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The Role Of Personality Trait Inference In Performance Appraisal Ratings

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THE ROLE OF PERSONALITY TRAIT INFERENCE
IN PERFORMANCE APPRAISAL RATINGS

by

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ABSTRACT

This dissertation focuses on the cognitive aspects of managerial judgments via an examination of raters' implicit theories of personality and performance and their influence on performance ratings.

It has now been recognized that raters can no longer be treated as the passive and entirely objective recorders of information that they were once assumed to be. The active role of managerial judgments and the perceptions of managerial raters in the performance appraisal process can no longer be ignored. Therefore, it is especially interesting and timely to examine the inferential relationships between personality and performance and how the rater's implicit theories impact upon performance ratings.

The manner in which behavioral exemplars are associated make up what are referred to as "implicit theories". Implicit theories or inferential networks are developed by individuals based upon their experiences and are applied towards the interpretation of current experiences. Implicit theories are important for a better understanding of the performance appraisal process in general, regardless of the model used to conceptualize this process. Several performance appraisal rating models are reviewed and the relevance of raters' implicit theories to these models, is briefly described.

The first study represents an attempt to define explicitly the network of personality and performance interrelationships perceived by senior personnel managers and senior accountant managers who routinely make performance appraisal ratings. This is achieved via a multi-dimensional scaling of similarity ratings performed upon 20 personality and 8 performance behaviours. Raters' implicit theories of personality and performance not only overlapped but were definable along a reduced number of dimensions. Three dimensions were shown to be sufficient to describe raters' implicit theories and of these the first two were the most stable.

The second study builds on these findings and investigates the impact of raters' inferential networks upon actual rating of performance for two major job types using two different styles of performance rating forms, a trait based and a behaviourally based form. The impact of additional personality information on performance ratings is examined via the experimental manipulation of employee profiles. The question of whether inferential networks are selectively applied is examined. Study 2 provided evidence that raters incorporated the personality information into individual scale ratings of ratee performance but not into ratings of overall effectiveness.

The third study was conducted in order to examine the impact of raters' implicit theories within a context in which raters were very familiar with the specific performance behaviours and actual performance was observed rather than simulated via the use of written vignettes. This study focused on implicit theories of personality and performance within the context of teaching evaluations made by undergraduate students. Students' implicit theories of personality and teaching performance were defined, as in previous studies, by the results of a multidimensional scaling of personality and job behaviour exemplars. The impact of these implicit networks was examined by means of an experimental study in which students observe a videotape of teaching performance with or without prior personality information. Study 3 provided evidence that student raters also used the personality information in making teacher evaluation ratings of the videotape stimulus.

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Introduction

In this series of studies I intend to: (a) provide an overview of the methods used to assess employee performance, (b) briefly outline current difficulties in the performance appraisal literature, (c) outline recent models relevant to the performance appraisal process, (d) examine the model of inferential accuracy and the use of implicit theories within the performance appraisal context, (e) present a study designed to define the multidimensional nature of the overlap between implicit theories of personality and performance in senior level managers, (g) present an experimental study that examines the impact of raters' inferential networks on their ratings of employee performance, and (h) present an experimental study that examines this relationship within the domain of teacher evaluations and with observed behaviours.

Methods of Employee Evaluation

It may be useful to provide a context for the questions addressed in this dissertation therefore some general background information is provided. Employee performance may be assessed by two general methods: (a) by the use of objective personnel and production data; and (b) by the use of subjective ratings or performance appraisals.

Objective indicators

Objective personnel and production data are routinely used in the assessment of employee performance. However,

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there are disadvantages in relying entirely on objective
personnel data (i.e., accident rates, absenteeism, and
turnover) or objective production data (i.e., sales, waste,
and customer complaints). One disadvantage is that many of
these variables may be out of the direct control of the
employee. For example, increased waste may be due to aging
machinery and not deteriorating employee performance or
increased sales may be due to a change in assigned sales
territory and not improved employee performance. A second
disadvantage is that, although poor performance may be
indicated, the specific cause of this is not identified so
that remedial action is difficult to initiate. It is one
thing to note that customers are complaining but perhaps a
different matter to specify the exact cause of these
complaints. A third disadvantage of relying solely on
objective data is that in some occupations, such as in parts
of the service sector or in middle levels of management, it
may be difficult to obtain objective production or
performance data. Yet, performance appraisals are routinely
conducted in these occupations. It is therefore not
surprising that subjective performance ratings, whether they
be peer ratings, supervisory ratings, or subordinate
ratings, are a frequently used alternative in the appraisal
of employee performance.

Subjective ratings or Performance Appraisals

   Within the category of subjective performance ratings

are the two subcategories of comparative and absolute methods of performance ratings.

Comparative performance ratings. Comparative performance ratings occur when employee performance is evaluated relative to that of co-workers. For example, one method of comparative performance rating involves the explicit ranking of the members of a work group. There are several disadvantages to this approach. One disadvantage is that low performance work groups and high performance work groups will both have highly rated workers even though the performance of the lowest ranked person in the high group may be higher than that of the highest person in the low group. Therefore performance ratings obtained in this manner do not necessarily reflect accurate levels of employee performance. A second disadvantage is that there may be several employees performing at approximately the same level, however, the comparative approaches will often force workers' ratings into different levels. This therefore creates artificial distinctions between approximately equal levels of performance. A third disadvantage is that this approach forces increased competitiveness within work groups that may require team cooperation. Therefore, organizations have frequently used absolute methods of employee performance ratings since they do not require that employees be assessed in relation to each others' performance.

Absolute performance ratings. With absolute

performance rating methods, employees are assessed in relation to standard criteria. However, human judgments are involved and therefore subjective ratings may be susceptible to systematic as well as random error even though the criteria themselves are equitable. Examples of systematic errors include leniency errors, severity errors, central tendency errors, and halo effect. Larson (1979) goes even further by proposing the categories of noncontingent systematic errors and contingent systematic errors. According to Larson, noncontingent systematic errors have a constant effect for each rating made and includes leniency and central tendency. Contingent systematic errors vary depending on the behaviours being rated and the assumptions made by the rater about the covariation of behaviours.

It is suggested that raters' implicit theories may occupy a central role in performance appraisal ratings. But the question of whether raters' implicit theories contribute to bias or are an effective strategy for coping with incomplete ratee information remains to be determined.

Current Performance Appraisal Research

Rating forms

Traditionally, research in the field of performance appraisal has focused on the development of psychometrically improved rating forms. The evolution has been from Trait-

based rating forms to Behaviourally Anchored Rating Scales (BARS) and Behavioural Expectation Scales (BES) to the more recent Behavioural Observation Scales (BOS). The presumed advantages of each development have, unfortunately, not always been supported empirically.

Inconsistent findings have been obtained for the superiority of Behavioral Expectation scales in reducing rater errors such as halo and leniency (Schwab, Heneman & Decotiis, 1975). Decotiis (1977) even failed to find a difference between BES scales and trait scales, while Borman and Dunnette (1973) did find a small difference between behaviour-based versus trait-based performance ratings. Bernardin and Walter (1977) suggest that the inconsistencies may be due either to the differences in the formats of the scales being used, that is, researchers may be reporting that they are using a particular format when, in fact, they are using a variation on the format, or the inconsistent findings may be due to improper training.

Latham and Wexley (1981) recommended using the BOS over the BES because the BES format may require the rater to make inferences between the observed behaviour and the anchors used whereas, the BOS would presumedly not. However, even this advantage may not be as clear as previously presumed as researchers (Borman, 1983; Nathan & Alexander, 1985) begin to acknowledge the active role of the managerial rater in encoding, storing, and retrieving rater information.

Consequently, the superiority of one rating form over another, in terms of decreasing rater leniency and halo or increasing rating accuracy, has not been demonstrated consistently (Bernardin, Alvares, & Cranny, 1976; Bernardin, 1977; Borman & Vallon, 1974; Burnaska & Hollman, 1974).

Rater training

The literature on rater training has also been mixed. Some researchers have not been able to demonstrate the effectiveness of training programs upon reducing rater error, whereas others have been very effective in this area (Bernardin & Walter, 1977; Borman, 1979; Ivanevich, 1979; Latham, Wexley & Purcell, 1975).

Rater error versus accuracy

It has been suggested that reducing rater errors may have no direct bearing on increasing rater accuracy (Bernardin & Pence, 1980; Borman, 1979). Consequently, research has begun to focus directly on rater accuracy. However, even this has not been without its concerns.

Sulsky and Balzer (1988) raised several issues. First, there have been differences with regard to how "accuracy" has been defined and operationalized. This, in turn, has made it difficult to compare studies using accuracy scores as dependent measures or criteria. Some examples of different types of accuracy are: (a) Cronbach's (1955) definition of accuracy, (b) Distance accuracy, (c) Borman's differential accuracy, and (d) Halo-type accuracy.

Second, the measurement of "true scores" was also called into question by Sulsky and Balzer. For example, one procedure averaged all of the student raters' scores. This was criticized because individual differences are ignored and the legitimacy of undergraduates as expert raters, other than possibly as raters of teaching performance, may be questioned for many of the artificial performance appraisal tasks they are asked to perform under laboratory conditions. In a second procedure the ratings of the individual incidents used to make up target profiles are averaged. This was criticized because each of the individual incidents may contribute a different amount of a particular characteristic to each target profile. The final procedure discussed was the use of actual expert raters. The criticism in this area has been directed towards how expert raters are used. The most effective use has been when expert raters have been allowed to become very familiar with the rating task and have been given the opportunity to make repeated notes and observations of the ratees' behaviours via the use of videotapes. Smither, Barry and Reilly (1989) also recently demonstrated the utility of this approach. Even then, Sulsky and Balzer forward the criticisms that interrater reliabilities are necessarily less than perfect and that the number of experts used to generate "true scores" is typically small.

Finally, given that accuracy scores may generate as many concerns as they were designed to alleviate, it is unclear to Sulsky and Balzer (1988) whether they are markedly superior to the more traditional measures of rating error, especially in terms of creating clarity in the study of performance appraisals.

Clearly, a greater understanding of the processes involved in performance appraisal is needed in order to maximize the effectiveness of rating form development and the design of rater training programs, whether rater error or rating accuracy is being studied. As a result, performance appraisal research has, in recent years, shifted focus to place more emphasis on the performance appraisal process itself.

Process Models

Several models have been proposed in the performance appraisal literature in an attempt to understand the performance appraisal process. The relevance of raters' implicit theories to these various models will be briefly highlighted.

Landy and Farr's Model

One dynamic model has been proposed by Landy and Farr (1980) and attempts to interrelate many components potentially relevant to the performance appraisal process (see Appendix I).

Raters' implicit theories could potentially impact on the retrieval and judgment components of this model. That is, the perceived and preconceived interrelationships between ratee personality and ratee performance, given limited ratee information, will undoubtedly affect the encoding and retrieval of specific performance behaviours.

Borman's and Cooper's models

Borman (1978) and Cooper (1981) focused on a restricted set of rating components and created a linear model of the performance appraisal process. It might, in fact, be legitimate to integrate this linear model into the cognitive component of the previously mentioned model (see Appendix I).

The components potentially affected by raters' implicit theories are encoding, presentation of categories for rating, and retrieval of impressions from long term memory.

Wherry's model

An additional model is Wherry's model of rating. Although Wherry's model is more structural than process oriented it is a potentially important model which has been recently resurrected (Wherry and Barlett, 1981; Landy, 1980) and is based on the partitioning of rater variance into various components (see Appendix I).

Raters' implicit theories might impact on the performance appraisal process, in terms of the Wherry model, by contributing to raters' relevant bias, non-relevant bias, and errors in perception.

DeNisi et al.'s model

DeNisi, Cafferty, and Meglino (1984) recently proposed a model focusing upon the manner in which raters collect, encode, store, retrieve, weight, and combine information. Once again raters' implicit theories will be relevant to this rating process model in terms of affecting raters' preconceived notions and their impact on information encoding (see Appendix I).

Jackson's Model for Inferential Accuracy

The model for inferential accuracy has been successfully applied to the clinical judgment of psychopathology (Strasburger & Jackson, 1977;Jackson, Chan, & Stricker 1979) and subsequently to interviewer judgments - of job applicant suitability (Rothstein & Jackson, 1980). A natural extension of this research, since performance

appraisal is highly dependent upon the judgment process, is an examination of raters' implicit theories (Borman, 1983).

The application of person perception research, more explicitly, the application of the model for inferential accuracy (Jackson, 1972) may be useful for a better understanding of the performance appraisal process. Inferential accuracy is defined as "a person's ability, given limited information about a target person, to judge correctly other pertinent characteristics about that person" (p. 185). Since performance appraisals are also based upon less than perfect information it is likely that the Model for Inferential Accuracy is relevant to the process.

The two components of the model for inferential accuracy are sensitivity and threshold. Sensitivity refers to differences with regard to an individual's awareness of the shared implicit network. Operationally, sensitivity may be defined as the correlation between the ratings of the individual and some criterion such as group consensus. Threshold refers to an individual's willingness to attribute behaviours to others based upon the implicit network. Operationally, it may be defined as the individual's mean rating level for a specific characteristic or set of characteristics.

Prior to examining rater sensitivity it is necessary to examine the underlying structural foundation used by raters. Therefore, the definition of raters' implicit theories is

also relevant to this model.

In summary, defining raters' implicit theories may have implications for the study of a wide range of performance rating models, extending from the process model of Landy and Farr (1980) to the model for inferential accuracy of Jackson (1972). To date, there has not been a thorough test of an entire performance appraisal rating model. Perhaps as additional research is accumulated on the various components it will be possible to examine the interrelationships suggested by these various models. Until then, it is necessary to select specific aspects of the performance appraisal process to be examined. Researchers have looked at variables such as memory (Murphy & Balzer, 1986), cognitive development (Allen et al., 1987), prototype salience (Schneider & Blankmeyer, 1983), and rater accountability (Tetlock & Kim, 1987) within the context of the performance appraisal process. It is apparent that, regardless of the specific model used to conceptualize the performance appraisal process, raters' implicit theories may have a significant impact on the final performance appraisal rating and therefore, must be examined (Borman, 1983; Nathan & Alexander, 1985).

Raters' Implicit Theories

Krzystofiak et al. (1988) found that personality information contributes to the overall performance rating above that due to performance information. Krzystofiak et

al. (1988) concluded that personality information provides useful information for the performance appraisal process. However, no indication is given as to whether this personality information may actually be a source of bias or increased information about ratee performance. Therefore, their study provides information only indicating that raters' perceptions of the interrelationship between personality and performance do i. pact upon rating judgments. It is of interest to examine what the se perceived relationships are and how they might affect performance ratings. Are these associations applied across all instances or are they used selectively? Are these associations a source of bia r an additional source of information? The fact that raters' performance appraisal judgments are frequently based on partial or unequal information from each ratee creates a further incentive for examining raters' inferences regarding personality and performance.

Implicit Personality Theories (IPT)

Extensive research has been undertaken to investigate the nature of implicit personality theories. Reviews of the literature have been performed by Schneider (1973), Powell and Juhnke (1983), and Borman (1983). Two general approaches may be adopted in the study of implicit personality theories. One approach involves studying rater categorization schema or prototypes (Feldman, 1980). The

second approach involves the examination of trait or behaviour covariation. The latter approach was adopted. One reason for using the trait or behaviour covariation approach was that this did not require prior identification of raters' categorization schema. A second reason was that prototypes have not been extensively researched and empirically proven to be stable and clearly defined amongst all raters. Therefore, adopting the covariation approach appears to be the most conservative route to take and would not preclude the possibility of obtaining results consistent with rater prototypes or categorization schema.

Determining IPTs. Occasionally, explicit measurements of individuals' implicit personality theories have been conducted. These studies have produced varying results.

One such study, performed by Walters and Jackson (1966), involved the administration of the Trait Judgment Inventory to 139 undergraduates. A multidimensional scaling was subsequently performed on the 435 paired trait judgments. Six dimensions were obtained and the three most stable dimensions were: (a) Interpersonal affectivity, (b) Harmfulness, and (c) Charitable-uncharitable.

In a multidimensional scaling of 60 personality traits Osgood, Suci, and Tannenbaum (1957) found that the three dimensions providing the best fit were: (a) Good versus Bad, (b) Hard versus Soft, and (c) Active versus Passive. Rosenberg, Nelson, and Vivekananthan (1968) provided an

alternative interpretation of the same data and suggested that two dimensions were adequate to order the obtained network of traits: (a) Good-social versus Bad-social; and (b) Good-intellectual versus Bad-intellectual.

Kim and Rosenberg (1980) performed a multidimensional scaling of students' perceptions of friends and acquaintances. They obtained a general evaluative dimension common to all subjects and additional combinations of dimensions, which varied from individual to individual, such as attractiveness, integrity, intelligence, maturity, and sociability.

Relationship to Actual Personality. Researchers have also attempted to determine whether raters' implicit personality theories are reflective of actual covariations of personality-related behaviours or whether they are merely artifacts.

Passini and Norman (1966) factor analyzed the personality ratings of undergraduates who were strangers and found that these ratings were very similar to those obtained from individuals who knew each other well. Their conclusion was that individuals were performing ratings based upon their own theories or expectations of personality inter-relationships rather than upon observed relationships.

Lay and Jackson (1969) provided evidence that when a multidimensional scaling was performed, the implicit personality networks of subjects closely matched the actual

personality structures. Therefore, this would suggest that implicit personality theories may not only be an occasional source of rating distortion but might in actuality be a means of increasing the efficiency of personality judgments given limited information.

However, these studies have also been challenged by critics of implicit personality theories such as D'Andrade (1974), Mirels (1976,1982a), and Shweder (1975) and frequently defended by researchers such as Block, Weiss, and Thorne (1979), Gara and Rosenberg (1981), Jackson, Chan and Stricker (1979), and Jackson and Stricker (1982).

Still, recent studies have continued to provide support for implicit personality theories. A study by DeSoto, Hamilton, and Taylor (1985), concluded that "trait inferencing is a fundamental, spontaneous, coercive, and persistent process in person cognition and the implicit personality theory is a theory about people and is not reducible to linguistic similarity among trait terms" (p. 369). Borkenau and Ostendorf (1987a, 1987b) videotaped eight discussion groups of six participants each. The act frequency of 16 behaviours was determined by two independent judges using an on-line coding system. These ratings were compared to the estimated counts of judges who provided their ratings retrospectively. The conclusion reached by Borkenau and Ostendorf was that the implicit theories of the raters very closely correlated with actual ratings

determined by the on-line coding system.

Implicit Theories of Performance (ITP)

There has been a continuing debate as to whether individuals actually observe and record the frequency of behaviours without previous interpretations or whether individuals are active in the recording process and make inferences about the associations of the observed behaviours. Lutsky (in press) suggests that raters do not simply recall memories of behaviour when completing a be-haviourally focused rating form but instead recall behaviours consistent with the impression obtained from the initial observation of that behaviour. Raters' implicit theories of performance may therefore be relevant in terms of influencing rater encoding, recall, and subsequent ratings. Lutsky also suggests that frequency reports are affected by a variety of variables.

Recently, Nathan and Alexander (1985) and others (Borman, 1983) have suggested that, just as individuals possess Implicit Personality Theories, raters most probably possess Implicit Theories of Performance. Just as implicit personality theories may prove to be useful for performing personality judgments with limited information, it is also plausible that raters' implicit theories of performance may prove to be an adaptive strategy, given limited performance information. That is, implicit theories of performance may be used in the formulation of performance evaluations, given

limited performance information.

The inconsistent findings for various performance appraisal rating formats may be partially due to raters' implicit theories. That is, regardless of the rating form presented to each rater, individuals may have a tendency to rely on their existing implicit theories of personality and performance. This situation is most probably exaggerated with a lack of rater training or effective rater training. Kavanagh, MacKinney and Wolins (1971) performed multitrait-multimethod analyses of actual managerial performance appraisal ratings. The subjects were 658 managers at three supervisory levels. The performance appraisal forms were made up of 20 traits: (a) eight performance traits, (b) six "job subject" traits, and (c) six personal traits. Kavanagh et al. found that five traits (two performance traits - planning and investigating, one "job subject" trait - methods, and two personal traits - human relations and leadership orientation) accounted for 53% of the variance. They suggest that performance appraisal forms may be stream-lined to increase validity and rater efficiency, if one were able to design performance appraisal forms that closely reflect the actual dimensions used by raters.

An additional hurdle highlighted by Borman (1979) is that raters often have difficulty discerning similarities between specific behavioural examples used in rating scales and the ratee's actual performance. This in turn creates an

even greater reliance upon raters' implicit theories.

The fact that only certain training programs have attained any success in altering rating errors may be due to the difference in effectiveness in altering raters' perceptions of the interrelatedness of observed and remembered work behaviours. Raters may not only need to be trained for rating errors but may be required to adjust their implicit theories of performance and personality to a common reference standard. That is, it may be necessary to explicitly outline the inferential networks that raters may rely upon when only incomplete performance information is available. For example, some individuals may be incorrectly inferring the presence of certain performance behaviours after observing behaviours indicative of specific personality characteristics. The failure to differentiate between personality and performance related behaviours must also be overcome.

Bernardin and Buckley (1981) proposed the design of a training approach that would tune the rater to a common frame of reference so that worker behaviours may be similarly assessed by different raters. Frame of reference training consists of five basic phases: (a) trainee discussion of job descriptions and the duties and qualifications required of employees; (b) trainee exposure to three vignettes composed of critical incidents in job performance. Each vignette demonstrates either low, average, or high

performance; (c) trainee rating of these vignettes using behaviourally based rating scales and an outline of the rationale for their ratings; (d) comparison of trainee ratings and rationale with the "correct" response, and rationale, as determined via a normative sample; and (e) a discussion focusing on discrepancies between trainee responses and "true" ratings. The frame of reference training therefore provides a common basis from which all raters base their performance appraisal ratings. In essence, this was one of the original objectives of the Smith and Kendall (1963) research on the critical incidents technique.

McIntyre, Smith and Hassett (1984) applied Bernardin and Buckley's "frame of reference" training in an experimental study of rater training. They compared rater error training, frame of reference training, and a control group receiving no training. The authors concluded that frame of reference training was superior to the other conditions in terms of reducing rater error. Although the question of the effectiveness of frame of reference training is relevant to raters' implicit theories, this particular study did not provide an especially convincing test. That is, the rater error training consisted of only a 15 minute discussion of rater errors, whereas the frame of reference training involved a presentation of the dimensions to be rated, a description of the job to be rated, and a practice session with feedback given to the participants, in addition

to the frame of reference component. Therefore, it cannot be conclusively stated that the difference in findings was due to training content rather than differences in the formats of the training presentations. A review of rater error training studies suggests that high levels of subject participation and feedback may enhance training effects. Therefore, there is still a need to test this type of training in a better controlled study even though the premise upon which the study is based is intuitively appealing.

A benefit of explicitly defining raters' implicit theories may be the enhancement of rater training. For example, raters may develop a self-awareness concerning performance ratings based on inferences from observations of personality. This is especially important in situations when ratee personality has very little to do with job performance (e.g., dominance for technical staff working in isolation). The awareness of commonly made inferences which are inappropriate for accurate performance ratings may alert raters against committing similar errors and would therefore be a useful component of rater training programs.

Determining ITPs. Very little research has been conducted on defining raters' implicit theories of performance within the context of performance appraisals. In one such study Schultz and Siegel (1964) performed a multidimensional scaling of job performance. Supervisory

personnel judged the similarity between 18 tasks in the job of naval aviation electronics technician. Four dimensions were obtained: (a) electro-comprehension; (b) equipment operation and inspection (routine); (c) electro-repair (simple); and (d) electro-safety. Although the tasks used in this study were very specific, this study was one of the first to suggest the use of multidimensional scaling in order to streamline the supervisory performance ratings.

Relationship to actual performance. There is even less research that attempts to establish a relationship between raters' implicit theories of performance and actual ratee performance within an organizational context (Study 3 will touch on this issue within the context of teacher evaluations). In one study Polzella and Reid (1989) performed a multidimensional scaling of expert and naive pilot performance during simulated air to air combat. They report that two dimensions, advantageous maneuverability and intelligent energy management, underlie pilot performance during combat situations. However, no comparisons were made with raters' implicit theories of performance.

Personality and Performance

The question arises as to why implicit theories of personality and implicit theories of performance are used at all, since the possibility for introducing error in the judgment process, by making incorrect inferences, is a very real risk. A possible explanation might be that the

implicit theories have been perceived by the raters' to have been effective in increasing rating accuracy a large proportion of the time. That is, raters may have developed these implicit theories on the basis of numerous experiences and applied them due to the perception of an increased effectiveness in the judgment process. The implication is that raters' perceptions or implicit theories are developed, based on raters' individual experiences and continue to be used due to raters' perceptions of effectiveness.

Mayer and Bower (1986) conducted a series of experiments which demonstrated that schemata of personality traits may be learned from observation. In their study subjects were presented with a series of written vignettes. Each group of vignettes was varied in terms of the number and types of words belonging to an arbitrary but targeted schema. Subjects, after reading the vignettes and without being told of the rules for the formation of a particular schema, were able eventually to discern the subtle pattern of relationships for a particular schema. One implication of this finding is that raters may also be able to be trained to adjust inferential networks which erroneously associate particular personality characteristics with specific performance characteristics. Mayer and Bower also demonstrated that frequency of cues indicating group membership were more frequently overestimated than non-group cues and that schemata-consistent bias was frequently

observed. An additional finding was that schemata of consistently positive or consistently negative traits were learned much faster than arbitrary schemata. These last findings provide a degree of support for the suggestion that implicit theories may provide an adaptive strategy for rapid information processing.

Managerial Performance Dimensions

Numerous studies have attempted to define managerial performance dimensions. One of the difficulties has been the preliminary job analysis of the managerial position itself. The basic assumption in defining managerial performance dimensions is that there exist common abilities which are required in all managerial positions beyond the job specific skills, talents, and abilities required of a particular position. A second assumption is that, although there may be differences between supervisory, middle, and upper management, these variations are largely due to differences in the required quantity of the same underlying abilities or skills.

Thornton and Byham (1982) review some of the major attempts to define dimensions of managerial success. These studies obtained from as little as 2 to as many as 12 dimensions which were suggested as being crucial for managerial performance. Fleishman, Harris and Burtt (1955) administered 1800 statements concerning supervisory abilities and obtained the two major dimensions: (a)

consideration and (b) initiating structure. Flanagan (1951)
performed a critical incidents analysis upon officers in
administrative positions and identified six dimensions of
managerial performance: (a) handling administrative detail,
(b) supervising personnel, (c) planning and directing
action, (d) acceptance of organizational responsibility, (e)
acceptance of personal responsibility, and (f) proficiency
in military occupational specialty.

Grant (1955) factor analyzed performance ratings
obtained on 97 division managers and obtained six factors:
(a) 31% of the variance is accounted for by a general factor
or halo effect; (b) 42% of the variance is accounted for by
five group factors - skill in dealing with others, judgment,
effectiveness in supervising the work, effectiveness in
planning the work, and effectiveness in improving operating
efficiency. Byham (1987) listed eight types of dimensions
defining managerial competence: (a) communications dimen-
sions, (b) motivational dimensions, (c) interpersonal dimen-
sions, (d) leadership dimensions, (e) management dimensions,
(f) decision-making dimensions, (g) knowledge/skills dimen-
sions, and (h) personal dimensions. Other significant
studies of managerial performance dimensions include Hem-
phill (1959), Prien (1963), Penfield (1974), Wofford (1970),
and Tornow and Pinto (1976).

Tornow and Pinto (1976) generated 1000 behavioural
items which were administered to 41 managers. A final

questionnaire of 208 behavioural items measuring 12

managerial performance dimensions was generated and named

the Managerial Position Description Questionnaire. The 12

dimensions are: (a) product, marketing, and financial

strategy planning; (b) coordination of other organizational

units and personnel; (c) internal business control; (d)

public and customer relations; (e) advanced consulting; (f)

autonomy of action; (g) approval of financial commitments;

(h) staff service; (i) supervision; (j) complexity and

stress; (k) advanced financial responsibility; and (l) broad

personnel responsibility.

Page and Tornow (1987, in press) presented an update of

the research on the Management Position Description

Questionnaire. Eight core management factors were obtained

from the analysis of seven studies: (a) planning, (b)

controlling, (c) monitoring business indicators, (d)

supervising, (e) coordinating, (f) sales/marketing, (g)

public relations, and (h) consulting/innovation.

In conclusion, although numerous studies have presented

varying numbers and types of performance dimensions as being

critical to managerial success, few have focused upon

behavioural items or have used a standardized test

construction procedure.

Personality and Managerial Performance

Although the importance of personality to managerial

performance has been repeatedly emphasized by practitioners

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in the field, early research studies have typically denied
the importance of personality to managerial success. Barrett
(1966) stated that "...personality variables have little if
any relevance to the performance measu.ement task" (pp.
38-39). A review of 134 studies, using personality measures
as a part of the selection process, was conducted by Guion
and Gottier (1965) and is often cited in support of this
position.

Increasingly, it is being recognized in the research
literature that, in addition to performance dimensions,
personality may often be a contributor to managerial
success. Rothstein and Jackson (1984) examined the Guion and
Gottier (1965) review and provided alternative explanations
for why no relationship was observed between personality and
performance. First, the criterion used to select studies for
the review was based on the publication patterns of the
personality tests included in the studies and was
considered to be excessively stringent. This may have
resulted in the omission of a large number of studies thus
limiting the generalizability of the review's findings.
Second, the criterion used to define a personality test was
considered to be lax. Rothstein and Jackson (1984)
considered only 44% of the studies included in the review to
have used actual personality tests. The additional studies
used vocational interest tests, projective tests, and tests
of psychopathology. Finally, only studies where personality

was used as the only predictor of job performance were included in the review. There was therefore no way to assess the incremental validity of adding a personality test.

Personality dimensions relevant to the managerial position have also been proposed in several other studies. For example, Ghiselli (1971) assessed the importance of numerous traits and found that the two most important personality traits are self-assurance and decisiveness.

Seiss and Jackson (1970) factor analyzed personality scales and various occupational types. The personality measure used was the Personality Research Form while the occupational measure was the Strong Vocational Interest Battery. Seven factors were obtained which related specific occupations to specific groupings of personality traits. These findings provide additional evidence of the relationships between personality traits and specific occupations. The rationale for examining personality profiles for specific occupations is that a better "fit" between occupational profile and individuals working in these occupations may possibly lead to greater job satisfaction and may facilitate managerial performance. Finally, Kavanagh, MacKinney, and Wolins (1971) provide direct field evidence for the importance of both personality and performance traits in accounting for significant portions of performance appraisal rating variance. In their study they found that five traits (two performance traits-

planning and investigating; one "job subject" trait-
methods; and two personal traits- human relations and
leadership orientation) accounted for 53% of the variance.

Recently, 13 potential reasons for the gap between some
researchers' findings and practitioners' observations were
presented by Jackson (1988) and a few will be briefly
outlined. First, the psychometric properties of both the
predictor (personality) and criterion (performance)
measures play a critical role. If the measures used are
unreliable this places a ceiling on the correlation that may
be attained between personality an performance measures. A
frequently used operationalization of the employee
performance criterion is the supervisory rating. However, as
Jackson (1988) points out, this measure is susceptible to at
least three sources of unreliability: (a) differences in
the domains sampled by a specific performance rating form,
(b) differences between raters, and (c) differences in the
situations being sampled. Personality measures used in many
studies also have low reliabilities if they are reported at
all. Second, the relationship between personality and
performance may be attenuated due to restriction of range in
the subject population used especially when measured in
field settings. Variability in employee personality may be
attenuated due to self- or employer selection for a specific
occupation. Variability in employee performance may also be
determined by factors outside of the individual employee's

control. Even in terms of concrete measures, such as the number of units of a product sold, this may be influenced by territory assignment, preset sales goals, seasonal fluctuations, changing demographics of the customer population, changes in the competitor's product, or some other variable outside of the employee's direct control. When subjective supervisory ratings are used many variables, in addition to employee performance, may impact on the rating outcome. For example, when one attempts to determine performance criterion for occupations with less tangible output measures, such as the performance measures of middle managers or those in the service industry, and compounds this with situations where team interdependence is woven into the scenario the task becomes difficult indeed. Third, thorough job analyses are seldom performed and therefore relevant personality dimensions may be excluded from the performance criterion.

In conclusion, given the methodological shortcomings in some of the studies purporting to examine the relationship between personality and performance and given the presence of studies that do lend support to such a relationship, it may be premature to discount the possibility that for some occupations such a relationship may indeed exist.

Study 1

Multidimensional Scaling of Behavioural Items for

Personality and Performance

The objectives of this study are: (a) to define explicitly the inferential network used by raters in the performance appraisal process, (b) to see whether or not there is an overlap between personality and performance information, and (c) to determine whether there are differences between the inferential network of raters involved in very different professions (accountant manager versus personnel manager).

It is hypothesized that individuals possess implicit theories of personality and implicit theories of performance that overlap and may be mapped. The first step is then to reveal the underlying network of personality-performance relationships that occur in individuals who regularly assess the performance of others. It is possible that those individuals in occupations in which performance is more directly dependent upon the personality of the individual may place a greater emphasis on personality and will there-fore, be more sensitive to its variations. It may also be that the perceived interrelatedness between personality and performance would be greater for these individuals. Alternatively, it is suggested that raters, regardless of occupation, will possess a common implicit network of

personality and performance. The definition of raters'
implicit networks may enhance understanding of the
performance appraisal process.

Multidimensional Scaling

One multivariate procedure which is especially suited
for research concerning underlying implicit theories is that
of multidimensional scaling (MDS). Multidimensional scaling
is a collection of procedures that yield information about
the bases for the underlying network of relationships
between cognitive representations of stimuli. Beginning with
an analysis of measures of similarity or dissimilarity of
the stimuli, multidimensional scaling provides for the
representation of these relationships presented as
projections on a number of dimensions in Euclidean space.

The advantages of multidimensional scaling over other
multivariate procedures are: (a) there is no need to impose
a predetermined structure upon the stimuli used in the
analysis (it is not necessary to know beforehand whether a
particular stimulus does load upon a particular dimension
since it is the uncovering of these relationships that is
the objective of MDS) and (b) direct distances between
stimuli may be obtained in addition to the dimension upon
which the stimuli loads (an additional level of analysis is
possible with MDS).

MDS overview

In MDS each similarity or dissimilarity rating

connecting two stimuli is given a coordinate i and j. This is represented by the notation sigma$_{ij}$. The sigma values are arranged in a matrix called delta. Each stimulus is represented by a single point x. While a network of points is referred to as X. The distance between points x_i and x_j is represented by the notation $d(x_i, x_j)$ or d_{ij}. The basic idea behind MDS is that the distances between two points, d_{ij}, should correspond to the actual proximities sigma$_{ij}$. The relationship between d and sigma forms the basis for the creation of various forms of MDS. Each form uses a different function to describe the relationship between d and sigma, $d=f$(sigma). A specific function using the metric properties of the proximities is termed metric MDS. A function described only as a rising pattern, whether it is a curve or straight line, is dependent only upon the ranking of the proximities and is referred to as nonmetric MDS. There are a variety of programs available for conducting MDS. However, they are similar in that all are iterative, and continue to process the data until the "best possible solution" is obtained. The first phase is the production of stimulus coordinates from the similarity data. The second phase, in nonmetric MDS, consists of two stages: (a) estimation of the best possible order preserving transformation of the raw data; and (b) estimation of the best possible stimulus coordinates. These two stages are repeated until some criterion for termination is met. That is,

iterations will continue until the reduction in stress resulting from continued iterations is no longer meaningful. The specific type and level of criteria for termination differs from program to program. An overview of the mathematics involved is presented in Schiffman, Reynolds and Young (1981).

Indicators of Fit or Determining the Number of Dimensions

There are several variables that must be considered in arriving at the number of dimensions that would be the most appropriate for a particular study.

Stress. Stress is the indicator of goodness-of-fit in MDS or the extent to which the data depart from a specified model. It is defined as the square root of a normalized residual sum of squares (Kruskal and Wish, 1978, p. 49). Various versions of stress exist. The numerator is the residual sum of squares in most versions while the denominator varies depending upon the stress formula used. It is important to note that values for Stress Formula 2 (SSTRESS) tend to be more than twice as high as those of Formula 1 even though the fit may be equivalent (Kruskal and Wish, 1984, p.50). The closer the stress value is to zero, the better the fit for the current data set being examined. However, it is also important to note changes in stress values as one increases the number of dimensions. This fit is achieved using the least squares linear regression procedure.

Some assumptions made prior to the calculation of stress in the "usual" multidimensional scaling are: (a) nonmetric scaling; (b) half matrix without diagonal; (c) no missing proximities; (d) no ties in the data; (e) only one replication; and (f) Euclidean distances (Kruskal and Wish, 1978).

Interpretation of MDS

There are two levels of examination. At one level, one may examine the relationships between the dimensions. That is, the naming and positioning or rotation of axis is relevant at this level of analysis. At a more detailed level one might examine the clustering of points themselves. Guttman (1965) refers to this as the "neighbourhood" or "pattern" approach.

Interpretation of dimensions

There are two general approaches to the interpretation of the dimensions generated by MDS. One approach is to use statistical procedures to provide meaning to the obtained dimensions. Regressing rating scales upon the stimuli may be of assistance in the interpretation of obtained dimensions. Two general conditions must be satisfied in order for the rating scale to be useful: (a) the multiple correlation for the scale should be high and (b) the scale must have a high regression weight on the specified dimension (Kruskal and Wish, 1978). The second approach is to examine and interpret the resulting patterns. The difficulty with

visual inspection is that it is often difficult to examine all perspectives. In addition, when the number of dimensions increases, this mental juggling may be cumbersome. It is generally recommended that a combination of these two approaches be used.

Stability

In addition to obtaining and interpreting the dimensions with a particular set of stimuli one concern is the stability of the configurations. There are two general procedures for determining stability: (a) split the data matrix into subsets and perform separate MDS on them or (b) include replicated stimuli in the data set and perform a separate MDS on them. If the results obtained for higher numbers of dimensions are unstable then the interpretation of these dimensions should not be attempted (Schiffman, Reynolds & Young, 1981).

The procedure that will be used will be to produce two parallel forms of the similarity questionnaire and then to calculate the degree of congruence between the resulting matrices.

Hypotheses

This study provides the first step in attaining greater understanding regarding the cognitive aspects of performance appraisals. The literature has suggested that a potentially fruitful area of research is the investigation of the inferential structures or implicit theories. Consequently,

senior level managers were asked to provide similarity
judgments between specific personality and performance
behaviours. These behavioural judgments were then subjected
to a nonmetric classical multidimensional unfolding
procedure, in order to test two general hypotheses: (1)
raters' implicit theories of personality and performance
will be definable along a reduced number of dimensions and
(2) there will be substantial congruity between the network
generated by accountant manager raters and by personnel
manager raters.

Method

Participants

The participants selected for this study were 261 senior accountant managers and senior personnel managers from the United States with a mean age of 41.3 years. The participants were comprised of 59 females and 196 males. From the total group, 132 participants completed Form A and 129 participants completed Form B. One third of the participants for each of the Forms had completed a different third of that specific form. A complete matrix was therefore comprised of three subsets of nonoverlapping judgments. In order to obtain 261 participants it was necessary to evaluate responses from a larger number. A total of 39 participants were excluded due to incorrect completion of survey forms or the lack of an appropriate match to make a complete matrix. In addition, 44 questionnaires were returned because the managers no longer worked at that organization. The largest representation was obtained for males (196/261 participants), executives (132/261 participants), and the manufacturing industry (121/261 participants). Personnel managers (138/261 participants) and accountant managers (123/261 participants) were represented at similar levels. Demographic characteristics are presented for the total group, the personnel managers subgroup, the accountant managers subgroup, the Form A and Form B subgroups, and by rater sex (Appendix II).

The rationale for the selection of the personnel manager and accountant manager populations is that, although the function of the manager may be very similar, the performance rating would be for subordinates that would be performing very different jobs. Seiss and Jackson (1970) provide evidence for these differences. Of the seven factors obtained from their study Personnel Manager loaded highly on Factor II (Dominance, Nurturance, Desirability, Exhibition, and Affiliation are also positively loaded on this factor) while Accountant loaded highly on Factor III (Cognitive Structure and Order are positively loaded on this factor). It is hypothesized that, although the ratees will have very different personality profiles, raters will use a common inferential network that associates specific personality behaviours with specific performance behaviours. This is tested using generic behaviours unassociated with the constraints of any specific occupational group. That is, in Study 1 no attempt is made to restrict the inferences that may be made by a rater.

Measures

Behavioural judgments questionnaire. The similarity questionnaire, consisting of 160 pairs of behavioural items, was generated from two primary sources. Behavioural personality items were based on the Personality Research Form's 20 substantive scales (Jackson, 1984). Behavioural performance items were based on dimensions from the

Management Position Description Questionnaire (Tornow &
Pinto,1976), a 10 scale measure of managerial performance,
of which 8 relevant dimensions were used.

The eight performance dimensions selected were Planning
and Organizing (PO), Controlling (CT), Supervising (SU),
Coordinating (CD), Monitoring business indicators (MO),
Sales and marketing (SA), Public relations (PR), and
Innovation and consulting (IN). Planning and Organizing
refers to the extent to which an employee develops
schedules, contingencies, or work plans to facilitate the
delivery of products or services. Controlling refers to the
extent to which an employee directs the distribution and use
of human or material resources. Supervising refers to the
extent to which an employee directs or facilitates the work
of subordinates and produces smooth working relationships
among subordinates. Coordinating refers to the extent to
which an employee directs and integrates the efforts or
activities of others over whom that employee has no direct
control. Monitoring business indicators refers to the extent
to which an employee keeps up to date with developments in
key business indicators. Sales and marketing refers to the
extent to which an employee interacts with clients or
customers to demonstrate or explain how a product or service
works and recommends ways of meeting their needs. Public
relations refers to the extent to which an employee
participates in or conducts promotional activities to

establish or maintain company relations with outside
parties. Innovation and consulting refers to the extent to
which an employee identifies and develops new products, and
markets or applies advanced techniques, to address unique
problems, issues, or questions.

Two versions of the Behavioural Judgments
Questionnaire, Form A and Form B, were generated and used
for stability analyses. Although the constructs were
identical for both Form A and Form B, the specific
behavioural items were different.

Table 1

Form A Behavioural Stimulus: Performance items

Code	Scale	Item
Po	Planning and Organizing	An employee who keeps both personal and business records in a cross referenced filing system for easy access.
Ct	Controlling	An employee who criticizes an employee for ordering extra copies of frequently used reference manuals.
Su	Supervising	An employee who enjoys getting people to do things without ordering them directly.
Cd	Coordinating	An employee who requests input from managers in other departments before initiating new programs.
Mo	Monitoring business indicators	An employee who eagerly reads a wide variety of industry trade publications on a regular basis.
Sa	Sales and marketing	An employee who rarely, if ever, turns down a chance to have a good time with customers.
Pr	Public relations	An employee who enjoys being the focus of public attention.
In	Innovation	An employee who likes to experiment with various ways of doing the same thing.

Table 2

Form A Behavioural Stimulus: Personality items[*]

Code	APRF Scale	Item
Ab	Abasement	An employee who has been taken advantage of by several people but who takes it like a good sport.
Ac	Achievement	An employee whose goal is to do at least a bit more than anyone else has done before.
Af	Affiliation	An employee who truly enjoys himself/herself at social functions.
Ag	Aggression	An employee who, when irritated, lets it be known.
Au	Autonomy	An employee who would not mind living in a very lonely place.
Ch	Change	An employee who is always looking for new routes to take on a trip.
Cs	Cognitive Str.	An employee who, when going on a trip, prepares a timetable beforehand.
De	Defendence	An employee who would get into a long discussion rather than admit that he/she was wrong.
Do	Dominance	An employee who usually wins others over to his/her side in an argument.
En	Endurance	An employee who would sometimes look for days for the answer to a question.

[*] Based on items obtained from the APRF (Copyright Dr. D. N. Jackson) and reproduced with permission.

Ex	Exhibition	An employee who likes to be in the spotlight.
Ha	Harmavoidance	An employee who avoids some hobbies and sports because of their dangerous nature.
Im	Impulsivity	An employee who often says the first thing that comes into his/her head.
Nu	Nurturance	An employee to whom others like to tell their problems because they know he/she will help them.
Or	Order	An employee who, after removing an object from a shelf, always places it back when finished.
Pl	Play	An employee who spends a good deal of his/her time just having fun.
Se	Sentience	An employee who likes to feel sculptured objects.
Sr	Social Recog.	An employee who would feel hurt most by having a bad reputation.
Su	Succorance	An employee who tries to share his/her burden with someone who can help them.
Un	Understanding	An employee who is more at home in an intellectual discussion than in a discussion of sports.

* Based on items obtained from the APRF (Copyright Dr. D. N. Jackson) and reproduced with permission.

Table 3

Form B Behavioural Stimulus: Performance items

Code	Scale	Item
Po	Planning and Organizing	An employee who develops contingency plans for overdue suppliers, temporary staff shortages, or early completion of work projects.
Ct	Controlling	An employee who directs others in terms of how they should distribute their resources.
Su	Supervising	An employee who can stop employees from arguing without obviously intervening
Cd	Coordinating	An employee who meets frequently with members of other departments to design joint programs.
Mo	Monitoring business indicators	An employee who searches for the underlying reasons for changes in business indicators.
Sa	Sales and marketing	An employee who enjoys turning interactions with clients into playful exchanges.
Pr	Public relations	An employee who enjoys speaking at numerous local charity functions as a company representative.
In	Innovation	An employee who thrives on work which requires original thinking.

Table 4

Form B Behavioural Stimulus: Personality items*

Code	APRF Scale	Item
Ab	Abasement	An employee who allows other to push him/her around so that others can feel important.
Ac	Achievement	An employee who often sets goals that are very difficult to reach.
Af	Affiliation	An employee who has many friendships.
Ag	Aggression	An employee who has been known to fly into a rage if things didn't go as he/she had planned.
Au	Autonomy	An employee who would like to be alone and his/her own boss.
Ch	Change	An employee who would like the type of work which would keep him/her constantly on the move.
Cs	Cognitive Str.	An employee who doesn't like to start a project until the best way to proceed is known.
De	Defendence	An employee who tends to react strongly to remarks which find fault with his/her personal appearance.
Do	Dominance	An employee who would like to be an executive with power over others.
En	Endurance	An employee who would continue working on a problem even with a severe headache.

* Based on items obtained from the APRF (Copyright Dr. D. N. Jackson) and reproduced with permission.

Ex	Exhibition	An employee who is thought of by others as lively and witty.
Ha	Harmavoidance	An employee who doesn't like to go near trucks carrying explosive materials.
Im	Impulsivity	An employee whose actions often seem to be hasty.
Nu	Nurturance	An employee who considers it very important to show people that he/she is interested in their problems.
Or	Order	An employee who keeps possessions in such good order that he/she has no problem in finding anything.
Pl	Play	An employee who often does something for no reason at all except that it sounds like fun.
Se	Sentience	An employee who sometimes feels like stepping into mud and letting it ooze between his/her toes.
Sr	Social Recog.	An employee who considers his/her social standing very important.
Su	Succorance	An employee who usually tells others of his/her misfortunes because they might be able to assist them.
Un	Understanding	An employee who enjoys studying most of his/her life so that he/she could learn as many things as possible.

* Based on items obtained from the APRF (Copyright Dr. D. N. Jackson) and reproduced with permission.

Since the primary interest of this study is with the overlap between the personality and performance dimensions, a rectangular similarity matrix is generated based on the intersection of Performance behaviours x Personality behaviours. The advantages of pursuing this strategy, versus using a full or triangular matrix, is the decrease in the number of similarity judgments required and consequently a decrease in the overall number of participants required. Put another way, there is an increase possible in the number of participants that may be assigned to the rectangular data matrix, thus potentially increasing the stability of the matrix.

Dimensions obtained from previous multidimensional scalings of personality traits will be considered in the interpretation of the obtained MDS dimensions. Walters and Jackson (1966) obtained three stable dimensions labelled interpersonal affectivity, harmfulness, and charitable-uncharitable. Osgood, Suci and Tannenbaum (1957) obtained three dimensions labelled good versus bad, hard versus soft, and active versus passive. Rosenberg et al. (1968) obtained the dimensions of good-social versus bad-social and good-intellectual versus bad-intellectual. Krzystofiak et al. (1988) found that the personality traits labelled as nasty, cold, unfair, dull, and demanding accounted for additional variance, in a regression equation, above that due to performance.

Dimensions obtained from factor analytic studies of managerial performance will ⹁o be considered. Fleishman et al. (1955) obtained the factors of consideration and initiating structure. Grant (1955) obtained the factors of skill in dealing with others, judgment, effective supervision, effective planning, and operating efficiency. Byham (1987) lists eight dimensions of managerial competence including communication, motivation, interpersonal, leadership, decision-making, and personal dimensions.

Demographic items. An additional measure indicating demographic information such as age, sex, level of management, number of subordinates rated, and frequency of performance evaluations was also included. This additional measure was added in order to provide a basis for future subgroup analyses in the event that the response to the survey was large enough to justify such analyses.

Procedure

A mail survey of 2000 questionnaire packages was used to collect the required similarity ratings. A conservative anticipated return rate was 300+ participants. The mailing was done in two major phases. In the first phase 1000 participants received 1 of 6 potential packages. Three packages contained a subset of the 160 similarity judgments contained in Form A and the remaining three packages contained a subset of the 160 similarity judgments contained in Form B. In the second phase another 1000 participants

were sent an identical mailing of six potential packages except that the proportion of packages mailed differed depending on the type of response from the first phase since only complete matrices are included in the multidimensional scaling.

The reason for six potential packages is that each of the questionnaires (set A and set B) is broken down into three 10 minute components. This precluded the possibility of performing an individual differences analysis. However, Lay and Jackson (1969) found that the independently determined projections on dimensions derived from different sets of judges correlated .95. Jackson et al. (1982) in their study of judgments of personality and jobs found even higher cross-judge stabilities. It is suggested that subject response rates improve when questionnaires require a relatively small investment of time on the part of the respondent. Since senior level managers were targeted this was a genuine consideration.

Each questionnaire phase involved a preliminary mailing of 1000 pre-mailing postal cards to prepare potential respondents for the coming questionnaire. This was followed shortly by the actual questionnaire package. Several weeks later a second mailing of 1000 postal cards was made to remind tardy respondents of the importance of their participation and to encourage them to reply. Two types of complete matrices were obtained, one for personnel managers

and one for accountant managers. There are also two versions of each matrix, set A and set B. The number of similarity ratings for each complete matrix is 160 (8x20=160). The anticipated target group of 300+ participants was divided into 12 cells of 25 participants each to make up the matrix of personality and performance item ratings. Therefore, 25 replications of each complete matrix were sought.

Data Analysis

Multidimensional scaling was performed on the final data set. The outcome of the multidimensional scaling provided the foundation from which the second study was designed.

Analysis was performed using the alternating least squares procedure (ALSCAL) developed by Takane and Young (1977). The advantages of using multidimensional scaling over factor analysis are (a) explicit comparisons may be made between specific behaviours, (b) there is no requirement that stimuli be pre-assigned to defined dimensions, and (c) raters do not need to know the definitions of the dimensions ahead of time.

ALSCAL

Background. There are several features of the ALSCAL multidimensional scaling program that should be highlighted. First, unlike other MDS algorithms, ALSCAL permits the analysis of asymmetrical rectangular matrices such as obtained in this study. Second, ALSCAL allows missing data.

Two-Way Scaling. The nonmetric Classical

Multidimensional Unfolding (CMDU) procedure (Schiffman et

al., 1981; Young and Hamer, 1987) was used on the individual

averaged matrices. This procedure is appropriate for a

single rectangular matrix that is composed of data which is

row conditional. That is, direct comparisons cannot be

meaningfully made between rows.

Analyses were conducted on four averaged rectangular

matrices in order to define the common inferential space for

performance and personality. There were two composite

matrices for Personnel managers and Accountant managers. For

each type of manager there were two types of Behavioural

Judgment Questionnaires, using Set A items and Set B items.

Two, three and four dimensional solutions were obtained for

each of the four individual groups. Subgroups were later

collapsed after comparisons were made and no differences

were observed.

The appropriate number of dimensions was determined by

several criteria. One criterion that was used was the rate

of reduction of SSTRESS (Kruskal's Formula 2 was used).

A second criterion was the rate of increase in RSQUARE, the

proportion of variance accounted for. A third criterion was

the stability of the dimensions (coefficient of congruence)

between subgroups. The psychological meaning of the obtained

inferential network was used as a final criterion in the

selection of the most appropriate number of dimensions.

Three-Way Scaling. A Replicated Multidimensional
Scaling was not performed on individual matrices for the
purpose of looking at individual differences since they were
composites in Study 1. However, the procedure was used in
order to pinpoint the presence of unusual matrices before
they were averaged.

Coefficient of Congruence

Having decided upon the appropriate number of
dimensions obtained from ALSCAL, the next procedure was to
rotate the obtained solutions in order to assist
interpretation. First, matrices were rotated to an
arbitrarily selected target matrix so that comparisons may
be made effectively across matrices. The next procedure was
then to subject the three dimensional solutions to a Varimax
rotation in order to allow for a substantive interpretation
of the obtained multidimensional configurations. Finally,
the coefficients of congruence (Harman, 1976) were
calculated between the subgroups for the three dimensional
solution. Personnel managers' matrices were compared to
Accountant managers' matrices. Set A matrices were also
compared with Set B matrices to obtain an indication of
matrix stability.

Study 1: Results of the Multidimensional Scaling

of Behavioural Items for Personality and Performance

The data from 261 managers were used to complete a total cf 87 behavioural-similarity matrices composed of 160 behavioural-similarity judgments in each matrix. It should be noted that each matrix was a composite of three randomly assigned managers from the same occupational group and each matrix contained similarity ratings between 20 personality related behaviours and 8 performance related behaviours. These data were analyzed by a multidimensional scaling procedure that produced an n-dimensional representation of raters' inferential structures.

In addition to examining the overlap between raters' implicit theories of personality and performance, two additional issues needed to be addressed. One issue was the stability of the behavioural stimuli presented to each of the rater groups. That is, if particular behaviours are representative of a specific construct it follows that one should be able to reproduce their relative configurations in a multidimensional scaling if different items sampled from the same constructs are used. It is for this reason that two equivalent forms, A and B, were administered to different managers. A second issue was whether raters' implicit theories of personality and performance would differ depending on the occupational experience of the individual raters. It is for this reason that personnel managers and

accountant managers were targeted in this study.

In order to examine these two issues, the 87 matrices were subdivided into 4 distinct groups. One group, consisting of accountant managers, responding to questionnaire Form A, accounted for 21 complete behavioural similarity matrices. A second group, consisting of accountant managers responding to questionnaire Form B, accounted for 20 complete behavioural similarity matrices. A third group, consisting of personnel managers, responding to questionnaire Form A, accounted for 23 complete behavioural similarity matrices. The final group, consisting of personnel managers responding to questionnaire Form B, accounted for 23 complete behavioural similarity matrices.

Analyses were done using the ALSCAL subroutine for nonmetric classical multidimensional unfolding on the average matrix from each of the four rater groups. One-, two-, three- and four- dimensional solutions were obtained for each of the four individual groups. Subgroups were later combined after comparisons were made.

The results for Study 1 will be presented in the following order: (a) demographic characteristics, (b) SSTRESS values, (c) RSQ values, (d) coefficients of congruence, and (e) the multidimensional scaling of the selected group, form, and number of dimensions as determined by the previous criteria.

Demographic characteristics

The demographic characteristics of each of the subgroups, such as the number of performance appraisals conducted per year and the frequency with which they were conducted, are presented in Appendix II. The groups were observed to be very similar in terms of performance appraisal experience. Although there were 196 male participants and 59 female participants, both sexes were represented to the same extent for Form A and Form B.

Kruskal's Stress 2

The appropriate number of dimensions was determined by several criteria. One criterion that was used was the rate of reduction of SSTRESS (Kruskal's Formula 2). The values for one-, two-, three-, and four-dimensional solutions are presented in Tables 5-8.

The plot of SSTRESS values for accountant managers completing Form A (Figure 1) produced an "elbow" at the two-dimensional solution. The same plot for personnel managers suggested an "elbow" at the three-dimensional solution. The plot of SSTRESS values for accountant managers completing Form B produced a less defined "elbow". While the SSTRESS plot for Personnel managers completing Form B also suggested an "elbow" at the two-dimensional solution. It was noted that SSTRESS values for Form A groups were lower in value than those obtained for Form B groups.

Table 7 shows the SSTRESS values obtained from a

classical multidimensional unfolding of combined accountant- and personnel manager groups completing Form A. From a plot of these values a clear "elbow" was observed at the two-dimensional solution. When the same procedure was applied to both groups completing Form B (Table 8) the results were less clear. In addition, the SSTRESS values for Form B were higher than for the combined groups completing Form A.

RSQUARE

A second criterion was the rate of increase in RSQ, the variance accounted for by a particular n-dimensional solution. The values for one-, two-, three-, and four-dimensional solutions are presented in Tables 5-8. The RSQUARE plot for accountant managers completing Form A was similar to the plot for personnel managers completing Form A. Both plots indicated that RSQUARE values levelled off at either the two- or three- dimensional solution. RSQUARE values for accountant managers completing Form B produced a plot that had no clear point at which the values levelled off. For personnel managers completing Form B RSQUARE values level off near the two- or three-dimensional solution.

Table 7 also shows the RSQ values obtained from a classical multidimensional unfolding of combined accountant- and personnel manager groups completing Form A. From a plot

Table 5

Kruskal's Stress 2 (SSTRESS) values and RSquare from
Nonmetric Classical Multidimensional Unfolding of the
Behavioural Judgments Questionnaire Form A:
21 Accountant manager behavioural similarity matrices and of
23 Personnel manager behavioural similarity matrices

	Number of Dimensions	SSTRESS	RSQ
Accountant managers			
	4	.196	.967
	3	.181	.971
	2	.239	.947
	1	.362	.876
Personnel managers			
	4	.190	.969
	3	.195	.967
	2	.212	.959
	1	.345	.887

Figure 1 Kruskal's Stress 2 and RSquare from MDS of Form A:
21 Accountant manager and 23 Personnel manager matrices
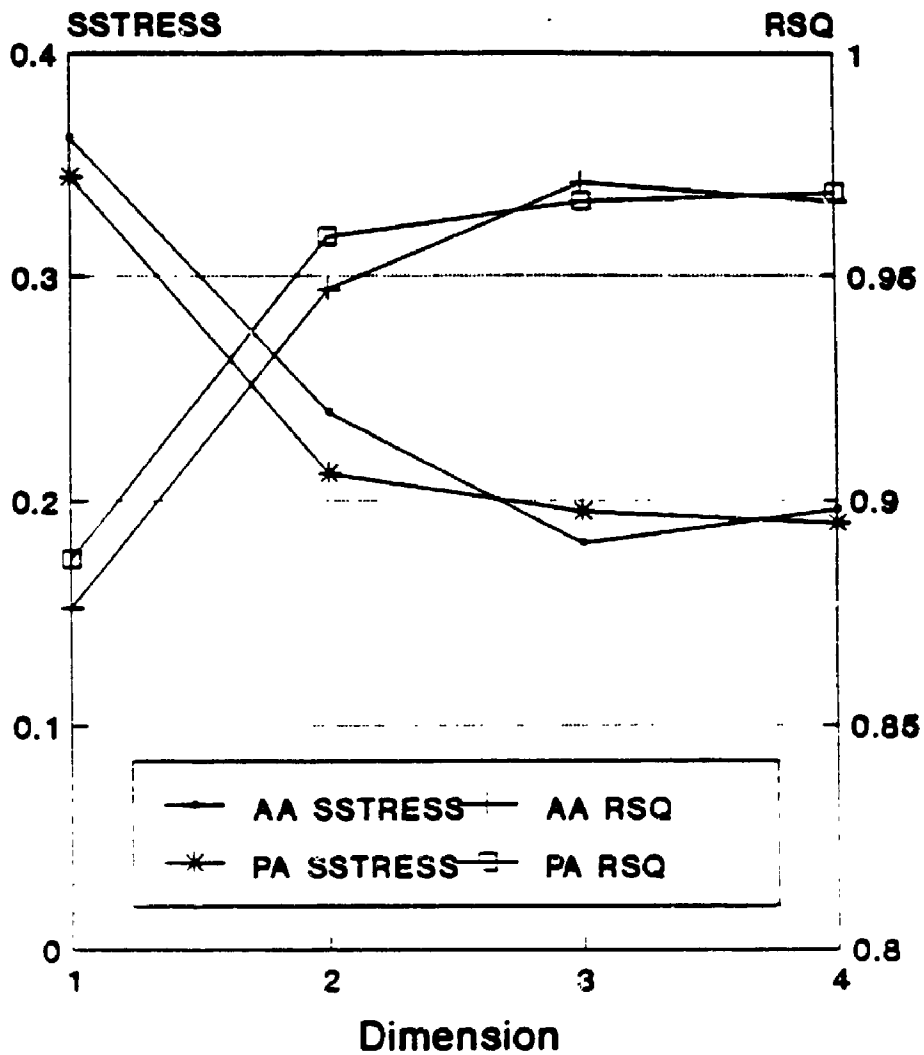
Table 6

Kruskal's Stress 2 (SSTRESS) values and RSquare from
Nonmetric Classical Multidimensional Unfolding of the
Behavioural Judgments Questionnaire Form B:
23 Accountant manager behavioural similarity matrices and of
23 Personnel manager behavioural similarity matrices

	Number of Dimensions	SSTRESS	RSQ
Accountant managers			
	4	.246	.947
	3	.245	.947
	2	.287	.924
	1	.347	.891
Personnel managers			
	4	.256	.944
	3	.264	.939
	2	.284	.927
	1	.435	.822

Figure 2 Kruskal's Stress 2 and RSquare from MDS of Form B:
23 Accountant manager and 23 Personnel manager matrices
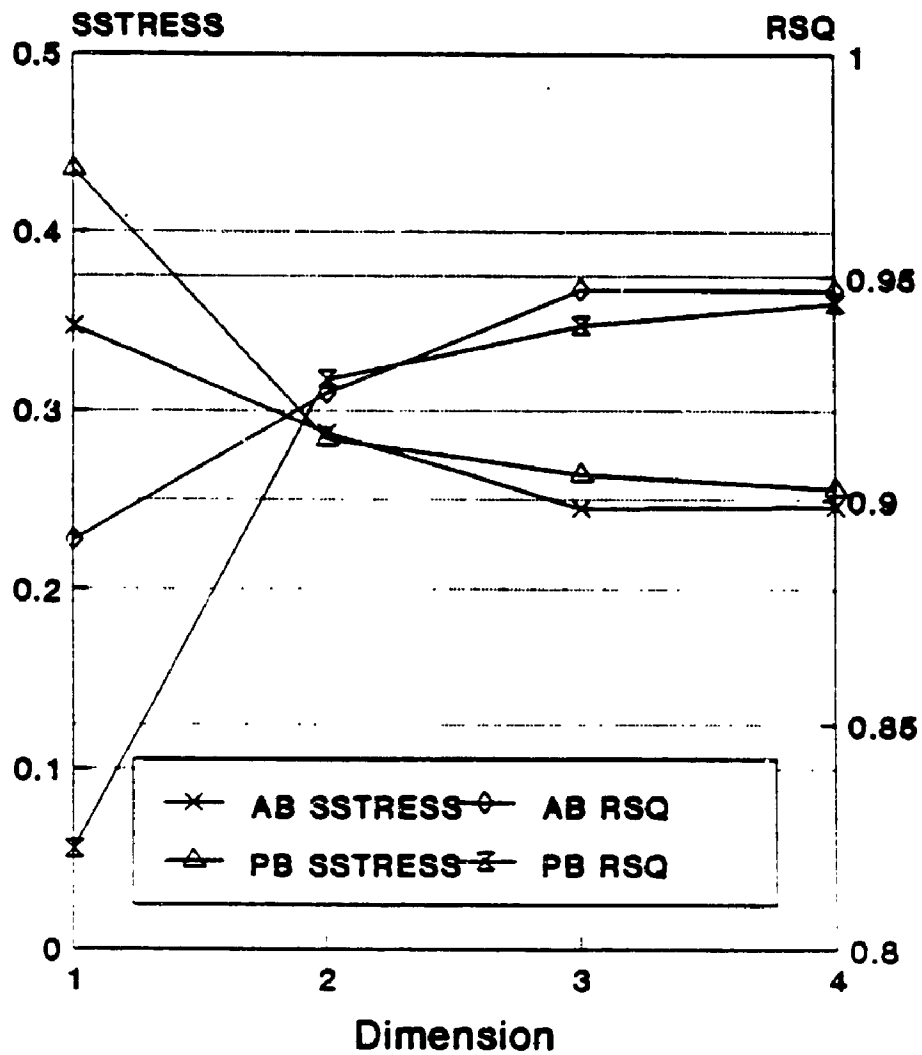
Table 7

Kruskal's Stress 2 (SSTRESS) values and RSquare from
Nonmetric Classical Multidimensional Unfolding of the
Behavioural Judgments Questionnaire Form A:
44 behavioural similarity matrices

Number of Dimensions	SSTRESS	RSQ
4	.202	.965
3	.205	.963
2	.214	.958
1	.337	.892

Figure 3 Kruskal's Stress 2 and RSquare from MDS of Form A:
44 matrices from the combined groups
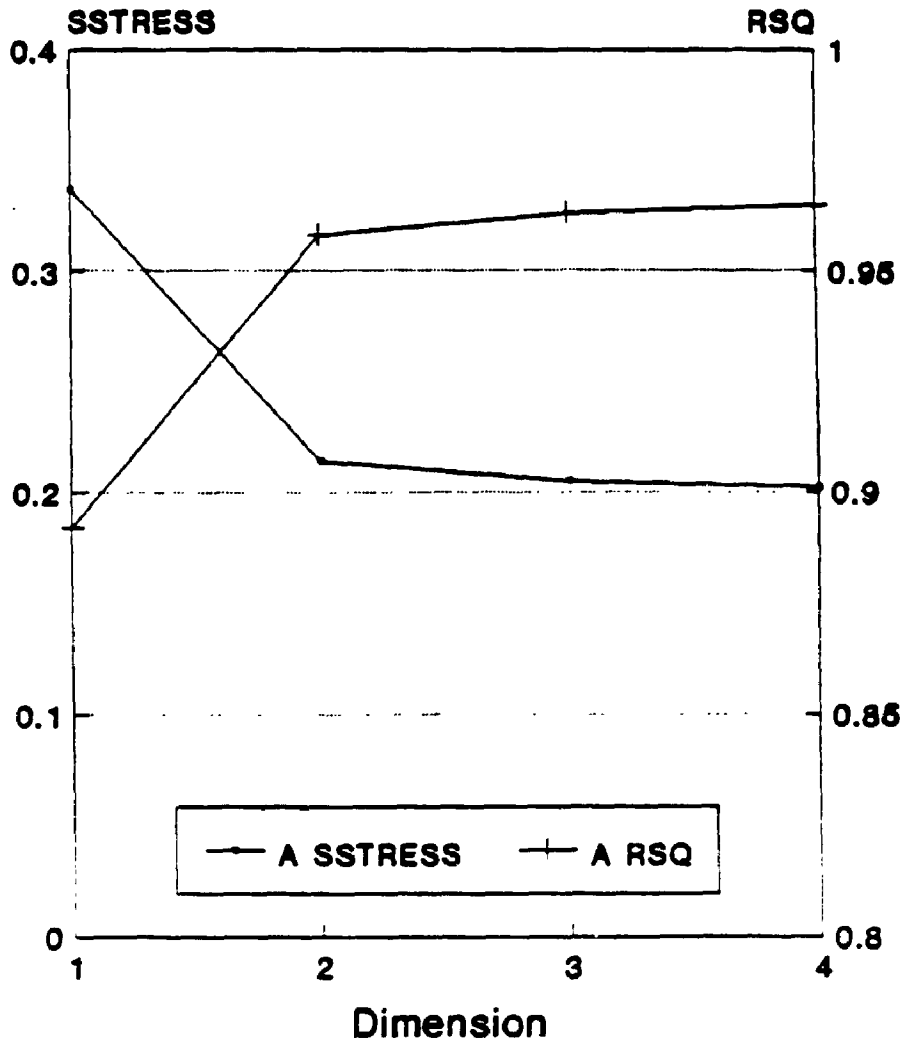
Table 8

Kruskal's Stress 2 (SSTRESS) values and RSquare from
Nonmetric Classical Multidimensional Unfolding of
Behavioural Judgments Questionnaire Form B:
43 behavioural similarity matrices

Number of Dimensions	SSTRESS	RSQ
4	.253	.945
3	.259	.941
2	.301	.917
1	.375	.871

Figure 4 Kruskal's Stress 2 and RSquare from MDS of Form B:
46 matrices from the combined groups
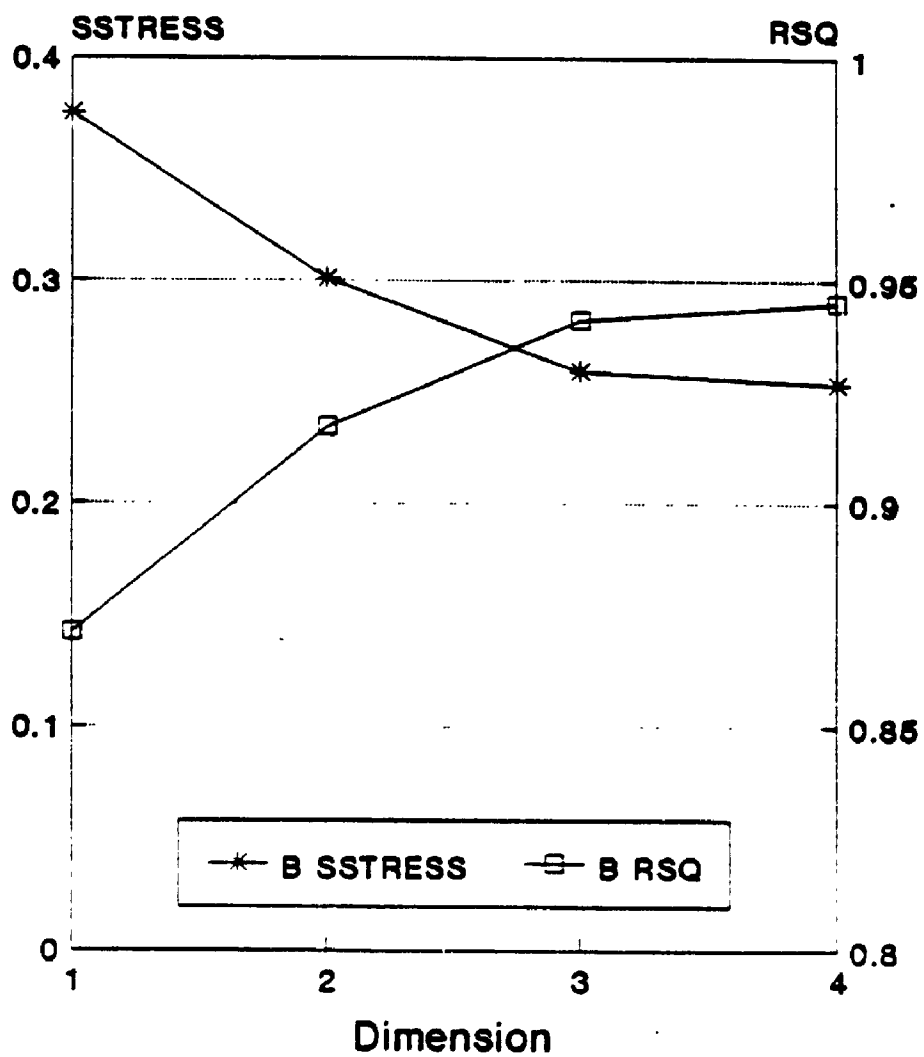
of these values a clear "elbow" was observed at the two-dimensional solution. When the same procedure was applied to both groups completing Form B (Table 8) the results indicated that a levelling off of RSQUARE was observed near the two- o, three- dimensional solution. In addition, the RSQUARE values for Form B were lower than for the combined groups completing Form A.

Coefficient of congruence

A third criterion was the stability of the dimensions, or coefficient of congruence (Harman, 1976), between subgroups. This was calculated between the accountant-manager subgroup and the personnel-manager subgroup. The two- and three-dimensional solutions' coefficients are presented in Tables 9-12.

In Table 9 it is observed that the first two dimensions of a three-dimensional solution were very high in agreement between the two types of managers, .98 and .94 respectively. However, the third dimension was less stable. The coefficient of congruence for Dimension III between the two groups providing judgments of similarity between stimuli used in Form A was .57.

In Table 10 the coefficients of congruence for the three-dimensional solution between accountant managers and personnel managers rating the similarity of stimuli in Form

B were lower. However, congruences for the first two dimensions were also high, .94 and .85 respectively. The third dimension was also observed to be lower, .49, and related to a moderate degree, -.25, with the second dimensions.

In Table 11 the coefficients of congruence for the two-dimensional solution are presented for accountant managers and personnel managers completing Form A. A very high degree of congruence was indicated, .97 and .93.

In Table 12 the coefficients of congruence for Form B indicated a stable first dimension, .92, but very little congruence between accountant managers and personnel managers for the second dimension, .16.

From these results it was concluded that the first dimension was consistently stable for both rater groups and for both versions of behavioural stimuli, Form A and Form B. Dimension I+ was characterized by performance behaviours representing the Planning and organizing and the Monitoring business indicators scales. Dimension I- was characterized by performance behaviours representing the Sales and the Public relations scales. The results for the second dimension are slightly lower. However, the third dimension appears to vary depending on the behavioural stimulus set and the rater group. The most stable configuration appears for the first two dimensions of the stimulus set comprising Form A. However, the final criterion used in the selecting

the most appropriate configuration remains the psychological
meaning of the obtained inferential network.

Table 9

Coefficients of Congruence for the three-dimensional
configurations between the Nonmetric Classical
Multidimensional Unfolding of the Behavioural Judgments
Questionnaire Form A: 21 Accountant manager matrices versus
23 Personnel manager matrices

Dimensions	I	II	III
I	0.976	0.021	-0.032
II	0.022	0.941	-0.001
III	-0.027	-0.001	0.574

Table 10

Coefficients of Congruence for the three-dimensional configurations between the Nonmetric Classical Multidimensional Unfolding of the Behavioural Judgments Questionnaire Form B: 20 Accountant manager matrices versus 23 Personnel manager matrices

Dimensions	I	II	III
I	0.939	-0.065	-0.032
II	-0.070	0.851	-0.252
III	-0.030	-0.220	0.487

Table 11

Coefficients of Congruence for the two-dimensional
configurations between the Nonmetric Classical
Multidimensional Unfolding of the Behavioural Judgments
Questionnaire Form A: 21 Accountant manager matrices versus
23 Personnel manager matrices

Dimensions	I	II
I	0.966	0.060
II	0.061	0.932

Table 12

Coefficients of Congruence for the two-dimensional configurations between the Nonmetric Classical Multidimensional Unfolding of the Behavioural Judgments Questionnaire Form B: 20 Accountant manager matrices versus 23 Personnel manager matrices

Dimensions	I	II
I	0.918	0.098
II	0.097	0.161

Comparison of Accountant-managers with Personnel-managers on the Three-Dimensional Configuration for Form A

Both personality and performance behaviours were plotted on two-dimensional graphs. Separate plots for accountant managers (Table 13) and personnel managers (Table 14) are presented in the following tables.

Several observations were made. The performance behaviours loading positively on Dimension I are: (a) Planning and Organizing, and (b) Monitoring business indicators. The performance behaviours at the opposite pole of Dimension I are: (a) Sales and Marketing, and (b) Public Relations.

The personality behaviours that also load positively on Dimension I are: (a) Cognitive Structure, (b) Order, (c) Endurance, (d) Harmavoidance, (e) Understanding, and (f) Autonomy. The personality behaviours that load on the opposite pole of Dimension I are: (a) Exhibition, (b) Play, (c) Impulsivity, and (d) Affiliation.

No performance behaviours load on the positive pole of Dimension II. The performance behaviours loading negatively on Dimension II are: (a) Supervising, (b) Coordinating, and (c) Innovation.

The personality behaviours loading positively on Dimension II are: (a) Defendence and (b) Aggression. The personality behaviours loading negatively on Dimension II are: (a) Dominance, (b) Nurturance, (c) Social Recognition,

(d) Change, (e) Succorance, (f) Sentience, and

(g) Abasement.

It should also be noted that plots of linear fit were also presented (Figures 5d, 6d). The plots are a graphic representation of the degree of linear fit between the data and the multidimensional solution obtained for that specific n-dimensional solution.

Table 13

Three-dimensional loadings from a Nonmetric Classical
Multidimensional Unfolding of the, personality x
performance, Behavioural Judgments Questionnaire Form A: 21
Accountant manager matrices

| Stimulus | | Plot | DIMENSION | | |
Number	Name	Symbol	I	II	III
COLUMN					
1	Planning & Org.	PO	2.17	0.11	0.32
2	Controlling	CT	1.54	1.85	0.82
3	Supervising	SU	-0.26	-1.83	0.73
4	Coordinating	CD	0.32	-1.29	0.92
5	Monitoring Ind.	MO	?.49	-0.02	-1.04
6	Sales/Marketing	SA	-1.94	0.74	0.49
7	Public Relations	PR	-1.93	0.82	0.10
8	Innovation	IN	-0.08	-0.61	-2.19
ROW					
1	Abasement	Ab	-0.64	-0.82	0.74
2	Achievement	Ac	0.29	0.33	-1.53
3	Affiliation	Af	-1.83	-0.50	0.29
4	Aggression	Ag	0.70	1.32	0.40
5	Autonomy	Au	1.71	-0.35	-0.46
6	Change	Ch	-0.56	-0.22	-1.28
7	Cognitive structure	Cs	1.10	0.69	0.17
8	Defendence	De	0.27	1.12	0.34
9	Dominance	Do	-0.40	-1.21	0.20
10	Endurance	En	1.06	0.43	0.22
11	Fxhibition	Ex	-1.78	1.35	0.03
12	Harmavoidance	Ha	1.20	0.27	0.60
13	Impulsivity	Im	-1.18	1.14	-0.07
14	Nurturance	Nu	-0.23	-1.16	0.29
15	Order	Or	1.27	0.17	0.53
16	Play	Pl	-2.39	0.59	0.02
17	Sentience	Se	-0.64	-0.68	-1.19
18	Social Recognition	Sr	0.31	-0.92	0.58
19	Succorance	Su	-0.39	-0.91	1.12
20	Understanding	Un	0.81	-0.42	-1.16

Figure 5a

Derived Stimulus Configuration for Dimension I
(Horizontal) versus Dimension II (Vertical) of
the three-dimensional loadings from a Nonmetric
Classical Multidimensional Unfolding of the,
personality x performance, Behavioural Judgments
Questionnaire Form A: 21 Accountant manager matrices

Figure 5b

Derived Stimulus Configuration for Dimension I
(Horizontal) versus Dimension III (Vertical) of
the three-dimensional loadings from a Nonmetric
Classical Multidimensional Unfolding of the,
personality x performance, Behavioural Judgments
Questionnaire Form A: 21 Accountant manager matrices

Figure 5c

Derived Stimulus Configuration for Dimension II
(Horizontal) versus Dimension III (Vertical) of
the three-dimensional loadings from a Nonmetric
Classical Multidimensional Unfolding of the,
personality x performance, Behavioural Judgments
Questionnaire Form A: 21 Accountant manager matrices

```
         -+----+----+----+----+----+----+----+----+----+----+-
          :                            :                      :
  2.1  -+                              :                      +
          :                            :                      :
          :                            :                      :
          :                            :                      :
          :                            :                      :
          :                            :                      :
  1.0  -+               Su             :                 CT   +
          :          CD                :                      :
          :     SU        Ab           :                      :
          :          Sr            :OrHa    SA                :
          :     Nu        Af       :PO           DeAg         :
          :     Do                 :     EnCsPR               :
  0.0  -+------------------------------Pl---ImEx----------+
          :                            :                      :
          :                            :                      :
          :                   Au       :                      :
          :                            :                      :
          :                            :                      :
 -1.0  -+                          MO  :                      +
          :               Se UnCh:                            :
          :                            :                      :
          :                        :  Ac                      :
          :                            :                      :
          :                            :                      :
 -2.1  -+                              :                      +
          :                   IN       :                      :
         -+----+----+----+----+----+----+----+----+----+----+-
         -2.5     -1.5     -0.5      0.5      1.5      2.5
```

Figure 5d

Scatterplot (Plot of Linear Fit): Distances
(Vertical) versus Disparities (Horizontal)
for the three-dimensional Nonmetric Classical
Multidimensional Unfolding of the,
personality x performance, Behavioural
Judgments Questionnaire Form A: 21 Accountant
manager matrices

```
       -+----+----+----+----+----+----+----+----+----+----+-
  5.1 -+                                                    +
       :                                                    :
       :                                           X        :
       :                                                    :
       :                                    3               :
  4.0 -+                                  XXX               +
       :                                    2               :
       :                              22X                   :
       :                            235                     :
       :                        X 64                        :
       :                      XXM4                          :
  2.9 -+                      4M                            +
       :                  X 5 3                             :
       :                  X852                              :
       :                333                                 :
       :                92 X                                :
       :            X  X4                                   :
  1.9 -+            XXX                                     +
       :            22                                      :
       :      X    X  X                                     :
       :    XX   ?X   X                                     :
       :    5X 2X                                           :
       :     2  4                                           :
  0.8 -+     5 2                                            +
       : X2                                                 :
       :X X                                                 :
       -+----+----+----+----+----+----+----+----+----+----+-
       0.3      1.3      2.2      3.2      4.1      5.1
```

Table 14

Three-dimensional loadings from a Nonmetric Classical
Multidimensional Unfolding of the, personality x
performance, Behavioural Judgments Questionnaire Form A: 23
Personnel manager matrices

Stimulus Number	Stimulus Name	Plot Symbol	DIMENSION		
			I	II	III
COLUMN					
1	Planning/Org.	PO	2.10	-0.14	-0.84
2	Controlling	CT	1.57	2.49	0.49
3	Supervising	SU	-0.76	-1.63	0.40
4	Coordinating	CD	0.06	-1.32	-1.00
5	Monitoring Ind.	MO	1.00	-0.84	0.56
6	Sales/Marketing	SA	-1.82	0.47	0.14
7	Public Relations	PR	-1.77	0.69	0.07
8	Innovation	IN	-0.59	-0.97	1.31
ROW					
1	Abasement	Ab	-0.97	-0.74	-0.37
2	Achievement	Ac	0.37	0.01	0.75
3	Affiliation	Af	-1.48	-0.34	0.52
4	Aggression	Ag	0.64	1.60	0.08
5	Autonomy	Au	1.65	-0.35	1.01
6	Change	Ch	-0.60	-0.74	0.02
7	Cognitive structure	Cs	1.32	0.32	-1.23
8	Defendence	De	0.26	1.54	0.43
9	Dominance	Do	-0.30	-1.12	-0.76
10	Endurance	En	1.30	-0.11	1.00
11	Exhibition	Ex	-1.83	1.25	-0.40
12	Harmavoidance	Ha	1.26	-0.06	-0.82
13	Impulsivity	Im	-1.09	1.75	0.15
14	Nurturanc.	Nu	-0.39	-0.97	-0.29
15	Order	Or	1.88	0.64	-1.39
16	Play	Pl	-2.12	0.25	-0.02
17	Sentience	Se	-0.48	-0.59	0.11
18	Social Recognition	Sr	-0.05	-0.42	-0.66
19	Succorance	Su'	-0.57	-0.50	-0.33
20	Understanding	Un	1.40	-0.18	1.11

Figure 6a

Derived Stimulus Configuration for Dimension I
(Horizontal) versus Dimension II (Vertical) of
the three-dimensional loadings from a Nonmetric
Classical Multidimensional Unfolding of the,
personality x performance, Behavioural Judgments
Questionnaire Form A: 23 Personnel manager matrices

Figure 6b

Derived Stimulus Configuration for Dimension I
(Horizontal) versus Dimension III (Vertical) of
the three-dimensional loadings from a Nonmetric
Classical Multidimensional Unfolding of the,
personality x performance, Behavioural Judgments
Questionnaire Form A: 23 Personnel manager matrices

Figure 6c

Derived Stimulus Configuration for Dimension II
(Horizontal) versus Dimension III (Vertical) of
the three-dimensional loadings from a Nonmetric
Classical Multidimensional Unfolding of the,
personality x performance, Behavioural Judgments
Questionnaire Form A: 23 Personnel manager matrices

```
         -+----+----+----+----+----+----+----+----+----+----+-
          :                            :                      :
   2.1 -+                              :                      +
          :                            :                      :
          :                            :                      :
          :                            :                      :
          :                  IN        :                      :
          :                            :                      :
   1.0 -+                     AuUnEn    :                      +
          :                            :                      :
          :                       Ac   :                      :
          :              MO     Af  :                      CT:
          :        SU                  :               De    :
          :              Se    :    SA          Im     :
   0.0 -+----------------Ch--------Pl--PR-------Ag--------+
          :                            :                      :
          :        Nu AbSu    :               Ex     :
          :                            :                      :
          :        Do      Sr  :                      :
          :                   Ha       :                      :
  -1.0 -+     CD                    :                      +
          :                   :  Cs                      :
          :                   :    Or                     :
          :                            :                      :
          :                            :                      :
          :                            :                      :
  -2.1 -+                              :                      +
          :                            :                      :
         -+----+----+----+----+----+----+----+----+----+----+-
        -2.5     -1.5     -0.5      0.5      1.5      2.5
```

Figure 6d

Scatterplot (Plot of Linear Fit): Distances
(Vertical) versus Disparities (Horizontal)
for the three-dimensional Nonmetric Classical
Multidimensional Unfolding of the,
personality x performance, Behavioural
Judgments Questionnaire Form A: 23 Personnel
manager matrices

```
      -+-----+----+----+----+----+----+----+----+----+----+-
4.8 -+                                                      +
    :                                                       :
    :                                                       :
    :                                             32        :
    :                                            XX         :
    :                                            4X         :
3.8 -+                                         3X2          +
    :                                        2 2            :
    :                                      X7X              :
    :                                    352X               :
    :                                   XXX                 :
    :                                 X4X                   :
2.7 -+                              X68                      +
    :                             55                        :
    :                          242XX                        :
    :                        X 53                           :
    :                        X33XX                          :
    :                     23                                :
1.7 -+                2X7  X                                 +
    :              X  223X                                  :
    :         XXX  X22                                      :
    :         X3  X                                         :
    :        3X X  X  X                                     :
    :       42  X                                           :
0.7 -+     X                                                +
    :      X  X                                             :
    :X                                                      :
    -+----+----+----+----+----+----+----+----+----+----+-
     0.3       1.2       2.1       3.0       3.9       4.8
```

Comparison of Accountant-managers with Personnel-managers on the Three-Dimensional Configuration for Form B

The coefficients of congruence between Dimensions I, II, and III when comparing the accountant manager subgroup with the personnel manager subgroup on Form B were .94, .85, and .49 respectively. This indicates a high level of matching between accountant managers and personnel managers on the first two dimensions.

Once again, both personality and performance behaviours were plotted on two-dimensional graphs. Separate plots for accountant managers and personnel managers are presented below.

Several observations may appropriately be made. The performance behaviours loading positively on Dimension I were: (a) Planning and Organizing and (b) Monitoring business indicators. The performance behaviours on the opposite pole of Dimension I were: (a) Sales and Marketing, and (b) Public Relations. The personality behaviours that also loaded positively on Dimension I were: (a) Order, and (b) Understanding. The personality behaviours that loaded on the opposite pole of Dimension I were: (a) Exhibition, (b) Play, (c) Affiliation, and (d) Impulsivity. The personality behaviours that also loaded positively on Dimension II were: (a) Nurturance, and (b) Succorance. The personality behaviours that load on the opposite pole of Dimension II are scattered and less consistent.

These findings suggest that, although the three-dimensional solutions was selected as the most appropriate when using the criteria of SSTRESS and RSQ, the first and second dimensions remain the most stable and were therefore considered for use as the basis of designing stimuli for Study 2.

Table 15

Three-dimensional loadings from a Nonmetric Classical Multidimensional Unfolding of the, personality x performance, Behavioural Judgments Questionnaire Form B: 20 Accountant manager matrices

Stimulus Number	Name	Plot Symbol	DIMENSION I	II	III
COLUMN					
1	Planning/Org.	PO	1.85	0.25	0.06
2	Controlling	CT	0.41	1.45	0.93
3	Supervising	SU	-1.47	0.87	-1.02
4	Coordinating	CD	-0.35	1.28	-0.09
5	Monitoring Ind.	MO	1.54	-0.07	-0.94
6	Sales/Marketing	SA	-2.13	-0.51	-0.49
7	Public Relations	PR	-1.36	0.01	1.50
8	Innovation	IN	0.84	-1.02	-0.85
ROW					
1	Abasement	Ab	-0.31	0.14	-0.94
2	Achievement	Ac	0.16	-0.79	0.23
3	Affiliation	Af	-1.38	0.13	-0.10
4	Aggression	Ag	1.01	0.06	0.11
5	Autonomy	Au	1.43	-1.87	-0.62
6	Change	Ch	-0.14	0.19	-0.01
7	Cognitive structure	Cs	0.72	0.27	-0.14
8	Defendence	De	0.64	0.14	-0.18
9	Dominance	Do	0.54	0.52	-0.37
10	Endurance	En	1.07	0.08	-0.60
11	Exhibition	Ex	-2.08	-1.15	0.18
12	Harmavoidance	Ha	0.36	0.62	0.19
13	Impulsivity	Im	-1.21	0.57	0.34
14	Nurturance	Nu	-0.33	1.01	-0.01
15	Order	Or	1.60	0.82	0.53
16	Play	Pl	-2.47	-1.64	0.62
17	Sentience	Se	-0.71	-1.06	-0.76
18	Social Recognition	Sr	-0.04	0.33	3.31
19	Succorance	Su'	-0.27	0.82	-0.56
20	Understanding	Un	2.08	-1.46	-0.31

Figure 7a

Derived Stimulus Configuration for Dimension I
(Horizontal) versus Dimension II (Vertical) of
the three-dimensional loadings from a Nonmetric
Classical Multidimensional Unfolding of the,
personality x performance, Behavioural Judgments
Questionnaire Form B: 20 Accountant manager matrices

```
       -+----+----+----+----+----+----+----+----+----+----+-
        :                              :                    :
2.1 -+                                  :                    +
        :                              :                    :
        :                              :                    :
        :                              :        CT          :
        :                      CD      :                    :
1.0 -+                         Nu      :                    +
        :              SU      Su      :              Or    :
        :                              :   Ha               :
        :          Im                  :   Do               :
        :                          Sr  :   Cs               :
        :          Af          AbCh    De              PO   :
0.0 -+-----------------PR-------------------------AgEn--MO---------+
        :                              :                    :
        :                              :                    :
        :      SA                      :                    :
        :                              :                    :
        :                              : Ac                 :
-1.0 -+                  Se            :      IN            +
        :      Ex                      :                    :
        :                              :              Un    :
        :Pl                            :                    :
        :                              :                    :
        :                              :         Au         :
-2.1 -+                                  :                    +
        :                              :                    :
       -+----+----+----+----+----+----+----+----+----+----+-
        -2.5      -1.5      -0.5       0.5       1.5       2.5
```

Figure 7b

Derived Stimulus Configuration for Dimension I
(Horizontal) versus Dimension III (Vertical) of
the three-dimensional loadings from a Nonmetric
Classical Multidimensional Unfolding of the,
personality x performance, Behavioural Judgments
Questionnaire Form B: 20 Accountant manager matrices

Figure 7c

Derived Stimulus Configuration for Dimension II
(Horizontal) versus Dimension III (Vertical) of
the three-dimensional loadings from a Nonmetric
Classical Multidimensional Unfolding of the,
personality x performance, Behavioural Judgments
Questionnaire Form B: 20 Accountant manager matrices

Figure 7d

Scatterplot (Plot of Linear Fit): Distances
(Vertical) versus Disparities (Horizontal)
for the three-dimensional Nonmetric Classical
Multidimensional Unfolding of the,
personality x performance, Behavioural
Judgments Questionnaire Form B: 20 Accountant
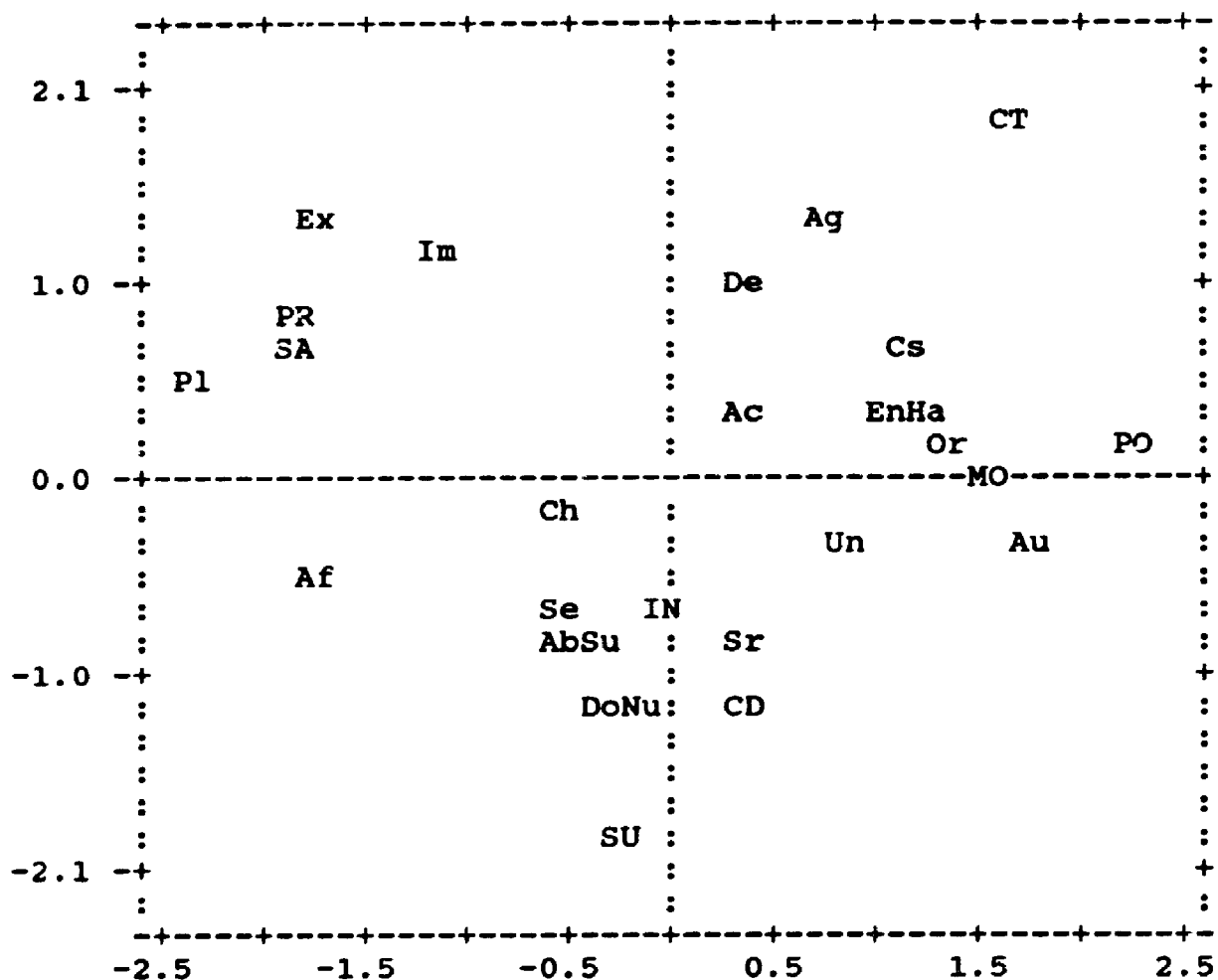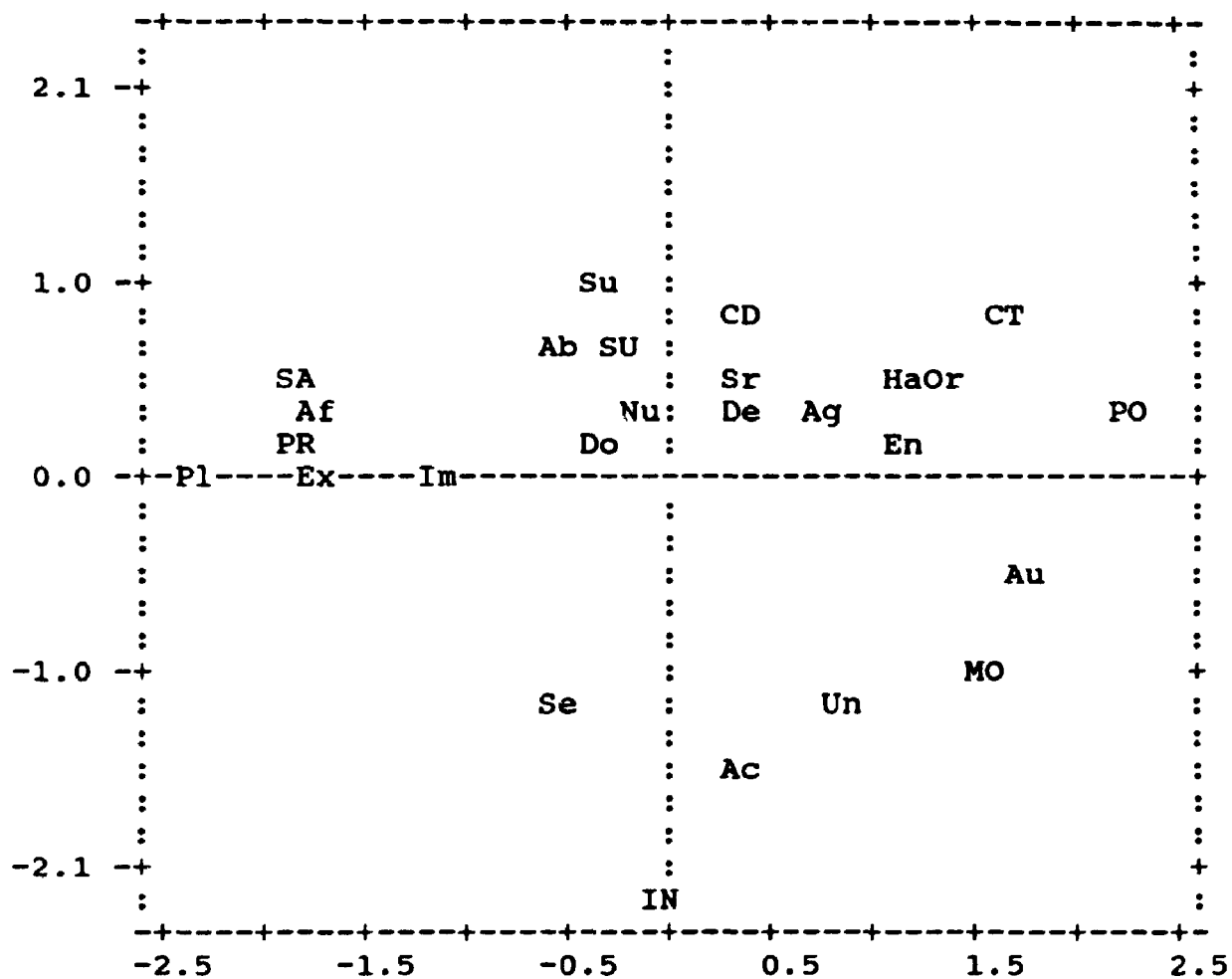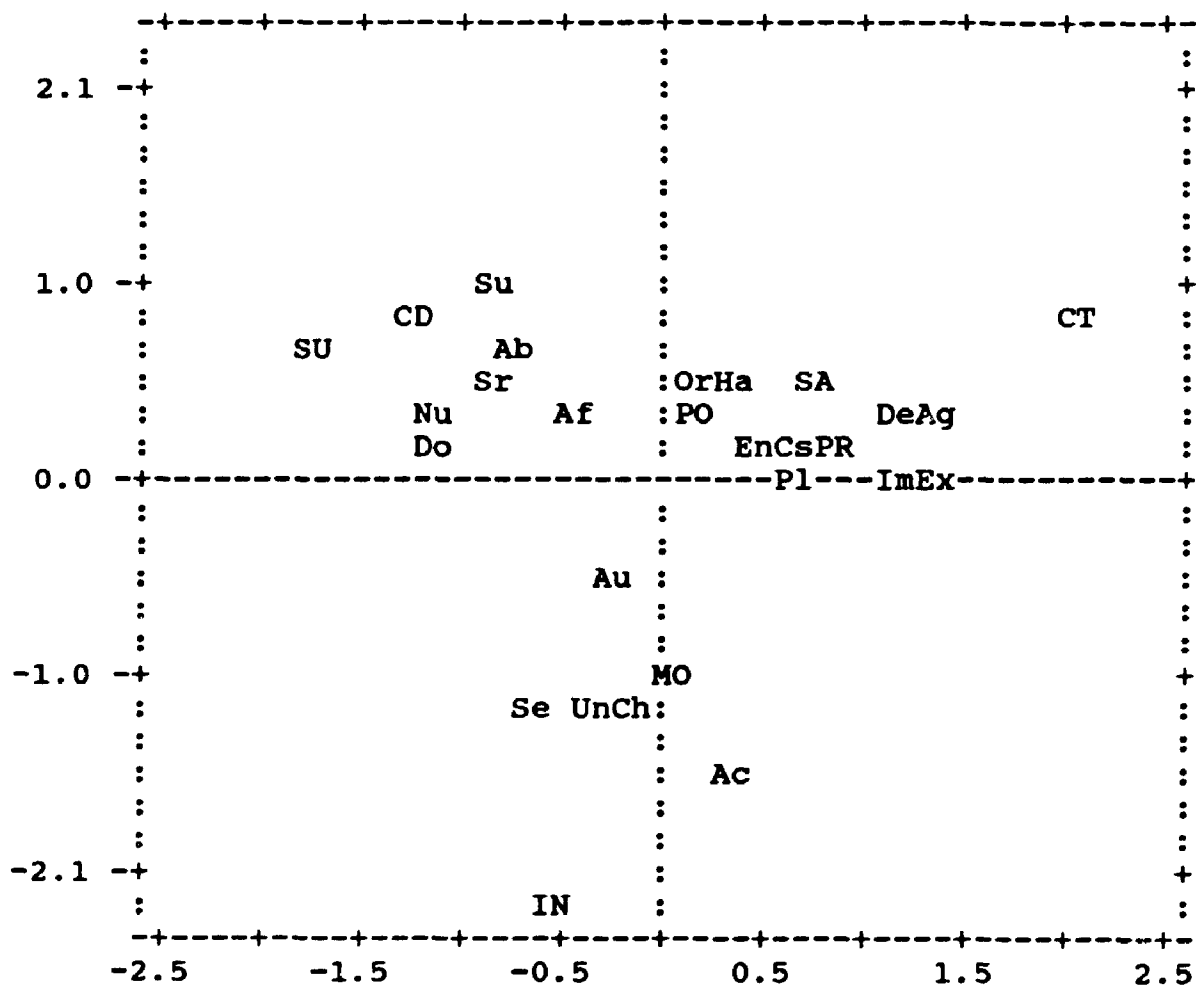manager matrices
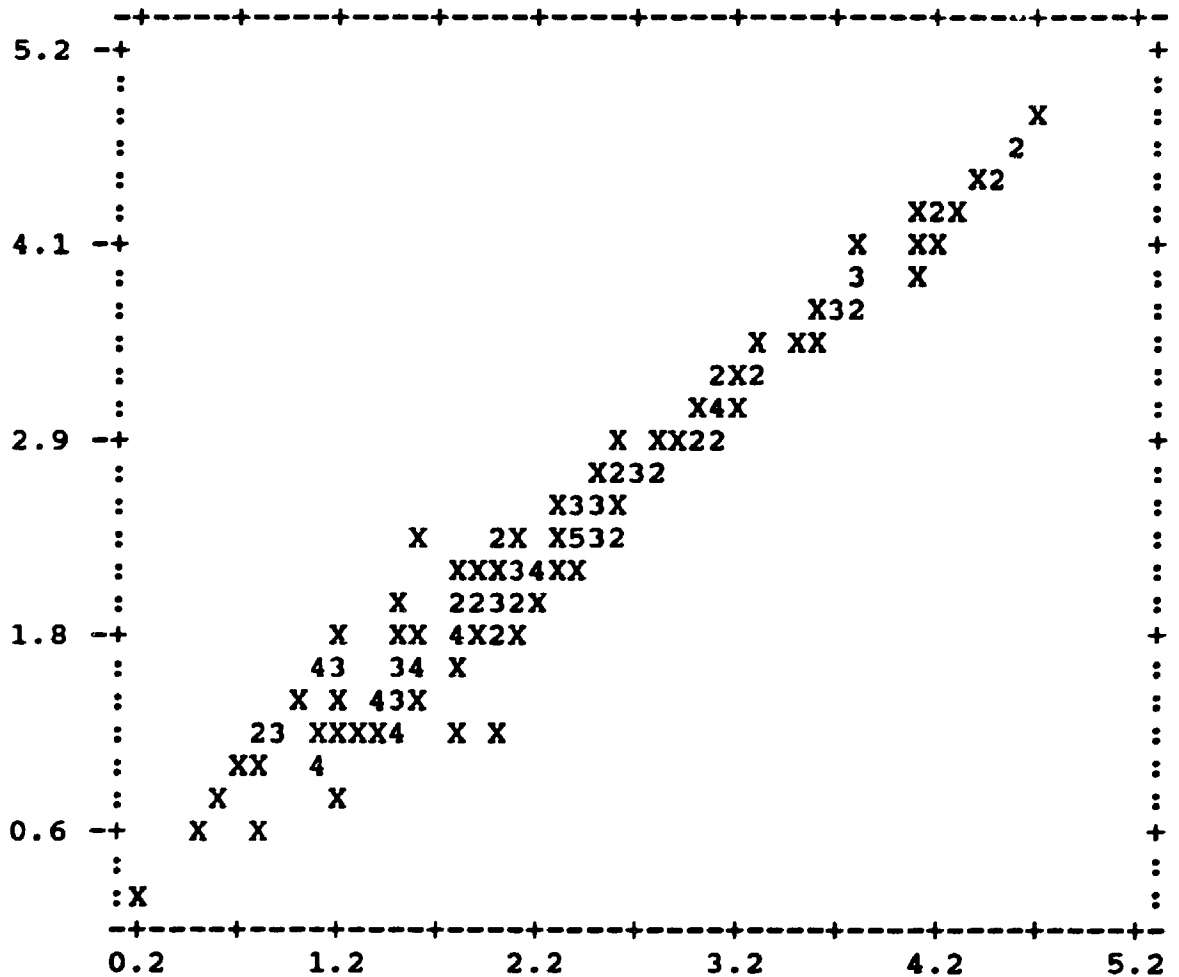
Table 16

<u>Three-dimensional loadings from a Nonmetric Classical
Multidimensional Unfolding of t'e, personality x
performance, Behavioural Judgm ..ts Questionnaire Form B: 23
Personnel manager matrices</u>

Stimulus Number	Name	Plot Symbol	DIMENSION		
			I	II	III
COLUMN					
1	Planning/Org.	PO	1.85	0.42	0.91
2	Controlling	CT	0.61	0.88	-1.78
3	Supervising	SU	-1.61	1.23	1.06
4	Coordinating	CD	-0.93	1.59	-0.10
5	Monitoring Ind.	MO	1.85	0.22	0.86
6	Sales/Marketing	SA	-2.10	-0.05	0.77
7	Public Relations	PR	-1.85	0.33	-0.44
8	Innovation	IN	0.91	-1.79	-0.34
ROW					
1	Abasement	Ab	-0.39	0.32	1.47
2	Achievement	Ac	0.71	-0.33	-1.14
3	Affiliation	Af	-1.60	0.69	0.21
4	Aggression	Ag	0.62	-0.28	-1.58
5	Autonomy	Au	2.16	-2.27	0.55
6	Change	Ch	-0.75	-0.70	-0.83
7	Cognitive structure	Cs	1.29	0.58	0.46
8	Defendence	De	0.34	-0.74	-0.57
9	Dominance	Do	0.64	0.28	-0.76
10	Endurance	En	1.10	-0.10	-0.01
11	Exhibition	Ex	-1.62	-0.93	0.51
12	Harmavoidance	Ha	0.85	0.37	0.67
13	Impulsivity	Im	-1.11	-0.59	-0.87
14	Nurturance	Nu	-0.12	1.35	-0.01
15	Order	Or	1.13	1.10	-0.09
16	Play	Pl	-1.80	-1.00	0.41
17	Sentience	Se	-0.93	-0.74	0.39
18	Social Recognition	Sr	-0.10	0.33	-0.65
19	Succorance	Su'	-0.19	0.66	0.26
20	Understanding	Un	1.05	-0.93	0.91

Figure 8a

Deriv€d Stimulus Configuration for Dimension I
(Horizontal) versus Dimension II (Vertical) of
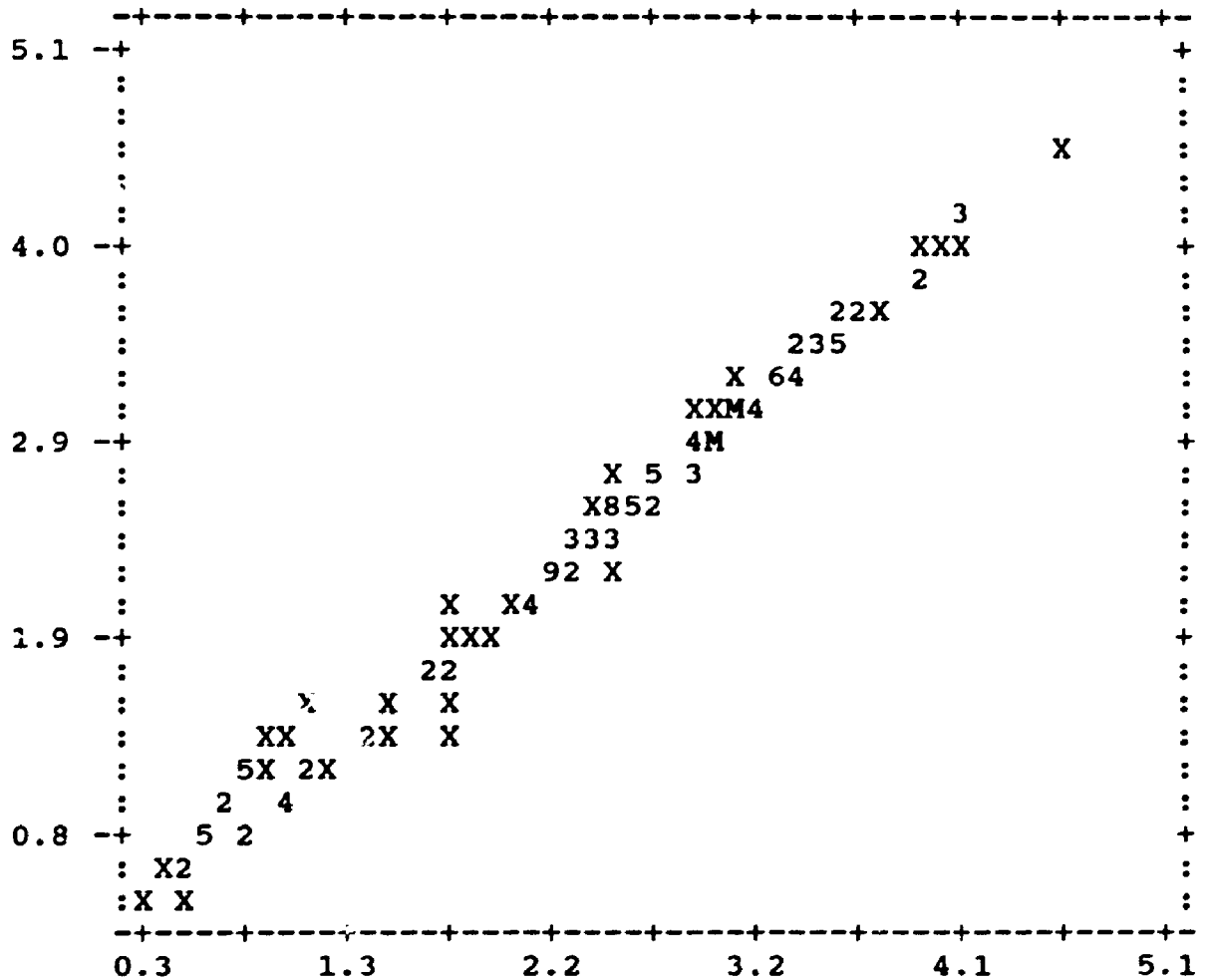the three dimensional loadings from a Nonmetric
Classical Multidimensional Unfolding of the,
personality x performance, Behavioural Judgments
Questionnaire Form B: 23 Personnel manager matrices

```
         -+----+----+----+----+----+----+----+----+----+----+-
          :                          :                        :
  2.1  -+ :                          :                        +
          :                          :                        :
          :                          :                        :
          :              CD          :                        :
          :                          Nu                       :
          :         SU               :                        :
  1.0  -+ :                          :            Or          +
          :                          :        CT              :
          :         Af               Su:           Cs         :
          :                          :                        :
          :         PR           Ab  Sr    DoHa          PO   :
          :                          :                     MO :
  0.0  -+-----SA---------------------------------------------+
          :                          :                        :
          :                          :         En             :
          :                          :    AgAc                :
          :              Im          :                        :
          :              SeCh        : De                     :
          :         Ex               :      Un                :
 -1.0  -+ :       Pl                 :                        +
          :                          :                        :
          :                          :                        :
          :                          :                        :
          :                          :    IN                  :
          :                          :                        :
 -2.1  -+ :                          :                        +
          :                          :                  Au    :
         -+----+----+----+----+----+----+----+----+----+----+-
         -2.5      -1.5      -0.5      0.5       1.5       2.5
```

Figure 8b

Derived Stimulus Configuration for Dimension I
(Horizontal) versus Dimension III (Vertical) of
the three dimensional loadings from a Nonmetric
Classical Multidimensional Unfolding of the,
personality x performance, Behavioural Judgments
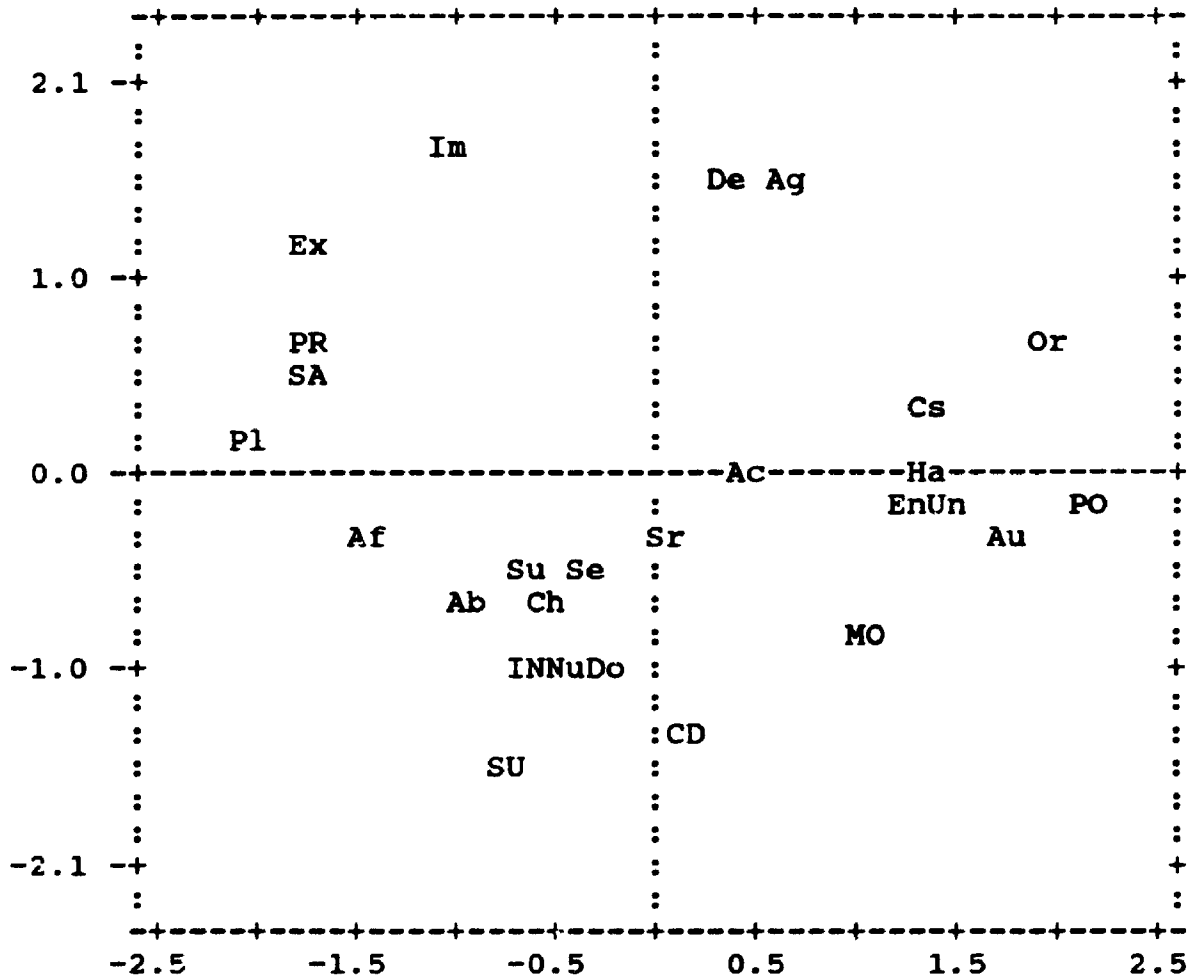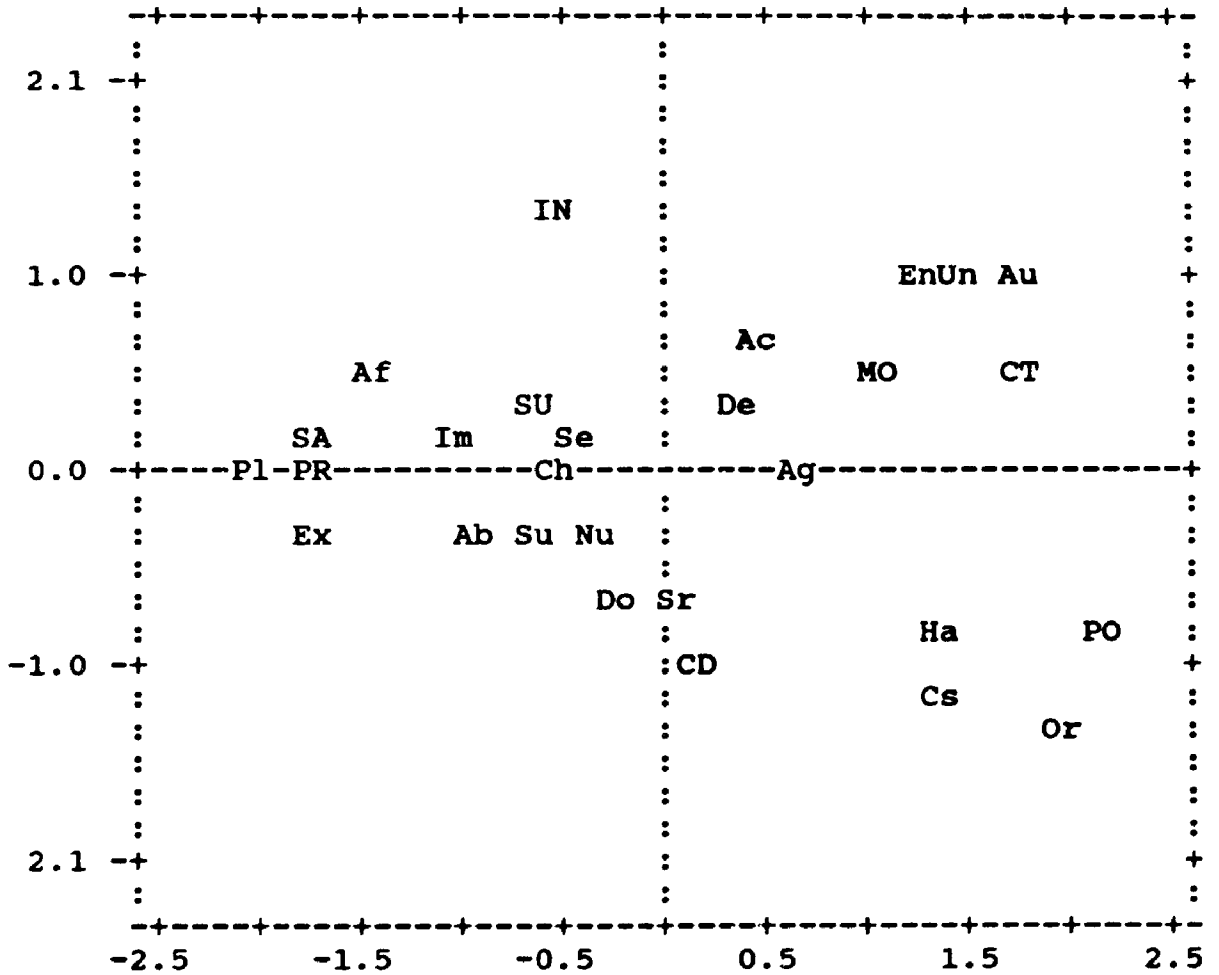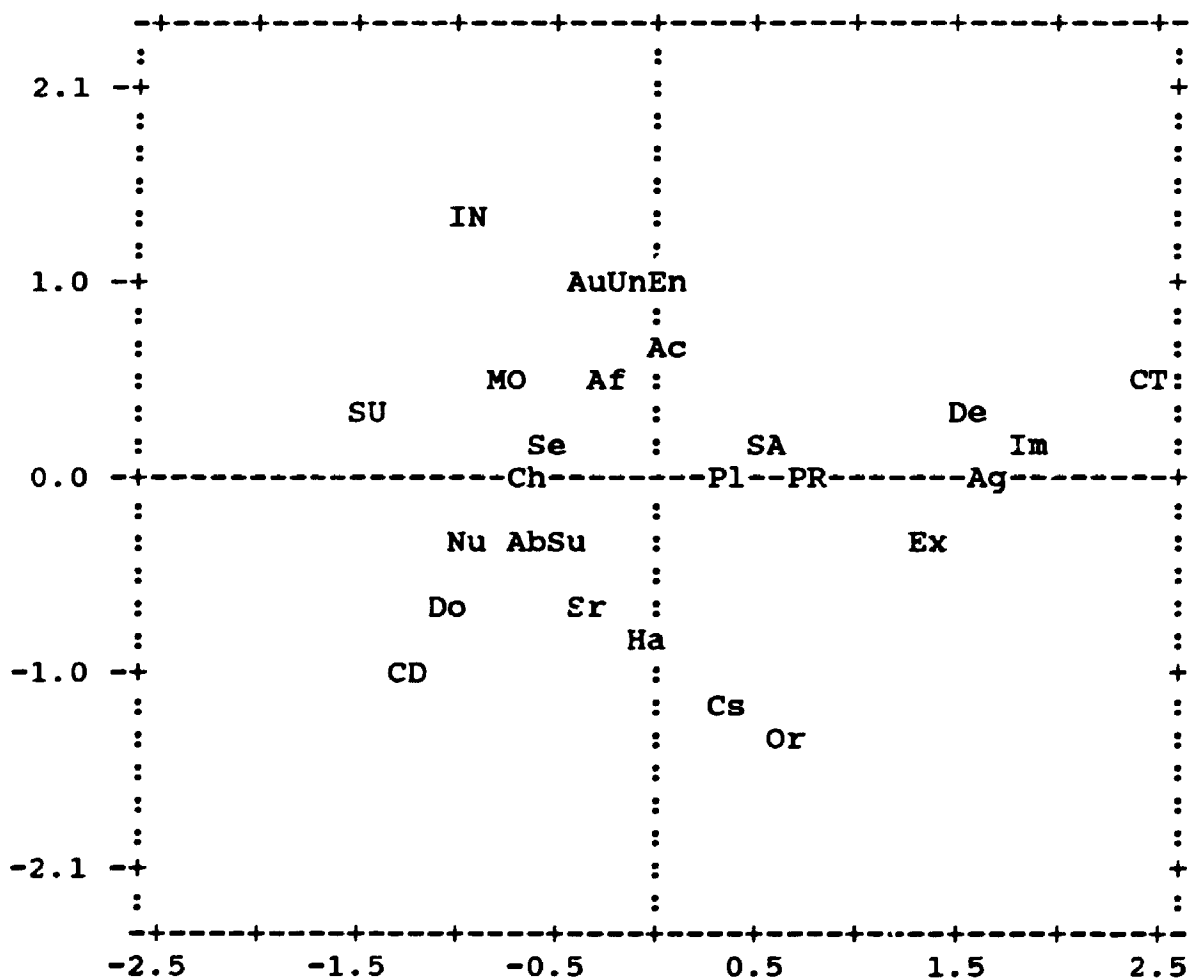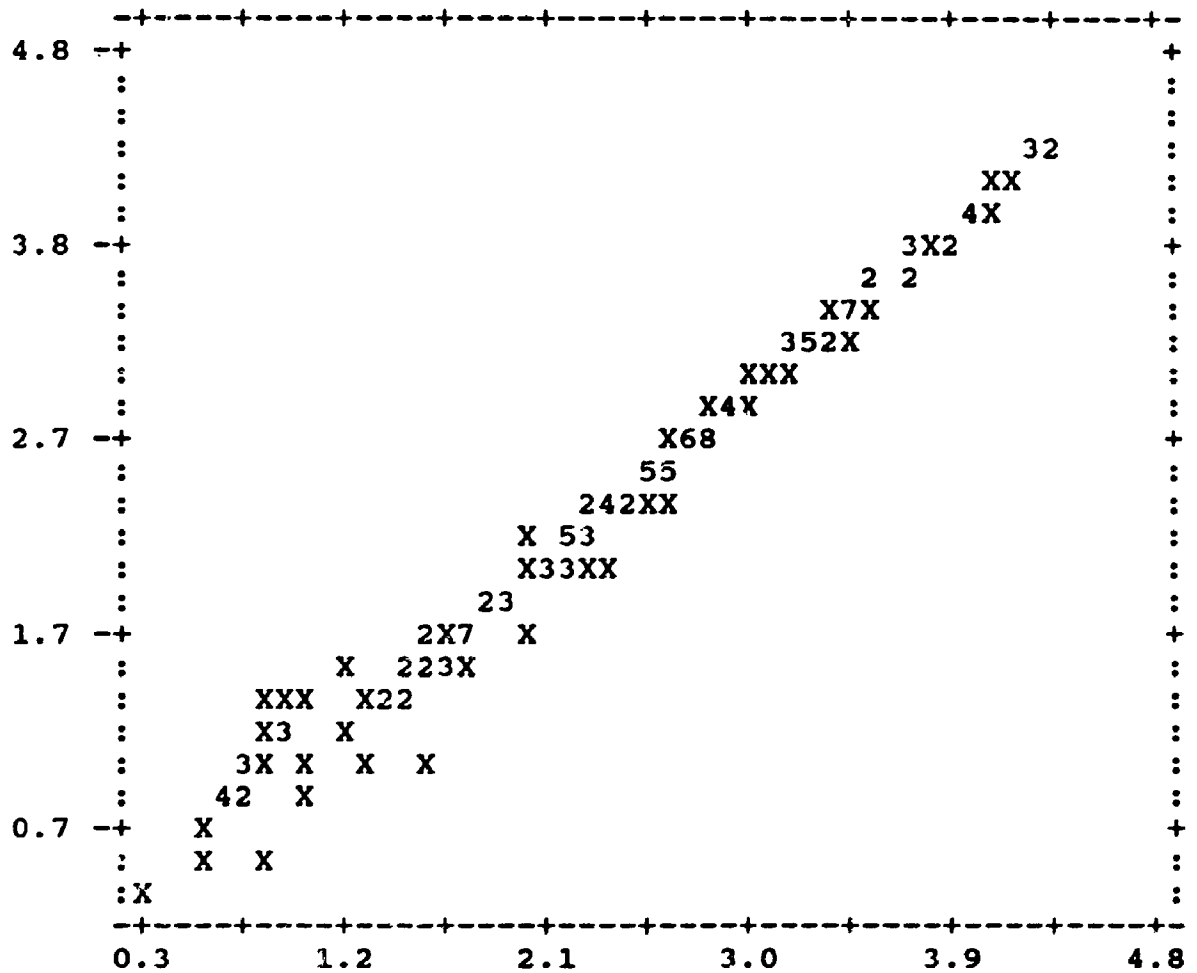Questionnaire Form B: 23 Personnel manager matrices

```
         -+----+----+----+----+----+----+----+----+----+-
          :                            :                  :
  2.1  -+                              :                  +
          :                            :                  :
          :                            :                  :
          :                        Ab  :                  :
          :                            :                  :
          :                            :                  :
  1.0  -+              SU              :                  +
          :                            :        Un    POMO :
          :       SA                   :        Ha          :
          :         Ex                 :              Cs      Au  :
          :       Pl      Se      Su:            :
          :         Af                 :                  :
  0.0  -+-----------------------------Nu---------Or-------------+
          :                            :                  :
          :                  CD         :          IN     :
          :       PR                   :    De            :
          :                            :Sr   Do           :
          :             Im Ch          :                  :
 -1.0  -+                              :                  +
          :                            :        Ac        :
          :                            :                  :
          :                            :        Ag        :
          :                            :        CT        :
          :                            :                  :
 -2.1  -+                              :                  +
          :                            :                  :
         -+----+----+----+----+----+----+----+----+----+-
         -2.5       -1.5       -0.5       0.5       1.5       2.5
```

Figure 8c

Derived Stimulus Configuration for Dimension II
(Horizontal) versus Dimension III (Vertical) of
the three dimensional loadings from a Nonmetric
Classical Multidimensional Unfolding of the,
personality x performance, Behavioural Judgments
Questionnaire Form B: 23 Personnel manager matrices

```
      -+----+----+----+----+----+----+----+----+----+-
       :                    :                        :
2.1  -+                     :                        +
       :                    :                        :
       :                    :  Ab                    :
       :                    :                        :
       :                    :                        :
1.0  -+                     :               SU       +
       :                    :                        :
       :           Un       : MOPO                   :
       :                    SA  Ha                    :
       :   Au               Ex       :     Cs         :
       :                    Pl Se    :     Su         :
       :                    :        Af               :
0.0  -+--------------------En---------OrNu-----------+
       :                    :                        :
       :       IN           :              CD        :
       :            De       : PR                    :
       :                    : Sr                     :
       :         ChIm        :                        :
-1.0 -+                     :                        +
       :              Ac    :                        :
       :              Ag    :                        :
       :                    :     CT                 :
       :                    :                        :
-2.1 -+                     :                        +
       :                    :                        :
      -+----+----+----+----+----+----+----+----+----+-
      -2.5    -1.5    -0.5    0.5     1.5     2.5
```

Figure 8d

Scatterplot (Plot of Linear Fit): Distances
(Vertical) versus Disparities (Horizontal)
for the three dimensional Nonmetric Classical
Multidimensional Unfolding of the,
personality x performance, Behavioural
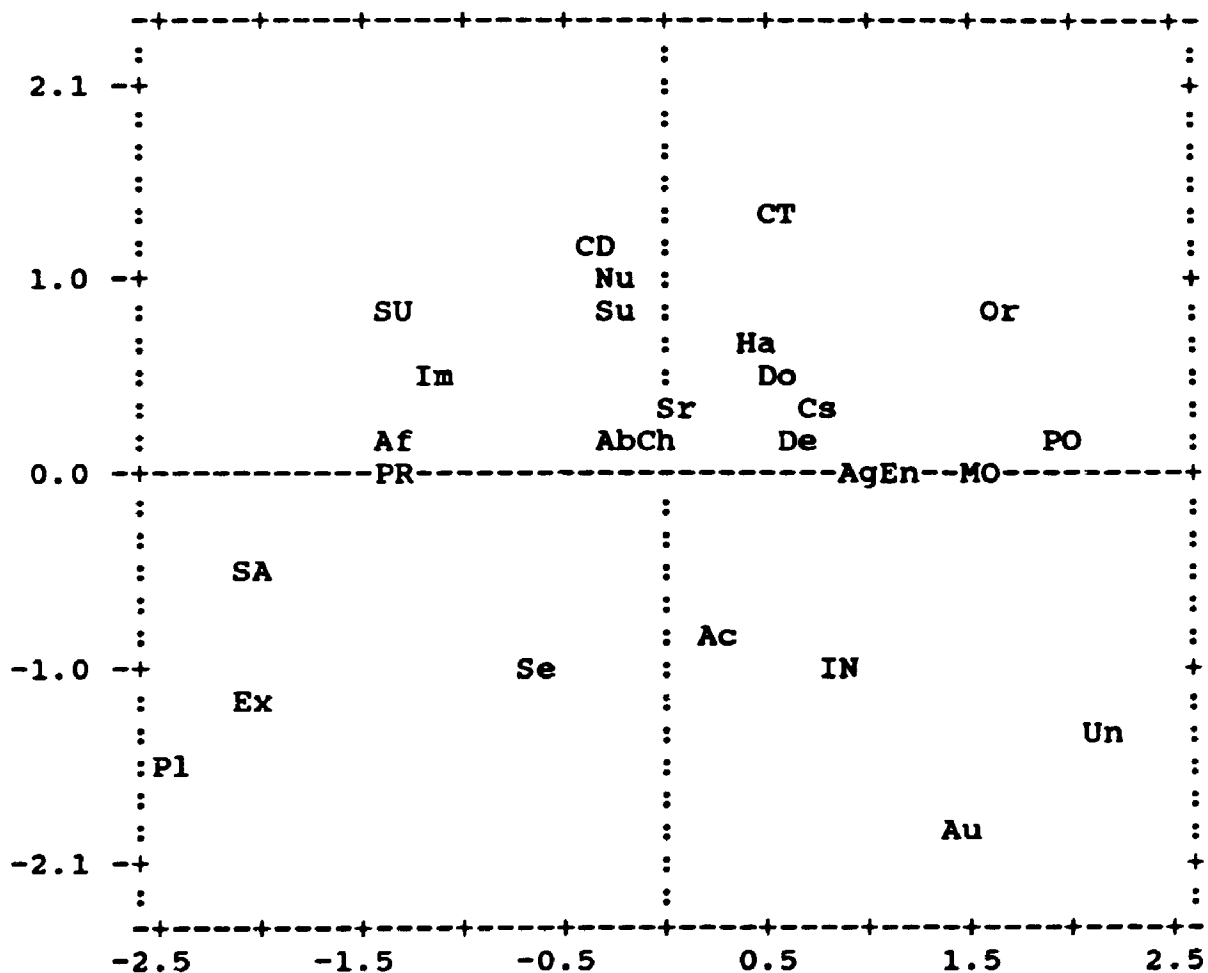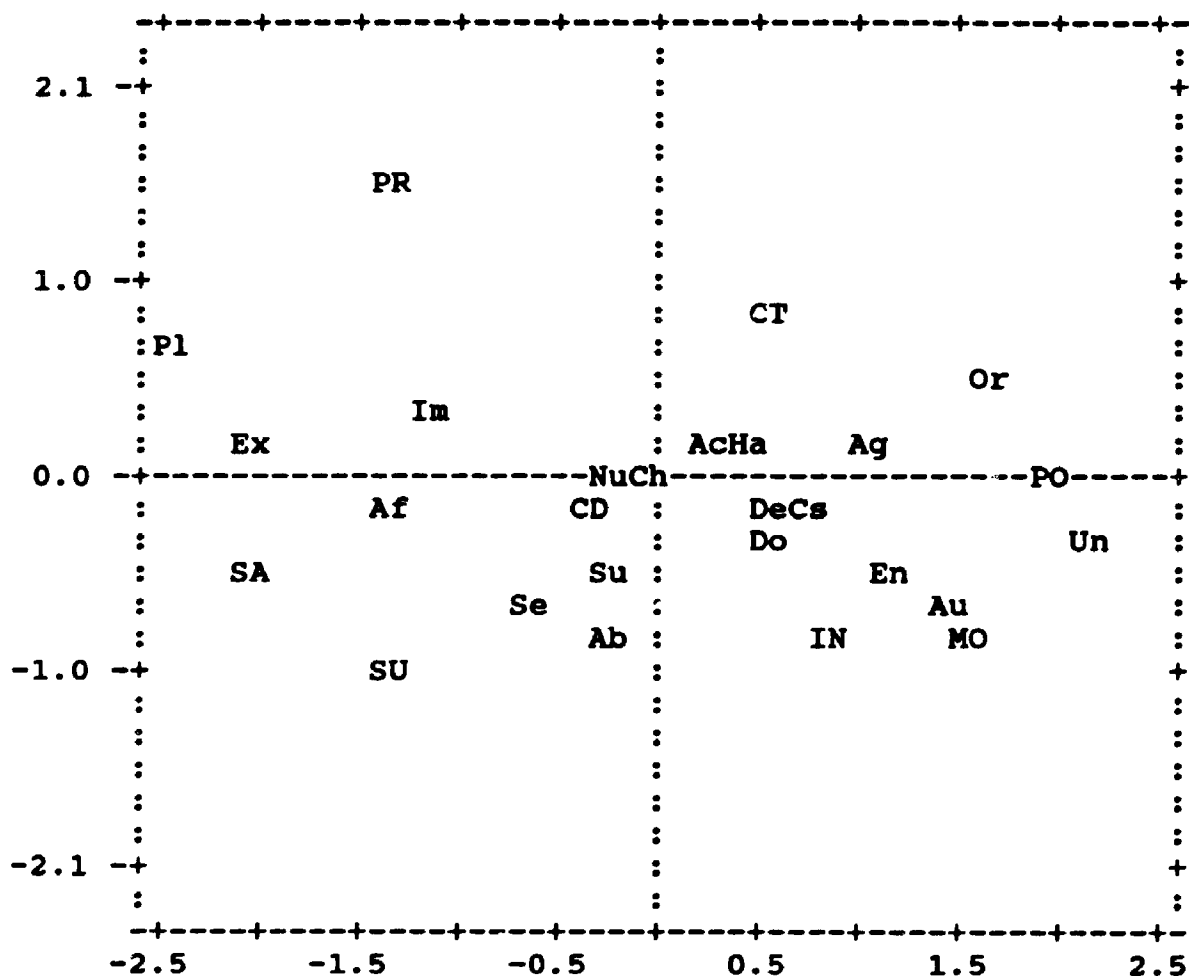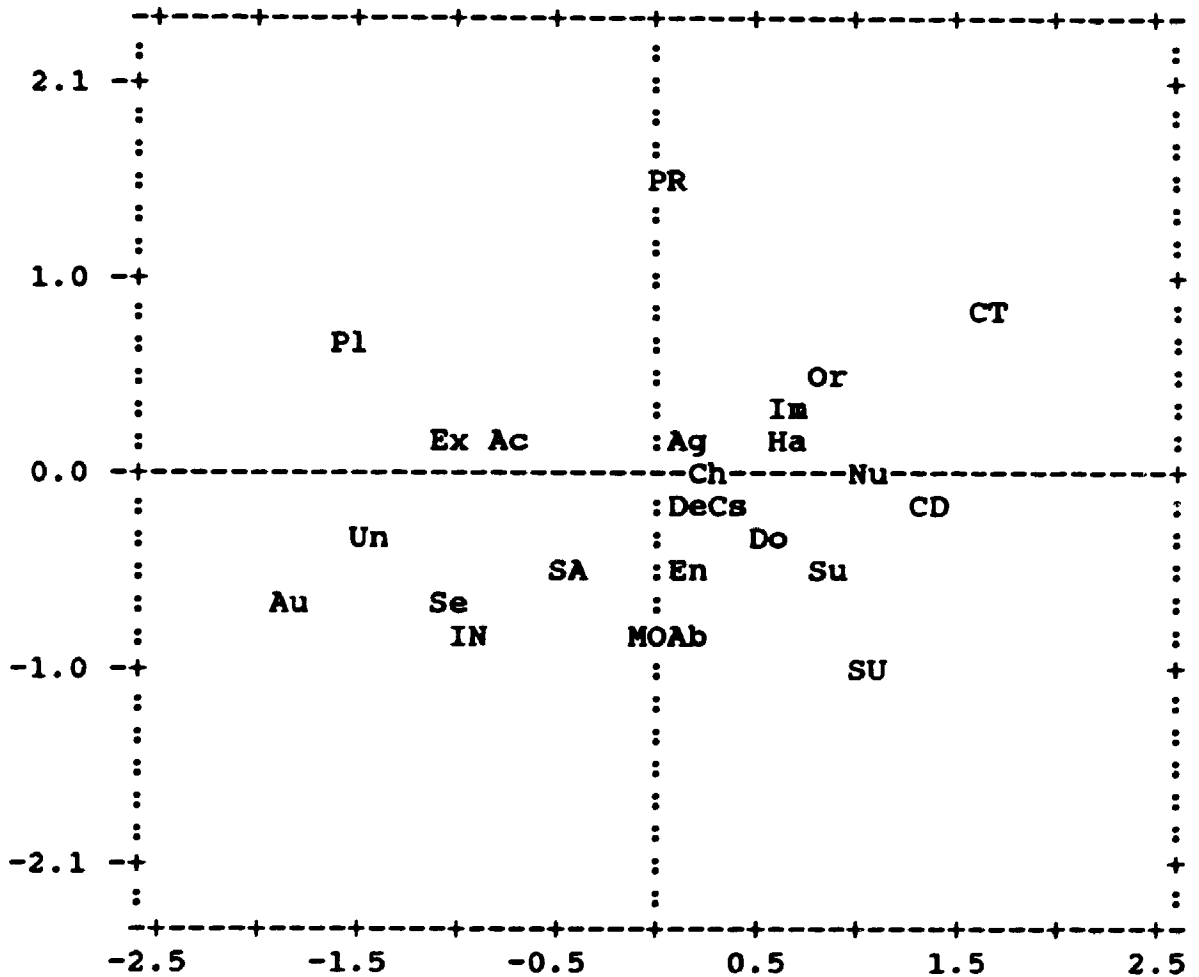Judgments Questionnaire Form B: 23 Personnel-
manager matrices

```
        -+----+----+----+----+----+----+----+----+----+----+-
5.7  -+                                                       +
      :                                                       :
      :                                                       :
      :                                           2           :
      :                                     X                 :
      :                                     X                 :
4.5  -+                                                       +
      :                                                       :
      :                                 X                     :
      :                              XX                       :
      :                            32                         :
      :                          X8                           :
3.4  -+                        X25X                           +
      :                        42 2                           :
      :                      X64X                             :
      :                    353 X                              :
      :                   323X                                :
      :                 X7M3X                                 :
2.2  -+              X4332                                     +
      :          X     26XX                                   :
      :        X2   X X                                       :
      :        2X  3X  X2                                     :
      :      X2 2XXXX                                         :
      :       32 X  X                                         :
1.1  -+    4   2                                              +
      :  XX        X                                          :
      :  X                                                    :
        -+----+----+----+----+----+----+----+----+----+----+-
        0.5       1.5       2.6       3.6       4.6       5.6
```

Selection of the Appropriate Rater Inferential Network

There were similarities and differences between the multidimensional scaling results of Form A and Form B. In terms of Dimension I, the performance items of Sales and Public relations were positioned directly opposite the items of Monitoring business indicators and Planning and Organizing for both of the forms. In terms of Dimension II, in Form A the performance behaviours of Supervising, Innovation, and Coordinating were clustered together at one end whereas Controlling was at the opposite pole. In Form B, Dimension II, the performance behaviours of Supervising, Controlling, and Coordinating were clustered together at one end whereas Innovation was at the opposite pole.

In Form A the personality behaviours are distinctly clustered into four groups which are consistent for both accountant managers and personnel managers. However, for Form B the personality behaviours are neither distinctly clustered nor are they reliably reproduced from accountant-managers to personnel managers.

The matrices from all raters completing behavioural stimulus set Form A were combined to create a rectangular personality by performance matrix representing the data from 44 matrices. A nonmetric classical multidimensional unfolding was performed on the matrix, the output was rotated to a varimax criterion and the configurations were plotted on figures 9a to 9c.

An attempt was made to interpret raters' ·lustering of behaviours along the most stable Dimensions I+, I-, II+, and II- (Figure 9a). On examination of Dimension I personality and performance behaviours it was observed that Dimension I+ behaviours may be categorized or labelled as more Task-focused behaviours whereas Dimension I- behaviours are representative of Interaction-focused behaviours. Dimension II+ behaviours appear to represent Self-focused behaviours while Dimension II- behaviours appear to be Other-focused behaviours.

Once the mapping of raters' inferential networks for performance judgments was accomplished it was necessary to demonstrate that this inferential network impacts upon actual ratings of performance. This then was the focus of Study 2 as behavioural stimuli from Dimension I+ and I- were manipulated in simulated annual performance appraisals.

Table 17

Varimax rotated and scaled three-dimensional loadings from a
Nonmetric Classical Multidimensional Unfolding of the
combined, personality x performance, Behavioural Judgments
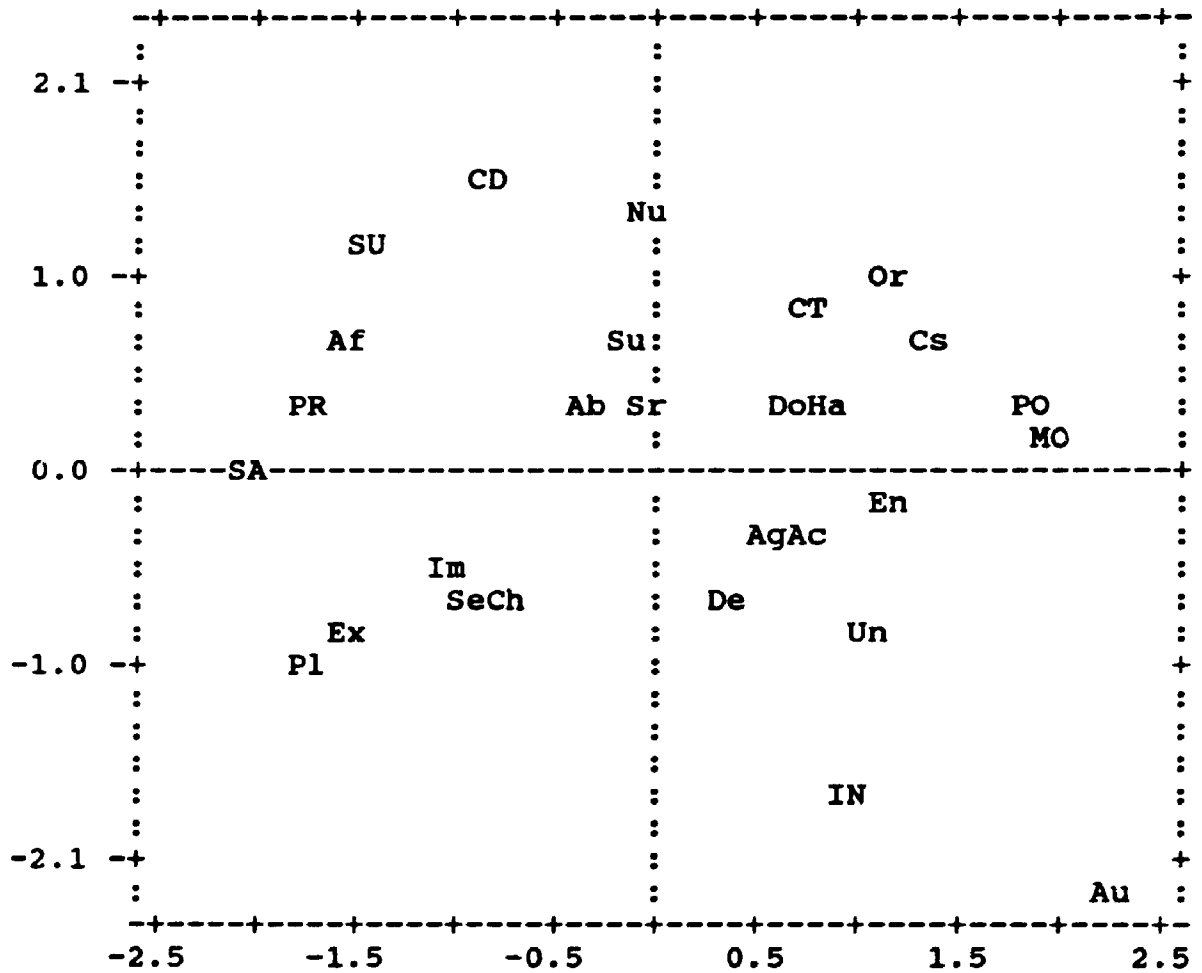Questionnaire Form A: 44 Matrices

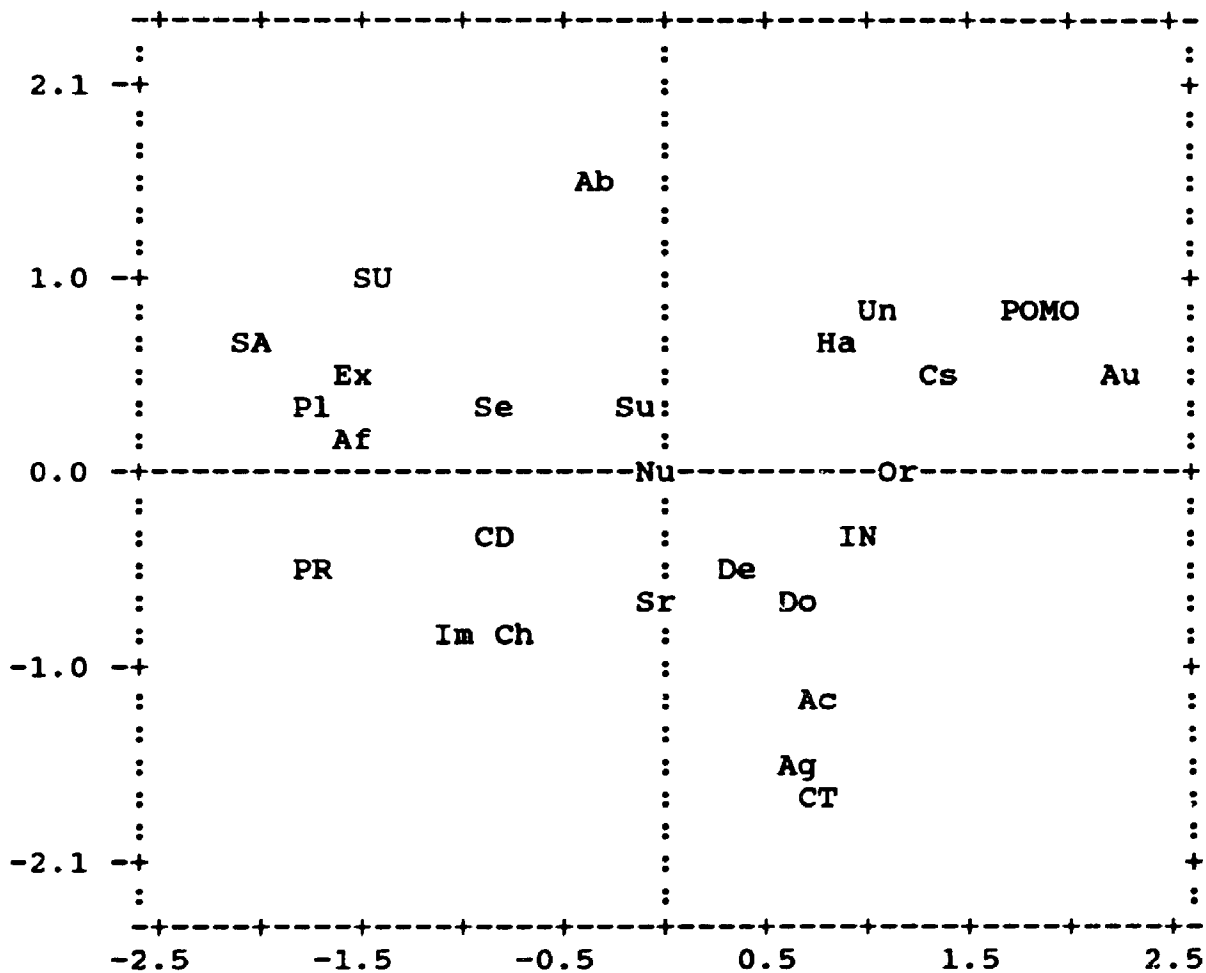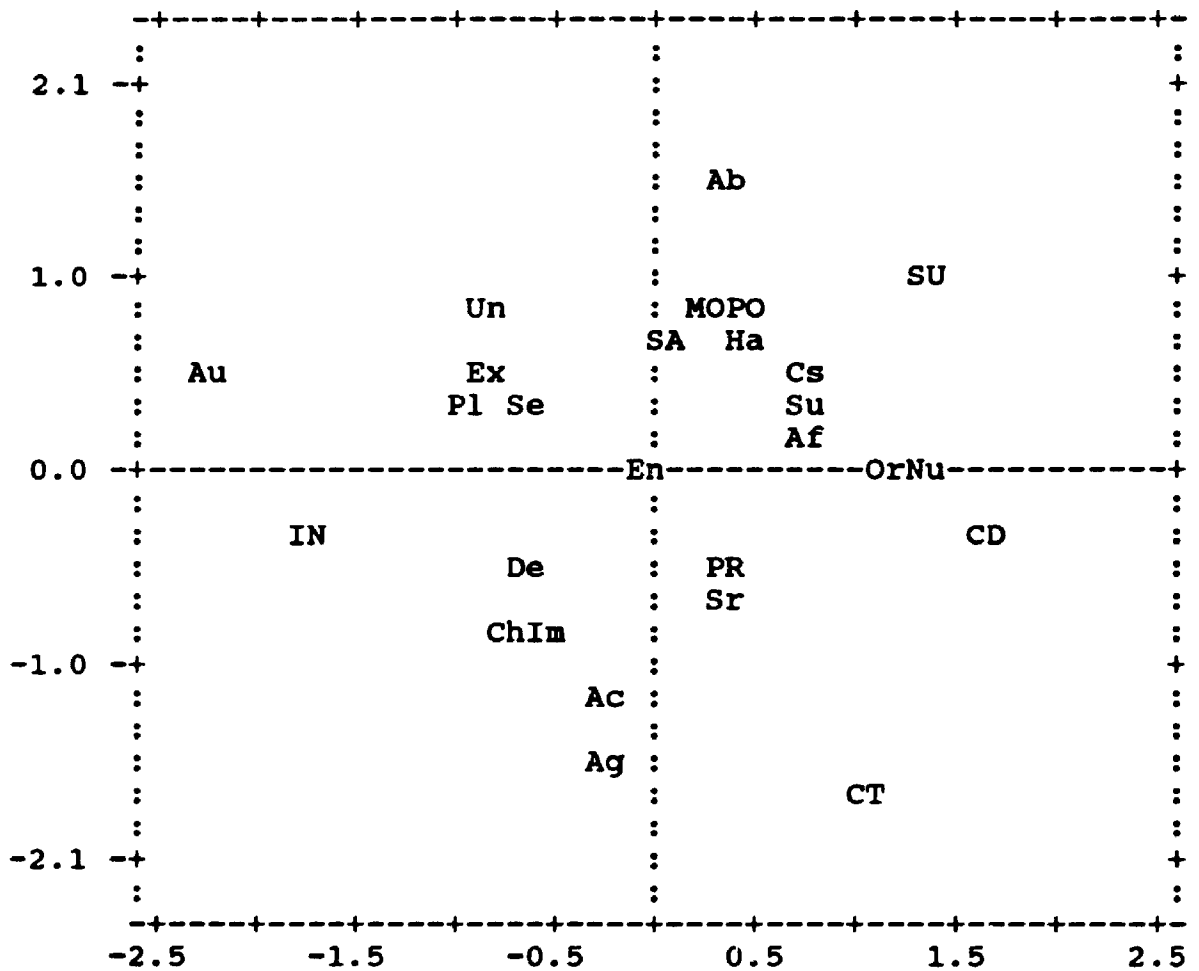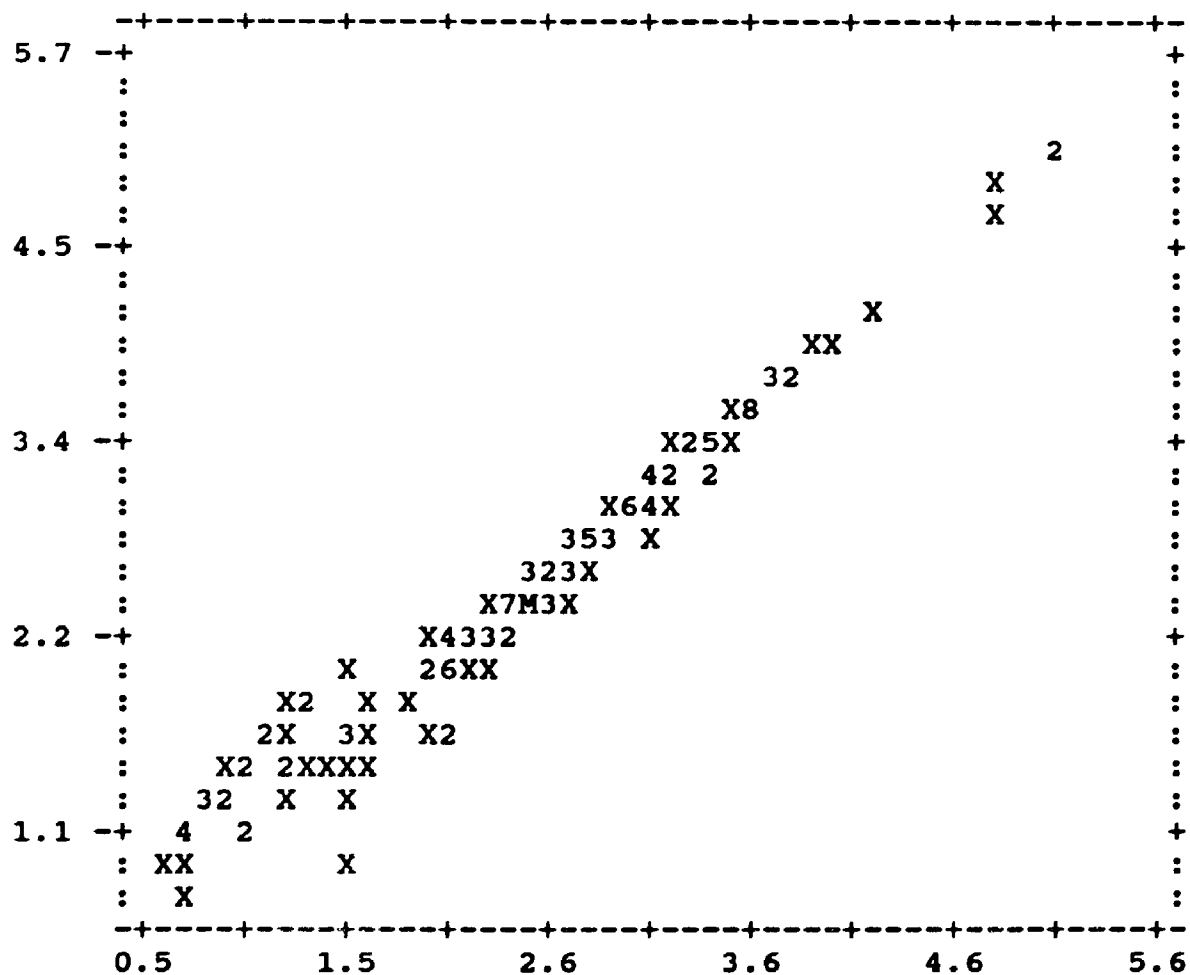| Stimulus Number | Stimulus Name | Plot Symbol | DIMENSION | | |
			I	II	III
COLUMN					
1	Planning/Org.	PO	0.77	0.02	-0.70
2	Controlling	CT	0.31	1.08	-0.58
3	Supervising	SU	0.14	-0.63	0.57
4	Coordinatin	CD	0.22	-0.69	-0.13
5	Monitoring Ind.	MO	0.68	0.03	0.09
6	Sales	SA	-0.88	0.06	0.35
7	Public relations	PR	-0.88	0.13	0.32
8	Innovation	IN	0.19	0.11	0.84
ROWS					
9	Abasement	Ab	-0.25	-0.43	0.18
10	Achievement	Ac	0.21	0.35	0.21
11	Affiliation	Af	-0.57	-0.35	0.40
12	Aggression	Ag	0.05	0.61	-0.39
13	Autonomy	Au	0.93	0.19	-0.01
14	Change	Ch	-0.08	-0.03	0.35
15	Cognitive structure	Cs	0.30	0.10	-0.83
16	Defendence	De	-0.14	0.53	-0.27
17	Dominance	Do	-0.04	-0.67	0.08
18	Endurance	En	0.45	0.07	-0.28
19	Exhibition	Ex	-0.95	0.38	0.13
20	Harmavoidance	Ha	0.35	-0.07	-0.50
21	Impulsivity	Im	-0.67	0.66	0.16
22	Nurturance	Nu	0.01	-0.49	0.20
23	Order	Or	0.33	0.12	-0.82
24	Play	Pl	-1.00	-0.24	0.33
25	Sentience	Se	-0.06	-0.20	0.36
26	Social recognition	Sr	0.01	-0.37	-0.11
27	Succorance	Su	-0.16	-0.42	-0.12
28	Understanding	Un	0.75	0.15	0.19

Figure 9a

Plot of the derived stimulus configuration for Dimension I
(Horizontal) versus Dimension II (Vertical) of the varimax
rotated and scaled three dimensional loadings from a
Classical Multidimensional Unfolding of the combined,
personality x performance, (Personnel managers and
Accountant managers) Behavioural Judgments Questionnaire
Form A: 44 matrices

Planning and Organizing	- PO	Monitoring Business Indicators	- MO
Controlling	- CT	Sales and Marketing	- SA
Supervising	- SU	Public Relations	- PR
Coordinating	- CD	innovation	- IN

Figure 9b

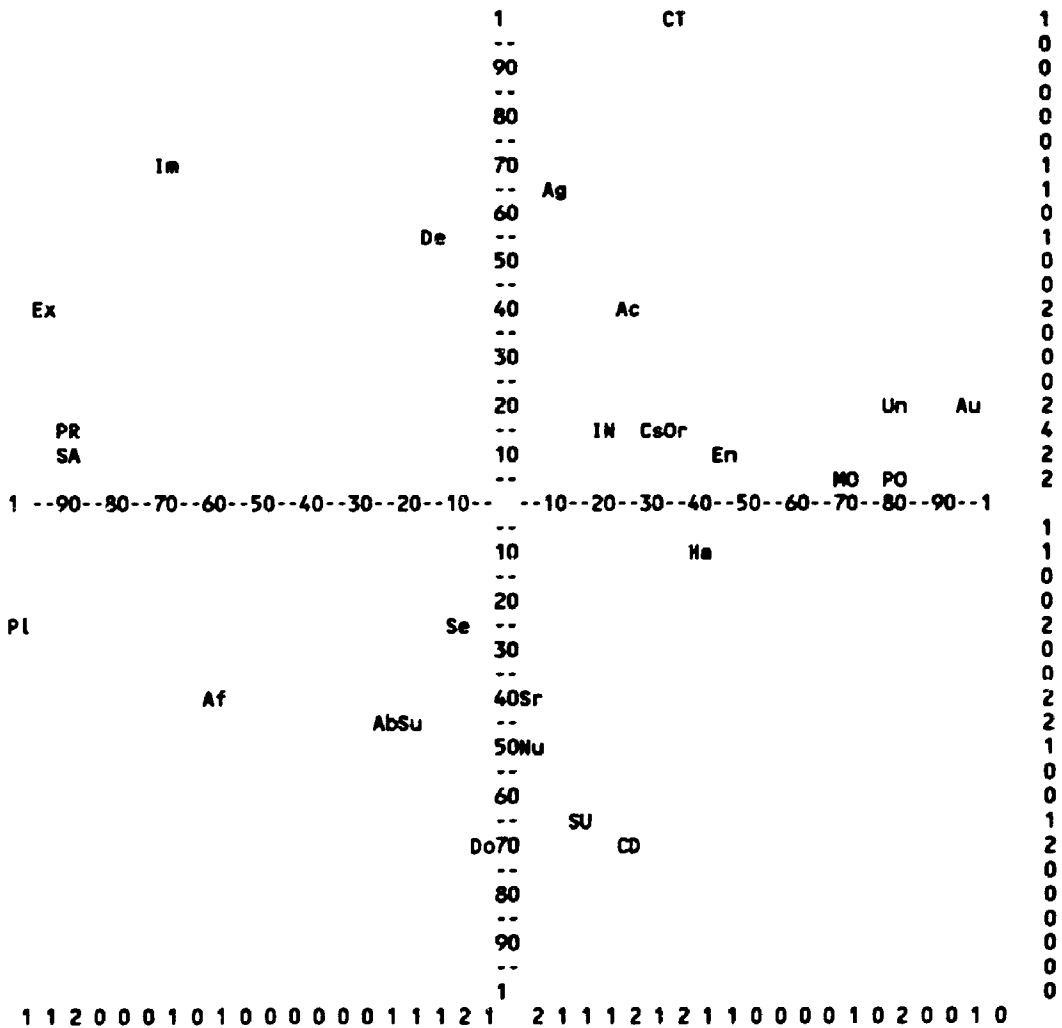Plot of the derived stimulus configuration for Dimension I (Horizontal) versus Dimension III (Vertical) of the varimax rotated and scaled three dimensional loadings from a Classical Multidimensional Unfolding of the combined, personality x performance, (Personnel managers and Accountant managers) Behavioural Judgments Questionnaire Form A: 44 matrices

```
                                                1                                       0
                                                --                                      0
                                                90                                      0
                                                --       IN                             1
                                                80                                      0
                                                --                                      0
                                                70                                      0
                                                --                                      0
                                                60   SU                                 1
                                                --                                      0
                                                50                                      0
                                                --                                      0
        SA          Af                       Se 40                                      3
Pl PR                                        Ch --                                      3
                                                30                                      0
                                                --Nu     Ac                             2
             Im                    Ab           20                         Un           3
   Ex                                           --                                      1
                                                10                         MO           2
                                                --                                      0
1 --90--80--70--60--50--40--30--20--10--   --10--20--30--40--50--60--70--80--90--1
                                                --                              Au      1
                                                10                                      0
                      Su                        --       CD                             3
                                                20                                      0
                                                --                                      0
                      De                        30         En                           2
                                                --                                      0
                                                40 Ag                                   1
                                                --                                      0
                                                50         Ha                           1
                                                --                                      0
                                                60         CT                           1
                                                --                                      0
                                                70                                      0
                                                --                             PO       1
                                                80                                      0
                                                --       CsOr                           2
                                                90                                      0
                                                --                                      0
                                                1                                       0
1 1 2 0 0 0 1 0 1 0 0 0 0 0 0 1 1 1 2 1   2 1 1 1 2 1 2 1 1 0 0 0 0 1 0 2 0 0 1 0
```

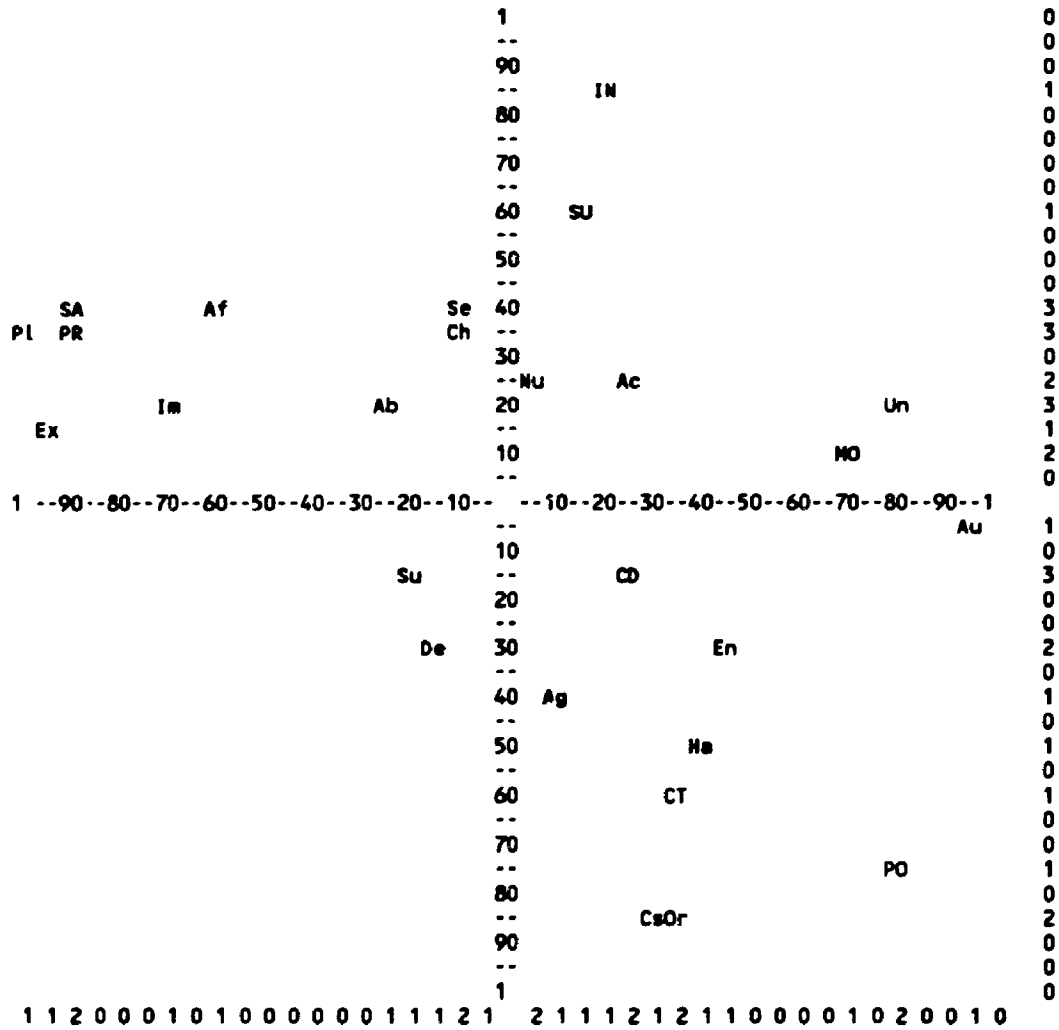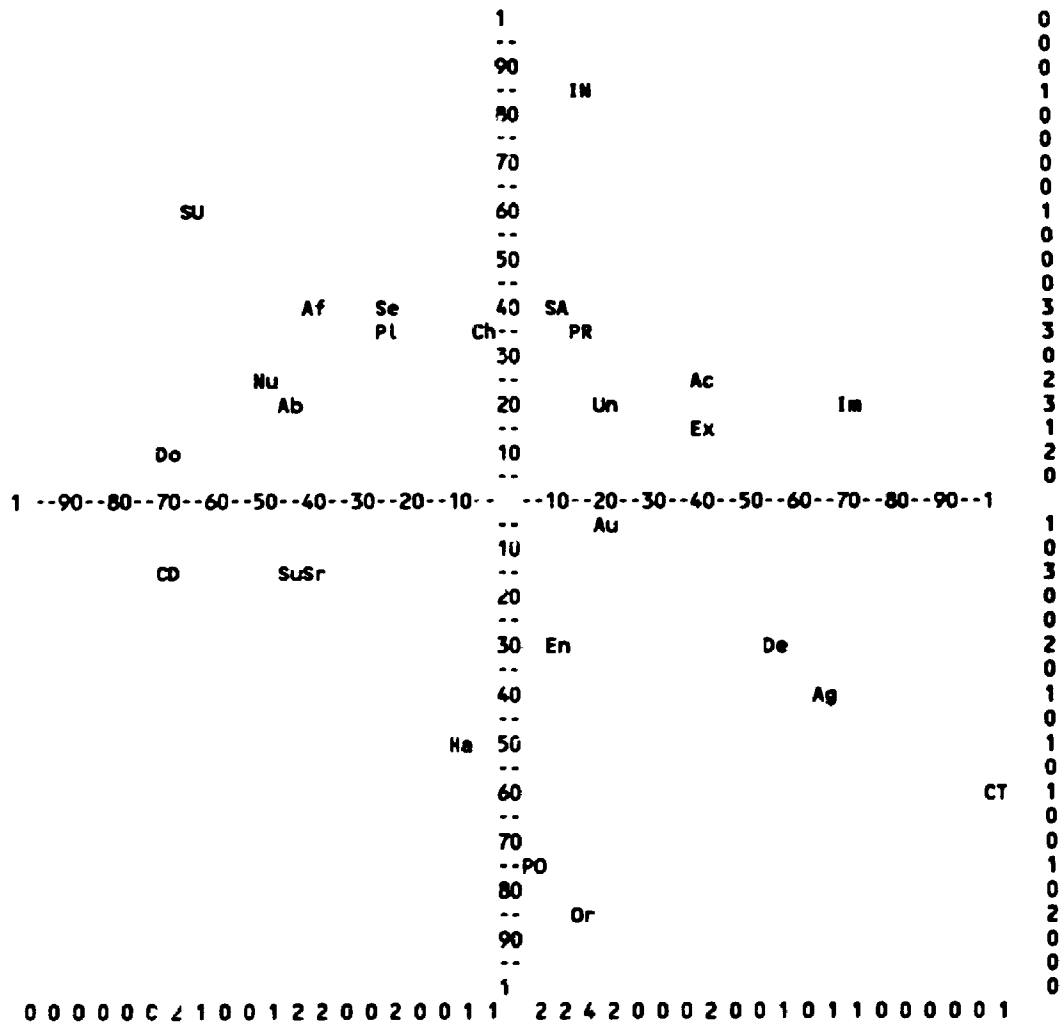|			
Planning and Organizing	- PO	Monitoring Business Indicators	- MO
Controlling	- CT	Sales and Marketing	- SA
Supervising	- SU	Public Relations	- PR
Coordinating	- CD	Innovation	- IN

Figure 9c

Plot of the derived stimulus configuration for Dimension II
(Horizontal) versus Dimension III (Vertical) of the varimax
rotated and scaled three dimensional loadings from a
Classical Multidimensional Unfolding of the combined,
personality x performance, (Personnel managers and
Accountant managers) Behavioura⊥ Judgments Questionnaire
Form A: 44 matrices

```
                                        1                                       0
                                        --                                      0
                                        90                                      0
                                        --      IN                              1
                                        AO                                      0
                                        --                                      0
                                        70                                      0
                                        --                                      0
                SU                      60                                      1
                                        --                                      0
                                        50                                      0
                                        --                                      0
                    Af    Se           40  SA                                   3
                          Pl      Ch--     PR                                   3
                                        30                                      0
                Nu                      --            Ac                        2
                    Ab                  20      Un                Im            3
                                        --              Ex                      1
            Do                          10                                      2
                                        --                                      0
1 --90--80--70--60--50--40--30--20--10-- --10--20--30--40--50--60--70--80--90--1
                                        --      Au                              1
                                        1U                                      0
            CD       SuSr               --                                      3
                                        2O                                      0
                                        --                                      0
                                        30  En              De                  2
                                        --                                      0
                                        40                      Ag              1
                                        --                                      0
                              Ha        5G                                      1
                                        --                                      0
                                        60                                CT    1
                                        --                                      0
                                        70                                      0
                                        --PO                                    1
                                        80                                      0
                                        --  Or                                  2
                                        90                                      0
                                        --                                      0
                                        1                                       0
000000c∠1001220020011  224200020010110000001
```

Planning and Organizing	- PO	Monitoring Business Indicators	- MO
Controlling	- CT	Sales and Marketing	- SA
Supervising	- SU	Public Relations	- PR
Coordinating	- CO	Innovation	- IN

Study 1: Discussion

This first study contributes to the literature by demonstrating that raters' implicit theories of personality and performance not only overlapped but were definable along a reduced number of dimensions. Three dimensions were shown to be sufficient to describe raters' implicit theories. Of these the first two were the most stable. Dimension I+ behaviours were defined as Task-focused behaviours whereas Dimension I- behaviours were labelled as Interaction-focused behaviours. Dimension II+ behaviours were defined as Self-focused behaviours while Dimension II- behaviours appear to be Other-focused behaviours. These two dimensions may be examined in relation to the dimensions obtained when earlier researchers examined multidimensional scalings of personality traits alone.

Walters and Jackson (1966) performed a multidimensional scaling of 30 personality trait-descriptive adjectives and obtained six dimensions of which three were stable dimensions. Two of the stable dimensions, Interpersonal affectivity and Charitable-uncharitable, may be considered to be consistent with the findings of the current study. That is, the personality dimensions perceived by raters to overlap with employee performance dimensions are consistent with some of the personality dimensions previously defined by earlier researchers. Dimension I- may be considered to be comparable to Interpersonal affectivity (e.g., humorous,

happy, good natured, and warm versus humorless, unhappy, cold and irritable) while Dimension II may be considered to be comparable to the Charitable-uncharitable dimension (e.g., altruistic, generous, and kind versus ungenerous, self-centered, and cold). Rosenberg, Nelson, and Vivekananthan (1968) examined the multidimensional scaling of 60 personality traits performed by Osgood, Suci, and Tannenbaum (1957) and concluded that two dimensions were adequate to order the obtained network of traits: (a) Good-social versus Bad-social; and (b) Good-intellectual versus Bad-intellectual. Dimension I may be comparable to Good-intellectual (e.g., persistent, determined, industrious) versus Bad-intellectual (e.g., frivolous, irresponsible, impulsive) while Dimension II may be comparable to Good-social (e.g., helpful, warm, sentimental) versus Bad-social (e.g., cold, irritable, unsociable). It is interesting to note that both the personality behaviours and the managerial performance behaviours were definable along these reduce 1 dimensions. These results explicitly define the raters' implicit theories of personality behaviours and performance behaviours. From these results it should be possible to design studies to examine the impact of altering either personality or performance behaviours and to make specific predictions regarding the expected effects as predicted from raters' implicit theories.

Another contribution of this study is that the

multidimensional scaling demonstrated congruence between the network generated by accountant manager raters and by personnel manager raters. Although this finding is consistent with earlier studies of rater group differences it was not an obvious one. Seiss and Jackson (1970) obtained seven factors from their study of personality and job types. Personnel managers loaded highly on Factor II (Dominance, Nurturance, Desirability, Exhibition, Affiliation) while accountants loaded highly on Factor III (Cognitive structure, Order). It was possible that, since generic personality and generic employee performance behaviours were being compared, raters' implicit theories would differ in a manner consistent with their own professional group. That is, accountant managers might have associated Achievement with Order and Cognitive structure to a much greater extent than personnel managers. However, both rater groups appeared to generate fairly congruent implicit theories of personality and performance.

The results should be interpreted with some caution for several reasons. One issue that may be raised is the extent to which the behaviours used in the current multidimensional scaling may be considered to be representative of the constructs they purport to be. That is, if a larger number of behavioural stimuli were sampled from the same constructs and incorporated into a larger multidimensional scaling, this might have produced even greater confidence regarding

the stability of the multidimensional scaling results. If raters had been asked to rate the relationship between specific behaviours and various scales, this would have provided additional evidence for the representativeness of the specific stimuli used. However, there is reason for confidence in the representativeness of the stimuli used because they were generated from items extracted from rationally contructed scales and had been previously demonstrated to have higher item to scale intercorrelations with its own targetted scale than with other scales. A second issue is the use of the nonmetric classical multidimensional unfolding procedure on a rectangular matrix of similarity judgments. If a full matrix of similarity judgments (28 x 28), or even a triangular matrix, had been feasible to collect, it would have produced a set of coordinates that may have been more stable for interpretation. A third issue is whether the personality items were as irrelevant to work performance as they were originally interpreted to be. For certain personality related behavioural items it may be argued that, although they are still not direct indicators of work performance behaviours, some may be considered to be more directly work related than others. That is, the distinction between personality items and performance items may not be as clear as implied in the Introduction.

There are also several areas in which the study might

be expanded. For example, the performance stimuli used in the current study may be considered, by raters, to represent a specific level of performance. If multiple behaviours had also been presented that were indicative of excellent or very poor performance, a wider range of information would have been obtained from the multidimensional scaling. In addition, a wider range of performance dimensions might have been included in the scaling. Alternatively, if a specific profession or vocation had been targeted, the behavioural stimuli might have been more specific than they were. However, this was not done at this preliminary stage since the multidimensional scaling was to focus on the relationship between generic behaviours representing specific personality and performance constructs. The multidimensional scaling was not designed to focus on the implicit theories associated with a specific profession or vocation. If an item representing overall effectiveness had been added to the performance stimuli set this might have provided additional information in terms of how raters evaluated the work value of the specific items. However, this also would have required that a specific profession or vocation be chosen as the context for the multidimensional scaling.

Additional studies that might be of interest would be comparisons of the implicit theories of individuals towards

specific occupations: (a) at varying levels of development

(b) before and after a rater training program designed to

increase awareness of raters' implicit theories, and (c)

from different cultural contexts.

Study 2

Inferential Networks' Impact on Performance Ratings

Study 2 examined the application of raters' implicit theories of personality and performance as defined by the multidimensional scaling performed in Study 1. This was studied within the context of a simulated annual employee performance appraisal. Although a small number of studies have examined the impact of personality and performance information on performance ratings, few have examined the implications of the inferential links between personality behaviours and performance behaviours.

Krzystofiak et al. (1988) performed a study examining the contributions made by personality and performance cues to performance ratings. Using a stepwise regression analysis they concluded that personality information does account for unique variance above that due to observations of performance. The study demonstrated that personality information is used in performance ratings. However, little is offered in terms of how personality information impacts on performance ratings. In addition, the reported observations that personality information influences performance ratings does not address the question of whether this is an indication of bias or an increased ability to predict genuine performance levels.

There are many different definitions of bias. For

example, Winer (1971) refers to a particular definition of bias when he writes, "A statistic is an unbiased estimate of a parameter if the expected value of the sampling distribution of the statistic is equal to the parameter of which it is an estimate. Thus the concept of unbiasedness is a property of the sampling distribution and not strictly a property of a single sta-istic". It should be emphasized that the term bias is used in this dissertation to refer to the use or influence of information obtained outside of the formally defined performance domain or context. This definition of bias is more in line with Green's (1954) definition of bias t, : refers to the influence of outside variables, such as attitude, on judgements.   It may be the case that the dimensions or constructs represented by this information are in fact relevant to ratee performance and have not yet been formally recognized as such. However, the formal performance appraisal typically assumes that the relevant performance dimensions are represented in the performance rating form and raters are expected to restrict their evaluations to evidence directly related to these defined performance dimensions.   Therefore, if the information was obtained from observations made outside of the formally defined performance dimensions for a specific occupation (i.e., as is often the case with personality dimensions since very few job analyses have either considered or included personality characteristics in their

definition of critical job performance dimensions) and this information is incorporated into ratings of the defined performance dimensions then this it considered, in this disseratation, to be a source of bias in the performance appraisal process. This was the focus of the current study.

Rothstein and Jackson (1984) found that in the employment interview congruence of applicant personality information to the occupation is an important variable. This implies that information congruence is also crucial in the performance appraisal process and that personality cues are capable of influencing perceptions of performance.

Study 2 tested specific hypotheses regarding the application of untrained raters' implicit theories of personality and performance within the context of varying job types, information congruence, and rating form types. The personality and performance cues used in the following study were obtained from Dimension I+ and I- of the multidimensional scaling in Study 1.

Hypotheses

This study was based on the experimental manipulation of personality information in relation to the inferential space defined from the multidimensional scaling of the previous study. The impact of this manipulation on performance ratings will be examined within several contexts and the following hypotheses will be tested: (1) raters' inferential network of personality and performance

relationships will influence perceptions of ratee performance, and ratings of ratee performance; information consistent with a common inferential space will increase performance ratings whereas information inconsistent with that same inferential space will decrease performance ratings; (2) the extent to which personality information is incorporated into the rating process will depend upon its job relevance, this implies that implicit theories are being used discriminately and are not merely a source of rater bias; (3) performance-rating-form format will impact on performance ratings; and (4) type of job description information will impact on performance information salience and subsequent performance ratings.

Method

Participants

Participants for this study were 185 first year introductory psychology students from the Psychology 20 subject pool. The mean age was 19.1 years. The subject group was composed of 63 males and 122 females. Participants received no prior training in making performance appraisals.

Design

This study involved 32 experimental groups (2 x 2 x 2 x 2 x 2) and five control groups. Each group was composed of five participants. The independent variables manipulated were Job Description (trait versus task, accountant manager versus personnel manager), Employee Profile (Dimension I+ versus Dimension I-, congruent personality versus incongruent personality information), and Performance Rating Form Type (Trait versus Behavioural Expectation Scale). The dependent variables include 7-point ratings of effectiveness on 8 managerial performance dimensions, 7-point ratings of rating confidence for each of the performance dimensions, and one overall effectiveness rating of the employee being assessed.

Independent variables

Job Descriptions. Four job descriptions were generated. These job descriptions varied in terms of whether accountant managers or personnel managers were focused on and whether the descriptions used brief trait descriptions or were task

oriented. The first condition was introduced to address the issue of whether raters apply their implicit theories uniformly across occupations or whether raters selectively apply personality information according to job relevance. The second condition was introduced to examine whether the level of information provided in the job description, trait versus task, impacts on the raters' use of their inferential network.

Employee profiles. Four employee profiles were generated, all profiles included performance-relevant information, personality-relevant information, and information concerning objective personnel information.

Performance-relevant information was provided via a paragraph description of ratee behaviours. The performance behaviours are consistent with the managerial dimensions defined in the first study and that were used for the multidimensional scaling. In addition, the performance behaviours vary in terms of illustrating highly relevant performance or less relevant performance for a specific occupation. That is, performance behaviours indicative of Planning and Organizing and Monitoring Business Indicators are considered to be highly relevant to the occupation of accountant manager but less relevant to the occupation of personnel manager. Whereas performance behaviours indicative of Sales and Public Relations would be highly relevant to personnel managers but less so for accountant managers.

Personality relevant information was provided via a paragraph description of ratee behaviour. The personality behaviours were either consistent or inconsistent with the performance behaviours in terms of their relative location in raters' inferential space as defined from Study 1.

Ratee profiles for the experimental groups are of four types: (a) performance information congruent with Dimension I+, personality information congruent with Dimension I+, and objective personnel information; (b) performance information congruent with Dimension I-, personality information congruent with Dimension I- ,and objective personnel information;(c) performance information congruent with Dimension I+, personality information incongruent with Dimension I+, and objective personnel information; and (d) performance information congruent with Dimension I-, personality information incongruent with I-, and objective personnel information.

In terms of the experimental groups' employee profiles, in which both personality and performance information are provided, it is expected that they will have a different impact on the eight managerial performance dimensions depending on whether personality is perceived to be highly job relevant or not. If personality is perceived as highly job relevant by the raters then: (a) highly relevant performance information coupled with highly relevant personality information should produce a very high perfor-

mance rating, (b) low relevance performance information coupled with low relevance personality information should produce a very low rating, (c) low relevance performance information with highly relevant personality information should produce a level of performance rating somewhere in between, and (d) highly relevant performance information with low relevance personality information should also produce a moderate performance rating. Therefore, personality information would have a noticeable impact on performance ratings consistent with the multidimensional scaling results from study 1.

If personality is not considered job relevant by raters, highly relevant personality information coupled with highly relevant performance information should produce the same high level of performance rating as low-relevance personality information coupled with highly relevant performance information. Highly relevant personality information coupled with low-relevance performance information should produce the same low performance rating as a profile with low-relevance personality information coupled with low-relevance performance information. That is, personality information will not impact on ratings of performance.

It should be stressed that only four of the eight managerial performance dimensions are being directly manipulated. The reason for this is that four performance

dimensions are sufficient to define one of the dimensions
making up raters' inferential networks as defined via the
multidimensional scaling of Study 1. The four performance
dimensions that define both poles of this dimension are
Planning and Organizing (Dimension I+), Monitoring Business
Indicators (Dimension I+), Sales (Dimension I-), and Public
Relations (Dimension I-).

Ratee profiles for the five control groups are: (a)
personality information congruent with Dimension I+ and
objective personnel information, (b) personality information
congruent with Dimension I- and objective personnel
information, (c) performance information congruent with
Dimension I+ and objective personnel information, (d)
performance information congruent with Dimension I- and
objective personnel information, and (e) only objective
personnel information. The control groups will be compared
to the experimental group.

Rating Form Type. Two performance rating forms were
also used in this study. One performance rating form uses
single trait descriptors for each performance scale. The
second performance rating form uses a behavioural item for
each performance scale.

Dependent variables

Employee Performance Rating. All performance rating
forms included (a) 7-point rating scales measuring ratee
performance on eight managerial performance dimensions, (b)

7-point rating scales measuring rater confidence for each of these ratings, and (c) a 7-point global rating scale of overall ratee effectiveness with accompanying rating of confidence.

Rater confidence should be highest for profiles in which personality and performance information are consistent. Rater confidence should be lowest for profiles in which personality and performance information are not congruent and personality is job relevant.

Employee personality rating. A 20 scale personality questionnaire, the APRF, was also administered to each rater. Each rater completed this questionnaire from the perspective of the hypothetical individual described in the employee profile.

Procedure

Participants were randomly assigned to one of 32 possible experimental groups or one of five possible control groups. Testing took place with groups of 15 to 20 participants at a time during one hour sessions. All participants were presented with a package containing: (a) one of four possible job descriptions, (b) an employee profile, (c) a performance rating form, (d) the APRF personality questionnaire, and (e) a participant consent

form. The experimenter read the instructions to each group. The correct use of the performance rating forms and the perspective from which the APRF questionnaire was to be completed were emphasized to each subject group.

Experimental group participants received an employee profile consisting of three paragraphs that presented personality, performance, and personnel information on one hypothetical employee. Control group participants received employee profiles consisting of either personality and personnel information, performance and personnel information, or only personnel information.

Each subject completed a performance appraisal rating form for their specific employee profile. Each subject was then instructed to re-read the employee profile and to complete the APRF as they think the person described in the employee profile would have.

Participants were then given a research participation credit and written information explaining the purpose of the study.

Data Analysis

A multivariate analysis of variance (MANOVA) procedure was performed on all the experimental groups followed by Univariate F tests for each of the dependent measures and then performance scale means were examined. A oneway ANOVA was performed to compare the control groups with experimental groups under the same conditions. Analyses were

conducted for each of the eight performance dimensions, the eight confidence ratings, the rating of overall effectiveness, a rating of confidence in the overall rating, and a summary rating made up of scale totals.

Study 2: Results of Experimental Study on
the Inferential Networks' Impact on Performance Ratings

The results obtained for Study 2 produced evidence that
raters made performance ratings consistent with their
implicit theories of personality and performance, as defined
by the multidimensional scaling performed in Study 1, when
approached with a simulated employee performance appraisal
scenario.

In addition, some interesting findings regarding the
application of these implicit theories were obtained. First,
raters receiving performance information consistent with a
specific inferential space not only gave high ratings on
performance scales consistent with that space but also made
low ratings on performance scales occupying the opposing
pole of that inferential space even though no direct
performance information was provided. Second, when given
specific performance behaviours, raters also made inferences
regarding the employee's personality that were consistent
with the defined inferential space. Third, personality
information was used by raters in arriving at specific
performance ratings even though this personality information
was based on non-work related behaviours. When personality
information was congruent with the performance information
the performance scale ratings for the relevant scales were
high. When personality information was incongruent with the

performance information the performance scale ratings for the relevant scales decreased.

Rater groups did not differ significantly on either the global rating of overall employee effectiveness or in the level of confidence in this rating. Significant differences were obtained between experimental groups in terms of the confidence in specific performance-scale ratings. However, these differences in rating confidence were not generally observed between all congruent and incongruent information conditions.

An examination of the standardized personality scale results indicated that raters made personality ratings consistent with observed personality behaviours. Raters also made personality ratings consistent with the inferential space defined in Study 1 even though no direct behaviours pertaining to these personality scales were presented. It was not surprising that observed personality ratings decreased from the congruent to the incongruent personality information condition. However, it was interesting to note that the inferred personality ratings also increased from the congruent to the incongruent personality information condition.

The results for the two completely randomized 2 x 2 x 2 x 2 factorial designs are presented in two sections pertaining to the performance ratings and followed by a final section pertaining to the personality ratings.

The first section covers the employee performance ratings for each of the eight managerial performance scales and the rating of overall employee effectiveness. The second section covers the confidence rating for each of the eight managerial performance scales and the confidence in the overall employee effectiveness rating. Each of these performance sections contains the results of a multivariate analysis of variance, univariate tests of significance when appropriate, and performance scale means. A final section contains descriptive statistics on the personality ratings for each of the experimental groups.

Performance Ratings Results

Multivariate analysis of variance. The experimental groups were divided into two 2 x 2 x 2 x 2 completely randomized factorial designs. A separate MANOVA was performed for the accountant manager job description and the personnel manager job description. The MANOVA results indicated that a more detailed examination of the univariate effects for the four performance scales of primary interest was in order.

Table 18a contains the significant main effects and interactions from the MANOVA performed on performance ratings made for the accountant manager job description. Several observations can be made. First, conspicuously absent was any significant effect due to job description format (trait versus task). Significant main effects were obtained for: (a) the format of the performance appraisal form with the trait rating form yielding generally higher ratings than the behaviourally based rating form, $F(9, 56) = 3.85$, $p < .001$; (b) profile type with the Dimension I+ profile having higher ratings on Dimension I+ relevant performance scales and the Dimension I- profile having higher ratings on the Dimension I- performance scales, $F(9, 56) = 11.13$, $p < .001$; and (c) personality congruence $F(9, 56) = 2.42$, $p < .021$. Significant two-way interactions were also obtained. An expected significant two-way interaction was obtained between profile type and personality

congruence, $F_{(9, 56)} = 3.45$, $p < .002$.

Table 19a contains the significant main effects and interactions from the MANOVA performed on performance ratings made for the personnel manager job description. Significant main effects were obtained for: (a) the format of the performance appraisal form with the trait rating form yielding generally higher ratings than the behaviourally based rating form, $F_{(9, 56)} = 3.25$, $p < .003$ and (b) profile type with the Dimension I- profile having higher ratings on Dimension I- relevant performance scales and the Dimension I+ profile having higher ratings on the Dimension I+ performance scales, $F_{(9, 56)} = 11.12$, $p < .001$. Significant two-way interactions were also obtained. An expected significant two-way interaction was obtained between profile type and personality congruence, $F_{(9, 56)} = 5.30$, $p < .001$.

Table 18a

Significant effects from the Multivariate analysis of variance for employee performance ratings for the Accountant manager job description:

(9, 56 d.f.)

Effect	F	p
FORM	3.85	.001
PTYPE	11.13	.001
PCONGR	2.42	.021
FORM x PTYPE	2.84	.008
FORM x PCONGR	2.49	.018
PTYPE x PCONGR	3.45	.002
FORM x PTYPE x PCONGR	2.38	.023

* JDESCR - Job description type (Trait- versus Task-oriented)

FORM - Rating form type (Trait versus Behavioural Expectation Scale)

PTYPE - Profile type (Dimension I+ versus Dimension I- performance cues)

PCONGR - Personality information congruence (Congruent with performance information versus incongruent with performance information)

Table 18b

Univariate F tests for employee performance ratings for the
Accountant manager job description.

	Scale	F	p	Eta square
FORM	Po	12.13	.001	.16
(1, 64 d.f.)	Ct	2.71	-	-
	Su	6.13	.016	.09
	Cd	.14	-	-
	Mo	.05	-	-
	Sa	.05	-	-
	Pr	10.13	.002	.14
	In	1.44	-	-
	Ov	1.99	-	-
PTYPE	Po	8.13	.006	.11
(1, 64 d.f.)	Ct	.03	-	-
	Su	1.17	-	-
	Cd	2.92	-	-
	Mo	14.21	.001	.18
	Sa	17.51	.001	.21
	Pr	23.12	.001	.27
	In	.32	-	-
	Ov	.22	-	-
PCONGR	Po	4.24	.044	.06
(1, 64 d.f.)	Ct	.98	-	-
	Su	.10	-	-
	Cd	.93	-	-
	Mo	5.69	.020	.08
	Sa	.26	-	-
	Pr	.04	-	-
	In	12.92	.001	.17
	Ov	1.99	-	-

Table 18b continued

Univariate F tests for employee performance ratings for the
Accountant manager job description.

	Scale	F	p	Eta square
FORM x PTYPE	Po	.40	—	—
(1, 64 d.f.)	Ct	.43	—	—
	Su	.10	—	—
	Cd	.27	—	—
	Mo	.48	—	—
	Sa	14.02	.001	.18
	Pr	1.33	—	—
	In	.19	—	—
	Ov	1.99	—	—
FORM x PCONGR	Po	.03	—	—
(1, 64 d.f.)	Ct	1.33	—	—
	Su	2.90	—	—
	Cd	.01	—	—
	Mo	4.31	.042	.06
	Sa	1.56	—	—
	Pr	2.43	—	—
	In	2.90	—	—
	Ov	1.99	—	—
PTYPE x PCONGR	Po	15.68	.001	.20
(1, 64 d.f.)	Ct	.43	—	—
	Su	.10	—	—
	Cd	.05	—	—
	Mo	5.69	.020	.08
	Sa	1.21	—	—
	Pr	3.86	—	—
	In	.19	—	—
	Ov	3.53	—	—

Table 18b continued

Univariate F tests for employee performance ratings for the Accountant manager job description.

	Scale	F	p	Eta square
FORM x PTYPE x	Po	.23	–	–
PCONGR	Ct	.24	–	–
(1, 64 d.f.)	Su	5.39	.023	.08
	Cd	4.03	.049	.06
	Mo	.05	–	–
	Sa	10.92	.002	.15
	Pr	1.03	–	–
	In	2.49	–	–
	Ov	.88	–	–

Table 19a

Significant effects from the Multivariate analysis of variance for employee performance ratings for the Personnel manager job description: *

(9, 56 d.f.)

Effect	F	p
FORM	3.25	.003
PTYPE	11.12	.001
FORM x PTYPE	5.09	.001
PTYPE x PCONGR	5.30	.001
FORM x JDESCR x PTYPE x PCONGR	2.67	.012

* JDESCR - Job description type (Trait- versus Task-
oriented)
FORM - Rating form type (Trait versus Behavioural
Expectation Scale)
PTYPE - Profile type (Dimension I+ versus
Dimension I- performance cues)
PCONGR - Personality information congruence (Congruent with
performance information versus incongruent with
performance information)

Table 19b

Univariate F tests for employee performance ratings for the Personnel manager job description.

	Scale	F	p	Eta square
FORM	Po	13.39	.001	.17
(1, 64 d.f.)	Ct	7.24	.009	.10
	Su	2.24	–	–
	Cd	4.40	.040	.06
	Mo	6.63	.012	.09
	Sa	.03	–	–
	Pr	3.92	–	–
	In	.20	–	–
	Ov	.15	–	–
PTYPE	Po	8.68	.004	.12
(1, 64 d.f.)	Ct	1.81	–	–
	Su	1.05	–	–
	Cd	1.57	–	–
	Mo	23.65	.001	.27
	Sa	49.26	.001	.43
	Pr	30.24	.001	.32
	In	2.20	–	–
	Ov	4.70	.034	.07
FORM x PTYPE	Po	.01	–	–
(1, 64 d.f.)	Ct	.71	–	–
	Su	1.80	–	–
	Cd	3.15	–	–
	Mo	8.74	.004	.12
	Sa	29.15	.001	.31
	Pr	1.94	–	–
	In	.10	–	–
	Ov	.41	–	–

Table 19b continued

Univariate F tests for employee performance ratings for the
Personnel manager job description.

	Scale	F	p	Eta square
PTYPE x PCONGR	Po	24.10	.001	.27
(1, 64 d.f.)	Ct	.25	-	-
	Su	.16	-	-
	Cd	.00	-	-
	Mo	13.83	.001	.18
	Sa	6.35	.014	.09
	Pr	11.88	.001	.16
	In	.34	-	-
	Ov	.41	-	-
FORM x JDESCR x	Po	.20	-	-
PTYPE x PCONGR	Ct	1.02	-	-
(1, 64 d.f.)	Su	6.76	.012	.10
	Cd	2.61	-	-
	Mo	.23	-	-
	Sa	ɔ.24	-	-
	Pr	7.36	.009	.10
	In	9.20	.003	.13
	Ov	.80	-	-

Table 20a

Means scores for the Accountant manager job description[*]

Scale	Trait Rating Form				Behavioural Rating Form			
	PC	PI	MC	MI	PC	PI	MC	MI
Planning/org.	6.90	4.80	4.40	5.10	5.40	3.70	3.60	4.10
Controlling	5.00	4.70	4.40	4.80	4.50	3.80	4.60	4.00
Supervising	5.10	4.90	4.00	5.10	4.00	4.20	4.60	3.10
Coordinating	5.30	4.20	3.80	4.20	4.30	4.60	4.50	3.60
Monitoring indicators	5.70	4.90	4.00	4.60	6.60	4.30	4.30	3.70
Sales	5.30	4.30	4.70	5.20	2.40	4.50	6.60	5.70
Public relations	4.40	5.40	6.10	6.40	3.00	3.60	6.30	4.70
Innovation	4.60	4.30	5.00	3.80	5.60	2.70	4.40	3.10
Overall effectiveness	5.50	4.90	4.50	5.10	5.60	4.80	5.60	5.20

[*] PC=Dimension I+ performance with congruent personality
    and personnel data.
 PI=Dimension I+ performance with incongruent personality
    and personnel data.
 MC=Dimension I- performance with congruent personality
    and personnel data.
 MI=Dimension I- performance with incongruent personality
    and personnel data.

Table 20b

Standard deviations for the Accountant manager job
description[*]

Scale	Trait Rating Form				Behavioural Rating Form			
	PC	PI	MC	MI	PC	PI	MC	MI
Planning/org.	0.32	1.48	1.07	1.20	1.07	1.64	1.65	2.13
Controlling	1.25	0.82	1.43	0.79	1.18	1.32	1.51	2.16
Supervising	1.20	0.88	1.63	0.99	1.63	1.32	1.96	1.60
Coordinating	1.49	1.23	1.40	1.14	1.77	1.78	1.65	1.96
Monitoring indicators	1.57	1.29	1.41	1.07	0.70	1.70	1.64	1.57
Sales	1.77	1.64	1.70	0.92	1.26	1.51	0.70	2.06
Public relations	1.84	1.35	1.37	0.70	1.70	1.90	0.95	2.58
Innovation	1.71	1.83	1.94	1.75	1.17	1.25	2.17	1.91
Overall effectiveness	1.18	0.99	1.35	0.74	0.70	1.03	0.52	0.42

[*] PC=Dimension I+ performance with congruent personality
and personnel data.
PI=Dimension I+ performance with incongruent personality
and personnel data.
MC=Dimension I- performance with congruent personality
and personnel data.
MI=Dimension I- performance with incongruent personality
and personnel data.

Table 21a

Means scores for the Personnel manager job description[*]

Scale	Trait Rating Form				Behavioural Rating Form			
	PC	PI	MC	MI	PC	PI	MC	MI
Planning/org.	7.00	4.90	4.80	5.50	6.30	3.60	4.10	4.10
Controlling	5.30	4.50	5.30	4.80	3.90	3.80	4.40	4.60
Supervising	4.90	5.00	4.80	4.90	4.10	4.00	4.60	5.00
Coordinating	5.50	4.90	4.80	5.30	4.10	3.90	5.60	4.30
Monitoring indicators	5.60	5.10	4.60	5.10	6.30	4.60	2.80	4.00
Sales	4.80	5.30	5.40	5.60	2.30	4.70	7.00	6.90
Public relations	4.00	5.60	6.60	5.80	3.30	4.00	6.80	5.20
Innovation	4.00	4.30	4.60	4.60	4.70	3.00	4.80	4.30
Overall effectiveness	5.20	5.20	5.50	5.50	4.90	5.10	5.70	5.40

[*] PC=Dimension I+ performance with congruent personality
    and personnel data.
PI=Dimension I+ performance with incongruent personali.y
    and personnel data.
MC=Dimension I- performance with congruent personality
    and personnel data.
MI=Dimension I- performance with incongruent personality
    and personnel data.

Table 21b

Standard deviations for the Personnel manager job
description*

Scale	Trait Rating Form				Behavioural Rating Form			
	PC	PI	MC	MI	PC	PI	MC	MI
Planning/org.	0.00	1.45	0.92	0.85	0.48	2.07	1.45	1.37
Controlling	0.48	1.08	1.06	0.92	1.60	2.25	1.58	1.51
Supervising	0.74	0.82	1.62	0.99	1.79	1.49	2.37	1.33
Coordinating	1.58	0.74	1.14	0.67	2.18	2.02	0.97	1.95
Monitoring indicators	0.84	0.74	0.97	0.88	0.82	1.96	1.14	1.70
Sales	1.32	0.95	0.97	1.07	1.83	2.11	0.00	0.32
Public relations	1.25	0.70	0.70	2.30	2.06	2.16	0.63	2.53
Innovation	2.26	1.16	2.07	1.43	2.06	2.11	1.48	1.42
Overall effectiveness	0.42	0.63	0.53	0.85	1.66	1.20	0.67	0.52

* PC=Dimension I+ performance with congruent personality
    and personnel data.
  PI=Dimension I+ erformance with incongruent personality
    and personnel data.
  MC=Dimension I- performance with congruent personality
    and personnel data.
  MI=Dimension I- performance with incongruent personality
    and personnel data.

<u>Mean performance ratings</u>. Table 22 contains the average performance scores given by the rater groups for their specific target profile type. It should be noted that in Table 22 the scores for both the accountant manager and personnel manager job description were combined. The ratings were also combined in terms of the type of performance appraisal rating form used. Scores for each of the eight managerial performance dimensions Planning/organizing (Po), Controlling (Ct), Supervising (Su), Coordinating (Cd), Monitoring business indicators (Mo), Sales (Sa), Public relations (Pr), and Innovation (In) were obtained along with a rating of overall effectiveness (Ov). For each of the experimental groups N = 40 while for each of the control groups N = 5.

For group N, only neutral personnel data (regarding customer satisfaction, customer complaints, departmental waste, absenteeism, and sales accounts) were presented to the raters. The job description provided for this group was that of an accountant manager. The average ratings for the Dimension I+ performance scales, Planning and Organizing and Monitoring business indicators, were M = 5.40 and M = 4.20 respectively. The average ratings for the Dimension I- performance scales, Sales and Public relations, were M = 3.60 and M = 3.40 respectively. The rating for overall effectiveness was M = 5.80. Therefore, although no direct performance behaviours pertaining to either Dimension I+ or

I- were presented raters did make specific inferences about the neutral profile's performance on these dimensions.

For group PC, only performance and personality information congruent with Dimension I+ (Planning and Organizing, Monitoring business indicators, Autonomy+, Cognitive structure+, Endurance+, Harmavoidance+, Order+, Understanding+) were presented to the raters. The performance ratings of primary interest were Planning and Organizing (M = 6.40) and Monitoring business indicators (M = 6.05). These means were higher than the corresponding means (M = 5.40 and M = 5.40) obtained when only Dimension I+ performance information was given along with the neutral personnel data. Therefore when raters were presented with personality behaviours occupying the same inferential space as the performance behaviours the performance scale means increased. Although no direct performance information was provided regarding Sales and Public relations, raters' average scores on these performance dimensions were at the low levels of M = 3.70 and M = 3.68 respectively. These results therefore also provided evidence that inferences are being made regarding Dimension I- performance scales based on Dimension I+ performance information.

For group PI, performance information congruent with Dimension I+ (Planning and Organizing, Monitoring business indicators) was followed by incongruent personality information consistent with Dimension I- (Autonomy-,

Cognitive structure-, Endurance-, Harmavoidance-, Order-,
Understanding-) were presented to the raters. If personality
information influences raters' perceptions then it is
expected that Dimension I+ performance scale ratings will
drop below that obtained for the group given only Dimension
I+ performance information along with the neutral personnel
information (M = 5.40 and M = 5.40). For the current group,
PI, the average performance ratings of Planning and
Organizing and Monitoring business indicators dropped to M =
4.25 and M = 4.35. The corresponding ratings for Sales and
Public relations were M = 4.70 and M = 4.65.

Similar observations were made when Dimension I-
performance profiles were given to the rater groups. For
group MC, only performance and personality information both
congruent with Dimension I- (Sales, Public relations,
Affiliation+, Exhibition+, Impulsivity+, Play+) were
presented to the raters. The performance ratings of primary
interest were Sales (M = 5.93) and Public relations (M =
6.45). The mean score for Sales was, surprisingly, lower
than the corresponding scale mean obtained when rater groups
were given only Dimension I- performance information along
with neutral personnel data (M = 7.00). In addition,
although no direct performance information was provided
regarding the Planning and Organizing and the Monitoring
business indicators, the average scores were lower, M = 4.23
and M = 3.93. Therefore, raters were also applying

inferences consistent with the defined inferential network between personality and performance.

For group MI, performance information congruent with Dimension I- (Sales, Public relations) was followed by incongruent personality information consistent with Dimension I+ (Affiliation-, Exhibition-, Impulsivity-, Play-). If personality information was incorporated into raters' judgments then one would expect a decrease in the Dimension I- performance ratings. If personality information was not used then the Dimension I- performance ratings should be no different from that obtained in the previous group, MC (Sales, M = 5.93 and Public relations, M = 6.45). For this group the average performance ratings of interest were Sales (M = 5.85) and Public relations (M = 5.53). The impact of personality information is ambiguous from these specific means since for one scale a difference was obtained while for the Public relations scale no difference was observed. The average scores for Planning and Organizing and Monitoring business indicators were M = 4.70 and M = 4.35 and are not different from the means obtained when raters are given Dimension I- performance information along with neutral personnel data (Po, M = 4.80 and Mo, M = 3.80).

Table 22

Mean Performance ratings for Employee Profiles divided in terms of Profile type and Personality Congruence

	Employee Profile Group								
	Experimental[*]				Control				
Scale	PC	PI	MC	MI	PA	MA	PB	MB	N
Po	6.40	4.25	4.23	4.70	6.20	3.40	5.40	4.80	5.40
Ct	4.68	4.20	4.68	4.55	4.40	2.80	4.20	4.80	4.80
Su	4.53	4.53	4.50	4.53	4.80	3.40	4.80	6.20	5.00
Cd	4.80	4.40	4.68	4.35	3.00	3.60	4.20	3.80	4.00
Mo	6.05	4.73	3.93	4.35	5.20	1.80	5.40	3.80	4.20
Sa	3.70	4.70	5.93	5.85	1.80	6.40	4.40	7.00	3.60
Pr	3.68	4.65	6.45	5.53	2.80	5.20	4.20	6.60	3.40
In	4.73	3.58	4.70	3.95	5.80	4.20	5.00	5.00	3.60
Ov	5.30	5.00	5.33	5.30	5.40	4.40	5.00	5.20	5.80

[*] PC=Dimension I+ performance with congruent personality
     and personnel data.
   MC=Dimension I- performance with congruent personality
     and personnel data.
   PI=Dimension I+ performance with incongruent personality
     and personnel data.
   MI=Dimension I- performance with incongruent personality
     and personnel data.
   PA=Dimension I+ personality and personnel data.
   MA=Dimension I- personality and personnel data.
   PB=Dimension I+ performance and personnel data.
   MB=Dimension I- performance and personnel data.
   N =Personnel data only.

Rating form. profile type. and personality Congruence.
Table 23 presents the average performance scores for each of
the profile groups when divided by the type of performance
appraisal format to which they were exposed, profile type,
and personality congruence. For each of the experimental
groups N = 20.

In general, the results indicated that raters using
trait rating forms produced ratings different from raters
using behavioural expectation scale rating forms. Raters
incorporated personality information into their ratings of
employee performance but the extent to which this occurs
appears to differ depending on the type of rating form and
the performance scales being examined. That is, the least
difference occurred when the Sales and the Public relations
behaviours were rated using the trait-rating form. The
greatest difference occurred when Planning and Organizing
and Monitoring business indicators were rated using the
behavioural expectation scale rating form.

In Figure 10a the performance rating results for the
two rater groups receiving Dimension I+ performance
information, a trait rating form, and either congruent
personality information or incongruent personality
information were plotted. For the group receiving congruent
performance and personality information (Planning and
Organizing, Monitoring business indicators, Autonomy+,
Cognitive structure+, Endurance+, Harmavoidance+, Order+,

Understanding+) the performance ratings for Planning and
Organizing and Monitoring business indicators were M = 6.95
and M = 5.65 respectively. When a group received incongruent
performance and personality information (Planning and
Organizing, Monitoring business indicators, Autonomy-,
Cognitive structure-, Endurance-, Harmavoidance-, Order-,
Understanding-) the means decreased to M = 4.85 (Planning
and Organizing) and M = 5.00 (Monitoring business
indicators). It should also be noted that although no
information was provided regarding Dimension I- performance
behaviours the mean ratings on these scales (Sales, M = 5.05
and Public relations, M = 4.20) were low although not lower
than that obtained for the neutral personnel data group when
rated using the BES rating form (Table 22). This would
appear to suggest that raters made inferences consistent
with the inferential space defined in Study 1. However, only
one performance scale (Public relations) differed in the
mean rating from the congruent to the incongruent
personality information group for inferred Dimension I-
behaviours.

In Figure 10b the performance rating results for the
two rater groups receiving Dimension I+ performance
information, a behaviourally based rating form, and either
congruent personality information or incongruent personality
information were plotted. For the group receiving congruent
performance and personality information (Planning and

Organizing, Monitoring business indicators, Autonomy+, Cognitive structure+, Endurance+, Harmavoidance+, Order+, Understanding+) the performance ratings for Planning and Organizing and Monitoring business indicators were M = 5.85 and M = 6.45 respectively. When a group received incongruent performance and personality information (Planning and Organizing, Monitoring business indicators, Autonomy-, Cognitive structure-, Endurance-, Harmavoidance-, Order-, Understanding-) the means decreased dramatically to M = 3.65 (Planning and Organizing) and M = 4.45 (Monitoring business indicators). It should also be noted that although no information was provided regarding Dimension I- performance behaviours the mean ratings on these scales (Sales, M = 2.35 and Public relations, M = 3.15) were also lower than that obtained when Dimension I+ performance information was given along with neutral personnel data (Table 22). However, the ratings were not lower than the Sales and Public relations ratings obtained for the neutral personnel data group. In addition, these ratings were much lower than that obtained when the trait rating form was used. This may suggest that raters not only made inferences consistent with the inferential space defined in Study 1 but that raters were more definite about the inferences made.

In Figure 10c the performance rating results for the two rater groups receiving Dimension I- performance information, a trait rating form, and either congruent

personality information or incongruent personality information were plotted. For the group receiving congruent performance and personality information (Sales, Public relations, Affiliation+, Exhibition+, Impulsivity+, Play+) the performance ratings for observed perfoi ance behaviours were Sales, M = 5.05 and Public relations, M = 6.35. When a group received incongruent performance and personality information (Sales, Public relations, Affiliation-, Exhibition-, Impulsivity-, Play-) the performance means changed very little (Sales, M = 5.40 and Public relations, M = 6.10). Although no information was provided regarding Dimension I+ performance behaviours, the mean ratings on these scales were Planning and Organizing, M = 4.60 and Monitoring business indicators, M = 4.30. Additional personality information incongruent with Dimension I- did not change these scores dramatically although there was an increase (Planning and Organizing, M = 5.30 and Monitoring business indicators, M = 4.85)

In Figure 10d the performance rating results for the two rater groups receiving Dimension I- performance information, a behaviorally-based rating form, and either congruent personality information or incongruent personality information were plotted. For the group receiving congruent performance and personality information (Sales, Public relations, Affiliation+, Exhibition+, Impulsivity+, Play+) the performance ratings for observed performance behaviours

were Sales, M = 6.80 and Public relations, M = 6.55. When a group received incongruent performance and personality information (Sales, Public relations, Affiliation-, Exhibition-, Impulsivity-, Play-) the performance means decreased to Sales, M = 6.30 and Public relations, M = 4.95. For the inferred Dimension I+ performance behaviours the mean ratings on these scales were Planning and Organizing, M = 3.85 and Monitoring business indicators, M = 3.55. Additional personality information incongruent with Dimension I- did not change these scores dramatically Planning and Organizing, M = 4.10 and Monitoring business indicators, M = 3.85.

Table 23

Mean Performance ratings by Rating form type, Profile
type, and Personality congruence[*]

Scale	Trait Rating Form				Behavioural Rating Form			
	PC	PI	MC	MI	PC	PI	MC	MI
Planning/org.	6.95	4.85	4.60	5.30	5.85	3.65	3.85	4.10
Controlling	5.15	4.60	4.85	4.80	4.20	3.80	4.50	4.30
Supervising	5.00	4.95	4.40	5.00	4.05	4.10	4.60	4.05
Coordinating	5.40	4.55	4.30	4.75	4.20	4.25	5.05	3.95
Monitoring indicators	5.65	5.00	4.30	4.85	6.45	4.45	3.55	3.85
Sales	5.05	4.80	5.05	5.40	2.35	4.60	6.80	6.30
Public relations	4.20	5.50	6.35	6.10	3.15	3.80	6.55	4.95
Innovation	4.30	4.30	4.80	4.20	5.15	2.85	4.60	3.70
Overall effectiveness	5.35	5.05	5.00	5.30	5.25	4.95	5.65	5.30

[*] PC=Dimension I+ performance with congruent personality
   and personnel data.
PI=Dimension I+ performance with incongruent personality
   and personnel data.
MC=Dimension I- performance with congruent personality
   and personnel data.
MI=Dimension I- performance with incongruent personality
   and personnel data.

Figure 10a Trait Rating Form Performance Ratings for Dimension I+ (Planning and Organizing, Monitoring business indicators) Profile Types: (a) Group PC= Performance, Congruent Personality (Autonomy+, Cognitive structure+, Endurance+, Harmavoidence+, Order+, Understanding+), and Personnel data; and (b) Group PI = Performance, Incongruent Personality (Autonomy-, Cognitive structure-, Endurance-, Harmavoidence-, Order-, Understanding-), and Personnel data.

Figure 10b BES Rating Form Performance Ratings for Dimension I+ (Planning and Organizing, Monitoring business indicators) Profile Types: (a) Group PC = Performance, Congruent Personality (Autonomy+, Cognitive structure+, Endurance+, Harmavoidence+, Order+, Understanding+), and Personnel data; and (b) Group PI = Performance, Incongruent Personality (Autonomy-, Cognitive structure-, Endurance-, Harmavoidence-, Order-, Understanding-), and Personnel data.
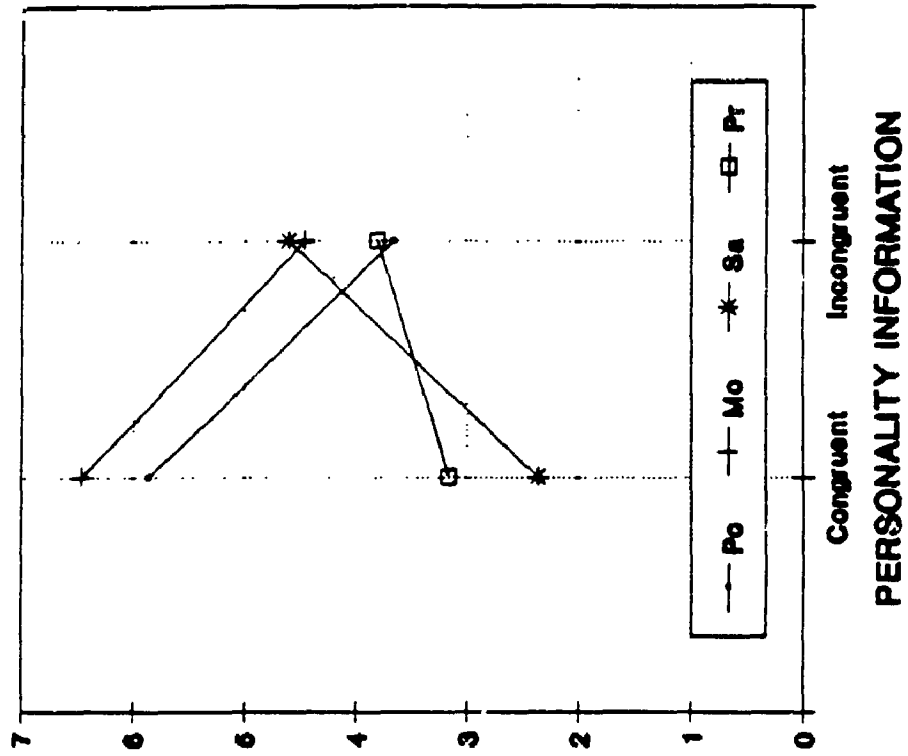
Figure 10a

Figure 10b
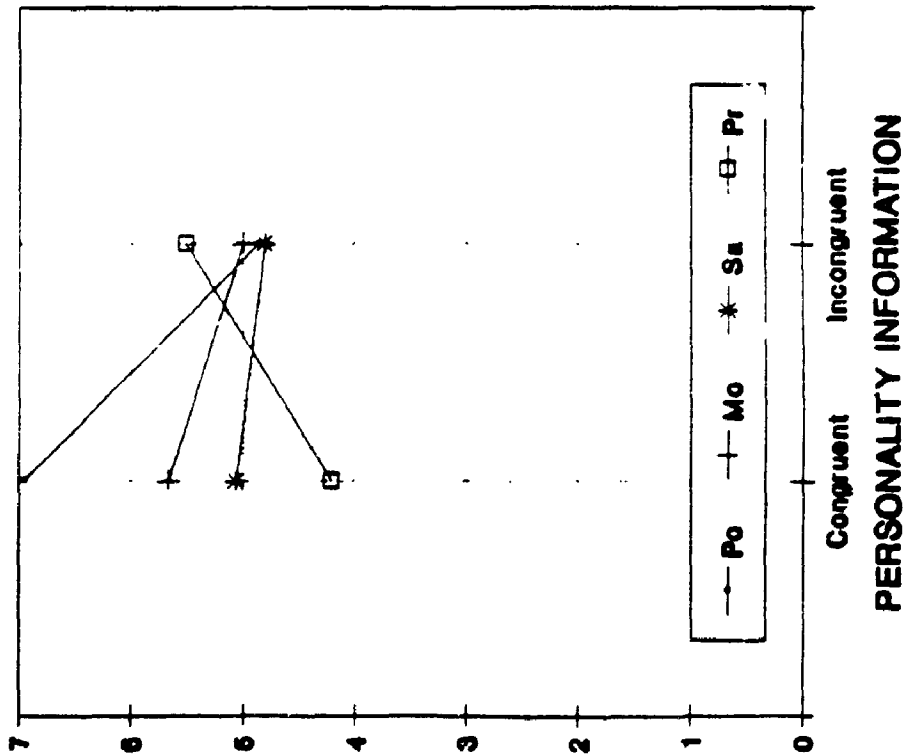
Figure 10c Trait Rating Form Performance Ratings for Dimension I- (Sales, Public relations) Profile Types· (a) Group MC = Performance, Congruent Personality (Affiliation+, Exhibition+, Impulsivity+, Play+), and Personnel data; and (b) Group MI = Performance, Incongruent Personality (Affiliation-, Exhibition-, Impulsivity-, Play-) , and Personnel data.

Figure 10d BES Rating Form Performance Ratings for Dimension I- (Sales, Public relations) Profile Types: (a) Group MC = Performance, Congruent Personality (Affiliation+, Exhibition+, Impulsivity+, Play+) , and Personnel data; and (b) Group MI = Performance, Incongruent Personality (Affiliation-, Exhibition-, Impulsivity-, Play-) , and Personnel data.

Figure 10d

PERSONALITY INFORMATION

Figure 10c

PERSONALITY INFORMATION
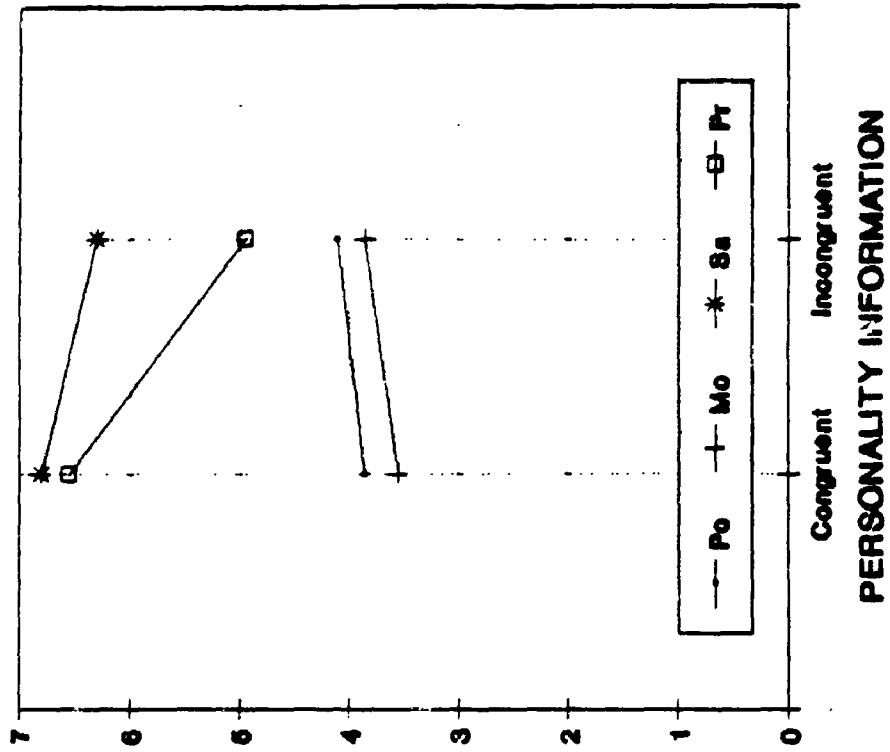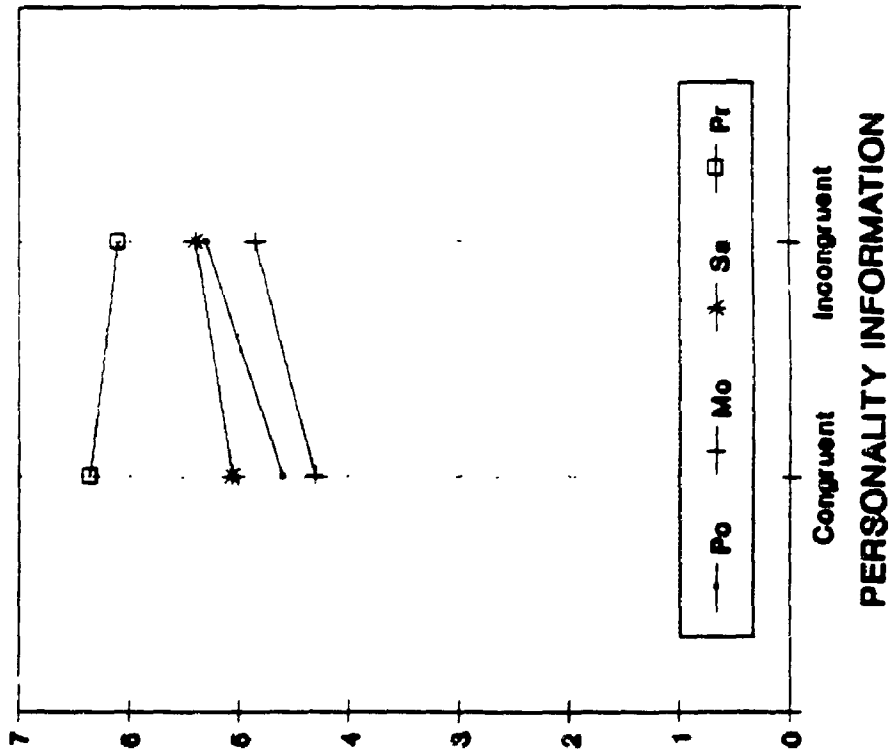
<u>Figure 11a</u> Performance Ratings for Personality Control Profiles: (a) Group PA = Dimension I+ Personality (Autonomy+, Cognitive structure+, Endurance+, Harmavoidance+, Order+, Understanding+) and Personnel data; (b) Group MA = Dimension I- Personality (Affiliation+, Exhibition+, Impulsivity+, Play+) and Personnel data; and (c) Group N = Personnel data only.

<u>Figure 11b</u> Performance Ratings for Performance Control Profiles: (a) Group PB = Dimension I+ Performance (Planning and Organizing, Monitoring business indicators) and Personnel data; and (b) Group MB = Dimension I- Performance (Sales, Public relations) and Personnel data; and (c) Group N = Personnel data only.

Figure 11b

Performance Scales

Figure 11a

Performance Scale
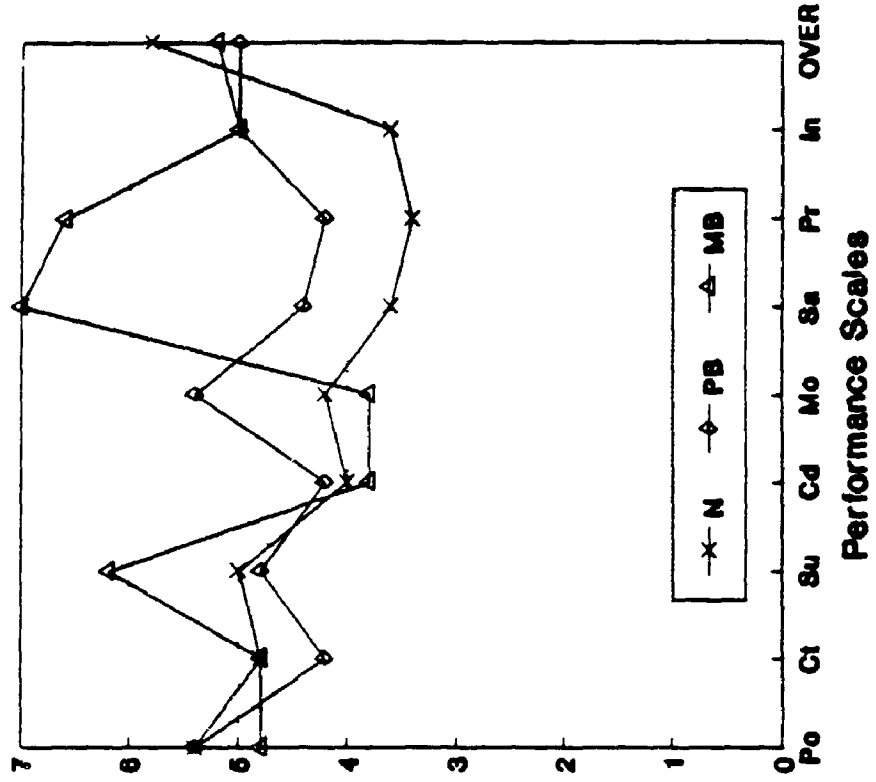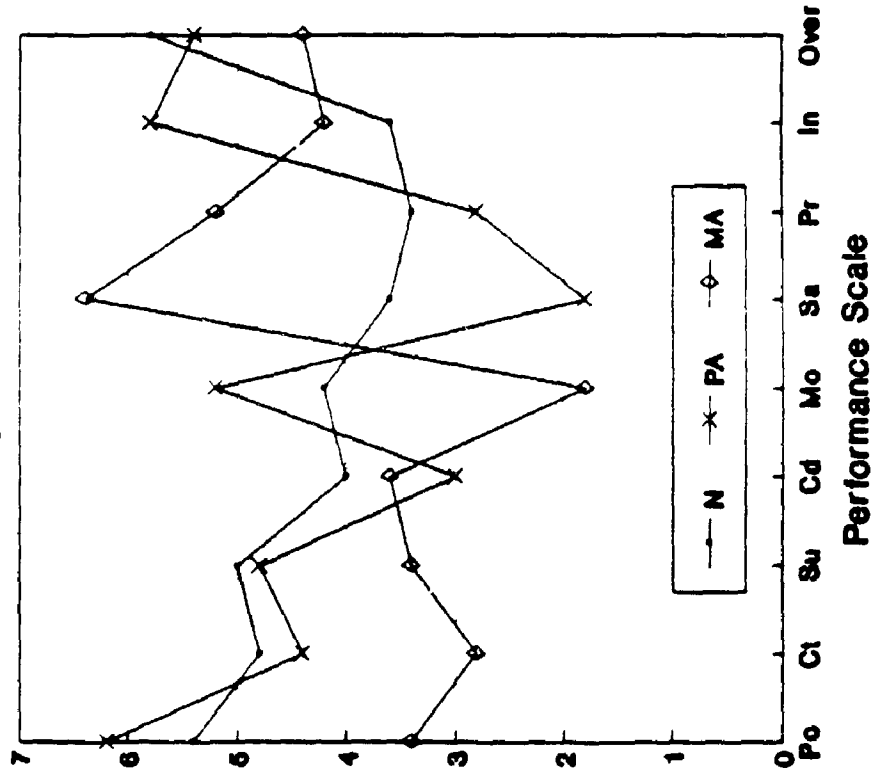
Confidence Rating Results

Multivariate analysis of variance. Rating confidence was examined for both the accountant manager job description and the personnel manager job description. A main effect was obtained for the rating-form type and the profile type. Two-way and three-way interactions were also obtained.

A multivariate analysis of variance of the confidence ratings for the accountant manager job description produced two main effects. Confidence ratings differed in terms of: (a) the type of performance rating form used with raters expressing greater confidence in the behaviourally-based rating form than the trait rating form, $F(9, 56) = 3.12$, $p < .004$; and (b) the type of ratee profile with raters giving Dimension I- profiles greater confidence in their ratings than Dimension I+ profiles, $F(9, 56) = 2.56$, $p < .015$.

A multivariate analysis of variance of the confidence ratings for the personnel manager job description produced two main effects. Confidence ratings differed in terms of: (a) the type of performance rating form used with raters expressing greater confidence in the trait rating form on the performance scales of Planning and Organizing and Monitoring business indicators, $F(9, 56) = 2.28$, $p < .030$; and (b) the type of ratee profile with raters receiving Dimension I+ profiles expressing greater confidence in their ratings of Planning and Organizing than raters receiving Dimension I- profiles and raters receiving Dimension I-

profiles expressing greater confidence in their ratings of Sales and Public relations than raters receiving Dimension I+ profiles, $F(9, 56) = 6.57$, $p < .001$. It appears that the evidence in favour of one type of rating form or another is inconclusive in terms of rating confidence.

Rating confidence by rating form, profile type, and
personality congruence. When the confidence ratings were
combined by job type the multivariate analysis of variance
still produced two main effects. Differences were obtained
for the type of rating form used, $F(9, 56) = 3.13$, $p < .002$,
and the type of ratee profile, $F(9, 56) = 6.03$, $p < .001$.
Univariate F tests were performed for profile type and
rating-form type dependent variables. When differences in
rating confidence were examined by profile type significant
effects were obtained for: (a) Planning and Organizing $p <$
.006, with Dimension I+ profiles receiving a higher
confidence rating; (b) Sales $p < .019$, with Dimension I-
profiles receiving a higher confidence rating; and (c)
Public relations $p < .001$, with Dimension I- profiles
receiving a higher confidence rating here also. When
differences in rating confidence were examined by
performance-rating form type, significant effects were
obtained for: (a) Planning and Organizing $p < .009$, with the
trait-rating form receiving the higher confidence rating;
and (b) Sales $p < .001$, with the behaviourally-based rating
form receiving the higher confidence rating.

In general, the results indicated that raters using
trait rating forms produced confidence ratings different
from raters using behavioural expectation-scale rating forms
but not always in the expected direction. Raters
incorporated personality information into their ratings of

employee performance but the extent to which this occurs appears to differ depending on the type of rating form and the performance scales being examined. That is, the least difference occurred when the Sales and the Public relations behaviours were rated using the trait rating form. The greatest difference occurred when Planning and Organizing and Monitoring business indicators were rated using the behavioural expectation scale rating form.

The confidence rating results for the two rater groups receiving a trait-rating form, Dimension I+ performance information, and either congruent personality information or incongruent personality information were presented. For the group receiving congruent performance and personality information (Planning and Organizing, Monitoring business indicators, Autonomy+, Cognitive structure+, Endurance+, Harmavoidance+, Order+, Understanding+) the confidence ratings for Planning and Organizing and Monitoring business indicators were $M = 6.75$ and $M = 6.05$ respectively. When a group received incongruent performance and personality information (Planning and Organizing, Monitoring business indicators, Autonomy-, Cognitive structure-, Endurance-, Harmavoidance-, Order-, Understanding-) the means dropped to $M = 5.65$ (Planning and Organizing) and $M = 5.25$ (Monitoring business indicators). It should also be noted that although no information was provided regarding Dimension I-performance behaviours the mean confidence ratings on these

scales (Sales, M = 6.05 and Public relations, M = 5.75) were high yet also decreased under the incongruent personality condition. Therefore, when a trait rating form was used incongruent personality information decreased confidence in the performance ratings of observed and inferred behaviours.

The confidence rating results were presented for the two rater groups receiving a behaviourally-based rating form, Dimension I+ performance information, and either congruent personality information or incongruent personality information. For the group receiving congruent performance and personality information (Planning and Organizing, Monitoring business indicators, Autonomy+, Cognitive structure+, Endurance+, Harmavoidance+, Order+, Understanding+) the confidence ratings for Planning and Organizing and Monitoring business indicators were M = 5.65 and M = 5.80 respectively. When a group received incongruent performance and personality information (Planning and Organizing, Monitoring business indicators, Autonomy-, Cognitive structure-, Endurance-, Harmavoidance-, Order-, Understanding-) the means were essentially unchanged at M = 5.45 (Planning and Organizing) and M = 5.35 (Monitoring business indicators). It should also be noted that although no information was provided regarding Dimension I-performance behaviours the mean confidence ratings on these scales were Sales, M = 5.40 and Public relations, M = 5.50. Therefore, when a behaviourally-based rating form was used

incongruent personality information did not alter confidence in the performance ratings of observed or inferred behaviours.

The confidence rating results were presented for the two rater groups receiving Dimension I- performance information, a trait rating form, and either congruent personality information or incongruent personality information. For the group receiving congruent performance and personality information (Sales, Public relations, Affiliation+, Exhibition+, Impulsivity+, Play+) the confidence ratings for observed performance behaviours were Sales, M = 5.05 and Public relations, M = 6.20. When a group received incongruent performance and personality information (Sales, Public relations, Affiliation-, Exhibition-, Impulsivity-, Play-) the performance means increased (Sales, M = 6.10 and Public relations, M = 6.75). Although no information was provided regarding Dimension I+ performance behaviours the mean ratings on these scales were Planning and Organizing, M = 5.60 and Monitoring business indicators, M = 5.15. Additional personality information incongruent with Dimension I- did not change these scores dramatically although there was an increase (Planning and Organizing, M = 5.45 and Monitoring business indicators, M = 5.45). Therefore, with Dimension I- profiles incongruent personality information seemed to impact on the confidence in ratings of performance.

The confidence rating results for the two rater groups receiving Dimension I- performance information, a behaviourally based rating form, and either congruent personality information or incongruent personality information were presented. For the group receiving congruent performance and personality information (Sales, Public relations, Affiliation+, Exhibition+, Impulsivity+, Play+) the confidence ratings for observed performance behaviours were very high: Sales, $M = 6.75$ and Public relations, $M = 6.45$. When a group received incongruent performance and personality information (Sales, Public relations, Affiliation-, Exhibition-, Impulsivity-, Play-) the performance means remained at a high level: Sales, $M = 6.70$ and Public relations, $M = 6.60$. For the inferred Dimension I+ performance behaviours the mean ratings on these scales were Planning and Organizing, $M = 5.35$ and Monitoring business indicators, $M = 5.55$. Additional personality information incongruent with Dimension I- did not change these scores to an appreciable extent Planning and Organizing, $M = 5.05$ and Monitoring business indicators, $M = 5.25$. It was observed that, as in the case of Dimension I+ profiles, when a behaviourally based rating form was used incongruent personality information did not have an impact on rating confidence.

In summary, confidence in performance ratings varied according to profile type and the type of performance

appraisal form used. When the Dimension I+ profile was rated, whether the additional personality information was congruent or incongruent, there was greater confidence in ratings of Planning and Organizing. When the Dimension I-profile was rated, whether the additional personality information was congruent or incongruent, there was greater confidence in ratings of Sales and Public relations. It is possible that although raters use the personality information they may be aware of the differences in the types of information being provided. However, if raters were differentiating between performance and personality information one would have expected differences in rater confidence between groups where personality information was either congruent or incongruent with the performance information. Yet no statistically significant differences were obtained for rating confidence even though there was a tendency for incongruent personality information to produce decreases in rater confidence in trait rating forms. An alternative explanation might be that Dimension I+ profiles contained a larger quantity of behaviours perceived by raters to be relevant to Planning and Organizing while Dimension I- profiles contained a larger quantity of behaviours perceived by raters to be relevant to Sales and Public relations and therefore confidence was higher in these situations. Therefore, although there were differences in rater confidence, which were frequently observed for the

relevant performance scales (Planning and Organizing, Monitoring business indicators, Sales, and Public relations), they were not always in the expected direction and sometimes differed depending on whether an accountant manager or personnel manager job description was involved. Generally speaking the evidence pertaining to rater confidence for either rating form type is inconclusive.

Personality Rating Results

Standardized personality scale means. Table 24 contains the standardized personality scale scores for the rater groups divided by profile type. For each of the experimental group N = 40 while for each of the control groups N = 5. These scale scores were indicative of the inferences that raters within each group made of their target profiles. It should be remembered that all groups contained identical descriptions of neutral personnel data regarding customer satisfaction, customer complaints, departmental waste, absenteeism, and sales accounts.

The presence of congruent or incongruent personality information was reflected in the personality ratings. For group PC (Figure 12a), work-related performance behaviours (Planning and Organizing, Monitoring business indicators) and non-work-related personality behaviours congruent with Dimension I+ (Autonomy+, Cognitive structure+, Endurance+, Harmavoidance+, Order+, Understanding+) were presented to the raters. The standard scores obtained for the personality scales consistent with Dimension I+ were for Autonomy (z = .19), Cognitive structure (z = 1.68), Endurance (z = .69), Harmavoidance (z = 1.39), Order (z = 1.14), and Understanding (z = 1.00). For group PI (Figure 12a), incongruent personality behaviours (Autonomy-, Cognitive structure-, Endurance-, Harmavoidance-, Order-, Understanding-) were presented along with work-related

performance behaviours congruent with Dimension I+ (Planning and Organizing, Monitoring business indicators). In terms of the personality ratings for Group PI (Figure 12a) the standard scores obtained for the personality scales consistent with Dimension I+ decreased: Autonomy (z = -.57), Cognitive structure (z = -1.01), Endurance (z = -1.52), Harmavoidance (z = .13), Order (z = -.44), and Understanding (z = -1.57). Therefore personality scale ratings generally decreased from the congruent to the incongruent personality condition for Dimension I+.

Inferred personality ratings were also obtained for scales consistent with the opposite, Dimension I-, inferential space but where directly relevant behaviours were not presented to the raters. In terms of the inferred personality ratings for Group PC (Figure 12b) the standard scores obtained for the personality scales consistent with Dimension I- were for Affiliation (z = -1.50), Exhibition (z = -1.17), Impulsivity (z = -1.28), and Play (z = -1.31). Therefore, raters also made inferences about the target profile's personality scores relating to the Dimension I- inferential space even though only Dimension I+ personality information was provided. When incongruent personality information was presented raters also made the corresponding cha..ges regarding their personality inferences. The standard scores obtained for the personality scales consistent with Dimension I- (Figure 12b) increased: Affiliation (z = .47),

Exhibition (z = .10), Impulsivity (z = .95), and Play (z = .16). Therefore, when the negative Dimension I+ personality behaviours were added to the Dimension I+ performance behaviours this not only generated a corresponding decrease in Dimension I+ personality ratings and but also resulted in increases in the inferred Dimension I- personality ratings.

Dimension I- profiles produced a similar patter~ ~f ratings for observed and inferred personality behaviours. For group MC (Figure 12c), work related performance behaviours (Sales, Public relations) and non-work related personality behaviours (Affiliation+, Exhibition+, Impulsivity+, Play+) both congruent with Dimension I- were presented. The standard scores obtained for the personality scales consistent with Dimension I- were for Affiliation (z = 1.31), Exhibition (z = 1.54), Impulsivity (z = 1.67), and Play (z = .87). A general decrease in the relevant Dimension I- personality scales was obtained when incongruent personality information was present in the ratee profile. For group MI (Figure 12c), work related performance behaviours congruent with Dimension I- (Sales, Public relations) was followed by non-work related personality behaviours incongruent with Dimension I- (Affiliation-, Exhibition-, Impulsivity-, Play-). The standard scores obtained for the personality scales consiste~ . with Dimension I- were for Affiliation (z = -1.06), Exhibition (z = -.75), Impulsivity (z = -.61), and Play (z = -.90).

Therefore, a decrease in personality scale ratings occurred between the congruent personality and the incongruent personality condition for Dimension I- relevant personality scales also.

Inferred personality ratings were also obtained for scales consistent with the opposite, Dimension I+, inferential space but where directly relevant behaviours were not presented to the raters. The standard scores obtained for the personality scales consistent with Dimension I+ (Figure 12d) were for Autonomy ($z = -.03$), Cognitive structure ($z = -1.31$), Endurance ($z = -1.48$), Harmavoidance ($z = -1.01$), Order ($z = -.61$), and Understanding ($z = -1.59$). Therefore, raters also made inferences about the target's personality scores relating to the Dimension I+ inferential space even though only Dimension I-personality information was provided. When incongruent personality information was provided raters also made the corresponding changes with regard to inferred personality scales and in a manner consistent with the defined inferential space. The standard scores obtained for the personality scales consistent with Dimension I+ (Figure 12d) were for Autonomy ($z = -.08$), Cognitive structure ($z = .82$), Endurance ($z = -.56$), Harmavoidance ($z = 1.10$), Order ($z = .58$), and Understanding ($z = -1.12$). Therefore, raters made inferences about the target's personality scores. When the negative Dimension I- personality behaviours were a ed

to the Dimension I- performance behaviours this not only
generated a corresponding decrease in Dimension I-
personality ratings and but also resulted in increases in
Dimension I+ personality ratings (the only exception to this
was for Autonomy where no changes were observed from the
congruent to the incongruent condition).

For group N, where only neutral personnel data
(regarding customer satisfaction, customer complaints,
departmental waste, absenteeism, and sales accounts) were
presented, raters made inferences about the personality of
the ratee. The standard scores obtained for the personality
scales consistent with Dimension I+ were for Autonomy
($z = -.41$), Cognitive structure ($z = 1.30$), Endurance
($z = -.14$), Harmavoidance ($z = 1.49$), Order ($z = 1.23$), and
Understanding ($z = -.98$). The standard scores obtained for
the personality scales consistent with Dimension I- were for
Affiliation ($z = -.96$), Exhibition ($z = -1.16$), Impulsivity
($z = -.65$), and Play ($z = -1.12$). Therefore, even for
supposedly neutral personnel data raters readily make
inferences regarding personality characteristics.

In summary, evidence has been obtained that raters make
inferences about personality in a systematic and predictable
manner that is consistent with the implicit theory of
personality and performance obtained from the
multidimensional scaling of Study 1. These personality
ratings pertain to both observed personality relevant

behaviours and inferred personality behaviours. Finally, evidence has also been obtained that raters draw inferences about personality from even objective personnel data. The implications of these findings will be discussed in the following section.

Table 24

Standardized Personality scale scores for the Employee Profiles of four experimental and five control groups (Rating Form and Job Description combined)

APRF Scale	Experimental					Control			
	PC	MC	PI	MI	PA	MA	PB	MB	M
Ab	0.04	-0.46	-0.27	-0.10	0.01	-1.21	-0.36	-0.97	0.13
Ac	0.45	-1.05	-0.79	-0.52	0.20	-1.23	0.72	-1.23	0.10
Af	-1.50	1.31	0.47	-1.06	-1.44	1.17	-0.57	1.37	-0.96
Ag	-0.93	0.30	-0.38	-0.51	-0.78	1.58	-1.07	0.01	-0.68
Au	0.19	-0.03	-0.57	-0.08	-0.20	0.20	-0.10	0.10	-0.41
Ch	-2.14	-0.04	-1.10	-1.94	-2.49	-0.64	-1.91	-0.17	-1.56
Cs	1.68	-1.31	-1.01	0.82	1.80	-1.34	1.70	-0.22	1.30
De	0.08	0.67	0.16	0.21	0.49	1.29	0.00	0.89	0.39
Do	-0.41	0.24	-0.65	-0.59	-0.09	0.07	-0.49	0.47	-0.01
En	0.69	-1.48	-1.52	-0.56	0.63	-2.03	-0.26	-1.26	-0.14
Ex	-1.17	1.54	0.10	-0.75	-0.91	1.69	-0.57	1.77	-1.16
Ha	1.39	-1.01	0.13	1.10	1.58	-1.05	1.22	-0.77	1.49
Im	-1.28	1.67	0.95	-0.61	-1.23	1.68	-1.23	1.00	-0.65
Nu	-1.09	-0.08	-0.74	-0.90	-1.45	-0.96	-0.67	0.30	0.40
Or	1.14	-0.61	-0.44	0.58	1.06	-0.99	1.15	-0.25	1.23
Pl	-1.31	0.87	0.16	-0.90	-1.41	0.97	-1.21	1.07	-1.12
Se	-0.92	-1.00	-1.17	-1.47	-0.74	-0.74	-0.96	-0.85	-0.96
Sr	-0.43	0.00	-0.37	0.54	-0.46	0.31	0.21	0.69	0.40
Su	-0.96	-0.18	-0.04	-0.66	-1.08	0.25	0.44	-0.03	0.06
Un	1.00	-1.59	-1.57	-1.12	0.95	-1.73	-0.02	-1.51	-0.98

Figure 12a Standardized Personality scale scores for observed Dimension I+ Personality related behaviours (Autonomy, Cognitive structure, Endurance, Harmavoidance, Order, Understanding): (a) Performance, Congruent Personality, and Personnel data; and (b) Performance, Incongruent Personality, and Personnel data.
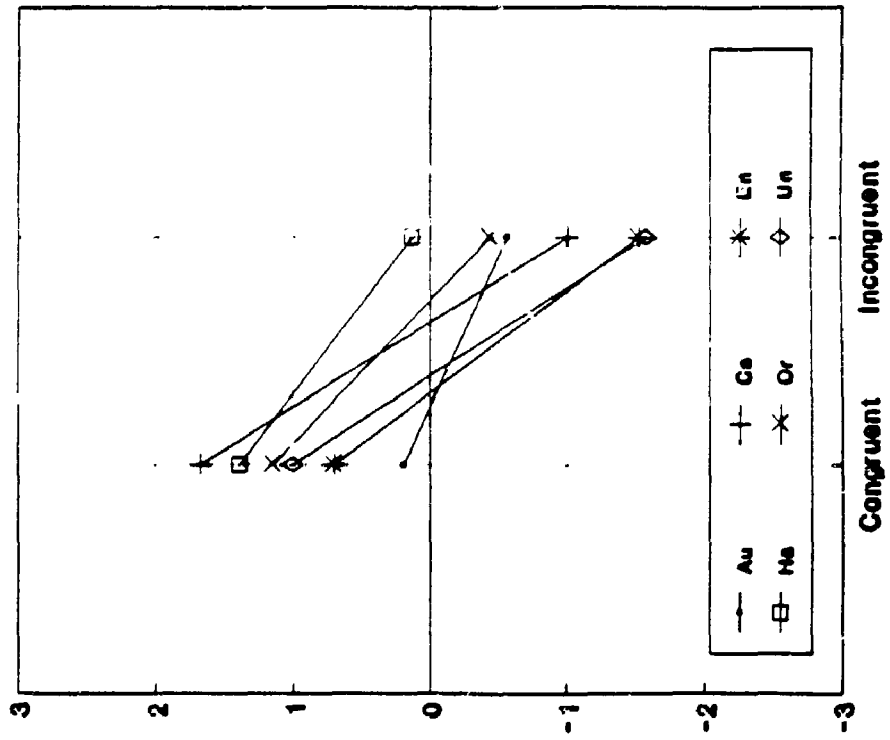
Figure 12b Standardized Personality scale scores for inferred Dimension I+ Personality related behaviours (Affiliation, Exhibition, Impulsivity, Play): (a) Performance, Congruent Personality, and Personnel data; and (b) Performance, Incongruent Personality, and Personnel data.
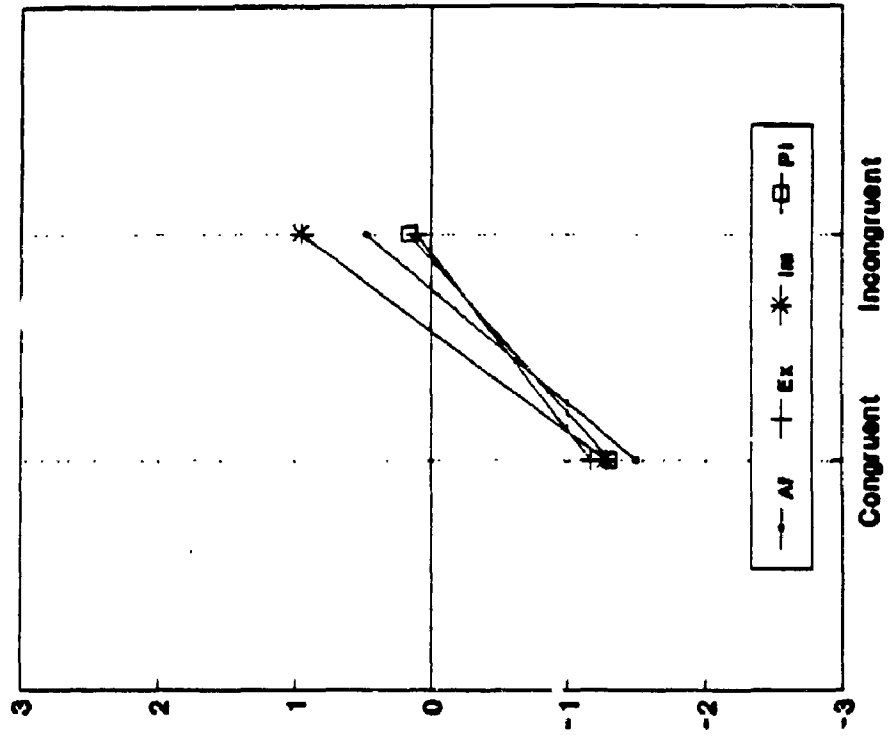
Figure 12b

Inferred personality

Figure 12a

Observed personality

Figure 12c Standardized Personality scale scores for observed Dimension I- Personality related behaviours (Affiliation, Exhibition, Impulsivity, Play): (a) Performance, Congruent Personality, and Personnel data; and (b) Performance, Incongruent Personality, and Personnel data.

Figure 12d Standardized Personality scale scores for inferred Dimension I- Personality related behaviours (Autonomy, Cognitive structure, Endurance, Harmavoidance, Order, Understanding): (a) Performance, Congruent Personality, and Personnel data; and (b) Performance, Incongruent Personality, and Personnel data.
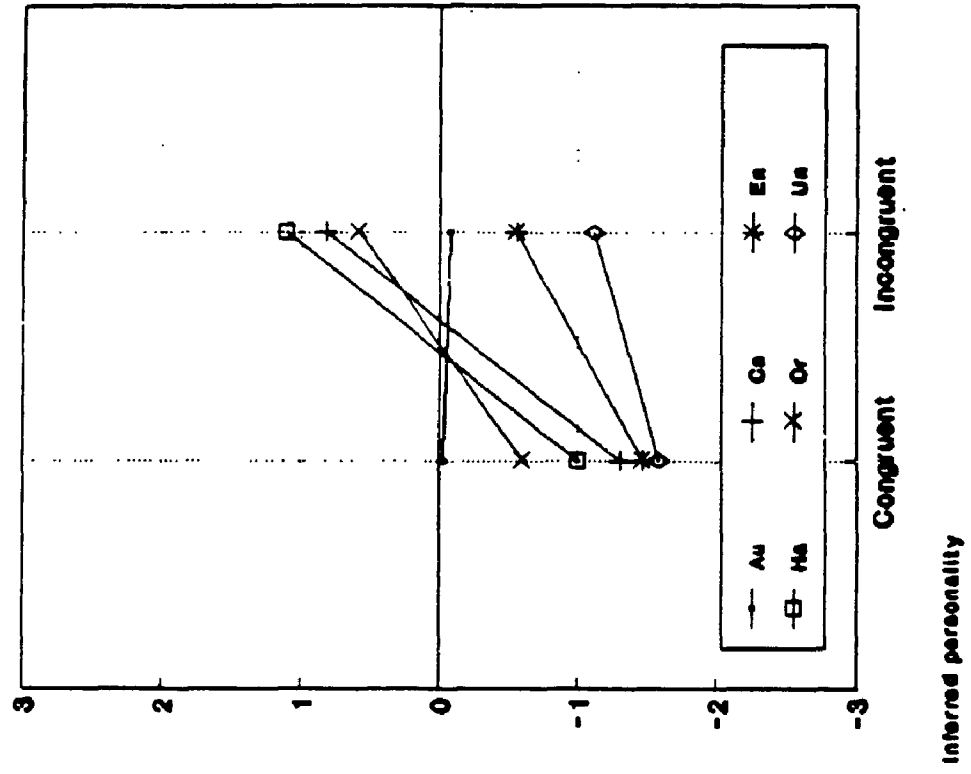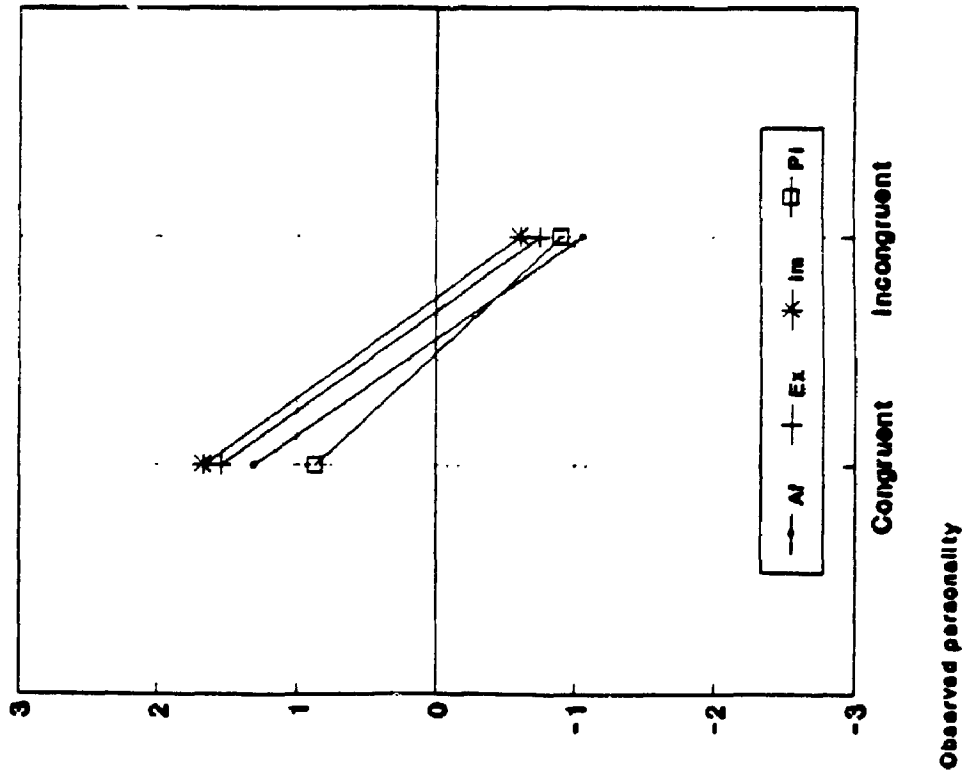
Figure 12d

Inferred personality

Figure 12c

Observed personality

Study 2: Discussion

Support was obtained for the first hypothesis that raters' inferential network of personality and performance relationships would influence perceptions of ratee performance and ratings of ratee performance. Personality information occupying a specific portion of raters' inferential network impacted not only on the interpretation of performance information occupying that same inferential space but also affected the interpretation of performance information occupying the opposite pole of that specific dimension. These effects were clearly observed when specific performance scales were examined.

However, when overall ratings of employee effectiveness were compared there were no significant differences between experimental groups. There are several alternative explanations for this observation. First, it may be that the overall rating actually reflects student raters' global perceptions of the target employee's performance. This would be consistent with earlier research indicating that global measures are more susceptible to halo error than multifaceted measures. However, alternative explanations cannot be discounted with the current study. One possibility is that student raters' knowledge of accountant managers or personnel managers may be deficient. They therefore may not have a full appreciation of the relevance of specific performance behaviours. It may have been necessary to obtain

a multidimensional scaling of students' judgments of
personality and performance as it specifically pertained to
their perceptions of accountant managers' or personnel
managers' overall effectiveness on the job. A second
possibility is that the specific behavioural stimuli may not
have been impactful or numerous enough, from the raters'
perspective, to warrant indicating differences in overall
ratings. That is, students may not have perceived the higher
ratings on the performance scales of Sales and Public
relations to be indicative of improved performance in the
context of personnel managers just as they may not have
perceived high ratings on the performance scales of Planning
and Organizing and Monitoring business indicators to be
especially indicative of increased performance for
accountant managers. It is possible that the inferences
made of the neutral performance information outweighed the
impact of the two performance behaviours added to the
ratee's profile. Therefore, students may have perceived the
high ratings on the relevant performance scales as being
reflective of variations in overall effectiveness but not
large enough to offset the impact of other types of
performance information. A third possibility, and one
somewhat related to the first, is that raters may have
considered Dimension II or III to be more relevant to
overall effectiveness than Dimension I. Although this is
possible it is not a probable option since earlier research

has indicated a high degree of association between the
selected occupations and Dimension I as defined in the first
study. A fourth possibility is that raters may have
perceived other performance dimensions to be more relevant
to the specific target occupations. That is, it is possible
that the performance stimuli incorporated into the
multidimensional scaling of Study 1 were not comprehensive
enough and thus precluded the discovery of other potentially
relevant dimensions. This alternative is also unlikely
since the stimuli were selected from highly relevant
managerial performance dimensions defined in the earlier
literature.

Partial support was obtained for the second hypothesis
that the extent to which personality information was
incorporated into the rating process would depend upon its
job relevance. The personality behaviours were designed to
be indicative of non-work related personality behaviours.
Some performance scale ratings did differ from the congruent
personality to the incongruent personality condition. This
implies that implicit theories are not always used discrimi-
natingly and may act as a source of rater bias. An
alternative explanation is that these personality behaviours
may actually be work relevant and that the stimuli were not
as work independent as originally intended. Although the
personality behaviours were not intended to be directly
indicative of specific performance levels, it is possible

that raters could have perceived these personality related behaviours as being relevant to the ratee's work performance. This argument may be a possible explanation when Dimension I- personality stimuli are examined. However, the clustering of Dimension I+ personality behaviours clearly cannot be explained by this same argument. That is, Autonomy (e.g., living in a lonely place), Cognitive structure (e.g., preparing a timetable beforehand when going on a trip), Harmavoidance (e.g., avoiding some hobbies and sports because of their dangerous nature), and Understanding (e.g., being more at home in an intellectual discussion than in a discussion of sports) are not intuitively related to the work performance behaviours indicative of Planning and Organizing or Monitoring business indicators.

Rater confidence did differ between the congruent personality information condition and the incongruent personality information condition. That is, incongruent personality information tended not only to alter performance ratings but also, for some performance scales, decreased rater confidence in these ratings. However, raters did not incorporate this difference in the level of rating confidence into their overall ratings of employee effectiveness. In addition, no distinction was made between rater confidence in relation to overall effectiveness ratings for target profiles.

Support was obtained for the third hypothesis that

performance rating form format would impact on performance ratings. Not surprisingly, the range of performance scores was higher for the behaviourally based rating form than for the trait based rating form. That is, the difference between observed performance ratings and inferred performance ratings, in the congruent information conditions, was smaller for the trait based rating forms than for the behaviourally based rating forms. In addition, ratings from the congruent personality to the incongruent personality condition, tended to differ to a greater extent when behaviourally based rating forms were used.

Support was not obtained for the fourth hypothesis that the type of job description information would impact on information salience and subsequent performance ratings. No differences appeared between the trait-based and the task-based job descriptions. It was expected that trait-based job descriptions would make the relationship between ratee performance and the trait-based rating form very obvious to the raters, and that the task-based job descriptions would be slightly more difficult to relate to the performance behaviours and behaviorally-based rating form. However, this did not appear to be the case.

In summary, it is possible to conclude that raters use personality information in performance ratings in a manner consistent with their implicit theories of personality and performance. This did not, however, appear to impact on the

overall rating of employee effectiveness for the accountant manager or the personnel manager. This latter finding may be the result of any of the several factors previously outlined but does not detract from the original observation. The implications of these findings are covered in the general discussion at the end of this dissertation.

Study 3

Experimental study of Teacher Evaluations

and Implicit Theories

The third study was conducted in order to examine the impact of raters' implicit theories within a context in which raters were very familiar with the specific performance behaviours and actual performance was observed rather than simulated via the use of written vignettes. Kozlowski, Kirsch and Chao (1986) found that "The association between conceptual similarity and rating covariance was significantly greater when raters lacked sufficient job knowledge and/or ratee knowledge" (p.45). Since teacher performance and evaluation are very familiar to most undergraduate psychology students, their use provides an ideal context for this study.

Implicit theories of Teaching Performance

Although implicit theories of performance have not generally been studied within the organizational context, they have been directly examined within the context of the student ratings of teaching performance.

Accuracy. Perhaps predictably, debates have also ensued over the issue of implicit theories of teaching performance. Some researchers such as Abrami, Leventhal, and Dickens (1981), Whitely and Doyle (1976), and Cadwell and Jenkins (1985) have advanced the premis that teacher evaluation

ratings may be more indicative of raters' implicit theories of teaching behaviours than the actual dimensions of teaching behaviours.

Marsh and Groves (1987) responded to Cadwell and Jenkins' criticism by pointing out that a logical error had been made in Cadwell and Jenkins' (1985) interpretation of Marsh's (1984) data. The observation that student factor structures and teacher self-rating factor structures were similar did not necessarily mean, as Cadwell and Jenkin's argued, that teachers relied on their implicit theories of teaching performance in generating their responses. It should be noted that Larson (1979) also previously suggested that such similarity was due to similarities of implicit theories of teaching performance. Marsh and Groves argued that "teachers are uniquely able to observe their own teaching behaviours. Thus, teachers have little need to rely on inferences about their own behaviour derived from their implicit theories of behavioral covariation" (p. 483). Therefore the similarity between factor structures was viewed as being indicative of the accuracy of students' implicit theories of teaching performance.

Semantic similarity. Cadwell and Jenkins (1985) went even further than the reexamination of Marsh's (1984) data and conducted a study that purportedly challenged the existence of implicit theories of teaching performance. One conclusion that they arrived at was that the ratings

indicated more about the semantic similarity of the items than about the actual relationships between teacher behaviours. Their position was that items covary, not because they were perceived to be related, but because they were merely rewordings of the same item. Although this position has been expressed within the context of the personality literature (D'Andrade, 1974; Mirel, 1976; Mirel, 1982a; Shweder, 1975), and contested (Block, Weiss, and Thorne, 1979; DeSoto, Hamilton and Taylor, 1985; Gara and Rosenberg, 1981; Jackson, Chan and Stricker, 1979; Jackson and Stricker, 1982), it has only recently been forwarded in relation to the rating of teaching behaviours.

Larson (1979) also pointed out that, although studies are correctly using factor analysis in order to demonstrate the existence of student raters' implicit theories, the technique is being inappropriately applied when used to determine whether or not raters' implicit theories are a source of error.

Personality and Implicit Theories of Teaching Performance

This study will extend or contribute to the literature by suggesting that students will not only use implicit theories of teaching performance but that student evaluations will be affected by the overlap between implicit personality theories and implicit theories of teaching performance. It is proposed that students will incorporate personality information in their teacher performance

evaluation and that this will reflect their implicit theories about both teacher personality and performance. The study does not address the issue of whether students' implicit theories are valid, only whether students' implicit theories are applied in a discriminating or biased manner. Once again it should be emphasized that the term bias is used in this dissertation to refer to the use of information obtained outside of the relevant performance context. It may be the case that the dimensions or constructs represented by this information are in fact relevant to ratee performance. However, if the information was obtained from observations made outside of the context of teacher-student interactions or direct teaching behaviours and this information is incorporated into ratings of teaching performance, then this is considered to be a source of bias in the rating of teaching performance.

Teaching Effectiveness Dimensions

Global ratings. There have been two major positions regarding the dimensionality of teaching effectiveness. One position contends that overall or total ratings provide a more valid indicator of teaching effectiveness than multiple factors. Marsh (1984) states that these researchers have not been able to find empirical support for the validity of individual dimensions. In addition, Marsh suggests that the inability to demonstrate the utility of the multidimensionality of teaching effectiveness is the result

of the design of teaching effectiveness studies. For example, the inappropriate selection of specific teaching effectiveness criterion out of the plethora of choices available will affect researcher findings. Depending on the criterion selected, individual dimensions may or may not exhibit incremental validity over that of overall ratings. Examples of criteria that have been used include student learning, student ratings, ratings by peers, observations by external observers, and teacher self-evaluations.

Multiple dimensions. The second position contends that teaching effectiveness is meaningfully defined by multiple dimensions. In addition, depending on the intended use of the teacher evaluation, a multiple dimensions approach may provide much more useful information for feedback and development. However, the core dimensions of teaching effectiveness have varied both in number and in type throughout the literature. Erdle, Murray, and Rushton (1985) found two main types of behaviours accounting for teacher effectiveness: (a) charisma - as exhibited by expressive speaking, the use of humour, relating subject matter to student interests, and encouraging student participation; and (b) organization - as exhibited by giving lecture overviews, using headings to organize materials, and giving multiple examples to illustrate a concept. Crawford and Bradshaw (1968) list four characteristics crucial to teaching effectiveness: (a) a thorough knowledge of subject

matter, (b) planned and organized lectures, (c) enthusiasm in teaching, and (d) student oriented, friendly, and willing to help students. Six characteristics were determined to be essential by Issacson et al. (1964). These characteristics are: (a) skill, (b) overload, (c) structure, (d) feedback, (e) interaction, and (f) rapport. Frey et al. (1975) suggest that seven factors define teacher evaluations. These factors include: (a) presentation clarity, (b) workload, (c) personal attention, (d) class discussion, (e) organization/planning, (f) grading, and (g) student accomplishments. Marsh (1983) uses a nine factor measure called the Students' Evaluation of Education Quality. The factors included in this measure are: (a) learning/value, (b) instructor enthusiasm, (c) organization, (d) group interaction, (e) individual rapport, (f) breadth of coverage, (g) exams/grading, (h) assignments/readings, and (i) workload/ difficulty. Keaveny and McGann (1978) list thirteen characteristics as important for defining teaching effectiveness: (a) organization of the course; (b) the extent to which lectures are lively, interesting, and informative; (c) the extent to which students are encouraged to ask questions and feel free to discuss material in class; (d) competence of professor; (e) the extent to which an appropriate number of relevant real-world examples are incorporated into lectures and discussions; (f) use of audio-visual aids; (g) the extent to which homework

contributes to students' understanding; (h) adequacy of text; (i) attitude toward students and students' opinions; (j) the extent to which each individual student is treated fairly and equitably; (k) counselling and assistance to students; (l) fairness of tests; and (m) feedback on tests and homework. Therefore, there appears to be little agreement in terms of the total number of dimensions needed to define teaching performance. However, there appear to be some common dimensions, such as the dimensions pertaining to organization and interactions with students, that should be considered in an examination of teaching performance.

Personality and Teaching Performance

Although the third study was designed to examine the impact of "non-relevant" personality behaviours on student ratings of teacher performance behaviours it would be of interest to examine the literature on personality traits that have been considered to be associated with effective teacher performance.

In a study of 37 faculty members Erdle, Murray, and Rushton (1985) correlated teachers' Personality Research Form (Jackson, 1984) trait rating scores with student ratings. Significant positive correlations were obtained for 14 of the 20 personality traits. An examination of the underlying factor structure revealed that two major factors were present: (a) achievement orientation and (b) interpersonal orientation.

Rushton, Murray, and Paunonen (1983) correlated faculty ratings, student ratings, and teacher self ratings on the Personality Research Form (Jackson, 1984) with a rating of overall teaching effectiveness for each faculty member. This measure was calculated for 52 professors and resulted from averaging their overall rating over a six-year period. Numerous significant correlations were obtained for both faculty ratings of the teacher's personality and student ratings of the teacher's personality with the overall teaching effectiveness composite. It should be noted that only one significant correlation was obtained

between teacher personality scores as measured by self-ratings on a personality questionnaire and the overall teaching effectiveness composite. However, the authors , "attribute this lack of predictive validity of self ratings to the fact that they were not made anonymously...evaluation apprehension may have led to distortion or a restriction of range effect"(Rushton, Murray, and Paunonen, 1983, p3). These findings suggest that a relationship between teacher personality and teaching effectiveness may indeed exist.

The traits of Affiliation, Change, Nurturance and Play, as defined by the Personality Research Form (Jackson, 1984), were selected for use in Study 3. These four personality traits were found to be both positively and significantly correlated with ratings of teaching effectiveness by both faculty and student ratings of teacher personality (Rushton, Murray, and Paunonen, 1983). "Non-relevant" or "Non-teaching related" behavioural stimuli were selected based on these personality traits. Although the traits or constructs themselves may indeed be relevant to teacher performance, the specific behavioural stimuli presented to student raters could arguably be characterized as "non-teaching related" because they represent behaviours outside of the context of either the classroom or direct student-teacher interactions.

Hypotheses

This third study examines raters' implicit theories of personality and teaching performance. The study extends the

literature on implicit theories of teaching performance by examining the impact of personality information on teaching ratings. A core set of teaching performance scales were extracted from the wide selection offered in the literature. In addition, the choice of performance stimuli was also based on potential relevance to the teaching performance videotape used in the current study. That is, the choice was restricted to stimuli relevant to observable classroom behaviours. A second potential contribution of this study is from explicitly defining student raters' implicit theories of personality and teaching performance. The two major hypotheses are: (1) student raters will incorporate non-teaching related personality behaviour information into their ratings of observed teaching performance behaviours consistent with students' implicit theories of personality and teaching performance. Inconsistent personality behaviours will reduce profile performance ratings while consistent personality behaviours will increase profile performance ratings; and (2) Students' implicit theories of personality and teaching performance will be definable along a reduced number of dimensions.

Method

Participants

Participants for this study were 75 first year introductory psychology students from the Psychology 20 subject pool. The mean age was 19.4 years. The subject group was composed of 26 males and 49 females.

Design

This study involved two experimental groups and three control groups. Each group was composed of fifteen participants per cell.

Independent variables

The independent variables manipulated were Personality Profile (Profile Y versus Profile Z), and Teaching Performance (Videotape versus no additional information).

Personality profile. Personality relevant information or Teacher Personality Profiles, Y and Z, were generated. Profile Y consists of "non-teaching" related behaviours illustrating the personality of a fictitious individual who is positive on the traits of Affiliation, Change, Nurturance and Play as defined by the Personality Research Form (Jackson, 1984). Profile Z consists of "non-teaching" related behaviours illustrating the personality of a fictitious individual who is negative on these same four personality traits. The personality behaviours are referred to as "non-teaching" related behaviours because they typify behaviours that may be observed within a social context away

from relevant classroom teaching behaviours. Each of the behaviours were based on items obtained from the Personality Research Form (Jackson, 1984). Examples of such behaviours include items containing information regarding: (a) membership in community groups; (b) participation in social functions; (c) hosting neighborhood parties; (d) routes taken while on vacation; and (e) relationship with neighbors. Care was taken to generate items that would have no explicit or direct relationship to classroom teaching behaviours and yet were consistent with the personality traits specified by Erdle et al. (1985) as being relevant to ratings of teaching effectiveness.

Teaching performance stimulus. Performance-relevant information was provided via a 10-minute videotape of a university level lecture of this same fictitious individual. The lecture was presented to students as a sample of a lecture in population biology. The videotape shown contained a 10-minute lecture on "regression to the mean". The use of videotapes for performance appraisal research is generally thought to have been initiated by Borman (1977). The primary advantage of using videotapes is that one is able to compare directly raters' responses to actual observations of ratee behaviours. The videotape was selected due to its "neutral" nature. The tape itself was obtained from Dr. H. Murray's collection of university teaching course tapes and permission to use the tape as stimuli was provided by the

target lecturer in the tape, Dr. Vernon. Other instructors'
videotapes were excluded if they had especially flamboyant
or particularly poor samples of teaching behaviours. This
condition was sought in order to avoid the effects of the
controversial "Dr. Fox effect" (Marsh, 1987).

Dependent variables

Teaching performance dimensions. The teacher
performance rating form was behaviorally based. The
dependent variables include 7-point ratings of effectiveness
on five relevant teaching performance dimensions, 7-point
ratings of rating confidence for each of the performance
dimensions, and one overall effectiveness rating of the
teacher being assessed. The relevant teaching performance
dimensions were obtained from a larger teacher evaluation
questionnaire designed by Jackson (personal communication).
Although seven independent dimensions (i.e., Course
difficulty, Interaction, Structure and Organization,
Communication skills, Impact, Interest, Exams and
evaluations) were defined in the original questionnaire,
along with an additional measure of General effectiveness,
only five were relevant to the conditions of this study.

The five teaching dimensions used were Structure and
Organization (STRUC), Communication skills (COMMU),
Interaction (INTER), Impact (IMPAC), and Interest (NTRST).
Structure and Organization refers to the extent that

materials and concepts are presented in a well organized, logical, and coherent manner. Communication skills refers to the extent that course materials are presented in a lively manner and presentations are adapted to match students' interests. Interaction refers to a lecturer's willingness to be available and to respond to students' requests for assistance. Impact refers to the extent that a lecturer strives to provide additional materials in order to clarify difficult concepts or provide new insights to students. Interest refers to the extent to which a lecturer stimulates students to do better work or increase student participation. A measure of overall teaching effectiveness was also included. Each teaching performance dimension was composed of two behavioural items. It should be noted that other specific dimensions of teaching effectiveness such as workload, grading, and the fairness of tests were not included in this study as the videotape of teaching performance did not provide information relevant to these dimensions.

Ratee personality rating. Participants completed the APRF, a personality questionnaire consisting of 176 true or false items making up 20 substantive personality scales based on the Personality Research Form (Jackson, 1984). Each subject completed the APRF questionnaire from the perspective of the individual on whom they were provided personality and/or teaching performance information.

Behavioural judgment questionnaire. Each subject was given one of two Behavioural Judgment Questionnaires, Form A (n=38) or Form B (n=37). The Behavioural Judgment Questionnaires required that each subject make judgments of similarity, on a 9-point scale. The stimulus used in Form A consisted of 20 Personality Research Form behaviours and 5 teaching performance behaviours plus an item indicating overall teaching effectiveness. The stimulus in Form B consisted of the same 20 Personality Research Form behaviours but 5 different teaching performance behaviours plus an item indicating overall teaching effectiveness (Table 25). The teaching performance behaviours are identical to the behaviours included in the Teacher Evaluation Form.

Table 25

Behavioural Teaching Performance items: Forms A and B

Scale	Code	Item
Structure	S1	A teacher who presents materials in a well organized and coherent manner.
	S2	A teacher who presents concepts in a logical and well structured manner.
Communication	C1	A teacher who is lively in his presentation of the course material.
	C2	A teacher who enjoys adapting presentations to the interests or difficulties of students.
Interaction	I1	A teacher who would eagerly make himself available for consultation with students.
	I2	A teacher who would welcome requests for assistance from students.
Impact	M1	A teacher who would strive, a bit more than other instructors, to provide new insights and perspectives to students in this course.
	M2	A teacher who would take extra time to provide additional examples in order to clarify particularly difficult concepts.
Interest	N1	A teacher who would stimulate students to do better work.
	N2	A teacher who would try new techniques in order to increase student participation.
Overall effectiveness	O1	A teacher who is overall, effective.
	O2	A teacher who is overall, effective.

Procedure

Participants were recruited through the Psychology 20 subject pool. Participants were generally run in groups of 10 to 20 participants per group. Each subject received a Participant Consent form, a Teacher Evaluation Form, an APRF personality questionnaire and a Behavioural Judgments Questionnaire.

Depending on the experimental group that each subject was randomly assigned to, a subject received Teacher Profile Y, Teacher Profile Z, or no profile. Within a particular testing session, and the experimental group that each subject was randomly assigned to, participants may or may not have been required to view a 10-minute videotape of a university-level lecture. Student rater groups requiring no videotape were tested together. For those student rater groups that were to be exposed to a videotape it was explained to the participants that the videotape they were observing was chosen because it was representative of the target person's teaching. It should be noted that when performance information was given it followed the presentation of personality information. Finally, each subject was randomly given either Form A or Form B of the Behavioural Judgments Questionnaire. At the end of each session participants were given their Subject Credit form and a set of Feedback sheets explaining the general purpose of the study they had just participated in.

Data Analysis

The multidimensional scaling procedure used was a nonmetric classical multidimensional unfolding procedure (CMDU). The ALSCAL procedure was applied to a single averaged matrix composed of both Form A and Form B data. This matrix was therefore composed of the similarity scores for 20 rows of personality behaviours by 11 columns of teaching performance behaviours.

Analysis also consisted of a oneway multivariate analysis of variance (MANOVA) procedure followed by univariate F tests. Teacher evaluation scale scores were calculated from the two items used for each scale. APRF scale scores were also calculated. Then standard scores were obtained for each of the 5 groups prior to graphing. The APRF standard score calculation used the reported scale means from the APRF norms while the standard deviations were calculated from the PRF norms since no APRF standard deviations were available. Since the APRF has 8-item scales compared to the PRF's 16-item scales, Gulliksen's (1950) equation for calculating the standard deviation of a test of a different length was used.

Study 3: Results of the Experimental Study of Teacher

Evaluations and Implicit Theories

The multidimensional scaling of raters implicit theories of personality and teaching performance revealed that a two-dimensional configuration provided the best fit in terms of a description of the overlap between the 20 personality behaviours and both the teaching performance behaviours and the rating of overall teaching effectiveness. Raters used non-teaching personality related behaviours to arrive at teaching performance scale ratings. In addition, personality behaviours influenced the perception of observed teaching behaviours presented via a 10-minute videotape. The direction of this influence was consistent with the findings of the multidimensional scaling of personality and teaching performance behaviours. Unlike Study 2, the overall teaching effectiveness ratings in Study 3 also differed significantly between teaching profile types. Rating confidence did not differ between teaching performance ratings and were generally high.

Multidimensional scaling results

Analyses were done using the ALSCAL subroutine for nonmetric classical multidimensional unfolding. Since the same behavioural personality stimuli were used in both Behavioural Judgment Questionnaires and the participants are similar, Form A (20 x 6) and Form B (20 x 6) similarity judgments were combined to create a rectangular 20 by 12,

personality by teaching performance similarity matrix AB.
Matrix AB was therefore a composite of 75 student matrices.
One-, two-, three- and four-dimensional solutions were
obtained for matrix AB.

The appropriate number of dimensions was determined by
several criteria. One criterion that was used was the rate
of reduction of SSTRESS (Kruskal's Formula 2) and the values
for the 1 to 4 dimensional solutions are 0.31, 0.24, 0.24,
and 0.21 respectively (Table 26). It was noted that the
largest drop in SSTRESS occurred for the two-dimensional
solution.

A second criterion was the rate of increase in RSQ (RSQ
values for the 1 to 4 dimensional solutions are 0.91, 0.95,
0.95, and 0.96 respectively. It was also noted that the
largest increase in the variance accounted for was obtained
for the two-dimensional solution. Therefore, after an
examination of the previous criteria it was concluded that a
two-dimensional solution provided the best fit.

The result of the varimax rotated and scaled nonmetric
classical multidimensional unfolding is plotted in Figure
14. Several observations were made. First, although the
teaching performance behaviours were obtained from five
different teaching dimensions, raters perceived these to be
closely related and occupying the same inferential space,
Dimension II-. The teaching performance scales judged to be
closely associated were Interaction, Impact, and Interest.

It should also be noted that Overall teaching effectiveness occupied this same inferential space. The performance behaviours for Communication were not judged by raters to occupy the same inferential space since one stimulus was positioned closer to Dimension I- while the other was judged to be closer to Dimension II-. Personality behaviours perceived by raters to share this space are Nurturance, Affiliation, and Change. Interestingly, Achievement and Endurance were also judged by student raters to occupy the same inferential space, although this was unexpected, it is consistent with the positioning of overall teaching effectiveness within this inferential space. A second observation was that raters perceived the teaching performance behaviours representative of Structure and organization to occupy a separate inferential space, I+, II+. The personality behaviours occupying this region were Cognitive structure and Order. A third observation was that a third group of personality behaviours, Play, Exhibition, and Impulsivity, occupied the Dimension I- region. Surprisingly, the multidimensional scaling results indicated that student raters did not form a strong association between these three personality behaviours and overall teaching effectiveness.

Table 26

Kruskal's Stress 2 values and RSquare from a Nonmetric
Classical Multidimensional Unfolding of the,
personality (20) x teaching performance (12), Behavioural
Judgments Questionnaire: 75 rectangular matrices
combined to generate matrix AB

Number of Dimensions	SSTRESS	RSQ
4	.208	.961
3	.238	.950
2	.240	.946
1	.312	.906

Figure 13 Kruskal's Stress 2 and RSquare from CMDU of Form
AB: 75 matrices from the combined groups
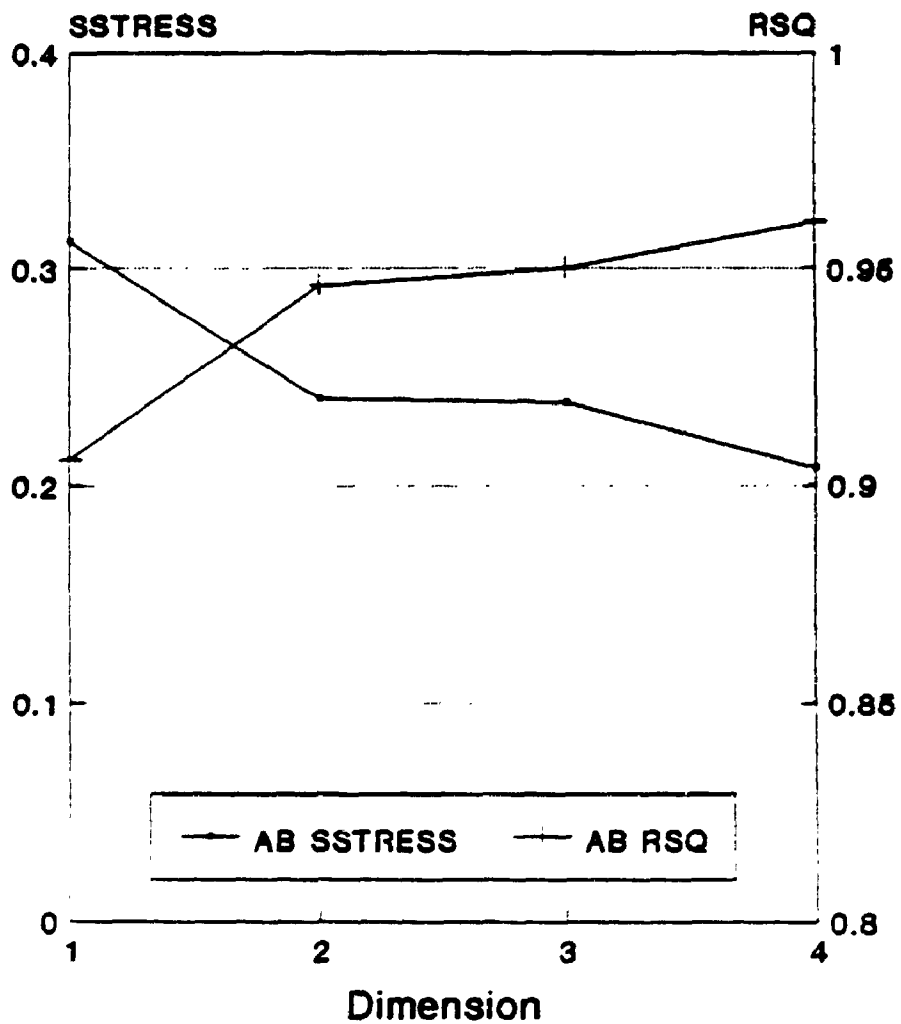
Table 27

Stimulus coordinates for two-dimensional solution
from the Nonmetric Classical Multidimensional Unfolding
of the Personality and Teaching Performance matrix AB:
A composite of 75 rectangular matrices

Stimulus Number	Stimulus Name	Plot Symbol	Dimension I	Dimension II
COLUMN				
1	Structure1	S1	2.02	0.59
2	Communication1	C1	-1.28	1.12
3	Interaction1	I1	-0.89	-0.66
4	Impact1	M1	-0.86	-0.62
5	Interest1	N1	-0.88	-0.75
6	Overall1	O1	-0.81	-0.77
7	Structure2	S2	2.85	0.45
8	Communication2	C2	-1.00	-0.88
9	Interaction2	I2	-0.86	-0.96
10	Impact2	M2	-0.55	-1.05
11	Interest2	N2	-1.03	-0.88
12	Overall2	O2	-0.41	-1.38
ROW				
1	Abasement	Ab	-0.71	0.38
2	Achievement	Ac	-0.61	-0.01
3	Affiliation	Af	-1.02	0.01
4	Aggression	Ag	0.83	0.70
5	Autonomy	Au	1.40	-0.66
6	Change	Ch	-0.95	-0.20
7	Cognitive Str.	Cs	2.60	0.84
8	Defendence	De	0.69	0.60
9	Dominance	Do	0.30	1.21
10	Endurance	En	0.25	-0.93
11	Exhibition	Ex	-0.65	1.09
12	Harmavoidance	Ha	1.23	0.09
13	Impulsivity	Im	-1.38	0.8C
14	Nurturance	Nu	-0.33	-0.68
15	Order	Or	1.88	0.20
16	Play	Pl	-1.58	1.71
17	Sentience	Se	0.35	0.74
18	Social Recog.	Sr	0.34	-0.20
19	Succorance	Su	-0.03	0.28
20	Understanding	Un	1.07	-0.19

Figure 13a

Derived Stimulus Configuration for Dimension I
(Horizontal) versus Dimension II (Vertical) of
the two-dimensional loadings from a Nonmetric
Classical Multidimensional Unfolding of the,
personality x teaching performance, Behavioural
Judgments Questionnaire: 75 rectangular matrices
combined to generate matrix AB
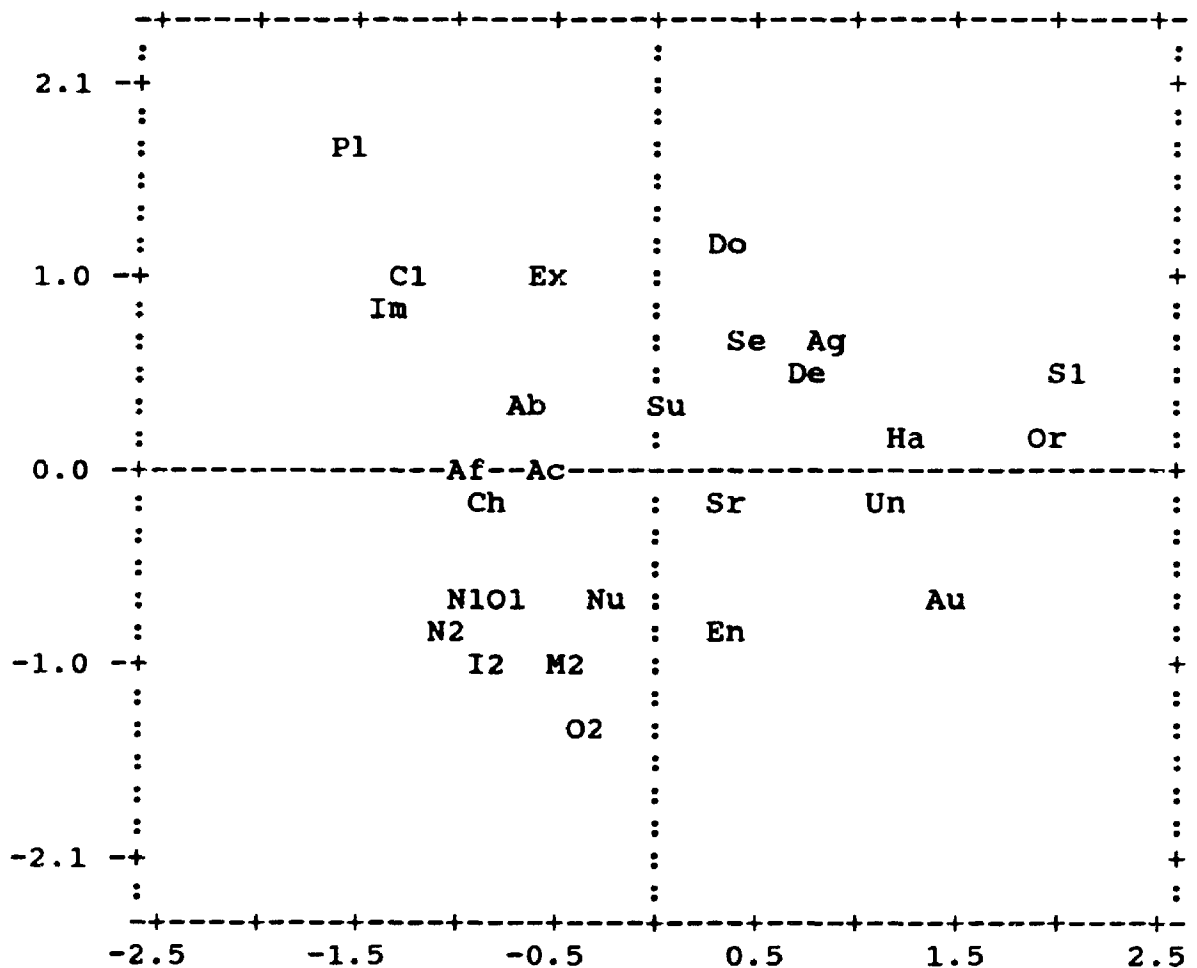
Figure 13b

Scatterplot (Plot of Linear Fit): Distances
(Vertical) versus Disparities (Horizontal)
for the two-dimensional Nonmetric Classical
Multidimensional Unfolding of the,
personality x teaching performance, Behavioural
Judgments Questionnaire: 75 rectangular matrices
combined to generate matrix AB

```
      -+----+----+----+----+----+----+----+----+----+----+-
5.1 -+                                                  +
     :                                                  :
     :                                          X       :
     :                                                  :
     :                                    X             :
4.0 -+                              5                    +
     :                            25                     :
     :                         2  X                       :
     :                        XXX                          :
     :                      2X                             :
     :                    XX3                              :
2.9 -+                 X 33 X                             +
     :              XX 543                                 :
     :              35252                                  :
     :            X97   X                                  :
     :          X3497X                                     :
     :       X  X587 X                                     :
1.8 -+      X   X26X   XX                                 +
     :     X X3X23XX                                       :
     :       X3 2 42                                       :
     :      X6 X9 32                                       :
     :        2324                                         :
     :     XX 4XX2X                                        :
0.7 -+   X442X2                                           +
     : 2XX4   2                                            :
     :X                                                    :
      -+----+----+----+----+----+----+----+----+----+----+-
     0.2      1.2      2.2      3.1      4.1      5.1
```

Table 28

<u>Stimulus coordinates for two-dimensional solution
of Varimax rotated and scaled Personality and
Teaching Performance matrix AB: a composite of
75 rectangular matrices</u>

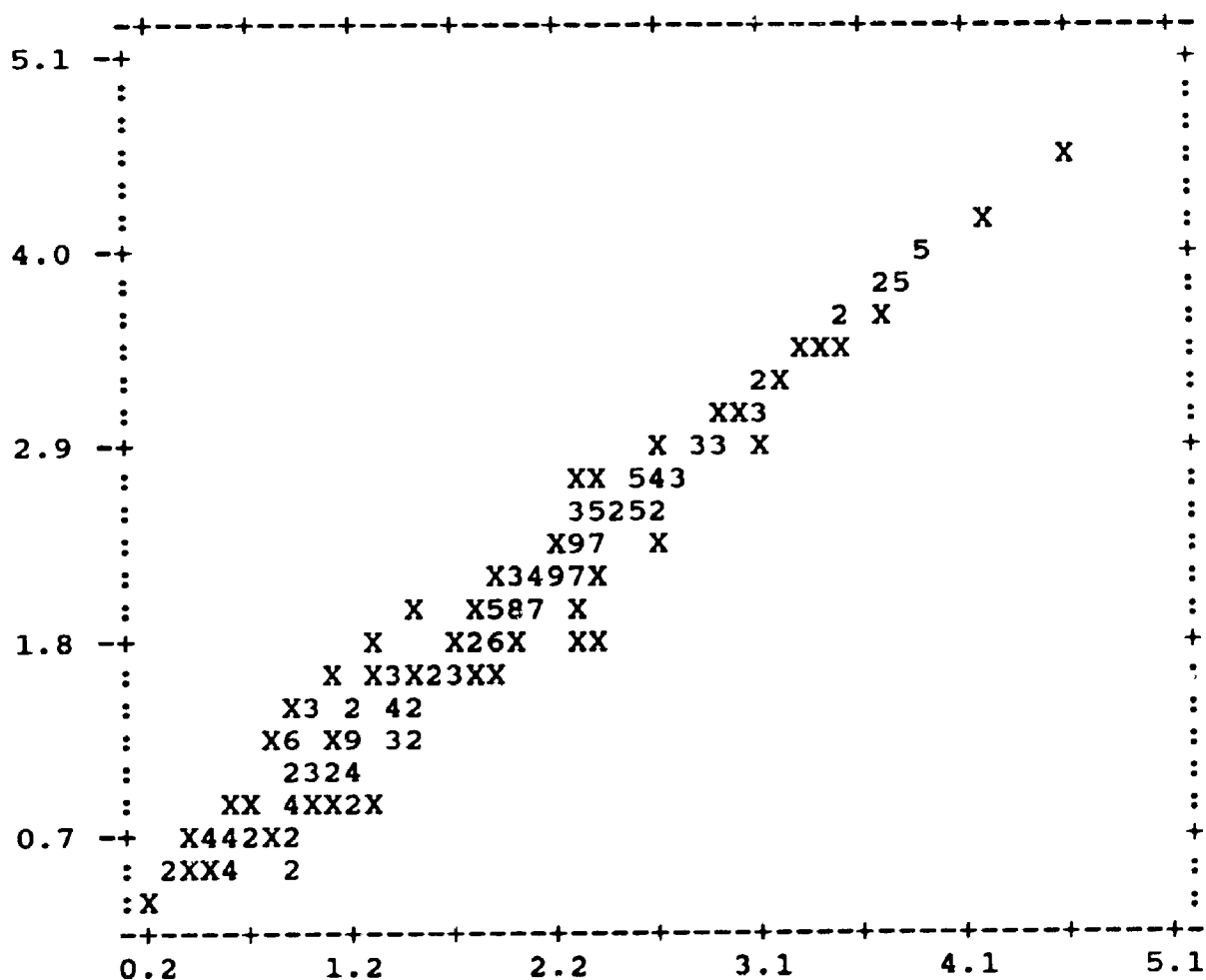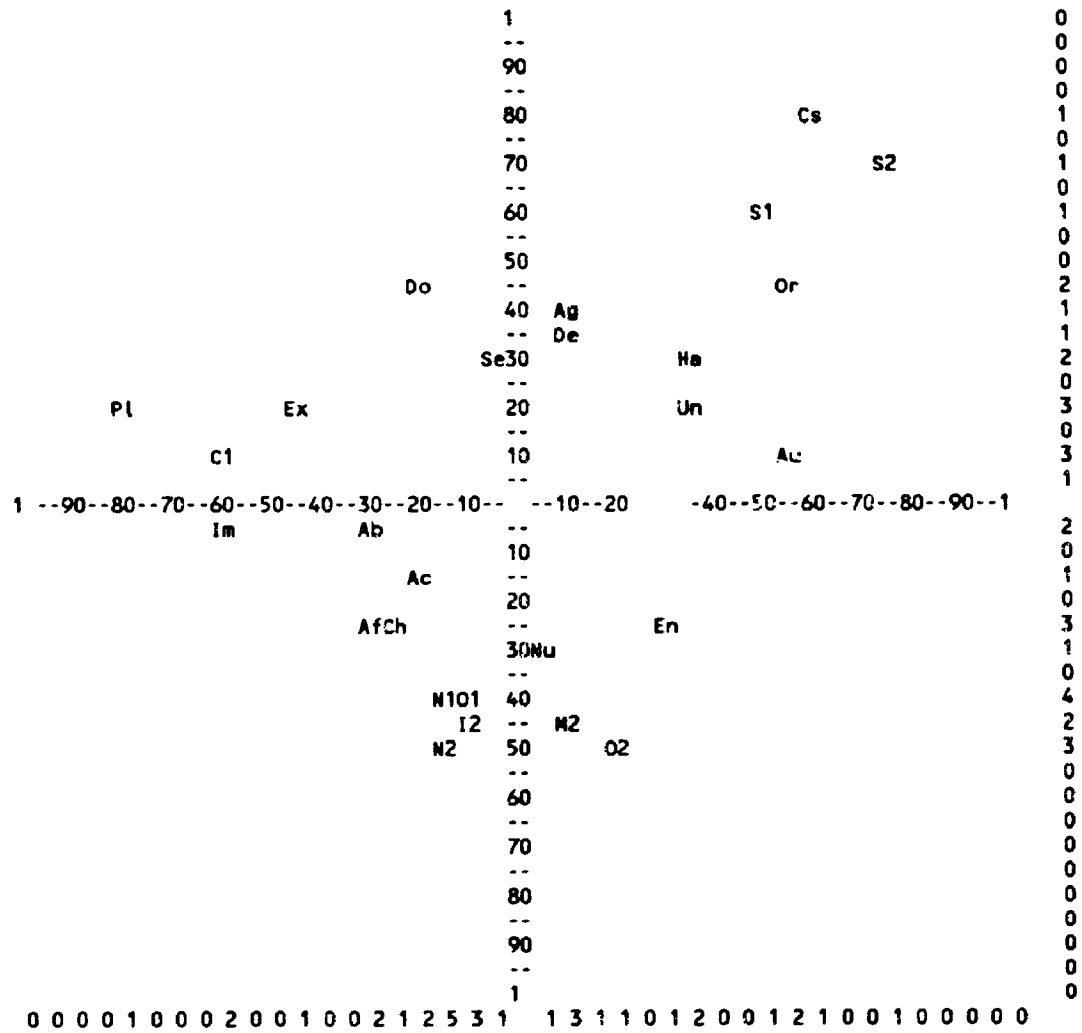| Stimulus Number	Stimulus Name	Plot Symbol	Dimension I	Dimension II
COLUMN				
1	Structure1	S1	0.47	0.57
2	Communication1	C1	-0.59	0.07
3	Interaction1	I1	-0.13	-0.37
4	Impact1	M1	-0.12	-0.35
5	Interest1	N1	-0.10	-0.39
6	Overall1	O1	-0.08	-0.38
7	Structure2	S2	0.73	0.70
8	Communication2	C2	-0.11	-0.45
9	Interaction2	I2	-0.06	-0.45
10	Impact2	M2	0.05	-0.41
11	Interest2	N2	-0.12	-0.46
12	Overall2	O2	0.16	-0.48
ROW				
1	Abasement	Ab	-0.28	-0.03
2	Achievement	Ac	-0.17	-0.12
3	Affiliation	Af	-0.30	-0.20
4	Aggression	Ag	0.10	0.37
5	Autonomy	Au	0.54	0.09
6	Change	Ch	-0.23	-0.25
7	Cognitive Str.	Cs	0.58	0.76
8	Defendence	De	0.08	0.31
9	Dominance	Do	-0.16	0.41
10	Endurance	En	0.26	-0.22
11	Exhibition	Ex	-0.41	0.19
12	Harmavoidance	Ha	0.34	0.27
13	Impulsivity	Im	-0.56	-0.04
14	Nurturance	Nu	0.04	-0.26
15	Order	Or	0.50	0.44
16	Play	Pl	-0.80	0.18
17	Sentience	Se	-0.05	0.29
18	Social Recog.	Sr	0.14	0.01
19	Succorance	Su	-0.07	0.07
20	Understanding	Un	0.35	0.16

Figure 14

Study 3: Plot of Classical Multidimensional Unfolding for the combined (Form AB) results after Varimax rotation of the 2 Dimensional Configuration

```
                                    1                                       0
                                    --                                      0
                                    90                                      0
                                    --                                      0
                                    80                    Cs                1
                                    --                                      0
                                    70                          S2          1
                                    --                                      0
                                    60              S1                      1
                                    --                                      0
                                    50                                      0
                            Do      --              Or                      2
                                    40  Ag                                  1
                                    --  De                                  1
                            Se30            Ha                              2
                                    --                                      0
    Pl           Ex                 20            Un                        3
                                    --                                      0
              C1                    10                    Au                3
                                    --                                      1
1 --90--80--70--60--50--40--30--20--10--   --10--20      -40--50--60--70--80--90--1
              Im          Ab                --                              2
                                    10                                      0
                      Ac            --                                      1
                                    20                                      0
                  AfCh              --            En                        3
                                    30Nu                                    1
                                    --                                      0
                      N101          40                                      4
                        I2    --  N2                                        2
                      N2            50        02                            3
                                    --                                      0
                                    60                                      0
                                    --                                      0
                                    70                                      0
                                    --                                      0
                                    80                                      0
                                    --                                      0
                                    90                                      0
                                    --                                      0
                                    1                                       0
0 0 0 0 1 0 0 0 2 0 0 1 0 0 2 1 2 5 3 1   1 3 1 1 0 1 2 0 0 1 2 1 0 0 1 0 0 0 0 0
```

Structure & organization - S1 and S2   Impact   - M1 and M2
Communication   - C1 and C2   Interest   - N1 and N2
Interaction   - I1 and I2   Overall Teaching
                                            Effectiveness   - O1 and O2

Teacher Effectiveness Rating Results

Multivariate analysis of variance. The oneway multivariate analysis of variance indicated that a significant difference ($F(4, 70) = 3.74$, $p < .001$) occurred between at least two teacher profiles. An examination of the Univariate F tests (Table 29). revealed that the groups differed on the dependent variables of Communication, Interaction, Impact, and Interest. The rater groups also differed significantly on the rating of Overall teaching effectiveness. An examination of the teaching performance scale means provided additional information.

Table 29

Univariate F tests for Teacher Evaluation groups (4,70 d.f.)

Variable	F	p	ETA Square
Structure	.69	.599	.04
Communication	18.24	.001	.51
Interaction	15.76	.001	.48
Impact	12.75	.001	.43
Interest	14.41	.001	.46
Overall effectiveness	9.76	.001	.36

Mean teacher ratings. Several features stand out on
examination of Figure 15. First, although information
pertaining to the dependent variable Structure (STRUC) was
excluded from the personality cues, the average rating for
the dependent variable was consistently high across all five
groups of participants with very little difference between
groups (although the group receiving only profile Y did
provide the lowest ratings of all five groups). Although
student ratings for Structure were consistently high and
demonstrated very little variability, the overall ratings of
teaching effectiveness varied from ratee profile to ratee
profile. Second, the average ratings for the other four
variables, Communication (COMMU), Interaction (INTER),
Impact (IMPAC), and Interest (NTRST), differed significantly
across the five groups (see Appendix IV for post hoc test).

Differences in group ratings were consistent with the
implicit theories of personality and teaching performance
derived from the Nonmetric Classical Multidimensional
Unfolding of the composite matrix AB. Positive Dimension II-
nonteaching related personality information (Affiliation+,
Change+, Nurturance+, Play+) enhanced ratings of
effectiveness on five teaching performance scales and a
global rating. Whereas negative Dimension II- nonteaching
related personality information (Affiliation-, Change-,
Nurturance-, Play-) decreased ratings of effectiveness on
these same five teaching performance scales as well as the

global rating.

The profile Y only (Affiliation +, Change +, Nurturance +, Play +) group produced the highest ratings across the variables of Communication (M = 12.35), Interaction (M = 11.88), Impact (M = 11.94), and Interest (M =11.88). The group receiving profile Y and the 10-minute video of teaching performance produced the second highest average ratings on these four variables, Communication (M = 8.53), Interaction (M = 10.93), Impact (M = 10.07), and Interest (M =9.73). The group given only the teaching video produced ratings that were lower than these two groups on these same four variables Communication (M = 6.33), Interaction (M = 9.20), Impact (M = 8.40), and Interest (M = 7.27). Therefore, nonteaching related positive Dimension II-personality behaviours acted to positively bias raters' perceptions of teaching behaviours.

The next lowest average ratings were obtained from the group receiving profile Z nonteaching related personality information (Affiliation -, Change -, Nurturance -, Play -) only, Communication (M = 5.85), Interaction (M = 5.93), Impact (M = 6.57), and Interest (M = 6.50) . The group receiving profile Z and the 10-minute video on teaching performance produced the lowest teaching performance ratings: Communication (M = 4.80), Interaction (M = 4.93), Impact (M = 5.40), and Interest (M = 4.80). It should be remembered that the group given only the teaching video

produced the following ratings on these same four variables:
Communication ($\underline{M}$ = 6.33), Interaction ($\underline{M}$ = 9.20), Impact ($\underline{M}$ = 8.40), and Interest ($\underline{M}$ = 7.27). Therefore, nonteaching related negative Dimension II- personality behaviours acted to negatively bias raters' perceptions of teaching behaviours below that of either types of information acting independently.

The same ranking was obtained across the five groups when participants rated the overall effectiveness of the target lecturer for their specific group. Since the multidimensional scaling indicated that raters perceived the teaching performance scales of Communication, Interaction, Impact, and Interest as occupying the same inferential space as Overall teaching effectiveness, this finding was not surprising.

In summary, raters used their implicit theories of personality and performance in a systematic and predictable manner. The "Dr. Fox effect" (Marsh, 1987), where student ratings were influenced by especially outgoing or flamboyant behaviours, was not observed in the current study. However, this was expected since the videotapes were deliberately screened in order avoid the potential impact of a particularly charismatic lecturer. Interestingly, the multidimensional scaling results indicated that overall teaching effectiveness was more closely associated with Nurturance, Change, and Affiliation than Play, Exhibition,

and Impulsivity. Perhaps the effect, at least as obtained in this study, would be more appropriately termed the "Mother Goose effect" since overall effectiveness appears to be associated more with Nurturance than Exhibition. Ratings of teaching effectiveness were consistent with the implicit theory of personality and performance obtained from the multidimensional scaling.

Surprisingly, ratings of teaching Structure and Organization were generally rated at a high level. A ranking of the ratings was consistent with the predicted order, with profile Y having the lower rating and profile Z having the higher rating, but these differences between profile groups on Structure and Organization were not statistically significant. A possible explanation for this finding might be that the teaching performance videotape presented such a well structured lecture that the personality information was not impactful enough to offset the effects of this observed behaviour.

Table 30

Mean Teacher Evaluation Scale Scores; (Y&P) Profile Y and
Performance; (Z&P) Profile Z and Performance; (Y) Profile Y
(Affiliation+, Change+, Nurturance+, Play+); (Z) Profile Z
(Affiliation-, Change-, Nurturance-, Play-); and
(P) Performance only

| | Teacher Profile | | | | |
| | Experimental | | Control | | |
Performance Scales	Y&P	Z&P	Y	Z	P
Structure	11.67	10.20	10.31	11.36	11.13
Communication	8.53	4.80	12.35	5.85	6.33
Interaction	10.93	4.93	11.88	5.93	9.20
Impact	10.07	5.40	11.94	6.57	8.40
Interest	9.74	4.80	11.88	6.50	7.27
Overall effectiveness	10.66	6.66	12.12	7.28	9.60

Figure 15 Plot of Teacher Evaluation Scale Scores: (Y&P) Profile Y and Performance; (Z&P) Profile Z and Performance; (Y) Profile Y (Affiliation+, Change+, Nurturance+, Play+); (Z) Profile Z (Affiliation-, Change-, Nurturance-, Play-); and (P) Performance only

Figure 15
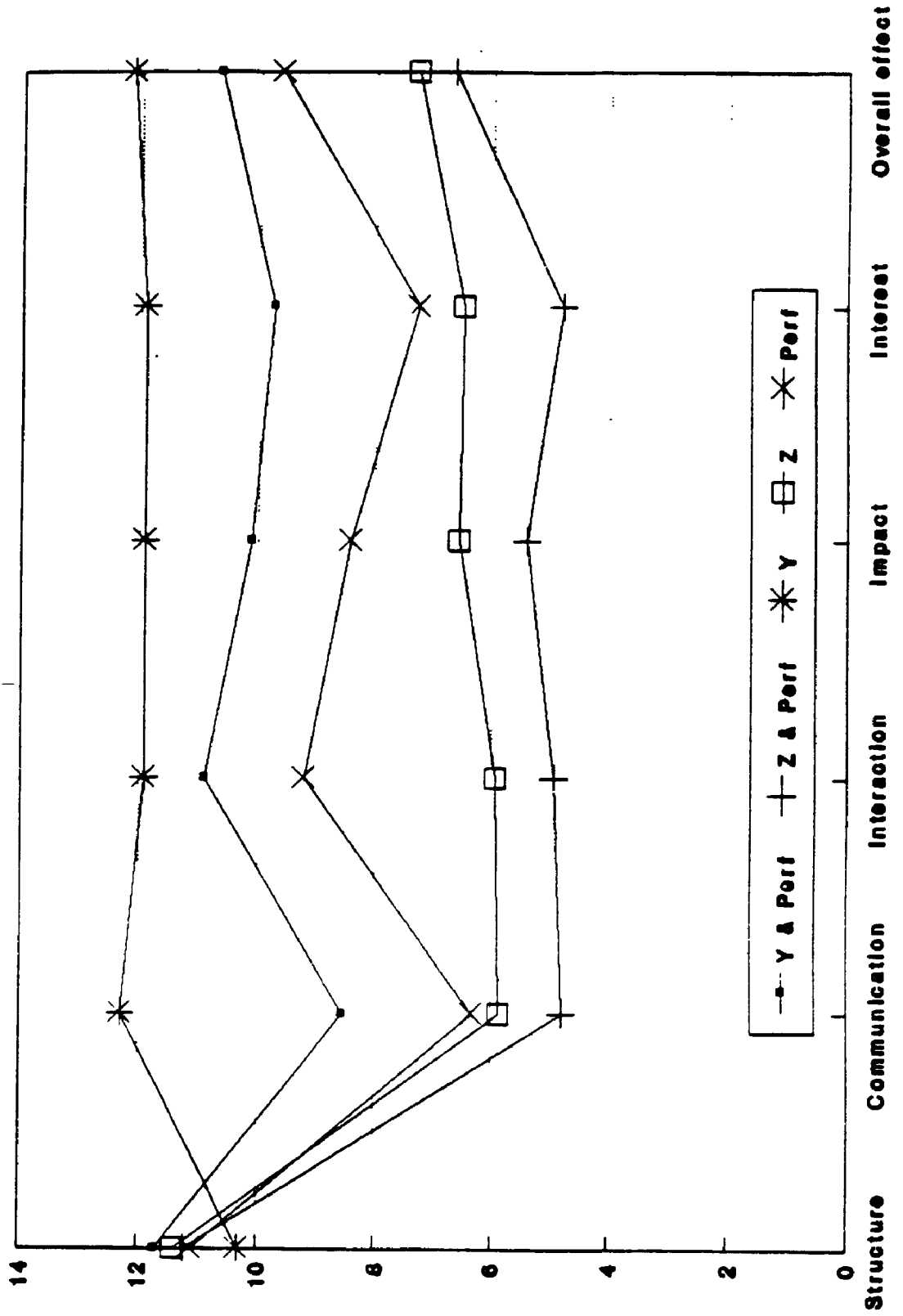
Confidence in teacher rating results

Confidence in ratings of teaching effectiveness did not differ significantly between groups (Table 31a). The group receiving the videotape of teaching performance were not any more confident in their ratings than groups receiving only personality information (Table 31b). The confidence ratings for each group were at a moderate and positive level ranging from $M = 5.38$ to $M = 6.00$ (Table 31b).

Table 31a

Oneway Multivariate Analysis of Variance of
Confidence Ratings for 5 Teacher Profile Group
Ratings

Effect	F	p
Teacher Profile Group	1.06	-

Table 31b

Mean Confidence ratings: (Y&P) Profile Y and Performance;
(Z&P) Profile Z and Performance; (Y) Profile Y
(Affiliation+, Change+, Nurturance+, Play+); (Z) Profile Z
(Affiliatio,-, Change-, Nurturance-, Play-); and (P)
Performance only

| | Teacher Profile | | | | |
| | Experimental | | Control | | |
Performance Scales	Y&P	Z&P	Y	Z	P
Structure	5.77	6.00	5.38	5.68	5.83
Communication	5.57	5.97	5.91	5.46	5.90
Interaction	5.93	5.63	5.72	5.71	5.60
Impact	5.63	5.83	5.63	5.54	5.63
Interest	5.70	5.77	5.53	5.57	5.63
Overall Effectiveness	5.60	5.67	6.00	5.93	5.60

Personality Rating Results

Standardized personality scale means. Figure 16
indicated the inferences that participants made regarding
their teacher profile's personality. It was noted that the
Dimension II- personality scale scores (Affiliation, Change,
Nurturance, Play) maintained the same relative ranking for
each teacher profile group as the performance ranking. That
is, the highest means were obtained for profile Y, followed
by profiles Y&P, P, Z, and finally, Z&P.

Teacher profile group Y received only non-teaching
related personality behaviours worded in the positive
direction for the personality scales of Affiliation, Change,
Nurturance, and Play. The standardized personality scale
means for the personality scales of primary interest were
for the Dimension II- personality scales of Affiliation (z =
1.22), Change (z = .92), Nurturance (z = .65), and the
Dimension I- scale, Play (z = .84). Although no additional
behaviours were presented to the raters, inferences were
made regarding other personality scales. Some examples of
potential interest include the Dimension I+, II+ scales of
Order (z = -.30), Harmavoidance (z = -1.30), Understanding
(z = -.44), and Autonomy (z = .06). Other examples are the
Dimension I- scales of Exhibition (z = 1.33) and Impulsivity
(z = 1.18). Therefore, students based ratings of personality
on the information provided and made inferences about
personality ratings in a manner that was consistent with the

previously defined implicit theory of personality and teaching performance.

Teacher profile group Y&P received both non-teaching related personality behaviours worded in the positive direction for the Dimension II- personality scales of Affiliation, Change, Nurturance, and the Dimension I- scale, Play and the 10-minute teaching performance video. The standardized personality scale means for the personality scales of primary interest were for Affiliation (z = .63), Change (z = -.25), Nurturance (z = .36), and Play (z = .02). Therefore, the addition of actual observations of teaching behaviour to Dimension II- personality information served to depress ratings on the Dimension II- personality scales. Students appear to combine the information from both sources even though the format of presentation, written vignettes versus videotaped behaviours, differed.

Teacher profile group P received only the 10-minute teaching performance video. The standardized personality scale means for the personality scales of primary interest were for the Dimension II- personality scales of Affiliation (z = .30), Change (z = -1.37), Nurturance (z = -.38), and the Dimension I- personality trait, Play (z = -.49). Inferences were also made regarding other personality scales. Some examples of potential interest include Order (z = .44), Harmavoidance (z = .58), Understanding (z = -.05), and Autonomy (z = -.44). Other examples are the Dimension I-

personality scales of Exhibition (z = .04) and Impulsivity (z = -.42). Therefore, in terms of the Dimension II- personality scales the videotape of teaching behaviour results in personality ratings at an approximate midpoint between the other four profile groups.

Teacher profile group Z received only non-teaching related personality behaviours worded in the negative direction for the personality scales of Affiliation, Change, Nurturance, and Play. The standardized personality scale means for the personality scales of primary interest were for the Dimension II- scales of Affiliation (z = -1.72), Change (z = -2.49), Nurturance (z = -2.03), and the Dimension I- scale, Play (z = -1.05). Although no additional behaviours were presented to the raters, inferences were made regarding other personality scales. Some examples of potential interest include Order (z = 1.03), Harmavoidance (z = 1.09), Understanding (z = .10), and Autonomy (z = .37). Other examples are Exhibition (z = -1.07) and Impulsivity (z = -1.04). Therefore, in terms of Dimension II- personality scales, profile Z produces a reduction in ratings.

Teacher profile group Z&P received both non-teaching related personality behaviours worded in the negative direction for the Dimension II- personality scales of Affiliation, Change, Nurturance, and the Dimension I- scale, Play and the ten minute teaching performance video. The

standardized personality scale means for the personality scales of primary interest were for Affiliation (z = -1.87), Change (z = -2.56), Nurturance (z = -2.32), and Play (z = -1.51). Therefore, the addition of actual observations of teaching behaviour to negatively worded Dimension II- personality information served to depress ratings on the Dimension II- personality scales to a greater extent than either source of information independently.

In summary, ratings of personality are consistent with the earlier results regarding ratings of teaching performance. Raters appear to combine personality information and performance information to arrive at not only individual teaching performance scores but also ratings of personality. The difference in presentation format, written vignette versus videotape of behaviours, did not appear to affect the impact of the information. In addition, some inferences regarding the target profile's personality were made but they were not always in the same rank order. It is also worth reemphasizing that inferences about personality were also made from direct observations of teaching performance.

Table 32

Standardized Personality scale scores for Teacher Profiles:
(Y&P) Profile Y and Performance; (Z&P) Profile Z and
Performance; (Y) Profile Y (Affiliation+, Change+,
Nurturance+, Play+); (Z) Profile Z (Affiliation-, Change-,
Nurturance-, Play-); and (P) Performance only

| | Teacher Profile | | | | |
| | Experimental | | Control | | |
APRF Scales	Y&P	Z&P	Y	Z	P
Abasement	-0.36	-1.65	0.40	-0.74	-0.68
Achievement	0.00	0.31	-0.68	0.12	-0.37
Affiliation	0.63	-1.87	1.22	-1.72	-0.34
Aggression	-0.58	0.56	-0.13	-0.07	0.30
Autonomy	-0.50	0.41	0.06	0.37	-0.44
Change	-0.25	-2.56	0.92	-2.49	-1.37
Cognitive Structure	0.02	1.74	-0.93	1.47	0.83
Defendence	-0.07	1.34	0.03	0.77	0.66
Dominance	-0.09	0.06	0.01	-0.96	0.12
Endurance	0.08	0.33	-0.87	-0.07	-0.22
Exhibition	0.18	-0.88	1.33	-1.07	0.04
Harmavoidance	-0.56	1.34	-1.30	1.09	0.58
Impulsivity	-0.10	-1.04	1.18	-1.04	-0.42
Nurturance	0.36	-2.32	0.65	-2.03	-0.38
Order	0.27	1.03	-0.30	1.03	0.44
Play	-0.02	-1.51	0.84	-1.05	-0.49
Sentience	-0.59	-1.51	-0.42	-1.46	-0.48
Social recognition	-0.62	-1.04	-0.01	-1.11	0.34
Succorance	-0.19	-1.43	-0.29	-1.38	-0.26
Understanding	0.34	1.28	-0.44	0.10	-0.05

Figure 16a Standardized Personality scale scores: Profile Y and Performance; Profile Y (Affiliation+, Change+, Nurturance+, Play+); and Performance only

Figure 16b Standardized Personality scale scores: Profile Z and Performance; Profile Z (Affiliation-, Change-, Nurturance-, Play-); and Performance only
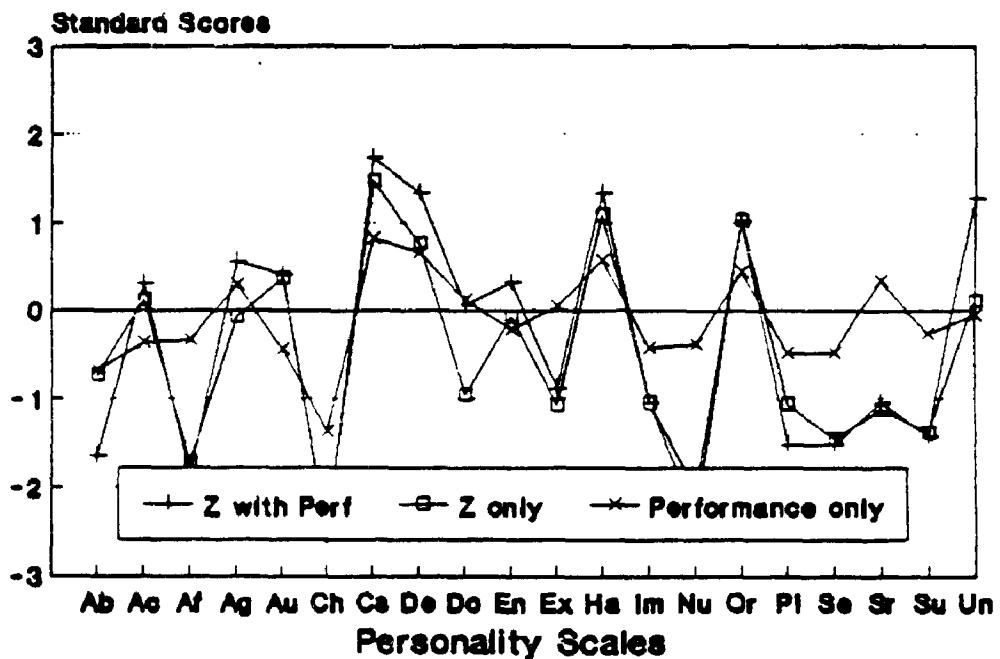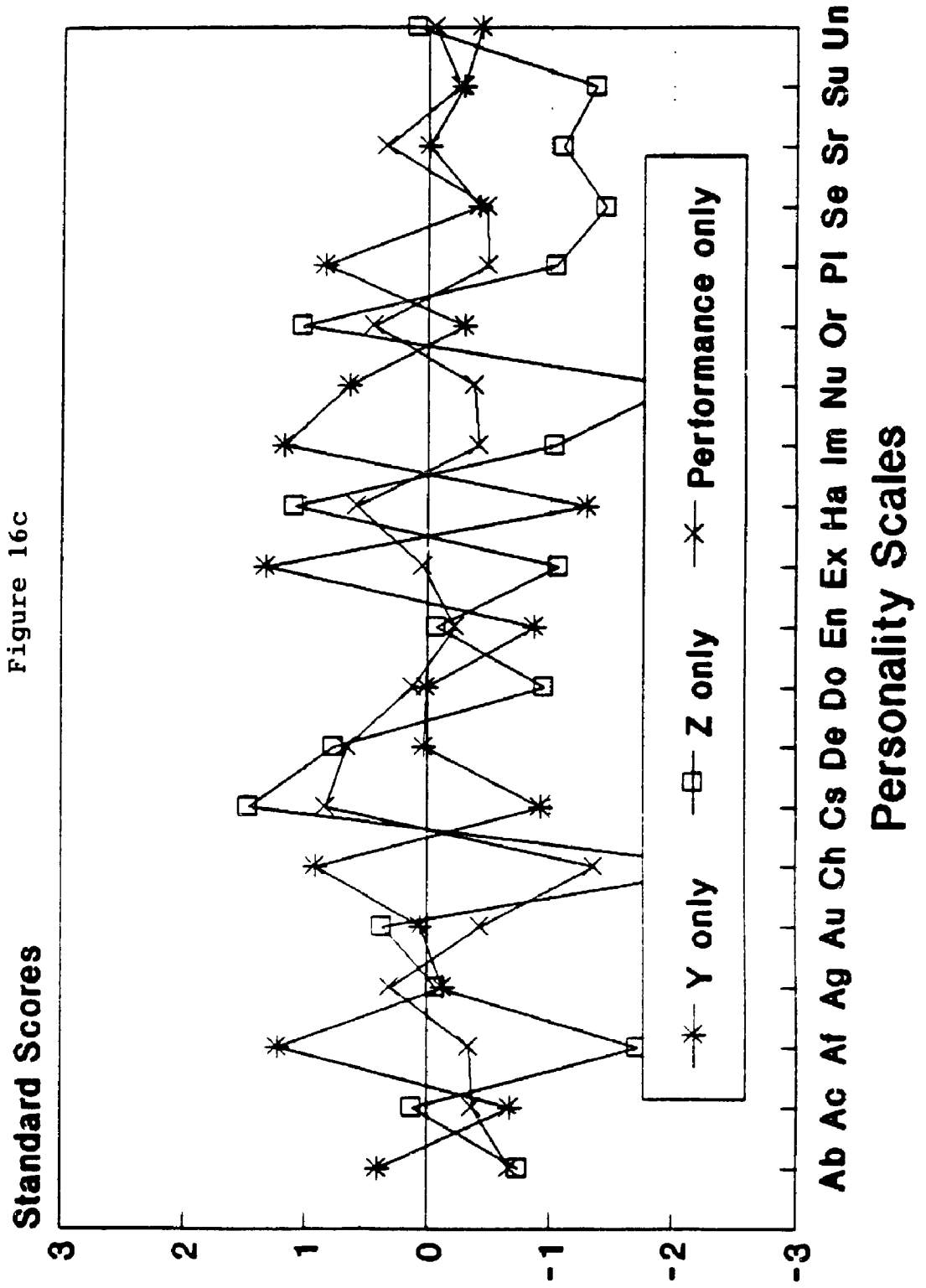
Figure 16a
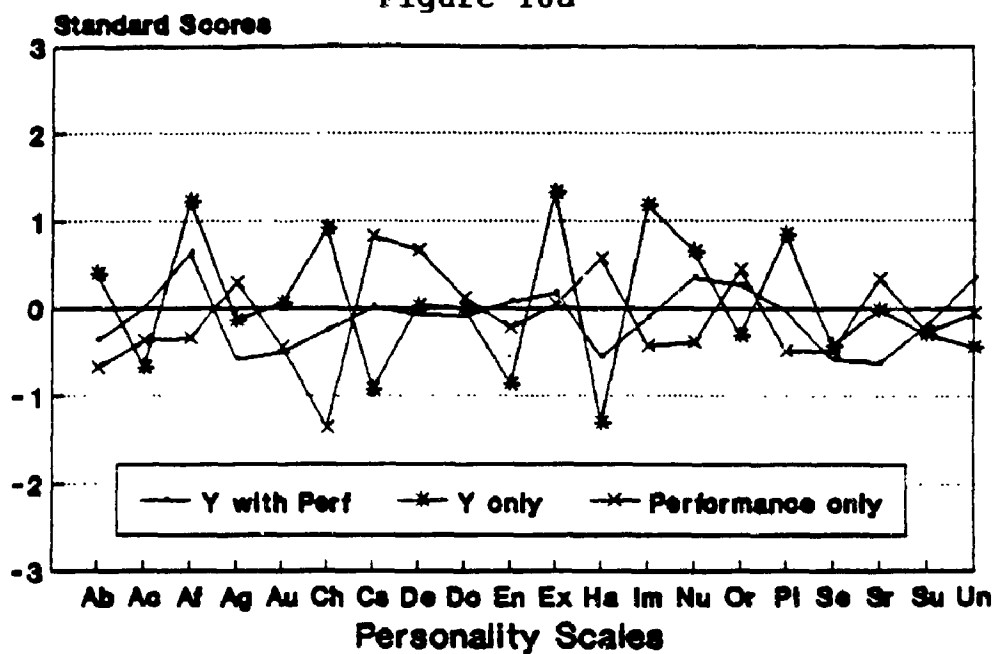
Figure 16b

Figure 16c Standardized Personality scale scores for Three control groups: Profile Y (Affiliation+, Change+, Nurturance+, Play+); Profile Z (Affiliation-, Change-, Nurturance-, Play-); and Performance only

Figure 16c

Study 3: Discussion

Support was obtained for the first hypothesis that
students' implicit theories of personality and teaching
performance would be definable along a reduced number of
dimensions. This study provided evidence that student
raters' implicit theories of personality and teaching
performance could be defined by a two-dimensional solution.
This finding is discussed in relation to the teaching
effectiveness literature.

First, Erdle et al. (1985) found two main types of
behaviours accounting for teacher effectiveness: (a)
charisma - as exhibited by expressive speaking, the use of
humour, relating subject matter to student interests, and
encouraging student participation; and (b) organization - as
exhibited by giving lecture overviews, using headings to
organize materials, and giving multiple examples to
illustrate a concept. The multidimensional scaling results
from study 3 suggests that students' implicit theories of
personality and teaching performance are consistent with the
findings of Erdle et al. in that two dimensions appear to be
sufficient to define the overlap between teaching
performance and personality. However, it is interesting to
note that the students in study 3 associated overall
teaching effectiveness more with Nurturance than either
Exhibition, Play, Order, or Structure.

Second, although there may be many dimensions relevant

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to teaching effectiveness, and some studies have suggested from two to as many as 13 (Erdle et al., 1985; Keaveny and McGann, 1978), if student ratings are used as the criterion for teaching effectiveness, this may be affected by students' implicit theories of personality and performance. This finding lends support to Marsh's (1984) statement that the inability to demonstrate the utility of the multidimensionality of teaching effectiveness results from the inappropriate selection of specific teaching effectiveness criteria. Depending on the criterion selected individual dimensions may or may not exhibit incremental validity over that of overall ratings. If student ratings were used as a criterion in such a study, and the teaching performance scales used in the study occupied the same inferential space within student raters' implicit theories of teaching performance, then it would be difficult to obtain evidence for the multidimensionality of teaching effectiveness.

Support was obtained for the second hypothesis that student raters would incorporate non-teacning related personality behaviour information into their ratings of observed teaching performance behaviours consistent with students' implicit theories of personality and teaching performance. Personality behaviours inconsistent with raters' perceptions of teaching effectiveness reduced profile performance ratings while consistent personality

behaviours increased profile performance ratings.

There are several possible limitations to the current study. One limitation may be that the teaching performance stimulus was presented through a 10-minute videotape. Although this same method of presentation has been used in previous teacher evaluation studies, it may be argued by some that this brief exposure to teaching performance behaviours limits the generalizability of the current study. That is, in actual classroom settings students are able to observe their instructors over repeated instances and for much longer time periods. In addition, the 10-minute videotape necessarily restricts the types of teaching performance behaviours that may be evaluated. It is not possible, under the current conditions, to examine effectively the impact of personality information on other variables that may be relevant to teaching effectiveness and may therefore be normally incorporated into teacher rating forms. Examples of aspects of teaching performance not addressed in the current study include areas such as the quality of the feedback in relation to examinations or student assignments, breadth of coverage, fairness in exams/grading, assignments/readings, workload/ difficulty, and adequacy of the course text.

A second criticism may be that, although the stimulus behaviours were carefully written to be representative of the relevant constructs, the teaching performance behaviours

included in the teacher rating form may not be the most representative behaviours of these crucial teaching performance dimensions.

Finally, the extent to which these implicit theories accurately reflect the relationship between relevant teacher personality behaviours and teaching performance was not addressed in the current study. The current study focused entirely on the potential impact of student raters' implicit theories of personality and performance on ratings of teaching performance. That is, the issue of whether the multidimensional scaling results were indicative of either a valid general factor or halo error was not directly addressed in this study. Although the specific personality behaviours used in this study were designed to be unrelated to teaching performance, it may be that some of the personality constructs being represented by these behaviours are highly related to teaching performance. Yet according to the definition of bias used in this dissertation (refer to Study 2 introduction), student raters did use non-relevant personality information to bias their ratings of teaching performance.

In conclusion, Study 3 served its purpose in demonstrating that raters will make performance ratings in a manner consistent with their defined inferential networks and that this may be observed even when actual performance behaviours are used as stimuli. Although this finding was

obtained in the second study it was feared that in Study 2 this resulted from rater unfamiliarity with managerial performance dimensions and would only be observed with written performance vignettes. Since students are very likely to be familiar with teaching behaviours this problem was probably not an issue in Study 3. It is suggested this finding is consistent with the findings of Study 2 where a different occupation was used and where raters' inferential networks differed from that obtained in Study 3.

General Discussion

Raters have been demonstrated to incorporate personality information into specific performance scale ratings in a manner consistent with raters' implicit theories of personality and performance. Personality information is demonstrated to influence performance ratings. It was also noted that raters draw inferences about a target's personality from observations of performance behaviours. In Study 2 specific performance scale ratings differed but it was only in Study 3 that differences were also reflected in ratings of overall effectiveness.

What are the implications of these findings for the performance appraisal process: (a) annual performance appraisals; (b) specific cognitive models; (c) training; and (d) rating forms?

Annual performance appraisals. The findings of this dissertation are especially relevant to the interpretation of the employee performance appraisal as it is routinely carried out by supervisors in numerous organizations, on an annual basis and without adequate rater training. This dissertation has demonstrated that untrained raters will systematically incorporate their implicit theories of personality and performance into their ratings of observed performance. A direct implication of this finding is that untrained rater's performance ratings may be vulnerable to an additional source of rater bias, the use of non-relevant

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personality behaviours to infer the level of specific types of performance behaviours. In addition to demonstrating that an additional source of bias may need to be addressed within the performance appraisal context, these studies have provided a framework from which the specific direction of these biases may be predicted. Although this potential source of rater bias, non-relevant personality information, on performance ratings has always been suspected it has not been previously defined in an explicit and systematic manner until now. A logical next step would be to examine the associations between a wider range of personality and performance dimensions as well as other factors thought to influence performance ratings (e.g., physical characteristics). In addition, the question of why these inferential networks exist would cause one to reexamine the job analysis process in terms of exploring the potential relevance of personality for specific occupations.

Cognitive models. It should be stressed that the three studies in this dissertation are only a first step that demonstrates the presence and possible influence of raters' implicit theories of personality and performance. The inferential network of personality and performance defined in the first study should not in any way be considered to be a comprehensive one and the reader is referred to the discussion of Study 1 for reasons for this statement as well as actions that may be taken in future research. By defining

raters' implicit theories of personality and performance it will be possible to examine the performance appraisal process with one more piece of the puzzle present. In relation to Landy and Farr's (1980) process model raters' implicit theories could potentially impact on the retrieval and judgment components of this model. For Borman's (1978) and Cooper's (1981) models, the components potentially affected by raters' implicit theories are encoding, presentation of categories for rating, and retrieval of impressions from long-term memory. The implicit theories of personality and performance may differ from occupation to occupation, although this is yet to be determined. However, the identification of raters' implicit theories could provide an additional framework for examining the manner in which raters categorize observations that are not previously explicitly defined in a performance appraisal system, the manner in which raters incorporate consistent or inconsistent observations, and the framework that raters may use in organizing and retrieving observations from memory.

Raters' implicit theories might impact on the performance appraisal process, in terms of the Wherry model, by contributing to raters' relevant bias, non-relevant bias, and errors in perception. Finally, in DeNisi et al.'s (1984) model raters' implicit theories will be relevant in terms of affecting raters' preconceived notions and their impact on information encoding. Although it has not been examined in

this dissertation, it is hypothesized that reliance on raters' implicit theories will increase as the frequency of performance appraisals decreases and raters increase reliance on memory. It is also suggested that reliance on raters' implicit theories will also increase as opportunities to observe ratees decrease and performance information is more incomplete.

The definition of raters' implicit theories is also relevant to Jackson's (1972) model for inferential accuracy. The two components of the model for inferential accuracy are sensitivity and threshold. It would be possible to examine differences with regard to an individual's awareness of the shared implicit network, sensitivity. That is, although a common inferential network may be defined for a specific set of personality and performance dimensions it is possible that some raters may differ. For example, raters less knowledgeable about the potentially relevant personality or performance dimensions for a particular occupation may be more variable in terms of their defined inferential network. It would also be possible to examine an individual's willingness to attribute behaviours to others based upon the implicit network, threshold. In this situation an individual may be in full agreement regarding the defined inferential network. However, individual differences may exist in terms of willingness to make inferences between specific types of dimensions. Although both of these variables, sensitivity

and threshold, may be studied in terms of personality and performance it was necessary to first demonstrate that raters had, and used, stable and overlapping implicit theories of personality and performance.

Training. Rater training has traditionally focused on defining performance dimensions and emphasis on the observations of behaviours. The results of this dissertation suggest that additional facets may be added to rater training. First, for those occupations where specific personality characteristics have been determined to be irrelevant to work performance these characteristics should be juxtaposed, in rater training, with scenarios of varying levels of job performance to illustrate the independence of job performance with these personality characteristics. Raters should be trained to differentiate between valid and invalid indicators of employee performance. Second, the distinction between nonwork-related personality behaviours and work-relevant personality behaviours should be made for those occupations where a job analysis has determined that specific personality characteristics are directly relevant to work performance. It might be relatively easy to train raters to discount personality-related behaviours within a performance context where personality is not related to job performance, although even this is not certain. However, if personality (e.g., perhaps as exhibited by style of interpersonal interactions) has been determined by a job

analysis to be relevant to job performance it may be more difficult for raters to make the distinction between behaviours observed within versus outside of the work performance context. This may be a consideration in some performance appraisal training workshops. Third, rater training might include a component that explicitly demonstrates how raters' inferences conform to implicit theories of personality and performance along a reduced number of dimensions before rater training. Raters should be made aware of how inferences between performance behaviours and inferences between personality and performance behaviours are made. This information may be used to reinforce the need to record specific behaviours on a frequent basis and the need to rely less on memory or vague impressions since they may be susceptible to influence by raters' implicit theories.

Rating forms. The findings of this dissertation have several implications for performance appraisal rating forms. Further support was provided for the deficiencies of using a trait-rating form or global measures of employee effectiveness. However, this dissertation also raised some questions regarding behaviourally-based rating forms and their application. The traditional approach to rating form research has been to investigate ways of reducing rater error. This has focused largely on altering the format of the rating form from the trait-based forms to variations on

the behaviorally-based rating form. For example, Latham and Wexley (1981) recommended using the Behavioral Observation Scale over the Behavioural Expectation Scale because the latter format may require the rater to make inferences between the observed behaviour and the anchors used while the former format would presumably not require this. In reality, performance appraisals are routinely performed on an annual basis and therefore it is likely that raters would resort to their implicit theories of personality and performance as the time between observation and performance rating increases and regardless of the specific behavioural rating form used. One might therefore perceive behavioural observation scales as relying on one's inferential network to recall past behaviours whereas behavioural expectation scales may rely on one's inferential network to anticipate future behaviours. It is suggested that differences in behaviourally-based rating forms, if any do exist, will not be detected as long as the conditions of the performance appraisal process encourage reliance on raters' implicit theories of personality and performance.

Another relevant issue is the content of performance appraisal forms. Traditionally the exclusion of personality dimensions from performance appraisal forms was a generally recommended and accepted practice that extended to all occupations. The reluctance to incorporate personality dimensions into performance appraisal forms may have
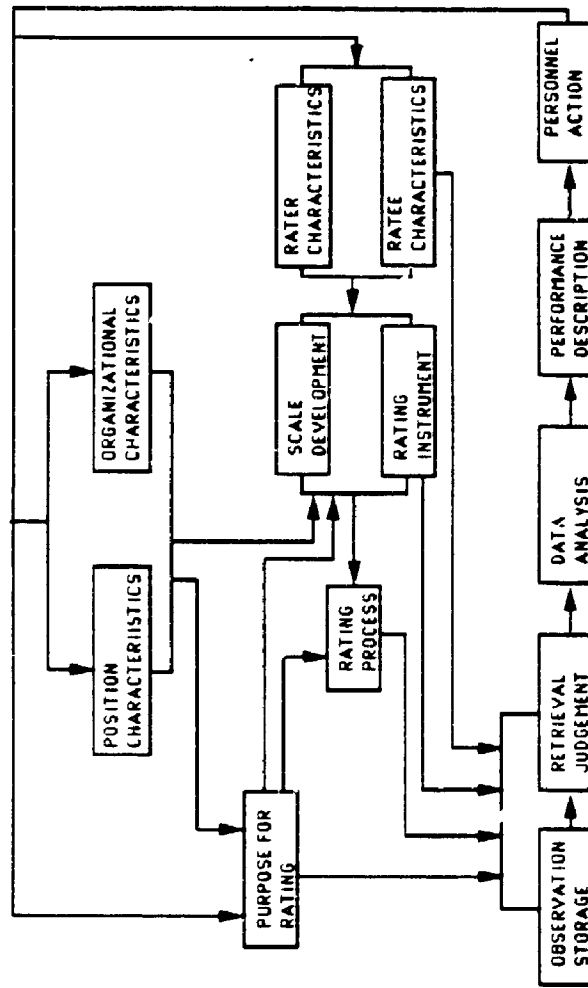
resulted from the perception, and perhaps the reality, that most of the personality characteristics previously incorporated into the annual performance appraisal rating forms were reflective of stylistic differences and largely irrelevant to employee performance. This may not necessarily be the case for all occupations. Indeed, it is possible to envision occupations, and situations, where the manner in which specific performance behaviours are carried out would have an impact on the effectiveness of these behaviours. However, when personality dimensions are incorporated into performance appraisal forms it is still extremely important to demonstrate their job relevance beforehand. Therefore the importance of an extensive job analysis in determining all dimensions relevant to job performance and possibly including personality dimensions, cannot be overemphasized. Given that this is such a critical need it is of interest to note that little or no effort has been dedicated towards the development of a job analysis instrument that directly examines the personality requirements for a specific job type. The closest that most job analysis instruments come is to examine interpersonal skill requirements for a job. For example, the Functional Job Analysis (Fine, 1988) examines components such as coaching, persuading, diverting, supervising, negotiating, and mentoring. Although these component do deal with people, they do not explicitly address the issues of personality in relation to job

characteristics. The closest approximation to fulfilling this need is the Position Analysis Questionnaire developed by McCormick (1979) as related to the personality type research conducted by Holland (1966). However, even this research has focused on interests within the context of vocational choice and personality characteristics. Therefore, the need for a job analysis instrument that explicitly examines job relevant personality characteristics cannot be overemphasized.
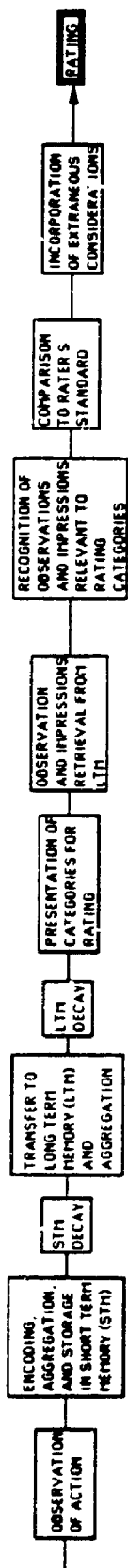
Finally, it must be emphasized that the studies in this dissertation demonstrated the potential for the impact of rater biases resulting from raters' implicit theories of personality and performance. However, it did not address the issue of whether, in certain occupations or situations, relationships between personality and performance may in fact exist. That is, even though student biases were demonstrated in Study 3, there may be a valid rationale for students associating specific personality behaviours with teaching performance behaviours. That is, just because non-relevant personality behaviours were demonstrated to affect ratings of teaching performance this does not mean that the personality constructs represented by these behaviours are not relevant to teaching performance. In fact a thorough job analysis may indicate that, for some specific occupations, particular personality characteristics, such as Autonomy, Achievement, or Endurance, may be essential for

work performance. Therefore, researchers should be careful not to conclude that no valid associations exist between personality-related behaviours and work-performance related behaviours. Before these actual associations may be examined an extensive job analysis must be performed that not only examines the traditional performance dimensions but also work-relevant personality dimensions. Yet it is crucial, from a performance appraisal standpoint, that personality information used in arriving at performance appraisal ratings are obtained by the observation of directly work-associated behaviours. However, the findings of the current studies are a first step and would certainly cause one to ask why raters' implicit theories of personality and performance are so closely interlinked and so readily relied on by raters. It is suggested that further research into the relationship between personality and performance will not only prove to be fruitful, from a research perspective, but will also be of great interest to practitioners who have suggested the relevance of personality to performance.

APPENDIX I

LANDY AND FARR'S MODEL

OBSERVATION OF ACTION → ENCODING, AGGREGATION, AND STORAGE IN SHORT TERM MEMORY (STM) → STM DECAY → TRANSFER TO LONG TERM MEMORY (LTM) AND AGGREGATION → LTM DECAY → PRESENTATION OF CATEGORIES FOR RATING → OBSERVATION AND IMPRESSIONS RETRIEVAL FROM LTM → RECOGNITION OF OBSERVATIONS AND IMPRESSIONS RELEVANT TO RATING CATEGORIES → COMPARISON TO RATER'S STANDARD → INCORPORATION OF EXTRANEOUS CONSIDERATIONS → RATING

COOPER'S MODEL

$$\text{RECALL OR RATED PERFORMANCE} = W_t \begin{bmatrix} \text{TRUE ABILITY} \end{bmatrix} + W_e \begin{bmatrix} \text{ENVIRONMENTAL INFLUENCES} \end{bmatrix} + W_{BRA} \begin{bmatrix} \text{NON RELEVANT BIAS} \end{bmatrix} + W_{BRO} \begin{bmatrix} \text{RELEVANT BIAS} \end{bmatrix} + W_{LA} \begin{bmatrix} \text{RANDOM ERROR} \end{bmatrix} + W_{LP} \begin{bmatrix} \text{ERROR IN PERCEPTION} \end{bmatrix} + W_{ER} \begin{bmatrix} \text{ERROR IN RECALL} \end{bmatrix}$$

WHERRY'S MODEL

SEARCH FOR ADDITIONAL INFORMATION

NO

RATEE BEHAVIOR

SENSORY STORE

PRECONCEIVED NOTIONS

PRE ENCODER

GOAL SPECIFICATION BOX

INFORMATION ENCODED INTEGRATED AND STORED IN MEMORY

LONG TERM MEMORY

LOCUS ATTRIBUTION

EXTERNAL

INTERNAL

STABILITY ATTRIBUTION

UNSTABLE

STABLE

INFORMAL EVALUATION

FINAL EVALUATION DUE?

YES

DATA INTEGRATED AND TRANSLATED INTO RATING

FINAL RATING

CONSEQUENCES

DeNISI'S MODEL

Appendix II

<u>Study 1: Subjects' Industry type, Management level, and Sex
by type of position</u>

	Personnel managers	Accountant managers	Total
Industry Type			
Financial services	12	18	30
Retail	7	5	12
Manufacturing	61	60	121
Research and Dev.	4	1	5
Other	53	38	91
Management Level			
Executive	47	85	132
Group Manager	20	21	41
Manager	41	12	53
Supervisor	15	3	18
Non-supervisory	13	1	14
Sex			
Female	45	14	59
Male	89	107	196

Study 1: Performance Appraisal Experience of the three
groups of subjects combined to make each complete matrix

Number of Employees in direct contact with	Group		
	1	2	3
Mean	11.3	11.6	9.7
Mode	3	5	4
Number of Employees Appraised			
Mean	13.0	10.4	5.4
Mode	3	5	4
Number of Performance Appraisals per year			
Mean	1.1	1.2	1.1
Mode	1	1	1

Study 1: Subjects' Industry type and Management Level by Sex

	Female managers	Male-managers
Industry Type		
Financial services	11	19
Retail	4	8
Manufacturing	22	97
Research and Dev.	1	3
Other	21	67
Management Level		
Executive	18	111
Group Manager	6	34
Manager	17	34
Supervisor	8	10
Non-supervisory	9	5
Job Category		
Personnel-managers	45	89
Accountant-managers	14	107

APPENDIX III

You are a Branch Manager in the London office of a large financial institution. The Personnel Department has just notified you that the annual performance appraisal reports are due immediately. Although you have been very busy you have been able to write down a few notes about each of the subordinates in your department.

You have 60 minutes to examine the accompanying information on one of your subordinates, George Watson. You have: (a) George Watson's Job Description; (b) an Employee Profile on George Watson; (c) 1 Performance Appraisal Rating form; and (d) 1 PRF Form.

NOTE: Complete the PRF form as you think George Watson would have.

Do NOT complete the PRF form in relation to yourself !

George Watson's Job Description: Accountant manager - A

This position requires an employee with very strong planning and organizational skills. The individual must be exceptionally skilled at monitoring business indicators.

George Watson's Job Description: Personnel manager - B

This position requires an employee with very strong sales and marketing skills. The individual should also be extremely effective at public relations.

George Watson's Job Description: Accountant manager - C

This position requires that the employee frequently arranges schedules for departmental audits and maintains extensive records for each. The individual must be up to date on the most recent tax issues and keep current on recent developments in the legal and accounting areas concerning benefits, issues, salaries, and financial forecasting.

George Watson's Job Description: Personnel manager - D

The individual will be required to make cold calls to potential customers and actively acquire new accounts. In addition, the individual must be able to convey to customers the full range of products and services offered by this organization and the relevance of these features to the customer. The individual must, on a regular basis, prepare effective press releases and actively participate as a company representative at community events.

Employee Profile 1PC

George Watson is a worker who has been under your direct supervision over the past year. You've observed that at work George keeps both personal and business records in a cross referenced filing system for easy access. During any spare time that he might have at work, George eagerly reads a wide variety of industry trade publications and financial newletters on a regular basis.

In your discussions with George he has often noted that he would not mind living in a very lonely place. When going on a vacation, George usually prepares a timetable beforehand. You have noted that George would sometimes look for days for the answer to a science question and avoids some hobbies and sports because of their dangerous nature. After removing an object from a shelf at home, George always places it back when finished. He is also more at home in an intellectual discussion than in a discussion of sports.

You noted that a recent Customer Survey indicated that the level of customer satisfaction in George's area appears to be constant especially with regards to the attention they are receiving and the type of service being received. George's department is about average in terms of the number of customer complaints received over the past year. Accounting has also reported that the amount of waste in George's department over the past year is not noticeably different from that of other comparable departments. You examined George's Personnel Records and they indicate that absenteeism has not increased over that of the previous year. In addition, the number of new accounts handled by George this year is about the same as projected earlier.

George Watson is a worker who has been under your direct supervision over the past year. You've observed that at work George keeps both personal and business records in a cross referenced filing system for easy access. During any spare time that he might have at work, George ae rly reads a wide variety of industry trade publications and financial ne.letters on a regular basis.

George has often noted that he would mind living in a very lonely place. When going on a vacation, George seldom prepares a timetable beforehand. You have noted that George would never spend much time looking for the answer to a science question and seldom avoids hobbies and sports because of their dangerous nature. After removing an object from a shelf at home, George rarely places it back when finished. He is also more at home in discussion of sports than an intellectual discussion.

You noted that a recent Customer Survey indicated that the level of customer satisfaction in George's area appears to be constant especially with regards to the attention they are receiving and the type of service being received. George's department is about average in terms of the number of customer complaints received over the past year. Accounting has also reported that the amount of waste in George's department over the past year is not noticeably different from that of other comparable departments. You examined George's Personnel Records and they indicate that absenteeism has not increased over that of the previous year In addition, the number of new accounts handled by George this year is about the same as projected earlier.

Employee Profile LMC

George Watson is a worker who has been under your direct supervision over the past year. At work George rarely turns down a chance to have a good time with customers. He also enjoys being the focus of public attention at company events.

George truly enjoys himself at social functions after work and likes to be in the spotlight. You have noted that George often says the first thing that comes into his head and spends a good deal of his time at home just having fun.

You noted that a recent Customer Survey indicated that the level of customer satisfaction in George's area appears to be constant especially with regards to the attention they are receiving and the type of service being received. George's department is about average in terms of the number of customer complaints received over the past year. Accounting has also reported that the amount of waste in George's department over the past year is not noticeably different from that of other comparable departments. You examined George's Personnel Records and they indicate that absenteeism has not increased over that of the previous year. In addition, the number of new accounts handled by George this year is about the same as projected earlier.

George Watson is a worker who has been under your direct supervision over the past year. At work George rarely turns down a chance to have a good time with customers. He also enjoys being the focus of public attention at company events.

George seldom enjoys himself at social functions after work and dislikes being in the spotlight. You have noted that George rarely says the first thing that comes into his head and spends very little of his time at home just having fun.

You noted that a recent Customer Survey indicated that the level of customer satisfaction in George's area appears to be constant especially with regards to the attention they are receiving and the type of service being received. George's department is about average in terms of the number of customer complaints received over the past year. Accounting has also reported that the amount of waste in George's department over the past year is not noticeably different from that of other comparable departments. You examined George's Personnel Records and they indicate that absenteeism has not increased over that of the previous year. In addition, the number of new accounts handled by George this year is about the same as projected earlier.

George Watson is a worker who has been under your direct supervision over the past year.

In your discussions with George he has often noted that he would not mind living in a very lonely place. When going on a vacation, George usually prepares a timetable beforehand. You have noted that George would sometimes look for days for the answer to a science question and avoids some hobbies and sports because of their dangerous nature. After removing an object from a shelf at home, George always places it back when finished. He is also more at home in an intellectual discussion than in a discussion of sports.

You noted that a recent Customer Survey indicated that the level of customer satisfaction in George's area appears to be constant especially with regards to the attention they are receiving and the type of service being received. George's department is about average in terms of the number of customer complaints received over the past year. Accounting has also reported that the amount of waste in George's department over the past year is not noticeably different from that of other comparable departments. You examined George's Personnel Records and they indicate that absenteeism has not increased over that of the previous year. In addition, the number of new accounts handled by George this year is about the same as projected earlier.

Use this 7-point rating scale to rate your Employee Profile

Very Ineffective 1	Moderately Ineffective 2	Somewhat Ineffective 3	Neither 4	Somewhat Effective 5	Moderately Effective 6	Very Effective 7

Skill	Rating	Rating Confidence
Planning and Organizing	_____	_____
Controlling	_____	_____
Supervising	_____	_____
Coordinating	_____	_____
Monitoring Business Indicators	_____	_____
Sales and Marketing	_____	_____
Public Relations	_____	_____
Innovation	_____	_____

Overall Effectiveness (Please Circle Below):

Very Ineffective 1	Moderately Ineffective 2	Somewhat Ineffective 3	Neither 4	Somewhat Effective 5	Moderately Effective 6	Very Effective 7

Confidence in Overall Effectiveness Rating (1 to 7): _____

* PLEASE COMPLETE ALL RATINGS. DO NOT LEAVE ANY BLANKS ON THIS FORM !

George Watson is a worker who has been under your direct supervision over the past year. You've observed that at work George keeps both personal and business records in a cross referenced filing system for easy access. During any spare time that he might have at work, George eagerly reads a wide variety of industry trade publications and financial newletters on a regular basis.

You noted that a recent Customer Survey indicated that the level of customer satisfaction in George's area appears to be constant especially with regards to the attention they are receiving and the type of service being received. George's department is about average in terms of the number of customer complaints received over the past year. Accounting has also reported that the amount of waste in George's department over the past year is not noticeably different from that of other comparable departments. You examined George's Personnel Records and they indicate that absenteeism has not increased over that of the previous year. In addition, the number of new accounts handled by George this year is about the same as projected earlier.

Employee Profile 1MB

George Watson is a worker who has been under your direct supervision over the past year. At work George rarely turns down a chance to have a good time with customers. He also enjoys being the focus of public attention at company events.

You noted that a recent Customer Survey indicated that the level of customer satisfaction in George's area appears to be constant especially with regards to the attention they are receiving and the type of service being received. George's department is about average in terms of the number of customer complaints received over the past year. Accounting has also reported that the amount of waste in George's department over the past year is not noticeably different from that of other comparable departments. You examined George's Personnel Records and they indicate that absenteeism has not increased over that of the previous year. In addit on, the nu ber of new accounts handled by George this year is about the same as projected earlier.

Employee Profile 1N

George Watson is a worker who has been under your direct supervision over the past year.

You noted that a recent Customer Survey indicated that the level of customer satisfaction in George's area appears to be constant especially with regards to the attention they are receiving and the type of service being received. George's department is about average in terms of the number of customer complaints received over the past year. Accounting has also reported that the amount of waste in George's department over the past year is not noticeably different fror that of other comparable departments. You examined George's Perscnel Records and they indicate that absenteeism has not increased over that of the previous year. In addition, the number of new accounts handled by George this year is about the same as projected earlier.

PERFORMANCE APPRAISAL FORM

Your Name: _____ _____   Student Identification No.: _____

Job Description (Please enter letter): Accountant manager _____
                                       Personnel manager _____

Employee Name: _____   Employee Profile Code:_____

Date _____

Instructions

After reading the employee profile please complete each of the items below
in relation to this profile. Rate each item using the 7-point scale provided
below and also rate ···ur level of confidence in this rating. For example, if
you determined that ᵤ·e employee profile indicated that the employee would
be very likely to exhibit a specific behaviour then you would write "7"
under Rating. If you had complete confidence that your rating was accurate
you would write "7" under Rating Confidence. Please complete ALL items !

There is also a rating of Overall Effectiveness at the bottom of the
Performance Appraisal Form complete this rating by circling the appropriate
rating on the accompanying 7-point scale.

Example:

Very Unlikely	Moderately Unlikely	Somewhat Unlikely	Neither	Somewhat Likely	Moderately Likely	Very Likely
1	2	3	4	5	6	7

Rating	Rating Confidence	
7	7	Is an employee who works on several projects simultaneously
_____	_____	

Use this 7-point rating scale to rate your Employee Profile

Very 'nlikely	Moderately Unlikely	Somewhat Unlikely	Neither	Somewhat Likely	Moderately Likely	Very Likely
1	2	3	4	5	6	7

Rating	Rating Confidence	
_____	_____	
_____	_____	Is an employee who develops contingency plans for overdue suppliers, temporary staff shortages, or early completion of work projects
_____	_____	Is an employee who directs others in terms of how they should distribute their resources
_____	_____	Is an employee who can stop employees from arguing without obviously intervening
_____	_____	Is an employee who meets frequently with members of other departments to design joint projects
_____	_____	Is an employee who searches for the underlying reasons for changes in business indicators
_____	_____	Is an employee who enjoys turning interactions with clients into playful exchanges
_____	_____	Is an employee who enjoys speaking at numerous charity functions as a company representative
_____	_____	Is an employee who thrives on work which requires original thinking

Overall Effectiveness (Please Circle Below):

Very Ineffective	Moderately Ineffective	Somewhat Ineffective	Neither	Somewhat Effective	Moderately Effective	Very Effective
1	2	3	4	5	6	7

Confidence in Overall Effectiveness Rating (1 to 7): _____

* PLEASE COMPLETE ALL RATINGS. DO NOT LEAVE ANY BLANKS ON THIS FORM '

PERFORMANCE APPRAISAL FORM

Your Name: _____ Student Identification No.: _____

Job Description (Please enter letter): Accountant manager _____
Personnel manager _____

Employee Name: _____ Employee Profile Code:_____

Date _____

Instructions

After reading the Employee Profile please complete each of the items below
in relation to this profile. Rate each item using the 7-point scale provided
below and also rate your level of confidence in this rating. For example, if
you determined that the employee profile indicated a high level of a specific
skill then you would write "7" under Rating. If you had complete confidence
that your rating was accurate you would write "7" under Rating Confidence.
Please complete ALL items!

There is also a rating of Overall Effectiveness at the bottom of the
Performance Appraisal Form complete this rating by circling the appropriate
rating on the accompanying 7-point scale.

Example:

Very Ineffective	Moderately Ineffective	Somewhat Ineffective	Neither	Somewhat Effective	Moderately Effective	Very Effective
1	2	3	4	5	6	7

Skill	Rating	Rating Confidence
Planning and Organizing	7	7

Use this 7-point rating scale to rate your Employee Profile

_____

Very Ineffective 1	Moderately Ineffective 2	Somewhat Ineffective 3	Neither 4	Somewhat Effective 5	Moderately Effective 6	Very Effective 7

_____

Skill	Rating	Rating Confidence

_____

Planning and Organizing	_____	_____
Controlling	_____	_____
Supervising	_____	_____
Coordinating	_____	_____
Monitoring Business Indicators	_____	_____
Sales and Marketing	_____	_____
Public Relations	_____	_____
Innovation	_____	_____

_____

Overall Effectiveness (Please Circle Below):

Very Ineffective 1	Moderately Ineffective 2	Somewhat Ineffective 3	Neither 4	Somewhat Effective 5	Moderately Effective 6	Very Effective 7

Confidence in Overall Effectiveness Rating (1 to 7): _____

_____

* PLEASE COMPLETE ALL RATINGS. DO NOT LEAVE ANY BLANKS ON THIS FORM !

APRF Questionnaire

Your Name: _____   Stude.. Identification No.:_____

Sex (Circle one): Male   Female   Age: _____

Job Description (Please enter letter): Accountant manager _____
                                       Personnel manager _____

Employee Name: _____   Employee Profile Code:_____

INSTRUCTIONS

Once again carefully read the Employee Profile that you were provided. Then complete the following questionnaire from the perspective of the employee described in the Employee Profile.

The answer boxes below are numbered the same as the statements in the booklet. Answer each statement by placing an X in either the true (T) or the False (F) box as shown in the example.

EXAMPLE

T	⊠		
F			

Please mark your responses in the spaces below. Do not place any marks on the questionnaire booklet.

BEGIN HERE

| T | 1—2—3—4—5—6—7—8—9—10—11—12—13—14—15—16—17—18—19—20—21—22—23—24—25—26—27—28—29—30—31—32 |
| F | |

| T | 33—34—35—36—37—38—39—40—41—42—43—44—45—46—47—48—49—50—51—52—53—54—55—56—57—58—59—60—61—62—63—64 |
| F | |

| T | 65—66—67—68—69—70—71—72—73—74—75—76—77—78—79—80—81—82—83—84—85—86—87—88—89—90—91—92—93—94—95—96 |
| F | |

| T | 97—98—99—100—101—102—103—104—105—106—107—108—109—110—111—112—113—114—115—116—117—118—119—120—121—122—123—124—125—126—127—128 |
| F | |

| T | 129—130—131—132—133—134—135—136—137—138—139—140—141—142—143—144—145—146—147—148—149—150—151—152—153—154—155—156—157—158—159—160 |
| F | |

| T | 161—162—163—164—165—166—167—168—169—170—171—172—173—174—175—176 |
| F | |

Please read the following Instructor Profile very carefully before proceeding.

Instructor Profile Y

John N. is on contract to the university to teach population biology. This is the second year that John N. has taught this course. Several things are known about him. John is a member of several community groups in his neighborhood. He is known as a person who truly enjoys social functions. Last year he even volunteered to host the annual neighborhood block party. It has been noted that John is always looking for new routes to take on a vacation. Taking the same old route was perceived as dull and never appealed to John. He is the type of person to whom neighbors like to tell their problems because they know that he will help them. John also enjoys spending a good deal of time just having fun.

Please read the following Instructor Profile very carefully before proceeding.

Instructor Profile Z

John N. is on contract to the university to teach population biology. This is the second year that John N. has taught this course. Several things are known about him. John has never joined any of the community groups in his neighborhood. He is known as a person who dislikes social functions. Last year he even refused to show up at the annual neighborhood block party. It has been noted that John always takes the same route on a vacaction. Taking the same route appeals to John. He is the type of person to whom neighbors seldom tell their problems because they know that he probably would not help them. John does not like wasting time just having fun.

TEACHER EVALUATION FORM

Your Name: _____   Student Identification No.: _____

Teacher Profile: _____   Sex: _____

Date _____

PLEASE READ AND FOLLOW THE INSTRUCTIONS BELOW VERY CAREFULLY:

Complete each of the items below in relation to the teacher information presented to you. Rate each item using the 7-point scale provided below and also rate your level of confidence in this rating. For example, if you determined that the teacher profile indicated a high level of a specific skill then you would write "7" under Rating. If you had complete confidence that your rating was accurate you would write "7" under Rating Confidence.

Please complete ALL items!

EXAMPLE

Very Unlikely	Moderately Unlikely	Somewhat Unlikely	Neither	Somewhat Likely	Moderately Likely	Very Likely
1	2	3	4	5	6	7

Rating	Rating Confidence	Item
__7__	__7__	A teacher who presents materials quickly.

Use this 7-point rating scale to rate the Teacher information provided.

Very Unlikely 1	Moderately Unlikely 2	Somewhat Unlikely 3	Neither 4	Somewhat Likely 5	Moderately Likely 6	Very Likely 7

Rating	Rating Confidence	Item
_____	_____	A teacher who presents materials in a well organized and coherent manner.
_____	_____	A teacher who is lively in his presentation of the course material.
_____	_____	A teacher who would eagerly make himself available for consultation with students.
_____	_____	A teacher who would strive, a bit more than other instructors, to provide new insights and perspectives to students in this course.
_____	_____	A teacher who would stimulate students to do better work.
_____	_____	A teacher who presents concepts in a logical and well structured manner.
_____	_____	A teacher who enjoys adapting presentations to the interests or difficulties of students.
_____	_____	A teacher who would welcome requests for assistance from students.
_____	_____	A teacher who would take extra time to provide additional examples in order to clarify particularly difficult concepts.
_____	_____	A teacher who would try new techniques in order to increase student participation.
_____	_____	A teacher who is, overall, effective.

* PLEASE COMPLETE ALL RATINGS. DO NOT LEAVE ANY BLANKS ON THIS FORM !

APPENDIX IV

Newman-Keul's Post Hoc Multiple Test of Means
n=15, alpha=.05, d.f.=70

Communication

	Z&P	Z	P	Y&P	Y
Z&P	-	ns	ns	ns	7.55
Z		-	x	2.68	6.50
P			-	ns	6.02
Y&P				-	3.72
Y					-

Interaction

	Z&P	Z	P	Y&P	Y
Z&P	-	x	4.27	6.00	6.85
Z		-	3.27	5.00	5.95
P			-	ns	ns
Y&P				-	ns
Y					-

Impact

	Z&P	Z	P	Y&P	Y
Z&P	-	ns	3.00	4.67	6.54
Z		-	ns	3.50	5.37
P			-	ns	3.54
Y&P				-	ns
Y					-

Interest

	Z&P	Z	P	Y&P	Y
Z&P	-	ns	ns	5.94	7.08
Z		-	ns	3.24	5.38
P			-	ns	4.61
Y&P				-	ns
Y					-

Overall Effectiveness

	Z&P	Z	P	Y&P	Y
Z&P	-	ns	2.94	4.00	5.46
Z		-	2.32	3.38	4.84
P			-	ns	2.52
Y&P				-	1.46
Y					-

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