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AN IRISH PERSONALITY DIFFERENTIAL:

A Technique for Measuring Affective and
Cognitive Dimensions of Attitudes
Toward Persons

E. E. DAVIS and MARY O'NEILL

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General Summary

As the title of the paper suggests this study is concerned with the measurement of attitudes and, more fundamentally, with the development of a technique for attitude measurement. According to the tripartite theory of the structure of attitudes, attitudes consist of three basic components—the cognitive (knowing), affective (feeling), and conative (behavioural) components. In other words, our attitudes towards another person, object or issue have three basic components. Take our attitude towards another person—we *know* something about the person in question, for example, we may know him/her to be good and moral; we *feel* something towards the person, for example, even though cognitively we perceive the person to be good we may not like him/her very much; finally, we are likely to *act* in some way towards that person and our *actions* may not depend entirely on what we *know* or how we *feel*, instead they may be constrained by external social pressures.

This paper is the second in a series of three studies by Professor Davis and his research colleagues. The first publication in this series focused on a technique designed to measure the behavioural aspect of attitudes towards persons and was carried out by administering a questionnaire to a sample of Dublin adults. The present study investigates the cognitive and affective components of the attitudes of a sample of Dubliners towards a wide range of person stimuli. However, the study is not primarily concerned with learning how Dubliners (or Irish people in general) feel about, and cognitively perceive, any *one* of the person-stimuli to which they are responding in the course of the study. Instead, the study is primarily designed to identify the *various elements* of the cognitive and affective components of the attitudes of the respondents towards person-stimuli in general. The study is therefore based on the belief that not only do attitudes have three components (the cognitive, affective and conative)—but also that these components may be further subdivided into their constitutive elements, thus providing us with further information to enable us to understand the sometimes complex attitudes which people hold.

The present study utilises a technique known as the Semantic Differential, developed in the 1950s by an American psychologist, Professor Charles E. Osgood. The Semantic Differential has formed the basis of Personality Differential studies in several countries, but the present study is the first to use it in a major developmental way in Ireland.

The use of the procedure demands that the subject matter is specific to the culture being studied and hence considerable developmental work is involved when the procedure is being utilised for the first time in a culture.

The basic function of the Semantic Differential technique, when used in a Personality Differential context, is to get respondents to rate person-stimuli on a set of adjectival scales (i.e., good—bad; beautiful—ugly, etc.). As seven points are provided between the two extremes of the adjectival scales, respondents, in choosing one of the seven points, have the facility to register shades of agreement or disagreement on any scale towards any person stimulus.

In the initial phase of the present study a large number of adjectives were elicited from a number of people who acted as “judges” of the sorts of adjectives typically used to describe people in the Irish culture. This was done by asking the “judges” to provide a number of adjectives to describe a wide range of stimuli such as “My Mother,” “A Priest,” “An Itinerant,” etc. When a sufficiently large pool of suitable adjectives (that is those most frequently used, but diverse in meaning) had been obtained, the opposite of each was elicited.

The net result of this procedure was a long list of adjectives, each complete with its opposite, deemed to be used by Irish subjects in describing their thoughts and feelings towards person-stimuli.

In the main phase of the study respondents were provided with a list of 35 very different types of person-stimuli, and were asked to rate each of these on 67 adjectival scales. One hundred and eleven respondents successfully completed this task, thus providing 111 x 35 x 67 pieces of information. This large body of data was analysed by using a technique designed to reduce it to its most basic elements. Thus the cognitive and affective components of the attitudes of the respondents (as determined by their responses on the adjectival scales) were reduced to a small number of basic groupings or factors. The reason why this is possible is that people tend to respond consistently to certain scales across many of the person-stimuli. Thus the 67 scales could be categorised into a small number of factors, each composed of two or more scales. These factors therefore represent the basic structure of the affective and cognitive components of the attitudes of the sample to a generalised field of person-stimuli.

Further analysis enabled the authors to investigate whether or not particular characteristics of the respondents (e.g., age, sex, social status) differentiated the way they rated the various stimuli. By comparing the responses of people in different age groups, or the responses of males with those of females, or of people of high social status with those of low social status, it was possible to see if any marked patterns emerged in the way people answered.

The authors find many interesting patterns. For example, female respondents, by and large, appear to feel more sympathetically towards those down on their luck. Thus the stimulus “A Poor Person” is evaluated more positively by women—this is to say that women have rated this stimulus as more “trustworthy,” more “admirable,” “nicer,” more “helpful,” etc.

Younger subjects perceive the stimulus-person "A Priest" to be more "dominant" and "rigid" than do older subjects. At the same time "A Priest" is evaluated more highly by lower social status respondents than by those of upper social-class. All in all, when viewed in this way, the analyses show that the characteristics of respondents most likely to differentiate the way in which they rate the stimuli is *age*.

The authors place emphasis throughout their study on the value of a multi-dimensional approach to attitude measurement. Attitudes are frequently complex, and it is very possible to hold a positive attitude towards one facet of a person's make-up, yet feel negatively about other aspects of their character.

An attitude measurement technique, such as the Personality Differential, enables one to analyse attitudes in their several components. The authors hope that the Irish Personality Differential, which they have developed, will be used by others carrying out social research in the Irish culture: Professor Davis and his colleagues are presently using this technique in their on-going research into attitudes towards current Irish social problems.

AGNES BREATHNACH.

I. Introduction and Background

A. General Introduction

As the title of the paper suggests, the study which we are reporting here has to do with the measurement of *attitudes*. As the title further suggests, the study has to do with the development of a *technique* for attitude measurement. In that sense, one might describe it as a study which is primarily *methodological* in nature, although some commentators have suggested that the term *tool-making* might be more appropriate. Despite this primary function, a number of rather interesting substantive findings emerge. These substantive findings are, however, more suggestive than definitive, since the sample size, although sufficiently large for the developmental purpose which was the main aim of the study, was not sufficiently large to allow confident generalisation of the substantive findings to the population as a whole. The reason why we did not use a much larger, completely representative sample was, of course, due to purely practical limitations, which will become more apparent in the Methods section.

In an earlier paper (Davis, 1973) we have discussed recent developments in the conceptualisation and measurement of social attitudes, dealing with definitional questions at some length. In that paper we outlined what has been referred to as the tripartite theory of the structure of attitudes as consisting of cognitive, affective, and conative (or behavioural) components. In a later paper, Davis (1975) investigated in some detail the structure and determinants of the behavioural component of social attitudes in an Irish sample, with the primary aim of developing a practical instrument for the measurement of this component of interpersonal attitudes. The purpose of the present study is to extend this work further to the measurement of the dimensions of affective and cognitive components of attitudes towards persons in an Irish sample, utilising a technique which has come to be known as the Personality Differential technique.

Within this framework, the specific aims of the present study were (a) to discover what adjectival terms or qualifiers respondents in an Irish sample use in describing or rating persons and categories of persons; (b) to determine the dimensions or structure (in the factor analytic sense) of such ratings, and (c) to explore the extent to which certain demographic characteristics of the respondents in the sample (i.e., age, sex, and occupational status) acted as determinants (in the analysis of variance sense of this term) of such ratings.

Although the primary purpose of the study was the development of a

pragmatic technique for the measurement of various dimensions of interpersonal attitudes in an Irish sample, the study also has relevance for the cross-cultural measurement of attitudes and for the development of the theory of attitude measurement and structure generally. This combination of purposes is in line with our general philosophy that applied research, of necessity, goes hand in hand with basic research. From a pragmatic point of view, it might be mentioned incidentally that as this paper goes to press, the results of its findings, i.e., the technique developed by this study, have already been utilised, or are in the course of being utilised, in a number of applied social research projects in Ireland (e.g., Swain, 1975; O Loideain and Davis, 1976—others in preparation).

B. *Background of the Present Study*

As we have indicated the present study is primarily concerned with the development of a technique for the measurement of various dimensions of the affective and cognitive components of attitudes toward specific persons or categories of persons in Ireland. A secondary purpose was to carry out a cross-cultural replication of work along these lines. This we feel has value, not only in and of itself, but also enhances the usefulness of the first and main purpose of the study.

It is only logical when engaging in scientific research of any kind that one takes into account previous research, either done within the same culture or in other cultures. However, to avoid possible misunderstandings we should like to carefully define what we mean by the term "cross-cultural replication." By "replication" we do *not* mean the blind application in this culture of materials developed in another culture, e.g., the United States, or elsewhere. Rather, we mean the application of a *generic* technique for developing materials *within* this culture, using *procedures* that are strictly *comparable* to those which have been used in other cultures. This approach is in sharp contradistinction to the all-too-often employed procedure of adapting materials from one culture and using them in another on the untested assumption that the meanings obtained will be the same in both. As we have pointed out earlier, (Davis, 1973) this procedure is *just* as likely to lead to erroneous conclusions when one is dealing with two cultures with ostensibly the *same* language as when one is dealing with two different cultures having *different* languages, requiring translation.

The generic technique used in the present study has resulted from a unique blend or juxtaposition of the two fields of psycholinguistics and attitude measurement which has developed particularly in the last two decades. In the limited space available here no attempt can be made to give even a reasonable thumb-nail sketch of the history and theoretical background of the broad areas of social attitudes and psycholinguistics. Instead, we shall confine ourselves to an attempt to indicate very briefly and, of

necessity, rather superficially, how these two seemingly disparate fields with very different origins happened to come into interaction. Then we shall attempt to sketch (again very briefly) the developments which form the background of the present study.

A number of excellent accounts of the historical development of attitude research have been written (e.g., Allport, 1954; McGuire, 1969). Davis (1973) has provided a brief summary of some recent developments in the conceptualisation and measurement of social attitudes. Numerous taxonomical schemes of an heuristic and *a priori* nature have been proposed to describe the various characteristics and components presumed to underlie the construct of social attitude. As we have pointed out earlier, the oldest, and probably still most prevalent, taxonomy (going back at least to the works of Aristotle) is in terms of a tripartite view of attitudes, consisting of cognitive, affective, and conative (or behavioural) components. However useful though this heuristic conceptualisation may be, it must be seen more as a sort of scaffolding upon which one can climb to more closely inspect the structure of the building inside—it is not the structure itself!

Although many attitude *theorists* have put forth a variety of hypothetical sub-divisions and differentiations in describing attitudes, the prevailing view among those engaged in attitude *measurement* has, for many decades, been that of unidimensionality, whereby the component (within the framework of the tripartite theory) which is usually equated with attitude is the affective one. For example, Edwards (1957), whose book has been probably one of the most widely used texts in the area of attitude measurement, typifies this view by using, without qualification, Thurstone's (1946) definition of attitude as the net positive or negative affect associated with the attitude object. Indeed, with the widespread knowledge of advanced multi-variate techniques and the easy access to high speed electronic computers which exists today, it is surprising how few researchers have made systematic attempts to investigate the underlying structure of the components of social attitudes. A major exception to this approach is the comparatively recent work (looked at within the framework of the long history of research in attitude measurement) of Triandis (1964), who demonstrated the multi-dimensionality of the behavioural component of social attitudes and developed a procedure which has become known as the Behavioural Differential technique. More recently, Davis (1975a) has systematically developed a set of Behavioural Differential scales with an Irish sample and, using multi-dimensional techniques, has studied the structure and determinants of the behavioural component of social attitudes in Ireland.

Before continuing with the description of the present study we shall attempt to briefly summarise the position taken by the present authors concerning the construct of "attitude" (for a more detailed discussion, see Davis, 1973). The concept of attitude is seen as a theoretical construct consisting of cognitive, affective, and behavioural components. This tri-

partite distinction is a theoretical one and is designed to act as a general guideline to empirical work which will lead to an operationalisation of the various components and their dimensions. Since it is a theoretical construct it may be argued that there is no right or wrong way to define it—only more or less *useful* ways. However, as we have indicated earlier (Davis, 1973) and as shall emerge from some of the findings of the present paper, operationalising an attitude by means of an unidimensional measure or one of the components only, is not only a procedure with which we disagree on theoretical grounds, but one which can very easily lead to false interpretations of empirically observable phenomena. In addition to seeing attitudes as consisting of three components—which are, admittedly, theoretical constructs whose value is primarily heuristic in nature—we see each component as being multidimensional, in the sense of consisting of a number of empirically measurable and differentiable dimensions, in the factor analytic sense of this word. The measurement items which tap these various dimensions constitute the operationalisation of a given dimension of an attitude component.

We have indicated above some work which has been done investigating the various dimensions of the behavioural component of social attitudes. However, very little really comparable work has been undertaken by researchers concerned with attitude measurement in the *affective* and *cognitive* domains of social attitudes. It is at this point that the field of psycholinguistics enters the picture in relation to attitude measurement. We shall describe briefly how one major train of research in psycholinguistics which, although not concerned with attitude measurement *per se*, has resulted in the development of the present technique, namely, the Personality Differential, a variation of the more general Semantic Differential (SD) technique, which possesses tremendous potential for investigating the multidimensionality of affective and cognitive domains of attitudes towards persons or categories of persons, referred to more technically as person stimuli. We have sought to exploit this potential as much as possible in the present study, even though the primary use of the SD technique in the area of attitude measurement has been along the lines of what we would consider a somewhat simplistic unidimensional approach.

Although philosophers concerned with the problem of meaning in the 19th century (and earlier) carefully differentiated between denotative and connotative meaning (e.g., Frege's 1892 work on *Sinn und Bedeutung*), the field of linguistics *per se* was long preoccupied almost exclusively with the denotative aspect of meaning. It is probably reasonable to say that it was only after the beginning of the 20th century, when psychologists became involved in linguistics, that the field of psycholinguistics was established and an interest in the connotative aspect of meaning became more fully developed. However, despite a great deal of research in this area the problem of measurement remained unsolved for many years. Indeed,

although those involved in the area of attitude measurement, by definition, dealt with words and their meanings, and the field of attitude measurement was developing briskly in the 1920s and the 1930s, no significant connection was made between the two fields. It was not until about 1940 that a psychologist, Charles E. Osgood, who had a lifelong interest in the meaning of words, began serious work on the question of the *measurement* of the connotative aspect of meaning. By the early 1950s Osgood (1952) was able to summarise more than ten years of work in the area of the measurement of meaning, utilising a method which came to be known as the Semantic Differential technique. In this survey paper Osgood, at this early date, presented preliminary factor analytic results of the scales which he had developed to tap this aspect of meaning—at a time when the development of high speed electronic computers was still in its infancy. Perhaps it was not a coincidence that Osgood was at the University of Illinois, where one of the first advanced high speed electronic computers was developed. For those familiar with the history of computers, the name of this computer—the ILLIAC—will ring a familiar bell.

Later, Osgood and Tannenbaum (1955) were able to report more complete factor analytic results, and after a further two years Osgood, Suci and Tannenbaum (1957) published their now classic tome on *The Measurement of Meaning*, which has become one of the most (if not *the* most) frequently cited references, not only in the area of psycholinguistics, but also in the area of attitude measurement.

At an early stage Osgood departed from the classical designation of *connotative* meaning and spoke, instead, of *affective* meaning. This usage was rooted in the theoretical formulations of C. L. Hull (1943) and has been elaborated upon in Osgood's classical text *Method and Theory in Experimental Psychology* (1953), and in subsequent works. It would take us too far astray to develop the psychological theory behind Osgood's theory of meaning at this point.

As we indicated earlier, researchers in the area of attitude measurement tended to define attitude in terms of what those holding the tripartite theory of attitude, (e.g., Allport, 1935; 1954), would call the affective component of attitudes. We mentioned for purposes of illustration the classical text by Edwards (1957); however, more recent and well-known theorists and researchers (e.g., Fishbein and Azjen, 1975) still use the basic unidimensional definition of attitude, despite the overwhelming evidence in favour of a multi-dimensional view of attitudes (cf. Davis, 1973).

It is small wonder, then, that many researchers working with attitudes from a unidimensional viewpoint, defining "attitude" as net positive or negative affect, soon took the Semantic Differential, which Osgood asserted to be tapping *affective* meaning, as a convenient attitude measuring technique, which accounts for the fact that the classical book by Osgood *et al.* (1957) has become one of the most frequently cited references in the attitudinal literature.

Although we shall describe the technique developed by Osgood in greater detail in the course of this paper for now it suffices to say that the procedure involves the presentation of a stimulus object to the respondent who is required to rate the object on several bi-polar adjective scales. Thus, the technique takes the form:

My Mother

good:----:----:----:----:----:----:----:bad
 weak:----:----:----:----:----:----:----:strong

(For a more complete description of the instrument see Appendix A,
 Exhibit A3)

The widespread use of the Semantic Differential (SD) technique as an attitude measurement device certainly attests to the versatility of the method. On the other hand, this widespread usage brings with it the danger of indiscriminate usage. We would in fact state that the Semantic Differential technique has not only become one of the most widely used attitude measurement techniques but perhaps also one of the most widely *misused* techniques, especially on the part of those looking for a quick attitude measurement scale without bothering to go through the necessary preliminary stage of developing a set of scales which may be more suitable for their needs and for the complex reality which they are seeking to investigate.

There are at least two senses in which we would maintain that the SD technique has often been misused. One of these has to do with the frequent practice of using a single SD scale to tap a given attitude or perception. As the reader may know, Osgood, *et al.* (1957) found three factors which constitute the basic underlying structure of SD scales. These are the well-known factors of EVALUATION, POTENCY, and ACTIVITY (E-P-A). Subsequent cross-cultural work (Osgood, 1964; Osgood, May and Miron, 1975) has shown a remarkable stability or invariance in these three basic factors. However, factor analysis has, in addition to its capacity to reveal the underlying structure of a set of items, additional advantages. One of these has to do with the question which is of vital importance to all measurement techniques, namely, that of reliability. Osgood, *et al.* (1957) have reported test-retest reliabilities of *composite* scores based on five items which were *factorially pure* ranging from .83 to .91; Davis (1966) has reported similar results.¹ On the other hand, Davis (1966) has shown that

1 By "composite score" we mean the unweighted mean of the subject's responses to those scales which are factorially pure, i.e., high-loading on a single factor; this is in contradistinction to the term "factor score," which weights a subject's responses to items in a test battery according to its loading on the particular factor. Composite scores are easier to compute than factors scores and, furthermore, the results of the two procedures differ very little from each other. For example, in a recent study by a colleague (Moran, 1977), both techniques were used and the average correlation between the scores obtained from the two techniques was .96.

the test-retest reliabilities of *single* SD scales can range from about .20 to nearly .00 in some cases. If one is reminded of the well-known axiom that the coefficient of validity cannot exceed the square root of the coefficient of reliability (Cronbach, 1960), the implication of these results become clear. If one is interested in validity, as one normally is in research, one can see why we have applied a term as strong as "misuse" when results (and perhaps even decisions) are based on the use of single SD scales.

The other sense in which one can speak of a misuse of the SD technique stems from a frequent failure on the part of researchers to fully understand the factor-analytic underpinnings of the technique and the earlier noted failure to bring together conceptualisations concerning the structure of attitudes with empirical findings (Davis, 1973). The cross-cultural invariance of the three well-known SD factors is based on the use of a set of 100 *maximally heterogeneous* noun concepts as stimuli. However, as Osgood (1962) has shown, when one is dealing with a delimited domain of stimuli, the resulting factor structure is likely to be different (and more differentiated). Osgood (1962) illustrated this point on the basis of unpublished data by Ware (1958), utilising person concepts as stimuli. The factor structure of SD scales used to judge person stimuli turned out to be quite different from (and more differentiated than) the classical three-factor solution. Unfortunately, however, this finding went relatively unnoticed for some time, although Davis (1966) partially replicated Ware's (1958) findings.

In time, several of Professor Osgood's cross-cultural colleagues began considering this matter, and, after a preliminary meeting in the Netherlands in 1966, were joined by further colleagues at the Meetings of the 19th International Psychological Congress in Moscow in 1968. At this meeting the cross-cultural Personality Differential (PD) project was born, resulting in a set of standardised procedures to be used across all cultures (but in each case the subject matter being specific to the culture involved). These procedures were promulgated in July 1968. Further experience in working with the Personality Differential technique in Finland (Kuusinen, 1969), Japan (Tzeng, 1972), Great Britain (Warr and Haycock, 1970), and French speaking Belgium (Hogenraad, 1972), combined with the earlier work by Ware (1958) and Tzeng (1972) led to a slightly revised design and a set of standardised cross-cultural procedures which was issued by the Center for Comparative Psycholinguistics at the University of Illinois in January 1974.

As will be seen in the course of the further description of the present study we have sought to benefit from the results of previous research by using information relevant to the cross-cultural generality of meaning systems, whilst pursuing our more pragmatic and primary aim of developing a satisfactory multi-dimensional measuring technique for tapping various dimensions of affective and cognitive components of attitudes towards person stimuli in an Irish sample.

For those of us engaged in attitude research, the question of "how do you

know that the respondent is answering with his 'true' attitude" is, an almost daily plague. The answer to the question is quite simple: when you ask simplistic and direct questions you can, indeed, not be sure that the respondent is giving you his "true" attitude. However, by the use of sophisticated multi-dimensional attitude measurement techniques and the submission of these results to advanced multi-variate analyses it is, in fact, possible to get a more accurate "mapping" of the complex social reality encompassed by a notion of "social attitude" (cf. Davis, 1973).

II. Method

A. Elicitation Phase

1 Elicitation of Qualifiers

(a) Purpose

The purpose of this first phase of the study was to elicit a large pool of adjectives, or "qualifiers," which subjects (Ss) in the Irish culture, acting as "judges," felt would best describe or "qualify" a wide variety of "person concepts" or "person stimuli." This phase of the study is extremely important in terms of allowing for cross-cultural comparisons through the use of a common methodology, while at the same time preserving the unique character of a given culture by eliciting the "raw material" from subjects within the given culture. The necessity of such a step has already been alluded to in Section B above.

(b) Person Stimuli and Instruments

For purposes of eliciting the adjectival qualifiers a wide variety of person stimuli were used. These stimuli constituted a representative² spectrum of person concepts which fell into the seven categories set out in the standardised Personality Differential Procedures (July 1968 Version) developed by the Centre for Comparative Psycholinguistics. These categories were as follows: ego-concepts (e.g., Myself), kinship-concepts (e.g., My Father), well-known personalities (e.g., Liam Cosgrave), animal-concepts (e.g., a Dog), professions and trades (e.g., a Doctor), others (A Close Male Friend), and additional concepts relevant in the Irish context (e.g., A Priest). A complete list of the 31 concepts which were derived in this fashion, in randomised order, is given in Table 1.

2 The person stimuli were "representative" in the sense that they represent the seven major categories of person stimuli deemed by the cultural anthropologists and social psychologists working with Osgood and his team (cf. Osgood, May and Miron, 1975) as being cross-culturally generalisable and thus of significance in each culture to be studied. It would not have made a great deal of sense to have taken all possible designations of person stimuli represented by person nouns in the language of the culture being studied, and draw a statistical sample from these, since many, if not most, of these would constitute person stimuli which were unfamiliar to, and thus non-salient for, the subjects involved. This would not have served the purpose of eliciting the most representative "qualifiers" or adjectives used to describe person stimuli in a given culture.

Table 1: *Concepts used in the Elicitation Phase of the Personality Differential Study*

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01. A Doctor
 02. A close female friend (think of a particular person)
 03. Someone I admire very much (think of a particular person)
 04. A Drug Pusher
 05. Dogs
 06. Elizabeth Taylor
 07. My Brother
 08. A Teacher
 09. Myself
 10. A Policeman
 11. Jacqueline Kennedy Onassis
 12. A Factory Worker
 13. A Prostitute
 14. A Priest
 15. Richard Nixon
 16. Someone I know at work (think of a particular person)
 17. Tigers
 18. A close male friend (think of a particular person)
 19. A Tinker
 20. My Mother
 21. Liam Cosgrave*
 22. Spiders
 23. A Skinhead
 24. Jack Lynch**
 25. My Father
 26. Ian Paisley†
 27. My Sister
 28. Gay Byrne††
 29. Someone I dislike (think of a particular person)
 30. A Politician
 31. My next door neighbour
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*The Prime Minister of the Republic of Ireland at the time of the study.

**The Leader of the Opposition in the Republic of Ireland at the time of the study.

†A prominent Northern Ireland Protestant politician.

††A well-known television personality in Ireland.

The person concepts or stimuli were set out in booklet form and administered verbally as "Questionnaires" by the Interviewers from the ESRI Survey Unit. Half of the booklets presented the concepts in order 01-31 and the other half in reverse order (31-01). The instructions ask the Ss to suggest *four* adjectives which, in their opinion, best describe each person concept. Instructions and examples were given to facilitate the task (cf. Appendix A, Exhibit A1). The Ss' responses in each case were written by the interviewer alongside the relevant concept. A brief Biographical Information sheet was included in the Questionnaire: this requested information concerning age, sex, and occupation.

(c) Subjects

The Ss consisted of a stratified random sample of 160 adults selected from the Electoral Register for the Dublin area. The stratification of the Ss was by a simple dichotomisation according to age (18-35, over 35), sex, and occupational status (a simple high status/low status breakdown was used).³ Each of the 8 cells by this 2 x 2 x 2 stratification design contained 20 Ss.

This design ensured that each of the most important strata of the population were represented. A nationwide (or even Dublin-wide) completely representative sample would have been unduly costly for this phase of the research. Within the limits of the sample which was possible, a completely random procedure might have led to an over or under sampling of certain sections of the population. Thus we stratified the sample, whereby within the stratification the selection of Ss was random. We have used these particular stratification variables in a number of studies and compared the resultant sample composition with census of population data. In most cases no unexplainable disproportionate relationships between the sample characteristics and the census characteristics have existed.

The manner in which the selection of subjects actually took place was as follows: Each Interviewer was given a quota of subjects distributed over the stratification design. The interviewer was furthermore provided with a set of initial starting points, based on subjects with known characteristics drawn from the Electoral Register, and were given specific instructions as to how to proceed from these starting points in order to fulfil their stratification quota. It was felt that this procedure optimally satisfied randomness within the constraints of stratification.

2. Data Reduction Procedure

The adjectives, or qualifiers, which were thus elicited in Phase A, were tabulated for each stimulus (Person Concept) separately. Non-adjectival

³ Whereby "high" status was defined by the Hall-Jones categories 1-5,—"white collar" occupations; and "low" status by categories 6-8 "blue collar" occupations.

terms were eliminated, though whenever a doubtful item occurred, it was included. Strict synonyms (e.g., unlikeable—dislikeable) were adjusted so that only one of the terms was retained, but its tally was altered accordingly. The material was carefully edited for correct spelling and correction or standardisation of orthographical details, such as the use of hyphens, etc. However, great care was taken to ensure that the meaning was in no way altered.

The final total of qualifiers which resulted was $N = 6,591$. The entire set of data was then key punched in an alpha-numeric layout suggested by the Centre for Comparative Psycholinguistics at the University of Illinois, whose staff very kindly offered to perform the computer analyses involved in this initial data reduction procedure.⁴ For each *concept* (stimulus) the *qualifiers* (adjectives) elicited by that concept were key-punched in alphabetical order, together with the *frequency* with which the qualifier was elicited from the given concept. After they had been listed and carefully checked, and any necessary corrections made, the resulting data cards (numbering somewhat over 2,000) were sent to Illinois for computer analyses.

The data were reduced by the following procedure: an index utilising the Information Theory measure H was calculated for each qualifier. This measure is based on the frequency and total number of different concepts eliciting a particular qualifier. This measure gives the greatest weight to the most *frequent* and most *diverse* qualifiers. By *frequency* we mean the total number of times which a qualifier was elicited. By *diversity* we mean the number of different concepts with which a given qualifier was associated.⁵ The qualifiers were thus ranked from highest to lowest in terms of H scores. By applying the correlation statistic Phi (ϕ) the concepts associated with each qualifier were correlated with those associated with every prior qualifier in the ranked list, based on their distribution. The purpose of this correlation procedure was to eliminate those qualifiers which had a high correlation with the preceding qualifier (i.e., a qualifier which

4 We should like to gratefully acknowledge the collaboration and assistance given to us by Professor Charles E. Osgood, Director of the Centre for Comparative Psycholinguistics, and his associates; in particular we should like to express our thanks to Dr. Oliver C. S. Tzeng, Director of the Personality Differential Project at the Centre, who directed the analyses of the data and provided valuable assistance and advice throughout all phases of this study. The support for the computer analysis and related assistance was derived from grants from the National Institute of Mental Health (MH 01105) and the National Science Foundation (NSF CS 160), C. E. Osgood, Principal Investigator.

5 For a more complete description of the use of information theory H with semantic differential data see Osgood, May and Miron, 1975, pp. 85ff. The model is based on that of information transmission proposed by Shannon and Weaver (1949) and is essentially an index of entropy.

had a higher H score).⁶ The effect of this is, essentially, to remove items which are roughly synonymous: i.e., which would have high interchangeability in their distribution of usage in the culture.

From these analyses of the 6,591 elicited qualifiers, it was possible to extract a set of 72 high *frequency*, high *diversity*, and relatively *independent* qualifiers. The resulting qualifiers are listed in Table 2, together with their corresponding H-Rank. For each item $\phi \leq .435$. This represents a ϕ value below the .001 level of significance.

3. Elicitation of Bi-Polar Opposites

The next stage involved eliciting a bi-polar opposite for each qualifier derived from the above procedure. Since the purpose of extracting the adjectives listed in Table 2, above, was to create a set of Personality Differential scales in Semantic Differential format, i.e., bi-polar adjectival scales to be used in rating person stimuli, it is clear that the 72 adjectives derived by the above described data reduction procedures must pass a further test in order to be useful for our purpose. This test consisted of obtaining reasonable agreement from judges who were native Irish and considered to be fluent and knowledgeable in the form of the English language used in this culture.

An Opposite Elicitation Form was created in which judges were asked to provide the "best" opposite word for each of the 72 qualifiers. It was furthermore specified that "it should *not* be a highly literary or obscure term, but one in reasonably common daily usage. If there are two or more synonymous opposites available (such as "unhappy" or "sad," for example), you should give the one which is considered more frequent in usage" (cf. Appendix A, Exhibit A2). This form was administered to a group of 19 judges. Ten of these were colleagues at The Economic and Social Research Institute and the remaining nine were colleagues from another Dublin research institute.⁷

Following the procedures specified by the Centre for Comparative Psycholinguistics (January 1974 Version) a criterion of 70 per cent inter-judge agreement was applied as constituting a "clear and distinct majority;" each qualifier which attained this level was chosen with its opposite as a scale. According to the standard cross-cultural procedures referred to above, it was considered desirable to have a minimum of 40 scales which emerged directly from the elicitation procedure within the culture. It was suggested that if fewer than 40 scales resulted from this procedure (and it was stated

⁶ For a more complete description of this procedure cf. Osgood *et al.* (1975, pp. 94ff). This procedure is based in the theoretical psycholinguistic work of Harris (1954) and the empirical work of Deese (1962).

⁷ We should like to express our appreciation to our colleagues who volunteered their time to participate in this phase of the study.

Table 2: *Adjectives Selected from the Elicitation Phase of the Personality Differential Study*

	<i>H-Rank</i>		<i>H-Rank</i>
1. helpful	1	37. foolish	125
2. kind	3	38. kindly	127
3. hardworking	4	39. lovely	128
4. selfish	11	40. fatherly	132
5. clever	15	41. unhelpful	134
6. gentle	16	42. powerful	135
7. necessary	17	43. clean	138
8. likeable	18	44. shrewd	140
9. dangerous	19	45. greedy	142
10. lovable	21	46. irresponsible	143
11. attractive	22	47. proud	144
12. strong	23	48. false	145
13. beautiful	27	49. overworked	147
14. all right	28	50. marvellous	150
15. loyal	29	51. careless	153
16. unfortunate	30	52. diligent	161
17. dedicated	37	53. cute	162
18. religious	39	54. cunning	163
19. rich	40	55. sporting	164
20. dislikeable	50	56. rude	170
21. trustworthy	52	57. humourous	173
22. annoying	66	58. aggressive	174
23. domineering	70	59. educated	178
24. stubborn	74	60. young	183
25. ignorant	75	61. cross	190
26. personable	76	62. bitchy	192
27. admirable	77	63. moody	196
28. discreet	86	64. ordinary	202
29. poor	89	65. uninteresting	203
30. essential	90	66. temperamental	212
31. straight	92	67. protective	217
32. lonely	93	68. careful	224
33. noisy	104	69. well-off	233
34. hateful	105	70. misunderstood	238
35. big	110	71. costly	248
36. amusing	121	72. brilliant	249

$\phi \leq .435$ for all scales.

that this may well be the case) further scales should be added, provided the number of scales is five or less. Since the number of scales which survived the 70 per cent inter-judge agreement criterion in the opposite elicitation phase totalled 36, the need for such additions arose. It was suggested that the additional qualifiers to be chosen should be among the original elicitation data and be known to be of high frequency in normal usage in the culture. Using these guidelines we selected a further five items, all of which had received at least 60 per cent inter-judge agreement, for a total of 41 scales which emerged from the elicitation procedure.

4. Final Selection of Personality Differential Scales

The final list of Personality Differential Scales selected for use in the main study consisted of the 41 scales derived from the elicitation procedure described above, plus additional scales which were added for purposes of cross-cultural comparisons, following the standard instructions of the Centre for Comparative Psycholinguistics. It was suggested that 16 items derived from the original Personality Differential study by Ware (1958) in the US be added, representing two high-loading items from each of the 8 factors identified in that study. However, since one of these items had already emerged from the elicitation stage described above (viz., proud-humble), it was only necessary to add 15 items from this group. In addition it was suggested that 12 items be added which had been found to be "pan-cultural" by the Centre for Comparative Psycholinguistics in the work described earlier. Again, however, one of the pan-cultural items was among those which resulted from the elicitation phase (viz., weak-strong), so that it was only necessary to add 11 items from this group.⁸ This procedure resulted in a final total of 67 scales for use in the main study. The final list of scales is presented in randomised order, in Table 3; the origin of each of the scales is indicated by the appropriate footnotes.

B. Main Study

1. Purpose

In the preceding section we have described how we set about to achieve the first of the three major aims of the study. The purpose of this next phase of the study (described here as the Main Study) was to accomplish the last two aims described in the introduction, namely, to determine the

⁸ The "pan-cultural" items were derived from the original work by Osgood and associates which involves the use of 100 heterogeneous noun stimuli as concepts. As we have pointed out, the use of a delimited domain of concepts, e.g., person concepts, results in very different qualifiers being elicited and subsequently different factor structure. Thus the fact that a large number of the "pan-cultural" items were not elicited in this study, involving person concepts, is not surprising.

Table 3: *Randomised List of Scales Used in Main Phase of Personality Differential Study*

01. Kind—Unkind	35. Strong—Weak
02. Clever—Stupid	36. Irresponsible—Responsible
03. Poor—Rich	37. Proud—Humble
04. Unusual—Usual**	38. Predictable—Unpredictable**
05. Clean—Dirty	39. Dislikeable—Likeable
06. Overworked—Underworked	40. Straight—Crooked
07. Small—Large†	41. Vivid—Muted†
08. Excitable—Calm**	42. Rude—Polite*
09. Necessary—Unnecessary	43. Dangerous—Safe
10. Sporting—Unsporting	44. Attractive—Unattractive
11. Familiar—Unfamiliar	45. Selfish—Generous
12. Objective—Subjective**	46. Unique—Typical**
13. Educated—Uneducated*	47. Insensitive—Sensitive**
14. Pleasant—Unpleasant†	48. Powerful—Powerless
15. Gloomy—Light†	49. Misunderstood—Understood
16. Beautiful—Ugly	50. Admirable—Despicable
17. Logical—Intuitive**	51. Foolish—Wise
18. Costly—Cheap	52. Rigid—Flexible†
19. Uninteresting—Interesting	53. Gregarious—Self-contained**
20. Agile—Clumsy†	54. Ignorant—Knowledgeable
21. Formed—Amorphous**	55. Noisy—Quiet
22. Trustworthy—Untrustworthy	56. Sophisticated—Naive**
23. Slow—Fast†	57. Greedy—Generous
24. Religious—Irreligious	58. Moral—Immoral**
25. Brilliant—Dull*	59. Domineering—Submissive*
26. Light—Heavy†	60. False—True
27. Loyal—Disloyal	61. Reputable—Disreputable**
28. Tense—Relaxed**	62. Unfortunate—Fortunate
29. Discreet—Indiscreet	63. Young—Old
30. Delicate—Sturdy†	64. Tough—Tender**
31. Bad—Good†	65. Careless—Careful
32. Sociable—Solitary**	66. Hardworking—Lazy
33. Ordinary—Extraordinary*	67. Helpful—Unhelpful
34. Not nice—Nice†	

*added items selected from among elicited opposites receiving 60 per cent agreement.

All non-asterisked items are elicited opposites which received 70 per cent or more agreement.

**Ware items:—total = 15; one Ware item (proud—humble) was elicited.

†Pan-cultural items:—total = 11; one pan-cultural item (weak—strong) was elicited.

dimensions or structure (in the factor analytic sense) of the ratings on these 67 scales, of a variety of person stimuli, by a stratified random Dublin sample; and to explore the extent to which demographic characteristics of respondents in this sample (e.g., age, sex, occupational status) acted as determinants of these ratings.

As we will show in the discussion of Section III (Analyses and Results) below, the results of the analyses designed to achieve these two aims are closely inter-related. That is to say, the two types of analyses not only produce results which are of interest and value in and of themselves, but, also, tend to concomitantly validate each other.

2. Person Stimuli and Instruments

The person concepts or stimuli used in the final instruments were selected according to the same seven categories described in the previous section, but following the more carefully delineated instructions contained in the January 1974 revision of the Personality Differential Procedures issued by the Centre for Comparative Psycholinguistics. These revisions were based on the experience gained from more complete data which were by then available from Personality Differential studies in Finland, Japan, Great Britain, and Belgium, as well as in the US.

The concepts to be included in the first five categories were much more delineated and specified (in comparison to the July 1968 version of the Procedures), both in terms of the number of concepts in each category and the specification of the actual concepts themselves. This resulted in a list of 26 *basal* concepts to be used in further studies, which would, of course, greatly increase the *cross-cultural comparability* of the results obtained. This greater standardisation was made on the basis of the further empirical findings cited above which demonstrated the cross-cultural *generalisability* of these 26 basal concepts, in terms of their salience across cultures. Thus, apart from the cross-cultural comparability which this procedure permitted, it also insured that these 26 basal concepts would be highly relevant for any given culture being studied. Within these categories one major shift of emphasis was a sharp reduction in the number of concepts to be included in the category of "well-known personalities" (limited to two concepts). This, and a further change which we shall describe, shifted the emphasis much more in the direction of *categories* of persons, rather than particular personalities. This change in emphasis shifted the technique and the results obtained therefrom, much more in the direction of our intended practical application of the instrument to real life social problems, where attitudes toward categories of persons are more important than attitudes toward specific persons.

A further modification contained in this revised version of the Procedures consisted in permitting greater discretionary judgement in the choice of stimuli under the category of "additional concepts." It was suggested that

anywhere from four to fourteen such additional concepts *relevant to the particular culture involved* should be used. It was furthermore stated that it was preferable to take these concepts from the foregoing categories. While we felt that several of the first five categories might be quite important for certain specific kinds of studies (e.g., "Ego-Concepts," "Kinship-Concepts," "Professions and Trades") we also felt that these were rather adequately covered by the examples already prescribed. Thus, we chose to select these "additional concepts" mostly out of the sixth category of "others," a tactic which gave us leeway to focus even more on categories of persons, which are of direct and immediate relevance to our on-going applied research and further applied research which we expect to undertake in the very near future. For example, the relationship between the "normal" population and certain categories of persons regarded as "deviants" or "out-groups" frequently constitutes a major social problem. A detailed and differentiated knowledge of the perceptions and attitudes towards such categories of persons would seem to be an essential ingredient in the understanding and potential solution of such problems. In addition to such person categories as "An Alcoholic," "A Thief," and others contained in the 26 basal person concepts, we have added under "additional concepts" the culture-specific stimulus "A Tinker."⁹ There is much evidence to suggest that this group of persons is seen as an out-group in this culture and that relations between members of this group and the population at large constitutes a serious social problem (cf. Gmelch and Gmelch, 1975).

In a recently published study designed to develop techniques for measuring the behavioural component of social attitudes in Ireland (Davis, 1975a), we have shown that occupational status is a major determinant of social acceptance or rejection in a Dublin sample. The inclusion of person stimuli designating occupational groups of differing status in the present study will enable us to relate the previous findings to various affective and cognitive dimensions of attitudes relating to status. In the same study we also found that religion was a statistically significant determinant of social acceptance or rejection in the sample studied. Thus, we include in the present study "A Catholic," "A Protestant," and "A Jew," as stimuli.

The final list of the 35 person concepts used in the Main Study, consisting of the 26 basal concepts contained in the first six categories plus a further nine concepts which we included in the "additional concepts" category, is presented in Table 4. The concepts are listed in randomised order.

The basic instrument or questionnaire used to collect the data for this main phase of the study consisted essentially of the presentation of the 35 stimuli, one at a time, followed in each case by the 67 Personality Differential Scales devised in the elicitation phase described above. The task of

9 This is the Irish expression for a category of persons, also known as "Itinerants," which is roughly equivalent to the groups on the Continent known as "Gypsies."

Table 4: *Randomised List of Concepts Used in Main Phase of Personality Differential Study*

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01. A Medical Doctor
 02. A Close Male Friend (or *Female* for Female Subjects)
 03. A Shopgirl
 04. An Alcoholic
 05. Myself as a Son (or *Daughter* for Female Subjects)
 06. A Person I Dislike Very Much
 07. An Artist
 08. A Catholic*
 09. My Brother
 10. The Scientist Albert Einstein
 11. A Prostitute*
 12. Myself as a Friend
 13. A Poor Person*
 14. My Mother
 15. A Thief
 16. Myself
 17. A Dog
 18. A Social Worker*
 19. My Aunt
 20. The Taoiseach Liam Cosgrave**
 21. A Tinker*
 22. My Father
 23. A Jew*
 24. A Foreman
 25. A Cow
 26. A Politician
 27. Myself as a Father (or *Mother* for Female Subjects)
 28. A Protestant*
 29. My Sister
 30. A Murderer
 31. A Priest*
 32. The Writer Brendan Behan*
 33. My Ideal Self
 34. My Uncle
 35. A Teacher
-
-

*Additional concepts—the non-asterisked items are the 26 basal concepts.

**“Taoiseach” is the Irish designation for “Prime Minister.”

the subject was to rate each of the person stimuli on each of the 67 scales. Appendix A3 presents a complete example of the technique. Since the 67 scales ran over 3 pages, the first stimulus person was printed at the top of each of the three pages. After completing the response to the 67th scale at the end of the third page for stimulus persons 01, the subject was confronted with a filler page of coloured paper alerting him to the fact that there now followed a different stimulus person to be rated; there then followed stimulus person 02 printed at the top of the next three pages, under which the 67 scales were presented in the same randomised order; and so on for stimulus 03, etc. One half of the questionnaires (Form 1) used the 35 concepts in the randomised order 01–35 (as presented in Table 4); the other half of the questionnaires (Form 2) presented the stimuli in the reverse order (35–01). A specimen of the instructions and the instrument format is contained in Appendix A, Exhibit A3. The questionnaire also contained a Biographical Information Section at the end.

3. Subjects and Data Collection Procedures

As may be inferred from the above description of the instruments the questionnaire was an extremely lengthy one and its completion was a very time-consuming task. The ratings on the 67 scales for each of the 35 stimuli involved a total of $67 \times 35 = 2,345$ responses. The median completion time was 2 hours and 20 minutes, with a range of approximately $1\frac{1}{2}$ –3 hours. It was obviously impossible to have such a task completed within the framework of the field interview situation; thus an alternative procedure had to be adopted.¹⁰

The procedure employed was similar to that used in a previous study (Davis, 1975a), namely, the recruitment of paid volunteers to come into the Institute and complete the questionnaire in group sessions. At the time that we were carrying out the present study we were also carrying out another study involving the completion of a questionnaire which, although different in content and purpose, was of a similar magnitude and, thus, required the same procedure. Thus, while the content of the two questionnaires was different, as was the purpose of the two studies, the mechanics of scheduling paid volunteer Ss in group sessions was much the same. Therefore, it was decided to run the two studies during the same time period. For each of the two studies it was desired to have somewhat over 100 validly completed questionnaires, whereby in each case the Ss were stratified by sex, age, and occupational status, using the same stratification criteria as in the elicitation phase described earlier.

10 For purposes of factor analysis (see Section III, below) it would have been possible to divide up the questionnaire among different subjects, thus reducing the amount of time required from each subject. However, in order to carry out analyses of variance, which we considered an important part of this study, it was necessary, in order to have a stable N in each cell, to have each subject complete the entire questionnaire.

The procedure for recruiting the Ss for the two studies involved sending a mimeographed letter to a random sample of 800 names drawn from the Electoral Register of Dublin, requesting their co-operation in the study. A specimen of this letter is reproduced as Exhibit A4, in Appendix A. The letter stated that we wished them to come into the Institute on any one of four specified dates to fill out an attitude questionnaire (two of the sessions were used for conducting the present study, and two for the second study, which will be described in a later publication). Since we required a stratified sample, Survey Unit staff screened recipients when they telephoned the Institute to schedule sessions.¹¹

Although the overall response rate from the original sample of 800 was reasonably good, our requirements were not only to have somewhat over 100 Ss with valid questionnaires for each of the two studies, but it was also necessary to have an adequate N in each of the eight cells of the 2 x 2 x 2 stratification design. Given these constraints, and given differential response rates on the part of different categories of Ss, it was necessary to draw upon a slightly larger pool of potential respondents. It proved particularly difficult to obtain young, lower status subjects. As soon as this difficulty became apparent, we targeted an area presumed to contain above average numbers of this category of Ss. Within that area a further 100 names were randomly sampled. The volunteers obtained by this procedure, together with those already tested resulted in a total of 114 Ss who completed the questionnaire for the present study.¹²

Three of these questionnaires were discarded as invalid, leaving a final

11 We wish to express our sincere thanks to the Staff of the ESRI Survey Unit for their excellent work in handling all phases of the sampling, screening, and scheduling of the subjects. We should also like to express our sincere thanks to the Staff of the ESRI General Office and the Canteen and the ESRI Porters for their splendid assistance in various aspects of preparing and running testing sessions.

12 To get a clear idea of the "response rate" the following details might be mentioned: Of the 450 letters sent out for purposes of the present study approximately 162 respondents actually telephoned the Institute, representing a response of approximately 36 per cent. In addition to the 114 who actually showed up for testing sessions approximately 28 were scheduled but did not show up and another 20 had to be rejected because the stratifications cells into which they fitted had already been filled. The 36 per cent response rate may be seen as analogous to response rates to mail questionnaires. Moser and Kalton (1971) have reported numerous studies of mail questionnaires in which the response rate varied between 20-30 per cent. Other authors have reported even lower response rates to mail questionnaires. From this point of view our response rate can be seen as quite satisfactory. The actual number who showed up for testing sessions (whereby this behaviour may be regarded as somewhat more committed than just responding to a mail questionnaire) was approximately 25 per cent. which again is well within the general response rates to mail questionnaires.

total of $N = 111$. This spoilage rate of less than 3 per cent was quite satisfactory, considering the unfamiliarity and relative complexity of the task.

In spite of what has been said above, we must emphasise the important factor of the possibility of volunteer bias in the sample finally obtained. The reasons why it was unfeasible to carry out this study on a doorstep interview basis have been clearly outlined. There arose, therefore, the necessity of obtaining subjects who were willing to co-operate in a rather lengthy task. Pure volunteer bias is a serious problem in any type of social research (with "volunteers" tending to be a somewhat unrepresentative group). We sought to offset the "pure" volunteer bias by paying the subjects a nominal sum (i.e., £3 for a task involving nearly three hours of work and the necessity of coming into the Institute to complete the task). We chose the sum so as to be sufficient to entice enough subjects to satisfy our purpose, and yet not be so much as to constitute an experimental demand factor (Aronson and Carlsmith, 1969) so as to make the results purely a function of "high" payment. Numerous studies have shown that "overpayment" of subjects leads to distorted results (e.g., Festinger and Carlsmith, 1959). We consider that this "minimax" procedure of offering some payments in order to entice the subjects to participate in the experiments to begin with, without offering too much payment, so as to bias the results led to relatively valid responses. The experimenters themselves administered the group sessions, in the course of which the data were collected, and had the distinct feeling that the degree of co-operation and seriousness with which the task was taken was at least as high if not higher than in the average experiment in which Ss are employed. In the section which follows we shall describe some of the demographic biases (compared to census data) which resulted from our procedure, but we do not think these represent a serious problem with respect to the purpose of the study.

Furthermore, it will be recalled that we stratified our sample by the major characteristics of age, sex, and occupational status. As Moser and Kalton (1971) have pointed out, such stratification goes a long way towards eliminating volunteer bias.

Table B1, Appendix B, shows the distribution of the demographic characteristics of the 111 subjects compared with census data for Dublin. As can be seen from Table B1a, the breakdown by sex of our sample corresponds quite closely to the census breakdown. The breakdown by Marital Status (Table B1b) is also similar to that of the census. Single people are somewhat over-represented, and widowed people are somewhat under-represented; the former reflects the greater number of young people in our sample, cf. (Table B1c), and the latter is probably due to the fact that many of those who were widowed are also elderly, and would not be as likely to volunteer for an experiment such as this, perhaps for health reasons and/or due to the fact that they would have had to travel to the Institute to take part in the study. (cf. Fine, 1975, for findings and discussion of the relationship between

health, mobility and other factors in an elderly population). Table B1c illustrates the skewness of the sample toward the youngest age group: some of the subjects in the 18–29 age group were students, who might be expected to volunteer for a task like this more readily than the general population. The middle three age groups in the sample are comparable to census percentages, while the number in the 60+ age group is understandably small, for the reasons mentioned above.

Table B1d shows the distribution of educational levels, and again reflects the over-representation of the youngest age-group. It is to be expected that a greater proportion of present day young people would have received secondary education than was heretofore the case. Our sample also contains larger numbers of people who had received third level education; this is a reflection of the tendency of those in the sample of higher status (and so, by implication, those who would be more likely to have received third level education) to respond more readily to the request to participate in the study.

The differences between the census and the sample breakdown by religion (Table B1e) can be accounted for partly by the fact that the census does not provide a separate category for the numbers of those who are “non-practising;” thus, the “non-practising” category in the sample probably contains a number of those who are classified in the census as Catholic or Protestant. Given these considerations, the proportions of each in the sample are of the same order of magnitude as those in the census.

Table B1f shows the distribution of those in the various occupational classes. Again, some discrepancy between samples and census proportions appear, especially in Hall-Jones categories 3, 4 and 7. However, the distribution of global high-status and low-status groups is fairly similar for sample and census; approximately 39 per cent of our sample lies in categories 1–4, compared with approximately 42 per cent of the census figures; and approximately 61 per cent of our sample lies in categories 5–8 compared with approximately 58 per cent of the census figures.

The above description of our sample in comparison with census data for the Dublin area was not particularly designed to show that our sample was “representative” of the census distribution of demographic characteristics. Since our sample was stratified by age, sex, and occupational status there was no particular reason to believe that the sample would be completely comparable to census data, as one might expect from a large random sample. However, we believe that the above description shows that our sample—in spite of the deliberate distortion caused by stratification requirements—was not all that different from the distribution indicated by census data.

In the above description we also indicated some of the reasons for biases in our sample, compared with census distributions, above and beyond the stratification characteristics which we utilised. For example, we pointed out the relationships between age and education, between age and marital status,

and other associations which could be expected to exist in the sample as we were compelled to draw it. The importance of this deviation from census characteristics, and in particular the association between certain demographic variables, lies in the fact that the association between variables (e.g., age and education) has potential significance for the statistical results which we will report later. In particular the possibility that characteristics other than those by which we have stratified our sample (e.g., education) might be highly related to some of the stratification characteristics (e.g., age) must be considered. This raises the well-known statistical problem of multicollinearity which, though we feel is not a significant factor in determining the factor analytic results, is a serious factor in the generalisability of the analysis of variance results. We shall come back to this point when describing the results of the data analysis.

III. Analyses and Results

A. Factor Analyses of Scales: The Dimensions of Ratings of Person Stimuli

1. Factor Analytic Procedures

As we have stated earlier the major purpose of this study was to select a representative sample of ratings of person stimuli from an Irish sample and to subject the scales developed for this purpose to factor analysis in order to determine the structure of these ratings. The purpose of this procedure was, as has been described, to develop a technique for exploring and measuring the various dimensions of the affective and cognitive components of attitudes towards persons.

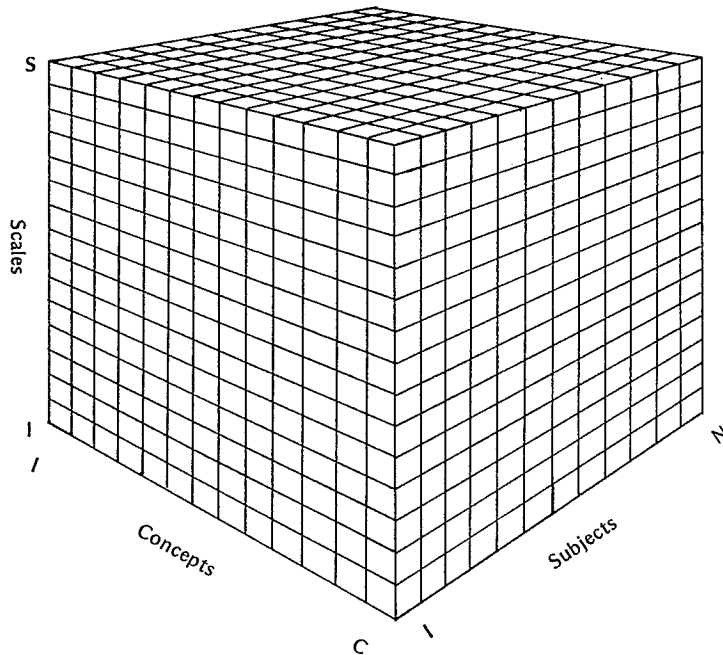
As is well known, factor analysis is the designation of a rather generic technique embracing a number of variations. Also, the input data for whichever factor analytic technique one is going to use can be conceptualised and “fed into” the computer in a variety of different ways. Thus, before we simply present the main factor analytic results in a following table we shall briefly describe the nature of the input data and the factor analytic procedures which we used to arrive at a final factor solution.

As Osgood (1962, p. 12) has pointed out, the kind of data generated by Semantic Differential (SD) judgements represents “a three-way correlational and factorial problem . . . That is to say, . . . a cube of data is generated within which there are three potentially independent sources of variation in factor structure—scales, subjects, and concept stimuli.” Such a cube of data is illustrated in Figure 1.

In discussing this cube of data, Osgood, May and Miron (1975, pp. 42ff.) describe the situation as follows: “The rows of this cube are defined by the scales, the columns by the concepts being judged, and the ‘slices’ from front to back by the subjects doing the judging. Each cell represents a single value how a particular subject rates a particular concept against a particular scale. In analysing such data we are usually—but not necessarily—interested in the correlations among the scales. We may correlate them across subjects or across concepts or both . . . In other words, there are many ways one can slice this semantic cake, each appropriate for answering a different kind of question.”

Just as the cube of data or “semantic cake” depicted in Figure 1 presents the necessity for making decisions in carrying out a correlational analysis, it similarly creates the necessity for making certain decisions when subjecting such data to factor analysis, which is normally based on correlational

FIGURE 1:
*Cube of Semantic Differential Data**.



*Adapted from Osgood, May and Miron (1975).

analysis. As the above authors go on to say, the cube of data created by SD judgements contains "observations on each of N subjects rating each of C concepts on each of S scales. Analysed in terms of Abelson's (1960) formulation, concepts are the objects of discrimination, the scale items are the modes of discrimination, and the subjects are the agents of discrimination. The conventional factor-analytic models can only be applied to two-way classification data matrices. Consequently, the investigator was forced to somehow collapse the three-classification SD data into two modes. A number of statistical strategies for reduction of the classifications are available (*ibid.*, p. 49)."

Osgood *et al.* (1975) go on to describe the various possible solutions, and, without going into detail in describing all of these possible solutions, we would just like to note that in a table reporting the results of three procedures utilising conventional factor-analytic models, they conclude, that an inspection of this table "indicates that the structures are qualitatively very similar under all three procedures (*ibid.*, p. 51)." As these authors

indicated in the passage which we quoted earlier, when one is interested in correlations among the scales this may be done "across subjects or across concepts or *both*" [emphasis added]. We chose in the present study to do both, in what is sometimes referred to as a "stringing out" procedure. This is the procedure employed in the original work by Osgood, Suci and Tannenbaum (1957) and involves treating each subject-stimulus combination as a unique observation. Another common procedure for collapsing a three-way matrix into a two-way matrix, so as to make it amenable to conventional factor analytic treatments, is to collapse one of the modes, most frequently the subject mode. When one does this, thus eliminating subject variance, the resulting factor solution is likely to be able to account for a much larger percentage of the (remaining) variance than if one leaves in the subject variance by the stringing-out procedure which we have utilised. The procedure of collapsing the subjects responses into a mean or sum, thus eliminating subject variance and reducing the three-modes to the two-mode classification necessary for factor analysis, may be justified when the Ss are relatively homogeneous in basic demographic characteristics. Since most studies with the Semantic Differential have been conducted with student populations, usually utilising approximately 18 year-old male secondary or under-graduate college students, there has usually been a high degree of homogeneity in the subjects involved. However, as will be noted from the preceding Methods Section, we have deliberately stratified the subjects used in the development of the present study by some major demographic characteristics i.e., age, sex and occupational status. We have done this because our interest is not purely theoretical or cross-cultural, but rather, is aimed at developing a measurement technique for use on a normal (in a statistical sense) population.

It has been argued that the procedure which we have utilised makes it difficult to tease out the relative contribution of the concept variance and the subject variance, since these are strung out together. However, in stratifying our sample as we have done, it is possible to tease out subsequently some of the subject variance by performing analyses of variance for each concept or person stimulus, using the subject characteristics just described as independent variables and the factor analytic results as dependent variables. Although it may be somewhat tedious to inspect such detailed analyses of variance, the data presented in this form are eminently more interpretable than most three-mode factor analysis results.

In summary, then, the input data consisted of the following: a total of 111 Ss responded to a total of 35 person concepts (stimuli) on 67 PD scales. Treating each S's response to a give stimulus as an observation: this resulted in a total of $111 \times 35 = 3,885$ observations, over which the 67 PD scales were intercorrelated. The resulting 67×67 correlation matrix was subjected to a Principal Component factor analysis, placing unities in the diagonal (rather than utilising communality estimates), and the resulting

Principal Axis factor matrix was rotated orthogonally to simple structure, using Kaiser's (1958) Varimax criterion.¹³

Several factor solutions were inspected, and, on the basis of psychological interpretability, a seven-factor solution seemed optimal; fewer than seven factors tended to collapse otherwise interpretable factors and a more than seven-factor solution tended to produce factors which contained isolates, that is only single high-loading items, and thus were not real factors. Although our ultimate criterion in deciding on a given factor solution was psychological interpretability and meaningfulness of the solution, we did analyse the various factor solutions by plotting the log eigenvalues (Bashook and Foster, 1973) and applying Cattell's (1966) Scree Test. Both of these procedures confirmed our judgement that a seven-factor solution was optimal.¹⁴

The complete factor analytic results of the seven-factor solution, presenting the loadings of each of the 67 scales on each of the seven Varimax rotated factors are contained in Table B2 of Appendix B. Table 5 presents a summary of the factor analytic results of the 67 PD scales, presenting selected high-loading scales from each of the seven Varimax rotated factors. As may be seen from Table 5, the seven factors accounted for approximately 55 per cent of the total variance. Readers familiar with factor analytic solutions of attitudinal-type variables will realise that it is not uncommon, providing one does not artificially eliminate some of the variance, to account for as little as 35 per cent of 40 per cent of the total variance with an optimal factor solution. Thus, we were quite satisfied with the results obtained here.

The scales presented in Table 5 constitute an interpretative selection of scales with a tentative name attached to each of the seven factors. The items were selected on the basis of both the magnitude of their loadings and their interpretability. Specifically, items with loadings of .80 or above were selected for the first factor, items with a loading of .50 or above for the

13 The decision to use a principal components technique was dictated largely by the fact that most of the cross-cultural work with Semantic Differentials has utilised this technique (Osgood, *et al.* 1975). The major difference between the principal components technique and classical factor analysis has to do with using unities in the diagonals in the case of principal components *versus* using communality estimates in the case of classical factor analysis. As Harman (1967) has pointed out "it has been argued, and substantiated by empirical evidence, that it matters little what values are placed in the principal diagonal of the correlation matrix when the number of variables is large (say, $n > 20$)" (p. 86).

14 It was not feasible within the space limitations of the present paper to present all possible factor solutions. However, any reader who wishes to inspect all solutions from a 2-factor to a 12-factor solution, or, wishes to have access to the original correlation matrix for possible further analyses, is invited to contact the authors.

Table 5: Results of factor analysis of 67 personality differential scales
 Selected scales from 7 Varimax rotated factors based on the responses of a Dublin
 sample to 35 person stimuli
 (N = 111)

<i>Scales</i>	<i>Varimax rotated loadings</i>
Factor I: General Evaluation	
Trustworthy—Untrustworthy	-.82
Bad—Good	.85
Not nice—Nice	.83
Dislikeable—Likeable	.84
Straight—Crooked	-.83
Admirable—Despicable	-.83
False—True	.84
Helpful—Unhelpful	-.81
Loyal—Disloyal	-.82
<i>Pct. Variance: 26.9</i>	<i>Cum. Pct. Variance: 26.9</i>
Factor II: Social Potency	
Clever—Stupid	.53
Poor—Rich	-.64
Educated—Uneducated	.72
Brilliant—Dull	.53
Powerful—Powerless	.59
Ignorant—Knowledgeable	-.61
Sophisticated—Naive	.51
<i>Pct. Variance: 7.6</i>	<i>Cum. Pct. Variance: 34.5</i>
Factor III: Uniqueness	
Unusual—Usual	-.74
Ordinary—Extraordinary	.76
Predictable—Unpredictable	.43
Unique—Typical	-.70
<i>Pct. Variance: 4.3</i>	<i>Cum. Pct. Variance: 38.8</i>

Table 5—*continued*

Factor IV: Activity	
Gloomy—Light	.42
Agile—Clumsy	-.67
Slow—Fast	.63
Young—Old	-.47
<i>Pct. Variance: 5.0</i>	<i>Cum. Pct. Variance: 43.8</i>
Factor V: Dominance with Rigidity	
Tense—Relaxed	.51
Proud—Humble	.58
Rigid—Flexible	.54
Domineering—Submissive	.59
<i>Pct. Variance: 3.6</i>	<i>Cum. Pct. Variance: 47.4</i>
Factor VI: Physical Potency	
Small—Large	-.61
Delicate—Sturdy	-.71
Strong—Weak	.55
<i>Pct. Variance: 3.9</i>	<i>Cum. Pct. Variance: 50.4</i>
Factor VII: Extraversion v. Introversion	
Gregarious—Self-contained	.46
Noisy—Quiet	.64
Careless—Careful	.52
<i>Pct. Variance: 4.5</i>	<i>Cum. Pct. Variance: 54.9</i>

second factor, and items with a loading of .40 or above for factors three through seven.¹⁵

15 However, some items showed a “split” loading, that is to say, they loaded at or above the specified criterion on more than one factor. For example, “light-heavy” loaded on both factors IV (Activity) and Factor VI (Physical Potency). Though this is not surprising in terms of the meaning which this scale has, it was eliminated from Table 5 because of the ambiguity involved in loading on two factors. Similarly “excitable—calm” loaded on both Factors V and VII and “discreet—indiscreet” loaded on both Factors I and VII. These items were, accordingly, eliminated from the selected high-loading items presented in Table 5.

All items were scored on a 7-point scale, the highest scale value being associated with the right-hand end of the scale. Thus, the differences in signs reflect the directionality of the scale and, as may be seen, are quite consistent with each other.

2. Description of the Primary Factor Analytic Results

Although Table 5 is largely self-explanatory, with the groupings of the items according to the criteria which we have mentioned and the interpretative labels which we have given them, it may be useful to comment briefly on these factors in terms of their interpretation and the items loading on the factors.

Factor I: *General Evaluation*

This is, of course, the classical E factor which is the first and largest factor to emerge, here accounting for approximately 27 per cent of the variance, the highest loading item being the pan-cultural "bad-good" scale (loading at .85). Evaluation emerges as the first and largest factor in almost all studies involving the Semantic Differential, not only in the original seminal work of Osgood, *et al.* (1957), and in the many cross-cultural replications of these findings, which have shown the cross-cultural generality of affective meaning systems (Osgood 1964; Osgood, *et al.*, 1975), but also in more specific studies of the Semantic Differential, such as the Personality Differential work (we shall refer to comparisons between data in the present study in Ireland and other cross-cultural work with the Personality Differential in Section D) as well as a variety of work which has been done with other specialised stimulus domains (cf. Snider and Osgood, 1969; also Davis, 1975a). We shall come back to a discussion of the nature of this pervasive E factor and the question of its presumed unidimensionality, and more particularly the presumption that it is a "pure" measure of affect in the sense of the affective component of attitudes within the framework of the tripartite theory of attitudes to which we have referred earlier.

Factor II: *Social Potency*

Given the universality of the E-P-A factors it is, of course, not surprising that a Potency factor should emerge in the present study. However, the items loading here factor out quite distinctly from the more classical Potency factor (Factor VI), which is made up of largely pan-cultural variables belonging to the original P factor. The present factor, Social Potency, seems to be at least rather specific to the stimulus domain, namely, person stimuli. It may also have an aspect of cultural specificity to it, since it does not emerge in other studies. It is quite clear from an inspection of the items loading high on this factor that a classical P scale (i.e., powerful—powerless) is interpreted by the subjects in the present study not in a physical, but rather in a social sense. It would seem that being powerful (and rich—a social

expression of powerfulness) is associated with characteristics such as being educated, knowledgeable, clever etc. It should be noted that within the Irish culture a great deal of emphasis is placed on education, although this must be stated at the present time more in the form of a social anthropological observation rather than an empirical fact. However, the reader will probably find that most observers agree with this conclusion. Therefore, it is entirely possible that, in fact, being educated, knowledgeable, etc., leads to Social Potency (e.g., powerful, rich, etc.), or at least that it is perceived that this association exists in this culture. In any case the possibility should be considered that this factor is culture specific, and quite valid within this culture, although the question of the specificity versus the generality of this factor must await more extensive (and more tightly controlled, in terms of research design) data from other cultures before it can be properly answered. It could, of course, be argued that education leads to social potency in most modern societies.¹⁶

Factor III: *Uniqueness*

This factor is perhaps one of the most clear-cut factors to emerge from the present study in terms of the scales with high loadings on the factor and the interpretative name given to the factor. To use a *double entendre*, this factor is "unique" in the sense that it does not seem to fall anywhere within the general classical E-P-A factor structure. On the other hand, it is not particularly "unique" as factors emerging from analyses of Personality Differential scales go, since it is one of the factors obtained in the original Ware (1958) study, and appeared again in the preliminary study mentioned earlier by Davis (1966), and has appeared in a number of the cross-cultural studies, as we shall discuss later. The extremely clear-cut and obvious nature of this factor does not at all render it useless but, rather, means that it is apparently a dimension along which people in different cultures do rate person stimuli, with a rather consistent grouping of the scales making up the factor. Therefore, it can be utilised or not, depending on the purposes of one's particular enquiry or the purpose for which one wishes to use all or part of the Personality Differential instrument for a given culture.

Factor IV: *Activity*

This factor is also quite clearcut (although perhaps less "unique") in that it quite closely replicates the classical Activity factor of the generalisable E-P-A factor structure, with the A scales from the pan-cultural E-P-A markers, together with related scales which clearly apply to person stimuli.

¹⁶ Also, as was noted earlier (in reference to Table B1) the sample was slightly more highly educated than the population of Dublin as a whole, which in turn may have been confounded with age. It is quite possible that this fact may have affected the emergence of the Social Potency factor in the present study.

The fact that it controls at least 5 per cent of the variance indicates that it is a factor to be reckoned with even within the context of the specific domain of stimuli with which we are dealing.

Factor V: *Dominance with Rigidity*

This factor, too, deviates from the generalised E-P-A structure and seems to be specific to judgements of person stimuli. Some authors working with Personality Differential data seem fixated upon the maintenance of the basic E-P-A structure and attempt to interpret all factors beyond the classical E-P-A factors as some kind of replications or mirrors of these factors. They are presumed to be slightly different only because person stimuli, rather than the generalised heterogeneous stimuli used in the basic SD technique, were used. In this vein, this factor could be seen as a mirror of the classical Activity factor. For now, however, we should like to avoid this possibly premature association and attempt to interpret each factor emerging from the present study in its own right.

The most "dominant" scale which loads on this factor is that of "domineering-submissive." The concomitant high loading of "rigid-flexible" on this factor tends towards an interpretation of the factor (and the kinds of person stimuli which might be described by the scales loading on this factor) as resembling those characteristics associated with the classical syndrome of the Authoritarian Personality (Adorno, Levinson, Frenkel-Brunswik and Sandford, 1950). Although "tenseness" could be seen as a characteristic which might evoke sympathy, in the context and directionality of the domineering and rigid items this characteristic could be interpreted as describing an authoritarian type of personality. Similarly, whereas "pride" may be seen as a quite positive characteristic, within the confines of the stimulus persons being judged and the combinations of scales on which judgements can be made, it would seem that the subjects in this study apparently interpreted the "proud-humble" scale (given its high-loading with the other items on this factor) in a slightly more negative way. This is to say "proud" seems to have been interpreted as "undue pride" or, perhaps, "arrogance" and to be seen as a slightly negative characteristic (compared to humble), and in line with the domineering, rigid and tense qualifiers which made up the rest of this factor. This interpretation of the factor will be further illuminated when we discuss the Analysis of Variance results using this factor as a dependent variable and examining differences among groups according to age, sex and occupational status.

Factor VI: *Physical Potency*

This factor requires little interpretation as it is clearly an example, in the most literal sense, of the original P factor in the common E-P-A factor space. It is quite clear that our subjects did not make metaphorical usage of these terms (in the way which Osgood suggests that people do) but inter-

preted them in a rather literal (physical) sense as a means of judging person stimuli. A careful inspection of all other factor solutions in addition to the ones presented here (including those solutions numbering less than seven factors) reveals that this factor in no case factors together with Social Potency. It would thus seem that our subjects, in judging person stimuli, clearly differentiate between these two notions of "potency." The physical potency factor certainly lends further evidence and credibility to the generality of the basic E-P-A factors; on the other hand, the factor may be of dubious usage in terms of socio-psychological studies focusing on attitude measurement. Although one can conceive of situations in which one would want to measure the "Physical Potency" of a person stimulus, this would be an unusual situation in terms of the measurement of social attitudes. In short, we were happy to obtain this factor, lending as it does further credibility to the already massive data base showing the cross-cultural generality of the E-P-A factors; but, on the other hand, it remains a factor which, although we recognise it as a perfectly legitimate dimension along which person stimuli may be judged, is one which we may not wish to use in most attitudinal studies.

Factor VII: *Extraversion v Introversion*

This factor was one of the most difficult ones for which to find an interpretative descriptive title. At first we considered the above title and rejected it for fear of confusion with other trains of research extending out of personality theory in psychology, in the limited sense of this term. The designation of Extraversion v. Introversion has a long history in personality theory and, as such, has become familiar to the educated layman. Hence, in comparison with some more obtruse designations which we thought of for this factor, this title had a certain appeal. The disadvantage of using this terminology is the possibility of confusing the reader by obscuring the distinction between the measurement of personality characteristics of individuals (e.g., Extraversion v. Introversion) and the purposes of the present study, which was to investigate the structure of adjectival characteristics used by subjects to describe other persons as stimuli. Although we would hope at this point that no one has misunderstood this basic distinction, we should like to emphasise it here, especially since we are borrowing terminology from the field of personality psychology.

The constellation of items with high loadings on this factor is quite interesting. The item "gregarious—self-contained" lends itself quite easily to the designation which we have given this factor. This item is a "marker" variable¹⁷ taken from the earlier Ware (1958) study, where it loaded together with "sociable—unsociable" as well as "extraverted—introverted,"

17 By "marker" variable we mean, one which had been taken from previous studies for purposes of cross-cultural comparison, viz., the earlier work of Ware (1958) and the pan-cultural marker variables described in the Methods Section above.

resulting in a factor which was called "Sociability" by Ware. In general, being "sociable" is usually regarded as a desirable trait. However, in the present study "sociable" does not load on this factor; instead, it has a moderate loading (.50) on Factor 1, General Evaluation. Instead of loading together with "sociable," "gregarious" loads together with such characteristics as "noisy" (the highest loading item on this factor) and "careless." Some of these traits would certainly be seen as undesirable by some people. Nevertheless, they do seem to have in common the notion of Extraversion v. Introversion. Because of the predominance of such a seemingly undesirable characteristic such as "noisy" we had originally named this factor "Obtrusiveness," which, of course, has a slightly negative connotation. However, further analyses, to which we will refer later, have shown that different groups evaluate these characteristics differently and, therefore, we decided on the more neutral designation of Extraversion v. Introversion.

At a later point in discussing the analysis of variance results we shall point out how this factor has, apparently, a different meaning for different subjects. We shall also discuss the role of the "sociable-unsociable" item in conjunction with the Evaluation factor, and we shall discuss the possible culture-specificity of this factor in our discussion of the comparisons between this study and Personality Differential studies conducted in other cultures.

3. Split-Half Reliabilities of the Factor Structure Obtained

To refer back to Figure 1, which schematically outlines the cube of data with which we have been dealing in this study, we have just presented a factor structure, considered by us to be optimal, of *scales* factored across a certain number of person *concepts*, based on the responses of a stratified sample of *subjects*, drawn from paid volunteers, who were Dublin adults. We have already indicated the possibility of bias in a sample so drawn, although we have also indicated the insurmountable difficulties of using a completely random sample on a doorstep basis, due to the length of the instrument to be completed by the Ss. The questions that the statistically minded reader might well raise are: Was the sample of subjects large enough and random enough to place faith in the generalisability of the factor structure described above, and were the stimuli used sufficiently representative of stimuli salient to the Ss so as to be able to generalise about the factor structure of ratings of person stimuli in this culture. We have already described how we have gone to great lengths to ensure that the scales utilised were representative of those produced by the subject population involved, using information theory statistics and other techniques to reduce the 6,591 elicited qualifiers to a final list of 67 personality differential scales. We shall now address ourselves to the questions that remain concerning the reliability of the obtained factor structures in terms of the other two dimensions of the cube portrayed in Figure 1.

(a) *Split-Half Reliability of Factor Structures from Independent Samples*

The most obvious way of examining whether the factor structure described above would remain stable across randomly selected samples from the general population described earlier, would be to randomly split the sample, perform separate factor analyses on the two independent samples, and systematically compare the factor analytic results obtained. We, thus, decided to do this. The Ss who filled out the questionnaire were randomly assigned a subject number regardless of any consideration of the stratification characteristics, thus a completely random split of the sample was easily obtained by simply dividing the sample into even numbered and odd numbered questionnaires. We then made a comparison of the factor structures obtained from the two randomly split samples according to "odds" and "evens." Although an inspection of the factor structures obtained from these two split samples show them to be highly similar, it is obviously desirable to apply a *quantative* criterion for comparison of the two factor structures.

The most frequently utilised technique in this regard is that developed by Tucker (1951) and Wrigley and Neuhaus (1955) which permits the computation of the *Coefficient of Congruence* as a measure of the degree of *factorial similarity* between two sets of factor coefficients (Harman, 1967). Table 6 presents three comparisons of sub-samples in the form of square, non-Gramian matrices, whereby an inspection of the *diagonal* elements of these matrices provides for a comparison between the two sets of factor coefficients.

Table 6a presents a comparison between the "even" sub-sample and the "total" sample (the fact that the factors based on the two samples do not come out in exactly the same order is due to random variation). In order to allow for an easier inspection of the matrix, columns were matched with rows, based on the factors which corresponded with each other in terms of interpretation. An inspection of Table 6a shows an extraordinary high congruence between the "even" sub-sample and the "total" sample with coefficients ranging between .97 and 1.00 (rounded off to two decimal places).

Table 6b shows a similarly high degree of factorial similarity between the "odd" sub-sample and the "total" sample with coefficients ranging from .89 to 1.00.

The most stringent comparison is presented in Table 6c which compares the two completely independent samples of "odds" and "evens" showing coefficients ranging from .82 to .99. Although there are no exact tests of significance for the coefficient of congruence measure, it may be regarded as analogous to a reliability coefficient, whereby with psychological test batteries coefficients in the range of the seventies to eighties are considered satisfactory and those in the eighties to nineties are considered highly satisfactory. If we had been able to afford an even larger sample to split, we

Table 6: Comparison of factor structures from split samples.

(a) Coefficients of congruence between factors from the total sample and the "Even" sub-sample.

	Original factors	"Even" sub-sample						
		I	II	III	IV	VI	V	VII
Total Sample	I	1.00	.57	.30	.56	.33	.03	.53
	II	-.54	-.99	-.04	-.51	.07	.14	-.54
	III	-.33	-.06	-.99	-.15	-.24	.00	-.32
	IV	.50	.50	.11	.99	.18	-.08	.30
	V	.41	.03	.21	.23	.97	.04	.28
	VI	.07	-.16	.02	-.11	.07	.99	-.01
	VII	.55	.47	.21	.26	.07	.07	.97

(b) Coefficients of congruence between factors from the total sample and the "Odd" sub-sample.

	Original factors	"Odd" sub-sample						
		I	II	III	IV	V	VI	VII
Total Sample	I	1.00	.48	-.29	.54	-.36	-.03	-.51
	II	-.59	-.96	.05	-.51	-.01	.20	.66
	III	-.32	-.11	-.99	-.12	.26	.05	.19
	IV	.54	.46	-.06	.98	-.19	-.17	-.30
	V	.38	.00	-.23	.32	-.91	.05	.06
	VI	.04	-.16	.03	-.06	-.05	.98	-.02
	VII	.53	.50	-.28	.18	-.45	-.04	-.89

(c) Coefficients of congruence between factors from the "Odd" sub-sample and the "Even" sub-sample.

	Original factors	"Odd" sub-sample						
		I	II	III	IV	VI	V	VII
"Even" Sub-Sample	I	.99	.59	.29	.58	.32	.02	.54
	II	.46	.92	.05	.48	-.11	-.16	.57
	III	-.30	-.02	-.96	-.09	-.23	.02	-.33
	IV	.51	.53	.12	.96	.28	-.06	.23
	V	-.38	.01	-.22	-.18	-.82	-.06	-.50
	VI	-.01	-.22	-.03	-.18	.07	.95	-.07
	VII	-.52	-.66	-.15	-.30	.15	-.06	-.82

probably would have obtained even higher coefficients; as it is, however, the coefficients of congruence between the two independent factor structures are extremely satisfactory, indicating a high degree of stability of the factor structures which have been described above.¹⁸

(b) Split-Half Comparison of Factor Structures based on Randomly Selected Sets of Stimuli

Referring again to the cube portrayed in Figure 1, the other source of variance, and hence potential error, is based on the concepts or stimuli which are being judged by the subjects on the scales. As was indicated earlier we felt that the 35 stimuli which were used were relatively "representative," in that they constituted representations of the major categories of person stimuli used cross-culturally and determined by cultural anthropologists and other workers in the field to be the most salient categories for subjects in those cultures.

The more specific one becomes in the domain of stimuli been responded to, the more different (and usually differentiated) the factor structure becomes. Thus, if one wanted to look at the factor structure of each individual stimulus one would probably find somewhat different factor structures. Indeed one example of this is the work by Swain (1975) utilising a modification of the present technique, in which the stimulus been judged was the instructor in a particular college classroom situation.

However, the purpose of the present study was to develop a more generalised personality differential technique and to examine its factor structure across a representative selection of person stimuli. The question, then, is whether this factor structure would remain relatively stable if a somewhat different set of stimuli were used. Alternatively, since we considered that we had largely covered the major domains of stimuli relevant in the culture, a test of the stability of the above described factor structure, across domains of person stimuli, could be made by randomly splitting the stimuli into two groups and comparing the resulting factor structures. This is the procedure which we have followed.

Table 7 presents a comparison of the factor structures based on analysis of the results from two randomly divided sub-sets of the original 35 stimuli.

Table 7a presents a remarkably high degree of comparability between the "even" sub-sample and the "total" sample, with coefficients of congruence ranging from .99 to 1.00. Table 7b presents an almost equally

¹⁸ Although orthogonal rotations were used, it is nevertheless not surprising to find moderate correlations between some of the other factors (in a few cases in the .50s). Orthogonal rotation maximises orthogonality of factors, but with psychological data it is seldom the case that the factors are completely orthogonal in the sense of being totally uncorrelated. The dramatically high coefficients of congruence between corresponding factors is the major feature of these tables.

Table 7: Comparison of factor structures from split stimuli.

(a) Coefficients of congruence between factors from the total sample and the "Even" sub-sample.

	Original factors	"Even" sub-sample						
		I	II	III	IV	V	VI	VII
Total Sample	I	1.00	-.56	-.32	.52	.40	.05	.54
	II	-.57	.99	.10	-.52	-.02	.17	-.54
	III	-.36	.11	.99	-.15	-.23	.03	-.29
	IV	.54	-.49	-.10	1.00	.25	-.10	.26
	V	.42	-.06	-.25	.27	.99	.08	.24
	VI	.10	.08	.01	-.07	.02	.99	.06
	VII	-.46	.41	.24	-.19	-.17	-.05	-.99

(b) Coefficients of congruence between factors from the total sample and the "Odd" sub-sample.

	Original factors	"Odd" sub-sample						
		I	II	III	IV	VI	V	VII
Total Sample	I	1.00	.56	.33	-.51	-.05	-.40	-.52
	II	.52	-.99	-.06	.46	-.16	.00	.44
	III	.24	-.01	-.99	.06	-.02	.21	.24
	IV	-.58	.56	.13	-.99	.05	-.20	-.32
	V	.04	-.22	-.01	.15	-.98	-.09	.03
	VI	.35	.03	-.25	.27	-.00	.99	.19
	VII	-.58	.58	.28	-.25	-.05	-.18	-.99

(c) Coefficients of congruence between factors from the "Odd" sub-sample and the "Even" sub-sample.

	Original factors	"Odd" sub-sample						
		I	II	III	IV	VI	V	VII
"Even" Sub-Sample	I	-1.00	.57	.37	-.53	-.10	-.43	.45
	II	.52	-.97	-.08	.46	-.10	.04	-.36
	III	.24	-.03	-.96	.05	-.03	.22	-.21
	IV	-.58	.59	.17	-.98	-.02	-.23	.25
	V	.04	-.25	-.04	.16	-.95	-.11	.01
	VI	.35	.02	-.25	.28	-.04	.96	-.16
	VII	-.59	.61	.31	-.25	-.09	-.22	.95

remarkable comparison between the "odd" sub-sample and the "total" sub-sample with coefficients ranging from .98 to 1.00.

Again the true test comes from comparing the completely independent sub-samples (of stimuli). Table 7c shows that the coefficients of congruence between the "odd" and "even" sub-samples ranged from .95 to 1.00. By any standards of comparisons the results of these tables would seem to indicate a very high degree of correspondence between samples split either on the basis of subjects or on the basis of stimuli and thus a high degree of stability of the factor structure described above, at least within the domain of the general population from which the sample(s) were drawn.

4. Dimensions of Semantic Space in Relation to Attitude Theory and Structure

The results of the main factor analysis of scales presented above could be considered the end of the report of this study if our purpose were solely to develop a cross-cultural replication of the Personality Differential technique. But, as we indicated earlier, our interest focuses rather more around the question of developing a practical instrument for use in attitude measurement, which, in turn, involves us necessarily in the relationship between Semantic Differential data of the type generated here and the theory and structure of attitudes.

As we have indicated in our work with attitudes we have proceeded from the general heuristic formulation of the tripartite theory of attitudes as consisting of cognitive, affective and behavioural components. In an earlier study Davis (1975a) reported in some detail on the structure and determinants of the behavioural component of attitudes in an Irish sample. As we also indicated we feel that comparable work on the cognitive and affective components of attitudes has not been adequately pursued. Furthermore, we regard the Semantic Differential technique, and in particular the version of it known as the Personality Differential technique, as an ideal vehicle for pursuing various dimensions of the cognitive and affective components of attitudes.

In an earlier article Osgood (1964), in discussing the cross-cultural generality of the structure emerging from the Semantic Differential technique concludes that "it is also apparent that, contrary to my early expectations, these factors are more reactive in nature, than sensory, more broadly affective than discriminatively cognitive, and thus closer to connotative than to denotative aspects of meaning" (p. 173). We have mentioned earlier the revolutionary role which Osgood has played in the field of psycholinguistics by developing measures of the connotative aspect of meaning. In recent years Osgood and many others have written and conducted research in an attempt to use the Semantic Differential technique to tease out measurements of connotative and denotative aspects of meaning (e.g., Osgood, May and Miron, 1975; Kuusinen, 1969; Tzeng and May, 1975; and

numerous others) using a variety of different techniques. We shall discuss some of these studies in a later section on cross-cultural comparisons of their results.

However, we are not quite sure that the distinction between affective and denotative meaning is exactly the same as the distinction which we chose to make within the tripartite theory of attitude structure between the affective and cognitive components of attitude. For instance, within this framework it could be argued that the evaluative factor is, perhaps, affective, whereas the activity and potency factors may seem to be more cognitive. We would agree with Osgood (although not all psychologists would) that the cross-cultural generality of the E-P-A factors may, in some way, be related to their utility in the evolutionary process of the survival of mankind and, thus, probably originally had affective (in the sense of autonomic nervous system) associations. On the other hand, in general, cognitive processes are utilised (and developed) in the interests of survival. However, it could be doubted whether the information mediated by the E-P-A qualifiers functions in quite the same way in modern-day society when applied to person stimuli. At any rate within the tripartite view of attitudes one may consider the possibility of seeing some qualifiers (PD scales) tapping somewhat more the cognitive component and others tapping somewhat more the affective component of interpersonal attitudes. In a much earlier study (Davis, 1966) we alluded to this view by concluding that "thus, we have seen that Semantic Differential judgements of persons *involving both cognitive and affective components of attitudes*, factor under several dimensions" (p. 21). However, we do not wish to labour this point here, since the usage of the term affective *v.* denotative in psycholinguistics and that of cognitive *v.* affective dimensions within the framework of attitude theory may represent more of a "semantic" distinction than a real one. Obviously one would have to operationalise these designations carefully before one could agree on their correspondence.

On the other hand, however, as we have pointed out earlier the evaluative dimensions of the Semantic Differential has become very widely used by attitude researchers as *the* operationalisation of attitude (e.g., Fishbein, 1967; Fishbein and Ajzen, 1975). Thus, if there is any validity in our previous notation that SD judgements of persons involved "both cognitive and affective components of attitudes" then this has serious implications for much research which has been conducted utilising the Evaluative dimension as the operationalisation of attitude, taking a unidimensional view of attitude as consisting of only an affective component.

In order to examine this hypothesis we conducted an *a posteriori* division of the high-loading items on the Evaluative factor (see Table 5) into what seemed to be more purely affective scales and those which seemed to be somewhat more cognitive. Specifically, we split up the first eight high-loading items on this factor into the following two sets of items, and obtained sub-composite scores for each of the two sets:

Affective Evaluation Scales

Bad—Good

Not Nice—Nice

Dislikeable—Likeable

Helpful—Unhelpful

Cognitive Evaluation Scales

Trustworthy—Untrustworthy

Straight—Crooked

False—True

Admirable—Despicable

Now, the reader might ask what validity there is in this *a posteriori* division of the high-loading scales on the evaluative factor. One could think of any other *a posteriori* scheme of dividing these scales up and, of course, the crucial thing is: does any such division *make a difference* in some meaningful way?

In the following section in which we discuss the analysis of variance results based on the stratification characteristics of the subjects by age, sex, and occupational status, in addition to throwing light on the meaning of the factors generally and producing some incidental findings which may have relevance in this culture, we shall also investigate whether or not these two sub-composites differ in any meaningful way that would justify the interpretation which we have given them.

As will be seen in the results which follow, dividing the evaluative scales into the two sub-sets which we have described, do in fact, make a difference in terms of the analysis of variance results, as compared with each other and as compared with the total evaluative score. We admit that it is a theoretical interpretation on our part to categorise these scales into "affective" *v.* "cognitive" scales. Nevertheless, the fact remains that such a division does *make a difference* in the analysis of variance results which would be unlikely to occur, in the interpretable fashion which it does, if the scales were randomly divided into two sets. The authors will be grateful to any readers who might have a different interpretation as to why these two sub-sets of scales make for the differences which will be described below.

*B. Analyses of Variance: Subject Characteristics as Determinants of
Scale Responses to Person Stimuli*

1. Main Results

Subsequent to obtaining the factor structure of subjects' ratings of person stimuli, analyses of variance were performed using subject characteristics as the independent variables. The dependent variables consisted of mean composite scores based on the high-loading items illustrated in Table 5, together with the two sub-composites of Affective Evaluation and Cognitive Evaluation, discussed in the section above. Thus there was a total of 9 dependent variables on which to perform analyses of variance for each of the 35 stimuli. One of the purposes of carrying out such analyses was to see if differences obtained between various groups of subjects (males *v.* females,

young *v.* old, and low-status *v.* high-status subjects) would confirm our assumptions concerning the interpretation of the factors and produce data in a direction congruent with our factor analytic interpretations. Thus the analyses of variance were not performed solely to obtain information on people's perceptions of the various person stimuli but also as a means of assessing the construct validity of the Personality Differential technique as a multi-dimensional measuring instrument.

Although it is not the main purpose of conducting these analyses of variance, the results obtained do throw light on differences in subjects differing in the three characteristics mentioned above in their responses to various stimulus persons. As we indicated earlier, we would caution about generalising these results to the population as a whole; on the other hand, to the extent that these results are statistically significant they may be taken *with appropriate caution* as indicative of real differences that exist in the present sample. Obviously, it would have been desirable to stratify the sample even further, such as, for instance, into urban and rural respondents. The reasons why this was not done had to do merely with limitations of time and resources, the magnitude of which may be gleaned from the description (in the Methods Section) of the manner in which the study was carried out.

Within the urban population which we used, further stratification could have been made given unlimited time and resources. The fact that we did not stratify by all possibly relevant characteristics raises the serious statistical problem of multicollinearity. The fact that we stratified the sample by age, sex and occupational status does eliminate the possibility of multicollinearity between these three independent variables. However, it is possible that one or more of these variables is in turn highly correlated with other variables by which we did not independently stratify the sample. One possible example which comes to mind is the well-known correlation (which we have alluded to earlier in our description of the example) between age and education, with younger subjects having, in general, a higher level of educational attainment than older subjects. This could lead to the possibility of education effects being mistaken for age effects—a classical multicollinearity problem. However, it should be noted that education is also highly correlated with occupational status. Thus, since we have independently varied age and status this mitigates the multicollinearity problem to a certain extent. That is to say, if the effect is in fact due to education, then, it should show up both on age and status, both of which are highly correlated with education, or, in an interaction effect between these two independent variables. Nevertheless, we are aware that a problem of multicollinearity does exist and would advise the reader to consider this in interpreting the following results.

A further statistical problem to which we would like to alert the reader has to do with making as many multiple comparisons as we have made. By making a large number of multiple comparisons one does, of course,

increase the probability that certain effects will appear significant by chance alone. Recognising this, we shall refrain from drawing any significant interpretations from effects which are only significant at the $p < .05$ level (except where these corroborate results which have a higher level of significance) and concentrate on interpreting those effects which are significant at the $p < .025$ or $p < .01$ level. Even here we would advise the reader to proceed with caution and to judge for himself whether the results make interpretable sense or not. As we pointed out before, the major purpose of this study was to obtain the factor analytic results, in order to determine the dimensions along which subjects in this culture make judgements of person stimuli; the analysis of variance results to follow should be seen as merely suggestive, throwing up questions which may require further research.

Table C-1 (Addendum)¹⁹ presents a summary of analysis of variance (ANOVA) results based on the systematic manipulation of the three subject characteristics of sex (male/female) age (young, 18–35/old, 36 and over) and socio-economic status (high/low) as the independent variables, with ratings of the 35 persons stimuli on nine Personality Differential composite scores as the dependent measures. Factors I through VII represent the seven factors described in the previous section (Table 5). In addition, Factor I, General Evaluation, was split on an *a posteriori* basis into two components: Factor Ia (VIII), Cognitive Evaluation, and Factor Ib (IX), Affective Evaluation. These two components were composited to see if they behaved differently when subjected to analyses of variance, which would constitute an empirical test of their construct validity.

Table C-2 (Addendum) presents the source level means on which the analysis of variance results are based and makes it possible to judge the size and direction of any given effect. Thus, if we do not specifically mention it in text, the reader who wishes to interpret the results in Table C-1 should make reference to Table C-2 simultaneously.

Space does not permit a discussion of all of the 315 ANOVA Tables, compacted into the five pages of Table C-1, which emerged as a result of these analyses. While the complete results are presented, and the reader is invited to inspect those which he finds of interest, we shall describe here only selected results from Table C-1. We shall describe results for those stimulus persons which have potential relevance from an applied social research point of view. We shall also inspect and describe results from the point of view of construct validity of the dimensions constituting the PD instrument. It will be noted that the 35 stimulus persons all describe well-known persons or categories of persons. Twenty-six of these constitute the

19 Due to printing costs Table C-1 (which is five pages long) is not printed in the present text. This table together with Table C-2, presenting the source level means, may be obtained from The Economic and Social Research Institute, 4 Burlington Road, Dublin 4, Ireland; the reader should ask for the Addendum to Paper No. 88. (Cost £1.00).

“basal concepts” which have been used cross-culturally in research on the Personality Differential. Others include person concepts which we felt were particularly relevant in this culture. The reason for using such obvious examples rather than more obscure ones, was for purposes of testing and illustrating the usefulness of the PD technique in identifying attitudinal differences. Other researchers may wish to use the composite factor measures which we have developed for more specialised purposes, after seeing their basic construct validity within the framework of the present study.

An inspection of Table C-1 for the first stimulus “A Medical Doctor” reveals two significant main effects. The first is for age on Factor V, Dominance with Rigidity ($F = 6.87$; $p < .01$). An inspection of the source level means (Tables C-2, Appendix C) indicates that young people perceive “A Medical Doctor” to be more “domineering” and “rigid” than older people do. This is not surprising since a doctor would constitute an authority figure for young people, and as we shall see in further results, it appears that in this sample young people generally tend to see authority figures in this manner. The second main effect for the stimulus Medical Doctor was on the factor Physical Potency (Factor VI). The main effect is for sex, and an inspection of the source level means in Table C-2 shows that females were considerably more likely to see “A Medical Doctor” as physically potent than were males ($F = 17.20$; $p < .001$). Medical doctors are more often male than female in this culture and men are, generally speaking, physically more potent (larger, heavier, sturdier, stronger) than women. However, the fact that women *perceive* doctors to be stronger or physically more potent than males perceive them to be, reflects differences between males and females in this culture, which seem to mirror prevailing sex-role attitudes and suggests that women may have a heightened perception of male strength (which is perhaps also affected considerably by the high socio-economic status of the stimulus person involved).

We shall not necessarily discuss the stimuli in the order in which they are presented in Table C-1 (since this merely represents the random order in which they were presented to the subjects) but shall, in each case, reference the stimulus by the number along the left-hand margin of the five pages of Table C-1. Numerous main effects were obtained for the stimulus “A Priest” (No. 31), indicating that on the several dimensions of attitudes towards this stimulus person there is significant variation among different segments of the population. Like the medical doctor, the priest may be assumed to be an “authority figure” in this society. This is supported by a replication of the two main effects which had obtained in the case of a medical doctor. Priests are seen to be more Physically Potent by females than by males ($F = 7.64$; $p < .01$) and more “dominant” and “rigid” by younger persons ($F = 7.72$; $p < .01$). In addition to being seen as more Physically Potent, priests are also seen by females as more Socially Potent (“educated,” “powerful,” “knowledgeable,” etc.) than they are by males ($F = 9.24$; $p < .01$). Main

effects for sex were also obtained on General Evaluation ($F = 5.49$; $p < .025$), with females manifesting more positive evaluations of priests than males. This is in line with other findings (e.g., MacGréil, 1975; Fine-Davis, 1976; Davis, Fine-Davis, Breathnach and Moran, in preparation)²⁰ which have shown that females are significantly more religious than males. These studies have also found that older people are more religious than younger people; this is supported by findings in the present analysis in which older people were significantly more likely than younger people to highly evaluate priests ($F = 8.42$; $p < .01$) and to see them as less "extraverted" and more controlled (i.e., "self-contained," "careful") ($F = 10.65$; $p < 0.1$).

Table C-1 presents only the main effects for the three independent variables; it would have taken an inordinate amount of space to present all the possible interaction effects for these 315 ANOVA Tables. In any case the vast majority of interactions were not significant and thus did not alter the interpretation of the main effects.

However, one interaction effect which was significant was the stimulus "A Priest." There was, as might be expected, an age by sex interaction effect on General Evaluation indicating that in particular older females manifested a higher General Evaluation for the stimulus person priest ($F = 7.01$; $p < .01$). However, it is interesting to note that this interaction effect is only significant on Affective Evaluation ($F = 9.81$; $p < .01$) but not at all significant on Cognitive Evaluation. This example illustrates the fact that these two sub-composites are measuring different things.

In addition to being perceived more positively (in the sense of General Evaluation) by females and older people, the data in Table C-1 indicate that priests are evaluated somewhat more positively by subjects from lower socio-economic backgrounds, as indicated by a main effect for status on General Evaluation ($F = 5.80$; $p < .025$) as well as on the two sub-components of General Evaluation.

An examination of responses to stimuli representing less fortunate members of the community also yield some very interesting and differentiated results. For example, the stimulus "A Poor Person" (No. 13) seems to elicit greater sympathy from females than from males; females are significantly more likely to evaluate the stimulus person positively on General Evaluation ($F = 7.01$; $p < .025$). This higher evaluation of a poor person on the part of females holds for both the Affective and Cognitive Components. There is also a significant main effect for age on General Evaluation of "A Poor Person," with older people more positive and younger people less positive in their evaluation ($F = 6.81$; $p < .025$). However, this greater evaluation is almost completely cognitive in nature, as may be seen by inspecting the two

20 E. E. Davis, M. Fine-Davis, A. Breathnach, and R. Moran, "A study of the factor structure of attitudinal measures of major social psychological constructs in an Irish sample." (Submitted to *The Economic and Social Review*).

sub-composites of evaluation, with Cognitive Evaluation yielding a very significant age effect ($F = 11.93$; $p < .001$) while Affective Evaluation yields a non-significant effect.

If one were to look only at General Evaluation, especially as this is usually interpreted as being affective in nature, one would be led to very erroneous conclusions concerning the attitudes of young people towards a poor person. It is obvious that younger people do not find a poor person less "nice," less "likeable" or less "good" than older people; it would seem rather that they have less respect (less attribution to being "trustworthy," "straight," "true," "admirable" etc.)—obviously, a cognitive judgement, not an affective one. This finding may be quite culture-specific in that one could speculate that younger people, being thought to be generally liberal, would not express discrimination of an affective-evaluation sort towards a poor person but none the less, having been brought up in an age of relatively recent affluence, may value that affluence to the extent that their cognitive evaluation of a poor person is significantly lower than is that of older subjects. Conversely, older subjects, being more likely to have lived through difficult times, before the relatively recent economic expansion, may not show the same lack of Cognitive Evaluation of poor persons, since they themselves may have been relatively poor in the past and/or had relatives or friends who might fall into this category and thus might show greater understanding of the phenomenon. The main point to emphasise, however, is the construct validation that this finding seems to offer for the *a posteriori* distinction which we have made between cognitive and affective evaluation.

While younger Ss may be less sympathetic to "A Poor Person" (in terms of Cognitive Evaluation), they are more sympathetic to "A Thief" (No. 15), at least in terms of Cognitive Evaluation ($F = 5.16$; $p < .025$). In other words, younger people seem to find a thief somewhat more respectable (or at least somewhat less unrespectable) than older Ss. This finding is possibly not without policy implications. It should be pointed out, however, that although the difference between the means for young and old is statistically significant on this factor for this stimulus person, the means for both groups are quite low, indicating a generally low evaluation of the stimulus person. Nevertheless, and in spite of the caution which we should like to reiterate concerning the generalisability of the current findings, the significant effect obtained here should not be completely ignored. However, the major significance of this finding is that it did not appear on Factor I, General Evaluation, or on Factor Ib (IX), Affective Evaluation. Therefore, if one were taking either of these attitude measures as a measure of positive or negative attitude towards the attitude object in question, one would have completely missed a finding which may be of interest and of social relevance (if replicated and verified). Again, this would seem to bear on the construct validity of the differentiated nature of the measures. Thus it would appear that although factor analysis may be a very valuable tool for initial explor-

ation of a domain of variables, it sometimes takes more detailed detective work (guided by appropriate theoretical formulations) to discover the true complexity of social reality.

Younger Ss are also more "positive" than older people in their evaluation of "A Prostitute" (No. 11). However, here it is only on the dimension of Affective Evaluation i.e., Factor Ib (IX) that this effect manifests itself ($F = 6.05$; $p < .025$). It might be recalled, at this point, that researchers who take an unidimensional view of attitudes regard evaluation as affective in character. Thus in the operationalisation of a measure of "attitude," within the context of the factor structure presented in Table 5, they would have used a composite score on General Evaluation (Factor I). In so doing they would have misused the significant effect, on precisely the construct which is so central to unidimensional measurement i.e., Affective Evaluation.

A further example of where the more direct dimensions of Evaluation and its various components may fail to show significant effects due to social desirability may be illustrated by the consistently higher rating of the stimulus "An Alcoholic" by older Ss on Factor II, Social Potency, and Factor IV, Activity, as indicated by the significant effects for age on these two factors seen in Table C-1. Thus, although few people would rate an alcoholic as "good" or "admirable," etc., older Ss indicate their (relatively) greater approval of an alcoholic by rating him as being more socially potent (i.e., "clever," "educated," "powerful," "knowledgeable" etc.) and more active (e.g., "light," "agile," "fast," etc.). The explanation for this is possibly quite simple in that older Ss are more likely to have close and positive relationships with a person who is an alcoholic, since the overt manifestations of this disorder tends to be more manifest at a slightly older age. What is interesting, however, from our point of view is the use of these dimensions, i.e., indirect dimensions to "evaluate" this stimulus where more direct ratings on straightforward evaluation factors (of whatever variety) would not have yielded any significant results. A final result which might be mentioned in respect of this stimulus person is the significant effect for sex on Factor VI, Physical Potency ($F = 6.47$; $p < .025$). An inspection of the source level means shows a clearly more positive rating on the part of female Ss than on the part of males. Possible interpretations of this effect could range from psychoanalytic interpretations of the relationship between daughters and fathers or wives and husbands (on an assumption that most alcoholics are male) to sociological interpretations of family structure, etc. We leave to researchers in these areas the techniques for exploring in a quantitative manner such possibilities which might otherwise remain purely impressionistic. From our point of view, however, it illustrates once again the usefulness of a multidimensional approach to attitudinal ratings of stimulus persons, indicating that some dimensions show up results for some stimuli whereas it takes other dimensions (isolated by quantitative, factor analytic, and other means) to show up effects which might otherwise have gone unnoticed.

It must be emphasised, however, that the overall mean scores for this stimulus person were relatively low; we are merely talking about mean differences between groups differing in characteristics along the lower end of the potential continuum of ratings. Nevertheless, the significant differences by characteristics of the subjects responding may be of considerable interest and worth pursuing further on the part of those interested in the topic.

The stimulus person "A Murderer" (No. 30), was, not unexpectedly, an object of very negative responses on the part of most subjects. However, even this almost universally abhorred stimulus person elicited some differentiated responses. For example, young people perceived this stimulus to be more Physically Potent (Factor VI) than did older Ss ($F = 5.43$; $p < .025$). If these findings should have generalisability then it would be important to ascertain how young people evaluate such concepts as Physical Potency. If it is positively evaluated by some young people, this could provide information concerning the attraction which violence has for some youth in modern society. Again, though it is not the main purpose of the present study to "answer" questions of such profound significance (which would require much larger samples and much more careful design for the particular topic in question) the "spin-off" results of this "methodological" study did show up questions of social relevance which, almost by their very nature, demand further inquiry.

Two of the "self" concepts provided quite differentiated results. For the stimulus designation "Myself" (No. 16) females and older people had higher General Evaluations ($F = 5.51$; $p < .025$ and $F = 9.76$; $p < .01$, respectively). However, while females had both higher Affective and Cognitive Evaluations of themselves than males, older people had only higher Cognitive Evaluation. This may reflect a greater "self acceptance" which often comes with age, but not necessarily greater affective satisfaction with self. This would be consonant with findings to the effect that older people tend to express a lesser degree of life satisfaction than younger people (e.g., Fine-Davis, 1976).

On the Factor "Social Potency," younger people see themselves as more socially potent than do older respondents ($F = 8.40$; $p < .01$) and, similarly, higher SES respondents perceive themselves as more socially potent than lower SES subjects ($F = 9.90$; $p < .01$). The latter finding is not at all surprising since members of higher SES groups are, in fact, "richer" and more "powerful," etc. The fact that the young see themselves as more socially potent than the old may in part reflect the fact that the adjective "educated" loaded on this factor. Since educational opportunities have been more available to the young than to their elders, they are, in fact, better educated and may therefore be likely to perceive themselves as "clever" (as opposed to "stupid") "sophisticated" (as opposed to "naive"), etc. Also greater educational opportunities for the young have led inevitably to greater

affluence which would explain the results of this factor. In addition to having higher Cognitive Evaluation of themselves and seeing themselves as more socially potent than older people see themselves, younger Ss are also more likely to see themselves as Unique ($F = 10.00$; $p < .01$), Active ($F = 6.25$; $p < .025$), and Extraverted ($F = 17.75$; $p < .001$).

An exploration of the results for the stimulus "My Ideal Self" (No. 33), which measures what the respondents would like to be like (or think they should be like), indicates that young people would also like to be more "unique" (Factor III) than would older people ($F = 13.32$; $p < .001$), suggesting a greater tendency toward conformity among older Ss, a finding which is not surprising. Younger people also place a higher value on being Socially Potent ($F = 8.10$; $p < .01$), on being Active ($F = 6.98$; $p < .01$) and, to a lesser extent, on being Extraverted ($F = 4.70$; $p < .05$).

Other results for the stimulus "My Ideal Self" reveals that, even though high SES subjects already can see themselves as more Socially Potent than do lower SES subjects, they would like to be even more socially potent; at least their aspirations in this direction are greater than those of lower SES subjects ($F = 11.24$; $p < .001$). However, lower SES respondents would like to be more Dominant ($F = 6.52$; $p < .025$). This may reflect a perception on their part that they are currently in the role of having to be "submissive" to others and would rather be a bit more "domineering." A significant main effect in respect of the stimulus "Ideal Self" was also obtained for sex on the factor Physical Potency, with males seeing their ideal selves as more physically potent ($F = 8.25$; $p < .01$) than females.

The three stimuli representing religious designations, namely, "A Catholic," "A Protestant," and "A Jew," were individually presented to Ss and elicited differentiated perceptual responses. The stimulus "A Catholic" (No. 8) was evaluated more positively on the General Evaluation factor by females than by males ($F = 8.47$; $p < .01$). This trend held up for both the cognitive and affective components of the evaluation factor (composites VIII and IX). Females were also more likely than males to perceive "A Catholic" as socially potent ($F = 8.08$; $p < .01$). These findings are congruent with the earlier findings concerning sex differences obtained for the stimulus "A Priest" and probably reflect greater religiosity on the part of the (predominantly Catholic) women—a finding which has been noted in other studies.

Main effects for the stimulus "A Catholic" were also obtained on Activity (Factor IV), with older Ss perceiving Catholics as more "Active" than younger Ss ($F = 7.43$; $p < .01$) and lower SES Ss also perceiving Catholics as more Active ($F = 5.52$; $p < .025$). Younger Ss were more likely than older Ss to perceive Catholics as "dominant" and "rigid" (Factor V) ($F = 7.81$; $p < .01$); however, the younger Ss also perceived Catholics as more Extraverted (Factor VII) than did older Ss ($F = 7.10$; $p < .01$). The age differences obtained seem to reflect findings of other research cited earlier to the effect that older people are more religious than the young.

There were no significant effects for sex or socio-economic status for the stimulus "A Protestant" (No. 28), although several age effects appeared. Older people expressed higher General Evaluation of this stimulus person ($F = 7.38$; $p < .01$), which was significant on both the Cognitive and Affective Evaluation dimensions, but more so on the cognitive dimension. Older Ss were more likely to perceive Protestants as self-controlled (introverted), whereas the young were more likely to see them as extraverted ($F = 21.12$; $p < .001$). However, the means on this factor were on the low side (between two and three on a seven-point scale, with seven being the most extraverted and four being the theoretical neutral point).

Personality Differential factors other than those significant for "A Catholic" and "A Protestant" were salient for the stimulus person "A Jew" (No. 23). There were no main effects on any of the evaluative factors as there had been for a Catholic and a Protestant, indicating a lack of significant differences by age, sex, or SES for this stimulus. An inspection of the source level means indicates that Jews are evaluated moderately positively, Catholics more positively and Protestants most positively of all on General Evaluation; however, the significance of the differences have not been measured in the present analyses.

In the context of unemployment, poverty, marital breakdown and other social problems, the stimulus of "Social Worker" (No. 18) has obvious social relevance. Since women may be more often the ones to interact with a Social Worker, it is not surprising that they are more likely than men to see the social worker as more physically potent than men do ($F = 6.13$; $p < .025$). It will be recalled that women also were more likely to see other authority figures—"A Medical Doctor" and "A Priest"—as more physically potent than men did.

Younger Ss, on the other hand, were more likely than older Ss to see a social worker as dominant and rigid—Factor V ($F = 7.60$; $p < .01$). This is consonant with earlier findings that young people are more likely than older Ss to see authority figures, e.g., "A Medical Doctor," "A Priest," etc. as more dominant and rigid. This is further supported by the fact that younger people are also more likely to perceive "A Teacher" (No. 35) as dominant and rigid than older Ss ($F = 5.90$; $p < .025$). Such findings tend to document a "generation gap" in perceptions of authority figures. Whether or not medical doctors, priests, teachers and social workers behave differently *vis-à-vis* younger and older people, they are perceived quite differently by the two groups; younger people are more likely to perceive them as "proud," "rigid," "domineering," whereas older people are more likely to perceive them as "humble," "flexible," and "submissive." However, the relativity of these ratings must be borne in mind: among all Ss—young and old—the means on Dominance with Rigidity (Factor V) for medical doctor, priest, and social worker are all in the vicinity of three (below the theoretical mean of four) indicating that these stimuli are not perceived as very domi-

nant or rigid. The stimulus "A Teacher" is perceived as somewhat more dominant and rigid than these three, with a mean of approximately four.

Interestingly enough, Ss perceive members of their own families as fairly high on Dominance with Rigidity (Factor V). For example, "My Mother," "My Father," "My Aunt," etc., elicit mean scores in the vicinity of 4.0 as compared with "A Social Worker," "A Close Friend," and "A Medical Doctor" all of whom are perceived as dominant and rigid at approximately 3.0-3.5. These differences between means suggest that members of one's own family may be at least as guilty of being a source of stress (e.g., by being domineering and rigid) to other family members as are "authority figures" outside the family. Younger Ss, in particular perceive this to be the case. These Ss are significantly more likely to perceive "My Father" as dominant and rigid than are older Ss ($F = 4.99$; $p < .05$) as well as "My Brother" ($F = 5.12$; $p < .05$), "My Aunt" ($F = 13.83$; $p < .001$), "My Sister" ($F = 6.83$; $p < .025$) and "My Uncle" ($F = 13.75$; $p < .001$).

It will be recalled that a number of stimulus persons revealed a main effect for age on the factor "Extraversion-Introversion" in the direction of younger Ss perceiving various stimulus persons as more extraverted than did older Ss. This applied to such diverse stimuli as "A Priest," "A Catholic," "A Protestant," "A Poor Person," "Myself," "A Social Worker," etc. It also includes "A Shopgirl," "A Close-Friend," "My Mother" and other stimuli. The pervasiveness of the effect of age on this factor suggests that the effect has to do more with how the characteristics making up this factor are interpreted by the subjects than by the characteristics of the person stimuli to which they are responding. The results have shown that young people are more likely to grade a wide variety of stimuli as somewhat more extraverted (i.e., "gregarious," "noisy," etc.) than are older people, who are more inclined to perceive stimulus persons as somewhat more "self-contained" and "quiet." These differences may reflect differentiated evaluation of these characteristics on the part of younger and older Ss or a systematic differentiation of *perceptions* of stimulus persons along this dimension. However, in spite of a tendency for old and young to differ significantly in their "Extraversion-Introversion" ratings, there is less variance *within stimuli* than *between stimuli* for both age groups. Extraversion, as a rating characteristic, seems to vary widely between stimuli, regardless of the systematic effects shown by particular subjects. (We shall attempt to summarise the latter effect in a following section.) It is interesting to note, for example, that among those having the highest extraversion ratings are "An Alcoholic," "A Prostitute," "A Tinker," "A Murderer," and "The Writer, Brendan Behan." However, this does not necessarily imply a negative evaluation; for although all of these stimuli have means of approximately four or five on Extraversion, the means for these stimuli on General Evaluation vary greatly. Whereas "An Alcoholic," "A Tinker," "A Prostitute" have mean evaluations of approximately three or less on a seven-point

scale, "A Murderer" has a mean evaluation of less than two, while Brendan Behan has a General Evaluation of well over five. Such differences justify the information utility of a multi-dimensional approach to the measurement of attitudes towards person stimuli, as well as to the relatively differentiated manner in which the dimensions of the attitude clusters, thus derived, behave.

In addition to examining the construct validity of the dimensions identified, the ANOVA results allowed for the examination of the *a posteriori* splitting of the Evaluation Dimension into Affective and Cognitive components. An inspection of the results in Table C-1 reveal that these two components do, in fact, generate different results in many cases. For example, in addition to the examples already cited, for the stimulus "My Mother" there is no main effect for the General Evaluation *per se*, but there is a main effect for age on Cognitive Evaluation in the direction of older Ss being somewhat more positive ($F = 7.06$; $p < .01$). However, there are no significant differences in Ss' affective evaluation of their mothers. For the stimulus "My Father" there is a moderate main effect for sex in the direction of females being more positive toward their fathers than males ($F = 4.76$; $p < .05$); however, an inspection of the results for sub-factor composites VIII and IX reveals that this difference is purely affective in nature ($F = 10.73$; $p < .01$) and not cognitive. Similarly, results for the stimulus, "A Poor Person," as we have already pointed out, reveal a main effect for age, with older Ss expressing more positive general evaluation; however, an examination of the two components of evaluation indicate that this age effect only holds for Cognitive Evaluation, indicating that younger Ss are just as positive toward "A Poor Person" in terms of their Affective Evaluation as are older Ss, but differentiate in their Cognitive Evaluation. Further instances could be cited, as the reader may determine for himself by a more complete inspection of the extensive results presented in Table C-1.

In summary, the evidence in these results tends to support the construct validity of both the factor-analytically-derived and the *a posteriori* measures, in terms of their content (i.e., the empirically derived scales used to operationalise constructs). The results also show the importance of the multi-dimensional approach employed here, as indicated by the differential results obtained for the same stimuli on different dependent variables, operationalised by composite scores of the various factors identified.

2. Analysis of Variance Results by Response Dimension

In the preceding text, describing the ANOVA results presented in Table C-1, we have focused on the main effects of sex, age and status for each stimulus separately using the nine composite scores of Personality Differential scales as dependent variables. We have hinted at the fact that for certain of the nine dependent variables (PD composite scores) certain independent variables seem to appear frequently across many of the 35 person

Table 8: *Frequency of main effects of sex, age and status for each PD composite score, summated across 35 person stimuli*

		<i>Frequency of Various Levels of Significance</i>				Σ Frequency	
		.05	.025	.01	.001		
I General Evaluation	Sex	4	2	4	0	10	
	Age	1	5	6	1	13	
	Status	1	1	0	0	2	25
II Social Potency	Sex	0	2	3	0	5	
	Age	3	1	3	2	9	
	Status	5	4	2	1	12	26
III Uniqueness	Sex	0	0	0	0	0	
	Age	1	4	2	1	8	
	Status	2	0	0	0	2	10
IV Activity	Sex	1	3	1	0	5	
	Age	2	2	3	1	8	
	Status	1	4	1	0	6	19
V Dominance with Rigidity	Sex	1	0	2	0	3	
	Age	2	6	9	3	20	
	Status	2	0	0	0	2	25
VI Physical Potency	Sex	2	7	4	2	15	
	Age	1	1	1	0	3	
	Status	2	0	0	0	2	20
VII Extraversion	Sex	1	2	3	0	6	
	Age	3	1	8	9	21	
	Status	2	0	1	0	3	30
Ia (VIII) Cognitive Evaluation	Sex	3	4	1	0	8	
	Age	3	5	8	2	18	
	Status	0	1	0	0	1	27
Ib (IX) Affective Evaluation	Sex	1	4	3	0	8	
	Age	3	3	3	1	10	
	Status	5	0	0	0	5	23

stimuli, thus suggesting an effect relating the independent variables to the dependent variable response dimensions, somewhat independently of the stimuli being judged.

Since it is extremely difficult to see patterns of this sort in looking at 315 analysis of variance tables by three main effects differentiated into four different levels of significance, we have sought to summarise these 35 x 3 x 4 pieces of information in a more parsimonious manner in Table 8. This is essentially a table of the frequency of the main effects of the three in-

dependent variables for each of the nine composite scores summated across the 35 person stimuli. The effects are differentiated by levels of significance but then summated, resulting in a total frequency of all significant levels beyond the $p < .05$ level for each of the three main effects for each of the nine dependent variables. An inspection of this table reveals certain patterns which confirm the impressions gained from inspection of the far more detailed results contained in Table C-1.

For the response continuum on General Evaluation (operationalised by the composite score obtained for the selected high loading scales on this factor from Table 5) the most outstanding summated frequency of significant effects is the comparatively low frequency ($n = 2$) attributable to status as an independent variable. A possible explanation for this phenomenon of relative non-differentiation by subjects of varying status in their General Evaluation of stimulus persons (whereby the stimulus persons vary widely in the status which they generally enjoy in this society) may be found in the results of the earlier study by Davis (1975a) in which he found that, with an Irish sample, status was overwhelmingly the most important determinant of most of the dimensions of the behavioural component of social attitudes towards stimulus persons who were systematically varied in terms of status (as well as other characteristics). Thus, it may be, since status is such an overwhelming determinant of the behavioural component of attitudes, that this phenomenon is fairly universal across groups who themselves differ in social status. In other words, high-status stimuli are positively evaluated and low-status stimuli are negatively evaluated, and this would seem to be a culturally generalisable phenomenon regardless of the status of the subjects providing judgements. Alternatively, the poor performance of status on this dimension may be a reflection of the Social Desirability effects to which this dimension may be susceptible—a phenomenon to which we have made reference earlier.

Looking at the dependent variable operationalised by the response dimension of Social Potency, the most outstanding feature that emerges there, is the relative *high* frequency of significant effects attributable to status as an independent variable. An examination of the twelve main effects for status on this factor indicates that they are primarily determined by high ratings on the part of high-status Ss for self-concepts and to a certain extent for family or kinship concepts. This is consistent with the objective reality that high-status subjects are likely to be more "rich," "educated," etc. Interestingly, the effects are not determined by a higher rating on this factor on the part of high-status subjects of stimulus persons who, directly speaking, would be considered socially potent. For example, although there is a status effect for the stimuli "An Artist," "The Scientist, Albert Einstein" and "The Writer, Brendan Behan," it is the low status subjects who rate these stimuli higher on Social Potency. Possibly because of their own objectively lower Social Potency, lower status subjects are more in awe of such figures.

An inspection of Table 8 for the frequency of main effects on the dimension designated by Factor III, Uniqueness, shows that age is the most important determinant here (although the overall number of significant effects for this factor is relatively low). A more detailed analysis of the eight main effects for age shows a general pattern of younger Ss rating self-concepts, and to a certain extent kinship concepts, as more unique than older Ss.

Looking at Factor IV, Activity, age again appears as the most frequent effect, although there are not great differences between this and the other effects. The effects for age are a mixture of younger subjects seeing self-concepts as more active and older subjects seeing prestigious stimuli such as "The Taoiseach," "A Politician," "A Priest" and "A Catholic" as more active.

For Factor V, Dominance with Rigidity, age effects appear again. A detailed inspection shows that it is consistently the younger Ss who rate stimuli higher on this factor. Although a variety of stimuli are rated higher by younger Ss than by older Ss on this factor, a large percentage of them are, as we have commented earlier, authority figures (e.g., "The Taoiseach," "A Foreman," "A Priest," "My Father," etc.).

The outstanding feature of the distribution of main effects on Factor VI, Physical Potency, is the preponderance of main effects for sex. Almost all of these effects are in the direction of females rating stimuli higher on this factor than males. Most cases involved, as we intimated earlier in the more detailed description of the ANOVA results, authority figures (e.g., "The Taoiseach," "A Politician," "A Social Worker," "A Priest" etc.) which are primarily male. However, some female authority figures are rated higher on this factor too (e.g., "My Mother" and "My Aunt"). We have commented earlier on the fact that "An Alcoholic" is also rated higher on this factor by female Ss for reasons which we speculate upon. The single exception where males rated a stimulus higher on this dimension is that of "My Ideal Self;" which is logical since males would be expected to see themselves as physically more potent than females.

For Factor VII, Extraversion, the notable feature of the distribution of main effects, is that of age. In all but one of the twenty-one cases it is young Ss who rate stimuli higher on this dimension. Although many of these stimuli are authority figures, the range includes a wide variety of stimuli such as self-concepts, "A Poor Person," "My Sister" and others. Given the diversity of concepts rated highly on this dimension by young people (and the large number involved), the most general overall conclusion that can be drawn is that younger Ss in general see person stimuli as more extraverted whereas older Ss see most stimuli as more introverted (e.g., "quiet," "self-contained" etc.). It is difficult to say whether this implies that they value these traits more. The single exception to this pattern occurs in the case of "The Writer, Brendan Behan" where it is the older Ss who perceive this stimulus to be more extraverted. This is possibly a generational

effect as the writer was more a contemporary of the older Ss, and of course had the reputation of being relatively extraverted, in the colloquial sense, as well as the sense in which we use the term here.

A comparison of sub-factors 1a (VIII) and 1b (IX), Cognitive Evaluation and Affective Evaluation, reveals a somewhat greater number of age effects on Cognitive Evaluation. Most of the age effects on evaluation are caused by older Ss expressing higher evaluation, both on General Evaluation and on these two sub-composites. Although this higher evaluation is spread over a variety of different person stimuli there is a slight tendency towards higher evaluation of high-status figures, though not exclusively so. The larger number of age effects for Cognitive Evaluation, as compared to Affective Evaluation, is due to the differentiation between these two sub-composites which was pointed out in some detail in the preceding section. For example, older Ss rate "A Poor Person" higher (or younger Ss rate this person lower) but this only holds on Cognitive Evaluation, not on Affective Evaluation. There are several other examples of age effects which hold only for Cognitive Evaluation, thus accounting for the differential number of age effects on these two sub-composites. We have discussed the significance of this at some length in a previous section, namely, the construct validity of the differentiation between these two types of evaluation.

C. Further Explorations of the Evaluative Component

In the previous section we made an *a posteriori* distinction between Cognitive Evaluation and Affective Evaluation. This distinction seemed to receive a certain amount of construct validation in the analyses of variance results presented in Section B. The notion that more than one evaluative factor exists in Semantic Differential scales is not new. Indeed, it was referred to in the classical study by Osgood *et al.* (1957) and has been illustrated in several subsequent studies (e.g., Bashook and Foster, 1973; Komorita and Bass, 1967, and others). Also, as we shall discuss briefly in the subsequent section, other studies of the Personality Differential have demonstrated the existence of more than one evaluative factor. However, as far as we know, none of these differentiations has been conducted along the theoretical lines of the tripartite theory of attitudes involving the differentiation between affective and cognitive dimensions (at least not in any systematic fashion). In the next section we shall compare our present Personality Differential results with similar studies conducted in other cultures.

A logical follow-up to our *a posteriori* (rather theoretical) distinction between evaluative factors, would be an empirical analysis of the factor structure of evaluative scales in terms of their multi-dimensionality. As far as we can see from the literature this has not been done with Personality Differential scales in other cross-cultural studies in the manner in which we have done so here. Since is it tangential to the purpose of the present study

we shall not dwell on this point here but should like to present some factor-analytic results of evaluation scales from the present Personality Differential study based on an Irish sample.

Since only one (and typically quite large) evaluative factor emerged from our present main analysis (see Table 5)—and since an inspection of factor solutions far exceeding the optimal seven factor solution failed to split up the evaluative dimension—we have presented the *a posteriori* differentiation described above.

However, in a more empirical exploration of the evaluative component, we took all scales with loadings above .40 on the large evaluative factor (of which there were 33 out of the total of 67) and subjected these to a separate factor analysis. As with our previous factor-analytic work we inspected a number of solutions, based both on psychological interpretability and applications of the Scree Test as in Cattell, (1966) and as in Bashook and Foster, (1973) i.e., plotting the log eigenvalues. A five-factor solution seemed optimal. This solution, presenting scales selected according to a criterion of a loading of .40 or above is shown in Table 9. Before discussing this table, however, we might just mention that a forced two-factor solution (though not optimal in light of the scales involved) tended to confirm our *a posteriori* differentiation in that three out of the four “cognitive” scales loaded high on one of the two factors and three out of the four “affective” scales loaded high on the second factor. However, a five-factor solution was optimal and this is presented in Table 9. We shall discuss these results briefly here although, as we have mentioned, this is tangential to the main purpose of the study and is really the subject of a further study into the dimensionality of the evaluative factor in the Semantic Differential, especially utilising person stimuli.

Factor I, Moralistic Evaluation, is quite clearly interpretable, and has been found in previous Personality Differential studies (e.g., Ware, 1958). However, the very high loading of the scale “religious—irreligious” may be culture specific. Factor II, is clearly interpretable as “Classical Evaluation” in that most of the usual evaluation scales load highly on this factor, which, as usual, controls the largest percentage of the variance. This does seem to indicate that Evaluation (in the classical E-P-A sense) is a pervasive and quite important dimension along which subjects judge any class of stimuli, including person stimuli. Factor III has been designated by us as “Social Evaluation,” since it would seem to indicate an evaluation of the social “persona” of an individual as being “sporting,” “sociable.” It is interesting to note that the “Sociability” factor did not emerge in the original factor analysis (as it did in the case of the Ware, 1958 study) but only came out in this secondary factor analysis. Indeed, the fact that “sociable” did not load with “gregarious” may have culture specific implications. Factor IV has been designated as “Normative Evaluation” because these characteristics seem to be normative in Western industrialised society generally.

Table 9: *Results of factor analysis of thirty-three high-loading evaluation scales
Selected scales from 5 Varimax rotated factors based on the responses of a Dublin
sample to 35 person stimuli
(N = 111)*

<i>Scales</i>	<i>Varimax rotated loadings</i>
FACTOR I: MORALISTIC EVALUATION	
Religious—Irreligious	-.76
Irresponsible—Responsible	.62
Moral—Immoral	-.72
<i>Pct. Variance: 15.5</i>	<i>Cum. Pct. Variance: 15.5</i>
FACTOR II: CLASSICAL EVALUATION	
Kind—Unkind	-.68
Loyal—Disloyal	-.62
Bad—Good	.70
Not nice—Nice	.71
Dislikeable—Likeable	.75
Straight—Crooked	-.64
Dangerous—Safe	.60
Selfish—Generous	.66
Insensitive—Sensitive	.67
Admirable—Despicable	-.66
Greedy—Generous	.66
False—True	.70
<i>Pct. Variance: 25.2</i>	<i>Cum. Pct. Variance: 40.6</i>
FACTOR III: SOCIAL EVALUATION	
Sporting—Unsporting	-.63
Familiar—Unfamiliar	-.74
Gloomy—Light	.51
Sociable—Solitary	-.67
<i>Pct. Variance: 8.9</i>	<i>Cum. Pct. Variance: 49.5</i>

FACTOR IV: NORMATIVE EVALUATION

Overworked—Underworked	-.77
Necessary—Unnecessary	-.55
Foolish—Wise	.41
Hardworking—Lazy	-.65

Pct. Variance: 9.4

Cum. Pct. Variance: 58.9

FACTOR V: PHYSICAL/SOCIAL ATTRACTIVENESS

Pleasant—Unpleasant	-.40
Beautiful—Ugly	-.71
Uninteresting—Interesting	.44
Attractive—Unattractive	-.67

Pct. Variance: 8.9

Cum. Pct. Variance: 67.8

This is to say it is the norm in an industrialised society to be “hard-working” and “wise” (characteristics which may be seen as “necessary” in such societies), whereby “overworked” may be seen as more or less synonymous with “hardworking,” certainly “underworked” has connotations of being “lazy.” Finally, Factor V, “Physical/Social Attractiveness” is a rather clearly interpretable factor when applied to person stimuli focusing, as it does, on physical attractiveness but associated also with social attractiveness such as “interesting” and “pleasant.” This factor, in particular, which seems so clear here in relation to person stimuli, does not appear to have emerged in other studies.

D. Cross-Cultural Comparisons

We must at the onset state the limitations of this section in light of the rather general title which we have assigned to it. It is not a complete cross-cultural comparison, of the sort which has been made of the generalised Semantic Differential in numerous articles (e.g., Osgood, 1962; 1964) and books (e.g., Snider and Osgood, 1969; Osgood, May and Miron, 1975). This is due both to the space limitations and the orientation of the present paper which is spelt out above. The treatment would be limited in any case, by the fact that only a small number of studies have been conducted thus far (not to mention the differential analysis techniques employed) using the Personality Differential technique as compared with the more generalised Semantic Differential technique. Thus we shall limit ourselves to just a few

remarks concerning some relationships between the factor structures found in the Irish Personality Differential results reported here, and the results obtained in the few other cross-cultural studies which have focused on this domain of stimuli.

The simplest procedure for briefly comparing the results of the present study with those found in other cultures is simply to list factors which we found and see the extent to which they were replicated in other cross-cultural analyses. Secondly, we might examine the extent to which factors found in other cultures did not emerge in our study.

Factor I: *General Evaluation*

Little needs to be said about this factor since, as we have indicated repeatedly, it emerges in a general way across all cultures and across virtually all stimulus domains. We shall discuss specific aspects of this factor and the cross-cultural generality thereof at the end of this section.

Factor II: *Social Potency*

This factor is somewhat replicated by Tzeng's (1972) analysis of Hogenraad's (1972) Belgian (French) data, using quite different factor-analytic techniques, roughly corresponding to what he calls an "involvement" dimension, which is Dimension III of what he terms "denotative" dimensions. This factor is also roughly replicated by Kuusinen's (1969) Finnish data in Factor V of his factor analysis of the unpartialled data, a factor which he designates as "Self-Confidence." It is also replicated by Warr and Haycock's (1970) English data in their Analysis II, involving a six-factor solution. They used a total set of 58 scales, involving both elicited and marker variables, and our factor closely corresponds to their Factor V, designated by them as "Intellectual Potency." It also very closely resembles Ware's (1958) Factor II, designated as "Rationality."

Factor III: *Uniqueness*

This factor does not find a corresponding factor in Tzeng's (1975) analysis, which is not surprising since the factor analytic technique which he used is quite different from that used in the other studies. It is quite closely replicated in Kuusinen's (1969) Factor IV of his "partialled analysis." Kuusinen first performed an analysis of all of his PD scales and then, using partial correlations, he eliminated to a certain extent the classical E-P-A factors (which he considered Affective) and refactored the remaining "partialled" data. It was in this analysis that a Uniqueness factor appeared. Interestingly enough this factor did not appear in Warr and Haycock's (1970) data in which they found six factors which they sought to interpret in terms of two parallel sets of the classical E-P-A- factor structure. This factor did appear quite clearly in Ware's (1958) data and was also designated as "Uniqueness."

Factor IV: Activity

Being one of the classical E-P-A factors, this factor is replicated in Tzeng's (1975) analysis (using quite different factor-analytic techniques), in Kuusinen's (1969) unpartialled analysis and in Warr and Haycock's (1970) Analysis II. However, although these authors designated their Factor III by this label, the items loading on this factor seem like a mixture of items loading on our Factors V and VI—but these authors were apparently quite determined to fit their factors into the classical E-P-A structure. Neither Ware (1958) nor Davis (1966) replication yields a factor which is designated by this name; rather items which could have been placed on this factor are interpreted differently, as will be seen shortly.

Factor V: Dominance with Rigidity

This factor is reflected to a fair extent in Kuusinen's (1969) Factor III "Tolerance" in the unpartialled analysis as well as his Factor V "Tolerance with Rigidity" in the partialled analysis. This factor is not reflected in Warr and Haycock's (1970) analysis, although, as we mentioned, some of the items which they subsume under "Activity" reflect items on this factor of ours. This factor is somewhat akin to Ware's Factor IV "Excitability" which is also replicated in Davis' (1966) Factor II, which is also entitled "Excitability."

Factor VI: Physical Potency

This is one of the classical E-P-A factors and is replicated reasonably well by Tzeng and May's (1975) Affective Dimension II, Kuusinen's (1969) Factor IV (unpartialled analysis) and by Warr and Haycock's Factor II (Analysis II, 1970). No factor bearing this name emerges from Ware's (1958) study but there is a close similarity to his Factor VI, designated as "Toughness," and is quite closely replicated by Davis' (1966) Factor V designated as "Potency."

Factor VII: Extraversion

This factor is somewhat replicated in Kuusinen's (1969) partialled Factor VI, "Sociability," as well as in Warr and Haycock's (1970) Factor IV "Activity" (Analysis I) and Factor IV "Expansiveness" (Analysis II). It is also quite similar to Ware's (1958) original "Sociability," Factor V replicated in the Davis (1966) study (Factor I "Sociability"). The difference to be noted here is that the scale "sociable" is missing from our Extraversion Factor, whereas it characterises some of the corresponding factors in other studies. Instead, in our study the scale "sociability" loads on Factor III of our specialised analysis of Evaluation scales. The fact that "gregariousness" and "sociability" load together in other cultures but not in this culture may have culture-specific relevance.

Other Factors

A factor generally called something like "moralistic Evaluation" emerges in most of the cross-cultural studies. In our study it does not emerge as a primary factor but does emerge in our specialised analysis of Evaluation scales (Factor I, Table 9).

In summary it may be said that there is a considerable degree of cross-cultural generality of Personality Differential factors in the various studies which we have compared. At the same time there is some cultural specificity in the factor structure which we have identified. This has been illustrated in the analysis of variance results presented earlier and is further illustrated in our factor analysis of the evaluation scales presented in Table 9. However, as we mentioned earlier, a more systematic comparison of cross-cultural comparability *versus* specificity must await further studies and, in particular, a greater standardisation of the factor analytic procedures utilised in studies carried out in the various cultures. It is to be hoped that this could be accomplished with the existing data given sufficient collaboration among researchers in the various cultural settings.

IV. *Some Implications and Applications*

Many of the implications and applications of the present study have been alluded to or specified in the course of discussing the results of the analyses of the data. From a methodological point of view we have sought to emphasise the value of a multidimensional approach to attitude measurement, which is not only of theoretical significance but has quite practical ramifications in many cases. In addition to the practical applications of the instrument which we have developed, a number of implications for the theory of attitude structure and measurement have emerged.

From a practical point of view we have sought to create a useful instrument which is specifically adapted to this culture. As we have mentioned earlier the technique which we have developed here is already in use in ongoing research which we and other researchers are engaged in. It is our hope that other researchers in this culture will make use of the generic technique, which we have developed here, in particular applications relevant to specific areas of social research.

Although some adaptation may be necessary when using this technique for specific purposes, by developing the technique in a generic fashion as we have done, it is hoped that it will be possible for other researchers to adapt the technique to their particular purposes without having to go through the entire developmental procedures which were entailed in this initial study. We have already hinted at some of the particular applications which this technique may have, beyond those which we are currently exploiting. Thus one can easily see applications within clinical, industrial, educational and other social research settings. Obviously, in particular applications of this generic technique, it is not necessary to utilise all the scales which we have developed here. Rather, one can select out those factors and those scales relevant to the particular problem under investigation. Although in any particular case some adaptations to the particular problem at hand are necessary, we hope to have developed a generic technique in the present study which will have widespread usage in applied social research in various areas.

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APPENDIX A

Exhibit A1

Instructions and Format of Instrument used in Elicitation Phase of the Personality Differential Study

ESRI PD Elicit. Study Feb. 1974

Instructions

Good morning/afternoon. I am from The Economic and Social Research Institute. At present we are carrying out a survey on the ways in which Irish people describe other people.

Your name was picked at random from the Electoral Register, and your views will represent the views of the many others we cannot interview. Of course, what you will say will be treated in the strictest confidence by the ESRI.

In this particular part of the survey, we are interested in finding out what kind of adjectives in your own personal opinion would be best in the description of persons, person types, and animals.

You will be given a key word and we would like you to give us *four* adjectives which in your opinion best describe that word. Here are some examples: (show card)

A Bank Manager

Some of the adjectives which could describe this person might be: intelligent, domineering, unsympathetic, discreet.

Another example might be as follows: (show card)

A Grandfather

This person could be described as, for instance, weak, devoted, nervous, stubborn. Sometimes it may help to think of a sentence, i.e., a Grandfather, or a Grandfather is

In some cases the words refer to certain relatives, e.g., brother. If you personally do not have such a relative, then try to imagine what that person would be like, and describe them accordingly.

We would like to obtain four adjectives for each word, if at all possible. Please try to think of words particularly appropriate to the person you are describing, and also try to think of as many different adjectives as you can.

Exhibit A1—continued

A Doctor

A Doctor

A Doctor

A Doctor

Someone I admire very much
(think of a particular person)

Someone I admire very much
(think of a particular person)

Someone I admire very much
(think of a particular person)

Someone I admire very much
(think of a particular person)

Liam Cosgrave

Liam Cosgrave

Liam Cosgrave

Liam Cosgrave

*Exhibit A2**Instructions and Format of Instrument used in Opposites Elicitation
Phase of the Personality Differential Study**INSTRUCTIONS*

On the following pages you will find a list of adjectives. What we want you to do is to write down the *opposite* of each adjective. All of the adjectives given are used to describe personalities or personality traits, so the opposites which you suggest should be appropriate for this purpose.

The procedure is as follows: if the adjective given is "good" and you think that "bad" is the opposite to "good," then you should write thus:

good *bad*.....

In all cases, you should fill in the blanks with the "best" opposite word, i.e., the one which occurs to you most readily. It should *not* be a highly literary or obscure term, but one in reasonably common daily usage. If there are two or more synonymous opposites available (such as "unhappy" and "sad," for example), you should give the one which is considered more frequent in usage. Sometimes it may be difficult to find an exact opposite for a particular word. In these cases, write down whatever in your opinion comes nearest to being opposite in meaning to the given adjective. You should work independently; do not consult with anyone else.

Proceed as rapidly as possible without being careless. Do not dwell too long on any one item, and work from start to finish without going back over items. Be sure to give an *opposite* in each case—sometimes the first word that comes to mind may be simply an associated word rather than the opposite. Write only one word on each line, and take care that you do not skip any of the lines.

Thank you for your co-operation.

*Exhibit A2—continued**Page 1 of PD Opposites Elicitation Form*

helpful

selfish

gentle

dangerous

kind

unfortunate

clever

all right

strong

annoying

hardworking

stubborn

beautiful

dislikeable

necessary

loyal

big

religious

personable

lonely

temperamental

poor

Exhibit A3

Instructions and Format of Instrument used in Main Personality Differential Study

The purpose of this research is to determine what attitudes various people have toward other persons. In order to make it possible to express your feelings, we ask you to simply put some check-marks in one or another space between two adjectives. If you will open your booklets you will see that each page consists of some words describing a person at the top of the page and a number of adjectives with spaces between them below those words. The words that you will be judging are the words at the top of the page. You will judge what the words mean to you by placing a check-mark on one of the spaces for each of the lines below those words. To help you remember what the spaces mean, we will use the adjectives *fast-slow* and label each of the spaces. (The spaces are not labelled in the actual questionnaire).

equally
fast

very	quite	slightly	and	slightly	quite	very
fast	fast	fast	slow	slow	slow	slow

fast:-----:-----:-----:-----:-----:-----:-----:slow

Let's take a particular example. Suppose that the first page of your booklet had the description "A Bank Manager" at the top of the page and had the following lines beneath it:

A Bank Manager

pleasant:-----:-----:-----:-----:-----:-----:-----:-----:X-----:unpleasant
safe:-----:-----:-----:-----:-----:-----:-----:-----:-----:dangerous
everlasting:-----:-----:-----:-----:-----:-----:-----:-----:-----:momentary

Using the above rule, you would indicate for each line how closely in your opinion the example description "A Bank Manager" was related to one of the sides of each of the pairs of opposites. The closer you put your check-mark to one or the other of the opposites on a line, the closer you would think that "A Bank Manager" in this example, was related to that adjective. For instance, if you felt that A Bank Manager was *very* unpleasant, then you would put your check-mark in the space right beside the word unpleasant. On the next line, if you thought that A Bank Manager was *quite* safe, (but not *very* safe), you would place your check-mark just away from

safe. The check-mark on the third line indicates that you thought that A Bank Manager was *slightly* everlasting. And you would continue on down the page in this way, judging on each line how closely the description A Bank Manager was related or made you think of the adjectives printed on either side of the spaces.

It would be very unusual if you felt that every description you will judge was always very closely related to the adjectives, and this is why we give you a choice between the spaces on a line. The more closely you think the word at the top of the page is related to one adjective or its opposite on the line, the nearer you would put your check-mark to the adjective you had chosen. If you put your check-mark in the *middle space* between the adjective and its opposite, you would be indicating that the description at the top of the page is *equally related* (or unrelated) to both of these adjectives on that line.

For some of the persons it may be hard to see how the adjectives are related at all, but we have found that it will go quite easily if you go as rapidly as possible without being careless, using your first impression without thinking very long about any one item.

In some cases, the "persons" will be the names of particular individuals. However, in most cases, the "persons" will be more general terms, such as "a doctor" in these instances you are to think of doctors in general, not of a particular doctor whom you know.

Never put more than one check-mark on any one line and take care not to omit any of the lines. Treat each scale independently, without referring to your previous responses.

The information you give here is confidential. The data will be used only for statistical and experimental purposes. Please express yourself freely in responding to the questionnaire.

Thank you for your co-operation.

*Exhibit A4**Copy of letter soliciting Co-operation of Paid Volunteers in Main
Personality Differential Study*

25 October 1975.

Dear Sir/Madam,

The Economic and Social Research Institute is carrying out some studies designed to adapt tests for measuring people's attitudes, which were originally constructed in other countries, for use in Ireland. Our objective in developing these tests is to enable us to study attitudes in Ireland with greater accuracy. Only the help of many people like yourself makes this work possible.

Your name was included in a sample of names taken at random from the Electoral Register. We would greatly appreciate if you *and/or* any member of your family aged 18 years or over would participate in this study.

You may do so by coming to this Institute for any *one* of the following sessions, each of which will last for 3 hours approximately.

Saturday November 2nd at 9.30 a.m.
Wednesday November 6th at 6.30 p.m.
Saturday November 9th at 9.30 a.m.
Monday November 11th at 6.30 p.m.

Refreshments will be provided during the testing sessions.

The information which you will give is of course completely confidential and will be used only for statistical purposes. The task does not involve an interview, but merely completing a questionnaire. Since it will take longer to complete this questionnaire than is usual, and we must therefore ask you to come to the Institute, we will arrange a payment of £3 per person to cover expenses. This will be made in cash at the time of testing.

If it is possible for you or any member of your family to take part, please phone Miss Mary Judge (760115 Ext. 31) *within a day or two* between the hours of 9.30 – 1.00 and 2.30 – 5.00. It is quite important that you phone as soon as possible in order that we may schedule sessions appropriately.

Thank you for your co-operation.

Yours sincerely,

E. E. Davis,
Research Professor.

APPENDIX B

Table B1: *Demographic Characteristics of Subjects used in Main Phase of Personality Differential Study*

(a) Sex		
	*1971 Census %	Sample %
Male	44.93	47.7
Female	55.06	52.3
Base	399,248	111
*18 years +		
(b) Marital Status		
	*1971 Census %	Sample %
Single	32.66	41.6
Married	57.85	55.9
Widowed	9.48	2.7
Other	—	—
Base	373,239	111
*20 years + (data not available separately for 18 and 19 year olds)		
(c) Age		
	*1971 Census %	Sample %
18—29 years	31.05	45.04
30—39 years	16.21	12.61
40—49 years	16.48	17.12
50—59 years	15.01	18.92
60 years +	21.24	6.31
Base	399,248	111
*18 years +		
(d) Education		
	*1966 Census %	Sample %
Primary	55.14	29.73
Vocational	11.98	11.71
Secondary	24.71	38.74
University	5.05	14.41
Still at University	—	5.40
Other	3.10	—
Base	409,911	111
*Total over 14 years whose full-time education has ceased.		

(e) *Religion*

	<i>*1971 Census %</i>	<i>Sample %</i>
Catholic	90.08	85.6
Church of Ireland	4.59	1.8
Other Protestant		0.0
Jewish		1.8
Other Religious Denominations including no statement	5.33	0.0
Non-practising		10.8
Base	373,239	111
*20 years +		

(f) *Social Status*

<i>Census</i>	<i>Hall-Jones</i>	<i>*1971 Census %</i>	<i>Sample %</i>
Higher and Lower Professional	1	10.78	8.1
Employers and Managers	2	4.62	6.3
Salaried Employees	3	2.23	10.8
Intermediate Non-Manual Workers	4	26.04	13.5
Other Non-Manual Workers	5	15.36	16.2
Skilled Manual	6	19.10	18.9
Semi-Skilled	7	13.19	21.6
Unskilled	8	8.42	4.5
Other	Other	0.29	
Base		250,723	111

*Percentages have been calculated on the basis of male and female persons who are gainfully employed in Dublin County Borough and Dun Laoghaire.

Table B2: Factor Analysis of 67 PD Scales Correlated Over 35 Person Stimuli

		Loadings on 7 Varimax Rotated Factors						
Personality Differential Scales		I	II	III	IV	V	VI	VII
1. Kind-Unkind		-.78	.02	.06	-.10	-.18	-.06	.03
2. Clever-Stupid		-.45	.53	-.16	-.25	-.03	-.03	-.02
3. Poor-Rich		-.08	-.64	-.10	-.01	-.01	-.16	.11
4. Unusual-Usual		.08	.04	-.74	.02	.08	-.01	.03
5. Clean-Dirty		-.54	.38	.21	-.20	-.01	-.08	-.28
6. Overworked-Underworked		-.56	.13	-.03	-.02	.15	-.10	-.24
7. Small-Large		-.03	-.15	.08	-.13	.07	-.61	-.19
8. Excitable-Calm		.09	-.15	-.10	.08	.46	-.22	.47
9. Necessary-Unnecessary		-.66	.26	.06	-.09	.02	.12	-.06
10. Sporting-Unsporting		-.46	.28	.15	-.36	-.11	.03	-.13
11. Familiar-Unfamiliar		-.48	.09	.36	-.20	-.10	.05	.23
12. Objective-Subjective		-.14	.36	-.05	-.01	.02	.00	-.12
13. Educated-Uneducated		-.35	.72	-.01	-.08	.03	-.10	-.12
14. Pleasant-Unpleasant		-.76	.12	.12	-.25	-.19	-.03	-.02
15. Gloomy-Light		.47	-.08	-.09	.42	.30	-.01	-.01
16. Beautiful-Ugly		-.54	.06	.01	-.39	-.08	-.08	.03
17. Logical-Intuitive		-.30	.44	.04	-.11	-.05	.01	-.22
18. Costly-Cheap		.09	.48	.06	.05	-.04	.03	.18
19. Uninteresting-Interesting		.57	-.26	.20	.29	.14	-.01	-.00
20. Agile-Clumsy		-.26	.22	.04	-.67	.02	-.05	-.20
21. Formed-Amorphous		-.33	.25	.06	-.36	.08	.00	-.12
22. Trustworthy-Untrustworthy		-.82	.18	.14	-.08	-.02	.00	-.19
23. Slow-Fast		.07	-.18	.08	.63	-.13	-.09	.13
24. Religious-Irreligious		-.49	.24	.32	.12	.01	-.20	-.26
25. Brilliant-Dull		-.45	.53	-.28	-.25	-.05	-.07	-.03
26. Light-Heavy		-.23	.02	.05	-.50	-.08	-.48	-.13
27. Loyal-Disloyal		-.82	.15	.13	-.08	-.01	.01	-.14
28. Tense-Relaxed		.21	-.06	-.12	.27	.51	-.26	.19
29. Discreet-Indiscreet		-.49	.25	.12	-.13	.00	-.05	-.40
30. Delicate-Sturdy		-.04	.01	-.05	.16	-.03	-.71	.06
31. Bad-Good		.85	-.08	-.09	.07	.09	-.08	.10
32. Sociable-Solitary		-.50	.23	.28	-.31	-.14	.03	.17
33. Ordinary-Extraordinary		-.16	-.06	.76	-.06	-.07	-.04	-.00
34. Not nice-Nice		.83	-.06	-.08	.14	.17	-.07	.04

Continued

Table B2: Factor Analysis of 67 PD Scales Correlated Over 35 Person Stimuli (Contd.)

	Loadings on 7 Varimax Rotated Factors						
<i>Personality Differential Scales</i>	<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>	<i>V</i>	<i>VI</i>	<i>VII</i>
35. Strong-Weak	-.33	.19	.05	-.31	.12	.55	-.17
36. Irresponsible-Responsible	.66	-.31	-.19	.09	-.02	-.04	.39
37. Proud-Humble	.08	.16	-.07	-.13	.58	.06	.09
38. Predictable-Unpredictable	-.35	.03	.43	.03	-.05	-.03	-.27
39. Dislikeable-Likeable	.84	-.03	-.04	.13	.20	-.03	-.00
40. Straight-Crooked	-.83	.12	.13	-.03	-.05	.02	-.16
41. Vivid-Muted	-.30	.27	-.08	-.37	.05	-.01	.12
42. Rude-Polite	.63	-.15	-.18	.16	.20	.09	.33
43. Dangerous-Safe	.79	-.11	-.16	.03	.13	.00	.22
44. Attractive-Unattractive	-.64	.10	-.01	-.36	-.11	-.01	-.03
45. Selfish-Generous	.76	-.05	-.00	.08	.23	.00	.10
46. Unique-Typical	-.02	.11	-.70	-.08	-.01	-.02	-.03
47. Insensitive-Sensitive	.66	-.05	.07	.03	.14	.15	-.05
48. Powerful-Powerless	-.11	.59	-.08	-.16	.13	.25	-.17
49. Misunderstood-Understood	.21	-.29	-.30	.22	.21	-.19	.23
50. Admirable-Despicable	-.83	.17	-.02	-.09	-.06	.04	-.08
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