

THE RELATIONSHIP BETWEEN  
BIOGRAPHICAL INFORMATION AND  
MANAGERIAL POTENTIAL AS  
ASSESSED ON A SALES MANAGEMENT  
ASSESSMENT CENTRE

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THE RELATIONSHIP BETWEEN BIOGRAPHICAL INFORMATION  
AND MANAGERIAL POTENTIAL AS ASSESSED ON A  
SALES MANAGEMENT ASSESSMENT CENTRE

BY

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## ABSTRACT

Research designed to add to the body of knowledge facilitating the effective management of the human resource in industry has become critical in South Africa at a time when the country is experiencing a shortage of skilled manpower.

Assessment centres have long been in use in South Africa as a means of assessing managerial potential. Notwithstanding reports of their predictive validity the process is costly and research pertaining to how managerial potential could be identified at an early stage by less costly means is thus potentially valuable.

One such means is biodata, or biographical information, upon which basis the selection of staff has traditionally occurred, in line with the truism that past behaviour is predictive of future success.

This study was thus designed to identify the biographical characteristics which distinguish a high managerial potential group from a low managerial potential group, as assessed by an assessment centre.

In order to test the hypothesis that persons with managerial potential and persons without managerial potential differ significantly with regard to a number of biographical variables, a biographical inventory was administered to a group of persons who had attended assessment centres.

(iv)

Ratings of managerial potential were obtained by means of converting and summing assessment centre participants' ratings on a number of criterion behaviours. A high managerial potential group and a low managerial potential group was obtained by identifying the upper and lower 27% of the sample.

The biographical information pertaining to these two groups was analysed by compiling frequency distributions for the responses of the respective groups to individual biographical items. The chi-square test was then applied to test for the significance of the differences between these groups.

A statistically significant difference between the two groups was found with respect to the educational qualifications of the respondent's mother, the number of times he/she moved house as a child, his/her emphasis on activities at school, the ages at which he/she learnt to drive and first drank alcoholic beverages, his/her age when first depending on a job for financial support, the number of times he/she had moved house, the number of jobs with other companies prior to assessment, where he/she had spent the majority of his working years, how he/she assessed his/her speed of work relative to others, how much time per week he/she devoted to his/her professional activities, the reason for round trips of over 500 miles, and (where applicable) whether or not his wife worked.

(v)

Depending upon successful validation, the potential thus exists for these biodata items to be used (in addition to other criteria) for the pre-screening of assessment centre candidates, so reducing the number of candidates to be assessed by this costly means to those most likely to succeed.

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## CHAPTER 1

### INTRODUCTION

#### The Background to and Need for the Study

Corporations anxious to ensure their long-term survival in business recognize the importance of the early identification and development of managerial talent. Effective human resources management has become critical as a result of technological advances throughout the world which have resulted in the emergence of a managerial elite, with both developed and less developed countries experiencing severe shortages of skilled manpower (Rawls & Rawls, 1974).

In South Africa, too, there is a shortage of skilled and experienced staff. Recognised talent is being enticed away onto the international job market and there is thus a desperate need to select, train and develop potential managers more effectively (Lane, 1984). This places a premium on research which could benefit personnel management in ensuring the optimal utilisation of the organisation's human resource (Gerber, 1982).

Assessment centres designed to identify managerial potential were introduced to South African industry in 1974. The process is, however, costly and it is important to determine whether those who fare best at an assessment centre do so by virtue of characteristics which could be assessed by less expensive and less labour-intensive means (Dulewicz & Fletcher, 1982).

One such means is biodata or biographical background information. Fick (1982), who has conducted extensive research into the use of biodata in South African industry, was convinced of the superiority of biodata as an instrument for predicting behaviour. Biodata was

for a long time regarded as being predictive only of lower level managerial potential but the research of Kavanagh and York (1972) and Harrell and Harrell (quoted by Ritchie & Boehm, 1977), indicated the relevance of biographical data to the prediction of middle-management effectiveness.

Research into the extent to which biodata is predictive of assessment centre ratings of managerial potential would thus appear to be warranted. The administration of a biographical background inventory is far less costly than the assessment centre process.

Of course, given the developmental purposes to which assessment centre ratings of managerial potential are put, it is unlikely that an organisation would choose to abandon the process entirely. Biodata could, however, be used to pre-screen assessment centre participants so that preference could be given to the assessment of those most likely to meet the organisation's criteria of managerial effectiveness. Or, as Rawls and Rawls (1974) suggested, biographical background information pertaining to an individual can be used to identify critical experiences hitherto lacking, which can be provided for in training so that the individual is brought up to the experience level of successful managers.

Warmke (1985) maintained that pre-screening is important not only because it can provide "bottom line" savings by limiting the total number of eligible participants but also because it can increase morale by reducing the number of unsuccessful candidates, and supplement the validity levels of assessment centres. (The issue of the validity of assessment centres is discussed in detail in Chapter 2).

### The Purpose of the Study

The purpose of this study is to determine whether managerial potential can at least be predicted in part, by means of a less

costly method than assessment centres. More specifically the study was designed to determine whether biographical background information differentiated between those identified as having and not having managerial potential, as determined by an assessment centre. Assessment centres have been in use at the organisation where this research was conducted since 1974. The first assessment centre introduced to the company was developed by Dr William Byham of Development Dimensions International. The assessment centre which yielded the ratings used in this research was developed "in-house" by the Personnel Division for the identification and development of sales management potential. The design principles described in Chapter Two were followed and in Chapter Four this assessment centre is described in more detail, as an instrument of measurement.

The Sales Management Assessment Centre (SMAC) has enjoyed high credibility in the organization. However, the use of biodata has also gained credibility as a selection tool for prospective sales representatives. The viability of using biographical background information as an assessment centre pre-screening device is thus high, providing it were to be found valid.

#### Presentation of Material

This chapter focuses on the background to and need for the study. The specific purpose for which this study was designed is discussed.

Chapter 2 focuses on the use of assessment centres and biographical information for determining managerial potential.

In Chapter 3 the research strategy is presented. The problem is formulated; and the measuring instruments, selection of the sample and data analysis are described.

Chapter 4 covers the results of the research which are discussed. Conclusions are reached and recommendations are made on the basis thereof.

## CHAPTER 2

### TWO APPROACHES TO ASSESSING MANAGERIAL POTENTIAL

#### Background to and Nature of Assessment Centres in the Measurement of Managerial Potential

The most widely accepted definition of an assessment centre was formulated by the Task Force on Assessment Center Standards in 1978:

An Assessment Center consists of a standardized evaluation of behavior based on multiple inputs. Multiple trained observers and techniques are used. Judgements about behavior are made, in part, from specially developed assessment simulations.

These judgements are pooled by the assessors at an evaluation meeting during which assessment data are reported and discussed, and the assessors agree on the evaluation of the dimensions and any overall evaluation that is made.

(Gilbert & Jaffee, 1981, p.3)

The term "assessment centre" came into being during World War II when Henry Murray and his associates were summoned to Washington to develop and apply a procedure for selecting intelligence agents for the Office of Strategic Services. Murray devised a procedure which had its origins in research which he had conducted at the Harvard Psychological Clinic. After the war he published the book Assessment of Men which described that procedure and publicised the method (Bray, 1985).

The roots of assessment centres as they are used in industry today can be traced back to the assessment centre used in the American Telephone and Telegraph company's Management Progress Study conducted in the latter half of the 1950's (Bray, 1985). Today the method is in use in the United States, Canada, Australia, Japan, Brazil, South Africa and elsewhere, and several international conferences on the assessment centre method have been held (Huck & Bray, 1976).

In 1972 a South African clothing retailer brought Dr William Byham of Development Dimensions International to South Africa to introduce a method of assessing the management potential of individuals. The first assessment centre was thus launched in South Africa in 1974 (People & Profits, 1973). The assessment centre technique was adopted on a large scale soon afterwards by a South African life assurance company and by the South African Transport Services (at the time the South African Railways).

Jaffee and Frank (1978) put the favourable acceptance of assessment centres down to the emphasis the technique places on behaviourally based evaluations and described the tenets upon which assessment centres are based as follows:

1. No skill or trait that cannot be defined by observables can be of value.
2. No definition of a trait that does not describe an observable behavior can be of value.
3. Non-work related behaviors are of no value.
4. Exercises that do not demand work oriented behaviors are of no value.
5. It is unfair to observe and evaluate individuals except in the specific exercises.
6. Reports on the performance of individuals must contain relevant behaviors as their basis rather than conclusions of evaluators relative to inner traits.

(Jaffee & Frank, 1978, p.45)

Notwithstanding the widescale use and support of assessment centres, questions are still being asked about its validity. Establishing job-relatedness is the first step in ensuring the content validity of the centre and in increasing its acceptance by the persons being assessed. The first and most important step in developing an assessment centre is thus a thorough job analysis of the position or job level for which assessment is to be conducted. Tasks and situations that are characteristic of a target job and the skills and abilities that are required for effective performance must be identified (Gilbert & Jaffee, 1981).

Taylor (1977) emphasized that it is critical for the determination of content validity that the skills, knowledges or behaviours measured are representative samples of the content of the target job; this has been supported by Gill (1980) who found that job-relatedness of criterion behaviours was more important than job-relatedness of the exercises.

However, having reviewed research on assessment centre validity, Klimoski and Brickner (1987) were not encouraged by the evidence for the construct validity of the dimensions used in assessment centres.

In other words, they found little support for the view that assessment centres produce scores that serve as valid representations of separate constructs. For example, Sackett and Hake1 (quoted by Klimoski & Brickner, 1987) found that assessors used three dimensions only in arriving at overall ratings, suggesting either that only general and diffuse measurements of behaviours exist or merely that the dimensionality of effectiveness is not that complex. Turnage and Muchinsky (quoted by Klimoski & Brickner, 1987) found a lack of discriminant validity and high levels of convergent validity across traits, once again suggesting that assessors were making global evaluations rather than differentiating among traits.

They thus sought alternative explanations for the reported predictive validity of assessment centre ratings. For example, promotions in organisations are partially based on assessment centre ratings (although that explanation would only hold good for the first promotion subsequent to assessment); assessment centre observers may in fact be rating candidates on the basis of their knowledge of promotion decision-makers' criteria, or on the basis of biographical background information gained during the in-depth interview which classically forms part of the assessment centre process, rather than on the basis of the dimensions; a self-fulfilling prophecy dynamic may operate on assessees; and assessment centre ratings may predict managerial success because the ratings reflect the level of intellectual functioning of candidates.

Does one need to do more than prove the predictive validity of a technique used for selection/prediction purposes? The APA 1974 Standards for Educational and Psychological Tests and Manuals offers the following guidelines:

The model of predictive validity should guide thinking about validity in such applications even where circumstances preclude an actual criterion-related validation study. Whatever other validity information a manual may include, one or more studies of criterion related validity must be included for any test developed for prediction and for any tests intended for diagnosis.

(Taylor, 1977, p.9)

Klimoski & Brickner (1987) recommended further research to establish the conditions under which assessment centres can be made to yield valid measures of constructs through the experimental manipulation of variables which impact on the discriminant and convergent validities of assessor ratings.

However, Turnage and Muchinsky (1984) raised the possibility that by virtue of the complex issues that assessment centres were designed to address, a psychometrically "clean" evaluation of them might be impossible. The assessment centre itself could be a source of error affecting both assessment and subsequent job performance as a result of the Pygmalion effect which selection onto an assessment centre might create.

#### Nature and Usefulness of Biographical Information

The use of biographical information in psychology was described at a conference on the topic as being based on a truism of the behavioral sciences: that the best predictor of future behaviour is past behavior (Henry, 1966). The evaluation of personal background data collected by means of the application blank is one of the oldest and best known selection techniques (Fick, 1982). Given this traditional emphasis and the limited success enjoyed by industrial psychologists attempting to predict managerial potential, research into the use of personal history information has been warranted (Kavanagh & York, 1972).

Psychometric procedures used to investigate the predictive validity of personal-history items have focussed on identifying items which are valid predictors for specific criteria within a given occupational group (Baehr & Williams, 1967); and on developing biographical information profiles from the patterns of experience of defined categories of subjects (Place, 1979).

Such findings have led many researchers to the conclusion that biographical information is the single best predictor of behaviour, and indeed of managerial effectiveness (Fick, 1982; Henry, 1966; Rawls & Rawls, 1974).

Biographical items appear in questionnaires called anything from application blanks to individual background surveys and the items themselves may be verifiable vs. unverifiable, behavioural vs. hypothetical etc. The only requirement is that there should be a proven relationship between items included in the questionnaire and a particular criterion (Fick, 1982). Many biographical questionnaires include items which measure values, opinions, prejudices and self-image and thus assume the characteristics of a self-report personality questionnaire. However, this would seem to nullify the advantage of using biodata as a technique which is less subject to distortion.

The most common approach is to identify items which are valid predictors for specific criteria within a given occupational group. Those items which discriminate are then combined with or without weighting into an instrument which yields a composite score. Scores thus obtained have been cross-validated for a wide range of occupations in industry from seasonal employees through production supervisors, clerical workers, various sales personnel, managerial personnel, research scientists and engineers and personnel in the armed forces (Baehr & Williams, 1968).

Attempts have also been made to relate obtained results to meaningful dimensions of behaviour. Levine and Zachert (quoted by Baehr and Williams, 1967) subjectively classified items in terms of content, determined the validity of each item in the content category, and retained the content category with differentially weighted items only if an acceptably large number of items showed significant relationships with the criterion.

The use of biodata for occupational selection became popular in industry because the information is relatively easily obtained, is generally less subject to distortion than responses to personality questionnaires, and has high face validity given the widespread acceptance of the principle that what a person has accomplished or failed to accomplish in the past is predictive of likely future achievement (Baehr & Williams, 1967).

However, the approach has been criticised for being highly empirical and failing to shed light on the dynamic relationship between personal background and occupational choice or success (Baehr & Williams, 1968).

The biodata approach starts with no theoretical assumptions and searches out those biographical items which differentiate between the criterion groups; relations need be neither logical nor psychologically interpretable. More theory-orientated psychologists, obviously, find such pure empiricism dubious or unacceptable and prefer measures that show more developmental or other relevance in terms of psychological theory.

At a conference convened to discuss research on the use and meaning of autobiographical data as psychological predictors, the fact that very little effort has been devoted to understanding the real underlying meaning of biographical information was put down to the following: Given the demonstrated utility of biographical inventories, there are no persuasive reasons apart from theoretical academic interest for tackling the problem; since the technique is based upon many others which assess past behaviour, it is tacitly assumed to be measuring the same things; and, although the statistical tools are available, the task is daunting (Henry, 1966).

The inherent dangers in failing to investigate the underlying meaning of biographical information are that many items included in questionnaires quickly lose their meaning and relevance, and that organizational rigidity results from the institutionalization of these standards (Henry, 1966). The dearth of recent published literature on the use of biodata thus seems to suggest that the technique has lost popularity.

In an attempt to overcome some of the criticism levelled at biographical questionnaires, Baehr and Williams (1967) attempted to identify and define some of the significant underlying dimensions of

background data by factor analyzing the responses of a heterogeneous occupational sample to a wide variety of quantifiable personal - background items. They then investigated the ability of the factors which emerged to discriminate between occupational groups.

The following eight factors were identified as having the most potential for operational use and were viewed as providing a framework for future investigations into the dynamic relationships between biographical dimensions and occupational success:

Factor 1 (School Achievement)... defined as "Academic achievement, particularly in high school, but also, where applicable, at college. A general liking for, and adjustment to, the school environment."

Factor 2 (Higher Educational Achievement)... defined as "Special or technical accomplishment and qualification resulting in a relatively late vocational start and late assumption of family responsibilities. This pattern is characterized by eventual occupational and financial achievement."

Factor 3 (Drive)... defined as "Inner drive to be outstanding in performance, to attain high goals even if this entails temporary setbacks, to supervise others, and to achieve success and advancement."

Factor 4 (Leadership and Group Participation)... defined as "A desire to establish contact with others as shown by membership and interpersonal activity in organizations and an interest in influencing others through community and social activities. A high score suggests active participation and possible leadership in personal contact situations of various types."

Factor 5 (Financial Responsibility)...defined as "Ability to manage a personal economy of defined proportions - to earn, invest, save, and accumulate."

Factor 6 (Early Family Responsibility)... defined as "Early marriage and establishment of a family, with the husband ordinarily being the sole provider. Demonstrated achievement in handling family's financial affairs. Outside the work situation, the greatest interest is in family activities."

Factor 7 (Parental Family Adjustment)... defined as "Development of realistic and constructive attitudes in the early family environment. This includes relationships between siblings, between parents, and between the child and the parents."

Factor 8 (Situational Stability)... defined as "Established security and stability in the work situation, resulting from past history of good performance. Presently more concerned with the maintenance of what has been achieved than with plans for improvement or development."

(Baehr & Williams, 1967, pp. 484 - 485)

In a subsequent study Baehr and Williams (1968) confirmed these eight factors but identified seven more on the basis of additional biodata. These factors were:

Factor 9 (School Activities). Major emphasis on active participation in athletic and extracurricular

social activities at high school but also indications of good academic achievement.

Factor 10 (Professional Successful Parents). A parental background characterized by a successful father, either self-employed or in one of the professions, and by material comfort and a happy home life.

Factor 11 (Educational-Vocational Consistency). A preference for occupations which are highly related (or similar) and are in line with educational interests and training.

Factor 12 (Vocational Decisiveness). Decisiveness in choosing an occupation and purposefulness in achieving the necessary qualifications, followed by an early start in the chosen occupation.

Factor 13 (Vocational Satisfaction). Satisfaction with occupational choice and the expectation that peak performance will be some time in the future. There is, however, no evidence of consistency of application or of drive to achieve high standards of performance.

Factor 14 (Selling Experience). Various kinds of selling experience, including door-to-door selling and transactions in real estate.

Factor 15 (General Health). Generally better than average health over an extended period (childhood, adolescence, adulthood). General freedom from physical ailments and from loss of work time resulting from illness.

### Biographical Information Profiles of Managers

Rawls and Rawls (1968) administered two personality inventories (the Edwards Personal Preference Schedule [EPPS] and the California Psychological Inventory [CPI]) and a 179-item biographical information blank to two groups of executives identified as being highly successful and less successful on the basis of (1) salary level, (2) company job title, (3) job number as listed in the Hayes salary survey, and (4) performance appraisal ratings.

They found that 15 scales on the personality inventories and 110 of the 179 items from the biographical information blank differentiated significantly between successful and less successful executives. Furthermore, the biographical information and the findings from the personality inventories seemed to correspond.

On the basis of the personality profiles the successful executives were described as better informed, self-reliant, self-confident, forward, ambitious, confident in social interaction, dominant and aggressive. The biographical information suggested that the successful executives read more books, newspapers, and periodicals (better informed), felt more confident in most areas (self-reliant, self-confident), expressed their opinions freely (forward), expected to make more money and attain higher levels in the organization (ambitious), were at ease in social situations (confident in social interaction), and felt they had been more aggressive and successful in life (aggressive, dominant).

Baehr and Williams (1968) did a concurrent validity study of the scores of salesmen and district managers on the 15 personal background dimensions identified previously by factor analysis (see pp. 12 - 14). The criterion indices were five measures of on-the-job performance: paired comparison performance ratings, mean sales volume rank, maximum sales volume rank, route difficulty, and tenure as a salesman.

The three factors which differentiated at statistically significant levels between both the salesman and district manager groups and the upper- and lower-rated sales groups were Financial Responsibility, Early Family Responsibility, and Situational Stability (Factors 5, 6 and 8 which were identified and defined by Baehr and Williams in 1967 and quoted earlier in this chapter). The picture that emerged of the successful salesman and sales manager was of someone with a background of competent handling of his personal economy, an early vocational start with prime or sole responsibility for managing family finances, and, of particular significance in identifying the managers, a past history of sales achievement and present work and family situation stability.

Considerable work has already been done to investigate the relationship between assessment centre ratings and biographical background data. Dulewicz and Fletcher (1982) were concerned to establish whether assessment centres measure achievement (past experience) or managerial aptitude. The evidence of past experience which they gathered included the following: the relationship between grade and age as a measure of advancement to date, educational attainment, organizational function, and previous experience of specific work-related behaviour. The only significant correlation that was observed between assessment centre ratings and the background data gathered suggested that younger participants who were relatively senior for their age and had higher educational attainment performed better overall. However, the observed correlation was not of such great significance that it undermined the conclusion that centres do indeed measure aptitude and not achievement (past experience).

In 1983 the results of this study were duplicated when Dulewicz, Fletcher and Wood once again found the younger participants faring better overall and no relationship between breadth of experience and performance. However, in this case the relationship between grade and overall performance was dealt with separately, with no signifi-

cant relationship emerging. Educational attainment was once again included in the study, as well as a measure of intelligence, with the finding that there was a significant relationship between these measures and performance, with intelligence predominant when educational effects were partialled out.

Pinder and Pinto (1974) used a personal values questionnaire and performance on an assessment centre exercise to form groups which were differentiated from one another in terms of managerial style. They then investigated correlations between managerial style and demographic data, finding that age and not experience was related to the type of style used by a manager in his job. Younger managers (20 - 29) were more autocratic, inclined to make quick decisions without consulting co-workers and low in human relations. The early middle age group (30 - 40) were more consultative, gathering facts and information before reaching decisions and more courteous but still formal with their subordinates. The late middle age group (40 - 55) were regarded as being most efficient, as positive and decisive as younger managers but making more use of information gathering activities and having more inter-personal and human relations skills than both groups.

There is thus considerable evidence to suggest that age is a significant demographic variable contributing to performance at an assessment centre.

In cases where the biographical information of assessment centre candidates is to be gathered it might therefore also be useful to calculate the Managerial Achievement Quotient (MAQ). The MAQ is based on a formula developed by Rhodes (cited in Blake & Mouton, 1964) which affords a comparative evaluation of an individual's career progress and the adequacy of his or her performance. According to Blake and Mouton (1964), the MAQ assumes that the individual's capability increases with age; the higher the organisational level, the greater the managerial capability required; and the greater the prospect of promotion.

Recognizing that there are biographical characteristics unique to groups of individuals who are successful in particular professions; and recognizing that this may hold good for groups of individuals working for particular organizations too; Uys (1981) recommended that further research be conducted to establish whether his findings of the biographical differences between successful and less successful managers as identified by an assessment centre held good for other organizations. The people included in Uys' sample were a heterogeneous group in terms of home language, managerial level, period of employment and qualifications. They had all attended an assessment centre administered by the South African Railways.

Uys (1981) described people identified as having managerial potential as follows: They spent most of their youth in a large town or suburban area; most of their fathers had at least a Standard 8 pass and some of them had post-school qualifications; their mothers had also passed Standard 8 but few of them had university degrees. Those of the people with managerial potential who had attended university had attained average passes and had belonged to one or two organizations or clubs but had seldom assumed leadership roles. Most of them had university degrees and their wives had diplomas or university degrees. They spent more than 45 hours per week at work and at least one or two hours per week exercising or playing sport. During the year prior to assessment they had attempted to broaden their knowledge of management and had frequently read six or more articles on this topic.

People identified as having less managerial potential were described as having spent most of their youth in small towns or on farms. Their parents had seldom passed Standard 8 or achieved higher educational qualifications. They themselves seldom had post-school qualifications but most of them had passed matric. They tended to spend between 40 and 45 hours per week on their professional duties and seldom took physical exercise or participated in sport. Their wives did not possess university degrees and the wives' educational

qualifications ranged from lower than Standard 8 to diplomas of some nature or other. Whereas most of them had read articles on management in the year prior to their assessment, few had read more than one article on the topic.

There has also been considerable interest in the extent to which the biographical profiles which emerge for male managers are similar to those which emerge for women. Ritchie and Boehm (1977) found that the same types of experiences are predictive of subsequent managerial success for college educated women and men. Place (1979) found that leadership in high school, independence and financial responsibility, suggested by previous researchers as typical of men in management, holds good for women too. She interpreted this as evidence of the development of an internalised locus of control, the biographic predictors of which are items which gauge such things as age of learning to drive a car or having grown up in a large city or on a farm, both of which encourage independence and autonomy.

#### Use of Psychological Tests

For the sake of completeness, traditional psychological testing should still be mentioned here. Assessment centres and biodata have had advantages over psychological tests when there was a social uprising against testing in the United States. However, the three kinds of evaluation should be seen as complementing each other, with each providing a unique kind of information. Consequently, they need to be used in conjunction with each other, or separately as demanded by the situation. A key question should be what information is required to make the appropriate decision about an individual, and then to select the approach or combination of approaches that will provide the required information.

Several of the studies referred to in this chapter have included the use of psychological tests. Rawls and Rawls (1968) examined the personality profiles of successful executives and noted a correspondence between this information and the biographical items which differentiated this group from a group of less successful executives. In another study, Dulewicz, Fletcher and Wood (1983) examined the relationship between intelligence and performance on an assessment centre and found a significant relationship between these measures.

The promoters of assessment centre technology have traditionally been averse to the idea of making use of psychological test results to supplement the evaluation of potential by means of an assessment centre, fearing contamination of the assessment centre results. Cognisance must, nevertheless, be taken of the potential contribution of psychological tests.

Test results have been used in personnel selection in an attempt to predict the potential job success of applicants. However, the difficulties associated with testing, for instance, ethnically disparate personnel, have generated controversy regarding the equitability of psychological tests (Weitzul, 1980). Here again, depending on the questions to be answered, the other approaches could provide alternative solutions.

Both biodata and psychological tests could be used to pre-screen assessment centre candidates and thus protect ill-equipped candidates from the emotional turmoil associated with poor performance on an assessment centre. Alternatively both biodata and test results, or each separately, could be used to structure training undertaken subsequent to the assessment centre to ensure optimal learning.

## CHAPTER 3

### RESEARCH STRATEGY

#### The Problem

In Chapter 2 the use of assessment centre ratings as a criterion for the prediction of managerial potential was discussed. The conclusion reached was that the predictive validity of assessment centres has been confirmed. Although more research is required to establish why the assessment centre works (predicts promotability), it is regarded as being, for the purposes of this study, an adequate measure of managerial potential.

The use of biographical information for the prediction of behaviour was also discussed in Chapter 2. The results of several studies designed to identify the biographical profiles of managers were described. Furthermore, previous studies in which assessment centre ratings have been related to biographical information were cited.

However, the results of these studies cannot be generalised to different managerial positions in different organisations. The demands made upon managers in different positions and in different organisations vary greatly (Uys, 1981). The questions to which answers are sought are thus:

- a) What biographical background information characterizes people identified as having managerial potential?
- b) What biographical background information characterizes people identified as not having managerial potential?

The underlying assumption in this study was that people with managerial potential and people without managerial potential would differ significantly in terms of a specific group of biographical background characteristics.

## Instruments of Measurement

### Assessment Centre Ratings

The assessment centre ratings used in this research were yielded by an assessment centre developed by the Personnel Division of the organization for the identification and development of sales management potential. The middle management position for which assessment was to be conducted was analyzed and the skills required for effective performance were identified. Exercises demanding work orientated behaviour were developed and observers were trained to observe and evaluate the criterion behaviours displayed by participants in these exercises.

The assessment centre consists of a managerial in-basket exercise, a team meeting, a person-to-person counselling exercise, and two leaderless group exercises. In the in-basket exercise participants deal with managerial problems presented to them in the form of memoranda from their colleagues, superiors and subordinates. They plan for action to be undertaken in writing, delegating tasks to their subordinates and passing information on to their colleagues and superiors. They then meet with their team of subordinates (role players) for a brief discussion of those problems which they consider most urgent and appropriate to a team discussion.

In the counselling exercise participants meet with one subordinate (a role player) to discuss the reasons why he/she is not to be promoted to a managerial position. The discussion necessitates an analysis of the subordinate's strengths and weaknesses in terms of his/her suitability for a managerial or specialist position.

The two leaderless group exercises take the form of "management games" and are less highly job-related. Participants operate in groups in which they compete with other groups in an attempt to maximise their profits or share-holdings in a trading situation. In these exercises the extent to which each participant exhibits leadership skills is assessed.

The criterion behaviours observed and evaluated by the observers are defined as follows, arranged in terms of content to form broad managerial skills areas for the sake of convenience:

(A) SELF-MOTIVATION

Energy -

Ability to maintain a high activity level.

Initiative -

Active efforts to influence events and ability to come up with imaginative solutions.

Tenacity -

Determination to succeed and ability to maintain a high level of performance even in adverse conditions.

(B) COMMUNICATION

Salesmanship -

Ability to organise and present concepts in a convincing and enthusiastic manner with a view to influencing others.

Oral Versatility -

Ability to react quickly and effectively to questions and objections, ability to "think on feet".

(C) LEADERSHIP

Empathy -

Active concern for the feelings and needs of others; personal warmth and encouragement.

Development of People -

Extent to which the person utilises the abilities of others and provides opportunities for them to grow to a higher level of performance.

Decisiveness -

Readiness to give direction by committing himself and others to a definite course of action and willingness to stand by his decisions.

(D) DECISION-MAKING SKILLS

Analytical Ability -

The ability to interpret data meaningfully and determine the source of a problem.

Judgement -

Ability to deal with situations logically and sensibly.

(E) PLANNING AND ORGANISING

Extent to which objectives are clearly defined and a disciplined and systematic approach is taken in achieving them.

The observers evaluate the participation of the candidates in each exercise, in terms of the extent to which the criterion behaviours were displayed at the level considered adequate for middle management. The criterion behaviour ratings are pooled at an evaluation meeting and discussed until consensus is reached as to an overall rating for each criterion.

### Biographical Information

Fick (1982) recommended the inclusion in a biodata questionnaire of any items thought likely to influence the criterion (in this case, managerial potential as identified by an assessment centre). A number of the items in the biodata questionnaire used in this study were derived from the questionnaire used by Uys (1981) in an attempt to identify the biographical characteristics which differentiate those identified as having managerial potential from those identified as not having managerial potential by means of an assessment centre. Uys derived many of his items from Coetsee (1973) and Viviers (1978) and drew up a number of other items specifically for his study. A number of Uys' items thought to be too heavily dependent on memory were, however, excluded from the questionnaire used in this study, due to the fact that the questionnaire was distributed to assessment centre candidates who had been assessed over a period of some years. Additional items included were derived from the literature reported on in Chapter 2.

As Uys (1981) had also done in designing his questionnaire, the additional items included in the present questionnaire were written in accordance with the following principles identified by Owens, Glennon and Albright (1962):

- \* items must be worded as succinctly as possible;
- \* figures must be used where possible to describe alternative responses to an item;
- \* all possible responses, including an "escape option", must be covered by the alternative responses to an item;
- \* items should be worded in such a way as to have a positive or neutral connotation;

- \* items dealing with previous or present behaviour, opinions, attitudes and values are acceptable, but should preferably have a historical perspective;
- \* items dealing with family relationships are acceptable, but care must be taken not to ask highly personal questions which could give offense.

The questionnaire used in this investigation consists of 71 items to which the subject responds by circling one of a number of alternative responses (see Appendix 1). Broadly speaking the items cover early life history, achievements and activities at school and university, work history, current activities, and the state of family affairs at the time of assessment. In connection with the penultimate point above, the present study excluded items pertaining to opinions, attitudes and values, due to the fact that such items more closely resemble the type of information required of respondents to a self-report personality inventory.

Item 1 investigates the role a person's early environment (rural or urban etc.) plays in determining his/her managerial potential.

Items 2, 3 & 4 examine order of birth, number of children in the family and early family relationships as possible determinants of managerial potential.

Items 5 & 6 cover the educational qualifications of the respondent's parents which may bear some relationship to the respondent's managerial potential.

Items 7 & 8 deal with the parents' level of income and the number of times the respondent moved house as a child.

Items 9 & 10 investigate the degree of freedom which the respondent was given as a child and the extent to which his/her parents encouraged his/her performance at school.

Item 11 covers father's occupation.

Items 12, 13, 14, 15, 24 & 26

focus on the school years: achievements (both academic and otherwise), leadership activities, extramural interests and size of school.

Item 16 deals with the respondent's educational qualifications.

Items 17, 18 & 19

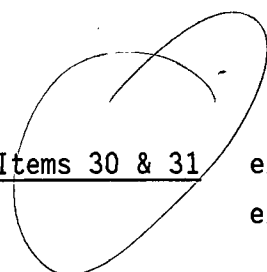
investigate academic achievement and extramural activities at university.

Items 20, 21, 22, 23 and 62

assess the age at which the respondent first learnt to drive, drank alcohol, learnt to swim, smoked and travelled alone on a trip over 500 miles.

Item 25, 27, 28 & 29

examine the respondent's age at the time of assuming financial responsibilities: holding down a job, marrying, having children.

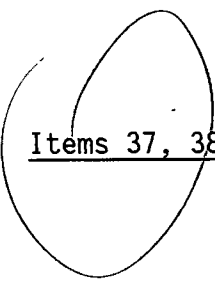


Items 30 & 31 examine the extent of the respondent's work experience prior to joining the company.

Items 32, 33 & 34

assess the extent of the respondent's financial success and responsibilities at the time of assessment.

Items 35 & 36 rate the extent of the parents' influence in the life of the respondent at the time he/she was at school and when making a career choice.



Items 37, 38, 39 & 40

assess the extent to which the respondent's job with the company was in line with his/her early educational interests and career choice.

Items 41 & 42 examine the influence of the environment (rural or urban) in which the respondent worked and the number of times he moved house prior to assessment.

Items 43 to 48 assess the breadth and depth of the respondent's work experience with the company prior to assessment: the extent to which he/she had operated in a managerial capacity, had exposure to other functions within the organisation; the regularity of his/her promotions; his/her speed of work relative to others; and the amount of time devoted to professional duties each week.

Items 49 to 54 examine the respondent's current "extra-mural" activities: his/her participation in sport, religious or social activities; his/her hobbies; state of health and the size of his/her circle of friends relative to others.

Items 55 & 57 identify the amount of reading the respondent did on management as a subject during the year prior to assessment.

Item 56 describes the scholastic qualifications of the respondent's wife. (If applicable).

Items 58 & 60 describe family relationships and place of residence at the time of assessment.

Item 59 identifies the type of community the respondent lived in at the time of assessment.

Items 61, 63 & 64

examine the extent to which the respondent read daily newspapers, attended a church and spent evenings at home reading at the time of assessment.

Item 65 describes the reason for most of the trips over 500 round trip miles undertaken by the respondent.

Item 66 identifies with whom the respondent would discuss problems at the time of assessment.

Items 67 & 68 examine the source of the respondent's early information about sex and the extent to which he/she would like to relive any parts of his/her childhood.

Items 69 & 70 investigate how much the respondent smoked and how many parties he/she went to at the time of assessment.

Item 71 describes with whom the respondent spent annual vacations.

Age at the time of assessment was included as an additional item.

### Selection and Description of the Sample

The sample used in this research was composed of people who had attended Sales Management Assessment Centres since 1975. In the time it took to plan and execute the research strategy there were, unfortunately, not enough assessment centres administered to yield a large enough sample consisting only of more recent candidates. The biodata questionnaire was thus distributed to employees operating at branches throughout the country in the hope that a sufficiently large number of questionnaires would be returned to constitute an adequate sample. Of 166 questionnaires distributed 92 were returned, i.e. a 55 per cent return rate.

The participants form a heterogeneous group as the Sales Management Assessment Centre is administered to members of all racial groups and to both men and women. Assessment centre candidates are nominated on the basis of organisational needs and managers' perceptions of the individuals' potential and development needs. No formal pre-screening or pre-selection procedure is used. However, candidates must have met certain production standards, have been promoted to first line management level, and have completed the prescribed training for this level.

### Processing of Data

#### Assessment Centre Scores

Complete records were available on all ratings assigned to all participants at the time they attended the assessment centre. The Sales Management Assessment Centre yields a rating for each person assessed on each of the criterion behaviours described earlier in

this chapter. In order to obtain a single, total score for each person, the ordinal ratings assigned to an individual during the assessment centre were converted to interval ratings and summated using the method described by Uys (1981). In this way, a single score was obtained to represent the person's performance on the totality of the assessment centre. Appendix 2 contains the rationale for the conversion and the conversion table used. The rating system used by Uys (1981) corresponded to the rating system used for the Sales Management Assessment Centre which provided the criterion data for the present study.

After a single score indicating managerial potential was obtained for each candidate, the sample was divided into a high managerial potential group and a low managerial potential group, using the method described by Kelly (1939). This involves identifying the top 27 per cent and bottom 27 per cent of subjects in terms of their total managerial potential scores, which ensures that the two groups differ optimally with respect to managerial potential. There were thus 25 people in each group (27% of 92 = 24,8, which was rounded off to 25).

#### Biographical Background Data

The response frequencies for the high managerial potential and low managerial potential groups for each question were then calculated, for the purpose of using chi-square tests.

Chi-square values pertaining to each item were calculated. Wherever necessary, response alternatives were combined to meet the requirement that 80 per cent of the cells should have an expected frequency of five or more and no cell an expected frequency of less than one (Siegel, 1956).

## CHAPTER 4

### RESULTS AND DISCUSSION

The results of this investigation are reported as follows: first the ratings of managerial potential (assessment centre results) for the two groups are examined; then the biographical items which emerged as differentiating significantly between the high potential and low potential groups are presented and discussed.

#### Ratings of Managerial Potential

The upper 27 per cent group obtained a mean assessment centre score of 1160,24 ( $s = 146,78$ ) and the bottom 27 per cent group a mean of 462,08 ( $s = 138,43$ ). This difference was highly significant:  $t(48) = 17,30$ ;  $p < ,0001$ .

#### Biographical Items

Table 1 depicts the chi-square values of the biographical items which discriminated significantly between the high and low managerial potential groups.

These items will now be discussed individually.

#### Item 6: Educational qualifications of respondent's mother

There was a tendency for people in the high managerial potential group to have mothers with educational qualifications of Std. 8 and higher in contrast to the low managerial potential group. This is in line with the findings of Uys (1981). Furthermore, Place (1979) identified this item as loading on the factor of Self-confidence, together with items such as the respondent's education, his/her family's association with business life and his/her expressed confidence in himself and his managerial ability.

TABLE 1

Chi-square values for the biographical items which discriminated significantly between the high and low managerial potential groups.

Item	df	$\chi^2$	
6	2	5,53	*
8	2	7,39	**
20	1	7,21	***
21	2	9,01	**
29	1	6,65	***
31	1	5,09	**
34	1	3,94	**
37	2	5,76	*
41	2	5,95	*
42	3	6,96	*
46	3	8,69	**
47	1	2,88	*
65	1	2,88	*

\*  $p < 0,1$

\*\*  $p < 0,05$

\*\*\*  $p < 0,01$

Item 8: Number of times respondent's family  
moved house during his/her childhood

The trend was for the high managerial potential group to have moved home five or more times in contrast to the low managerial potential group which tended to have moved only once or not at all. This item

did not emerge as significant in the research of Uys (1981). However, the demand to adapt made upon an individual who has moved house frequently could be regarded as providing him/her with a challenge which prepares him for the demands made upon him/her as a manager.

Item 20: Age at which respondent learnt to drive

The high managerial potential group tended to have learnt to drive a car before the age of 18 years, in contrast to the low managerial potential group who learnt to drive after the age of 18 years. This is in line with the research of Place (1979) who regarded this item as representing a critical step in the mastery of the environment and early acceptance of responsibility. She identified the item as loading on the factor of Task Competence.

Item 21: Age at which respondent first drank alcohol

The indication is that people in the high managerial potential group began to drink alcohol before the age of 22, in contrast to people in the low managerial potential group who began to drink alcohol after the age of 22. This is in line with the finding of Rawls and Rawls (1968) who identified the successful executive as having started to drink alcoholic beverages at a younger age than his less successful counterpart.

Item 29: Age at which respondent first depended  
on a job for financial support

The high managerial potential group generally assumed financial responsibility before the age of 21 years in contrast to the low managerial potential group which assumed financial responsibility after the age of 21 years. This finding is in line with the conclusions reached by Baehr and Williams (1968) who found that the successful salesman and sales manager had had an early vocational start with prime or sole responsibility for managing family finances. This item was found to load on their factor of Drive.

Item 31: Number of companies at which respondent worked prior to joining company at which he was assessed

People in the high managerial potential group tended to have worked for three or more companies before joining the organisation at which they were assessed, in contrast to the low managerial potential group who had mostly worked for only one or two other companies. This item and Item 42 (how often the respondent had moved house during his working years) appear to relate to the factor of Stability identified by Baehr and Williams (1968), who found that present stability in the work and family situation is characteristic of the successful salesman and sales manager. They also found, however, that the greatest weight for tenure was a negative one on the factor for Vocational Satisfaction. So frequent moves may be indicative of the person who believes he can improve on his performance in other companies and positions. Daniels (1973) provided another possible explanation for the greater mobility characteristic of successful local managers operating in American subsidiaries abroad. In European cultures where inter-firm mobility carried some stigma it might have been easier for mobile individuals to gain employment in American subsidiaries which might have actively sought out experienced personnel. This explanation could possibly also hold good for the organisation in which the present study was conducted.

Item 34: Whether or not respondent's wife worked

The tendency was for a greater percentage of the wives of the low managerial potential group to work in contrast to the high managerial potential group. This is, once again, in line with the findings of Baehr and Williams (1968) who identified the successful salesman and sales manager as most often being the sole provider.

Item 37: Respondent's major emphasis at school

The high potential managerial group tended to place more emphasis on extracurricular activities at school than did the low managerial potential group. The emphasis on activities at school was previously

identified by Baehr and Williams (1968) as being a factor worthy of consideration in studies such as this.

Item 41: Environment in which greater part of  
respondent's working years was spent

People in the high managerial potential group tended to have spent the greater part of their working years in larger centres (towns or cities) in comparison with the low managerial potential group who had more frequently worked in smaller centres. This may be regarded as corresponding with the finding of Uys (1981), that people identified as having managerial potential grew up in large towns or cities. Place (1979) viewed the large city as representing the challenge of complex and extensive stimuli and the small town as being more comfortable and less challenging.

Item 42: How often respondent had moved home  
during his/her working years

The tendency for the high managerial potential group was to move home more frequently than was the case for the low managerial potential group who had tended to move only once every 15 years or longer. It appears likely that these moves would correspond with moves to other companies and or positions, the significance of which has already been discussed.

Item 46: Number of hours per week devoted to  
professional duties

More of the high managerial potential group reported working 46 to 50 hours per week in contrast to the low managerial potential group which reported working longer hours. This is in contrast to Uys' (1981) finding that the high managerial potential group worked longer hours than the low managerial potential group. The response of the high managerial potential group to Item 47 (speed of work) provides a possible explanation.

Item 47: Speed of work in comparison with colleagues

The high managerial potential group tended to perceive itself as working faster than colleagues in comparison to the low managerial potential group who saw themselves as working at much the same speed as their colleagues. Place (1979) described items which assess the degree to which the respondent perceives himself as more competent than others in the work situation as loading on the factor of Competence. In addition, Kavanagh and York (1972) found that department heads who had rated themselves as working faster than their counterparts were rated higher by their plant manager.

Item 65: Major reasons for round trips over 500 miles

The tendency was for the high managerial potential group to have travelled more for pleasure than for other reasons in contrast to the low managerial group who had travelled more for family, business, change of residence or military duty reasons. Greater mobility appears to be characteristic of the high managerial potential group.

### Conclusions

On the basis of the findings reported above, persons with high managerial potential could be described as having had mothers with at least a Std. 8 education and having moved house as children five times or more. Their major emphasis at school was on extracurricular activities. They learnt to drive before the age of 18 and first drank alcohol before the age of 22. They were first dependent on a job for financial support before the age of 21 and their wives ordinarily do not work. Prior to joining the organisation at which their managerial potential was assessed, they had worked for three or more companies and during their working years had moved house relatively frequently, spending the majority of this time in towns or

cities. Persons with high managerial potential perceived themselves as working faster than their colleagues and devoted up till, but not more than, 50 hours per week on their professional duties. Round trips of over 500 miles had been conducted more for pleasure than for any other reason.

On the same grounds, persons with low managerial potential could be described as frequently having had mothers with less than a Std. 8 qualification and as having moved house as a child once or not at all. Their major emphasis at school was not on extracurricular activities. They learnt to drive after the age of 18 and first drank alcohol after the age of 22. They were first dependent on a job for financial support after the age of 21 and their wives ordinarily work. Prior to joining the organisation at which their managerial potential was assessed they had worked for only one or two companies, had moved house during these years only once every 15 years or longer and had spent these years largely in small towns. Persons with low managerial potential do not perceive themselves as working any faster than their colleagues and devote either considerably less than or over 50 hours per week to their professional duties. Round trips of over 500 miles had been conducted for reasons other than pleasure.

None of these statements, of course, hold in an absolute sense. They merely state probabilities. However, if these items were to be used as a questionnaire, these probabilities would mount with an increase in the number of items answered in the scoring direction. This would, in turn, allow a probability statement about the person's managerial potential, based on all items.

A serious limitation of the present study was that no cross-validation could be conducted, due to the small number of persons for whom criterion data were available and the relatively low response rate. Ideally the sample should have been divided into two and all analyses should have been carried out in duplicate. Only those items which then held up on cross-validation, i.e. differentiated significantly

in both samples, should have been retained for use in a biodata blank. An alternative procedure, which needs to be carried out in the future, would be to repeat the study in order to test whether the items found in this one would hold up on cross-validation. If the 5 per cent level of significance is used with 71 items, three to four (3,55) of them could differentiate at this level by chance. In Table 1, six items differentiated at the 5 per cent level of significance, five at the 1 per cent level and two at the .01 per cent level; chances of as many as three or four of the 13 items in Table 1 having differentiated by chance are thus reduced. Nevertheless, it is likely that a few of these items would be lost upon cross-validation.

#### Recommendations

Some biographical items are capable of discriminating between high and low managerial potential in diverse organisations. This is illustrated by the degree of correspondence between the findings of Uys (1981) and the results of this investigation. However, some biographical items will be found to be specific to organisations and occupational groupings. Hence the difference between the findings of Uys (1981) and these research results. For instance, in the sample used by Uys (1981) a cluster of items relating to the respondents' university years emerged as significant, whereas few of the persons in this sample had attended university. It is therefore essential that an organisation that seeks to use biodata should conduct its own research in order to identify significant items.

After successful validation these items could be used to pre-screen assessment centre candidates or could at least be used in addition to other pre-screening criteria. This would contribute to cost savings by reducing the number of candidates to be assessed to those most likely to succeed.

However, it would be necessary to use the biodata questionnaire in a flexible way. If it were to be used too rigidly, there would be a danger of eliminating "false negatives", i.e. persons who have adequate managerial potential but do not fit the pattern described by these biographical items. In borderline cases it would be wise to consider additional information before a person is finally excluded from attendance of an assessment centre. Performance data, careful evaluation by the person's manager, interview data or even some psychological testing could be useful for this purpose. At most, the biodata questionnaire should be used as a rough first screening device.

Following upon an investigation into the dynamic relationship between background and managerial potential, it might also be possible to supply would-be managers with the type of experiences lacking in their backgrounds which would better prepare them for management. For example, if the type of experience gained by the more mobile manager who has spent more time in towns or cities could be identified then that exposure could be provided for managers who might benefit from such enrichment.

The results of this investigation could also be put to use during the selection process. Frequent re-location and job changes have traditionally been regarded with suspicion in contrast to the findings of this study which characterize the person with high managerial potential as having moved houses and worked for other companies more frequently than the person identified as having low managerial potential. Daniels (1973) suggested that particular organisations might actively (but unconsciously) seek experienced and more mobile personnel. If this is the case for the organisation in which this study was conducted then making more conscious use of this criterion might be warranted.

Further research should focus upon investigating the possibility of establishing a valid prediction model on the basis of the significant items identified in this study. Research into why these items should have emerged as significant would also further understanding of the dynamic relationship between background and managerial potential and facilitate steps to supplement the experience of would-be managers.

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APPENDIX 1  
BIOGRAPHICAL QUESTIONNAIRE

Please read the questions carefully and respond to them honestly by circling the alternative which corresponds with your answer:

For example:

How old are you:

- (a) Between 18 and 30 years old
- (b) 31 to 40
- (c) 41 to 50
- (d) Older than 50

Thank you for your co-operation.

SURNAME: ..... INITIALS: .....

AGE: ..... (when you attended the SMAC)

1. Where did you spend the greater part of your youth?
- (a) Small towns or farms.
  - (b) Large towns.
  - (c) Cities or metropolitan areas.
2. Indicate your position and order of birth.
- (a) First and only child.
  - (b) First child.
  - (c) Second child.
  - (d) Third child.
  - (e) Fourth child.
  - (f) Fifth or later child.
3. How many brothers and/or sisters do you have?
- (a) None.
  - (b) One.
  - (c) Two.
  - (d) Three.
  - (e) Four or more.
4. How would you describe the relationships which existed between yourself and the rest of your family-members during your childhood?
- (a) Very closely related.
  - (b) Reasonably closely related.
  - (c) The relationship was not completely satisfactory.
  - (d) The relationship was poor.
  - (e) I am an orphan.

5. Indicate the highest educational qualifications your father obtained.

- (a) Lower than Std. 8.
- (b) Std. 8 or 9.
- (c) Std. 10.
- (d) College diploma or other diploma obtained.
- (e) B-degree.
- (f) Honours degree.
- (g) Masters degree.
- (h) Doctoral degree.
- (i) Other - Please specify: .....

6. Indicate the highest educational qualifications your mother obtained.

- (a) Lower than Std. 8.
- (b) Std. 8 or 9.
- (c) Std. 10.
- (d) College diploma or other diploma obtained.
- (e) B-degree.
- (f) Honours degree.
- (g) Masters degree.
- (h) Doctoral degree.
- (i) Other - Please specify: .....

7. What was the income of your parents in your childhood days in comparison with that of other families in the vicinity?

- (a) Much higher.
- (b) A little higher.
- (c) About the same.
- (d) A little less.
- (e) Much less.

- (h) Supervisor.
  - (i) Skilled worker or technician.
  - (j) Unskilled worker.
12. What was your general standing in your class regarding academic matters during your high school years?
- (a) In the upper 10%.
  - (b) In the upper 25%.
  - (c) Average.
  - (d) Below average.
13. How many of the following offices did you hold during your high school years: class leader, member of a scholar council, chairman of a scholastic association, captain of a sports' team, editor of a publication.
- (a) None.
  - (b) One.
  - (c) Two.
  - (d) Three.
  - (e) Four.
  - (f) Five.
14. How many social, religious and other organisations did you actively partake in during your high school days?
- (a) None.
  - (b) One.
  - (c) Two.
  - (d) Three.
  - (e) Four.
  - (f) Five or more.

15. Approximately how many children attended the school where you spent the greater part of your high school years?
- (a) Less than 100.
  - (b) 100 to 199.
  - (c) 200 to 299.
  - (d) 300 to 399.
  - (e) 400 to 499.
  - (f) 500 to 599.
  - (g) 600 to 699.
  - (h) 700 to 799.
  - (i) 800 to 899.
  - (j) 900 and more.
16. Indicate your own educational qualifications.
- (a) Lower than Std. 8.
  - (b) Std. 8 or 9.
  - (c) Std. 10.
  - (d) College diploma or other diploma obtained.
  - (e) B-degree.
  - (f) Honours degree.
  - (g) Doctoral degree.
  - (h) Other - Please specify: .....
17. How would you classify yourself in terms of academic achievements at university?
- (a) Considerably above average as degree/degrees was/were obtained with distinction.
  - (b) Somewhat above average.
  - (c) Average.
  - (d) Below average.
  - (e) Did not attend university.

18. How many social, religious and other organisations, societies or clubs did you actively partake in during your university years?

- (a) None.
- (b) One.
- (c) Two.
- (d) Three.
- (e) Four.
- (f) Five or more.
- (g) I did not attend university.

19. In how many social, religious and other organisations, societies or clubs did you hold leadership offices (e.g. chairman, vice-chairman, manager, etc.) during your university years?

- (a) None.
- (b) One.
- (c) Two.
- (d) Three.
- (e) Four.
- (f) Five or more.
- (g) I did not attend university.

20. How old were you when you learnt to drive?

- (a) Before you turned 18.
- (b) Between 18 and 20 years old.
- (c) 21 or older.

21. How old were you when you first drank alcohol?

- (a) Before you turned 16.
- (b) Between 16 and 18 years old.
- (c) Between 19 and 21 years old.
- (d) 22 or older.
- (e) I have never drunk alcoholic beverages.

22. How old were you when you learnt to swim?
- (a) Before you turned 6.
  - (b) Between 6 and 10 years old.
  - (c) Between 11 and 15 years old.
  - (d) 16 or older.
23. How old were you when you first travelled alone on a trip over 100 miles?
- (a) Younger than 10 years old.
  - (b) Between 10 and 15 years old.
  - (c) Between 16 and 20 years old.
  - (d) 21 or older.
24. At school was your general athletic ability
- (a) Above average.
  - (b) Average.
  - (c) Below average.
25. During your last couple of years at high school how many hours did you devote to a part-time paid job?
- (a) 3 to 4 hours.
  - (b) 5 to 10 hours.
  - (c) Over 10 hours.
  - (d) I didn't have a part-time paid job.
26. To what extent did you enjoy your school years?
- (a) Very much.
  - (b) About average.
  - (c) Not very much.

27. How old were you when you got married?
- (a) Not married (at time of attendance on centre).
  - (b) Less than 18 years old.
  - (c) 18 to 20 years old.
  - (d) 21 to 25 years old.
  - (e) 26 to 30 years old.
  - (f) Over 31 years old.
28. How old were you when your first child was born?
- (a) Between 18 and 21 years old.
  - (b) Between 22 and 25 years old.
  - (c) 26 and older.
  - (d) I have no children.
- (29.) How old were you when you were first dependent on a job for financial support?
- (a) 16 or younger.
  - (b) Between 17 and 20.
  - (c) Between 21 and 23.
  - (d) 24 and older.
30. How old were you when you joined this organisation?
- (a) 18 or younger.
  - (b) Between 19 and 21.
  - (c) Between 21 and 25
  - (d) Older than 25.
- (31.) How many companies did you work for before you joined this organisation?
- (a) 1 or 2.
  - (b) 3 or 4.
  - (c) 5 or more.

32. At the time that you participated in the assessment centre how would you rate your financial status in terms of assets and liabilities?
- (a) Above average.
  - (b) Average.
  - (c) Below average.
33. At the time that you participated on the assessment centre how many children did you have?
- (a) 1 or 2.
  - (b) 3 or 4.
  - (c) 5 or more.
  - (d) None.
34. At the time that you participated in the assessment centre did your ~~wife~~ <sup>spouse</sup> work?
- (a) Yes.
  - (b) No.
35. As a teenager did you ask your parents for their advice on any problems you were having?
- (a) Yes, some problems.
  - (b) Yes, most problems.
  - (c) No.
  - (d) I did not have parents.
36. Did you consult your parents on your career choice?
- (a) Yes.
  - (b) No.
37. How would you rate your major emphasis at school?
- (a) On extracurricular activities.
  - (b) On academic studies.
  - (c) A little bit of both.

38. Is your job with this organisation in line with your educational interests and training?

- (a) Yes.
- (b) Not at all.

39. How sure were you when you joined this organisation that this was the career that you wanted to pursue.

- (a) Very much.
- (b) Sort of.
- (c) Not at all.

40. At the time when you participated in the assessment centre how sure were you that you'd made the correct career choice?

- (a) Not at all sure.
- (b) Relatively sure.
- (c) Very sure.

41. Where did you spend the greater part of your working years prior to attendance on the assessment centre?

- (a) Small towns.
- (b) Big towns.
- (c) Cities or metropolitan area.

42. How frequently, prior to the assessment centre and during your working years had you moved from one home to another?

- (a) Not once.
- (b) Once every 15 years or longer.
- (c) Once every 10 to 14 years.
- (d) Once every 8 to 9 years.
- (e) Once every 6 to 7 years.
- (f) Once every 4 to 5 years.
- (g) Once every 2 to 3 years.

43. In which of the following categories would you place your occupation at the time you attended the assessment centre?

- (a) Manager - Technical field.
- (b) Manager - administrative, commercial or related field.
- (c) Specialist - technical field.
- (d) Specialist - administrative, commercial or related field.

44. For approximately how long had you been in control of people in the work situation when you attended the assessment centre?

- (a) I was not in control of people.
- (b) Less than one year.
- (c) One to three years.
- (d) Three to six years.
- (e) Six to nine years.
- (f) Nine to twelve years.
- (g) Twelve to fifteen years.
- (h) More than fifteen years.

45. How frequently had you been promoted in your working years prior to your attendance on the assessment centre?

- (a) Once every year.
- (b) Once every two years.
- (c) Once every three years.
- (d) Once every four years.
- (e) Once every five to six years.
- (f) Once every seven to eight years.
- (g) Once every nine to ten years.
- (h) Once every eleven to twenty years.
- (i) Had never been promoted.

46. How many hours of work did you average per week on your professional duties during the period prior to the assessment centre?

- (a) 40 to 45 hours.
- (b) 46 to 50 hours.
- (c) 51 to 55 hours.
- (d) 56 to 60 hours.
- (e) 61 to 65 hours.
- (f) 66 to 70 hours.
- (g) More than 70 hours.

47. What was your work speed in comparison with that of your colleagues at the time you participated in the assessment centre?

- (a) Much slower.
- (b) Somewhat slower.
- (c) The same.
- (d) Somewhat faster.
- (e) Much faster.

48. In how many of the branches of your organisation had you worked (for example, commercial, operating, personnel, manpower, etc.) prior to your attendance on the assessment centre?

- (a) One.
- (b) Two.
- (c) Three.
- (d) Four.
- (e) Five.
- (f) Six.
- (g) More than six.

49. What role did religion play in your life during the period prior to your attendance on the assessment centre?
- (a) It was of no importance.
  - (b) It was of secondary importance.
  - (c) It was of primary importance.
50. Of how many social, religious, community, sport and other organisations or societies were you an active member prior to your attendance on the assessment centre?
- (a) None.
  - (b) One.
  - (c) Two.
  - (d) Three.
  - (e) Four.
  - (f) Five or more.
51. How many hobbies did you have prior to your attendance on the assessment centre?
- (a) None.
  - (b) One.
  - (c) Two.
  - (d) Three.
  - (e) Four.
  - (f) Five or more.
52. What had the condition of your health been like during the period prior to your attendance on the assessment centre?
- (a) Extremely good.
  - (b) Good.
  - (c) Average.
  - (d) Somewhat unsatisfactory.
  - (e) Poor.

53. How big was your circle of very good friends in comparison with that of others during the period prior to your attendance on the assessment centre?
- (a) Much smaller.
  - (b) Smaller.
  - (c) The same.
  - (d) Bigger.
  - (e) Much bigger.
54. How many hours per week, on average, did you spend on physical sport or exercise during the period prior to the assessment centre?
- (a) None.
  - (b) One to two hours.
  - (c) Three to four hours.
  - (d) Five to six hours.
  - (e) Seven or more hours.
55. How many books on management did you read during the year previous to your attendance on the assessment centre?
- (a) None.
  - (b) One.
  - (c) Two.
  - (d) Three.
  - (e) Four.
  - (f) Five.
  - (g) Six or more.
56. What is your wife's highest scholastic qualification?
- (a) Less than Std. 8.
  - (b) Std. 8 or 9.
  - (c) Std. 10.

- (d) College diploma or other diploma obtained.
- (e) B-degree.
- (f) Honours degree.
- (g) Masters degree.
- (h) Doctoral degree.
- (i) I am not married.

57. How many articles on management had you read in the year prior to your attendance on the assessment centre?

- (a) None.
- (b) One.
- (c) Five.
- (d) Six to nine.
- (e) Ten to fifteen.
- (f) Sixteen to twenty.
- (g) Twenty one to thirty.
- (h) More than thirty.

58. How would you describe your relationship with your family (wife and children) at the time you participated on the assessment centre?

- (a) Very happy.
- (b) Happy.
- (c) Reasonable.
- (d) Somewhat unhappy.
- (e) Very unhappy.
- (f) I was not married.

59. In what type of community were you living at the time you attended the assessment centre?
- (a) In the country.
  - (b) Town of less than 2 000.
  - (c) Town of 2 000 or more but less than 10 000.
  - (d) City of 10 000 to 100 000.
  - (e) City larger than 100 000.
60. With whom did you live at the time that you attended the assessment centre?
- (a) Alone.
  - (b) With wife.
  - (c) With one or both parents.
  - (d) With other relative.
  - (e) Other.
61. At the time you completed the assessment centre, to what extent did you read daily newspapers?
- (a) Read one or more newspapers thoroughly each day.
  - (b) Read parts of a newspaper each day.
  - (c) Read parts or more than one newspaper each day.
  - (d) Read a newspaper two or three times per week.
  - (e) Seldom read a newspaper.
  - (f) Never read newspapers.
62. At what age did you begin to smoke?
- (a) 12 or younger.
  - (b) 13 to 16.
  - (c) 17 to 21.
  - (d) 21 or over.
  - (e) Never smoked.

63. At the time you attended the assessment centre how often did you attend church?
- (a) Every Sunday.
  - (b) At least three times a month.
  - (c) Once or twice a month.
  - (d) On special occasions such as Easter.
  - (e) Did not attend church.
64. At the time you attended the assessment centre how often did you spend an evening at home sitting around and reading?
- (a) Practically never.
  - (b) Rarely.
  - (c) Occasionally.
  - (d) Frequently.
65. At the time you attended the assessment centre what had been the reason for the majority of your trips which covered over 500 - round trip - miles?
- (a) Pleasure.
  - (b) Business.
  - (c) Change of residence.
  - (d) Family reunion, funeral, etc.
  - (e) Military duty.
66. At the time when you attended the assessment centre with whom would you discuss a difficult problem?
- (a) Father.
  - (b) Mother.
  - (c) Friend.
  - (d) Older adult, not parent.
  - (e) Wife.
  - (f) No-one.

67. Where did you get your early information about sex matters?
- (a) From your friends.
  - (b) From your parents.
  - (c) From some member of the opposite sex.
  - (d) From an older friend or counselor.
  - (e) Didn't get any information until you were in your teens.
68. Would you like to live over any parts of your childhood?
- (a) Would enjoy living over again the time you used to date.
  - (b) Would like to live over again the time before you started going to school.
  - (c) Would like to live over again the time when you were in school.
  - (d) Childhood was fine, but living it over again doesn't interest you.
  - (e) Dislike thinking much about your childhood.
69. At the time you attended the assessment centre, how often on average during the week did you go to parties?
- (a) Rarely.
  - (b) 1 evening.
  - (c) 2 to 3 evenings.
  - (d) Over 3 evenings.
70. At the time you attended the assessment centre, how many cigarettes did you usually smoke each day?
- (a) None.
  - (b) Half a packet of 20.
  - (c) A packet of 20.
  - (d) Over a packet of 20.

71. HRM

Hrm.

71. At the time you attended the SMAC with whom did you usually go on your annual vacation?
- (a) You had not had a vacation in the last three years.
  - (b) Just yourself and wife - no children or made other arrangements for them.
  - (c) Your wife and you or more other couples - no children along.
  - (d) With your wife and children.
  - (e) With one or more friends - not married or wife didn't accompany you.
  - (f) Some arrangement other than these described above.

Thank you again for your preparedness to answer the above questions honestly. You are again given the assurance that this questionnaire will only be used for research purposes.

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## APPENDIX 2

## CONVERSION OF ORDINAL ASSESSMENT CENTRE RESULTS TO INTERVAL MEASUREMENTS

The 11 criterion behaviours measured at the assessment centre are rated on a 5 point scale where 1 = weak, 2 = less than adequate, 3 = adequate, 4 = more than adequate, and 5 = exceptional.

However, the actual difference between these ratings is not equal to one, as different conceptual values are linked with each.

A number of other ratings based on the 5-point scale are also used. Each has a particular meaning and value.

(a) + ratings (1+, 2+, 3+, 4+, 5+).

With the exception of 5+ these ratings are somewhat weaker than the next higher rating, but more than half of the way between the two ratings between which they fall.

So 2+ is better than 2 but somewhat weaker than 3.

In the case of 5+ the behaviour observed is so strong that it becomes negative (as in the case of over-flexibility). The value of 5+ is more than 1, but less than 1+.

(b) C ratings (3C, 3+C, 4C, 4+C, 5C)

A C rating is awarded only when behaviour is at least adequate but indicates that something is wrong that could be corrected by counselling.

- (c) Split ratings (5/2+, 5/2, 5/1+, 5/1, 5C/2+, 5C/2, 5C/1+, 5C/1, 4+/2+, 4+/2, 4+/2, 4+/1+, 4+/1, 4+C/2+, 4+C/2, 4+C/1+, 4+C/1, 4/2+, 4/2, 4/1+, 4/1, 4C/2+, 4C/2, 4C/1+, 4C/1, 3+/2+, 3+/2, 3+/1+, 3+/1, 3+C/2+, 3+C/2, 3+C/1+, 3+C/1, 3/2+, 3/2, 3/1+, 3/1, 3C/2+, 3C/2, 3C/1+, 3C/1).

A split rating is awarded when behaviour is not consistently adequate but where there is evidence of the required behaviour at identifiable times.

The value of a split rating is never more than three, but is worth more than the lower rating in the pair.

The conversion values were obtained by assigning numerical values to each possible rating, in line with the intrinsic value of each rating.

The conversion values appearing in the table below were used to convert the subjects' assessment centre ratings into interval measurements which were then summated so as to arrive at a single rating for each subject.

## CONVERSION TABLE

Rating	Conversion Value	Rating	Conversion Value
5+	= 10	4+/1	= 48
5	= 180	4/2+	= 92
5C	= 178	4/2	= 72
4+	= 170	4/1+	= 52
4+C	= 168	4/1	= 42
4	= 150	4C/2+	= 91
4C	= 148	4C/2	= 71
3+	= 140	4C/1+	= 51
3+C	= 138	4C/1	= 41
3	= 100	3+/2+	= 90
3C	= 98	3+/2	= 68
2+	= 86	3+/1+	= 46
2	= 40	3+/1	= 38
1+	= 20	3/2+	= 88
1	= 9	3/2	= 64
5/2+	= 96	3/1+	= 36
5/2	= 80	3/1	= 34
5/1+	= 60	3C/2+	= 87
5/1	= 50	3C/2	= 63
5C/2+	= 95	3C/1+	= 35
5C/2	= 79	3C/1	= 33
5C/1+	= 59		
5C/1	= 49		
4+/2+	= 94		
4+/2	= 76		
4+/1+	= 56		

Uys (1981, pp. 114 - 116)

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