal components that came naturally to them."

A group of subjects saw each scene and was asked to provide a

short phrase or adjective which described what they'd just seen. Any adjective/phrase mentioned by four or more subjects was included in a checklist for future groups. The eleven adjectives finally used were; sarcastic, disgusted, angry, giving-up, frustrated, insincere, sincere, pleased, complimentary, happy, joking. It is this list of adjectives which is used in this thesis to attempt to delimit a profile of 'pleasantness' for any given communication. While it is clear that there are many more descriptive adjectives alone available, it was felt that by allowing subjects a measure of freedom in how they related each of the adjectives to any given communication would make up for this deficit. Some method is required to capture the 'profile' of a communication which, after all, is not a static event, and this was fulfilled by allowing subjects to indicate, on a seven-point scale (ranging from 'fits very well', through 'don't know' to 'doesn't fit at all') how well each adjective related to the communication. By assigning weights to each answer, it is possible to arrive at a single score for each communication which is somewhere between -33 (extreme negativity) and +33 (extreme positivity), thus taking into account at least part of the complex decision process whereby individuals are able to decide (not always consciously) whether or not a communication is pleasant. In theory, therefore, with only a limited number of adjectives, it would be possible to provide a unique evaluative fingerprint of any communication, thus placing it somewhere on the 'pleasantness-unpleasantness' dimension. The actual response profile takes into account any individual variability, while the overall score allows us to examine any trends and tendencies within groups of subjects.

10) CONCLUSION/POSTCRIPT.

This introductory review section has attempted to examine those areas which have the greatest relevance to the main research direction of the thesis. The major areas of theory and research findings relating to nonverbal communication and more applied aspects of behaviour such as 'person perception' have been discussed and research strategies were also examined.

The overall field of nonverbal communication is extremely diverse in terms of possible research areas. The few selected for discussion in this introduction are necessarily only a minority, but it is hoped that they are the areas of greatest relevance.

CHAPTER TWO

"METHODOLOGY"

METHODOLOGY

The experiments performed in this thesis were designed with two main considerations in mind: the information and experimental paradigms already available (the 'Introduction') and the equipment and facilities available.

As the basic question behind the thesis is, "what processes are involved in making a judgement of pleasantness?" it seemed reasonable to adopt a design which examined how observers saw (in terms of pleasantness) individuals who had deliberately set out to be pleasant or unpleasant. This also involved examining observers' reactions to those individuals who are giving off communications which contain simultaneously both pleasant and unpleasant components.

This chapter is inserted here because the basic design is common to all nine experiments carried out. Where there are modifications to this basic design, it is mentioned in the body of the relevant experiment. The details of the basic design and procedure are set out below.

a) Experimental design rationale: In Section 7c considerable reference was made to experiments performed by Bugenthal, Kaswan and Love (1970).* The methodology described in detail below is, in part, a modification of their basic paradigm. The underlying theme is twofold; firstly, that any communication can be divided into three major components, namely VERBAL (the actual words spoken), PARALINGUISTIC (the way the words are spoken) and NONVERBAL (the accompanying facial expression, gestures, etc.) For most practical purposes the second and third categories are 'run-together'. The second theme is that though interactive, each channel could carry a message which contra-

* See Appendix Four.

dicts that carried by the other. The design, and execution of this design, is based on these two themes. It is possible to see that the communication channels, and the affect they carry, can be combined in these four basic ways; the verbal component and nonverbal components can both carry 'positive' or 'pleasant' information; the verbal channel may carry positive and the nonverbal negative information; both channels can carry negative information; and finally, the verbal can carry negative and the nonverbal positive. In order to identify these four possibilities it is useful to develop acronyms for them. The acronyms are of four letters, the first two referring to the verbal channel, the second two to the nonverbal channel; either may be positive (P) or negative (N) in terms of the affective information carried. Hence, 'positive verbal, positive nonverbal' becomes PVPN; 'positive verbal, negative nonverbal' becomes PVNN; 'negative verbal, negative nonverbal' becomes NVNN; 'negative verbal, positive nonverbal' becomes NVPN. This is summarized in TABLE 1.

	Verbal Component.	Nonverbal Component.	Overall effect.
PVPN	Pleasant	Pleasant	Consistent
PVNN	Pleasant	Unpleasant	Double-bind
NVNN	Unpleasant	Unpleasant	Consistent
NVPN	Unpleasant	Pleasant	Double-bind

TABLE 1: To show possible combinations and effects of verbal and nonverbal channels.

In order to examine how individuals respond to these various communications it is important to encode them in an invariant form; in this case videotape. It was felt that using one actress to attempt to portray all four possible combinations would be inadequate in view of the great individual differences in encoding ability - by having a range of actresses a range of encoding abilities would be utilized, thus enabling the subjects full scope to express their varying perceptions as a function of their varied decoding ability. The problems of individual differences and differences in interpretation are overcome by use of a Graeco-Latin Square design (Edwards, 1972). This also overcomes order effects in the presentation of stimulus materials to subjects. To ensure each actress performs each scene in each possible way, and to ensure each scene occurs in a different place in each videotape, it is necessary to compile four master videotapes, thus:

Videotape 1	NVPN	PVPN	NVNN	PVNN
Videotape 2	PVNN	NVNN	PVPN	NVPN
Videotape 3	NVNN	PVNN	NVPN	PVPN
Videotape 4	PVPN	NVPN	PVNN	NVNN

TABLE 2: Internal construction of the master videotapes.

Each of the four scenes within each master videotape is called a 'communicative condition' (hereafter CC). In order for subjects to have some practice at observing the CCs, each of the four master videotapes was prefaced with a 'practise' CC.

b) Production and organization of the videotapes:* The overall structure of the four master videotapes with relation to the four actresses is as shown in the diagram below, where A,B,C,D represent them, while P represents the practice condition actress (the same one used for all videotapes) and I represents the sound only instructions to subjects.

Videotape 1	I	P	B	A	D	C
Videotape 2	I	P	D	C	B	A
Videotape 3	I	P	A	B	C	D
Videotape 4	I	P	C	D	A	B

TABLE 3: Order of appearance of the four actresses.

Gaps between each actresses' appearance are 120 seconds. Audible buzzer cues are given 30 and 5 seconds before the next CC occurs.

The four sentences used in the production of each CC were abstracted from the Bugenthal et al (1970) paper. As shown in the table below, each CC has been divided into the verbal and nonverbal components. Each component was varied along the pleasant-unpleasant dimension. The P actress said the same thing on each of the four master videotapes; "It's a lovely day today" in a neutral fashion.

* The master videotapes may be seen by prior appointment with Dr. Hallett at his current address.

CC	Verbal Component	Verbal pleasant or not?	Nonverbal pleasant?	Effect
PVPN	You really did a fine job.	Pleasant	Pleasant	Consistent
PVNN	That's good. That's really marvellous.	Pleasant	Unpleasant	Double-bind
NVNN	You're going to drive me out of my mind.	Unpleasant	Unpleasant	Consistent
NVPN	You're a complete idiot.	Unpleasant	Pleasant	Double-bind

TABLE 4: Full structure of each CC

In the original Bugenthal et al (1970) study, eight scripts were used which had been prejudged to represent four positive and four negative messages, and this study selected the two most extreme examples of each. The Bugenthal study had each of the eight scripts enacted in each possible combination of verbal and nonverbal components. Within the limited resources available it was not felt necessary to duplicate this extreme counterbalancing, as Bugenthal et al found that the scripts per se contributed negligably to the overall variance between CCs. It was felt that the counterbalancing design utilized in the studies undertaken in this thesis would minimize any script-related effect still further. It should be noted that although the actresses were directly instructed by the experimenter to deliver the message in a consistent or double-binding way, they were not instructed as to how they should do this. The rationale for this is taken from the same Bugenthal study and has been

noted previously;

> "As far as possible, we let actors select whatever way of expressing visual and vocal components that came naturally to them."

At a later stage, using exactly the same design and recording method, an all-male acted series of four master videotapes was made.

In both sets of master videotapes each actor/actress was videotaped 'head-and-shoulders' for maximal clarity of definition of facial expression, looking directly 'out of the screen' at the observer. Thus it seemed that each of the recorded statements was being said directly to the observer.

c) Production of the subjects' response sheets: As the initial impetus for the basic paradigm was taken from the Bugenthal et al (1970) study, so was the basis of the subjects' response sheets. Bugenthal et al selected eleven adjectives which could be used to describe what was going on in, and what came across from, each brief CC. The eleven, in order, were; sarcastic, disgusted, angry, giving up, frustrated, insincere, sincere, pleased, complimentary, happy, joking.

The main problem is how to measure the subjects' responses in terms of how 'extremely' they reacted to each CC, and how 'pleasant' or 'unpleasant' they felt each CC to be. The solution to this problem was tackled in two ways. First, using random number tables, the eleven adjectives were arranged in four different orders, allowing each group of subjects to have a unique order to evaluate each CC with.

In order to evaluate each term, it was felt that it was

best to conceptualize it in terms of a 'fit-not fit' dimension (see Appendix 1 for a sample copy of subjects' response sheet.) Not only the adjectives' order was randomized; half the groups of subjects had the dimensions running 'fit-not fit' while the other half had 'not fit-fit'.

Subjects' response sheets were marked for 'perceived pleasantness'. The diagram below shows how pleasantness scores would be calculated for two sample adjectives.

	Fits very well						Doesn't fit at all
	3	2	1	0	1	2	3
Happy		\					
Joking					\		

TABLE 5: Sample of part of a subject's response sheet marked for 'pleasantness'.

The pleasantness score is calculated in this way. Of the eleven adjectives used, five were 'affect positive' and six were 'affect negative'. Take, for example, the adjective 'happy' shown in TABLE 5: it is an affect positive word and has been ticked at the 'fits' end of the scale. In the above diagram, therefore, 'happy' would get a score of +2. The word 'joking' is also affect positive, but has been ticked at the 'does not fit' end of the scale. It therefore receives a score of -1. All eleven scores are totalled on each sheet to give the PLEASANTNESS SCORE (hereafter, the 'P' score) for each CC. Overall, the more positive a score is (up to +33)

the more positive or pleasant the actress has been perceived to be, and conversely (down to -33) for negative scores.*

d) Personality questionnaires and subject sampling: (See Appendix Two for the full texts of the questionnaires plus their marking schemes.) In this thesis only three personality questionnaires were used, namely:

1) Eysenck Personality Inventory (E.P.I.)

2) Mach. V

3) Self-Monitoring of expressive behaviour.

Subjects were drawn from the available population of volunteers among the graduates and undergraduates at Bedford College and ranged in age from 17 to 30 years old. All were of native English origin with English as their first language. In experiment IV, older subjects (ranging from 40 to 60) drawn from the available population at North-West Kent College of Technology, Dartford were used. In experiment IX, subjects were again drawn from the above-mentioned Technical College, but this time were aged between 17 and 30. It was felt important (in the light of Scheflen and Scheflen's 1972 comments on the problems of nonverbal acculturation) to control cultural, linguistic and age factors.

* Item analysis (see Appendix Four) of this scale as used in experiment I showed a reasonable level of reliability.

CHAPTER THREE

EXPERIMENTS I, II AND III.

"PERSONALITY AND PATTERN OF RESPONSE."

EXPERIMENT I.

Introduction: Having established the theoretical and methodological context of this series of experimental studies in the 'Introduction' and 'Methodology' chapters, and having shown that the dimension of interpersonal evaluation chosen is meaningful and capable of fairly precise definition, it is important to devise some point of entry to the problem. After some consideration two basic questions were devised which led to the first experiment. The two questions were:

1) How do (British) people rate the pleasantness of contradictory and non-contradictory communications?
2) Do measures of Neuroticism and Extraversion relate to the types of rating these people give?

Before attempting to examine the data which enabled answers to be given to these questions, the work of Bugenthal et al (1970) needs to be reviewed. Bugenthal et al (1970), in an American study, investigated the effects of contradictory meanings conveyed by verbal and non-verbal channels within brief communications. The two main goals of the study were, firstly, to see whether adults and children responded in qualitatively different ways to the same contradictory ('double-binding') communications, and, secondly, to determine the effectiveness of a linear versus interactive model of communication in interpreting the way in which subjects responded to these contradictory communications.

In a review of the literature, Bugenthal noted that contradictory communications are thought to have a disturbing effect on the individual who receives such messages. On some occasions, however, these types of message can be sent for quite different reasons and

can be intentional. For example, this occurs in both 'humour' and 'sarcasm'. In these more intentional types of communicative conflict the contradiction in the message is designed for a specific effect. However, would children be able to respond appropriately to these intentional conflicts or would they simply respond to the fact that the communication was contradictory?

To produce the various types of contradictory and non-contradictory communications Bugenthal split the 'whole' communication into three main 'channels'; verbal (content of what was said - the actual words spoken), vocal (tone of voice, rate of speech etc.) and visual (gestures, facial expression). Videotapes were made incorporating all the main combinations of each of the three channels, using 'scripts' (short sentences) which had been pre-judged as being either affect positive or negative in terms of meaning.

The completed videotapes were shown to a total of 80 children (aged between 5 and 12) and 80 adults. Adults had to evaluate each of the communications they saw in terms of eleven evaluative adjectives (see 'Methodology' chapter) while the children used a variation of this employing the use of colour-coded evaluative dimensions.

The overall results of the Bugenthal study indicated that there were certain age differences most notably with regard to 'joking' CC's (where critical statements were said in a friendly tone of voice with a smile.) These particular CC's were interpreted more negatively by the children than by the adults, and this difference was most pronounced when the actor was female. It should be pointed out that it is uncertain as to whether the two different evaluative methods used for adults and children are wholly equivalent, and may

go some way to explaining the result just noted. There was also a general mean difference in ratings given for conflicting messages enacted by males and females. Overall, the actresses tended to be rated as being more 'unfriendly/negative' in contradictory types of CC. Bugenthal also found that attempting to explain these types of result in terms of a linear model of communication (ie. that each channel in a given communication is responded to independently of the others, or in some additive fashion) was inadequate. An interactive model (where the evaluation of each channel is affected closely by the other channels) of how responses to conflicting communications are developed was far more adequate. linear models could not account for the integration of conflicting messages, nor for the strong interaction found between the verbal and vocal channels (ie. a negative input in one of these two channels would be discounted if the other channel was positive.)

While not being concerned with the reactions of children to contradictory messages, this experiment is concerned with how observers will respond to and resolve the conflict inherent in any contradictory message, and whether their personalities will affect the quality of their responses.

Subjects: In all 40 subjects were used, 20 male and 20 female. All subjects were between the ages of 19 and 25, were students at Bedford College and had English as their first language.

Results: The full table of results from this experiment may be found in Appendix One. The data obtained were analysed in several ways and the results of these analyses are set out below.

1) Three-way crossed analysis of variance of 'P' scores separated for high and low Extraversion ('E'). Summary table and table of means overleaf (TABLE 6.) The only significant F-ratio is that for the variance attributable to the four CC's. This is significant at $P < 0.01$. The other factors, namely sex and level of Extraversion did not yield significant F-ratios or interactions.

2) Three-way crossed analysis of variance of 'P' scores separated for high and low Neuroticism ('N'). Summary table and table of means overleaf (TABLE 7). Once again, the CC F-ratio was significant at $P < 0.01$, but there was also a significant interaction between sex of subject, degree of N and CC. This is significant at $P < 0.01$.

3) Scheffe's Post-Hoc Comparison analysis of the four CC's. The analysis was to determine whether there was any significant difference between combinations of the four CC's. No significant differences were found between PVPN and NVPN, between PVPN and NVPN versus PVNN and NVNN, and between PVNN and NVPN. There was a significant difference between PVPN and PVNN at $P < 0.05$.

4) Analysis of actresses self-evaluations. After running the experimental subjects it was decided that it would be relevant to run the actresses who took part in the making of the video-tapes through a slight modification of the experimental procedure to examine how closely their self-ratings of pleasantness resembled those of the experimental subjects. Each of the four actresses was taken singly and was shown her own performances (four in all) of the four possible communicative situations.

SOURCE OF VARIANCE	SUM OF SQUARES.	DEGREES OF FREEDOM.	VARIANCE ESTIMATE.	F-RATIO	SIGNIFICANCE
SEX OF SUBJECT (A)	62.075	1	62.075	0.37	NO
EXTRA-VERSION (B)	236.9	1	236.9	1.44	NO
CC. (C)	19407.7	3	6469.2	39.36	$P < 0.01$
A x B	233.225	1	233.225	1.42	NO
A x C	19.675	3	6.56	0.04	NO
B x C	228.95	3	76.32	0.46	NO
A x B x C	226.92	3	75.64	0.46	NO
Within cells	27445.705	167	164.34		

	MALE		FEMALE	
	HIGH E	LOW E	HIGH E	LOW E
EVEN	15.6	7.4	13.6	11.8
EVEN	-13.5	-18.6	-12.1	-16.2
NVNN	- 8.3	- 8.8	-10.9	- 9.3
NVEN	8.1	26	3.1	9.3

TABLE 6: Summary table of analysis of variance with sex, level of extraversion and CC. as main factors (top), and table of means (bottom).

SOURCE OF VARIANCE	SUM OF SQUARES.	DEGREES OF FREEDOM.	VARIANCE ESTIMATE.	F-RATIO	SIGNIFICANCE
SEX OF SUBJECT (A)	62.075	1	62.075	0.86	No.
NEUROTICISM (B)	128.9	1	128.9	1.8	No.
CC. (C)	19407.7	3	6469.2	89.82	$P < 0.01$
A x B	154.82	1	154.82	2.15	No.
A x C	19.675	3	6.56	0.09	No.
B x C	194.05	3	64.7	0.9	No.
A x B x C	2927.63	3	975.88	13.55	$P < 0.01$
within cells	12027.8	167	72.02		

	MALE		FEMALE	
	HIGH N.	LOW N.	HIGH N.	LOW N.
PVPN	11.9	11.1	6.7	18.7
PVNN	-15.1	-17	-14.4	-13.9
NVNN	- 8.6	- 8.5	-10.7	- 9.5
NVPN	5.7	5	5.7	6.7

TABLE 7: Summary Table of analysis of variance with sex, level of neuroticism and CC. as main factors (top) and table of means (bottom).

After each CC, the actresses filled in one of the evaluation sheets in exactly the same way as the forty experimental subjects.

A Kendall's W revealed that there was a significant degree of relationship between the actresses self-evaluations at $P<0.05$. A Kendall's T showed that there was a significant positive correlation (+0.66) between the four actresses mean self-evaluations and the forty experimental subjects' mean 'P' scores. TABLE 8 below shows these two sets of mean values.

	Communicative Conditions:			
	PVPN	PVNN	NVNN	NVPN
Mean Subject score.	12.2	-15.1	-9.3	5.27
Mean Actress score.	14.5	-16	-10.5	16

TABLE 8: Mean Actress and Subject 'P' Scores.

5) To examine how the whole group of subjects perceived each actress on all four CC's (ie. as if each actress had made one whole sequence of all four possible CC's) data was extracted from the raw results according to which actress subjects had seen. TABLE 9 below shows the mean 'P' scores attributable to each of the four actresses across all four CC's.

		C.C.			
		PVPN	PVNN	NVNN	NVPN
ACTRESS	A	10.4	-11	- 6.6	7.9
	B	18.9	-18.6	- 9.7	15.1
	C	18.4	-18.9	- 8.4	- 0.9
	D	0.7	-11.9	-12.6	1

TABLE 9: Mean 'P' scores attributable to each of the four actresses.

Though there is some individual variation, the overall pattern follows a general trend set out in the next analysis. For this sample of actresses this result seems to show that their personality and communicative abilities played only a small part in the way subjects' 'P' scores were distributed over all four CC's. In other words, the differential way in which subjects responded to the four CC's was due not to the actresses but to the nature of the CC's themselves.

6) The pattern of subjects' responses to the four CC's. Mean subject 'P' scores are shown below in TABLE 10.

PVPN	PVNN	NVNN	NVPN
+12.2	-15.1	-9.3	+5.27

TABLE 10: Mean values of subjects' responses to the four CC's.

Discussion: Several of the findings made in this experiment bear comparison with those of Bugenthal et al (1970).

One of the main goals of the Bugenthal study was to compare the linear and interactive models of the interpretation of conflicting communications. They found, in general, that there was a channel weighting towards the visual (non-verbal) component of the message and that this accounted for almost twice the variance of either the vocal or verbal channel. Bugenthal pointed out that a linear model cannot account for this degree of variance and therefore accepted the interactive model. The findings of this study broadly concur with this conclusion. The mean values in TABLE 10 show that the two conflicting CC's (ie. PVNN and NVPN) are being interpreted in the light of the non-verbal component. If a linear process were operating one would expect to find a more nearly neutral set of mean 'P' scores for the contradictory CC's, as the positive and negative components (summated or averaged) would result in a mutual cancelling-out effect. The results of this experiment seem to show, therefore that the non-verbal component provides a context in which other components can be evaluated. Only an interactive model can account for this type of finding.

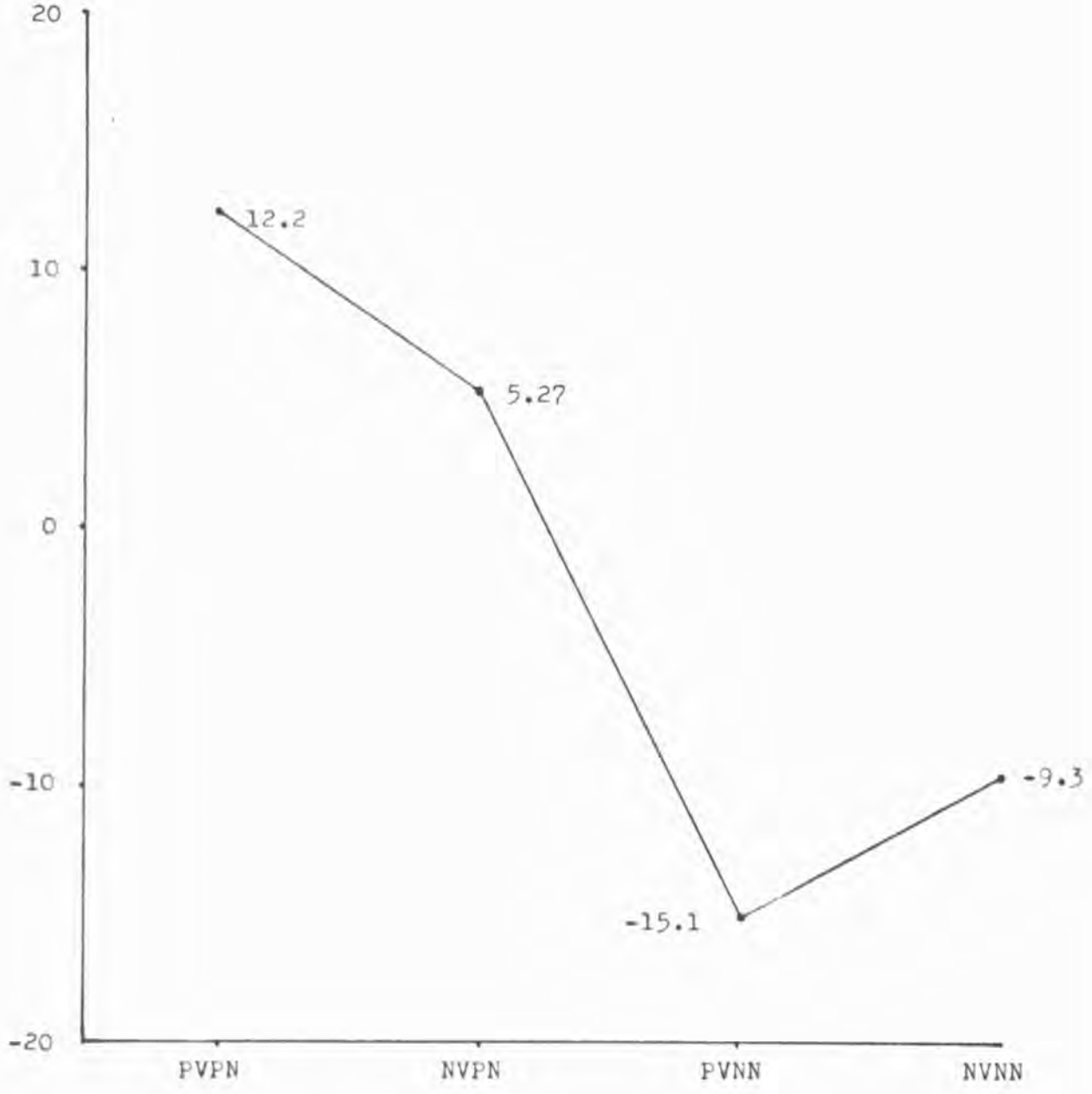
In one way the findings of this experiment contradict those of Bugenthal et al (1970). The American subjects used by Bugenthal always seemed to interpret the message in the light of the negative component of the message, regardless of which channel this was in. The English subjects used in this study tend to interpret the messages in terms of the content of the non-verbal channel only, when there is some kind of contradiction. This finding is extremely

interesting as it suggests some kind of cultural difference in the evaluation and resolution of contradictory messages.

The personality variables under study were Extraversion and Neuroticism. Neither yielded a significant F-ratio as main factors (see TABLES 6 and 7.) However, there was a significant interaction ($P < 0.01$) observed between sex of subject, CC and degree of Neuroticism. The mean values shown in TABLE 7 seem to indicate that low-neurotic female subjects see conditions PVPN and PVNN as more pleasant than other subjects. There does not appear to be any clear pattern relating to the low and high N males and the high N females. No immediate explanation of this finding presents itself, other than that females who are low on N may be more stable, less nervous, and are therefore less likely to respond negatively to the contradictory CC's. The role played by sex in pleasantness perception is examined more closely in later experiments.

The results of the fourth analysis (actresses' self-evaluations) seem to show, once more, that the pattern of response (TABLE 10) to the four CC's is robust, regardless of whether it is evaluation of another or of oneself. It is noteworthy that in the fourth CC (NVPN) the actresses saw themselves as more pleasant than the experimental subjects.

With regard to the actual distribution of responses to the four CC's (see GRAPH 1 overleaf) it seems reasonable that the inconsistent (PVNN) message is more unpleasant, or disturbing, than a consistently unpleasant one (NVNN). This seems related to Berlyne's (1960) idea that a tension-inducing (inconsistent or contradictory) communicational situation is 'resolved' by denial of the negative element



GRAPH 1: Mean 'P' Scores for experiment I.

(clearly playing an essential role in humour.) The data produced by both this study and by Bugenthal et al (1970) indicate that this resolution may not necessarily be positive; in the CC PVNN, the positively loaded verbal channel is ignored and its conflict with the non-verbal channel seems to make the overall effect more unpleasant. The same process seems to occur in NVPN, only this time the negative verbal component is overlooked in favour of the positive non-verbal one. The Scheffe Post-Hoc Comparison analysis (analysis 3) showed that only the difference between PVPN and PVNN was significant, indicating the impact of this particular type of contradictory communication.

There are three main conclusions to this first experiment. Firstly, the pattern of response to the four CC's. Here the conditions were seen as significantly different (see both TABLES 6 and 7) and the pattern of response did not vary significantly between actresses and experimental subjects. The second conclusion is the lack of a significant sex or personality difference (with the exception of the interaction shown in TABLE 7.) This seems to hint that, possibly, the pattern of response to the four CC's is a supra-sex and personality one. However, the third conclusion shows that there may be a basis for differentiating between subjects. This is the apparently culture-linked difference between this experiment's findings and those of Bugenthal et al (1970). The overall conclusion therefore seems to be that for the population under study (English, young undergraduates) personality and gender make little difference to the way in which subjects respond. This cannot be a final conclusion as several other factors need to be investigated;

notably, would having actors not actresses affect the subjects' responses, and are there other personality factors related to judgements of pleasantness?

EXPERIMENT TWO.

Introduction: The last point raised in the discussion of experiment I was whether other personality factors than Extraversion and Neuroticism could be related to pleasantness judgements. In this experiment the personality measurement under study is Machiavellianism (Mach.) The scale chosen from those devised by Christie and Geis (1970) is the Mach. V. (See Appendix Two.)

Subjects: Sixteen subjects were used, eight male and eight female. All subjects were between the ages of 20 and 23, were students at Bedford College and had English as their first language.

Results: (See Appendix One for table of raw data.) Subjects' responses to the four CC's (their pleasantness scores) were divided into two groups; those eight subjects who scored 'high' on the Mach. V, and those who scored 'low'. These results, with sex of subject, CC and degree of Machiavellianism as main factors were analysed using a three-way crossed analysis of variance. The results of the analysis are shown overleaf in TABLE 11. Significant F-ratios were achieved for degree of Mach. ($P < 0.05$) and CC ($P < 0.01$), but no significant interactions were observed.

TABLE 12 (below) illustrates the mean values of the four CC's from this experiment compared with those from experiment I.

SOURCE OF VARIANCE	SUM OF SQUARES.	DEGREES OF FREEDOM.	VARIANCE ESTIMATE.	F-RATIO	SIGNIFICANCE
MACH. (A)	240.25	1	240.25	4.36	$P < 0.05$
SEX (B) OF SUBJECT	115.56	1	115.56	2.1	No.
CC. (C)	11780.81	3	3926.93	71.25	$P < 0.01$
A x B	6.255	1	6.255	0.11	No.
A x C	122.88	3	40.96	0.74	No.
B x C	166.57	3	55.52	1.01	No.
A x B x C	20.615	3	6.87	0.12	No.
Within cells	2645.5	48	55.11		

	MALE		FEMALE	
	HIGH MACH.	LOW MACH.	HIGH MACH.	LOW MACH.
PVPN	18.5	12.25	23.25	12.5
PVNN	-15.2	-16.75	-22	-22.75
NVNN	- 7.2	- 9	- 9.5	-13.5
NVPN	7.2	3.75	3.2	0.75

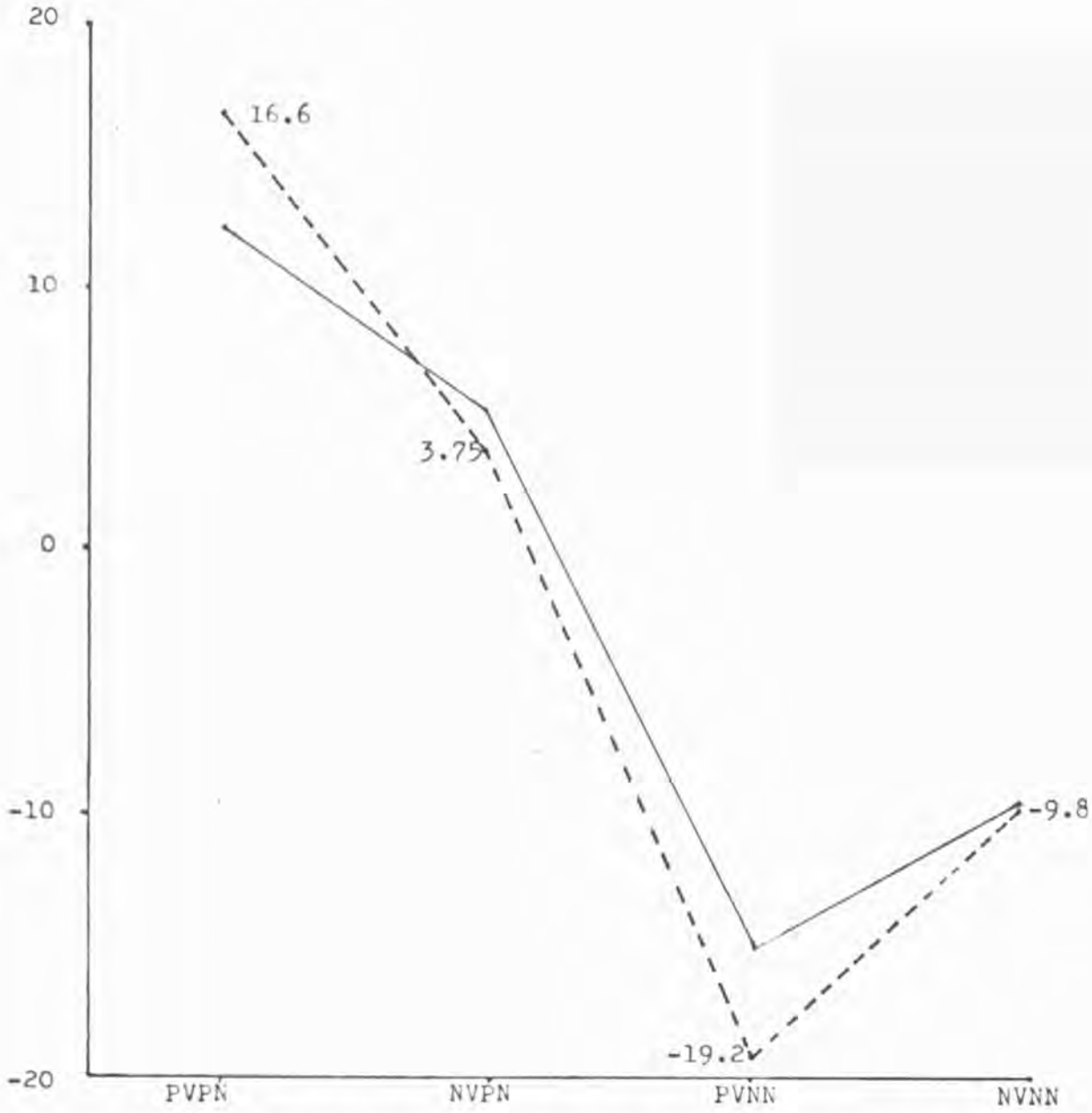
TABLE 11: Summary Table (top) of analysis of variance with degree of Machiavellianism, sex of subject and CC as main factors, and (bottom) mean values for the 'P' scores divided up according to these three main factors.

	PVPN	PVNN	NVNN	NVPN
Experiment I	12.2	-15.1	-9.3	5.27
Experiment II	16.6	-19.2	-9.8	3.75

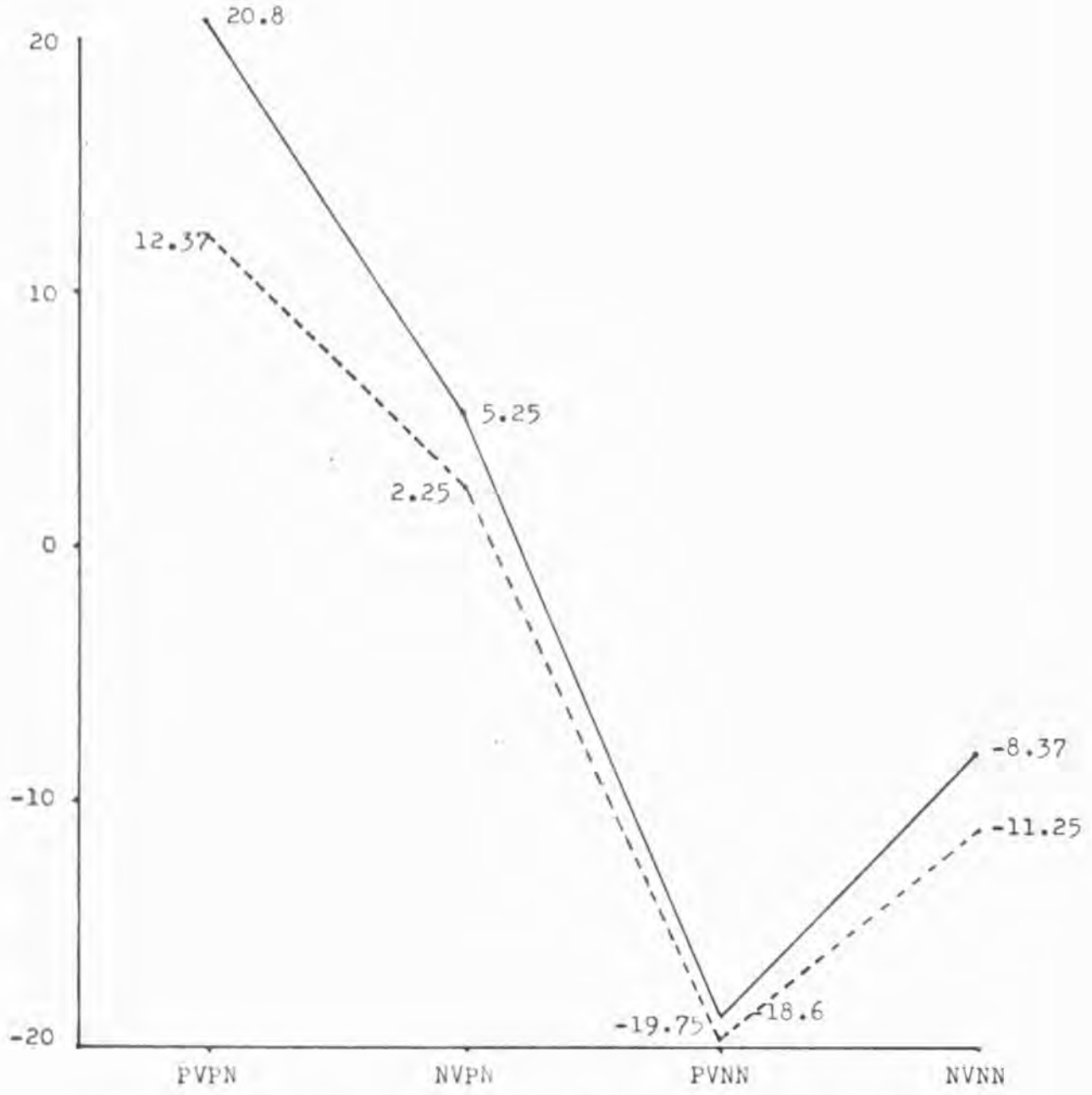
TABLE 12: Mean Values of Pleasantness Judgements for Experiments I and II.

GRAPH 2 (overleaf) shows the graphic form of these values. GRAPH 3 (also overleaf) shows the graphic form of the mean 'P' scores for subjects in this experiment separated for high and low Mach. scores.

Discussion: The mean 'P' values for this experiment over the four CC's, when compared directly with those of experiment I reveal essentially the same type of distribution of responses. This constitutes this experiment's first main finding. The second main finding relates to the significant F-ratio found for Mach. as a main factor in the analysis of variance. GRAPH 3 and the table of means in TABLE 11 both indicate the nature of this finding. What seems to have occured is that the high Mach. scoring subjects perceived, or at least rated, the four CC's as more pleasant than the low scoring Mach. subjects. One possible interpretation is that the high Mach. subjects are autonomically more 'cool' than the low Machs. and as such react less in emotional terms to any kind of emotional stimulus input. Another possibility is that the high Mach. group are more able to exploit the characteristics of a situation; ie. they do not perceive a situation as 'pleasant' or 'unpleasant' but simply as a source of information for personal advancement.



GRAPH 2: A comparison of the mean 'P' scores for experiment I (unbroken line) and experiment II (dotted line.)



GRAPH 3: Mean 'P' scores for high (unbroken line) and low (dotted line) Mach. scoring subjects.

Buck (1977) noted that children who were accurate at communicating (via spontaneous facial expression) emotional states, and were rated as being expressive had low SCR's. In 1975, Buck had found that communicative ability in preschool children was positively related to such traits as "aggressiveness, impulsiveness, bossiness, sociability . . ." In 1972, Buck et al had found a similar relationship between SCR's and 'sender ability' as that found in his 1977 paper, as did Buck et al in 1974. Knapp (1978) reports that individuals who score high on Mach. "predictably look more" and Exline et al (1970) showed that even when lying, high Mach. subjects would engage in more direct eye-contact than low Machs.

This apparently unconnected series of experimental results is, in fact, evidence for a tentative possibility. Buck's work seems to indicate that those people who are good 'senders' of non-verbal communications, who express their feelings in their facial expressions, tend not to have high SCR's to emotionally loaded stimuli. The SCR is a fairly good, though rough, guide to general arousal. The 1975 paper by Buck suggests that a similar relationship exists between communicative ability and various social dominance-type traits. Therefore (for children at least) by extension, there may be a positive relationship between possession of dominating characteristics and low SCR's. The work reported by Knapp (1978) and by Exline et al (1970) suggest that high Mach. individuals, needing more information, 'look' more - a potentially arousing activity. If the high Machs. are to exploit situations and (potentially) become 'dominant' or 'powerful', it

seems feasible that they should not become over-aroused, despite the fact that they must (of necessity) take in a large quantity of information which could be highly arousing. In fact, Christie and Geis (1970) repeatedly refer to the fact that high Machs. are skilled in persuasion and are described as having

", . . cold, amoral and detached personal unresponsiveness . . ."

and at the same time are almost aggressively able and willing to manipulate others. One would, therefore, expect to find high Machs. dominating others, and therefore (taking into account the buck work) having high communicative ability (hence the skill at manipulative communication) and low SCR's (hence low arousal) in situations which might otherwise, in a low Mach., lead to high SCR'S. The high Mach. evaluates situations without regard to either his own or others' affective states, while the low Mach, is likely to become affectively involved (Christie and Geis 1970; p. 350.) By being 'cool', the high Mach. individual would be able to exploit, dominate a situation which would otherwise cause high, and possibly disruptive, arousal. This, in turn, may offer an explanation of the result obtained in this experiment for Mach. As was stated in Chapter One, there is no scope for 'cheating' or manipulation in the experimental methodology used, the variance in the results relating to level of Mach. must be due to a consequence of the inter-personal perceptive behaviour associated with Mach. Being less highly aroused, the high Mach, subject perceives all communications in a more 'neutral' light, and can therefore rate them as more pleasant than the low Mach. subject.

This does, however, constitute a very hypothetical explanation of the findings. Though this is the case, it helps to explain the lack of any significant relationship between 'P' scores and Extraversion in the first experiment. One would have predicted

that the naturally low aroused extravert would have rated the contradictory CC's as either very pleasant or otherwise due to their inherently arousing nature, yet this was not found. The key may be that level of Mach. is the deciding factor in the perception and evaluation of pleasantness, and that this is more closely related to interpersonal exploitativeness than arousal. In the next (larger scale) experiment, the finding for level of Mach. is examined more closely.

EXPERIMENT III

Introduction: The tentative finding from experiment II needs to be re-examined by using more subjects. This is the main aim of the present experiment. However, this experiment also serves a second purpose; to investigate how subjects react to the series of CC's acted out by males. The previous two experiments have both used the female acted CC's.

Method: Instead of the all female acted CC's being used, a second master videotape was made (see Chapter Two) using actors.

Subjects: Forty subjects were used, 20 male and 20 female. All were native English speakers, between the ages of 18 and 26, and were students at Bedford College.

Results: TABLE 13 (below) shows the mean values of the four CC 'P' scores for the first three experiments. The values all seem to still follow the same trend despite the use of two different master videotapes and three separate groups of subjects.

	Experiment I	Experiment II	Experiment III
PVPN	12.2	16.6	16.45
PVNN	-15.1	-19.2	-18.45
NVNN	- 9.3	- 9.8	- 9.5
NVPN	5.27	3.75	1.55

TABLE 13: Mean 'P' scores for the first three experiments.

To examine whether this apparent similarity was in fact statistically significant, a three-way crossed analysis of variance compared the results of the present experiment with those of experiment I. (See TABLE 14 overleaf.) Significant F-ratios were found for CC ($P < 0.01$) and for an interaction between CC and experiment ($P < 0.05$). This interaction appears to be due to the different way the subjects have responded to the CC's PVPN and NVPN. As this interaction is fairly weak, only just achieving significance, and there is not a significant F-ratio for 'experiment' as a main factor, it seems safe to conclude that using different sex actors does not significantly affect the process of pleasantness evaluation. This point is followed up in more detail in experiment V.

Subjects were also divided according to whether they scored high or low on the Mach. V scale, and the results analysed using a three-way crossed analysis of variance. TABLE 15 (overleaf) shows both the results of the analysis and a table of means. Two significant F-ratios were obtained; for CC ($P < 0.01$) and for an interaction between sex and level of Mach. ($p < 0.05$). A look at the table of means seems to suggest that the High Mach. female subjects are perceiving all four conditions as more pleasant than all other subjects. It therefore appears that the finding of experiment II has been upheld, with the added factor that female high Mach. subjects seem to be responding more favourably towards the CC's than other subjects.

Discussion: It therefore seems that the significant F-ratio obtained in experiment II for Mach. was not a random effect, but is now more likely to be a real effect. It is not possible to be certain to any great extent, but the Mach. effect, in this experiment, linked to sex of subject (and possibly sex of actor,) does seem to relate to

SOURCE OF VARIANCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE ESTIMATE	F-RATIO	SIGNIFICANCE
'EXPERIMENT' (A)	44.3	1	44.3	0.44	No
CC. (B)	45618.7	3	15206.2	151	$P < 0.01$
SEX OF SUBJECT (C)	83	1	83	0.8	No
A x B	800	3	266.6	2.65	$P < 0.05$
A x C	4.7	1	4.7	0.04	No
B x C	90.3	3	30.1	0.3	No
A x B x C	86	3	28.7	0.3	No
Within Cells	30583	304	100.6		

		SEX OF SUBJECT	
		MALES	FEMALES
FEMALE TAPE (EXPT. I)	PVPN	11.8	12.7
	PVNN	-16.05	-14.15
	NVNN	- 8.55	-10.1
	NVPN	4.35	6.2
MALE TAPE (EXPT. III)	PVPN	16.05	16.85
	PVNN	-18.1	-18.8
	NVNN	-10.15	- 8.85
	NVPN	- 0.2	3.45

TABLE 14: Summary table of analysis of variance (top) with 'Experiment' (either I or III), CC and sex of subjects as main factors, with (bottom) the table of mean values for these factors.

SOURCE OF VARIANCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE ESTIMATE	F-RATIO	SIGNIFICANCE
MACH. (A)	166.06	1	166.06	1.71	No
SEX (B) OF SUBJECTS	63.76	1	63.76	0.66	No
CC. (C)	27180.7	3	9060.2	93.16	$P < 0.01$
A x B	465.8	1	465.8	4.8	$P < 0.05$
A x C	134.17	3	44.7	0.46	No
B x C	97.67	3	32.56	0.33	No
A x B x C	337.6	3	112.54	1.16	No
Within Cells	14004	144	97.25		

	HIGH MACH.		LOW MACH.	
	MALE	FEMALE	MALE	FEMALE
PVPN	11.1	16.8	21	16.9
PVNN	-19.6	-18.4	-16.6	-19.2
NVNN	-10	-9.1	-10.3	- 8.6
NVPN	- 4.8	6.1	4.4	0.8

TABLE 15: Summary table (top) of analysis of variance with degree of Mach., sex and CC as main factors, and (bottom) mean values for the 'P' scores divided up according to these three main factors.

work which has been done on the nature of female reactions to varying situations. LaFrance and Mayo (1979), in a review of phenomena relating to aspects of non-verbal communication as a function of gender reported that;

> "Women demonstrate their reactivity by being more emotionally expressive, more sensitive to others' expressivity, more non-verbally variable in order to complement their partner's behaviour . . ."

Men, they concluded, are more proactive than women. Hall (1978) reports that women are significantly more able to 'decode' and interpret non-verbal communications than men. Though both papers acknowledge that a large amount of the inter-gender variation may be due to cultural expectations, there is no reason to suppose that these findings do not apply to this experiment.

It is possible to hypothesize that (taking into account the results of the analysis for level of Mach.) the females are more able to 'see' the positive aspects of the actors in the videotapes in the three CC's (PVPN, NVNN and NVPN) where no fundamentally disturbing unpleasantness is communicated. In the PVNN condition though, the disturbing content brings the female response into the same area as that of the males. The same is true for the high Mach. female group on this one condition.

Overall, it seems possible to conclude from this experiment that, on the one hand, sex of actor on the actual master videotapes may possibly make a difference to the type of 'P' score a particular CC will be given, and that on the other hand there is a possible interaction between sex and Mach. which affects the way in which subjects respond to the four CC's - making them, in fact, respond more positively. How sex of subject, Mach. and sex of actor interact

(if at all) is not clear.

CONCLUSION:

The main point of these first three experiments was to examine the pattern of responses to the four basic CC's. The results of all three of these experiments strongly suggest that for English subjects of the type sampled, responding to a message which is internally contradictory involves resolving the conflict in terms of the non-verbal channel only, whereas American subjects resolve this type of communication interms of the negative component of the message regardless of whether it is in the non-verbal or verbal channel.

The second aim was to examine the effects of personality on 'P' judgements. In a sense the results gained here are negative; neither E nor N related directly to the 'P' scores. However, experiments II and III did suggest that individuals scoring high on Mach. might perceive the CC's as being more pleasant than other subjects, and that this might be linked to sex.

In the two chapters following, other factors are investigated. In chapter four, the possible effect of age on 'P' scores is examined, while in chapter five the problem of whether or not subjects actually perceive the internally contradictory CC's as such is explored.

CHAPTER FOUR

Experiment IV.

"The effects of subject age on judgements of pleasantness,"

EXPERIMENT IV.

Introduction: The findings of the first three experiments suggest that (especially in the light of the comparison with the American results of Bugenthal et al 1970) it is desirable to collect data of a comparative nature on the judgement of pleasantness. The fact that there was a great deal of similarity between the groups of subjects used in the first three experiments suggests that examining another group unified by a similar factor or set of factors would illustrate and at the same time delimit the generality of the 'P' score distributions. The most obvious groups to sample would be different ethnic or social ones, but these were not readily available for this study. One other possible grouping of subjects is by age. The subjects used in the three initial experiments were all young undergraduates, so it was decided to choose a different group of people from a generation older than that of subjects so far used. Scheflen (1973) suggested that there were consistent culturally determined variances in peoples' non-verbal behaviour, and that given enough of this behaviour, an impartial observer could identify the ethnic origin of the communicator. Would there therefore be any differences between two groups of subjects differing only in terms of age?

Method: As no significant variance was attributable to the sex of actors used on the master videotapes (experiment III) in this, and all subsequent experiments, the all-female acted videotape is used. The Mach. V personality questionnaire was also given to subjects.

Subjects: Sixteen subjects were used in all, eight male and eight female. Subjects were all students at a Technical College studying for 'A' levels, had English as their first language, and were between the ages of 40 and 60.

Results: The subjects' 'P' scores were separated for high and low Mach., and were analysed by means of a three-way crossed analysis of variance. The other two main factors were CC and sex of subject. TABLE 15 (overleaf) shows the summary of the analysis. Two significant F-ratios were found; degree of Mach. was significant at $P < 0.05$ and CC at $P < 0.01$. The mean values of subjects' 'P' scores also shown in TABLE 15 indicate that the high Mach. group of subjects saw all four CC's as more pleasant than the low Mach. group. This concurs with the results of experiments II and partly with those of III as sex of subject was not a significant factor in this experiment while it significantly interacted with degree of Mach. in III.

CC also appeared to be significant as a factor once more. TABLE 16 below compares the mean values for the four CC's from this experiment with those of the previous three.

	EXPERIMENT I	EXPERIMENT II	EXPERIMENT III	EXPERIMENT IV
PVPN	12.2	16.6	16.45	13.25
PVNN	-15.1	-19.2	-18.45	-16.25
NVNN	- 9.3	- 9.8	- 9.5	- 8.5
NVPN	5.27	3.75	1.55	10.25

TABLE 16: Mean values for the four CC's for the first four experiments.

SOURCE OF VARIANCE	SUM OF SQUARES.	DEGREES OF FREEDOM.	VARIANCE ESTIMATE.	F-RATIO	SIGNIFICANCE
MACH. (A)	182.25	1	182.25	6.86	$P < 0.05$
SEX OF SUBJECT (B)	12.25	1	12.25	0.46	No.
CC. (C)	9864.75	3	3288.25	123.89	$P < 0.01$
A x B	49	1	49	1.84	No.
A x C	73.25	3	24.42	0.92	No.
B x C	52.75	3	17.58	0.66	No.
A x B x C	23.5	3	7.83	0.3	No.
within cells	1274	48	26.54		

	MALE		FEMALE	
	HIGH MACH.	LOW MACH.	HIGH MACH.	LOW MACH.
PVPN	14.75	8	18	12.25
PVNN	-14.5	-18.75	-16	-15.75
NVNN	- 5.25	-10.5	- 7.25	-11
NVPN	12.25	8	9	11.75

TABLE 15: Summary table (top) of analysis of variance with degree of Mach., sex of subject and CC as main factors, and (bottom) mean values for 'P' scores divided up according to these three main factors.

An examination of the values in TABLE 16 seems to indicate a tendency for the older subjects to be perceiving some conditions as more pleasant than the younger subjects in the previous three experiments. Experiment II's data were taken and analysed with the data from the present experiment in a four-way crossed analysis of variance with degree of Mach., sex of subject, CC and 'age group' as main factors. TABLE 17 (overleaf) shows a summary table of the results. Three significant F-ratios were calculated; degree of Mach. at $P < 0.01$, CC at $P < 0.01$ and an interaction between CC and age group at $P < 0.05$. These results, taken together with the mean values in TABLE 16, clearly show that although the older subjects' pattern of 'P' scores broadly conform with those of the subjects in other experiments, when compared statistically with those of younger subjects in experiment II proved to be significantly higher; this effect is most marked in the NVPN condition. An 'eyeball' comparison of mean values for experiments I and III compared to IV also seem to show the same kind of tendency.

Discussion: The main finding of this experiment is the upholding of the finding of experiments II and III regarding high Mach. subjects. The finding relating sex of subject to level of Mach. was not, however, replicated.

The finding relating to age of subject is quite clear. Older subjects used in this experiment perceived three out of four conditions as more pleasant than younger subjects used in previous experiments. Weitz (1974) noted that adults are ". . . more sophisticated in emotional decoding.", especially with regard to the interpretation of contradictory messages (especially sarcasm).

SOURCE OF VARIANCE	SUMS OF SQUARES	DEGREES OF FREEDOM	VARIANCE ESTIMATE	F-RATIO	SIGNIFICANCE
MACH. (A)	420.5	1	420.5	10.41	$P < 0.01$
SEX (B)	26.28	1	26.28	0.65	No
CC. (C)	21242.4	3	7080.8	175.26	$P < 0.01$
AGE GP. OF SUBJECT (D)	108.78	1	108.78	2.69	$P < 0.25$
A x B	10.13	1	10.13	0.25	No
A x C	171.07	3	57.02	1.41	No
A x D	2	1	2	0.04	No
B x C	179.04	3	59.68	1.47	No
B x D	101.53	1	101.53	2.51	$P < 0.25$
C x D	403.16	3	134.4	3.32	$P < 0.05$
A x B x C	42.05	3	14.01	0.34	No
A x C x D	25.06	3	8.35	0.2	No
B x C x D	40.28	3	13.43	0.33	No
A x B x C x D	47.19	3	15.73	0.39	No
Within Cells	3919.5	97	40.4		

TABLE 17: Summary table of results of four-way crossed analysis of variance with degree of Mach., sex of subject, CC and age group of subject as main factors, comparing Experiments IV and II.

As was noted by Bugenthal et al (1970) there seems to be a developmental trend in this particular interpretative skill. It is therefore possible to suggest that 'young adults' may not be as sophisticated in their emotional decoding abilities as the older subjects; that they are in some sense less 'secure' in material, emotional and social senses than the more 'established' adults in their forties or fifties. The fact that the difference between the high and low Mach. groups still holds true for the older subjects suggests that this particular personality trait's relationship to pleasantness perception may not be a function of youth, or even of contemporary cultural norms, but is of a more permanent nature.

One obvious possibility was the relationship between the occupation of the older subjects and which Mach. group they fell in. However, examination of this data proved disappointing; of the sixteen subjects, five were housewives, four were in nursing or related professions, three were in managerial positions and the remaining four were in semi-skilled or clerical jobs. There was no clear distribution with, say, all three of the subjects in the managerial positions being in the high Mach. group. However, the sample was a small one and there is always the possibility that a larger sample might reveal a relationship of some kind between occupation and degree of Mach., though Christie and Geis (1970) did not find one.

A last point of interest relates to the way the age of the actresses used in the videotaped CC's may have affected the young and old subjects differently. Two of the four actresses were in their early twenties while the other two were in their thirties. All four actresses were younger than the older subjects, while two (and possibly three) were older than the younger subjects. In age

terms, the younger subjects may have perceived the actresses as 'superiors' , while the older subjects perceived them as 'inferiors'. Precisely how this might affect evaluations of pleasantness is unclear, but it is nevertheless possible to suggest that the older subjects have less to 'fear' when dealing with a chronological inferior and can be lenient in their evaluations of the actresses' behaviour. This is, however, very hypothetical.

Conclusion: Overall, this experiment has demonstrated that the type of pleasantness judgements found in the first three experiments can strictly only apply to the particular population from which the sample of subjects was drawn - namely, young undergraduates. Not only culture influences the way in which non-verbal behaviours are expressed and perceived. It appears that age within a particular cultural group may also affect the quality of the non-verbal decoding.

CHAPTER FIVE

EXPERIMENT V

"Do Subjects actually perceive a contradiction in the informational content of contradictory CC's?"

EXPERIMENT V

Introduction: Previous experiments have been primarily concerned with subjects' evaluations of the apparent pleasantness of the various CC's. Each experiment has been centred around a particular question relating to the type of responses subjects make to the CC's and if this relates to a personality trait. One factor has not yet, however, been examined and this is the question of whether or not subjects actually perceive the four CC's as a collection of two internally contradictory and two non-contradictory communications. The CC's were designed around the idea of how the subjects would respond to contradictoriness, and it is therefore important to examine whether or not subjects actually are aware of them as such.

Method: This experiment has two other purposes besides the main one stated above. Firstly, by using both the male and female acted master videotapes another comparison can be made between subjects' responses which may help to clarify the problem regarding sex of actor raised in experiment III. Secondly, a new personality measure is introduced, namely self-monitoring of expressive behaviour (Snyder 1974.) This new measure was introduced to attempt to assess another side of the 'sensitivity to others' factor. A high Mach. may be sensitive to the non-verbal behaviour of others because it is necessary for him to achieve his manipulatory goals; however, some individuals may be more sensitive because of some need (other than manipulation) or ability. Snyder suggests that an individual who has a high self-monitoring score will be especially sensitive to the non-verbal cues from others, but how this will affect perception of the CC's is, as yet, unclear.

Beyond these two extra aims, the method of finding out if subjects perceived contradictory CC's as such was to administer a questionnaire. Contradictoriness was rated on a 0 - 4 scale (see Appendix Three) for each of the four CC's and the practice CC. Each subject's responses were scored only for CC's PVNN and NVPN. If both CC's had been judged contradictory, a maximum score of 8 was possible. This score out of 8 for each subject was their 'contradictoriness score' (C.S.) and is the score used in the analyses of variance. The actual distribution of judgements for all four CC's was calculated, and is shown in TABLE 19 (overleaf).

Subjects: In all, 48 subjects were used (half male, half female) aged between 19 and 30. All were native English speakers. Half of the subjects saw the male acted videotape while the other half saw the female acted one.

Results: The raw data may be found in Appendix One.

Subjects' CS's were divided up according to whether they had scored high or low on any one of the personality measures used (E/I, N, Mach. and Self Monitoring.) Analyses of variance with personality trait, sex of subject and videotape (either male or female acted) yielded no significant F-ratios or interactions with one exception. TABLE 18 (overleaf) shows that a significant F-ratio was calculated for 'Self-Monitoring' (SM) at $P < 0.05$. That no significant F-ratios were found for 'Videotape' is especially interesting as this suggests that sex of actor does not have an effect on subject judgements. However, judging pleasantness and judging contradictoriness are two different tasks, and therefore this conclusion must remain tentative.

SOURCE OF VARIANCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE ESTIMATE	F-RATIO	SIGNIFICANCE
Self-monitoring (A)	14.08	1	14.08	5.29	$P<0.05$
Sex (B)	3	1	3	1.13	No
Videotape (C)	0.33	1	0.33	0.12	No
A x B	10.08	1	10.08	3.79	No
A x C	2.09	1	2.09	0.78	No
B x C	0.0033	1	0.0033	0.001	No
A x B x C	0.75	1	0.75	0.28	No
Within Cells	106.66	40	2.66		

	HIGH S.M.		LOW S.M.	
	MALE	FEMALE	MALE	FEMALE
FEMALE VIDEOTAPE	4.66	6.3	6.5	5.83
MALE VIDEOTAPE	4.33	5.5	6.5	6.33

TABLE 18: Summary table of analysis of variance (top) for CS, with SM, sex of subject and videotape as main factors; with mean values (bottom).

(All other analyses of variance relating to personality factors are to be found following the raw data in Appendix One.)

TABLE 19 (below) shows the distribution of judgements of contradictoriness. To simplify the table, the sub-divisions of very and slightly contradictory or non-contradictory have been collapsed together.

	CONTRADICTORY	NEUTRAL	NON-CONTRADICTORY
PVPN	11	6	31
PVNN	40	2	6
NVNN	2	3	43
NVPN	29	3	16

TABLE 19: Distribution of judgements of contradictoriness or non-contradictoriness for all four CC's. (n= 48.)

Discussion: The main result of this experiment shown quite clearly in TABLE 19 is that subjects do in fact perceive the two contradictory CC's as such, and that they also perceive the non-contradictory CC's as such. It is interesting to note that the two CC's judged to be unpleasant (PVNN and NVNN) have caused the greatest consensus of judgement. It is possible that a communication which is overtly unpleasant is less open to interpretation than a pleasant one.

With regard to the CS, the main finding is the difference between high and low self-monitors, embodied in the significant F-ratio. The mean CS values for the high and low SM's were 5.2 and 6.3 respectively. In brief this means that the low SM's were more accurate at picking

out the two contradictory CC's as contradictory than the high SM's. Snyder (1974) states;

> ". . . the self-monitoring individual is particularly sensitive to the expression and self-presentation of others . . ."

The result outlined above seems to go contrary to the idea of self-monitoring as put forward by Snyder. Why this should be the case is unclear and the available literature on the subject gives no hint as to a possible explanation. It seems reasonable to assume that subjects who score high on SM would more accurately report the contradictoriness of the relevant CC's, yet the reverse is the case.

The other main results to be gained from the CS were the lack of a difference for either sex of subject or for 'videotape'. The latter may lend some weight to the idea that sex of actor may not be a highly significant factor in pleasantness judgements, while the former merely shows that males and females appear to be equally good at judging contradictoriness to be present in contradictory CC's.

Conclusion: Subjects do therefore appear to perceive the CC's as actually being contradictory or otherwise. Personality traits do not appear to be linked to the perception of contradictoriness with the paradoxical exception of SM. As a consequence of the SM finding, the questionnaire is included in subsequant experiments.

CHAPTER SIX

EXPERIMENTS VI, VII, VIII AND IX

"Personality characteristics and patterns of response to components of the overall message."

INTRODUCTION

In Chapters three, four and five the main objects were to investigate the relationship between personality, age and pleasantness judgements. In Chapter Five the problem of whether or not subjects perceived the four CC's as contradictory and non-contradictory was investigated. The conclusions that can be drawn from these chapters are that subjects do, indeed, follow a specific pattern when responding to particular types of CC, that this pattern differs from that made by American subjects when evaluating contradictory communications, that older subjects respond in the same way as younger subjects but that their evaluations tend to be more positive, and that only one personality dimension, Machiavellianism, appears to be related to the type of judgement people make. This last conclusion is especially interesting for two reasons; firstly, that level of Mach. appears to interact with sex, such that high Mach. females are more likely to be positive in their pleasantness evaluations than all other subjects; and secondly, that the fact no other personality characteristic relates to 'P' scores suggests that the pleasantness evaluating process may be a supra-personal skill which is culturally limited in expression and does not depend on any particular personality trait or cluster of traits. Sex, age and degree of Mach. may all affect the positivity or negativity of the pleasantness evaluations, but they do not affect the pattern of the responses to the four basic CC's.

The next series of four experiments have slightly different goals to the first five. The previous experiments have shown the broad degree of agreement among subjects on the extent and quality of pleasantness any particular CC shows. No single factor, as pointed

out above, changes the pattern of response, and therefore the differences between the CC's must be due to their informational content. But how do the components of the CC's affect judgements? For example, is the vocal component evaluated more negatively than the visual component for any given CC? This type of question led to a 'breaking-up' of the original videotapes into their various components. Each of the four subsequent experiments examines how subjects respond (in terms of pleasantness judgements) to one or more of these components; eg. in Experiment VI the soundtrack only of the original videotape is played to subjects. In this way a complete picture can be built up of how each element within a complete communication plays a role in any overall evaluation of pleasantness.

EXPERIMENT VI.

RESPONSES TO THE VERBAL /VOCAL COMPONENT

Introduction: In this experiment the soundtrack only of the original female-acted videotape is played to subjects who make pleasantness judgements in the same way as in previous experiments. It was felt that since the results of experiments III and V were unequivocal regarding the effect of using male as opposed to female actors, in this and all subsequent experiments the all-female acted videotape is used.

Method: Four personality dimensions were measured; extraversion, neuroticism, Mach. and self-monitoring.

Subjects: 24 subjects were used, 12 male and 12 female. All were between the ages of 19 and 26.

Results: TABLE 19 (below) shows the mean 'P' scores from the results of this experiment compared with those of experiments I and II. (Raw data are available in Appendix One.)

	PVPN	PVNN	NVNN	NVPN
Experiment I	12.2	-15.1	- 9.32	5.27
Experiment II	16.62	-19.2	- 9.8	3.75
Experiment VI	17.83	6.37	-10.6	-2.37

TABLE 19: Mean values of 'P' scores for experiments I, II and VI.

As can be seen, the main disagreement is on CC PVNN.

TABLES 20, 21, 22 and 23 (overleaf) show the results of four analyses of variance of the 'P' scores separated for the high and low levels of the four personality factors (E, N, Mach. and SM), sex of subjects and CC. As can be seen, all four analyses yielded the same two significant F-ratios. These were the ratio for CC (significant at $P < 0.01$) and that for sex of subject (significant at $P < 0.05$). TABLE 24 (below) shows the mean values of the 'P' scores separated for sex of subject.

	MALE	FEMALE
PVPN	14.83	20.83
PVNN	2	6.9
NVNN	-12.66	- 8.6
NVPN	- 3.83	- 0.9

TABLE 24: Mean 'P' scores for the four CC's separated for sex of subject.

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE ESTIMATE	F-RATIO	SIGNIFICANCE
'E' (A)	0.52	1	0.52	--	--
SEX OF SUBJECT (B)	481.52	1	481.52	4.19	Yes, at $P<0.05$
CC (C)	10436.5	3	3478.8	30.25	Yes, at $P<0.01$
A X B	119.26	1	119.26	1.04	No
A x C	407.88	3	135.96	1.2	No
B x C	30.58	3	10.2	0.09	No
A x B x C	140.573	3	46.8	0.4	No
Within Cells	9204.2	80	115		

	MALE		FEMALE	
	HIGH E	LOW E	HIGH E	LOW E
PVPN	12.33	17.33	19.66	22
PVNN	6.83	- 2.83	8.83	5
NVNN	-13.16	-12.16	-11	- 6.16
NVPN	- 1.5	- 6.16	- 4	2.16

TABLE 20: Summary table of analysis of variance (top) with level of E, sex of subjects and CC as main factors, and (bottom) table of means.

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE ESTIMATE	F-RATIO	SIGNIFICANCE
'N' (A)	36.3	1	36.3	0.33	No
SEX OF SUBJECT (B)	481.52	1	481.52	4.4	Yes, at $P<0.05$
CC (C)	10436.5	3	3478.8	32.03	Yes, at $P<0.01$
A x B	326.3	1	326.3	3	No
A x C	121.8	3	40.6	0.37	No
B x C	30.58	3	10.2	0.09	No
A x B x C	702.2	3	234	2.15	No
Within Cells	8685.8	80	108.6		

	MALE		FEMALE	
	HIGH N	LOW N	HIGH N	LOW N
PVPN	18.16	11.5	19.83	21.83
PVNN	6.83	- 2.83	- 0.5	14.33
NVNN	-12.5	-12.83	- 6.83	-10.33
NVPN	- 2.33	- 5.33	0.83	- 2.66

TABLE 21: Summary table of analysis of variance (top) with level of N, sex of subjects and CC as main factors, and (bottom) table of means.

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE ESTIMATE	F-RATIO	SIGNIFICANCE
MACH (A)	2.35	1	2.35	--	No
SEX OF SUBJECT (B)	481.52	1	481.52	4.17	Yes, at $P < 0.05$
CC (C)	10436.5	3	3478.8	30.16	Yes, at $P < 0.01$
A x B	31.53	1	31.53	0.27	No
A x C	263.25	3	87.75	0.76	No
B x C	30.58	3	10.2	--	No
A x B x C	346.77	3	115.6	1·00	No
Within Cells	9228.5	80	115.35		

	MALE		FEMALE	
	HIGH MACH	LOW MACH	HIGH MACH	LOW MACH
PVPN	15.5	14.16	19	22.66
PVNN	- 3	7	7.5	6.33
NVNN	-13.16	-12.16	- 4.83	-12.33
NVPN	- 0.66	- 7	- 0.5	- 1.33

TABLE 22: Summary table of analysis of variance (top) with level of Mach., sex of subject and CC as main factors, and (bottom) table of means.

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE ESTIMATE	F-RATIO	SIGNIFICANCE
'S.M.' (A)	68.35	1	68.35	0.6	No
SEX OF SUBJECT (B)	481.52	1	481.52	4.25	Yes, at $P<0.05$
CC (C)	10436.5	3	3478.8	30.7	Yes, at $P<0.01$
A x B	61.76	1	61.76	0.54	No
A x C	634	3	211.35	1.865	No
B x C	30.58	3	10.2	0.09	No
A x B x C	41.79	3	13.93	0.12	No
Within Cells	9066.5	80	113.33		

	MALE		FEMALE	
	HIGH S.M.	LOW S.M.	HIGH S.M.	LOW S.M.
PVPN	14.5	15.16	20.16	21.5
PVNN	- 1.5	5.5	0.33	13.5
NVNN	-10.66	-14.66	- 6.83	-10.33
NVPN	- 2.16	- 5.5	- 2	0.16

TABLE 23: Summary table of analysis of variance (top) with level of S.M., sex of subjects, and CC as main factors, and (bottom) table of means.

Discussion: Mehrabian and Ferris (1967) and Mehrabian and Wiener (1967) report on methods used by subjects to resolve inconsistent messages. They stated that their experimental results showed that 'Total liking' (of the sender of the message) was composed of 7% verbal liking (the actual words spoken), 38% vocal liking (the way the words were spoken) and 55% facial liking (facial expression.) The impact, in short, of the non-verbal information carried by the facial expression of the sender has most weight in determining the overall evaluation by an observer of a contradictory message. However, this finding raises questions, notably, were the messages perceived as contradictory? Is the quantitative difference in weight allocated to channels matched by a qualitative difference in the type of response observers make? The Mehrabian studies employed a similar type of paradigm to that employed in this thesis, with one particular methodological difference. In these studies, Mehrabian's judges rated the 'picture with sound', 'sound only', 'picture only' etc., on only one evaluative dimension. This was 'extremely unhappy' (-3) to 'extremely happy' (+3). In this thesis, subjects have eleven separate evaluative dimensions. Mehrabian's judges had very little scope to express any interpretation of the message they received.

A theoretical observation is that it is possible that subjects will adopt different 'listening strategies' when presented with the separated components of messages and that to assume their responses under the various possible experimental conditions all reflect some underlying 'ability' or 'trait' is not necessarily correct. The results shown in TABLE 19 support this line of thought. Subject responses for CC's PVPN and NVNN do not differ markedly from those

of subjects in experiments I and II, despite the fact that subjects were only receiving the auditory component of the overall message. NVPN does seem to differ rather more. It is in PVNN that there seems, on the other hand, to be a problem for the Mehrabian analysis of 'Total liking'; subjects could not see the negative facial cues emitted by the actresses, they could only hear what was said. It seems possible that the 'vocal' part of the message was negative while the 'verbal' part was positive, and in this situation subjects resolved the contradiction not in terms of the '38% vocal liking' (which, in theory, is what could be predicted from the Mehrabian findings) but in terms of the '7% verbal liking'. From the Bugenthal et al (1970) study, one would also predict that subjects would pay more attention to the non-verbal component of the message (ie. the vocal component), yet in this experiment they do not appear to have done so.

There are three (main) possible explanations of the above finding.

1) The finding outlined above may be culturally linked. All the studies mentioned above used American students as subjects. There is no reason not to suppose that the emphasis on the verbal element in a sound-only contradictory message may be an 'English' cultural development. Equally (or as well), the effect may be due to the way the actresses portrayed the contradiction - their tone of voice may have been more pleasant. One way to resolve this would be to look at English subjects with American actresses and vice versa.

2) The finding may not be as clear as it appears in TABLE 19. An analysis of the distribution of the 'P' scores for CC PVNN yields

a standard deviation of 15.93 points from the mean of 6.37. In fact, overall, some of the most extreme scores of any of the four CC's are contained in PVNN, ranging from +27 at one extreme to -23 at the other. No other CC has such a wide distribution of scores (standard deviations for PVPN = 8.33; NVNN = 6.9; NVPN = 7.63.) In other words, subjects were widely divided over just how pleasant what they had heard was in PVNN, while in the other three CC's they were in much greater agreement about the pleasantness of what was being communicated. If this explanation is the correct one, there is no great contradiction of the Mehrabian or Bugenthal findings.

3) That the results obtained by Mehrabian (especially) do not reflect the qualitiative extent to which judgements of different types of communication differ. As there was no 'room' within Mehrabian's paradigm for subjects to express their individual interpretation of the message, Mehrabian was able to calculate the 'percentage of total liking conveyed by each channel' finding. When given scope to respond, this experiment shows that subjects respond in much the same way to 'sound only' as they do to sound and vision in three of the four CC's, (though it seems possible from an examination of TABLE 19 that NVPN may differ, though not as much as PVNN.) The widely differing scores for PVNN indicate that in this type of CC subjects employ a wide variety of strategies to interpret the message, but overall seem to tend towards paying the most attention to the actual words spoken, not the way in which they are said. This could be thought of as the 'telephone conversation' situation; ie. often electrical interference and poor reproduction on telephone lines renders intonation inaudible while leaving the

words spoken comprehensible. Perhaps in messages of the PVNN type we tend to attribute any contradiction we hear to 'noise', allowing a positive evaluation of the message to be made.

It seems likely that an explanation of this particular finding relating to the CC PVNN's difference from experiment I and II's responses, together with the similarity of responses to the remaining three CC's needs to draw on all three of the above explanations, though numbers two and three seem most probable.

The second major finding concerns the significant variance attributable to sex of subject. All four analyses of variance yielded a significant F-ratio for sex of subject ($P < 0.05$). TABLE 24 indicates that females appear to perceive the four CC's as more pleasant than males. No personality factor measured appears to relate to the 'P' scores or sex of subject. In experiment III (though using a male-acted videotape) it was found that high Mach. females perceived all four CC's as more pleasant than all other subjects, while females per se saw CC's PVIN, NVNN and NVPN as more pleasant than males (though not significantly so.) A similar tendency was noted in experiment I. Why there should be such a significant, regular difference between males and females in this experiment, unrelated to any personality factor, is unclear. It was postulated in experiment III that females were more 'reactive' than males (LaFrance and Mayo 1979) and hence were more able to perceive the positive characteristics of any given situation. The next three experiments will attempt to see if this difference is consistent when other 'components' of the total message are presented, or whether the current finding simply relates to some supposed extra verbal skill or orientation in females. If the latter is the case, this difference should not show up in subsequent experiments.

EXPERIMENT VII.

RESPONSES TO THE VISUAL COMPONENT.

Introduction: In experiment VI it was found that subjects' perceptions of the 'Sound Only' portion of the original master videotape were, on the whole, not substantially different from subjects' perceptions of the complete videotape. The exception was CC PVNN where experiment VI subjects had significantly more positive 'P' scores, though there was less agreement among subjects as to precisely how pleasant PVNN (sound only) was. This deviation from the well-established pattern of responses to the four CC's found in earlier experiments was thought to represent the functioning of a different 'listening strategy' on the part of the subjects. Previous work (notably Mehrabian 1971, Bugenthal et al 1970) would have led to a different prediction about subject responses - that subjects would have paid most attention to the voice tone and least to the actual words spoken, a prediction which experiment VI did not support. In this experiment vision only was used, so that subjects would have neither verbal nor vocal cues to assist their decoding and evaluation.

Method: The female master videotape was played back to subjects minus the soundtrack. Subjects were given warning of when a CC was about to begin by a buzzer sounded five seconds before it commenced. The personality factors measured were E, N, Mach., and S.M.

Subjects: Twenty-four subjects were used in all, 12 male and 12 female, all between the ages of 17 and 26.

Results: TABLE 25 (below) shows the mean values for the four CC's

compared with those of experiments I, II and VI;

	PVPN	PVNN	NVNN	NVPN
Experiment I	12.2	-15.1	- 9.32	5.27
Experiment II	16.62	-19.2	- 9.8	3.75
Experiment VI	17.83	6.37	-10.6	-2.37
Experiment VII	8.37	-11.6	-10	7.6

TABLE 25: Mean 'P' scores for experiments I, II, VI and VII.

(Full raw data may be found in Appendix One.) Once again the major differences between experiments I and II when compared with VII are PVNN and PVPN. The other two CC's approximate quite closely to the first two experiments'.

To see if subjects judgements of the sound-only and vision-only components differed significantly, a four way analysis of variance was completed. Not only were experiments VI and VII compared; as each master videotape is made up of four sub-tapes (whose internal order is determined by the design used) four different groups of subjects are used. Each tape has each actress performing a different CC, and as facial expression played such a large part in determining the outcome of messages (according to Mehrabian at least), it was felt that a comparison of each of these four groups of subjects would determine whether any particular actress was especially skilled or able at conveying information facially. This factor was called 'Group'. TABLE 26 (overleaf) shows the results of this analysis. Firstly, there was not a significant F-ratio for 'Group', indicating that although four differently ordered and acted sub-videotapes were used, the subjects reactions to the CC's were directly comparable. Secondly,

SOURCE	SUM OF SQUARES	DEGREE OF FREEDOM	VARIANCE ESTIMATE	F-RATIO	SIGNIFICANCE
GROUP (A)	209.63	3	69.88	0.75	No
SEX OF SUBJECT (B)	630.753	1	630.753	6.77	$P<0.05$
CC (C)	14267.46	3	4755.82	51.09	$P<0.01$
EXPERIMENT (D)	667.524	1	667.524	7.17	$P<0.05$
A x B	349.04	3	116.34	1.25	No
A x C	1880.75	9	208.97	2.24	$P<0.05$
A x D	98.436	3	32.812	0.35	No
B x C	328.207	3	109.4	1.17	No
B x D	35.018	1	35.018	0.37	No
C x D	4698.102	3	1566.034	16.82	$P<0.01$
A x B x C	2237.496	9	248.61	2.67	$P<0.01$
A x C x D	1894.768	9	210.53	2.26	$P<0.05$
B x C x D	227.106	3	75.702	0.81	No
A x B x C x D	1542.713	9	171.412	1.84	No
Within Cells	12192.667	131	93.07		

TABLE 26: Summary table of analysis of variance with Group of subjects, sex of subjects, CC, and Experiment (either VI or VII) as main factors.

significant F-ratios were found for sex of subject, CC and 'Experiment'; sex at $P < 0.05$, CC at $P < 0.01$ and 'Experiment' at $P < 0.05$. A comparison of TABLE 24 in experiment VI and TABLE 27 below, seems to indicate that males in experiment VI tended to see all four CC's as more pleasant than those in VII. Females in VI saw PVPN and PVNN as more pleasant than those in VII, while those in VII saw NVNN and NVPN as more pleasant. Thirdly, significant interactions were observed between 'Group' and CC at $P < 0.05$; between CC and 'Experiment' at $P < 0.01$; between 'Group', sex and CC at $P < 0.01$; and between 'Group', CC and 'Experiment' at $P < 0.05$. In very broad terms, these interactions show that the 'P' scores of the two experiments concerned differ in terms of all the main factors. The distribution outlined in TABLE 25 for experiment VII differs markedly from that of experiment VI.

Four analyses of variance were completed for the data relating to the four measured personality factors, E, N, Mach. and SM. In none of these analyses was any factor or interaction significant except for CC at $P < 0.01$. (See Appendix One for summary tables.) TABLE 27 (below) does, however, show the mean values of 'P' scores separated for sex of subject:

	MALE	FEMALE
PVPN	7.66	9.1
PVNN	-14.66	-8.5
NVNN	-13.9	-6.16
NVPN	9.75	5.5

TABLE 27: Mean 'P' scores separated for sex of subject.

Discussion: Perhaps the most interesting of the above results is the significant difference between experiments VI and VII shown in TABLE 26. With the possible exception of CC NVPN, the results of the present experiment tend to be less pleasant than those of experiment VI. Why should this be so? In experiment VI, subjects were able to rely, to a certain extent, on the actual words spoken by the actresses to the exclusion of the negative nonverbal background in CC PVNN. That appeared, in short, to be responding mainly to the actual words spoken. In the present experiment subjects had no words to rely on (no subject, when questioned during the post-experimental de-briefing, said they could understand what the actresses had been saying), and appeared to respond solely to the positive and negative nonverbal facial expressions of the actresses. An examination of TABLE 28 (below) shows the standard deviations of the 'P' scores for this experiment.

	PVPN	PVNN	NVNN	NVPN
Standard deviation:	11.4	11.7	9.11	11.7

TABLE 28: Standard deviations of the four CC's 'P' scores.

These standard deviation scores show approximately the same degree of variety in the extent to which subjects vary in their judgements around the means, and an examination of the means reveals little difference between CC PVPN and NVPN, and between CC PVNN and NVNN. Subjects are apparently responding in a fairly predictable way and to a fairly predictable extent to the isolated facial nonverbal components. The CC's are seen simply in terms of their positivity or negativity; no conflict seems to be perceived, from these visual cues alone.

The second finding shown in TABLE 27 is that, again, female

judgements tend to be more positive than male ones. Experiment VI also found this difference and it proved to be significant. In the present experiment, though it seems the difference exists, it is not significant. When combined with the results of experiment VI, however, as shown in TABLE 26, sex of subject does yield a significant F-ratio.

In the continuing tradition of previous experiments (on the whole) no single personality factor was found to relate significantly to the 'P' scores of subjects. Again, it is possible to speculate that the lack of any such significant finding (with the exception of Mach.) may be due to the fact that there are very few extreme personality scores amongst the subjects used. However, considering the large number of subjects run 'in toto', it seems unlikely that such an effect would not turn up (not to mention the question of the applicability of results obtained from individuals with extreme personality scores). The increasingly likely conclusion which can be drawn from these experiments is that the effects noted are probably not personality linked, but may be culturally and possibly gender-linked. The second conclusion that experiments VI and VII lead one towards is that to conceive of subjects responding to "communications" in some unitary fashion is unlikely to be correct. Given different types of information, subjects will adopt different decoding/analysis strategies which involve their giving total weight to selected elements of the communication.

EXPERIMENT VIII.

Responses to the visual and vocal components.

Introduction: In this experiment subjects were presented with both the visual and vocal components of the total communication. To enable the subjects to respond to the vocal information, the soundtrack was passed through an electronic filter to remove most voice frequencies which effectively rendered the words incomprehensible, but left the tonal and other non-verbal aspects of the voice relatively intact.

Method: Using the female videotape the sound-track was passed through an "Octave band-pass Electronic Filter" which cut out all voice frequencies above 500cps. This particular cut-off point was chosen as it retained the maximum of voice tone modulation, while allowing a minimum of actually understandable words through. Subjects filled in several personality questionnaires prior to seeing the videotapes, namely E, N, Mach. and S.M. After seeing the videotapes and completing the pleasantness rating forms, subjects were de-briefed and were asked whether they had understood any of the stimulus sentences.

Subjects: Twenty-four subjects were used, 12 male and 12 female, all between the ages of 18 and 26.

Results: A non-quantified result of the post de-briefing inquiry about comprehension of the five stimulus sentences used in each experimental run showed about one third of the subjects reported understanding up to two. Two subjects reported understanding three, while none reported understanding more than this.
(Full raw data may be found in Appendix One.)

TABLE 30 (overleaf) shows the results of an analysis of variance of the raw data (unselected for the level of personality traits present.) Significant F-ratios were found for 'Group' ($P<0.01$), CC ($P<0.01$) and 'Group' x CC ($P<0.01$.) TABLE 29 (below) shows the mean values of the two main factors; 'Group' and CC.

	PVPN	PVNN	NVNN	NVPN
GROUP 1	20.5	- 6.6	17.6	12.2
GROUP 2	-18.3	-20	-11	- 9.8
GROUP 3	-16.6	-14	-13.6	-11
GROUP 4	- 6.8	11.8	17	2.3

TABLE 29: Mean values of 'Group' x CC.

The analyses of variance which incorporated the measured personality factors yielded no significant F-ratios (except for CC at $P<0.01$) other than the one concerning Mach. TABLE 32 (overleaf) shows the summary table of the analysis, together with a table of means. (The summary tables for the other personality factor calculations may be found in Appendix One.) The table of means shows that there seems to be a tendency for the female high Mach. subjects to perceive the CC's as more pleasant than the other subjects, especially CC PVPN.

TABLE 33 (overleaf) shows the results of an analysis of variance to compare experiment VI with the present experiment. Four significant F-ratios were calculated; sex ($P<0.05$), CC ($P<0.01$), Experiment ($P<0.01$) and an interaction between CC and Experiment ($P<0.01$). TABLE 31 (overleaf) shows the mean values for the two experiments over the four CC's.

SOURCE OF VARIANCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE ESTIMATE	F-RATIO	SIGNIFICANCE
GROUP (A)	1329.035	3	443	6.05	P<0.01
SEX (B)	98.01	1	98.01	1.34	No
CC (C)	12781.2	3	4260.4	58.24	P<0.01
A x B	550.365	3	183.455	2.51	No
A x C	3927.09	9	436.34	5.96	P<0.01
B x C	173.37	3	57.79	0.79	No
A x B x C	375.756	9	41.75	0.57	No
Within Cells	4681.334	64	73.15		

TABLE 30: Summary table of analysis of variance with 'Group', sex of subjects, and CC as main factors.

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE ESTIMATE	F-RATIO	SIGNIFICANCE
MACH (A)	44.01	1	44.01	0.37	No
SEX (B)	98.01	1	98.01	0.82	No
CC (C)	12781.2	3	4260.4	35.63	$P < 0.01$
A x B	490.515	1	490.515	4.1	$P < 0.05$
A x C	413.533	3	137.84	1.2	No
B x C	173.37	3	57.79	0.5	No
A x B x C	349.355	3	116.45	0.97	No
within Cells	9566.167	80	119.58		

	MALE		FEMALE	
	HIGH MACH.	LOW MACH.	HIGH MACH.	LOW MACH.
PVIN	7.3	9.6	22	4.6
PVNN	-15.5	-11.83	-11.83	-20
NVNN	-17.3	-14	-10.83	-13.16
NVPN	3.5	6.83	4.83	9.16

TABLE 32: Summary table (top) of analysis of variance with Mach., Sex of subjects and CC as main factors, and (bottom) table of means.

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE ESTIMATE	F-RATIO	SIGNIFICANCE
SEX (A)	507	1	507	4.303	$P < 0.05$
CC (B)	18527.295	3	6175.765	52.42	$P < 0.01$
EXPERIMENT (C)	1312.52	1	1312.52	11.14	$P < 0.01$
A x B	114.295	3	38.1	0.32	No
A x C	72.55	1	72.55	0.61	No
B x C	4690.355	3	1563.45	13.04	$P < 0.01$
A x B x C	89.67	3	29.89	0.25	No
Within Cells	20736	176	117.82		

TABLE 33: Summary table of analysis of variance with Sex of subject, CC and Experiment (either VI or VIII) as main factors.

	EXPERIMENT VI	EXPERIMENT VIII
PVPN	17.83	10.9
PVNN	6.37	-14.8
NVNN	-10.6	-13.8
NVPN	- 2.37	6.08

TABLE 31: Mean values of experiments VI and VIII over the four CC's.

Discussion: The most startling finding is the significant F-ratio relating to 'Group', as illustrated in TABLES 29 and 30. This finding indicates that the four stimulus videotapes used had a singificantly differential effect on the subjects' responses - something that does not occur in experiments VI or VII. Why should this be so? The obvious answer is that though the Graeco-latin square design used in the making of the master-videotape obviated any clear biases in response from subjects when all the sound and vision tracks (or components) were used, because the actresses all had voices of basically differing pitch the band-pass filter would inevitable remove more semantic and acoustic information from some than from others. In this way, two actresses who (on different master videotapes) both recorded the same verbal/nonverbal combination of stimulus materials would have different amounts of information masked in their communications by the filter. This suggests that using the results of this experiment is a non sequitur in that it appears the 'differential masking effect' has resulted in there being four different groups of responding subjects. However, as all the data acquired in the experiment is used in the analysis, it is felt that these differences will 'average out'.

The first result when examining personality-linked factors is not a statistically significant one. Both in TABLE 31, and in the other summary table contained in Appendix One, non-significant F-ratios for sex of subject were calculated. TABLE 34 (below) shows, however, that the female subjects tended to see the CC's as more pleasant than the males.

	PVFN	PVNN	NVNN	NVFN
MALES	8.5	-13.6	-15.6	5.16
FEMALES	13.3	-15.9	-12	7

TABLE 34: Mean values of CC's for male and female subjects.

This result , though not significant, echoes those found in experiments VI and VII.

The only significant personality-linked finding relates to an interaction between Sex of subject and Mach. TABLE 31 (table of means) indicates that female high Mach. subjects perceive three of the four CC's as more (or equally) pleasant than the other three subject categories. This seems to relate to the findings of experiment II, where high Mach. subjects perceived all CC's as more pleasant than low Mach. subjects (significant at $P < 0.05$); experiment III, where there was a significant ($P < 0.05$) interaction between Mach. and Sex of subject which seemed to be of the same kind as that found in this experiment; and experiment IV, using older subjects, where High Mach. subjects again perceived all four CC's as more pleasant than the low Machs. ($P < 0.05$). Any direct relationship between sex and Mach. or for Mach. alone was not found in experiments VI and VII, and the major factor seems to be that in these experiments only one component of the total communication was shown to subjects. In this experiment,

a nearly intact communication has been presented to the subject, and the Mach. trend appears to have re-emerged.

Lastly, the result illustrated in TABLE 32 parallels the finding that experiment VI differs significantly from VII. The mean values for VIII all fall below those of VI except for CC NVPN (see TABLE 33.) However, like VI, the present experiment shows a fairly wide range of deviance on each of the four CC's amongst subjects' judgements. The standard deviations of the four CC's for experiments VI, VII and VIII are shown in TABLE 35 (below).

	PVPN	PVNN	NVNN	NVPN
EXPERIMENT VI	8.33	15.9	6.94	7.63
EXPERIMENT VII	11.4	11.7	9.11	11.7
EXPERIMENT VIII	12.6	9.51	6.41	13.9

TABLE 35: Standard deviation scores for experiments VI, VII, VIII.

EXPERIMENT IX.

Responses to the vocal component.

Introduction: In this, the fourth and last manipulation of the way in which communicative information can be decomposed and presented to observers to establish the nature of the pleasantness judgement process, the visual and verbal channels are removed, and subjects are presented with the vocal channel on its own.

Method: Using the same electronic filter used in experiment VIII with the same cut-off point (500 cps.) the female videotape was played back and the resulting sound-track re-recorded onto an audio cassette to enable ease of reproduction. All the resultant recordings were unintelligable with regard to speech, but retained the vocal modulation of the complete original. No personality questionnaires were administered to subjects.

Subjects: Twenty-four subjects were used, 12 male and 12 female, all between the ages of 17 and 30. The subjects were drawn from a population of students at a Technical College in Kent. All previous experiments used subjects drawn from the total population of students at Bedford College, London University (with the exception of experiment IV.) As subjects were all full-time students and were within the age-range of the Bedford College samples, it was felt that use of this population was justified.

Results: An analysis of variance of the results yielded no significant F-ratios at all. TABLE 36 (overleaf) is the summary table of the

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE ESTIMATE	F-RATIO	SIGNIFICANCE
GROUP (A)	262.125	3	87.375	0.86	No
SEX (B)	380.02	1	380.02	3.74	No
CC (C)	355.87	3	118.6	1.17	No
A x B	168.6	3	56.2	0.55	No
A x C	703.84	9	78.2	0.77	No
B x C	243.5	3	81.2	0.8	No
A x B x C	616.705	9	68.5	0.67	No
Within Cells	6503.34	64	101.6		

	MALES	FEMALES
PVPN	1.16	-5.25
PVNN	-2.83	-5.33
NVNN	-7.25	-6.75
NVPN	-2.42	-9.9

TABLE 36: Summary table of analysis of variance with 'Group', Sex of subjects and CC as main factors (top), and (bottom) table of means.

analysis. (Full results are to be found in Appendix One.) TABLE 35 (below) shows the means and standard deviations of subjects' responses to the four CC's.

	PVPN	PVNN	NVNN	NVPN
MEAN	-2.04	- 4.08	-7	-6.16
S.D.	9.79	12.44	5.93	9.83

TABLE 35: Means and Standard Deviations of subjects' Pleasantness scores.

It is interesting to note that the greatest agreement amongst the judgements fell on NVNN which also got the lowest (most negative) mean score. However, the differences between these scores are not indicative of any significant trend, as evinced by the lack of a significant F-ratio for CC.

Discussion: TABLE 37 (below) shows the great difference of mean responses to the four CC's when compared with those of experiments I, II and VI.

	PVPN	PVNN	NVNN	NVPN
EXPERIMENT I	12.2	-15.1	- 9.32	5.27
EXPERIMENT II	16.62	-19.2	- 9.8	3.75
EXPERIMENT VI	17.83	6.37	-10.6	-2.37
EXPERIMENT IX	- 2.04	- 4.08	- 7	-6.16

TABLE 37: Mean values of experiment I, II and VI and IX.

The variation between the four CC's for the present experiment is slight. The mean responses for males and females shown in TABLE 35 seem to show that the males' are slightly more positive than the females', though this is also non-significant.

The overall impression given by the results is that of non-response. It is as if subjects had not been able to distinguish between the four CC's to any significant extent. Though the mean responses are negative, there seems to be a tendency for the actual responses to approximate towards zero. In short, there was insufficient information in the filtered vocal message for subjects to infer anything very much about the nature of any given message. Some kind of informational 'threshhold' appears to have been reached. Above it (for example in experiment VIII where there was both visual and vocal information) subjects are still able to respond to the message in ways which are fairly similar to how they respond when presented with the complete message. It seemed that in experiment VIII the subjects were responding to the positivity or negativity of the non-verbal component of the message per se (not to any averaging out of conflicting components); it can now be inferred that these responses were mainly (though not exclusively) based on the facial non-verbal component. The vocal non-verbal element appeared to (in the light of the present study) play little or no part in their judgement. Just how small this part is, and what contribution the other elements make, is discussed in detail in the next chapter.

CONCLUSION TO EXPERIMENTS VI, VII, VIII AND IX.

An interesting hierarchy of information utilization now appears when the results of experiments VI, VII, VIII and IX are compared. In VI (vocal and verbal components) subjects appeared to respond primarily to the verbal (ie. actual words spoken) component. In VII (visual component) subjects responded to the facial expression and seemed to see the messages purely in terms of positivity and negativity, and the same state of affairs held in VIII, only here the extremes of response to each CC were greater, possibly due to the slight extra informational impetus given by the vocal channel component. Earlier experiments (I, II, III and IV) showed that when subjects are presented with complete messages which are internally contradictory, they tend to rely on the nonverbal component for resolution of the contradiction. It now seems clear from the last four experiments that the facial channel appears to take precedence in this resolution, followed by the verbal channel, followed by the vocal channel. In this overall context, this is in partial agreement with the earlier findings of Mehrabian and Ferris (1967) and Mehrabian (1971) who found a hierarchy running (from most to least important) facial, vocal, verbal component. Mehrabian's evaluation of the proportion of liking carried by each of these channels was based on evaluation in a single dimension. The present series of studies has used eleven evaluation dimensions and hence it seems probable that the result has been a 'finer-grained' analysis. Clearly it also matters that there is a great deal of interaction between the components of the message. Just how great this interaction is likely to be is discussed in the next chapter.

The results of these four experiments in terms of how much light they shed on the role of personality factors in pleasantness

judgements were not greatly illuminating. In VI it was found that female subjects saw all four CC's as more pleasant than males ($P < 0.05$); no such significant trend emerged in VII, though females tended to rate the CC's more positively; however in VIII sex was not significant as a main factor (though the same trend as seen in VII was evident) there was a significant interaction between sex and Mach. at $P < 0.05$. This was the only personality-linked finding in these last four experiments. Interestingly, the interaction echoed that found in earlier experiments (notably III); female high Mach. subjects appeared to evaluate all four CC's as more pleasant than the other subjects.

CHAPTER SEVEN.

Multiple Regression Analysis of Data from Experiments VI, VII, VIII and IX.

MULTIPLE REGRESSION ANALYSIS OF COMMUNICATIVE CHANNELS DATA.

Introduction: As was noted in Chapter Six, there appears to be a difference between the results found by Mehrabian (1971) concerning the proportion of influence contained in, and transmitted through, the communicative elements of any message. Mehrabian noted that the most important channel was the visual one, which he calculated accounted for 55% of the total variance, followed by the vocal component, 38% and lastly the verbal with 7%. The data from the last four experiments were combined to provide a means of directly comparing the proportions of effect with those calculated by Mehrabian.

Method: The data ('P' scores) from the last four experiments were encoded in terms of sex of subject and whether the verbal, visual and vocal components of the message was positive, negative or absent. The encoded data were analysed using the SPSS multiple regression package.

Results: TABLE 38 (below) shows the percentage of the total variance accounted for by all four factors taken together, and each of the factors taken separately.

FACTOR	% OF TOTAL VARIANCE.
ALL	36.126
SEX	0.075
VERBAL	8.408
VISUAL	16.656
VOCAL	1.849

TABLE 38: Variance accounted for by each of the main factors.

When the percentages for the four main factors are converted to percentages of 36.126, the results obtained are shown in TABLE 39 (below). (Mehrabian's results sum to 100: this seems unlikely; the four variables accounted for only 36.126% of the variance in the present analysis. It was concluded that Mehrabian must have converted his original percentages to percentages out of 100, as shown below.)

	PRESENT RESULTS %	MEHRABIAN'S RESULTS %
SEX	0.277	0.0
VISUAL	61.72	55.0
VOCAL	6.85	38.0
VERBAL	31.15	7.0

TABLE 39: Mehrabian's results compared with those of the present analysis.

Discussion: As was noted in the previous chapter, the main discrepancy between Mehrabian's synthesis of the data concerns the role of the vocal element. For Mehrabian it is the second most important channel in deciding the overall impact of a message; in the present study it ranks a poor third to the verbal channel. There is agreement over the most important channel; the visual (55% for Mehrabian, 61.72% for the present study). The fact that the percentages calculated by Mehrabian and the present investigator are quite similar suggests that the role played by the visual channel in communications is relatively constant across the two cultures. Real variation begins over the vocal and verbal channels, with American subjects apparently paying more attention to the former, and English

subjects the latter. Whether this difference reflects a real difference in information encoding strategy priorities between the cultures, or reflects some facet of the English actresses' encoding of the vocal channel, is not clear, and only an experiment which uses American actresses and English subects (and vice versa) in the type of design utilized in the last four experiments would adequately clarify the issue. At present it remains an interesting enigma.

The similarity of the visual channel calculated percentages does hint at the possibility of a cross-cultural priority, or perhaps simply at the fact that, as Eibl-Eibesfeldt (1972) would apparently have us think, facial expressions are universals specific to the human species as a whole; a kind of non-verbal Esperanto. More detailed experiments of the kind carried out in this thesis would go some way to testing this hypothesis.

CHAPTER EIGHT.

Discussion.

CHAPTER EIGHT.

Discussion.

DISCUSSION.

In the process of undertaking a research investigation into a particular problem it is almost inevitable that there will be a gradual change of emphasis and interest as time passes. The initial idea behind this thesis has gone through such a transformation yet the experiments involved in the research have all contributed to the final concluding theme. This is that judgements of pleasantness are very consistent for the various types of CC regardless of the personality profile of the observer (with the sole exception of Mach.,), but that there is variation due to sex, age and nationality of the observer that tends to be in a specific direction and is therefore predictable. The findings which lead to this conclusion are dealt with below in detail.

A) The 'Channels' effect:

1) Summary and description of the effect.

Given that individuals vary considerably in their ability to both encode and decode the interaction between verbal and non-verbal channels (Davitz 1964, Argyle 1975) one would expect a wide variety of responses to any particular communicative stimulus. Yet the first and most central finding of this thesis is that individuals approximate fairly closely, and in a consistent fashion, to specific classes of communications. This effect is called the 'channels' effect as it is related closely to the verbal/non-verbal composition of any particular communication. TABLE 40 (overleaf) shows the mean responses of subjects to the four CC's used in this thesis in experiments I, II and III. A consideration of the means shows their great similarity. The general trend in these values is

clear; results for the PVPN CC tend to fall in the region of +14, those for PVNN at about -17, those for NVNN -9 and those for NVPN at about +4.

	PVPN	PVNN	NVNN	NVPN
Experiment I	12.2	-15.1	-9.32	5.27
Experiment II	16.62	-19.2	-9.8	3.75
Experiment III	16.75	-18.45	- 9.5	1.63

TABLE 40: Mean values for 'P' scores in experiments I, II, III.

The standard deviation values for these three experiments yield a similar degree of agreement (TABLE 41, below).

	PVPN	PVNN	NVNN	NVPN
Experiment I	13.5	9.1	6.1	9.6
Experiment II	9	6.5	5.2	8.4
Experiment III	13.5	8.1	5.4	10.7

TABLE 41: Standard deviations of 'P' scores for the first three experiments.

Analyses of variance with CC as a factor always yielded significant F ratios at the 1% level or below with the exception of experiment VI. Therefore the four CC's were consistently seen and interpreted by the subjects as being significantly different from one another.

More interestingly perhaps, the actresses used in the production of the all-female videotape viewed their own performances in all the CC's and rated them in terms of pleasantness (experiment I.) TABLE 42 (below) shows the mean actress responses compared with the mean subject responses for experiment I.

	PVPN	PVNN	NVNN	NVPN
Mean subject scores:	12.2	-15.1	- 9.32	5.27
Mean actress scores:	14.5	-16	-10.5	16

TABLE 42: To show the mean 'P' scores for subjects and actresses.

A Kendall's W calculation yielded a significant relationship between the four actresses self-evaluations at the 5% level or below, while a Kendall's T yielded a significant positive correlation of +0.66 between the actresses' 'P' scores and those of the experimental subjects.

The results outlined above bear comparison with those of Bugenthal et al (1970). Bugenthal's main finding, with American subjects, was that in evaluating contradictory communications, the major emphasis is placed on interpretation of the negative component. In general the finding outlined above does not concur with the Bugenthal finding, but goes further as it indicates the extent of that reliance and shows that there is a distinct pattern of response to specific types of CC, whether they are contradictory or not. Bugenthal's results suggest her (American) subjects interpreted messages mainly in the light of negative information (regardless of channel) whereas in this thesis the (English)

subjects interpret it in the light of the non-verbal component (regardless of affect.)

2) The effects of modifying the content of CC's.

To investigate further the detail of how subjects interpreted the CC's it was necessary to decompose the 'total' CC's into various sub-elements. This would enable a closer examination of the proportional and qualitative nature of the evaluative process. Experiments VI, VII, VIII and IX performed this duty. In VI, subjects were presented only with the sound-track of the videotapes; in VII, with the visual part only; in VIII, with the visual part plus the sound track after it had been passed through an electronic band-pass filter (which made the words unintelligable but left the tonal variations clear), and in IX with the electronically filtered sound-track only.

TABLE 43 (below) shows the mean values for these four experiments.

	PVPN	PVNN	NVNN	NVPN
Experiment VI: Vocal + Verbal	17.83	6.37	-10.6	-2.4
Experiment VII: Visual	8.4	-11.6	-10	7.6
Experiment VIII: Visual + Vocal	10.9	-14.8	-13.8	6.1
Experiment IX: Vocal	- 2	- 4	- 7	-6.2

TABLE 43: Mean values of 'P' scores for experiments VI, VII, VIII and IX.

The effect of modifying the content of the CC's has a distinct effect on how the CC's are evaluated. In VI we see the dominance of the verbal channel - the message is interpreted in terms of the actual words spoken and the mean 'P' scores show this. In VII the visual non-verbal channel is the only source of information, and the mean values show the simple division being made by subjects between the unpleasant facial expressions (PVNN and NVNN) and those which are pleasant (PVPN and NVPN).

In VIII, once again the visual non-verbal channel is the dominant one, but the extent of the evaluations are clearly modified to a certain extent by the non-verbal vocal component which serves to make the evaluation of PVNN and NVNN more negative than in VII. Lastly, in IX, we see very little variation between the evaluations of the four CC's - there is insufficient information present for subjects to clearly differentiate between the CC's. Analyses of variance comparing these experiments with one another yield the following; VII varies from VI significantly (at the 5% level), VIII varies from VI significantly (at the 1% level). Owing to the varying number of subjects used in each of these experiments, it was not possible to use an analysis of variance to compare the first three experiments (I, II and III) with these last four. However, it seems clear that VII and VIII are very similar to values obtained in the first three experiments, while VI and IX vary not only from the first three but also vary from VII and VIII.

3) Evaluation of 'channels' and decomposition of channels effects.

Despite the usual expectancy that individual differences would prevent the emergence of any single clear-cut trend, this has in

fact been contradicted by the results reviewed above. Regardless of sex of actor or subject (however, see the next two sections) there is a general trend to interpret the CC's in the same way (in terms of pleasantness) and to approximately the same extent. That this trend emerged consistently over the use of 260 subjects suggests its significance.

The results from the last series of four experiments suggest two main conclusions. Firstly, it becomes clear that any consideration of human communicative behaviour must take account of the essentially interactive nature of the components of that behaviour. In studying these last four experiments it can be seen that though each 'channel' may exert a unique influence over the final decision which is made by the receiver of a given communication, their effects are interactive; one will modify another. Experiments VI, VII, VIII and IX show that there is a 'hierarchy' of dominance among the channels with the visual non-verbal being of greatest importance followed by the verbal and lastly the non-verbal vocal. This hierarchy seems to apply to both contradictory and non-contradictory communications, and does not agree with the hierarchy worked out by both Argyle (1975) and Mehrabian (1972) (as shown in Chapter Seven.) Both these workers indicate that the visual channel is most important but that the non-verbal vocal channel is more important than the verbal. This series of experiments has made use of a more extensive evaluative method than the aforementioned workers and this partially explains the difference, but it seems more likely that a cultural effect is being observed. Subjects used previously were American, and from the Bugenthal et al (1970) study and the Mehrabian data, it seems likely that these subjects relied on negative information contained in the visual

and vocal channels for interpreting messages (though negative information in the verbal channel will swamp effects from the other channels when it is present.) The English subjects used in the present series of studies tended to rely on non-verbal information for interpreting messages and (as shown in Chapter Seven) primarily on the visual channel, regardless of the affect transmitted in it. That the vocal channel plays a much smaller role in the interpretation of messages by the English subjects is shown in experiment VI, for, when deprived of the visual channel, subjects relied on the verbal channel. It is possible, as has been stated before, that this effect could be due to differences, not between cultures, but between the actresses' vocal expressivity. There does remain, nevertheless, the possibility that this is a cultural effect. Ekman (1972) suggested that emotional portrayal would inevitably differ between cultures as it is socially learnt.

B) The Sex Effect:

While the most consistent finding of the experiments related to the way in which subjects responded to the four CC's and constituted the main aim of the thesis there was a second finding related to sex of subject.

In experiment I, it was noted that there was a tendency for female subjects to perceive the four CC's as more pleasant than males, though this tendency was not significant. This effect did not show up in the second experiment. In experiment III, the mean values again showed that females tended to perceive the CC's as more pleasant, but again it was not significant. Once again, in experiment IV the effect was not noticeable. Experiment V dealt with a different aspect of the research and is dealt with elsewhere.

Experiment VI yielded a significant F-ratio for sex of subject at the 5% or less level, with females perceiving all four CC's as more pleasant than males. Experiments VII and VIII did not yield significant F-ratios, but both showed the same tendency towards the finding of experiment VI. TABLE 44 (below) shows the mean values of 'P' scores for experiments I, III, VI, VII and VIII. Experiment IX did not show any significant differentiation of scores.

		PVIN	PVNN	NVNN	NVIN
Experiment I	Male	11.65	-16	- 8.55	4.35
	Female	12.8	-14	-10.1	6.2
Experiment III	Male	16	-18.1	-10.1	-0.2
	Female	16.8	-18.8	- 8.8	3.45
Experiment VI	Male	14.8	2	-12.6	-3.8
	Female	20.8	6.9	- 8.6	-0.9
Experiment VII	Male	7.6	-14.6	-13.9	9.7
	Female	9	- 8.5	- 6.2	5.5
Experiment VIII	Male	8.5	-13.6	-15.6	5.2
	Female	13.3	-15.9	-12	7

TABLE 44: Mean values of Experiments I, III, VI and VIII 'P' scores separated for sex of subject.

Why females should be more positive in their evaluations of the four CC's is somewhat problematical. LaFrance and Mayo (1979) in a review of the literature on non-verbal communication in relation to sex concluded that females were more reactive than men in responding to these forms of behaviour. This does not, however, explain why they should respond more positively to the CC's than

men. One possible explanation is lodged in the cultural stereotype of females being more verbally oriented than males which originates in infancy (Mussen, Conger, Kagan 1974) and is continued into adult life through different paths of intellectual development and cultural pressures, which also result in females displaying more nurturant behaviour and greater interpersonal skills (Bee 1975). If the research findings (which, for our own society at least, point in the same general direction) are correct, then one would predict that, on the whole females would be more concerned to maintain the friendliness of a social situation, which might make them tend to not only be more skilled at interpreting communications than males (Hall 1978) but also more prone to evaluate people in a more positive way (a correlate of nurturant behaviour, eg. being able to rationalise some example of unpleasant behaviour as being due to some extraneous factor which removes the 'blame' for it from the actor.) This particular explanation seems to be likely, especially when considered in the light of the findings on personality traits.

C) The Personality-Related Effect:

1) The traits under investigation.

The personality traits chosen for investigation (namely Extraversion/Introversion, Neuroticism, Machiavellianism. Self-Monitoring) all relate closely to interpersonal skills, aptitudes and tendencies. The major query relating to these traits was would any of them relate in a consistent and predictable fashion to the 'P' scores of subjects? The first traits investigated were Extraversion/Intraversion and Neuroticism, and most subsequent experiments included these measures. No significant difference

was found between judgements made by those individuals who scored highly on the two traits and those who scored low, and non-parametric correlation coefficients were non-significant. This trend was evident in all experiments where these personality dimensions were measured. The major finding here is therefore a negative one; that these dimensions do not relate in any systematic way to subjects' judgements of the CC's. The third trait measured was that of Self-Monitoring (Snyder 1974), which is said to relate closely to an individual's perceptiveness and sensitivity of social cues. Once again this is a trait that it seems likely would be related to the type of interpretation, or at least the qualitative aspect, of the four CC's. The scale was used in experiments V, VI, VII and VIII and in none of them did it yield a significant relationship with, or tendency concerning the 'P' scores.

The consistency, so far, of this negative result is as noteworthy as if the result was a postive one. I/E, N and SM are all supposed to relate to social behaviours and tendencies of individuals. Why therefore was it that these relationships never appeared despite the social nature of the stimulus material? One possibility is that these measures do not, in fact, relate very strongly to social behaviour. Mischel (1973) states that he opposes those approaches which feel;

> ". . . personality comprises broad underlying dispositions which pervasively influence the individual's behaviour across many situations and lead to consistency in his behaviour."

Other workers (notably Alston 1975) argue that it is not so much the fact that the trait descriptions are both too broad and do not take any account of the situational factors as Mischel does, but that motivational factors are the central key to

comprehending the consistency or otherwise of individuals. This may be the case in attempts to examine behaviour in a 'real-life' setting. However, as the CC's used in the experiments in this thesis were very brief and constant (having been videotaped) it seems unlikely that either motivational (on the part of the subjects) or situational factors could cause much of the variation between pleasantness judgements. Variation between subjects' pleasantness judgements ought, therefore, to be due to personality differences, and measuring these should enable us to predict how subjects would respond to any particular CC. This is not the case with regard to I/E, N and SM, and therefore it is possible to tentatively conclude that any effect noted is unaffected by, or wholly superordinate to, these supposed measures of behavioural traits or predispositions. This is further reinforced by the fact that the remaining personality factor, Machiavelliansim (hereafter 'Mach.'), did relate in a very specific fashion to subjects' 'P' scores.

In experiment II, it was found that if subjects were divided into 'low' (up to 100 on the Mach. V scale) and 'high' (above 100) groups, it was found that the high Mach. group tended to perceive all four CC's as significantly more pleasant than the low Mach. group. This was significant at the $P < 0.05$ level. In experiment III the same type of trend was found, but this time related to sex of subjects. Here there was a significant interaction between sex and degree of Machiavellianism significant at the $P < 0.05$ level, with the general trend being for high Mach. females to perceive all four CC's as more pleasant than all other subjects. This trend continued in experiment IV, where older subjects were used, where the sex effect disappeared but the high Mach. subjects

once again perceived all CC's as significantly ($P < 0.05$) more pleasant than the low Mach. group. Experiments VI and VII did not yield any significant F-ratios for Mach. as a factor either in isolation, or in interaction, with others, but VI yielded a significant F-ratio for sex (without Mach.) with females perceiving all CC's as more pleasant than males. A similar trend was noted in VII, but it was not significant. In VIII, once again there was a significant interaction between Mach. and sex, at $P < 0.05$, with female high Machs. once again perceiving all four CC's as more pleasant than all other subjects. The mean values for these relevant experiments are shown below, in TABLE 45.

Overall, therefore, there seems to be a trend for females (as noted in the previous section) and high Machs. to perceive the CC's as more pleasant than males and low Machs. respectively.

One potential explanation of the way in which the high Mach. subjects respond to the various CC's is contained in the major characteristics of the Machiavel as outlined by Christie and Geis (1970). One of the basic characteristics of the Machiavellian individual is that he or she will view other human beings as basically weak, fallible and gullible, who tend to become emotionally tangled up with whatever social situation they happen to find themselves in. Put another way, the low Mach, individual is controlled by his emotional behaviour which will overwhelm any rational attempt to 'size up' a situation in terms of its possibilities. Christie and Geis (1970) say, of the low Mach. individual;

> "He becomes more engrossed in the content of a conversation rather than its ultimate purpose in terms of his individual goals. He is more likely to get carried away in the process of interacting with others and acting on the basis of non-cognitive reactions to the situation."

		PVPN	PVNN	NVNN	NVPN
Expt. II	High Mach.	20.9	-18.6	- 8.4	5.25
	Low Mach.	12.4	-19.75	-11.25	2.25
Expt. III	High Mach. Male	11.1	-19.6	-10	- 4.8
	High Mach. Female	16.8	-18.4	- 9.1	6.1
	Low Mach. Male	21	-16.6	-10.3	4.4
	Low Mach. Female	16.9	-19.2	- 8.6	0.8
Expt. IV	High Mach.	16.4	-15.25	- 6.25	10.6
	Low Mach.	10.1	-17.25	-10.75	9.9
Expt. VIII	High Mach. Male	7.3	-15.5	-17.3	3.5
	High Mach. Female	22	-11.8	-10.8	4.8
	Low Mach. Male	9.6	-11.8	-14	6.8
	Low Mach. Female	4.6	-20	-13.2	9.16

TABLE 45: Mean values of 'P' scores relating to degree of Machiavelliansim.

Therefore one could expect the high Mach. to be actively involved in evaluating the experimental situation for maximal personal gain. In what way this could be achieved is unclear. However, the interaction of sex with Mach., and the general trend in sex differences with regard to the 'P' scores does indicate a clearer possibility. A high Mach. individual would, in theory, be less likely to react emotionally to the CC's than a low Mach. This would lead to some kind of prediction that the low Mach. individual, being more affected by the affective content of the four CC's would rate the unpleasant ones more unpleasantly, and the pleasant ones more pleasant, respectively, than the high Mach. However, the low Mach. individual seems to rate all four CC's as less pleasant than the high Mach. person. Why should this be? There are two possible answers, one relating to the sex linked effect, the other to the nature of Machiavellianism itself. The Machiavel, by not being in any way emotionally involved with the CC's may simply be able to treat the whole experiment as partly or totally irrelevant to his or her needs, and will therefore simply respond to the nature of the CC itself, rather than responding in terms of what the CC does to him or her. A simple response to the positivity or negativity, contradictoriness or otherwise of a CC could therefore result in consistently more positive 'P' scores than those produced by the low Mach. subjects.

It does, however, seem that the link with sex of subject provides a slightly more tangible answer. As was pointed out in the discussion of the sex effect, evidence seems to point to females being more verbally and socially oriented than males, coupled with nurturant behaviour. This may mean that when these culturally-linked feminine characteristics are linked to the Mach. characteristics we find an individual who while being more perceptive

and nurturant socially is also more verbally oriented while being more detached from emotional involvement in the affective side of interpersonal relationships. As was noted in experiment VI, when subjects responded to the verbal content of the CC for PVNN their overall pattern of response was more pleasant (higher positive 'P' score) than other experiments' results. A female, in theory would therefore pay closer attention to the verbal aspects of a message anyway, and would therefore tend towards this type of response pattern. (It is important to note that this trend towards a greater reliance on the verbal components is characteristic of the whole sample, not just the females in it.) As noted before, the nurturant characteristics of the female would also tend to make positive evaluation of the CC's more likely, as would the possession of a high Mach. score. These factors operating together could produce the high Mach. female characteristic response pattern.

The relative consistency of the sex and Mach. affects taken separately are significant in terms of predicting some features of social interpersonal evaluation. Taken together they provide a profile of a unique type of interpersonal response - the cool evaluation of the high Mach. tempered by the nurturance and social empathic characteristics of the female at least in Western society.

D) The Age Effect:

The main factors under investigation when considering not only how but in what particular way individuals reach conclusions about the overall 'pleasantness' of another were those of personality and sex. As an exploratory investigation, experiment IV utilized a population of older individuals as subjects. These individuals were between the ages of 40 and 60, as opposed to the subjects used in all

other experiments who were aged between 17 and 30. Exactly the same procedure and stimulus materials were used as in the other experiments. The most significant initial finding was that relating to a comparison of experiment IV's results with those of experiment II by means of a four-way analysis of variance. TABLE 46 (below) shows the distribution of mean values for the four CC's for experiments II and IV.

	PVPN	PVNN	NVNN	NVPN
Experiment II	16.62	-19.2	-9.8	3.75
Experiment IV	13.25	-16.25	-8.5	10.25

TABLE 46: Comparison of mean scores for experiments II and IV.

The trend shown in TABLE 46 (ie. that the older subjects tended to see the CC's as more pleasant than the younger subjects) is borne out by the analysis which yielded a significant interaction between age and CC (at the 5% or less level). Age of subject as a single factor approached significance but did not attain it. Weitz (1974), when discussing the work of Bugenthal et al (1970) pointed out that children tend to perceive negative information as being more heavily weighted in the evaluation and interpretation of communication than adults. Weitz notes:

> "Adults display less of this effect, being more sophisticated in emotional decoding."

It is therefore a definite possibility that this process may continue for a longer period than simply over the span from 'childhood' to adulthood' (Knapp 1978). In theory, and certainly according to the results of this experiment, this process of development continues

during adulthood, so that older subjects are even less likely to give significant weight to the negative components of a communication.

As was noted in the previous section, the older subjects also show a significant degree of variance depending on whether they are high or low Mach. This last finding suggests that the Mach. effect operates regardless of age.

E) Sex of Actor, Perceived Contradictoriness:

One important consideration in the evaluation of the four CC's was whether or not the sex of the individuals used to make the master videotapes was significantly affecting the subjects' responses, or not. To this end, in experiment III an all-male 'cast' was used to produce a master videotape which was in all other ways identical with that used in all other experiments where an all-female 'cast' was used. In the analysis of the results of this experiment a comparison was made between the results of experiments I and II. In neither case is the sex of actor a significant variable, allowing us to conclude that using the different types of actor on the master videotapes has no significant effect on the subjects' 'P' scores and evaluation processes. This does, again, seem very striking as sex of stimulus individual has, in past work proven to be of great significance in both the reception and sending of communications (eg. Drag and Shaw 1967; Zuckerman et al 1975; Buck et al 1969, 1972, 1974.) In general terms, females tend to be better 'senders' of emotional states than males. This appears to be in direct contradiction to the findings described above, unless the design rationale used coupled with a fairly wide range of subjects cancelled out the effect. However, one would still expect that females would, in general be better 'senders' than males. The conclusion can

therefore be reached that the 'channels' effect noted earlier, together with both the quantitative and qualitiative aspects of that effect, is superordinate to any sex-linked effects. This appears all the more convincing as there was an age-linked effect.

Though this robust 'channels' effect seems to be superordinate to the majority of factors which could reasonably be expected to dominate it, it remains to be shown that subjects do in fact perceive the contradictory communications as contradictory and vice versa for the non-contradictory ones. Experiment V was run for precisely this purpose. The experiment also investigated whether a wide range of personality traits correlated with accuracy at judging contradictoriness or otherwise, coupled with a last attempt to elicit sex of actor differences by using both the male and female acted videotapes. The basic answer to the problem of whether subjects actually saw the CC's as contradictory or not is that they did. TABLE 47 (below) shows the distribution of the subjects' responses when asked to evaluate whether a CC was or was not contradictory or if they were undecided (neutral). Subjects clearly saw CC PVNN as most contradictory and also recognised CC NVPN as being contradictory. The other two CC's were clearly seen as non-contradictory.

	Contradictory	Neutral	Non-Contradictory
PVPN	11	6	31
PVNN	40	2	6
NVNN	2	3	43
NVPN	29	3	16

TABLE 47: Distribution of subjects' evaluations of the contradictoriness of the four CC's.

The next item to be considered by experiment V was how personality related to these judgements of contradictoriness. Here only one characteristic was significantly related to these judgements, self-monitoring. It appears that when applied to contradictoriness, a high self-monitor is more able to clearly see any inherent contradiction in the communication than those low on this scale (this point is argued more fully in experiment V itself.) However, this finding seems of little significance as in no other experiment was self-monitoring found to be related to the 'F' scores of subjects (though self-monitoring was not measured in experiments I - IV.)

The last item derived from experiment V was that no difference was found between those judgements made on the female-acted videotape and those related to the male-acted videotape. This supports the finding already discussed with relation to experiments I, II and III.

The overall conclusion from this section is that sex of actor does not have any significant effect on the type of judgement made by subjects with regard to the pleasantness of communications, nor does it interfere with the established pattern of response found in other experiments using the all-female videotapes. The CC's themselves do, in fact, also transmit their contradictoriness or non-contradictoriness quite accurately to subjects, though subjects do seem to be more certain of the contradictoriness of any given CC if it conveys an overall negatively toned communication.

F) Methodological Evaluation and Future Investigations:

Inevitably, during an extended series of experimental investigations, possible methodological modifications occur which are incorporated into the ongoing series of experiments. On the whole,

the nine experiments which form the body of research in this thesis contain all the most relevant and important methodological changes suggested both by results and discussion. Most of these changes do not involve major alterations to the basic paradigm of the investigation; however, several major possibilities which do present themselves lie outside the main investigative thrust of the thesis, and outside the logistical constraints inevitably present in any research project. Chief among the alterations which might have profitably featured in a modified paradigm would have been the use of 'longer' and 'more real-life' CC's. Both these suggestions came from subjects while they were being debriefed. As has been stated earlier, the CC's were purposely kept brief and fairly static for reasons of greater experimental control of both content and presentation. Using 'real-life' type situations would inevitably have resulted in greater problems of controlling such factors as appearance, motivation etc. on the part of the actors or actresses. A simpler modification would have been the use of colour videotapes rather than black- and-white; however, this was not possible as the relevant equipment was unavailable, nor was the production of higher quality sound (though the equipment used provided sound well up to the standard of the average domestic television.) Within the necessary strictures of design, control and equipment there were no further major suggested possible modifications to the overall paradigm.

Though the methodology appears adequate for the task set for it specifically, it inevitably leads on to the necessity for further investigations into other topics raised by the main findings of the research. Chief among these is the need to investigate a wider spectrum of sample populations; experiment IV in the present series showed that age may be a significant factor in interpersonal

perception (a fairly novel investigative result) and the work of other investigators (eg. Scheflen and Scheflen 1972) suggests that cross-cultural standards of both expression and interpretation may vary considerably. This latter idea is further reinforced by sociolinguists who have pointed out that non-native English speakers utilize a different pattern of intonation and interpretation which consequently leads to much confusion and potential racial tensions (Man Alive, BBC 2, 16/10/79.) Another population which could profitably be investigated would be those individuals suffering from mental disorders, particularly those which either result in, or are caused by, communicational malfunctions.

A wide spectrum of individuals with a wide variety of personality traits have been used as subjects in this thesis. In this sample of a young, native English speaking population there have been many extremes of the traits chosen for study. However, it might be fruitful to investigate more extreme populations in some future work. This did not lie along the line of research in this thesis as it is not primarily concerned with extreme populations, but with drawing conclusions which may be applied to a wide spectrum of individuals within the general population who fall within the boundary criteria for this thesis. It is to these individuals that any conclusions are directed.

G) Conclusions and Integration:

As stated in the introduction, 'pleasantness' appears to be a viable dimension of interpersonal evaluation. It is obviously a complex construct incorporating many elements of person perception, yet it also seems to take a more 'gestaltian' approach to one aspect of how people evaluate others. The main aim of this thesis was to

try to find out if people responded to a specific range of communications in a predictable way and whether the type or extent of judgement they made related to any particular dimension of their personality. The results suggest that given particular constraints (notably, age and first language) it is possible to predict fairly accurately how an individual would respond to a particular type of communication. It is also possible to predict that the personality profile of the individual would not matter in general. However, on a finer level it would be possible to predict that a female with a high Mach. score would tend to evaluate communications (and people) in a more positive way than would low Mach. or male individuals. Equally, an older subject would tend to evaluate communications more positively than a younger one. It therefore seems that this thesis has been fairly successful in acheiving its objectives.

One other conclusion it is possible to draw from the results of this thesis is the inevitability of the interaction between the verbal and non-verbal channels in social communication. Any attempt to separate these channels is artificial, and even when it is done for methodological reasons this inevitable interaction must be borne in mind.

It also appears that some non-verbal/verbal social interactional abilities are not reliant on either personality or personal abilities. Much was said in the introduction to this thesis about the variety of levels of interpersonal skill; how some individuals were good 'encoders' while others were good 'decoders' with a few who were good at both. The results obtained in this thesis appear to have demonstrated that in an area of social interaction which is fundamental to human relationships, this type of concept of skill or ability does not apply; though the actual responses may change very slightly with increasing age, the general <u>form</u> of the response is invariant. It

also seems likely that this form or pattern of response may be culturally linked as the order of importance found in this thesis for the elements of a communication do differ from those found in other studies which have been conducted exclusively in the United States.

Overall then, this thesis has shown that 'pleasantness' perception is an important element in social interaction and evaluation. Though interpersonal behaviour is complex it seems that the pattern of response along this one dimension is invariant (subject to certain conditions) and forms the basis for predicting certain aspects of interpersonal behaviour. In short, the main finding of this thesis is that the way in which individuals evaluate other individuals seems to be based on a pattern of interpretation of the interaction of verbal and non-verbal elements which is an inter-individual constant.

REFERENCES

REFERENCES.

ADDINGTON:D.W.(1968) "The relationship of selected vocal characteristics to personality perception." SPEECH MONOGRAPHS 35, 492-503.

ALLPORT:F.H.(1924) "Social Psychology." HOUGHTON MIFFLIN.

ALLPORT:G.W., VERNON:P.E.(1933) "Studies in expressive movement." THE MACMILLAN CO.

ALSTON:W.P.(1975) "Traits, consistency and conceptual alternatives for personality theory." J. THEORY SOC. BEHAV. 5, 17-48.

ANISFIELD:M., BOGO:N., LAMBERT:W.(1962) "Evaluation reactions to accented English speech." J. ABNORMAL AND SOC. PSY. 65, 223-231.

ARGYLE:M.(1969) "Social interaction." METHUEN.

ARGYLE:M.(1975) "Bodily communication." METHUEN.

ARGYLE:M., ALKEMA:F., GILMOUR:R.(1971) "The communication of friendly and hostile attitudes by verbal and nonverbal signals." UNPUBLISHED MS, OXFORD UNIVERSITY.

ARGYLE:M., TROWER:P., BRYANT:B.(1974) "Explorations in the treatment of personality disorders and neuroses by social skills training." BRIT. J. MEDICAL PSY. 47, 63-72.

ARGYLE:M., WILLIAMS:M.(1969) "Observer or observed? A reversible perspective in person perception." SOCIOMETRY 32, 396-412.

AYER:A.J.(1955) "What is communication?" SECKER AND WARBURG.

BEE:H.(1975) "The developing child." HARPER AND ROW.

BEEBE:S.A.(1974) "Eye-contact: A nonverbal determinant of speaker credibility." THE SPEECH TEACHER 23, 21-25.

BENTHALL:J., POLHEMUS:T.(EDS.)(1975) "The body as a medium of expression." ALLEN LANE.

BERELSON:B., STEINER:G.(1964) "Human behaviour." HARCOURT BRACE JOVANOVICH.

BIRDWHISTELL:R.L.(1952) "Introduction to kinesics: An annotation system for analysis of body motion and gesture." UNIVERSITY OF LOUISVILLE.

BLURTON-JONES:N.(ED.)(1972) "Ethological studies of child behaviour." CAMBRIDGE UNIVERSITY PRESS.

BOUCHER:J.D., EKMAN:P.(1975) "Facial areas of emotional information." J. OF COMMUNICATION 25, 21-29.

BROWN:R.(1973) "Development of the first language in the human species." AMERICAN PSYCHOLOGIST 28, 97-106.

BROWN:R.(1973b) "A first language: The early stages." PENGUIN.

BUCK:R.(1975) "Nonverbal communication of affect in children." J. PERSONALITY AND SOC. PSY. 31, 644-653.

BUCK:R.(1977) "Nonverbal communication of affect in preschool children: Relationships with personality and skin conductance." J. PERSONALITY AND SOC. PSY. 35, 225-236.

BUCK:R., MILLER:R.E., CAUL:W.F.(1974) "Sex, personality and physiological variables in the communication of affect via facial expression." J. PERSONALITY AND SOC. PSY. 30, 587-596.

BUCK:R., SAVIN:V.J., MILLER:R.E., CAUL:W.F.(1969) "Nonverbal communication of affect in humans." CITED IN HARPER, WIENS, MATARAZZO (1978) "Nonverbal communication." WILEY.

BUCK:R., SAVIN:V.J., MILLER:R.E., CAUL:W.F.(1972) "Communication of affect through facial expression in humans." J. PERSONALITY AND SOC. PSY. 23, 362-371.

BUGENTHAL:D.E.(1974) "Interpretations of naturally occurring discrepancies between words and intonation: Modes of inconsistency resolution." J. PERSONALITY AND SOC. PSY. 30, 125-133.

BUGENTHAL:D.E., KASWAN:J.W., LOVE:L.R.(1970) "Perception of contradictory meanings conveyed by verbal and nonverbal channels." J. PERSONALITY AND SOC. PSY. 16, 647-655.

BUGENTHAL:D.E., KASWAN:J.W., LOVE:L.R., APRIL:C.(1971) "Verbal-nonverbal conflict in parental messages to normal and disturbed children." J. ABNORMAL PSY. 77, 6-10.

CAMPBELL:A., RUSHTON:J.P.(1978) "Bodily communication and personality." BRIT. J. SOC. CLIN. PSY. 17, 31-36.

CARMENT:D.W., MILES:C.G., CERVIN:V.B.(1965) "Persuasiveness and persuasability as related to intelligence and extraversion." BRIT. J. SOC. CLIN. PSY. 4, 1-7.

CHERRY:C.(1957) "On human communication: A review, a survey, and a criticism." SCIENCE EDITIONS INC.

CHOMSKY:N.(1959) "Verbal behaviour by B.F. Skinner." LANGUAGE 35, 26-58.

CHRISTIE:R.(1970) "Scale construction." IN R.CHRISTIE, F.L. GEIS (EDS.) "Studies in Machiavellianism." ACADEMIC PRESS.

CHRISTIE:R., GEIS:F.L.(EDS.)(1970) "Studies in Machiavellianism." ACADEMIC PRESS.

CLARIDGE:G.S., HERRINGTON:R.N.(1963) "Excitation-inhibition and the theory of neurosis: A study of the sedation threshold." IN H.J.EYSENCK (ED.) "Experiments with drugs." PERGAMON.

CLARK:W.R.(1975) "A comparison of pupillary response, heart rate, and GSR during deception." PAPER PRESENTED AT THE MEETING OF THE MIDWESTERN PSYCHOLOGICAL ASSOCIATION, CHICAGO.

CLINE:V.B., RICHARDS:J.M.Jr.(1960) "Accuracy of interpersonal perception: A general trait?" J. ABNORMAL AND SOC. PSY. 60, 1-7.

COLLETT:P.(1971) "Training Englishmen in the nonverbal behaviour of Arabs." INTL. J. OF PSY. 6, 209-215.

COOK:M.(1970) "Experiments on orientation and proxemics." HUMAN RELATIONS 23, 261-276.

COOK:M., SMITH:J.M.C.(1974) "Group ranking techniques in the study of person perception." BRIT. J. PSY. 65, 427-435.

COOK:M., SMITH:J.M.C.(1975) "The role of gaze in impression formation." BRIT. J. SOC. CLIN. PSY. 14, 19-25.

COUTTS:L.M., SCHNEIDER:F.W.(1975) "Visual behaviour in an unfocussed interaction as a function of sex and distance." J. EXPTL. SOC. PSY. 11, 64-77.

DARWIN:C.(1872) "The expression of emotion in man and animals." UNIVERSITY OF CHICAGO PRESS.

DAVITZ.J.R.(ED)(1964) "The communication of emotional meaning." McGRAW HILL BOOK CO.

DAVITZ:J.R., DAVITZ:L.J.(1959) "The communication of feelings by content-free speech." J. OF COMMUNICATION 9, 6-13.

DePAULO:B.M., ROSENTHAL:R.(1978) "Age changes in nonverbal decoding as a function of increasing amounts of information." J. OF EXPTL. CHILD PSY. 26, 280-287.

DePAULO:B.M., ROSENTHAL:R. et al (1978) "Decoding discrepant nonverbal cues." J. PERSONALITY AND SOC. PSY. 36, 313-323.

DePAULO:B.M., ROSENTHAL:R.(IN PRESS) "The developmental priority of the evaluative dimension in perceptions of nonverbal cues." ENV. PSY. AND NONVERBAL BEHAV.

DePAULO:B.M., ROSENTHAL:R.(IN PRESS) "Age changes in nonverbal decoding skills: Evidence for increasing differentiation." MERRILL PALMER QUARTERLY.

DITTMAN:A.T.(1972) "Interpersonal messages of emotion." SPRINGER.

DRAG:R.M., SHAW:M.E.(1967) "Factors influencing the communication of emotional intent by facial expressions." PSYCHONOMIC SCIENCE 8, 137-138.

DUCK:S.(1977) "Developing a predictive filter model of friendship formation." INVITED RESEARCH REVIEW PRESENTED TO THE SOCIAL PSY. SECTION OF THE B.P.S. AT DURHAM.

DUCK:S., CRAIG:G.(1977) "The relative attractiveness of different types of information about another person." BRIT. J. SOC. CLIN. PSY. 16, 229-233.

DUCK:S., CRAIG:G.(1978) "Personality similarity and the development of friendship: A longitudinal study." BRIT. J. SOC. CLIN. PSY. 17, 237-242.

DUKE:M.P., NOWICKI:S.Jr.(1972) "A new measure and social learning model for interpersonal distance." J. OF EXPTL. RES. IN PERSONALITY 6, 119-132.

DUNCAN:S.(1969) "Nonverbal communication." PSY. BULL. 72, 118-137.

EDNEY:J.J.(1974) "Human territories: Comment on functional properties." PAPER PRESENTED AT THE MEETING OF THE A.P.A. NEW ORLEANS.

EDWARDS:A.E.(1972 - 4th.EDN.) "Experimental design in psychological research." HOLT RINEHART WINSTON.

EIBL-EIBESFELDT:I.(1972) "Similarities and differences between cultures in expressive movements." IN R.A.HINDE (ED.) "Nonverbal communication." CAMBRIDGE UNIVERSITY PRESS.

EKMAN:P.(1972) "Universal and cultural differences in facial expressions of emotion." IN J.K.COLE (ED.) "Nebraska symposium on motivation." UNIVERSITY OF NEBRASKA PRESS.

EKMAN:P., FRIESEN:W.V.(1965) "Progress report to the National Institute of Mental Health, Bethesda, Maryland." CITED IN HARPER, WIENS, MATARAZZO (1978) "Nonverbal communication." WILEY.

EKMAN:P., FRIESEN:W.V.(1968) "Nonverbal behaviour in psychotherapy research." IN J.M.SHLIEN et al (EDS.) "Research in psychotherapy." VOL.3 A.P.A.

EKMAN:P., FRIESEN:W.V.(1969a) "Nonverbal leakage and clues to deception." PSYCHIATRY 32, 88-106.

EKMAN:P., FRIESEN:W.V.(1974) "Detecting deception from the body or face." J. PERSONALITY AND SOC. PSY. 29, 288-298.

EKMAN:P., FRIESEN:W.V., ELLSWORTH:P.(1972) "Emotion in the human face: Guidelines for research and an integration of findings." PERGAMON PRESS INC.

EKMAN:P., FRIESEN:W.V., SCHERER:K.R.(1976) "Body movement and voice pitch in deceptive interaction." SEMIOTICA 16, 23-27.

EKMAN:P., FRIESEN:W.V., TOMKINS:S.S.(1971) "Facial affect scoring technique: A first validity study." SEMIOTICA 3, 37-58.

ELLSWORTH:P.C., LUDWIG:L.M.(1972) "Visual behaviour in social interaction." J. OF COMMUNICATION 22, 375-403.

EVANS:G.W., EICHELMAN:W.(1975) "Preliminary models of conceptual linkages among some proxemic variables." CITED IN HARPER, WIENS, MATARAZZO (1978) "Nonverbal communication." WILEY.

EXLINE:R.V.(1963) "Explorations in the process of person perception: Visual interaction in relation to competition, sex, and the need for affiliation." J. OF PERSONALITY 31, 1-20.

EXLINE:R.V., THIBAUT:C., BRANNAN:C., GUMPERT:P.(1966) "Visual interaction in relation to Mach. and an unethical act." TECHNICAL REPORT NO.16, UNIVERSITY OF DELAWARE.

EXLINE:R.V., WINTERS:L.C.(1965) "Affective relationships and mutual gaze in dyads." IN S.TOMKINS, C.IZZARD (EDS.) "Affect, cognition and personality." SPRINGER.

EYSENCK:H.J.(1967) "The biological basis of personality." SPRINGFIELD: CHARLES C. THOMAS.

EYSENCK:H.J.(1971a) "Readings in extraversion - introversion I: Basic processes." STAPLES.

EYSENCK:H.J.(1974b) "A brief note on extraversion and performance." J. ABNORMAL PSY. 83, 308-310.

EYSENCK:H.J., EYSENCK:S.B.G.(1964) "Manual of the Eysenck Personality Inventory." UNIVERSITY OF LONDON PRESS.

FISHER:B.A.(1978) "Perspectives on human communication." COLLIER MACMILLAN.

FREUD:S.(1959) "Fragment of an analysis of a case of hysteria (1905)." COLLECTED PAPERS VOL.3 BASIC BOOKS pp.13-146.

FRIEDMAN:M., BROWN:A.E., ROSEMAN:S.(1969) "Voice analysis test for detection of behaviour pattern." J. OF AMER. MED. ASSOC. 208, 828-836.

FRIJDA:N.H.(1968) "Emotion and recogntion of emotion." PAPER PRESENTED AT THE 3rd. SYMPOSIUM ON FEELINGS AND EMOTIONS, LOYOLA UNIVERSITY CHICAGO.

FRIJDA:N.H.(1969) "Recognition of emotion." IN L.BERKOWITZ (ED.) "Advances in experimental social psychology." VOL.4

ACADEMIC PRESS.

GAHAGAN:J.(1975) "Interpersonal and group behaviour." METHUEN.

GALE:A.(1973) "Individual differences: Studies of extraversion and the EEG." IN P.KLINE (ED.) "New approaches in psychological measurement." WILEY.

GARDNER:R.C., TAYLOR:D.M.(1968) "Ethnic stereotypes: Their effects on person perception." CANADIAN J. OF PSYCHOPATHOLOGY 22, 267-276.

GOFFMAN:E.(1959) "The presentation of self in everyday life." PENGUIN.

GRAY:J.A.(1972) "The psychophysiological nature of introversion-extraversion: A modification of Eysenck's theory." IN NEBYLITSYN AND GRAY (EDS.) "Biological bases of individual behaviour." ACADEMIC PRESS.

GRAY:J.A.(1973) "Causal theories of personality and how to test them." IN J.R.ROYCE (ED.) "Multivariate analysis and psychological theory." ACADEMIC PRESS.

HALL:E.T.(1963) "A system for the notation of proxemic behaviour." AMER. ANTHROPOLOGIST 65, 1003-1026.

HALL:E.T.(1968) "Proxemics." CURRENT ANTHROPOLOGY 9, 83-108.

HALL:J.A.(1978) "Gender effects in decoding nonverbal cues." PSY. BULL. 85, 845-857.

HARPER:R.G., WIENS:A.N., MATARAZZO:J.D.(1978) "Nonverbal communication: The state of the art." WILEY.

HARRISON:R.P.(1973) "Nonverbal communication." IN DE SOLA POOL AND SCHRAMM et al (EDS.) "Handbook of communication." RAND McNALLY.

HARRISON:R.P., COHEN:A.A., CROUCH:W.W., GENOVA:B.K.L., STEINBERG:M.(1972) "The nonverbal communication literature." J. OF COMMUNICATION 22, 460-476.

HESS:E.H.(1972) "Pupillometrics: A method of studying mental, emotional and sensory processes." IN GREENFIELD AND STERNBACH (EDS.) "Handbook of psychophysiology." HOLT RINEHART WINSTON.

HILL:A.B.(1975) "Extraversion and variety seeking in a monotonous task." BRIT. J. PSY. 66, 9-13.

HOCKETT:C.D.(1960) "The origin of speech." SCIENTIFIC AMERICAN 203, 88-96.

HOMANS:G.C.(1961) "Social behaviour: Its elementary form." HARCOURT BRACE.

HOOFF:J.A.R.A.M.(1972) "A comparative approach to the phylogeny of laughter and smiling." IN R.A.HINDE (ED.) "Nonverbal communication." CAMBRIDGE UNIVERSITY PRESS.

HUNT:R.G., LIN:T.K.(1967) "Accuracy of judgements of personal attributes from speech." J. PERSONALITY AND SOC. PSY. 6, 450-453.

IZARD:C.E.(1971) "The face of emotion." APPLETON CENTURY CROFTS.

JAMES:W.(1890) "The principles of psychology." HENRY HOLT AND CO.

JURICH:A.P., JURICH:J.A.(1974) "Correlations among nonverbal expressions of anxiety." PSY. REPORTS 34, 199-204.

KEEN:C.(1978) "Talking to your Apple." PRACTICAL COMPUTING 1, 13.

KIRITZ:S.A., EKMAN:P.(1971) "The deviant judge of affect in facial expression: Affect specific errors." CITED IN HARPER,

WIENS, MATARAZZO (1978) "Nonverbal communication." WILEY.

KLECK:R.E., NUESSLE:W.(1968) "Congruence between the indicative and communicative functions of eye contact in interpersonal relationships." BRIT. J. SOC. CLIN. PSY. 7, 241-246.

KLECK:R.E., RUBENSTEIN:S.(1975) "Physical attractiveness, perceived attitude similarities and interpersonal attraction in an opposite sex encounter." J. PERSONALITY SOC. PSY. 31, 107-114.

KLEINKE:C.L., BUSTOS:A.A., MEEKER:F.B., STANESKI:R.A.(1973) "Effect of self-attributed and other attributed gaze on interpersonal evaluations between males and females." J. EXPTL. SOC. PSY. 9, 154-163.

KLEINKE:C.L., MEEKER:F.B., FONG:C.L.(1974) "Effects of gaze, touch and use of name on evaluation of 'engaged' couples." J. RES. IN PERSONALITY 7, 368-373.

KNAPP:M.L.(1972, 1st. EDN.; 1978, 2nd. EDN.) "Nonverbal communication in human interaction." HOLT RINEHART WINSTON.

KNAPP:M.L., HART:R.P., DENNIS:H.S.(1974) "An exploration of deception as a communication construct." HUMAN COMMUNICATION RES. 1, 15-29.

KRAMER:E.(1963) "Judgements of personal characteristics and emotions from nonverbal properties of speech." PSY. BULL. 60, 408-420.

KRAMER:E.(1964) "Elimination of verbal cues in judgements of emotion from voice." J. ABNORMAL AND SOC. PSY. 6, 390-396.

KRAUT:R.E.(1978) "Verbal and nonverbal cues in the perception of lying." J. PERSONALITY AND SOC. PSY. 36, 380-391.

LaCROSSE:M.B.(1975) "Nonverbal behaviour and perceived counsellor attractiveness and persuasiveness." J. COUNSELLING

PSY. 22, 563-566.

LaFRANCE:M., MAYO:C.(1979) "A review of nonverbal communication in women and men." WESTERN J. OF COMMUNICATION.

LALLJEE:M.C.(1971) "Disfluencies in normal English speech." UNPUBLISHED PhD DISSERTATION OXFORD UNIVERSITY, CITED IN M.L.KNAPP (1978) "Nonverbal communication in human interaction." HOLT RINEHART WINSTON.

LANZETTA:J.T., KLECK:R.E.(1970) "Encoding and decoding of nonverbal affect in humans." J. PERSONALITY AND SOC. PSY. 16, 12-19.

LeCOMPTE:W.F., ROSENFELD:H.M.(1971) "Effects of minimal eye contact in the instruction period on impressions of the experimenter." J. EXPTL. SOC. PSY. 7, 211-220.

LETT:E.E., CLARK:W., ALTMAN:I.(1969) "A propositional inventory of research on interpersonal distance." RESEARCH REPORT NO. 1, BETHESDA. NAVAL MEDICAL RESEARCH INSTITUTE.

LEVITT:E.A.(1964) "The relation between abilities to express emotional meanings vocally and facially." IN J.R.DAVITZ (ED.) "The communication of emotional meaning." McGRAW HILL BOOK CO.

LIN:N.(1973) "The study of human communication." BOBBS-MERRILL.

LIPPA:R.(1976) "Expressive control and the leakage of dispositional introversion-extraversion during role-played teaching." J. OF PERSONALITY 44, 541-559.

LIPPA:R.(1978) "Expressive control, expressive consistency, and the correspondance between expressive behaviour and personality." J. OF PERSONALITY 46, 438-461.

LITTLE:K.B.(1965) "Personal space." J. EXPTL. SOC. PSY. 1, 237-247.

LITTLE:K.B., ULEHA:Z.J., HENDERSON:C.(1968) "Value congruence and interaction distances." J. OF SOC. PSY. 75, 249-253.

LITTLEPAGE:G., PINEAULT:T.(1978) "Verbal, facial, and paralinguistic cues to the detection of truth and lying." PERSONALITY AND SOC. PSY. BULL. 4, 461-464.

McCLUSKY:K.W., ALBAS:D.C.(1978) "Differential sensitivity to contradictory communication as a function of age and culture." J. OF CROSS-CULTURAL PSY. 9, 167-178.

MALLORY:E.B., MILLER:V.B.(1958) "A possible basis for the association of voice characteristics and personality traits." SPEECH MONOGRAPHS 25, 255-260.

MARKEL:N.N.(1969) "Relationships between voice-quality profiles in psychiatric patients." J. ABNORMAL PSY. 74, 61-66.

MARKEL:N.N., MEISELS:M., HOUCK:J.E.(1964) "Judging personality from voice quality." J. ABNORMAL AND SOC. PSY. 69, 458-463.

MAYO:C., LaFRANCE:M.(1973) "Gaze direction in interracial dyadic communication." CITED IN HARPER, WIENS, MATARAZZO (1978) "Nonverbal communication." WILEY.

MEHRABIAN:A.(1968a) "Inference of attitudes from the posture, orientation and distance of a communicator." J. CONSULTING CLIN. PSY. 32, 296-308.

MEHRABIAN:A.(1968b) "Relationship of attitude to seated posture, orientation, and distance." J. PERSONALITY AND SOC. PSY. 10, 26-30.

MEHRABIAN:A.(1970) "The development and validation of measures of affiliative tendency and sensitivity to rejection." EDUCATIONAL AND PSYCHOLOGICAL MEASUREMENT 30, 417-428.

MEHRABIAN:A.(1971a) "Verbal and nonverbal interaction of strangers in a waiting situation." J. EXPTL. RES. IN PERSONALITY 5, 127-138.

MEHRABIAN:A.(1971) "Silent messages." WADSWORTH PUB. CO.

MEHRABIAN:A.(1972) "Nonverbal communication." ALDINE-ATHERTON.

MEHRABIAN:A., DIAMOND:S.G.(1971) "Seating arrangement and conversation." SOCIOMETRY 34, 281-289.

MEHRABIAN:A., FRIAR:J.T.(1969) "Encoding of attitude by a seated communicator via posture and position cues." J. CONSULTING CLIN. PSY. 33, 330-336.

MEHRABIAN:A., WIENER:M.(1967) "Decoding of inconsistent communications." J. PERSONALITY AND SOC. PSY. 6, 109-114.

MISCHEL:W.(1969) "Continuity and change in personality." AMER. PSYCHOLOGIST 24, 1012-1018.

MISCHEL:W.(1973) "Towards a cognitive social learning reconceptualization of personality." PSY. REV. 80, 252-283.

MUSSEN:P.H., CONGER:J.J., KAGAN:J.(1974) "Child development and personality." HARPER AND ROW.

NEWCOMB:T.B.(1961) "The acquaintance process." HOLT RINEHART WINSTON.

NORMAN:W.T.(1963) "Towards an adequate taxonomy of personality attributes." J. ABNORMAL AND SOC. PSY. 66, 574-583.

OSGOOD:C.E.(1966) "Dimensionality of the semantic space for communication via facial expression." SCANDINAVIAN J. OF PSY. 7, 1-30.

PATTERSON:M.L.(1974) "Factors affecting interpersonal spatial proximity." PAPER PRESENTED AT THE MEETING OF THE A.P.A. NEW ORLEANS.

PECK:D., WHITLOW:D.(1975) "Approaches to personality theory." METHUEN.

PEDERSON:D.M., SHEARS:L.M.(1973) "A review of personal space research in the framework of general system theory." PSY. BULL. 80, 367-388.

PHILLIPS:J.S., MATARAZZO:J.D., MATARAZZO:R.G., SASLOW:G.(1957) "Observer reliability of interaction patterns during interviews." J. CONSULTING PSY. 21, 269-275.

PLUTCHICK:R.(1962) "The emotions: Facts, theories, and a new model." RANDOM HOUSE.

POYATOS:F.(1974) "The challenge of 'total body communication' as an interdisciplinary field of integrative research." PAPER PRESENTED AT THE MEETING OF THE INTERNATIONAL CONGRESS OF SEMIOTIC SCIENCES, MILAN.

RIM:Y., SEIDENROSS:H.(1971) "Personality and response to pressure from peers versus adults." PERSONALITY 2, 35-43.

ROSENFELD:H.M.(1965) "Effect of an approval-seeking induction on interpersonal proximity." PSY. REPORTS 17, 120-122.

ROSENTHAL:R., DePAULO:B.M.(1979) "Sex differences in eavesdropping on nonverbal cues." J. PERSONALITY AND SOC. PSY. 37, 273-285.

ROSENTHAL:R., HALL:J.A., ARCHER:D., DiMATTEO:M.R., ROGERS:P.L. (1975) "The P.O.N.S. test: Measuring sensitivity to nonverbal cues." UNPUBLISHED M.S.

RUESCH:J., KEES:W.(1972) "Nonverbal communication: Notes on the visual perception of human relations." UNIVERSITY OF CALIFORNIA PRESS.

SAPIR:E.(1921) "Language: An introduction to the study of speech." HARCOURT BRACE AND WORLD.

SASLOW:G., MATARAZZO:J.D., GUZE:S.B.(1955) "The stability of interaction chronograph patterns in psychiatric disorders." J. CONSULTING PSY. 19, 417-420.

SCHEFLEN:A.E.(1966) "Natural history method in psychotherapy: Communication research." IN L.A.GOTTSCHALK AND A.H.AUERBACH (EDS.) "Methods of research in psychotherapy." APPLETON CENTURY CROFTS.

SCHEFLEN:A.E.(1968) "Human communication." BEHAVIOURAL SCIENCES 13, 44-55.

SCHEFLEN:A.E., SCHEFLEN:A.(1972) "Body language and social order." PRENTICE-HALL INC.

SCHERER:K.R.(1971) "Randomized splicing: A note on a simple technique for masking speech content." J. EXPTL. RES. IN PERSONALITY 5, 155-159.

SCHERER:K.R.(1972) "Judging personality from voice: A cross-cultural approach to an old issue in interpersonal perception." J. OF PERSONALITY 40, 191-210.

SCHERER:K.R.(1974) "Acoustic concomitants of emotional dimensions: Judging affect from synthesized tone sequences." IN S.WEITZ (ED.) "Nonverbal communication: Readings with commentary." OXFORD UNIVERSITY PRESS.

SHANNON:C., WEAVER:W.(1949) "The mathematical theory of communication." UNIVERSITY OF ILLINOIS PRESS.

SINHA:A.K.P., OJHA:H.(1963) "An experimental study of the operation of prestige suggestions in extraverts and introverts." J. OF SOC. PSY. 61, 29-34.

SLOBIN:D.I.(1971) "Psycholinguistics." SCOTT FORESMAN.

SNYDER:M.(1974) "Self-monitoring of expressive behaviour." J. PERSONALITY AND SOC. PSY. 30, 526-537.

SNYDER:M., MONSON:T.C.(1975) "Persons, situations, and the control of social behaviour." J. PERSONALITY AND SOC. PSY. 32, 637-644.

SOMMER:R.(1969) "Personal space: The behavioural basis of design." PRENTICE HALL.

SOMMER:R., BECKER:F.D.(1969) "Territorial defense and the good neighbour." J. PERSONALITY AND SOC. PSY. 11, 85-92.

STOKOLS:D.(1974) "The experience of crowding in primary and secondary environments." CITED IN HARPER, WIENS, MATARAZZO (1978) "Nonverbal communication." WILEY.

SUNDSTROM:E.(1975) "An experimental study of crowding: Effect of room size, intrusion, and goal blocking on nonverbal behaviour, self-disclosure, and self-reported stress." J. PERSONALITY AND SOC. PSY. 32, 645-654.

TAFT:R.(1955) "The ability to judge people." PSY. BULL. 52, 1-23.

TAGIURI:R.(1969) "Person perception." IN LINDZEY AND ARONSON (EDS.) "Handbook of social psychology." VOL.III.

THIBAUT:J.W., KELLEY:N.N.(1959) "The social psychology of groups." WILEY.

THOMPSON:D.F., MELTZER:L.(1964) "Communication of emotional intent by facial expression." J. ABNORMAL AND SOC. PSY. 68, 129-135.

TRAGER:G.L.(1958) "Paralanguage: A first approximation." STUDIES IN LINGUISTICS 13, 1-12.

TUASON:V.B., GUZE:S.B., McCLURE:J., BEGUELIN:J.(1961) "A further study of some features of the interview with the interaction chronograph." AMER. J. OF PSYCHIATRY 118, 438-446.

WARDHAUGH:R.(1972) "Introduction to linguistics." McGRAW HILL BOOK CO.

WARR:P.B., KNAPPER:C.(1968) "The perception of people and events." WILEY.

WATSON:S.E.(1972) "Judgement of emotion from facial and contextual cue combinations." J. PERSONALITY AND SOC. PSY. 24, 334-342.

WEAVER:J.C., ANDERSON:R.J.(1973) "Voice and personality interrelationships." SOUTHERN SPEECH COMMUNICATION J. 38, 262-278.

WEITZ:S.(ED.)(1974) "Nonverbal communication: Readings with commentary." OXFORD UNIVERSITY PRESS.

WIENER:M., MEHRABIAN:A.(1968) "Language within language: Immediacy, a channel in verbal communication." APPLETON CENTURY CROFTS.

WIENER:M., DEVOE:S., RUBINOW:S., GELLER:J.(1972) "Nonverbal behaviour and nonverbal communication." PSY. REV. 79, 185-214.

WILLIAMS:F., SUNDENE:B.(1965) "Dimensions of recognition: Visual versus vocal expression of emotion." AUDIO VISUAL COMMUNICATIONS REVIEW 13, 44-52.

WILLIAMS:J.L.(1971) "Personal space and its relation to extraversion-introversion." CANADIAN J. OF BEHAVIOURAL SCIENCE 3, 156-160.

WILSON:G.(1977) "Introversion/extraversion." IN T.BLASS (ED.) "Personality variables in social behaviour." LAWRENCE ERLBAUM ASSOCS.

WINCH:R.(1958) "Mate-selection: A study of complementary needs." HARPER AND ROW.

WOODWORTH:R.S.(1938) "Experimental psychology." HENRY HOLT.

ZUCKERMAN:M., HALL:J.A., DeFRANK:R.S., ROSENTHAL:R.(1976) "Encoding and decoding of spontaneous and posed facial expressions." J. PERSONALITY AND SOC. PSY. 34, 966-977.

ZUCKERMAN:M., LIPETS:M.S., KOIVUMAKI:J.H., ROSENTHAL:R. (1975) "Encoding and decoding nonverbal cues of emotion." J. PERSONALITY AND SOC. PSY. 32, 1068-1076.

ADDENDA TO REFERENCES.

BERLYNE:D.E.(1960) "Conflict, arousal and curiosity." McGRAW HILL BOOK CO.

MEHRABIAN:A., FERRIS:S.R.(1967) "Inference of attitud s from non-verbal communication in two channels." J. OF CONSULTING PSY. 31, 248-252.

SCHEFLEN:A.E.(1973) "How behaviour means." GORDON AND BREACH.

APPENDIX ONE

COMPLETE RAW DATA PLUS SUNDRY RESULTS TABLES
FOR ALL EXPERIMENTS.

FULL RESULTS OF EXPERIMENT I.

SEX OF SUBJECT	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
N	9	18	2	12	13	3	7	10	15	14	11	18	10	17	6	13	21	12	7	22
E	12	10	15	14	19	9	14	9	16	10	15	18	16	16	17	14	12	14	14	5
PVPN	25	-17	18	26	25	-6	-9	9	19	16	22	0	25	20	10	15	21	6	-9	14
PVNN	-17	-17	-10	-22	-15	-16	-31	-24	-15	-24	0	-1	-20	-10	-11	-18	-12	-19	-19	-20
NVNN	-3	0	-6	-10	-9	-5	-7	-8	-6	-9	-16	1	-9	-10	-11	-13	-15	-7	-10	-18
NVPN	-2	2	4	-3	5	3	13	19	20	20	1	9	12	14	6	-8	-8	-2	-3	5

FULL RESULTS OF EXPERIMENT I CONTINUED.

SEX OF SUBJECT	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
N	7	9	19	18	11	16	16	3	20	19	11	12	12	3	18	11	15	4	12	15
E	13	20	11	13	7	7	10	19	16	4	8	18	12	16	9	15	12	12	16	7
PVPN	25	21	16	25	25	9	3	-15	-9	-10	10	22	24	26	25	24	2	25	-8	14
PVNN	-9	-13	0	-3	-4	-25	-17	-21	-15	-1	-27	-17	-17	14	-30	-27	-21	-18	-12	-20
NVNN	-21	-14	-3	-16	-2	-8	4	-10	-7	-10	-3	-5	-12	-6	-26	-14	-13	-8	-8	-20
NVPN	0	-12	-1	7	10	5	20	27	11	13	21	5	12	-8	7	15	-4	-3	-11	10

FULL RESULTS OF EXPERIMENT II.

SEX OF SUBJECT	M	M	M	M	M	M	M	M	F	F	F	F	F	F	F	F
MACH. SCORE	96	88	92	102	128	114	108	94	99	124	106	100	112	80	98	128
PVPN SCORE	20	14	-4	20	25	20	9	19	17	17	25	25	26	2	6	25
PVNN SCORE	-19	-17	-16	0	-20	-17	-24	-15	-28	-23	-27	-17	-20	-21	-25	-18
NVNN SCORE	-12	-12	-6	-15	-5	-2	-7	-6	-12	-9	-11	-3	-10	-20	-19	-8
NVPN SCORE	7	-7	10	1	10	-2	20	5	-6	-1	20	-2	-3	10	1	-3

FULL RESULTS OF EXPERIMENT III.

SEX OF SUBJECT	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
MACH.	114	110	104	102	108	98	112	107	92	94	85	90	96	72	81	102	118	94	84	116
PVPN	18	-16	-2	27	-24	24	17	20	23	13	20	24	24	20	23	22	24	17	22	-7
PVNN	-20	-9	-25	-20	-26	-23	-24	-24	0	-19	-24	-10	-18	-2	-24	-14	-24	-26	-20	-10
NVNN	-11	-12	-10	-16	-11	-9	-8	-10	-9	-15	-20	-4	-16	-9	-7	-10	-9	-11	-3	-3
NVPN	-1	-4	-17	-18	-17	-18	5	-11	25	4	-6	4	9	6	7	2	12	-6	19	1

FULL RESULTS OF EXPERIMENT III CONTINUED.

SEX OF SUBJECT	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
MACH.	110	102	94	100	100	102	108	94	84	116	104	110	98	102	100	90	110	92	81	124
PVPN	25	24	28	25	22	23	24	-18	-3	22	-22	17	22	25	22	25	6	24	22	24
PVNN	-18	-14	-21	-28	-13	-20	-25	-25	9	-18	-25	-15	-25	-17	-26	-17	-9	-18	-28	-23
NVNN	-8	-12	-3	-4	-6	-7	-15	-21	-2	-4	5	-8	-17	-16	-10	-4	-9	-5	-14	-17
NVPN	6	7	-6	4	-1	0	9	4	10	-15	20	19	-13	-1	8	-6	3	2	6	13

FULL RESULTS OF EXPERIMENT IV.

SEX OF SUBJECT	M	M	M	M	M	M	M	M	F	F	F	F	F	F	F	F
MACH. SCORE	111	99	102	120	85	71	96	83	109	97	101	104	62	92	79	90
PVPN SCORE	17	7	13	22	8	-4	19	9	24	12	17	19	11	13	7	18
PVNN SCORE	-12	-18	-16	-12	-22	-24	-14	-15	-18	-17	-14	-15	-20	-16	-12	-15
NVNN SCORE	-2	-3	-9	-7	-11	-8	-9	-14	-5	-3	-9	-12	-4	-12	-10	-18
NVPN SCORE	10	5	21	13	9	14	7	2	6	15	12	3	8	16	12	11

FULL RESULTS OF EXPERIMENT V.

RESULTS FOR THE FEMALE-ACTED VIDEOTAPE:

SEX OF SUBJECT	M	M	M	M	M	M	M	M	M	M	M	M	F	F	F	F	F	F	F	F	F	F	F
S.M.	18	9	15	3	8	17	12	16	12	4	12	18	9	5	14	13	20	9	18	11	16	10	10	8
MACH.	62	86	96	72	96	110	98	98	74	64	92	90	80	80	90	78	82	85	76	82	110	92	86	88
E.	9	7	23	1	17	7	13	15	18	13	17	10	3	6	11	14	16	14	16	14	14	10	15	9
N.	6	9	3	8	6	20	6	5	8	4	12	12	12	17	8	8	14	11	15	19	10	15	12	14
C.S.	1	5	7	7	7	7	5	4	8	7	3	6	8	7	4	6	8	6	6	6	8	5	5	4

FULL RESULTS OF EXPERIMENT V CONTINUED.

RESULTS FOR MALE-ACTED VIDEOTAPE:

SEX OF SUBJECT	M	M	M	M	M	M	M	M	M	M	M	M	F	F	F	F	F	F	F	F	F	F	F	F
S.M.	21	8	18	11	16	17	16	11	19	16	14	15	11	12	15	12	17	3	16	13	19	6	9	4
MACH.	108	79	100	84	80	78	115	98	69	76	85	107	72	78	94	74	76	70	100	88	78	48	82	68
E.	12	13	17	20	11	16	19	7	11	9	5	14	17	10	14	15	16	10	17	12	16	13	16	9
N.	19	0	7	5	15	14	2	12	11	6	20	6	9	17	4	18	7	18	19	17	11	14	11	8
C.S.	3	7	5	8	5	2	7	7	5	4	5	7	7	7	5	4	5	7	5	6	8	6	8	3

FULL RESULTS OF EXPERIMENT V CONTINUED:

Summery tables of the non-significant analyses of variance for the personality factors E., N. and Mach.

SOURCE OF VARIANCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE ESTIMATE	F RATIO	SIGNIFICANCE
E	3	1	3	0.943	NO
SEX	3	1	3	0.943	NO
Videotape (V)	0.33	1	0.33	0.103	NO
E x SEX	0.33	1	0.33	0.103	NO
E x V	0.0033	1	0.0033	---	NO
SEX x V	0.0033	1	0.0033	---	NO
E x SEX x V	3	1	3	0.943	NO
WITHIN CELLS	127.33	40	3.18		

N	1.33	1	1.33	0.44	NO
SEX	3	1	3	0.99	NO
Videotape (V)	0.33	1	0.33	0.11	NO
N x SEX	0.33	1	0.33	0.11	NO
N x V	5.34	1	5.34	1.76	NO
SEX x V	0.0033	1	0.0033	---	NO
N x SEX x V	5.326	1	5.326	1.75	NO
WITHIN CELLS	121.33	40	3.033		

MACH.(M)	0	1	0	---	NO
SEX	3	1	3	0.98	NO
Videotape (V)	0.33	1	0.33	0.108	NO
M x SEX	0.33	1	0.33	0.108	NO
M x V	8.34	1	8.34	2.73	NO
SEX x V	0.0033	1	0.0033	---	NO
M x SEX x V	2.99	1	2.99	0.98	NO
WITHIN CELLS	122.006	40	3.05		

FULL RESULTS OF EXPERIMENT VI.

SEX OF SUBJECT	M	M	M	M	M	M	M	M	M	M	M	M	F	F	F	F	F	F	F	F	F	F	F	F
E	5	14	23	12	17	17	18	17	12	12	19	8	15	10	19	16	12	14	17	17	21	5	22	16
N	21	2	4	7	10	17	13	17	14	7	14	17	4	5	7	10	9	10	5	19	8	8	5	6
MACH.	92	90	70	76	78	82	108	90	94	84	102	72	92	86	96	90	88	73	78	86	90	86	104	99
S.M.	22	12	6	9	18	21	14	22	9	15	12	9	12	12	11	18	15	7	16	14	11	14	24	7
PVPN	26	6	21	20	-4	21	20	18	25	6	-2	21	22	24	22	24	18	26	24	21	12	18	16	23
PVNN	-23	-16	11	-18	19	9	-15	-1	19	2	18	19	26	27	24	5	-12	-21	15	12	8	5	-23	17
NVNN	-12	-16	-22	-7	-7	-10	-10	-10	-11	-15	-20	-12	-7	-15	-3	14	-8	-16	-14	-13	-13	-5	-15	-8
NVPN	2	-14	-8	-6	-4	-16	10	5	-11	-10	4	2	-7	3	-4	5	2	2	-2	-16	4	8	-9	3

FULL RESULTS OF EXPERIMENT VII.

SEX OF SUBJECT	M	M	M	M	M	M	M	M	M	M	M	M	F	F	F	F	F	F	F	F	F	F	F	F
E	17	6	13	9	17	7	19	13	6	10	17	9	8	8	11	18	9	9	18	5	16	13	6	19
N	9	12	7	4	10	5	7	10	18	16	9	14	22	22	17	11	10	12	6	10	5	18	10	11
MACH.	86	80	84	94	94	70	98	68	101	73	104	92	80	102	68	80	73	68	106	68	94	90	84	86
S.M.	14	7	10	16	15	10	21	8	6	7	18	12	11	7	19	15	6	10	10	13	13	11	12	12
PVPN	24	17	23	9	-12	-14	-7	25	-3	7	18	5	3	7	7	2	-9	10	21	11	21	14	6	16
PVNN	-19	-8	-17	-17	-20	17	-11	-18	-20	-25	-17	-21	-12	-10	25	-9	-9	-18	-15	-21	0	-7	-7	-19
NVNN	-7	-17	-14	-13	-21	-8	-10	-24	-17	-14	-16	-6	6	-16	18	-8	1	-6	-7	-17	-8	-7	-10	-20
NVPN	1	0	3	13	31	20	17	31	-2	-3	11	1	7	-5	-9	17	23	2	12	15	11	2	4	-13
GROUP	1	1	1	2	2	2	3	3	3	4	4	4	1	1	1	2	2	2	3	3	3	4	4	4

FULL RESULTS OF EXPERIMENT VII CONTINUED.

Summary tables of non-significant analyses of variance for the personality factors E., N., Mach. and S.M.

SOURCE OF VARIANCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE ESTIMATE	F RATIO	SIGNIFICANCE
E	243.86	1	243.86	2.07	NO
SEX	184.26	1	184.26	1.56	NO
CC	8529.1	3	2843.04	24.14	P<0.01
E x SEX	6.54	1	6.54	---	NO
E x CC	271.62	3	90.54	0.77	NO
CC x SEX	524.7	3	174.9	1.48	NO
E x CC x SEX	589.88	3	196.63	1.67	NO
WITHIN CELLS	9421.2	80	117.76		

N	137.76	1	137.76	1.14	NO
SEX	184.26	1	184.26	1.52	NO
CC	8529.1	3	2843.04	23.46	P<0.01
N x SEX	55.54	1	55.54	0.46	NO
N x CC	95.9	3	31.96	0.26	NO
CC x SEX	524.7	3	174.9	1.44	NO
N x CC x SEX	548.4	3	182.8	1.51	NO
WITHIN CELLS	9695.5	80	121.19		

MACH.(M)	207.1	1	207.1	1.8	NO
SEX	184.25	1	184.25	1.6	NO
CC	8529.1	3	2843.04	24.9	P<0.01
M x SEX	5.51	1	5.51	---	NO
M x CC	501.96	3	167.32	1.5	NO
CC x SEX	524.7	3	174.9	1.53	NO
M x CC x SEX	685.74	3	228.6	2	NO
WITHIN CELLS	9132.8	80	114.16		

S.M.	6.5	1	6.5	---	NO
SEX	184.25	1	184.25	1.46	NO
CC	8529.1	3	2843.04	22.53	$P < 0.01$
S.M.x SEX	6.54	1	6.54	---	NO
S.M.x CC	5.5	3	1.8	---	NO
CC x SEX	524.7	3	174.9	1.4	NO
S.M. x CC x SEX	421.73	3	140.6	1.1	NO
WITHIN CELLS	10092.84	80	126.16		

FULL RESULTS OF EXPERIMENT VIII.

SEX OF SUBJECT	M	M	M	M	M	M	M	M	M	M	M	M	F	F	F	F	F	F	F	F	F	F	F	F
E	9	16	12	13	18	9	11	13	24	17	9	8	13	15	11	5	5	22	20	8	16	9	6	10
N	13	16	10	8	6	4	22	10	2	16	16	19	20	14	11	10	19	4	9	16	7	11	7	8
MACH.	88	78	88	80	102	94	98	88	100	76	76	98	90	94	88	68	78	60	106	104	88	86	92	64
S.M.	8	17	15	16	14	15	18	18	9	15	19	6	12	10	13	13	8	5	4	17	17	20	8	5
PVPN	13	21	21	-19	1	-14	15	16	12	3	16	17	26	20	22	0	-8	0	16	22	25	-1	23	15
PVNN	-22	-24	-19	-23	-14	-14	-8	-8	-25	12	-9	-10	-22	-5	-18	-24	-26	-19	-19	4	-10	-10	-19	-23
NVNN	-19	-17	-26	-19	-17	-14	-11	-13	-28	1	-10	-15	-13	-9	-16	-14	-17	-3	-15	-4	-11	-12	-13	-17
NVPN	-16	0	-22	24	8	2	19	27	11	-13	25	-3	-6	2	1	8	22	7	4	15	26	15	-12	2
GROUP	1	1	1	2	2	2	3	3	3	4	4	4	1	1	1	2	2	2	3	3	3	4	4	4

FULL RESULTS OF EXPERIMENT VIII.

Summary tables of the non-significant analyses of variance for the personality factors E, N. and S.M.

SOURCE OF VARIANCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE ESTIMATE	F RATIO	SIGNIFICANCE
E	61.76	1	61.76	0.48	NO
SEX	98.01	1	98.01	0.76	NO
CC	12781.2	3	4260.4	33.3	P<0.01
E x SEX	14.265	1	14.265	0.11	NO
E x CC	23.28	3	7.76	0.06	NO
CC x SEX	173.37	3	57.79	0.45	NO
E x CC x SEX	534.775	3	178.26	1.39	NO
WITHIN CELLS	10229.5	80	127.87		

N	311.76	1	311.76	2.52	NO
SEX	98.01	1	98.01	0.79	NO
CC	12781.2	3	4260.4	34.42	P<0.01
N x SEX	41.35	1	41.35	0.33	NO
N x CC	272.45	3	90.82	0.73	NO
CC x SEX	173.37	3	57.79	0.46	NO
N x CC x SEX	334.52	3	111.51	0.9	NO
WITHIN CELLS	9903.5	80	123.79		

S.M.	404.26	1	404.26	3.27	NO
SEX	98.01	1	98.01	0.79	NO
CC	12781.2	3	4260.4	34.48	P<0.01
S.M.x SEX	0.1	1	0.1	----	NO
S.M.x CC	364.45	3	121.48	0.98	NO
CC x SEX	173.37	3	57.79	0.46	NO
S.M. x CC x SEX	210.936	3	70.312	0.57	NO
WITHIN CELLS	9883.834	80	123.55		

FULL RESULTS OF EXPERIMENT IX.

SEX OF SUBJECT	M	M	M	M	M	M	M	M	M	M	M	M	F	F	F	F	F	F	F	F	F	F	F	F
PVPN	0	-7	24	6	6	-10	6	8	-2	-7	-9	-1	-10	-3	9	-13	-10	-7	3	-7	-4	-15	12	-18
PVNN	3	-8	24	-13	-2	-11	-13	0	-17	-12	16	-1	-8	-14	-15	21	-8	-12	-7	-14	-8	-8	22	-13
NVNN	0	-1	-12	-9	-13	3	-4	-12	-15	-20	-1	-3	-11	-4	-8	-5	-18	-2	-4	-9	0	-8	-6	-6
NVPN	-1	-1	-1	-10	-2	14	-1	-11	-4	-7	-11	0	-12	14	-13	-10	-25	7	-2	-9	-22	-13	-16	-18
GROUP	1	1	1	2	2	2	3	3	3	4	4	4	1	1	1	2	2	2	3	3	3	4	4	4

APPENDIX TWO.

PERSONALITY QUESTIONNAIRES.

INTRODUCTION.

In all, three different personality questionnaires were used in this thesis: the Eysenck Personality Inventory (E.P.I.); the Mach.V scale, and the Self-Monitoring of expressive behaviour scale. Each of these three questionnaires (in the order mentiones above) is set out in full below (including the instructions to subjects) together with how each scale was scored (with the exception of the E.P.I.) A copy of the E.P.I. is attached on the sheet overleaf.

THE MACH. V SCALE.

Each of the numbered items below contains three statements. For each item, put a cross by the statement you most agree with and a minus by the one you least agree with. Leave the third statement blank.

1) A) It takes more imagination to be a successful criminal than a successful businessman.
   B) The phrase, "the road to hell is paved with good intentions" contains a lot of truth.
   C) Most men forget more easily the death of their father than the loss of their property.

2) A) Men are more concerned with the car they drive than with the clothes their wives wear.
   B) It is very important that imagination and creativity in children be cultivated.
   C) People suffering from incurable diseases should have the choice of being painlessly put to death.

3) A) Never tell anyone the real reason you did something unless it is useful to do so.
   B) The well-being of the individual is the goal that should be worked for before anything else.
   C) Since most people don't know what they want, it is only reasonable for ambitious people to talk them into doing things.

4) A) People are getting so lazy and self-indulgent that it is bad for our country.
   B) The best way to handle people is to tell them what they want

E.P.I.

FORM A

NAME..... AGE.....

OCCUPATION..... SEX.....

N= ☐ E= ☐ L= ☐

Instructions

Here are some questions regarding the way you behave, feel and act. After each question is a space for answering "YES" or "NO".

Try to decide whether "YES" or "NO" represents your usual way of acting or feeling. Then put a cross in the circle under the column headed "YES" or "NO". Work quickly, and don't spend too much time over any question; we want your first reaction, not a long-drawn out thought process. The whole questionnaire shouldn't take more than a few minutes. Be sure not to omit any questions.

Now turn the page over and go ahead. Work quickly, and remember to answer every question. There are no right or wrong answers, and this isn't a test of intelligence or ability, but simply a measure of the way you behave.

HODDER & STOUGHTON

E ○ N ○ L ○ ☐☐☐☐☐☐☐☐☐☐

FORM A

		YES	NO
1.	Do you often long for excitement?	○	○
2.	Do you often need understanding friends to cheer you up?	○	○
3.	Are you usually carefree?	○	○
4.	Do you find it very hard to take no for an answer?	○	○
5.	Do you stop and think things over before doing anything?	○	○
6.	If you say you will do something do you always keep your promise, no matter how inconvenient it might be to do so?	○	○
7.	Does your mood often go up and down?	○	○
8.	Do you generally do and say things quickly without stopping to think?	○	○
9.	Do you ever feel "just miserable" for no good reason?	○	○
10.	Would you do almost anything for a dare?	○	○
11.	Do you suddenly feel shy when you want to talk to an attractive stranger?	○	○
12.	Once in a while do you lose your temper and get angry?	○	○
13.	Do you often do things on the spur of the moment?	○	○
14.	Do you often worry about things you should not have done or said?	○	○
15.	Generally, do you prefer reading to meeting people?	○	○
16.	Are your feelings rather easily hurt?	○	○
17.	Do you like going out a lot?	○	○
18.	Do you occasionally have thoughts and ideas that you would not like other people to know about?	○	○
19.	Are you sometimes bubbling over with energy and sometimes very sluggish?	○	○
20.	Do you prefer to have few but special friends?	○	○
21.	Do you daydream a lot?	○	○
22.	When people shout at you, do you shout back?	○	○
23.	Are you often troubled about feelings of guilt?	○	○
24.	Are *all* your habits good and desirable ones?	○	○
25.	Can you usually let yourself go and enjoy yourself a lot at a lively party?	○	○
26.	Would you call yourself tense or "highly-strung"?	○	○
27.	Do other people think of you as being very lively?	○	○
28.	After you have done something important, do you often come away feeling you could have done better?	○	○
29.	Are you mostly quiet when you are with other people?	○	○
30.	Do you sometimes gossip?	○	○
31.	Do ideas run through your head so that you cannot sleep?	○	○
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?	○	○
33.	Do you get palpitations or thumping in your heart?	○	○
34.	Do you like the kind of work that you need to pay close attention to?	○	○
35.	Do you get attacks of shaking or trembling?	○	○
36.	Would you always declare *everything* at the customs, even if you knew that you could never be found out?	○	○
37.	Do you hate being with a crowd who play jokes on one another?	○	○
38.	Are you an irritable person?	○	○
39.	Do you like doing things in which you have to act quickly?	○	○
40.	Do you worry about awful things that might happen?	○	○
41.	Are you slow and unhurried in the way you move?	○	○
42.	Have you ever been late for an appointment or work?	○	○
43.	Do you have many nightmares?	○	○
44.	Do you like talking to people so much that you never miss a chance of talking to a stranger?	○	○
45.	Are you troubled by aches and pains?	○	○
46.	Would you be very unhappy if you could not see lots of people most of the time?	○	○
47.	Would you call yourself a nervous person?	○	○
48.	Of all the people you know, are there some whom you definitely do not like?	○	○
49.	Would you say that you were fairly self-confident?	○	○
50.	Are you easily hurt when people find fault with you or your work?	○	○
51.	Do you find it hard to really enjoy yourself at a lively party?	○	○
52.	Are you troubled with feelings of inferiority?	○	○
53.	Can you easily get some life into a rather dull party?	○	○
54.	Do you sometimes talk about things you know nothing about?	○	○
55.	Do you worry about your health?	○	○
56.	Do you like playing pranks on others?	○	○
57.	Do you suffer from sleeplessness?	○	○

PLEASE CHECK TO SEE THAT YOU HAVE ANSWERED ALL THE QUESTIONS

to hear.

C) It would be a good thing if people were kinder to those less fortunate than themselves.

5) A) Most people are basically good and kind.

B) The best criteria for a wife or husband is compatability - other characteristics are nice but not essential.

C) Only after a man has got what he wants from life should he concern himself with the injustices in the world.

6) A) Most men who get ahead in the world lead clean, moral lives.

B) Any man worth his salt shouldn't be blamed for putting his career before his family.

C) People would be better off if they were concerned less with how to do things and more with what to do.

7) A) A good teacher is one who points out unanswered questions rather than giving explicit answers.

B) When you ask someone to do something, it is best to give the real reason for wanting it rather than giving reasons which might carry more weight.

C) A person's job is the best single guide as to the sort of person he is.

8) A) The construction of such monumental works as the Egyptian pyrimids was worth the enslavement of the workers who built them.

B) Once a way of handling problems has been worked out it is best to stick to it.

C) One should take action only when sure it is morally right.

9) A) The world would be a much better place to live in if people would let the future take care of itself and concern themselves only with enjoying the present.

B) It is wise to flatter important people.

C) Once a decision has been made, it is best to keep changing it as new circumstances arise.

10) A) It is a good policy to act as if you are doing the things you do because you have no other choice.

B) The biggest difference between most criminals and other people is that criminals are stupid enough to get caught.

C) Even the most hardened and vicious criminal has a spark of decency somewhere within him.

11) A) All in all, it is better to be humble and honest than to be important and dishonest.
B) A man who is able and willing to work hard has a good chance of succeeding in whatever he wants to do.
C) If a thing does help us in our daily lives, it isn't very important.

12) A) A person shouldn't be punished for breaking a law that he thinks is unreasonable.
B) Too many criminals are not punished for their crimes.
C) There is no excuse for lying to someone else.

13) A) Generally speaking, men won't work hard unless they are forced to do so.
B) Every person is entitled to a second chance, even after he commits a serious mistake.
C) People who can't make up their minds are not worth bothering about.

14) A) A man's first responsibility is to his wife, not his mother.
B) Most men are brave.
C) It's best to pick friends who are intellectually stimulating rather than ones it is comfortable to be with.

15) A) There are very few people in the world worth concerning oneself about.
B) It is hard to get ahead without cutting corners here and there.
C) A capable person motivated for his own gain is more useful to society than a well-meaning but ineffective one.

16) A) It is best to give others the impression that you can change your mind easliy.
B) It is a good working policy to keep on good terms with everyone.
C) Honesty is the best policy in all cases.

17) A) It is possible to be good in all respects.
B) To help oneself is good; to help others even better.
C) Wars and threats of war are unchangeable facts of human life.

18) A) Barnum was probably right when he said that there's at least one sucker born every minute.

B) Life is pretty dull unless one deliberately stirs up some excitement.

C) Most people would be better off if they controlled their emotions.

19) A) Sensitivity to the feelings of others is worth more than poise in social situations.

B) The ideal society is one where everybody knows his place and accepts it.

C) It is safest to assume that all people have a vicious streak and that it will come out when they are given the chance.

20) A) People who talk about abstract problems usually don't know what they are talking about.

B) Anyone who completely trusts anyone else is asking for trouble.

C) It is essential for the functioning of democracy that everyone vote.

The scoring key for the above questionnaire is given below.

Scoring of the Mach. V: Permutations of the + and - signs per item lead to specific scores which are given in the table below.

	POINTS PER ITEM BY RESPONSE PATTERN			
ITEM NUMBER	1	3	5	7
1	A+ C-	B+ A+ C- B-	B+ C+ A- B-	C+ A-
2	A+ C-	B+ A+ C- B-	B+ C+ A- B-	C+ A-
3	C+ A-	B+ C+ A- B-	B+ A+ C- B-	A+ C-
4	A+ B-	C+ A+ B- C-	C+ B+ A- C-	B+ A-
5	A+ B-	C+ A+ B- C-	C+ B+ A- C-	B+ A-
6	A+ C-	B+ A+ C- B-	B+ C+ A- B-	C+ A-
7	B+ A-	C+ B+ A- C-	C+ A+ B- C-	A+ B-
8	C+ B-	A+ C+ B- A-	A+ B+ C- A-	B+ C-

9	C+	A+ C+	A+ B+	B+
	B-	B- A-	C- A-	C-
10	A+	C+ A+	C+ B+	B+
	B-	B- C-	A- C-	A-
11	A+	C+ A+	C+ B+	B+
	B-	B- C-	A- C-	A-
12	C+	A+ C+	A+ B+	B+
	B-	B- A-	C- A-	C-
13	C+	B+ C+	B+ A+	A+
	A-	A- B-	C- B-	C-
14	B+	A+ B+	A+ C+	C+
	C-	C- A-	B- A-	B-
15	C+	A+ C+	A+ B+	B+
	B-	B- A-	C- A-	C-
16	C+	A+ C+	A+ B+	B+
	B-	B- A-	C- A-	C-
17	A+	B+ A+	B+ C+	C+
	C-	C- B-	A- B-	A-
18	C+	B+ C+	B+ A+	A+
	A-	A- B-	C- B-	C-
19	B+	A+ B+	A+ C+	C+
	C-	C- A-	B- A-	B-
20	A+	C+ A+	C+ B+	B+
	B-	B- C-	A- C-	A-

The points per item are totalled for all twenty items to give each subject their 'Mach.' score. The maximum possible score is 140, while the minimum score is 20. The scale itself and the scoring key are taken from Christie (1970).

THE SELF-MONITORING OF EXPRESSIVE BEHAVIOUR SCALE.

Listed below are the full instructions and scale items of the self-monitoring scale. In the original, two columns, headed 'True' and 'False', were drawn beside the statements so that subjects could put a tick under the relevant column to indicate whether, for them, the statement was true or false. This column has been left out in this copy.

The statements below concern your personal reactions to a number of different situations. No two statements are exactly alike, so consider each statement carefully before answering. If a statement

is TRUE or MOSTLY TRUE as applied to you, tick the space marked T on the answer column. If a statement is FALSE or NOT USUALLY TRUE as applied to you, tick the space marked F on the answer column. It is important that you answer as frankly and as honestly as you can. Your answers will be kept in the strictest confidence.

1) I find it hard to imitate the behaviour of other people.
2) My behaviour is usually an expression of my true inner feelings attitudes and beliefs.
3) At parties and social gatherings, I do not attempt to do or say things that others will like.
4) I can only argue for ideas which I already believe.
5) I can make impromptu speeches even on topics about which I have almost no information.
6) I suppose I put on a show to impress or entertain people.
7) When I am uncertain how to act in a social situation, I look to the behaviour of others for cues.
8) I would probably make a good actor.
9) I rarely need the advice of friends to choose films, books or music.
10) I sometimes appear to others to be experienc ing deeper emotions than I actually am.
11) I laugh more when I watch a comedy with others than when alone.
12) In a group of people I am rarely the center of attention.
13) In different situations and with different people, I often act like very different persons.
14) I am not particularly good at making other people like me.
15) Even if I am not enjoying myself, I often pretend to be having a good time.
16) I'm not always the person I appear to be.
17) I would not change my opinions (or the way I do things) in order to please someone else or win their favour.
18) I have considered being an entertainer.
19) In order to get along and be liked, I tend to be what people expect me to be rather than anything else.
20) I have never been good at games like charades or improvisational acting.

21) I have trouble changing my behaviour to suit different people and different situations.
22) At a party I let others keep the jokes and stories going.
23) I feel a bit awkward in company and do not show up quite so well as I should.
24) I can look anyone in the eye and tell a lie with a straight face (if for a right end.)
25) I may deceive people by being friendly when I really dislike them.

To mark the above questionnaire, a 'mask' was used which was keyed in the direction of high self-monitoring. Rather than reproduce the mask itself, the items which had to be marked TRUE or FALSE are listed separately below. Those subject responses which did not match the keyed responses listed did not score at all. This means that the maximum possible score is 25, while the minimum score is zero.
ITEMS TO BE MARKED TRUE: 5, 6, 7, 8, 10, 11, 13, 15, 16, 18, 19, 24, 25.
ITEMS TO BE SCORED FALSE: 1, 2, 3, 4, 9, 12, 14, 17, 20, 21, 22, 23.
The scale was taken from Snyder (1974).

APPENDIX THREE.

THE CONTRADICTORINESS SCALE.

THE CONTRADICTORINESS SCALE.

This scale is reproduced in full below together with the instructions to subjects.

In a moment you will see five brief videotaped scenes on the TV screen in front of you. Each scene is of someone saying a short sentence. In some of the scenes the actual words that the person says may be contradicted by the way they are said; for example, one of the scenes might show someone saying "I hate you" with a grin on their face in a happy tone of voice. In other scenes there will be no contradiction between the way the words are spoken and the words themselves.

After you have seen each scene, I would like you to indicate (by placing a tick in the relevant box) whether you thought the scene was very contradictory, slightly contradictory, slightly non-contradictory or definitely non-contradictory. If you cannot decide, then place a tick in the central "don't know" box.

	VERY CONTRADICTORY	SLIGHTLY CONTRADICTORY	DON'T KNOW	SLIGHTLY NON-CONTRADICTORY	VERY NON-CONTRADICTORY
SCENE 1					
SCENE 2					
SCENE 3					
SCENE 4					
SCENE 5					

If you have any comments on the experiment I would be grateful if you would write them down below. Thank you for participating.

APPENDIX FOUR.

TECHNICAL APPENDIX: A) Note on Bugenthal et al's (1970) methodology.

B) Reliability of the pleasantness scale; item analysis of experiment I.

A) NOTE ON BUGENTHAL ET AL'S METHODOLOGY:

Initially, Bugenthal produced 13 scripts for the actors and actresses used. The scripts were prejudged by a minimum of 25 undergraduates on a single bipolar dimension (friendliness versus unfriendliness; ie. +6 to -6.) The final eight scripts used were selected as either positive or negative by all the subjects. Bugenthal hoped that this would ensure that there was no inherent ambiguity in these sentences. The other criterion for selection was that the sentences could be used in the production of contradictory messages. As stated on page 110, Bugenthal found that the scripts themselves contributed negligibly to the overall variance in the results. This fact, combined with the 'Englishness' of the sentences eventually selected by Bugenthal and certain methodological restrictions led the experimenter to decide that they could equally well be used in the current series of experiments.

Bugenthal developed the list of adjectives used in the final experimental sequence by showing subjects the videotapes made using the possible combinations of script, 'picture' and 'voice', and asking them to describe these short scenes by means of an adjective or short phrase. Phrases or adjectives which were mentioned by four or more subjects for a given scene were included in the final list. Whether using English subjects to produce a comparable list when presented with the videotapes made in this thesis would have resulted in a substantially different list is unlikely. It was felt that purely linguistic differences at the level of simple adjectives between American and English subjects would not be great enough to merit the production of a separate list. Also, using the same list of adjectives would allow a closer comparison with Bugenthal's results.

B) RELIABILITY OF THE PLEASANTNESS SCALE: Item analysis of experiment I.

To evaluate the reliability of the 'P' scale developed in this thesis, the full results of experiment I were subjected to two basic kinds of item analysis. The full results of these item analyses are contained in the pocket attached inside the rear cover of this thesis.

The first type of analysis is found on the first of the five sheets contained in the pocket. The values shown are for the item (ie. each of the eleven descriptive adjectives used) total ('P' score) correlations. It should be noted that in each of these correlations the contribution of the individual item is subtracted from the total score. The number of significant positive correlations (to $p = 0.05$) out of a possible maximum of eleven for the four CC's is as follows;

PVPN = 10
PVNN = 6
NVNN = 3
NVPN = 6

As can be seen, the greatest degree of agreement between item and total score is found on PVPN. Interestingly, the two contradictory CC's (PVNN and NVPN) had six significant correlations each, while the wholly negative CC (NVNN) had only three. It seems that the degree of positivity in the CC's has some relation to the degree of relationship between the item and the total score. Overall though, the extent of the relationship is good.

The second type of analysis is found on the last four sheets contained in the pocket. Here the inter-item correlations for the four CC's are shown. The overall number of significant positive correlations (to $p = 0.05$) out of a possible maximum of 55 for the four CC's is as follows;

PVPN = 46
PVNN = 18
NVNN = 21
NVPN = 15

The overall level of agreement suggests a satisfactory degree of reliability. It seems reasonable to assume that pleasantness was, in fact, the main dimension being measured by the scale. Other

factors may be involved, perhaps particularly in CC's PVNN and NVPN. The contradictory nature of the CC's makes the clearer relationship shown in PVPN and NVNN less definite.

CONDITION ONE: PVPN		CONDITION TWO: PVNN		CONDITION THREE: NVNN		CONDITION FOUR: NVPN	
V1 WITH HAPPY	.7553 N(40) SIG .001	V1 WITH HAPPY	.1911 N(40) SIG .119	V1 WITH HAPPY	.1390 N(40) SIG .197	V1 WITH HAPPY	.5607 N(40) SIG .001
V2 WITH GIVEUP	.4073 N(40) SIG .005	V2 WITH GIVEUP	-.1276 N(40) SIG .217	V2 WITH GIVEUP	.1085 N(40) SIG .253	V2 WITH GIVEUP	.2568 N(40) SIG .055
V3 WITH FRUSTR	.5082 N(40) SIG .001	V3 WITH FRUSTR	.2625 N(40) SIG .051	V3 WITH FRUSTR	.2986 N(40) SIG .031	V3 WITH FRUSTR	.0087 N(40) SIG .479
V4 WITH DISGUST	.8048 N(40) SIG .001	V4 WITH DISGUST	.2942 N(40) SIG .033	V4 WITH DISGUST	.3791 N(40) SIG .008	V4 WITH DISGUST	.5960 N(40) SIG .001
V5 WITH SINCERE	.7953 N(40) SIG .001	V5 WITH SINCERE	.2478 N(40) SIG .062	V5 WITH SINCERE	-.4052 N(40) SIG .005	V5 WITH SINCERE	-.1084 N(40) SIG .253
V6 WITH INSIN	.7278 N(40) SIG .001	V6 WITH INSIN	.2537 N(40) SIG .058	V6 WITH INSIN	-.2439 N(40) SIG .065	V6 WITH INSIN	-.0100 N(40) SIG .476
V7 WITH PLEASED	.8324 N(40) SIG .001	V7 WITH PLEASED	.3552 N(40) SIG .013	V7 WITH PLEASED	.1415 N(40) SIG .192	V7 WITH PLEASED	.5217 N(40) SIG .001
V8 WITH ANGRY	.6029 N(40) SIG .001	V8 WITH ANGRY	.2959 N(40) SIG .032	V8 WITH ANGRY	.5306 N(40) SIG .001	V8 WITH ANGRY	.4235 N(40) SIG .004
V9 WITH COMPLIM	.7836 N(40) SIG .001	V9 WITH COMPLIM	.3339 N(40) SIG .018	V9 WITH COMPLIM	.1644 N(40) SIG .156	V9 WITH COMPLIM	.4469 N(40) SIG .002
V10 WITH JOKING	-.5081 N(40) SIG .001	V10 WITH JOKING	.0169 N(40) SIG .459	V10 WITH JOKING	.0160 N(40) SIG .461	V10 WITH JOKING	-.0859 N(40) SIG .300
V11 WITH SARCY	.5496 N(40) SIG .001	V11 WITH SARCY	.2489 N(40) SIG .061	V11 WITH SARCY	.1197 N(40) SIG .231	V11 WITH SARCY	-.0413 N(40) SIG .401

Correlation of individual adjective items with total 'P' score (V), with the contribution of each item to the total score removed.

FILE NONAME (CREATION DATE = 09/09/80) (COND = 1) PVPN

SPEARMAN CORRELATION COEFFICIENTS

VARIABLE PAIR		VARIABLE PAIR		VARIABLE PAIR		VARIABLE PAIR		VARIABLE PAIR		VARIABLE PAIR	
HAPPY WITH GIVEUP	.2786 N(40) SIG .041	HAPPY WITH FRUSTR	.3045 N(40) SIG .029	HAPPY WITH DISGUST	.6596 N(40) SIG .001	HAPPY WITH SINCERE	.6990 N(40) SIG .001	HAPPY WITH INSIN	.5742 N(40) SIG .001	HAPPY WITH PLEASED	.8296 N(40) SIG .001
HAPPY WITH ANGRY	.5714 N(40) SIG .001	HAPPY WITH COMPLIM	.7262 N(40) SIG .001	HAPPY WITH JOKING	-.3226 N(40) SIG .022	HAPPY WITH SARCY	.4487 N(40) SIG .002	GIVEUP WITH FRUSTR	.5395 N(40) SIG .001	GIVEUP WITH DISGUST	.5434 N(40) SIG .001
GIVEUP WITH SINCERE	.3415 N(40) SIG .016	GIVEUP WITH INSIN	.3944 N(40) SIG .006	GIVEUP WITH PLEASED	.4222 N(40) SIG .004	GIVEUP WITH ANGRY	.5878 N(40) SIG .001	GIVEUP WITH COMPLIM	.3166 N(40) SIG .024	GIVEUP WITH JOKING	-.6387 N(40) SIG .001
GIVEUP WITH SARCY	.5421 N(40) SIG .001	FRUSTR WITH DISGUST	.5989 N(40) SIG .001	FRUSTR WITH SINCERE	.4092 N(40) SIG .005	FRUSTR WITH INSIN	.3952 N(40) SIG .006	FRUSTR WITH PLEASED	.3715 N(40) SIG .010	FRUSTR WITH ANGRY	.3507 N(40) SIG .014
FRUSTR WITH COMPLIM	.4141 N(40) SIG .004	FRUSTR WITH JOKING	-.3441 N(40) SIG .015	FRUSTR WITH SARCY	.3935 N(40) SIG .006	DISGUST WITH SINCERE	.7299 N(40) SIG .001	DISGUST WITH INSIN	.6699 N(40) SIG .001	DISGUST WITH PLEASED	.7728 N(40) SIG .001
DISGUST WITH ANGRY	.4665 N(40) SIG .002	DISGUST WITH COMPLIM	.6754 N(40) SIG .001	DISGUST WITH JOKING	-.3721 N(40) SIG .010	DISGUST WITH SARCY	.5703 N(40) SIG .001	SINCERE WITH INSIN	.7951 N(40) SIG .001	SINCERE WITH PLEASED	.7676 N(40) SIG .001
SINCERE WITH ANGRY	.3953 N(40) SIG .006	SINCERE WITH COMPLIM	.7168 N(40) SIG .001	SINCERE WITH JOKING	-.3486 N(40) SIG .014	SINCERE WITH SARCY	.4971 N(40) SIG .001	INSIN WITH PLEASED	.6804 N(40) SIG .001	INSIN WITH ANGRY	.4706 N(40) SIG .002
INSIN WITH COMPLIM	.5512 N(40) SIG .001	INSIN WITH JOKING	-.4182 N(40) SIG .004	INSIN WITH SARCY	.6119 N(40) SIG .001	PLEASED WITH ANGRY	.5409 N(40) SIG .001	PLEASED WITH COMPLIM	.7665 N(40) SIG .001	PLEASED WITH JOKING	-.3510 N(40) SIG .014
PLEASED WITH SARCY	.5852 N(40) SIG .001	ANGRY WITH COMPLIM	.4793 N(40) SIG .001	ANGRY WITH JOKING	-.4195 N(40) SIG .004	ANGRY WITH SARCY	.5188 N(40) SIG .001	COMPLIM WITH JOKING	-.3157 N(40) SIG .024	COMPLIM WITH SARCY	.4695 N(40) SIG .002
JOKING WITH SARCY	-.6032 N(40) SIG .001										

FILE NONAME (CREATION DATE = 09/09/80) (COND = 2) PVNN

- - - - - - - - - - - - - - - SPEARMAN CORRELATION COEFFICIENTS - - - - - - - - - - - - - -

VARIABLE PAIR		VARIABLE PAIR		VARIABLE PAIR		VARIABLE PAIR		VARIABLE PAIR		VARIABLE PAIR	
HAPPY WITH GIVEUP	.1079 N(40) SIG .254	HAPPY WITH FRUSTR	.3149 N(40) SIG .024	HAPPY WITH DISGUST	.0980 N(40) SIG .274	HAPPY WITH SINCERE	.0067 N(40) SIG .484	HAPPY WITH INSIN	-.1179 N(40) SIG .235	HAPPY WITH PLEASED	.3447 N(40) SIG .015
HAPPY WITH ANGRY	.1004 N(40) SIG .269	HAPPY WITH COMPLIM	.4480 N(40) SIG .002	HAPPY WITH JOKING	.6612 N(40) SIG .001	HAPPY WITH SARCY	.1235 N(40) SIG .224	GIVEUP WITH FRUSTR	.3343 N(40) SIG .018	GIVEUP WITH DISGUST	.0820 N(40) SIG .308
GIVEUP WITH SINCERE	-.1660 N(40) SIG .154	GIVEUP WITH INSIN	.1346 N(40) SIG .204	GIVEUP WITH PLEASED	.1232 N(40) SIG .225	GIVEUP WITH ANGRY	-.0877 N(40) SIG .296	GIVEUP WITH COMPLIM	.1108 N(40) SIG .248	GIVEUP WITH JOKING	.0861 N(40) SIG .299
GIVEUP WITH SARCY	-.1723 N(40) SIG .144	FRUSTR WITH DISGUST	.2668 N(40) SIG .049	FRUSTR WITH SINCERE	.0556 N(40) SIG .367	FRUSTR WITH INSIN	.0012 N(40) SIG .498	FRUSTR WITH PLEASED	.1812 N(40) SIG .132	FRUSTR WITH ANGRY	.1928 N(40) SIG .117
FRUSTR WITH COMPLIM	.2756 N(40) SIG .043	FRUSTR WITH JOKING	.1388 N(40) SIG .197	FRUSTR WITH SARCY	.4317 N(40) SIG .003	DISGUST WITH SINCERE	.2200 N(40) SIG .087	DISGUST WITH INSIN	.1213 N(40) SIG .229	DISGUST WITH PLEASED	.5310 N(40) SIG .001
DISGUST WITH ANGRY	.5989 N(40) SIG .001	DISGUST WITH COMPLIM	.1687 N(40) SIG .149	DISGUST WITH JOKING	-.2189 N(40) SIG .088	DISGUST WITH SARCY	.2399 N(40) SIG .068	SINCERE WITH INSIN	.5849 N(40) SIG .001	SINCERE WITH PLEASED	.0328 N(40) SIG .421
SINCERE WITH ANGRY	.0889 N(40) SIG .293	SINCERE WITH COMPLIM	.0777 N(40) SIG .317	SINCERE WITH JOKING	-.1692 N(40) SIG .149	SINCERE WITH SARCY	.2116 N(40) SIG .095	INSIN WITH PLEASED	-.1326 N(40) SIG .208	INSIN WITH ANGRY	.0892 N(40) SIG .293
INSIN WITH COMPLIM	.0236 N(40) SIG .443	INSIN WITH JOKING	-.1027 N(40) SIG .265	INSIN WITH SARCY	.2165 N(40) SIG .090	PLEASED WITH ANGRY	.5310 N(40) SIG .001	PLEASED WITH COMPLIM	.4525 N(40) SIG .002	PLEASED WITH JOKING	.2959 N(40) SIG .032
PLEASED WITH SARCY	.0418 N(40) SIG .399	ANGRY WITH COMPLIM	.2841 N(40) SIG .038	ANGRY WITH JOKING	-.0401 N(40) SIG .403	ANGRY WITH SARCY	.3695 N(40) SIG .010	COMPLIM WITH JOKING	.4317 N(40) SIG .003	COMPLIM WITH SARCY	.3662 N(40) SIG .011
JOKING WITH SARCY	-.0174 N(40) SIG .458										

FILE NONAME (CREATION DATE = 09/09/80) (COND = 3) NVNN

- - - - - - - - - - - - - - - SPEARMAN CORRELATION COEFFICIENTS - - - - - - - - - - - - - -

VARIABLE PAIR		VARIABLE PAIR		VARIABLE PAIR		VARIABLE PAIR		VARIABLE PAIR		VARIABLE PAIR	
HAPPY WITH GIVEUP	.0464 N(40) SIG .389	HAPPY WITH FRUSTR	.0526 N(40) SIG .374	HAPPY WITH DISGUST	.1838 N(40) SIG .129	HAPPY WITH SINCERE	-.1934 N(40) SIG .116	HAPPY WITH INSIN	-.4699 N(40) SIG .002	HAPPY WITH PLEASED	.7600 N(40) SIG .001
HAPPY WITH ANGRY	.3493 N(40) SIG .014	HAPPY WITH COMPLIM	.3250 N(40) SIG .021	HAPPY WITH JOKING	.5762 N(40) SIG .001	HAPPY WITH SARCY	-.2935 N(40) SIG .034	GIVEUP WITH FRUSTR	.6199 N(40) SIG .001	GIVEUP WITH DISGUST	.0504 N(40) SIG .379
GIVEUP WITH SINCERE	-.5605 N(40) SIG .001	GIVEUP WITH INSIN	-.2247 N(40) SIG .082	GIVEUP WITH PLEASED	-.0021 N(40) SIG .495	GIVEUP WITH ANGRY	.2905 N(40) SIG .035	GIVEUP WITH COMPLIM	.0918 N(40) SIG .287	GIVEUP WITH JOKING	.0644 N(40) SIG .347
GIVEUP WITH SARCY	.0092 N(40) SIG .478	FRUSTR WITH DISGUST	.2858 N(40) SIG .037	FRUSTR WITH SINCERE	-.4519 N(40) SIG .002	FRUSTR WITH INSIN	-.4006 N(40) SIG .006	FRUSTR WITH PLEASED	.0155 N(40) SIG .463	FRUSTR WITH ANGRY	.3721 N(40) SIG .010
FRUSTR WITH COMPLIM	.0474 N(40) SIG .386	FRUSTR WITH JOKING	.1407 N(40) SIG .194	FRUSTR WITH SARCY	.1252 N(40) SIG .221	DISGUST WITH SINCERE	-.2443 N(40) SIG .065	DISGUST WITH INSIN	-.1398 N(40) SIG .195	DISGUST WITH PLEASED	.2877 N(40) SIG .036
DISGUST WITH ANGRY	.5883 N(40) SIG .001	DISGUST WITH COMPLIM	.1605 N(40) SIG .162	DISGUST WITH JOKING	.2566 N(40) SIG .056	DISGUST WITH SARCY	.1256 N(40) SIG .220	SINCERE WITH INSIN	.5882 N(40) SIG .001	SINCERE WITH PLEASED	-.2126 N(40) SIG .094
SINCERE WITH ANGRY	-.3479 N(40) SIG .014	SINCERE WITH COMPLIM	-.3069 N(40) SIG .028	SINCERE WITH JOKING	-.4818 N(40) SIG .001	SINCERE WITH SARCY	.2896 N(40) SIG .035	INSIN WITH PLEASED	-.3877 N(40) SIG .007	INSIN WITH ANGRY	-.2591 N(40) SIG .054
INSIN WITH COMPLIM	-.1545 N(40) SIG .171	INSIN WITH JOKING	-.4815 N(40) SIG .001	INSIN WITH SARCY	.5377 N(40) SIG .001	PLEASED WITH ANGRY	.3277 N(40) SIG .020	PLEASED WITH COMPLIM	.4271 N(40) SIG .003	PLEASED WITH JOKING	.5834 N(40) SIG .001
PLEASED WITH SARCY	-.3566 N(40) SIG .012	ANGRY WITH COMPLIM	.3046 N(40) SIG .028	ANGRY WITH JOKING	.3643 N(40) SIG .011	ANGRY WITH SARCY	.1435 N(40) SIG .189	COMPLIM WITH JOKING	.5729 N(40) SIG .001	COMPLIM WITH SARCY	-.2478 N(40) SIG .062
JOKING WITH SARCY	-.3372 N(40) SIG .017										

FILE NUNAME (CREATION DATE = 09/09/80) (COND = 4) NVPN.

- - - - - - - - - - - - - - S P E A R M A N   C O R R E L A T I O N   C O E F F I C I E N T S - - - - - - - - - - - - -

VARIABLE PAIR		VARIABLE PAIR		VARIABLE PAIR		VARIABLE PAIR		VARIABLE PAIR		VARIABLE PAIR	
HAPPY WITH GIVEUP	-.0570 N(40) SIG .364	HAPPY WITH FRUSTR	-.1638 N(40) SIG .157	HAPPY WITH DISGUST	.4396 N(40) SIG .003	HAPPY WITH SINCERE	-.2708 N(40) SIG .046	HAPPY WITH INSIN	-.2498 N(40) SIG .061	HAPPY WITH PLEASED	.7840 N(40) SIG .001
HAPPY WITH ANGRY	.2916 N(40) SIG .034	HAPPY WITH COMPLIM	.6043 N(40) SIG .001	HAPPY WITH JOKING	.2776 N(40) SIG .042	HAPPY WITH SARCY	-.0479 N(40) SIG .385	GIVEUP WITH FRUSTR	.5878 N(40) SIG .001	GIVEUP WITH DISGUST	.2938 N(40) SIG .033
GIVEUP WITH SINCERE	.0092 N(40) SIG .478	GIVEUP WITH INSIN	.3031 N(40) SIG .029	GIVEUP WITH PLEASED	.0670 N(40) SIG .341	GIVEUP WITH ANGRY	.2503 N(40) SIG .060	GIVEUP WITH COMPLIM	.0624 N(40) SIG .352	GIVEUP WITH JOKING	-.1044 N(40) SIG .261
GIVEUP WITH SARCY	-.0017 N(40) SIG .496	FRUSTR WITH DISGUST	.0671 N(40) SIG .341	FRUSTR WITH SINCERE	.0161 N(40) SIG .461	FRUSTR WITH INSIN	.0320 N(40) SIG .423	FRUSTR WITH PLEASED	-.0311 N(40) SIG .425	FRUSTR WITH ANGRY	.2062 N(40) SIG .101
FRUSTR WITH COMPLIM	-.0496 N(40) SIG .381	FRUSTR WITH JOKING	.1645 N(40) SIG .156	FRUSTR WITH SARCY	-.2386 N(40) SIG .070	DISGUST WITH SINCERE	-.1888 N(40) SIG .122	DISGUST WITH INSIN	.0119 N(40) SIG .471	DISGUST WITH PLEASED	.3290 N(40) SIG .020
DISGUST WITH ANGRY	.5249 N(40) SIG .001	DISGUST WITH COMPLIM	.3696 N(40) SIG .010	DISGUST WITH JOKING	.1620 N(40) SIG .159	DISGUST WITH SARCY	-.0068 N(40) SIG .484	SINCERE WITH INSIN	.5048 N(40) SIG .001	SINCERE WITH PLEASED	-.0790 N(40) SIG .315
SINCERE WITH ANGRY	-.1145 N(40) SIG .241	SINCERE WITH COMPLIM	-.1671 N(40) SIG .152	SINCERE WITH JOKING	-.3673 N(40) SIG .010	SINCERE WITH SARCY	.2251 N(40) SIG .082	INSIN WITH PLEASED	-.0745 N(40) SIG .324	INSIN WITH ANGRY	-.1405 N(40) SIG .194
INSIN WITH COMPLIM	-.0712 N(40) SIG .332	INSIN WITH JOKING	-.5523 N(40) SIG .001	INSIN WITH SARCY	.4170 N(40) SIG .004	PLEASED WITH ANGRY	.3346 N(40) SIG .018	PLEASED WITH COMPLIM	.4411 N(40) SIG .003	PLEASED WITH JOKING	.1641 N(40) SIG .156
PLEASED WITH SARCY	-.0340 N(40) SIG .418	ANGRY WITH COMPLIM	.1566 N(40) SIG .168	ANGRY WITH JOKING	.1949 N(40) SIG .115	ANGRY WITH SARCY	-.0511 N(40) SIG .378	COMPLIM WITH JOKING	.2291 N(40) SIG .078	COMPLIM WITH SARCY	-.1490 N(40) SIG .180
JOKING WITH SARCY	-.5099 N(40) SIG .001										