

**Alternative Perspectives on Selection: Social Impact and Validation of
Graduate Selection within a Multinational Oil Company**

Nicole Ann Cunningham-Snell

Submitted to the University of London

for the Degree of

Doctor of Philosophy in Psychology (Science)

Goldsmiths College

Abstract

This research investigates various theoretical perspectives on graduate selection. Four standpoints are examined: organisational justice in selection, the emergence of the psychological contract, the influence of social moderators on selection predictive validity, and assessment centre construct validity.

Two studies were conducted into the graduate selection procedures of a multinational oil company (Shell International). In Study A, applicants were contacted in retrospect and asked about their experiences of the selection process. In Study B, a longitudinal design was employed whereby applicants responded to questionnaires at various time points within the selection process and following four months of employment. In Study B, data were also collected from the organisation, including ratings of applicants' potential at selection and subsequent potential four months post-entry.

The results of both studies highlight the dynamic nature of the interaction between potential recruits and the organisation during the selection process. Differences between applicants' prior expectations of procedural justice and their perceptions of reality measured immediately after a selection method, are found to have an impact on several selection outcome variables. The selection decision is found to have a direct impact on applicants' reactions to procedural justice, with unsuccessful applicants having lower perceptions of procedural justice when measured post-, but not pre-communication of the outcome decision. The dynamic nature of the psychological contract is shown from selection to four months post entry, with recruits' perceptions generally becoming more congruent with the organisation's perspective. The results also highlight the potential influence of selection and socialisation moderators of predictive validity. Finally, poor assessment centre construct validity is demonstrated, despite the small number of criteria used and the reasonable predictive validity. Overall, this research illustrates the advantage of conducting integrated research which simultaneously examines multiple perspectives on selection. In conclusion, the original contributions of this research to selection theory, and a number of implications for practice are discussed.

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Acknowledgements

Without the open access and financial support provided by Shell International, this research would not have been possible. I am especially grateful to Andy Gibb for his enthusiasm, commitment and generosity in giving his time for discussions regarding this research. I would like to thank Helen Woolsey for her support and Andrea Harling, Janice McCanna, Monique van den Zanden and Jolanda de Winter who were invaluable in the administration of the selection questionnaires. More generally, my thanks to the whole Recruitment Team who have shown constant interest in my progress over the past three years.

Equally, I have greatly appreciated the tremendous support provided by so many people at the Department of Psychology at Goldsmiths College. Principally, I would like to extend wholehearted gratitude to my supervisors, Neil Anderson and Clive Fletcher for their advice, persistent feedback and encouragement. I have valued their involvement in this process enormously.

Finally, special thanks to my family and friends. I am particularly grateful to Mark Abram and Helena Thomas for their relentless patience in discussing aspects of this research, to my sister, Catherine for her many hours of assistance with data entry, to Golan Shahar for sharing his expertise in structural equation modelling, to Neil Conway for being so generous in providing feedback on the discussion chapter, and to Emma Fordham and my Grandmother, Kitty Hayward, for their enduring support. Last, but by no means least, a big thank you to my parents, Rob and Sue, for their endless listening and encouragement.

To all of them, my sincere thanks.

Thesis Overview

Perspectives on Selection

The traditional predictivist perspective on selection has concentrated on the development of cost-effective, valid and reliable assessment techniques with minimal adverse impact. Implicitly, this approach assumes that selection methods are “psychologically neutral measuring instruments” (Robertson, Iles, Gratton & Sharpley, 1991, p.964) with no impact on the person being assessed. However, as Rynes (1993a) argues, “...applicants react - sometimes very strongly - to what they are asked to do or say to get a job” (p. 242). Furthermore, interactions between the organisation and the potential recruit during selection provide the opportunity for information exchange and sense-making regarding the future job role and organisation (Anderson & Ostroff, 1997; Herriot, 1989; Louis, 1980). As Herriot writes “selection is not the gate through which applicants must pass before they can relate to the organisation; it is itself part of that relationship” (1989, p.171). These social aspects of the selection process may affect job acceptance rates (e.g. Gilliland, 1993; Herriot, 1989) which will subsequently influence overall selection utility (Beaudreau & Rynes, 1985; Murphy, 1986; Smither, Reilly, Milsap, Pearlman & Stoffey, 1993). In addition, applicants’ reactions to selection and the acquisition of information may impact on selection performance which may ultimately influence predictive validity (e.g. Schmitt & Gilliland, 1992; Schmitt & Ryan, 1992). Hence, the traditional perspective on selection may benefit from being placed within a broader theoretical framework in order to consider not only the effectiveness of organisational decision-making, but also the social impact of the process (e.g. Fletcher, 1997a; Herriot, 1989, 1993; Herriot & Anderson, 1997; Iles & Robertson, 1989, 1995; Robertson, 1994; Schuler, Farr & Smith, 1993).

Selection: Validation Perspectives

The traditional approach to selection has highlighted the importance of several different types of selection validity, particularly predictive and construct validity. Predictive validity has represented a critical approach for evaluating and comparing the accuracy of different selection methods (for a review see Schmidt & Hunter, 1998) and construct validity has provided an active area of research notably

in relation to the assessment centre (for a review see Lievens, 1998). However, these two areas of research have remained largely disparate.

Predictive Validity

The traditional predictivist perspective identifies a series of actions for which the organisation is responsible. For example, Smith and Robertson (1993) identified four phases within this process: (i) the preparation stage which includes the development of criteria from job analysis and the attraction of suitable candidates; (ii) the selection stage during which selection methods are chosen; (iii) the assessment stage comprising candidate evaluation, and (iv) the evaluation stage to validate the process. According to the predictivist perspective, selection provides a vehicle to match individuals' attributes with job requirements in order to maximise person-job fit (Cook, 1993). Within this framework, research has largely focused on the predictive validity of selection methods through meta-analysis which allows for the estimation of methodological artefacts such as sampling error, measurement unreliability and restriction of range (e.g. Hunter & Hirsch, 1987; Schmitt, Gooding, Noe & Kitsch, 1984; Gaulger, Rosenthal, Thornton & Bentson, 1987; Hunter & Hunter, 1984).

The need to extend and modify the traditional psychometric validation model of selection is increasingly being recognised (e.g. Anderson & Cunningham-Snell, in press; Herriot & Anderson, 1997; Fletcher, 1997a; Hesketh & Robertson, 1993; Iles & Robertson, 1997). First, an implicit assumption underlying this model is that the job is a static entity to be measured and classified (Schein, 1985). However, widespread changes towards flexible forms of working and team-based work roles have reduced job stability and predictability (Cascio, 1995; Fletcher, 1997a; Herriot & Anderson, 1997). Second, it is increasingly recognised that selection decision-making is a bilateral process with both parties engaged in determining the viability of their future working relationship (e.g. Anderson & Shackleton, 1993; Herriot, 1989). Despite the significant contribution provided by the traditional psychometric approach, future research is likely to benefit from considering the impact of social episodes that provide opportunities for information exchange.

Construct Validity

Furthermore, there has been a lack of integration across traditional predictivist research and construct validity research. This has notably limited our present understanding regarding the assessment centre, where evidence for strong criterion-related validity lies in juxtaposition to the generally disappointing results for construct validity. The comparison of dimension ratings across exercises has typically found variance attributable to the exercises rather than the dimensions being measured (e.g. Brannick, Michaels, & Baker, 1989; Joyce, Thayer, & Pond, 1994; Robertson, Gratton, Sharpley, 1987; Schneider & Schmitt, 1992). However, there are a number of methodological limitations associated with much of the existing research. First, most construct validity studies have been conducted in the absence of information regarding predictive validity and so it is possible that assessment centres with poor construct validity also have poor predictive validity (Chan, 1996). Second, the statistical approaches adopted in many construct validity studies may have failed to identify the real proportion of variance attributable to the dimensions (Kleinmann & Köller, 1997). Hence, the application of more robust procedures and increased synergy across predictive and construct validity perspectives are required.

Selection: Social Impact Perspectives

The impact of selection on the applicant has been variously referred to as “impact validity” (Robertson & Smith, 1989), the “social negotiation subculture” (Herriot, 1992), “social validity” (Schuler, 1993) and “socialisation impact” (Anderson & Ostroff, 1997). Candidates’ psychological reactions to selection are acknowledged as an important component of selection, with both organisations *and* potential employees deciding on the future suitability of the other party (e.g. Herriot, 1989; Murphy, 1986). Applicants’ perceptions of the selection process, notably in terms of perceived fairness and the psychological contract, have been acknowledged as influential factors in the emerging relationship between employee and employer. This recognition of the applicants’ active role in selection has shifted the focus of analysis away from concern over measurement, prediction, job performance and person-job fit, towards concern for relationships, interaction, negotiation, attribution

and person-organisation fit (e.g. Anderson & Cunningham-Snell, in press; Herriot, 1992, 1993, Iles & Robertson, 1997).

An Applicant Reactional Approach

Early research from the applicants' perspective typically described and compared candidates' reactions to various selection procedures, for example interviews (e.g. Alderfer & McCord, 1970); assessment centres (e.g. Dodd, 1977); work sample tests (e.g. Schmidt, Greenthal, Hunter, Berber & Seaton, 1977) and computerised testing (Schmidt, Urry & Gugel, 1978). However, this research was largely fragmented and lacked any substantive theoretical orientation (Gilliland, 1993; Iles & Robertson, 1997; Schmitt & Gilliland, 1992; Rynes, Heneman & Schwab, 1980; Smither et al. 1993). Various models have been proposed to account for applicants' reactions to selection (e.g. Arvey & Sackett, 1993; Gilliland, 1993; Iles & Robertson, 1989; 1997; Robertson & Smith, 1989; Dreher & Sackett, 1983; Schuler, 1993). Three models will be briefly discussed: Schuler (1993), Arvey and Sackett (1993) and Iles and Robertson (1997).

Taking Schuler (1993) first, his model proposed that four components influence the perceived acceptability of selection: the presence of job and organisational relevant information; participation by the applicant in the development and execution of the selection process; transparency of the assessment so that applicants' understand the objectives and relevance of the evaluation process; and the provision of feedback with appropriate content (e.g. open, honest, developmental) and form (e.g. comprehensible, considerate, facilitative). Second, Arvey and Sackett (1993) proposed that the perceived fairness of the process can be influenced by the content of selection (e.g. job relatedness, thoroughness of knowledge, skills and ability coverage, invasiveness of questions, and ease of faking answers), an understanding of the system development process, the administration of the selection procedures (e.g. consistency, confidentiality, opportunity for reconsideration, and prior information) and the organisational context (e.g. the selection ratio). However, neither of the models outline how the determinants combine to form perceptions of fairness (Gilliland, 1993). Further, as Thornton (1993) notes, Schuler's (1993) model does not incorporate the important issue of the personal relationship between the applicant and assessor which has been shown to

have an impact on applicants' evaluation of selection (e.g. Harris & Fink, 1987; Liden & Parsons, 1986; Maurer, Howe & Lee, 1992; Rynes, Bretz & Gerhart, 1991).

An alternative model is that of Iles and Robertson's (1989, 1997). The model suggests that the impact of the decision is mediated by reactions to the process. It is noted that various features of the selection method (e.g. intrusiveness, face validity, job relevance, feedback) influence applicants' cognitive reactions towards the process. Various outcome variables are hypothesised (e.g. organisational commitment, self-esteem, job and career withdrawal), with the impact of selection moderated by the career stage and personal characteristics of the individual. Whilst this model is useful in highlighting the impact of both the assessment process and the outcome decision, the role of reactions as only mediators of the decision impact is debatable. As noted by James and Brett (1984), mediation implies causal order in which an antecedent (i.e. the decision) must precede the mediating variable (i.e. reactions to the process). Arguably however, reactions to the process can precede communication of the decision, and these pre-decision process reactions may have an impact on both reactions to the decision and other outcome variables. Furthermore, Gilliland (1993) argues that all three models reviewed are "missing a solid link to psychological theory" (p. 699).

The application of organisational justice theory has therefore provided a useful framework for research regarding applicants' reactions to selection (Borman, Hanson & Hedge, 1997; Chan, 1997; Gilliland, 1993; Schmitt & Gilliland, 1992). Organisational justice theory distinguishes between two types of justice: procedural and distributive. Applying this to selection, the former concerns the perceived fairness of the selection process and the latter concerns the perceived fairness of the outcome decision. Various dimensions of procedural fairness (e.g. job relevance, two-way communication, and interpersonal effectiveness) and distributive fairness (e.g. equity, and equality) are proposed in the selection justice model (Gilliland, 1993; Schmitt & Gilliland, 1992). This model also incorporates the impact of justice evaluations on applicants' immediate and long-term behaviour and affect.

Initial selection research adopting this theoretical perspective has largely supported the role of organisational justice in shaping applicants' attitudes towards selection and the impact on various outcome measures, such as intentions to

recommend the organisation to others (e.g. Bies & Shapiro, 1988; Gilliland, 1994, 1995; Lounsbury, Bobrow & Jensen, 1989; Ployhart & Ryan, 1997, 1998; Smither et al., 1993). However, there are a number of methodological limitations associated with existing research: First, there are a lack of field studies investigating external applicants' reactions to identified selection methods; second, existing research has typically been conducted in North America and hence the extent to which these findings generalise to Europe is not established; third, there is a paucity of longitudinal research assessing the impact of differences between applicants' expectations of selection justice and their actual perceptions of the process; and fourth, research has typically failed to explore the impact of selection reactions relative to a baseline measure taken prior to selection.

A Psychological Contract Approach

Several social models of selection have also highlighted that selection provides the initial context for information exchange between the two parties and for the development of the psychological contract (e.g. Herriot, 1989; Rousseau, 1990; Shore & Tetrick, 1994). These perceptions may play a substantial role in moulding the job-seeker's initial attitude towards the employing organisation, and thereby influence both self-selection decisions (Herriot, 1989; Murphy, 1986) and the subsequent relationship between the two parties (Herriot, 1989). To date, there has been limited research exploring the emergence of the psychological contract and the extent to which perceptions generated at selection are consistent with organisational reality. Furthermore, there has been limited research over short measurement intervals to examine psychological contract dynamism. For applicants who accept job offers, the initial period of employment represents a critical and transitional period in the emerging relationship between employee and employer (Bauer & Green, 1994b; Nicholson & Arnold, 1991). It is likely that initial naive perceptions of organisational reality at entry will change as new recruits' come to acquire greater understanding of their environment during post-entry sense-making (Louis, 1980). In particular, the acquisition of socialisation knowledge is likely to be an important determinant of recruits' reassessment of their psychological contract (Thomas & Anderson, 1998). However, there is a paucity of research exploring how these

perceptions are revised during the initial socialisation process and the extent to which congruence between the two parties increases following organisational entry.

Summary of Social Impact Perspectives

Researchers adopting social impact perspectives have provided more detailed insight into the dynamic nature of the selection process. However, as discussed above, there are a number of methodological shortcomings associated with existing studies, particularly relating to the lack of longitudinal research involving real selection systems. The present longitudinal research aimed to address these issues by investigating Shell International's multi-stage graduate selection process involving predominantly European applicants. Furthermore, a critical limitation of the existing social impact research concerns its development in isolation from the traditional validation perspective. Greater synergy across the different approaches to selection is required and was incorporated in the present research.

Selection: An Integrated Approach

Experiences during selection and the early period of socialisation will inevitably impinge on traditional measures of selection validity (Anderson & Ostroff, 1997). As Robertson (1994) writes, "paying more attention to the psychological issues involved might provide a better pay-off in scientific terms. The uncertain construct validity of many measures and the exclusion of organisational attributes and social factors from prediction models have limited the explanatory power of personnel selection research..." (p.20). An integrated approach is therefore required which simultaneously explores all these perspectives to provide a more adequate theoretical account of the selection process (Herriot, 1989). The present research examines the impact of social processes on predictive validity. More specifically, applicants' reactions to selection, their perceptions of the psychological contract and the acquisition of socialisation knowledge are examined as moderators of traditional predictive validity. Finally, assessment centre construct validity is explored in relation to predictive validity.

Thesis Structure

This thesis is divided into nine chapters, with the first three providing an introduction. Chapter One adopts an organisational justice perspective and is divided into three main sections. The first section provides a brief review of

organisational justice theory more generally. In the second section, Gilliland's (1993) application of organisational justice theory to selection is described and past research exploring applicants' reactions to various selection methods is reviewed. The third section examines the impact of applicants' reactions to selection justice on a range of variables measured prior to communication of the outcome decision, post the outcome decision and post-entry into the organisation.

Chapter Two is based on the psychological contract perspective, and explores the emergence of the psychological contract between the employer and employee. Temporal changes are reviewed and various predictors of perceptual change are discussed, including the acquisition of socialisation knowledge. Finally, the impact of temporal change on perceptions of the psychological contract are examined

The third introductory chapter integrates previous areas of disparity in the selection literature and is divided into two sections. The first integrates the social impact models with the traditional predictivist model of selection. Applicants' reactions to selection, their job expectations, psychological contract and socialisation experiences are proposed to impact on the relationship between selection predictors and subsequent job performance. In the second section, the literature on assessment centre construct validity is reviewed and the need for integrated studies which simultaneously explore construct and predictive validity is proposed.

Chapter Four describes both the research and statistical methodology employed in the current research. In the first section an overview is provided of the selection and socialisation practices employed at Shell International. Subsequently, the two research studies are described in terms of the procedures, respondents and research measures utilised. The final section provides a technical overview of the statistical approaches adopted, in particular the use of structural equation modelling to examine construct equivalence in cross-cultural and longitudinal data sets.

The next three chapters detail the results of this research. Chapter Five is divided into two sections. The first focuses on the psychometric properties of the organisational justice scale adopted and the second provides details of all measures, particularly where the anticipated psychometric properties were not obtained.

Chapter Six presents results relating to the organisation justice perspective. The chapter is divided into two sections, first examining applicants' reactions to

justice and second examining the impact of these perceptions on outcome variables. Chapter Seven details the analyses relating to the emergence of the psychological contract. Specifically, the dynamic nature of the contract and the impact of temporal change are reported. In Chapter Eight, the final results chapter, analyses are presented relating to the integrated approach. First, various social moderators of predictive validity are investigated, and second, assessment centre construct validity is examined in relation to predictive validity.

The final chapter discusses these findings. In the first section, the theoretical and practical contributions of this research are highlighted. In section two, the methodological strengths and limitations of the research are summarised, and suggestions for future research are provided.

Chapter One

Selection: An Organisational Justice Perspective

Introduction

Organisational justice researchers distinguish between procedural and distributive justice (Greenberg, 1990b). Procedural justice focuses on the perceived fairness of the process used for decision-making (Folger & Greenberg, 1985), whilst distributive justice is based on the perceived fairness of organisational outcome distributions (Bierhoff, Cohen & Greenberg, 1986). Organisational justice research has demonstrated that fairness perceptions can influence a range of organisational, individual and ethical outcomes (e.g. Greenberg, 1990b, 1993; Konovsky & Cropanzano, 1991; MacFarlin & Sweeney, 1992).

Gilliland's (1993) application of organisational justice theories to selection has provided a useful framework from which to examine applicants' reactions to selection. In this context, procedural justice concerns perceptions of selection process fairness, whilst distributive justice concerns perceptions of hiring decision fairness (Gilliland, 1993). Within this framework therefore, fairness is defined as a psychological reaction to selection determined by both process and outcome factors which is of relevance to both minority and majority groups of candidates. Applicants' perceptions of selection justice may impact on business via job acceptance decisions (Schmitt & Coyle, 1976), organisational reputation (e.g. Cascio, 1991), or post-employment job involvement (e.g. Robertson, Iles, Gratton & Sharpley, 1991). These perceptions may also influence ethical issues such as applicants' self-esteem (Robertson & Smith, 1989) and legal issues such as likelihood of litigation (Gilliland, 1993). Furthermore, applicants' reactions to selection justice may ultimately have an impact on the validity and utility of selection methods (e.g. Arvey Strickland, Drauden, & Martin, 1990; Murphy, 1986; Smither, Reilly, Milsap, Pearlman & Stoffey, 1993). Given the likely impact of organisational justice, Gilliland (1993) argues that "...just as the establishment of psychometrically fair selection procedures is important from the business, ethical and legal perspectives, applicants' perceptions of test fairness are also important from these perspectives" (p.694).

Discussion in this chapter will focus on the application of organisational justice theories to the applicants' perspective in selection. First, the organisational justice literature is briefly summarised. Second, a more detailed review of the existing selection research exploring determinants of applicants' perceptions of both procedural and distributive justice is provided. Third, the impact of applicants' perceptions of selection fairness is evaluated in terms of immediate and more permanent outcomes. A number of methodological limitations associated with the existing research are highlighted, both in terms of measuring the determinants of selection justice and in terms of calculating their impact.

Organisational Justice Theories

Overview

Organisational justice theories contend that the fairness in organisational procedures constitutes an important determinant of work attitudes and behaviours. Original justice theories focused on outcome distributions in the form of equity and distributive justice (e.g. Adams, 1963, 1965; Homans, 1961), whereas later theories acknowledged process aspects in the form of procedural justice (Leventhal, 1980; Thibaut & Walker, 1975). Organisational justice theories have been applied to several areas of organisational psychology, including performance appraisal (e.g. Folger & Konovsky, 1989; Greenberg, 1986), payment levels (e.g. Folger & Konovsky, 1989; Greenberg, 1987, 1993), organisational change (e.g. Daly & Geyer, 1994), and even the editorial review process (Gilliland & Beckstein, 1996). This section will briefly review the literature on distributive and procedural justice, and subsequently, the impact of organisational justice on outcomes.

Distributive Justice

Distributive justice focuses on the fairness of outcome distributions. Several authors have proposed that such evaluations are made with respect to a distributive rule, the most common being equity. Adams (1963, 1965) claimed that equity is evaluated by a comparison between the ratio of an individual's own perceived work outcomes (e.g. pay) to their contributions (e.g. task behaviours) and the corresponding ratio of a referent other (e.g. a colleague). Equity results from equal ratios, whilst inequity results from underpayment (i.e. when the ratio is higher for the referent comparison), or conversely via overpayment (i.e. when the ratio is higher for the individual). Adams and Freedman (1976) reviewed over 100 studies, predominantly involving simulated work environments, which have supported and led to theoretical refinements of equity theory.

Deutsch (1975) highlighted two additional distributive rules: equality (all individuals should be regarded equally regardless of inputs) and needs (rewards should be based on relative needs). These rules have received less attention in applied psychology research. Leventhal (1980) suggested that individuals decide on the applicability of the three distributive rules and those given higher weight have greater impact on overall evaluations of distributive fairness. Distributive justice

theories have, however, been criticised for failing to consider the role that organisational processes play in determining perceptions of outcomes. This has led to increased attention to the role of procedural justice (e.g. Folger & Greenberg, 1985).

Procedural Justice

Procedural justice theories focus on the fairness of methods or procedures used to make decisions. Three major perspectives form the basis of much of the current thinking and research regarding procedural justice (Bies & Moag, 1986; Leventhal, 1980; Thibaut & Walker, 1975). Taking these chronologically, Thibaut and Walker (1975) examined procedural justice from a legal perspective. They suggested that fair procedures allow individuals the opportunity to offer input into the decision-making process.

Leventhal (1980) adopted an alternative approach by identifying six structural components or rules which may govern procedural fairness evaluations: consistency across people and time, suppression of personal bias or self-interest, utilisation of accurate information, opportunity to correct decisions, representativeness of affected recipients in the process, and consistency with moral and ethical standards. Leventhal (1980) argued that situational factors influence the relative salience of the fairness components, and provided the examples of higher weight being given to rules which favour self-interest, that are followed by others, or that are favoured by legitimate authorities.

A third approach to procedural justice has been termed ‘interactional justice’ which emphasises the impact of the decision maker’s conduct during the process (Bies & Moag, 1986). Two factors are highlighted as being particularly salient in the evaluation of procedural justice: First, the quality of interpersonal treatment received and second, the approach adopted by the decision-maker in enacting the procedures. In reviewing the literature, Greenberg (1990a) suggested that procedural justice comprises three components: (i) formal characteristics of the process (ii) information offered during the process, and (iii) interpersonal treatment.

Relationship between Procedural and Distributive Justice

Research has generally supported distinct factor structures for procedural and distributive justice and found positive correlations between the constructs (e.g.

Fryxell & Gordon, 1989; Sweeney & McFarlin, 1993). Existing theory and research indicates that procedural justice perceptions affect perceptions of distributive justice (Leventhal, 1980; Moorman, 1991) and research on the interaction between procedural and distributive justice has found that high procedural justice can mitigate the impact of unfavourable outcomes (Greenberg, 1987, 1993; McFarlin & Sweeney, 1992). Brockner and Wiesenfeld (1996) reviewed a number of explanations for this interaction, including referent cognition theory (RCT: Cropanzano & Folger, 1989) and attribution theory (Folger, Rosenfield & Hays, 1978). RCT suggests that with positive procedures, recipients of negative decisions are less likely to mentally construct scenarios that would have resulted in a positive outcome. According to attribution theory on the other hand, the interaction between procedural and distributive justice may result from individuals' perceptions of the causes of their behaviour. Fair procedures may generate the perception of behaviour being internally motivated which may result in less dependency on the anticipated receipt of a favourable outcome. Existing research does not provide a basis for favouring one explanation over another (Gilliland & Beckstein, 1996).

Impact of Organisational Justice

Looking next at the impact of procedural and distributive justice, fairness perceptions have been shown to influence a range of outcome variables, including: organisational citizenship behaviour (Moorman, 1991) employee theft (Greenberg, 1990b), pay satisfaction (McFarlin & Sweeney, 1992), job satisfaction (e.g. Dailey & Kirk, 1992) and organisational commitment (McFarlin & Sweeney, 1992). It has been demonstrated that the two constructs are stronger at predicting different variables, with distributive justice more important for personal outcomes (e.g. pay satisfaction) and procedural justice more important for organisational evaluations (e.g. organisational commitment: Folger & Konovsky, 1989; Konovsky, Folger & Cropanzano, 1987; McFarlin & Sweeney, 1992). Given the potential impact of procedural and distributive justice perceptions, identifying the determinants of perceived fairness in selection is an important area for research.

Organisational Justice in Selection

Overview

Schmitt and Gilliland (1992) and Gilliland (1993) presented a number of selection procedural and distributive rules that may account for candidates' overall perceptions of procedural and distributive fairness in selection. These rules have generally gained empirical support (e.g. Bies & Shapiro, 1988; Gilliland, 1995), but the artificial nature of existing research adopting an organisational justice perspective and the lack of longitudinal studies represent critical limitations. Discussion in this section will examine (i) determinants of procedural fairness, (ii) determinants of distributive fairness, and (iii) criticisms of existing research.

Determinants of Procedural Fairness

Gilliland (1993) developed ten procedural justice rules which were based on both organisational justice theories (e.g. Bies & Moag, 1986; Greenberg, 1986; Leventhal, 1980; Sheppard & Lewicki, 1987; Tyler & Bies, 1990) and the social impact models of applicants' reactions to selection procedures (e.g. Arvey & Sackett 1993; Schuler 1983; Smither et al., 1993). Consistent with Greenberg (1990a), these rules consist of three components: (i) formal characteristics selection process, (ii) information offered during the selection process, and (iii) interpersonal treatment. Gilliland (1993) suggested two additional rules based on earlier social impact models (Arvey & Sackett, 1993; Iles & Robertson, 1989), but which were not supported by organisational justice theories. Table 1.1 provides a summary of the twelve procedural rules. Although there is limited selection research directly adopting an organisational justice approach, many studies in this area are consistent with the proposed determinants of procedural fairness (e.g. Liden & Parsons, 1986; Lounsbury, Bobrow, & Jensen, 1989; Smither, et al., 1993). Hence, justice theories provide a theoretical framework for reviewing previous fragmented research on candidates' reactions to selection (Gilliland, 1993; Schmitt & Gilliland, 1992).

Formal Characteristics of the Selection Process

Gilliland (1993) proposed four rules relating to the formal characteristics of the selection process: job relatedness, opportunity to perform, reconsideration opportunity and consistency of administration. The *job relatedness* rule was

Table 1.1: Summary of the Selection Procedural Justice Rules

Formal Characteristics of the Selection Process

<i>Job relatedness:</i>	The measurement of constructs relevant to the job
<i>Opportunity to perform:</i>	The opportunity to display knowledge, skills and abilities
<i>Reconsideration opportunity:</i>	The provision of a 'second chance' before the final decision
<i>Consistency of administration:</i>	The standardisation of administrative procedures across people and techniques

Information Offered During the Selection Process

<i>Performance feedback:</i>	The provision of timely and informative feedback regarding selection performance and the outcome
<i>Selection process information:</i>	The adequacy of information provided to applicants regarding the selection process
<i>Honesty in treatment:</i>	The organisation's integrity during selection

Interpersonal Treatment

<i>Recruiter effectiveness:</i>	The interpersonal effectiveness and interest of the recruiter
<i>Two-way communication:</i>	The extent to which conversation flows in a normal pattern and applicants are given opportunities to ask questions
<i>Propriety of questions:</i>	The appropriateness of the questions asked

Additional Rules

<i>Ease of faking:</i>	The extent to which applicants' believe information can be distorted in a socially desirable ways
<i>Question invasiveness:</i>	The degree to which selection invades applicant privacy

Source: Adapted from Gilliland (1995)

developed from the organisational justice literature which argued that fair decisions must be based on appropriate and accurate information (Leventhal, 1980; Sheppard & Lewicki, 1987). In selection, several social impact models have recognised that fair procedures must be perceived to test psychological constructs relevant to successful job performance (e.g. Arvey & Sackett, 1993; Iles & Robertson, 1989; Schuler, 1993) and this has been supported by research (e.g. Chan, Schmitt, Jennings, Clause & Delbridge, 1998a; Gilliland, 1994; 1995; Kluger & Rothstein, 1991; Kravitz, Stinson, & Chavez 1996; Smither, et al., 1993). Furthermore, researchers

have consistently found that candidates react favourably to selection methods which are highly job related, such as assessment centres (e.g. Dodd, 1977; Dulewicz, Fletcher & Wood, 1983), work sample tests (e.g. Schmidt, Gilliland, Landis & Devine, 1993) and business-related ability tests (Rynes & Connerly, 1993).

The *opportunity to perform* rule refers to the extent to which candidates are given the chance to display their knowledge, skills and abilities (KSAs). In organisational justice research, fair procedures provide individuals with scope to exercise their 'voice' (i.e. provide inputs to the decision-maker: e.g. Thibaut & Walker, 1975; Folger & Greenberg, 1985). The social impact models have highlighted that failing to measure what candidates perceive to be important KSAs during selection (e.g. Arvey & Sackett, 1993) or denying them the opportunity to exert control (Schuler, 1993) can reduce perceived selection fairness. Existing selection research supports the salience of this rule (e.g. Bies & Shapiro, 1988; Gilliland, 1995; Kluger & Rothstein, 1991). Furthermore, this rule may explain the typical finding that applicants react favourably to interviews (e.g. Kravitz, et al. 1996), since of all selection methods, interviews provide applicants with the greatest opportunity to exercise their voice (Gilliland, 1993; Gilliland & Honig, 1994a).

The extent to which individuals are able to modify or challenge a decision is incorporated under the *reconsideration opportunity* rule (e.g. Leventhal, 1980; Greenberg, 1986; Sheppard & Lewicki, 1987). In selection, perceptions of fairness may be enhanced by receiving a second chance following inadequate performance on a selection exercise (Arvey & Sackett, 1993). Except in the area of drug testing (e.g. Gomez-Mejia & Balkin, 1987), there is limited evidence for the importance of this rule in selection (e.g. Gilliland, 1995). Indeed, following poor selection performance, it would be somewhat atypical to offer an external applicant a second chance and so the satisfaction of this rule may not be expected. Where internal applicants are involved, opportunities for reassessment may be more apposite to facilitate a reduction in the adverse impact of negative assessment on employees (Iles & Mabey, 1993). In that context, the reconsideration opportunity rule may represent a more important determinant of procedural fairness.

The last rule relating to the formal characteristics of the selection system is *consistency of administration*. 'Standardisation' has been identified as an important

procedural rule in the justice literature (e.g. Greenberg, 1986; Sheppard & Lewicki, 1987; Tyler & Bies, 1990). In selection, this rule concerns the consistency in the content of methods, and the scoring and interpretation of scores across applicants (Arvey, 1992; Arvey & Sackett, 1993). Research has supported the salience of this rule for interviews (Gilliland, 1995), but there are discrepancies in the empirical findings for ability tests (cf. Gilliland 1995; Ployhart & Ryan, 1998). The difference in findings is likely to be due to the research methodologies. In a laboratory study, Ployhart and Ryan (1998) found that violation of the administration consistency rule influenced perceptions of ability test fairness, but as will be further discussed in a subsequent section of this chapter, the manipulation may have artificially inflated the salience of this rule. Indeed, Gilliland's (1995) research involving candidates' recollections of real selection experiences did not support the salience of this rule for ability tests. The static content of tests and the standard administrative procedures are likely to limit its relevance. Therefore, the administration consistency rule is more likely to influence justice evaluations for more fluid selection procedures which are open to inconsistency across candidates (e.g. Macan & Dipboye, 1988).

Information Offered During the Selection Process

Gilliland (1993) proposed three rules relating to the information offered during selection: feedback on performance, selection process information, and honesty in treatment. *Feedback on performance* has been cited as an important component of procedural fairness in both the organisational justice literature (Tyler & Bies, 1990) and the selection literature (Iles & Robertson, 1989, 1995; Rynes, 1993b; Schuler, 1993). Empirical evidence supports the salience of this rule in selection (e.g. Dodd, 1977; Gilliland, 1995; Lounsbury, et al., 1989; Schmidt et al., 1978). However, it may be contended that feedback does not act as a procedural justice rule since by definition it is entwined with communication of the outcome decision. Rather, feedback may play a moderating role (Dodd, 1997; Iles & Robertson, 1989, 1997; Francis-Smythe & Smith, 1997), whereby good feedback mitigates the impact of poor procedural fairness on perceptions of distributive justice.

The second information rule concerns the provision of *selection process information* (Gilliland, 1993). Organisational justice research has found procedural justice to be influenced by the provision of explanations necessary to perform a task

(Gilliland & Beckstein, 1996; Sheppard & Lewicki, 1987). The provision of prior information regarding the content and purpose of the selection methods employed has also been suggested as a means to reduce candidate uncertainty (Arvey & Sackett, 1993), and to offset any unfair advantage when information is provided or disseminates to some candidates only (Dodd, 1977). Research supports a link between more positive perceptions of selection and the provision of information in advance of the process (e.g. Fink & Butcher, 1972; Lounsbury et al., 1989; Stone & Kotch, 1989), but research involving experimental manipulation of information provision has not supported a strong link with candidates' selection fairness evaluations (e.g. Gilliland, 1994; Harland et al., 1995). Clearly though, the content and length of the explanation provided will be critical when determining whether or not a manipulation of this procedural rule has an impact on justice perceptions (Gilliland, 1994; Harland et al., 1995).

The final rule relating to selection informativeness concerns *honesty in treatment* of the candidate. An organisation's integrity during communication with the candidate may serve to influence perceptions of fairness (e.g. Bies & Moag, 1986). Research on candidates' perceptions of interviewers has demonstrated that the qualities of sincerity, believability and correctness are predictors of reactions to the interview (Liden & Parsons, 1986; Schmitt & Coyle, 1976). In terms of the relationship between honesty and selection fairness, Gilliland (1995) identified this rule to be primarily associated with incidents of unfair treatment suggesting that applicants are more likely to notice the absence of this rule rather than its presence.

Interpersonal Treatment.

Gilliland (1993) proposed three rules relating to interpersonal treatment: interpersonal effectiveness, two-way communication, and propriety of questions. These rules are likely to be more salient in selection procedures that are part of an interactive process (Schmitt & Gilliland, 1992), and particularly during the interview since it is inherently social in nature (Dipboye, 1992). The *interpersonal effectiveness* rule emerged from the interactive justice literature (Bies & Moag, 1986; Greenberg, 1986) and in selection, research has demonstrated that favourable impressions are created if interviewers are warm, sincere, empathetic, and demonstrate good listening skills (e.g. Harris & Fink, 1987; Liden & Parsons, 1986;

Rynes 1991; Rynes et al. 1980; Schmitt & Coyle, 1976; Taylor & Bergmann, 1987). More recently, the social impact models have highlighted the role of sympathetic treatment (e.g. Arvey & Sackett, 1993; Iles & Robertson, 1989; Rynes, 1993b) and the interpersonal effectiveness rule has been supported as one of the most dominant rules in the interview, but unsurprisingly, not in selection tests (Gilliland, 1995).

The *two-way communication* rule focuses on the degree of normal communication turn-taking and the extent to which candidates are given an adequate opportunity to gain information needed to make job acceptance decisions. The importance of this rule has been particularly supported from research in the area of performance appraisal (e.g. Landy, Barnes, & Murphy, 1978; Greenberg, 1986). Selection research has also found that applicants' reactions to the process are related to the recruiter's job knowledge and informativeness (e.g. Harris & Fink, 1987; Liden & Parson, 1986; Rynes & Miller, 1983; Schmitt & Coyle, 1976; Saks, 1989). Further, applicants' preference for non-structured interviews may be attributed to the greater opportunity for adding their input into the conversation (Smith, Farr & Schuler, 1993). Again, evidence on the link between two-way communication and perceptions of procedural fairness indicates that this rule is salient in selection interviews, but not tests (Gilliland, 1995).

The final interpersonal treatment rule, *propriety of questions*, equates to the organisational justice rules which require an impartial and unbiased manner in decision-making (Leventhal, 1980; Sheppard & Lewicki 1987; Tyler & Bies, 1990). This rule has been incorporated into the social impact models where the use of illegal variables (e.g. information on race or disability) is expected to influence perceived selection fairness (e.g. Arvey & Sackett, 1993). Empirical research has supported the salience of this rule for interviews (e.g. Bies & Moag, 1986; Gilliland, 1995; Rynes et al, 1980) with perceptions of improper questioning and prejudicial statements exerting an influence on applicants' fairness reactions (Bies & Moag, 1986). Question propriety may also be relevant in tests (e.g. biographical inventories) where applicants could query the appropriateness of some of the questions (Mael, 1991).

Additional Rules

Gilliland (1993) also proposed two additional procedural rules which had not previously been incorporated into organisational justice theories: ease of faking and

invasiveness of questions. The *ease of faking* rule relates to the extent to which applicants believe information can be distorted in socially desirable ways during selection. The salience of this rule is likely to be dependent on how it is interpreted. If applicants focus on the opportunity it provides other candidates to fake 'good' their performance during selection, then the procedures may appear less fair (e.g. Arvey, 1992; Arvey & Sackett, 1993). Alternatively, if ease of faking gives applicants an added sense of control over their own performance, then this rule may be unrelated to fairness (Kluger & Rothstein, 1991: cited in Gilliland, 1993; Stone & Stone, 1990), or may be positively associated with it (Schuler, 1993). Empirical support for this rule suggests that it is particularly salient in integrity testing (Gilliland, 1995). Indeed, this rule is more likely to apply to attempts to measure personality constructs through self-report questionnaire, although it may be reduced by attempts made to curb faking (e.g. through forced response sets).

Finally, *invasiveness of questions* concerns the extent to which selection probes areas of the candidate's private life. Selection procedures which request information considered to constitute an invasion of privacy are likely to be perceived as less fair, particularly when the information is not perceived to be job-related (e.g. Arvey, 1992; Arvey & Sackett, 1993; Iles & Robertson, 1989; Stone & Jones, 1997; Stone & Stone, 1990). Empirical research suggests that this rule influences applicants' general reactions to selection (Fusilier & Hoyer, 1980, Kravitz, et al. 1996; Rynes & Connerly 1991), but not their perceptions of procedural fairness (Gilliland, 1995). Applicants may well expect that selection procedures will involve the requirement to divulge personal information (Saks, 1992), and hence this may not impact on perceptions of selection procedural fairness.

Summary of Procedural Justice Rules

In summary, past research generally supports the salience of ten of the twelve procedural justice rules: three rules relating to the formal characteristics of the selection process: job relatedness, opportunity to perform and consistency of administration; three rules relating to the information offered during selection: feedback on performance, selection process information, and honesty in treatment; three rules relating to interpersonal treatment: interpersonal effectiveness, two-way communication, and propriety of questions; and one additional procedural rule: ease

of faking. Gilliland and Honig (1994a) conducted a study requiring graduates to make retrospective ratings of selection experiences, and found 50 per cent of the variance in perceptions of overall procedural fairness was accounted for by the perceived satisfaction or violation of the ten procedural rules. Since the reliability of the overall fairness scale was $\alpha=.85$, Gilliland and Honig (1994a) conclude that the ten rules account for the majority of variance in overall procedural fairness.

Consistent with organisational justice theorists (Leventhal, 1980), it is clear from the above discussion that situational factors will influence the salience of the procedural rules (Gilliland, 1993, 1995). In particular, different rules are likely to dominate reactions to different selection methods. Gilliland (1995) found that applicants' primary concern for integrity tests was ease of faking, for ability and work sample tests it was job relatedness, and for interviews the interpersonal effectiveness was most salient to candidates. Additional factors which may impact on the salience of rules are the applicants' cultural background (Steiner & Gilliland, 1995), the time at which procedural justice is assessed (Gilliland, 1993), and the extent to which a procedural rule is violated (Gilliland, 1993). These factors are discussed in a later section of this chapter.

Determinants of Distributive Justice

In selection, distributive justice refers to the extent to which the candidate perceives that the outcome decision is deserved. Consistent with organisational justice research, Gilliland's (1994) research supported distinct factor structures for procedural and distributive justice, but high correlations between the constructs. Based on the justice literature (e.g. Deutsch 1975; Leventhal 1980), Gilliland (1993) proposed three distributive rules: equity, equality and need (see Table 1.2).

Table 1.2: Summary of the Selection Distributive Justice Rules

<i>Equity:</i>	The extent to which the persons' inputs and past experiences justify the decision
<i>Equality:</i>	The extent to which hiring is random on job irrelevant characteristics such as race, sex, etc.
<i>Need:</i>	The extent to which the decision is influenced by special consideration given to disadvantaged groups

In selection, equity refers to the extent to which the decision is deserved based on past success, experience and qualifications (Gilliland, 1993). Perceptions of equity may arise from a combination of the applicants' hiring expectation and the outcome of the hiring decision (Gilliland, 1993). Inequity may result from underpayment (i.e. when a negative outcome is unexpected) or via overpayment (i.e. when a positive outcome is unexpected). Empirical selection research is inconsistent (cf. Gilliland, 1994; Gilliland & Honig, 1994b). Research involving selection for temporary employment supported the interaction between expectations and hiring decision (Gilliland, 1994), whereas research involving retrospective assessments of expectations for permanent employment was not supportive (Gilliland & Honig, 1994b). This again raises the importance of methodological rigour in conducting research in this area. The use of temporary employment situations and the use of retrospective assessments of hiring expectations pose limitations in the above studies.

Gilliland (1993) postulated two additional distributive justice rules: equality and needs. The *equality* rule suggests that all individuals should have the same chance of receiving an outcome (Deutsch 1975). In selection, applicants who meet the criteria have a greater chance of receiving a job offer than those who do not, and so the equality rule can only be applied to job-irrelevant characteristics (e.g. ethnicity). The *needs* rule holds that preferential treatment should be given to certain sub-groups (e.g. disabled applicants), which leads to a violation of the equality and equity rules (Gilliland, 1993). Empirical research is lacking in relation to the equality and needs rules in selection. These rules are however likely to be more salient to minority groups and so equity comparisons are likely to dominate for the majority (Schmitt & Gilliland, 1992). Furthermore, unless candidates have insight into the range of decisions made by an organisation, information upon which to judge the satisfaction or violation of the equality and needs rules may not be available.

In terms of the relationship between procedural and distributive justice, research generally indicates that overall perceptions of distributive fairness may be high despite a negative outcome, if employees cannot envisage a fairer process to lead to the outcome (Gilliland, 1994; Gilliland & Honig, 1994b). Consistent with organisational justice research (Greenberg, 1987; Leung & Li, 1990), Gilliland (1994) found that when applicants were rejected, procedural justice had the greatest

impact on overall distributive fairness. Further, when procedural justice was low, the hiring decision had the greatest impact on overall distributive fairness. Although Ployhart and Ryan (1998) did not find support for this interaction, this may have been due to the artificial manipulation of conditions and to their focus on the administration consistency rule only.

Methodological Limitations of Existing Research

Existing research exploring the determinants of procedural and distributive justice has several limitations. First, there is a paucity of field research investigating applicants' reactions to identified selection methods. Second, studies adopting an organisational justice framework have typically been conducted in North America and hence the extent to which these findings generalise to Europe is questionable. Third, there is a lack of longitudinal research, with most studies examining perceptions of procedural justice only after feedback of the outcome decision. Fourth, existing research has not examined applicants' expectations of procedural justice. Each limitation will be discussed.

Lack of Field Studies

There is a dearth of applied selection research adopting an organisational justice perspective investigating genuine job applicants in real hiring situations. Existing research has involved participants reading written descriptions about selection procedures (e.g. Kravitz, et al. 1996; Rynes & Connerly, 1993), has utilised candidates' retrospective accounts of selection experiences (e.g. Gilliland, 1995), has generated artificial selection scenarios (e.g. Bretz & Judge, 1994; Chan, 1997; Ployhart & Ryan, 1998), has utilised cross-sectional designs (e.g. Lounsbury, et al., 1989) or has used participants from selection procedures for temporary employment lasting a few hours (e.g. Gilliland, 1994). Whilst much of this research has been informative, there are some limitations. In particular, the effects of selection procedures on applicants are either likely to be suppressed when assessed using these superficial methods (Kluger & Rothstein, 1993; Macan, Avedon, Paese & Smith, 1994; Rynes, 1993a; Smither et al, 1993; Tepper, 1994) or alternatively, are likely to be artificially inflated as a result of blatant manipulations of the selection process (cf. Gilliland, 1995; Ployhart & Ryan, 1998). Field studies are therefore required in order to determine the extent to which the findings from laboratory research

generalises to real hiring situations. Hence, the present research investigated applicants' justice reactions to Shell International's graduate selection procedures.

Furthermore, the experimental manipulations of Ployhart and Ryan's (1998) study raise concern over ethical issues. First, the nature of the manipulation was dubious and involved delaying the start time for a proportion of test-takers due to insufficient test materials. In one testing session this led to 85% of applicants receiving less than the official time (negative consistency), and in a second session involving different applicants, this led to 85% receiving more than the official time (positive consistency). In a third condition, applicants were given the correct amount of time. This manipulation therefore represented considerable departure from standard test administration procedures. Second, the debrief did not take place until a week after the testing session, leaving applicants potentially annoyed and frustrated by their improper treatment which may have influenced their motivation towards other testing sessions for alternative employment during the interim period. In addition, 25 of the 264 participants did not turn up to the debriefing session and presumably remained unaware of the intended manipulation. Third, at the start of the research, participants were told that they had an opportunity to be hired by an outside organisation for short-term work to earn \$24, but since the job did not exist, no money was distributed and course credits were given instead. This form of deception raises concern over the appropriateness of such research and the extent to which the findings generalise to real selection contexts where standard procedures are followed.

Lack of European Research

The majority of organisational justice selection research has been conducted in North America and so the extent to which these findings generalise to other countries also remains largely unknown. Since the prevailing social, economic, political, and management environment may impact on applicants' reactions to selection procedures, caution is needed when generalising the findings from one country to another (e.g. Baron & Janman, 1996; Rynes, 1993a). In particular, issues of selection fairness and adverse impact are more prominent in the United States than in Europe (Dipboye, 1997; Iles & Robertson, 1997; Pearn, 1989; Schuler, Farr & Smith, 1993). In the only cross-cultural study identified, Steiner and Gilliland (1996) found significant cultural differences between French and American students to the

extent that procedural justice dimensions were typically less predictive of overall process favourability in the French sample. There was some agreement in terms of the most salient determinant being face validity in both cultures. However, the method of analysis employed is questionable since the ratings for each dimension were summed across ten selection methods. The standard deviation of each procedural justice dimension was more than half the size of the mean, indicating large variability which may have confounded their results. This variation may well have been caused by differences in the salience of dimensions across selection methods. Cross-cultural research is therefore required on specific selection methods.

The present research was conducted with predominantly British and Dutch applicants, undergoing the same selection process comprising a semi-structured interview followed by an assessment centre. Across the European community there are considerable cultural differences (Hofstede, 1980) and a diversity in selection methods used (Shackleton & Newell, 1997). National frequency of selection method use has been shown to correlated with applicant favourability (Steiner & Gilliland, 1996). Whilst interviews are used at comparable levels, assessment centres are less frequent in The Netherlands than the UK (Hodgkinson & Payne, 1998). Differences between the British and Dutch participants may also arise from the distinct legal systems regarding justice; the UK has a formal system of anti-discrimination legislation to protect minority groups in selection, whilst The Netherlands has constitutional rights for the equal treatment of all persons on Dutch territory (Pearn, 1993). Furthermore, in the host organisation for the present research, Dutch applicants typically completed the assessment in English and hence, unlike British candidates, were not assessed in their first language. Since previous research has not compared procedural justice reactions across these cultures, differences are predicted at a general level, but not for specific rules. In terms of distributive justice, cultural differences are not predicted since the main determinant is likely to be the outcome decision (Gilliland & Honig, 1994b).

Paucity of Longitudinal Research

A third criticism concerns the lack of longitudinal research. The organisational justice literature suggests that perceptions of distributive justice are formed subsequent to procedural justice (Leventhal, 1980; Moorman, 1991) yet, with

the exception of a handful of studies (e.g. Dulewicz et al., 1983; Macan et al, 1994; Ployhart & Ryan, 1998; Thorsteinson & Ryan, 1997), research has measured procedural fairness after communication of the selection decision. Reactions to the decision may contaminate perceptions of procedural fairness (Arvey, 1992; Cunningham-Snell, Anderson, Fletcher & Gibb, 1998; Iles & Robertson, 1997). The impact of negative employment decisions on applicants' attitudes to selection have been supported theoretically and empirically (e.g. Dreher and Sackett, 1983; Fusilier & Hoyer, 1980; Lounsbury, et al., 1989; Robertson et al. 1991). Incidents of unfair treatment are also more salient after rejection from an organisation (Gilliland, 1994; 1995) and in a recent longitudinal study, post-decision procedural fairness evaluations were influenced by distributive fairness (Ployhart & Ryan, 1998).

However, two studies have not found an association between the outcome and procedural justice. In a laboratory study involving a test battery, Thorsteinson and Ryan (1997) found that a random selection decision had a significant effect on distributive, but not procedural justice. However, the outcome decision was manipulated artificially and a successful outcome led to the receipt of only five dollars which may limit the ecological validity of these findings. Francis-Smythe and Smith (1997) also found no correlation between outcome and perceptions of procedural justice, however the measurement of justice six months after attendance at a development centre may have obscured a more immediate association between these variables. Overall therefore, it is likely that evaluations of procedural fairness will differ according to whether the applicant is successful or not. Prior to communication of the outcome however, there should not be significant differences if all applicants have been treated equally fairly. Applied research is required which compares applicants' procedural justice reactions measured before and after feedback of a real selection decision concerning permanent employment positions.

Failure to Consider Procedural Justice Expectations

The final criticism relates to the dearth of research exploring the level of fair treatment applicants expect from selection (Cunningham-Snell, Fletcher, Anderson, & Gibb, 1997; Cunningham-Snell, Fletcher, & Anderson 1998; Rynes, 1993b). Pre-selection expectations are important because they may be associated with characteristics of the selection method, but also applicants' past experience of the

method (Chan, Schmitt, Sacco & DeShon, 1998b). Bies (1985: cited in Bies & Moag, 1986) asked 96 MBA students prior to the job search process to define a set of fairness criteria they expected recruiters to adhere to during the recruitment process. Four criteria emerged: truthfulness, respect, propriety of questions and justification for rejection or cancellation. The same four criteria were also identified through critical incident interviews with a second group of 109 MBA job candidates who were asked to describe fair and unfair selection experiences after the recruiting process. It would appear therefore that applicants do have expectations of fair treatment during selection, but “it is likely that some criteria act as if they are absolute under some circumstances and relative under others” (Bies & Moag, 1986, p.51). In discussing procedural justice, it was suggested that applicants may not expect that rules will be met in some selection exercises (e.g. two-way communication in written tests). Therefore, a more robust assessment of the impact of selection justice requires an examination of procedural justice expectations.

Gilliland (1993) suggested that rule salience may be partly determined by the extent to which a specific rule is satisfied or violated. Gilliland (1993) cited previous evidence which indicates that negative information is more salient than neutral or positive information during impression formation (e.g. Fiske & Taylor, 1984; Schmitt, 1976). Evidence for this comes from Ployhart and Ryan’s (1998) study involving manipulation of the administration consistency rule, where perceptions of procedural fairness were lowest for the group where the rule was violated (by giving participants less time to complete the test) than when the rule was satisfied (by giving the correct time) or exceeded (by giving extra time). Notwithstanding the previous criticisms of this study, it is likely temporal change in expectations to experience of procedural justice will have an impact on overall procedural fairness and on expectations of justice for subsequent methods with the same organisation. Rosse, Miller and Stecher (1994) found that attitudes towards selection methods were influenced by the additional measures they are used in conjunction with. Therefore, it is important to examine the impact of changes over time from expectations of procedural justice to perceptions of justice on both overall perceptions of selection fairness and subsequent encounters with the organisation.

Summary and Hypotheses

Selection research adopting an organisational justice perspective has provided a useful theoretical framework for exploring the applicants' perspective in selection. Critical determinants of procedural and distributive justice have been identified with their salience acknowledged to vary across selection methods. However, there has been limited research on genuine selection procedures and a paucity of European studies. Possible differences across European cultures in terms of reactions to selection methods and the salience of procedural justice dimensions have not been explored. Furthermore, there has been insufficient longitudinal research assessing perceptions of selection justice at various time points during the selection process. The outcome decision is likely to have a direct impact on candidates' evaluations of procedural fairness, and so comparisons between successful and unsuccessful applicants are required both pre- and post-decision. Finally, existing research has not explored the impact of change in applicants' procedural justice evaluations. In the present study, the impact of change over time from expectations to perceptions of justice are examined on both overall perceptions of selection fairness and on expectations of subsequent selection methods with the same organisation. The following hypotheses are therefore proposed:

Hypothesis 1: *There will be significant differences between the Dutch and British applicants in the mean level of response to the procedural justice rules, but not to the distributive justice rule equity.*

Hypothesis 2: *The relative weighting of the procedural justice rules in explaining overall evaluations of procedural fairness will differ across Dutch and British applicants.*

Hypothesis 3: *Successful and unsuccessful candidates' perceptions of the procedural justice rules will be significantly different after knowledge of the selection outcome, but not prior to this knowledge.*

Hypothesis 4: *Changes over time from expectations to perceptions of the procedural justice rules will influence overall procedural fairness.*

Hypothesis 5: *Changes over time from expectations to perceptions of justice will have a significant impact on rule expectations for subsequent selection methods with the same organisation.*

The Impact of Justice

Overview

Organisational justice research has demonstrated that fairness perceptions can influence a range of individual reactions and organisational outcomes (e.g. Greenberg, 1990b; Moorman, 1991; McFarlin & Sweeney, 1992). Similarly, several selection theorists acknowledge that the social processes of selection may affect both psychological and behavioural outcomes (Anderson & Ostroff, 1997; Arvey & Sackett, 1993, Dreher & Sackett, 1983; Gilliland, 1993). In addition, selection research indicates that participants' reactions can have (i) an immediate impact prior to communication of the outcome, (ii) an intermediate impact following feedback of the outcome, and (iii) a long-term impact several months after the selection process (e.g. Gilliland, 1994; Fletcher, 1991). However, the social impact models of selection have not explicitly documented these three levels of impact.

Furthermore, there are at least five limitations in the empirical selection research adopting an organisational justice framework: First, longitudinal field research has not been conducted to explore all three levels of justice impact; second, research has not explored the relative impact of different determinants of procedural fairness, but rather overall perceptions of fairness; third, research has not explored the impact of change over time from applicants' expectations to perceptions of the justice rules; fourth studies have not typically explored the impact relative to baseline measures taken prior to selection; and fifth, the likely moderating role of feedback on the intermediate and long-term impact of procedural justice has not been examined (Cunningham-Snell, Anderson, Fletcher & Gibb, 1998; Cunningham-Snell, Anderson, & Fletcher, 1998).

The present discussion is divided into four parts. The first three sections examine the immediate, intermediate and long-term impact of justice. The limitations of the existing empirical literature at each level of impact are highlighted. Fourth, the moderating role of feedback is proposed.

Immediate Impact of Selection Justice

The selection literature to date has given scant attention to the immediate impact of applicants' perceptions of selection justice. This is largely a consequence

of research typically measuring procedural justice post-communication of the selection outcome which has prevented consideration of the extent to which justice evaluations influence the actual process itself. Furthermore, Gilliland's (1993) model, which has influenced much of the research in this area, did not incorporate this immediate pre-decision impact. Nevertheless, the extent to which the selection process changes applicants' perceptions of justice may influence applicants' pre-decision affective responses (e.g. motivation), attitudes (e.g. organisational attractiveness) and behaviours (e.g. selection performance).

Affective Impact

Several authors have argued that applicants' reactions to selection may influence motivation, anxiety and self-perceptions (e.g. Cascio, 1987; Gilliland, 1993; Robertson & Kandola, 1982; Robertson & Smith, 1989, 1995; Rynes, 1993a; Schmitt & Gilliland, 1992). It has been theoretically proposed that justice violations may be associated with higher anxiety (Lounsbury et al., 1989), lower motivation (Gilliland & Honig, 1994b) and lower self-esteem. However, there is a paucity of research examining the affective impact of change in procedural justice evaluations.

However, empirical research does support the direct link between perceptions of procedural justice and both motivation and anxiety. Gilliland and Honig (1994a) found motivation and anxiety measured pre-decision, were negatively correlated with various procedural justice rules measured post-decision. The result for motivation is counterintuitive, but may be due to unsuccessful motivated applicants rationalising in retrospect that the process was not fair, or possibly due to the successful outcome leading to only four hours of employment. When more permanent decisions are determined by selection, applicants are likely to have greater psychological investment in the process and may be more motivated to obtain a successful outcome. However, if all candidates are highly motivated, the lack of variability may actually reduce the impact of motivation due to a restriction of range (Arvey, et al., 1990). The impact of applicants' justice reactions on affective variables therefore needs to be assessed in real selection situations. In addition, Gilliland and Honig's (1994a) study did not include baseline measures of motivation or anxiety, and hence, the real extent to which selection caused the effects observed is open to debate (Noe & Steffy, 1987).

Field research conducted on internal participants of assessment centres has shown that selection can have an immediate impact on applicants' self-perceptions relative to baseline measures (Fletcher, 1991; Schuler & Fruhner, 1993). In both studies, participants' self-perceptions were measured before and immediately after an assessment centre, before feedback had been provided. Fletcher (1991) found that self-esteem increased, whilst Schuler and Fruhner (1993) found no change in self-esteem and decreases in other components of the self-concept. There may be several factors underlying these different results, one of which may be that applicants reacted differently to the justice of the procedures. Fletcher (1991) suggested that the increase in self-esteem observed in his study may reflect participants' perceiving the experience to be a rewarding one. Where selection experiences are not so positively evaluated, self-esteem may remain unchanged or may decrease. Research is therefore needed to explore the impact of changes in applicants' justice evaluations on changes in self-esteem.

Attitudinal Impact

The use of fair selection procedures may generate expectations of fair treatment by the employer in the long-term, which may lead to a generalised sense of positive regard for the company (Gilliland, 1993; Konovsky & Cropanzano, 1991). Empirical evidence supports an immediate impact of applicants' reactions to interviewer treatment on overall attitude towards the organisation (e.g. Harris & Fink, 1987; Rynes & Connerly, 1993; Taylor & Bergmann, 1987). Furthermore, in a study of 3,984 applicants, Macan et al. (1994) found pre-decision perceptions of face validity, fairness and self-rated performance in an ability test explained 24% of the variance in pre-decision ratings of organisational attractiveness. At a subsequent assessment centre, controlling for pre-test attitudes, perceptions of face validity explained 18% of the variance in organisational attractiveness. Macan et al. (1994) noted that the impact of the assessment centre would have been overestimated without controlling for initial levels of the organisational attractiveness. However, feedback of test results, interceded between the pre- and post-assessment attitudes and so the changes observed may reflect a reaction to successfully making it through to the final round, and not to the assessment process itself. In the present research, baseline measures were taken once feedback on any earlier rounds had been

communicated. In addition, the present research focuses on the extent to which changes in perceptions of the procedural justice rules have an immediate impact on changes in perceptions of organisational attractiveness.

Behavioural Impact

Thirdly, changes over time from expectations to perceptions of justice may have an immediate influence on applicants' pre-decision behavioural intentions and their actual behaviour. Applicants' intentions to accept, or not accept, potential offers of employment may emerge during the selection process. Researchers have increasingly acknowledged that selection involves bilateral decision-making (e.g. Anderson & Cunningham-Snell, in press; Herriot, 1989; 1993; Iles, 1989; Rynes, 1993b; Thornton, 1993) and that the selection process serves as a salient source of information regarding employer desirability (e.g. Robertson & Smith, 1989; Rynes, 1993b; Saks, 1992; Smither et al., 1993). Perceptions of procedural justice may influence these intentions, particularly in the absence of detailed information regarding the nature of the job or organisation (Gilliland, 1993). In terms of candidates' pre-decision intentions to accept job offers, research indicates that perceptions of interviewers can have an impact (e.g. Harris & Fink, 1987; Liden & Parsons, 1986), although job characteristics are also likely to be influential (e.g. Macan et al., 1994; Taylor & Bergmann, 1987). Recent research adopting an organisational justice framework has been inconsistent. Ployhart and Ryan (1997) found pre-application perceptions of process fairness were significantly related to acceptance intentions measured at the same time-point, whilst Ployhart and Ryan (1998) found high intentions to accept a job (measured before communication of the decision) regardless of how the selection procedures were administered. As previously discussed, the nature of the manipulation used in Ployhart and Ryan's (1998) laboratory study limits the extent to which the findings are likely to generalise to real selection contexts and so further field research is warranted.

In terms of the impact on actual behaviour, several researchers have postulated a relationship between candidates' reactions to selection and selection performance (e.g. Arvey et al, 1990; Burke, Norman, & Raju, 1987; Chan, 1997; Chan & Schmitt, 1997; Chan et al. 1997, 1998a, 1998b; Macan et al., 1994; Robertson & Kandola, 1982; Smither et al., 1993). Caution is needed in terms of the

direction of the relationship; selection performance may influence reactions to selection through a self-serving mechanism (e.g. applicants' perceiving themselves to be performing poorly may rate the procedures negatively), or reactions may influence performance (e.g. positive reactions may lead to better performance), or the relationship may be reciprocal (Chan, 1997). Apparent support for the self-serving bias explanation is provided by a recent study which found test performance affected pre-decision perceptions of job relevance and procedural fairness indirectly through perceived performance (Chan et al., 1998a). However, some researchers have not found support for an association between selection performance and applicants' pre-decision reactions, and yet applicants had fairly accurate perceptions of their performance prior to receiving feedback (Dulewicz et al., 1983; Macan et al., 1994: study 1). This inconsistency could be a result of the important role played by perceptions of selection held prior to participating in the process. Indeed, in a longitudinal study, Chan et al. (1998b) assessed both pre-test reactions (namely face validity, predictive validity and fairness perceptions) based on sample test items, and post-test reactions measured before outcome feedback. They found pre-test reactions affected cognitive ability test performance and in turn, test performance affected post-test reactions even after taking into account the pre-test reactions. However, the direction of causality is even questionable here. If pre-test reactions were incongruent with reactions during the procedure, this could have influenced performance. Performance and reactions to procedures are likely to emerge simultaneously and so identifying the real direction of causality from post-selection quantitative data is problematic. Therefore, in the present study, the focus is on the extent to which changes in perceptions of procedural justice influence performance, although the possibility of causality in the opposite direction or in terms of a reciprocal relationship is acknowledged.

Intermediate Impact

A number of researchers have acknowledged that selection is likely to have an impact on a number of variables post-communication of the outcome decision (e.g. Dreher & Sackett, 1983; Gilliland, 1993; Iles & Robertson, 1989, 1997). Much of the research adopting an organisational justice approach has though explored the impact of post-decision perceptions of procedural justice (e.g. Gilliland, 1994;

Smither et al., 1993; Ployhart & Ryan, 1997) which are likely to be contaminated by reactions to the outcome decision. In the present study, the focus was on whether the more objective pre-decision assessment of procedural justice had an intermediate impact on changes in post-decision outcomes. This section again focuses on possible affective, attitudinal and behavioural outcomes and on the relative importance of pre-decision procedural justice and post-decision distributive justice.

Affective Impact

In terms of the intermediate affective impact, changes in procedural justice may influence changes in post-decision self-esteem. Research suggests that post-decision self-esteem towards the job-search process is influenced by selection experiences (e.g. Ellis & Taylor, 1983), and by procedural justice measured post-decision (Gilliland & Honig, 1994b). However, other research has not found significant associations between procedural justice and several affective variables, including self-efficacy towards the job (e.g. Gilliland, 1994; Ployhart & Ryan, 1997), job performance expectations (Ployhart & Ryan, 1998), and general self-esteem (Ployhart & Ryan, 1997). The inconsistency may be due to the different constructs used. Intuitively it would seem that selection fairness would have a greater impact on perceived job-seeking ability than perceived ability to do the job. For example, if procedures are perceived as fair, applicants may feel more self-assured that they will ultimately secure a suitable offer of employment, but not that they will be able to do the particular job in question. Rather, it is the outcome decision, and possibly the interaction between the outcome and justice perceptions which are more likely to affect self-perceptions of ability to do the job (e.g. Gilliland, 1994; Ployhart & Ryan, 1998). Nevertheless, those studies supporting the direct link between fairness and job search self-esteem have measured post-hire perceptions of procedural justice which may have been influenced by the outcome decision. In the present research, the impact of changes in pre-decision procedural justice on post-decision job search self-esteem are examined.

Attitudinal Impact

In terms of the attitudinal impact, perceptions of procedural justice may influence post-decision perceptions of organisational attractiveness. Research supports a link between post-decision perceptions of justice with pre-decision

organisational attractiveness (Smither et al., 1993), but not vice versa. Research on applicants' recommendation intentions is likely to be informative in relation to perceptions of organisational attractiveness. Researchers have found support for the relationship between recommendation intention and fairness, with stronger associations for procedural than distributive fairness (Gilliland & Honig, 1994b; Smither et al., 1993). Research is needed to determine the impact of change in pre-decision procedural justice rules on the intermediate change in perceptions of the organisation.

Behavioural Impact

Reactions to selection may influence successful applicants' decision-making. The loss of qualified applicants through self-selection decisions may reduce selection utility (Murphy, 1986) and result in a competitive disadvantage if the best applicants pursue employment at rival organisations (Saks, 1992). Rynes, Bretz, and Gerhart (1991) for example, conducted longitudinal structured interviews to allow job seekers to explain how they made job search decisions. They found recruiters had a significant effect on candidate decision-making. However, this research was based on applicants' retrospective perceptions of the selection procedures and so longitudinal research is required examining the relationship between social impact variables measured during the process and subsequent decision-making.

Distributive Justice and Pre-Decision Procedural Justice

Applicants' reactions to the selection decision in terms of distributive justice may also influence the intermediate outcome variables (e.g. Gilliland & Honig, 1994b; Smither et al., 1993). However, procedural justice may have an incremental impact above distributive evaluations since organisational justice research indicates that information presented first has greater impact on reactions than information presented later (e.g. van den Bos, Vermunt & Wilke, 1997). In selection, knowledge of the procedures typically precedes knowledge of the outcome, and so it is proposed that pre-decision perceptions of procedural justice will influence post-decision outcomes beyond the impact of distributive justice. Recently, Ployhart and Ryan (1998) found that process fairness measured pre-decision had an indirect effect on post-decision intentions, whereas post-hire process fairness had a direct effect. In line with organisational justice theorists (van den Bos et al., 1997), the present study

provided the opportunity to explore an alternative hypothesis, that changes in pre-decision perceptions of procedural justice would influence change in the outcome variables, over and above the post-decision distributive justice.

Long-Term Impact of Selection Justice

Since recruitment and selection procedures typically provide the first form of contact between the new employee and the organisation, they can have a substantial influence over the subsequent relationship between the two parties post-organisational entry (e.g. Anderson & Ostroff, 1997; Cunningham-Snell, Anderson & Fletcher, 1998; Gilliland, 1993; Iles & Robertson, 1995; Saks, 1992; Schmitt & Gilliland, 1992). Anderson and Ostroff (1997) write “selection techniques act as *...affectors* of the candidate’s future attitudes and behaviour on the job” (p.414). Most of the research on the more permanent impact has been conducted on internal rather than external applicants, and has therefore examined the impact on both successful and unsuccessful participants. Longitudinal research on external applicants is complicated by the opportunity to only examine successful applicants. Nevertheless, the reactions of successful external recruits to the selection process may well influence their affect, attitudes and behaviours during the early months of employment. Existing research examining this long-term impact is reviewed below and possible differences in the long-term impact of selection for internal versus external participants are highlighted.

Affective Impact

Research exploring the long-term impact of selection on self-esteem has not examined the link between self-esteem and perceptions of justice at selection, but rather has focused on the impact of the outcome decision. In Fletcher’s (1991) previously mentioned longitudinal study of an assessment centre at a major UK bank, self-esteem was not only measured before and immediately after selection, but was also measured six months later. After six months, unsuccessful participants’ ratings of self-esteem were significantly lower than their pre-assessment rating and significantly lower than the successful participants’ six month rating. In this study, there was a high ratio of successes to failures which may have resulted in a greater impact on the self-esteem of those who failed (Fletcher, 1991). In external selection contexts, where the ratio is typically of higher failures to successes, it is possible that

a long-term positive impact on applicants' self-perceptions may be observed. However, existing research has not addressed this possibility.

Attitudinal Impact

For successful external applicants, reactions to the selection procedure may have a more permanent impact on their attitudes towards the organisation (e.g. organisational commitment) and perceptions of the job (e.g. job satisfaction). Again, most of this research has been conducted on internal applicants, and longitudinal research is required focusing on external applicants.

Unfair treatment during selection may be taken as an indication of how an organisation treats its employees and since initial impressions are often resistant to change (Nisbett & Ross, 1980), this may also have a pervasive effect on subsequent evaluations regarding the attractiveness of the organisation. Candidates' experience of selection may also have an impact on organisational commitment (Iles & Mabey, 1993; Thornton, 1993). Some research on development centres has found an impact of the selection outcome on organisational commitment (Robertson et al., 1991), whilst other researchers have not (Fletcher, 1991). It is possible that applicants' reactions to the process may therefore be an important factor in determining whether selection influences this outcome variable. Indeed, in a study involving applicants who had accepted offers of employment, Gilliland and Honig (1994b) found a link between organisational commitment and both selection procedural and distributive justice, with a stronger relationship for procedural justice. However, organisational commitment was measured pre-organisational entry and justice evaluations were measured simultaneously and in retrospect. As Gilliland and Honig (1994b) acknowledge, organisational commitment has been shown to change dramatically over the first six months of work (Vandenberg & Self, 1993) and can only be meaningfully measured post-organisational entry (Lee, Ashford, Walsh & Mowday, 1992; Mowday, Porter & Steers, 1982). Therefore, longitudinal examination of the impact of selection justice following several months of employment is required.

Perceptions of selection fairness may also influence perceptions of the job (Arvey, 1992; Thornton, 1993). Konovsky and Cropanzano (1991) found that perceived procedural and distributive fairness of a drug testing programme influenced job satisfaction. In relation to a less idiosyncratic selection method, Noe

and Schmitt (1986) found participants who perceived an assessment centre to be credible, accurate, useful and who agreed with the outcome diagnosis, were more likely to be satisfied with a subsequent training programme. Iles, Robertson and Rout (1989) however found no difference in perceptions of job satisfaction pre- and post-attendance at two development centres, but the study may have failed to find effects due to the small sample sizes ($N = 18$ and 34). Further longitudinal research is therefore needed.

Behavioural Impact

For those who accept job offers, reactions to selection may have an impact on subsequent performance-related variables (Iles & Mabey 1993; Thornton, 1993) and tenure (Arvey, 1992). There is limited evidence for the long-term behavioural impact. In a cross-sectional study, Robertson et al. (1991) found that the relationship between job withdrawal cognitions and assessment outcome was mediated by beliefs about the adequacy of the procedures in an assessment centre for mid-career participants, and by career impact for those in an earlier career stage. This may be explained by the more limited availability of alternative jobs at the mid-career stage (Robertson et al., 1991). To date, researchers have not explored the relationship between selection fairness and intended tenure for external candidates and so research is needed in this regard.

In terms of actual behaviour, applicants' experiences during selection may have an impact on subsequent performance. From the norm of reciprocity, positive perceptions of procedural justice may motivate employees to treat the organisation fairly and thereby display enhanced work performance (Konovsky & Cropanzano, 1991). However, in the only study examining this relationship, Gilliland (1994) did not find an association between work performance and either overall procedural or distributive justice. In fact, providing an explanation of the relationship between test type and job requirements had a negative effect on performance quality. Gilliland (1994) did however find that job relatedness influenced post-hire performance, but the effect was short-lived. Given that Gilliland's (1994) study involved temporary work comprising a few hours, further applied research is required.

Distinguishing Between Internal and External Selection Participants

Several of the studies reported above have involved internal participants (e.g. Fletcher, 1991; Iles et al., 1989; Robertson et al., 1991) and the impact of assessment methods on this group may be different from the impact on external applicants (e.g. Francis-Smythe & Smith, 1997; Iles & Forster, 1994). Differences in terms of feedback may be especially pertinent, since at development centres participants typically receive more extensive feedback often leading to a personal development plan. The rejected external applicant on the other hand, is faced with the necessity of investing further psychological resources in completing further selection procedures with other organisations. Therefore, for the internal applicant "...there is much less a sense of 'failure' built into the process" (Iles & Forster, 1994 p.47). As a consequence, this may also lead to a greater long-term impact on the successful external rather than internal applicant, particularly where the ratio of successes to failures is low. Clearly, longitudinal research is required to assess the extent to which external applicants' reactions to selection have a long-term impact on the employee-employer relationship.

The Role of Feedback

The final section of this chapter explores the potential role of feedback as a moderator between pre-decision procedural justice and both intermediate and long-term outcome variables. Several selection researchers have acknowledged that competent feedback plays an important role in leaving applicants with a positive reaction to the selection process (e.g. Iles, 1989; Iles & Robertson, 1997; Schuler & Fruhner, 1993). It is possible that good feedback may mitigate the negative impact of unfair procedures, whilst poor feedback may reduce the positive impact of fair procedures. Research to date has not explored the moderating role of feedback on perceptions of justice, but has explored it as a potential moderator on the impact of the selection outcome. Francis-Smythe and Smith (1997) found feedback to internal applicants did not moderate the relationship between assessment centre outcome and self-esteem, organisational commitment, job involvement or career planning. However, reactions to selection were measured retrospectively and the study may have failed to find effects due to insufficient power ($N = 32$; Tabachnick & Fidell, 1996). The non-significant quantitative results contrasted with the qualitative data

from Francis-Smythe and Smith (1997) in which candidates indicated that feedback quality influenced their perceptions of career impact. Further research on the moderating role of feedback involving larger samples is warranted.

Summary and Hypotheses

Research indicates that selection may have an immediate, intermediate and a long-term impact on a number of affective, attitudinal and behaviour-related variables. However, research adopting an organisational justice approach typically has not taken baseline measures of the outcome variables and has not determined the relative importance of various determinants of procedural justice. There is also a paucity of longitudinal research exploring the immediate, intermediate and long-term impact of external applicants' reactions to pre-decision procedural justice rules. Furthermore, research to date has not explored the impact of change from expectations of procedural justice to perceptions of procedural justice and has not adequately examined the possible moderating role of selection feedback. The following hypotheses are therefore proposed:

Hypothesis 6: *Changes over time from expectations to perceptions of procedural justice will have an immediate (pre-decision) impact on applicants' motivation, anxiety, self-esteem, organisational attractiveness, job acceptance intentions and organisational ratings of selection performance.*

Hypothesis 7: *Changes over time from expectations to perceptions of procedural justice will have an intermediate (post-decision) impact on self-esteem, organisational attractiveness, and applicant actual decision-making.*

Hypothesis 8: *Changes over time from expectations to perceptions of procedural justice will have a long-term (post-employment) impact on self-esteem, organisational attractiveness, job satisfaction, organisational commitment, intended tenure, and organisational ratings of performance.*

Hypothesis 9: *Feedback will moderate the relationship between pre-decision procedural justice and post-decision self-esteem, organisational attractiveness, applicants' decision-making, work performance, job satisfaction, organisational commitment, and intended tenure.*

Chapter Two

Selection: A Psychological Contract Perspective

Introduction

Selection provides the initial context for information exchange between the employee and employer, enabling the development of the psychological contract (e.g. Herriot, 1989; Rousseau, 1990; Shore & Tetrick, 1994). This contract comprises employee and employer perceptions of the implicit reciprocal obligations that each party will fulfil for the other (Arnold, 1996; Herriot & Pemberton, 1995; Rousseau, 1995). Although contractual terms are subjective and unwritten, they have been confirmed as an important and powerful determinant of behaviour in organisations (e.g. Kotter, 1973; Herriot, Manning & Kidd, 1997; Robinson & Rousseau, 1994; Robbins, 1988). At selection, information, both accurately and inaccurately gleaned about the future psychological contract may play a role in moulding the job-seeker's initial attitude towards the organisation and may affect self-selection decisions (Anderson & Cunningham-Snell, in press; Herriot, 1989). However, there is limited research exploring the emergence of this construct.

Moreover, there is a paucity of research exploring how the psychological contract is revised during early socialisation (Thomas & Anderson, 1998). Socialisation is defined as “the process by which an individual comes to appreciate the values, abilities, expected behaviours, and social knowledge essential for assuming an organisational role” (Louis, 1980, p.230). Naive perceptions at entry are likely to alter as new recruits acquire greater understanding of their environment during post-entry sense-making (Louis, 1980). In particular, the acquisition of socialisation knowledge, the recruit-manager relationship and perceptions of psychological contract violation are likely to influence perceptions of the psychological contract. The adjustment is likely to represent increased congruence between the perceptions of the two parties. However, the psychological contract literature has focused almost exclusively on the employees’ perspective and there is a dearth of research exploring psychological contract mutuality (Arnold, 1996). This chapter will be divided into two sections: (i) the emergence of the psychological contract, and (ii) the psychological contract during organisational socialisation.

Emergence of the Psychological Contract

Overview

The first section of this chapter explores the emergence of the psychological contract. A brief definition will be provided, followed by a more specific discussion on the emergence of this construct. This will focus on why selection might provide the initial forum for the development of perceptions regarding reciprocal obligations, on the existing empirical research and its limitations, and on the possible link between recruits' perceptions of justice in selection and the psychological contract.

Definitions

First, in terms of definitions, there is a noticeable divide in the psychological contract literature concerning the extent to which this construct is distinct from expectations. Some researchers have defined the psychological contract as unspoken expectations (e.g. Kotter, 1973; Herriot, Manning & Kidd, 1997; Levinson, Price, Mudén, Mandl & Solley, 1962; Morrison, 1994; Schein, 1988; Thomas & Anderson, 1998); whilst others have highlighted its obligatory and promissory nature (e.g. Baker, 1996; Guzzo, Noonan, & Elron, 1994; Robinson, 1995, 1996; Robinson et al., 1994; Rousseau, 1989; 1990; Rousseau & Parks, 1993). For example, Baker (1996) writes "...it is the *mutuality* of expectation, and the multitude of expectations...the *tacit acceptance* by both parties, and the *obligatory* aspect of the expectations that, together, set the psychological contract qualitatively apart from mere expectations" (p. 23). In particular, the impact of psychological contract violation is argued to be more intense than unmet expectations because it "entails not only a loss of something expected but also an erosion of trust and the foundation of the relationship between the two parties" (Robinson, 1996, p.578). In the present research, the psychological contract is examined in relation to perceived obligations.

The Role of the Selection Process

It has been argued that individuals' understanding of their psychological contract may emerge pre-organisational entry from information available about the organisation, from explicit and implicit communication during the selection process, and from the formal employment contract (Baker, 1996; Dunahee & Wangler, 1974; Shore & Tetrick, 1994). During selection, applicants may use a variety of

approaches to gain relevant information, including inquiry, monitoring and / or negotiation (Shore & Tetrick, 1994). If an applicant fears that explicit negotiation of their goals might adversely affect the organisation's outcome decision, then information on reciprocal obligations may be sought through monitoring. For example, exposure to an organisation's selection methods (e.g. work sample tests, assessment centres) can provide a plethora of information sent both intentionally and unintentionally regarding the nature of the future job and organisation (Anderson & Ostroff, 1997; Herriot, 1989; Thornton, 1993). On the other hand, applicants with alternative employment opportunities may perceive that they, the candidate have power and may commence more explicit negotiation during the decision-making process. In either case, selection may serve as an initial opportunity for bilateral information exchange and the development of mutual obligations (Herriot, 1989).

Empirical research supports the proposition that psychological contracts begin to develop during recruitment. For instance, Rousseau (1990) investigated newly recruited MBA students' perceptions of both employee and employer obligations in their employment relationship. She found two types of contract, transactional and relational, which were dependent on the individual's career orientation. High careerists expected their careers to span a number of organisations and were more likely to express transactional contracts, emphasising the exchange of short term financial benefits and career advancement for hard work. Conversely, low careerists expected to spend their careers in a small number of organisations and this group perceived their contract to be more relational, emphasising an exchange of loyalty and minimum length of stay for job security. In addition, when recruits perceived that they were obligated to a relational agreement in terms of loyalty and a minimum length of stay, a longer period of organisational tenure was anticipated.

However, a number of criticisms may be levelled at this research. First, the graduates in Rousseau's (1990) sample had accepted offers from different organisations and hence the reality of mutual obligations may well have been varied across the sample. Although Rousseau (1990) assessed some stipulations made by the future employer (e.g. requirement of notice before leaving, commitment to a minimum length of stay), these were based on students' self-report data which may have been prone to error or misinterpretation. Therefore, it is useful to research

applicants' perceptions within a single organisation, so that the dynamics of individual differences can be discerned relative to a more constant reality. Second, the extent to which the psychological contract is perceived to have emerged during recruitment for non-North American job applicants' and for non-MBA students is open to question. The North American culture and the business focus of these students may make them unique in having highly defined careerist expectations. Other new employees, particularly where previous work experience is limited, may not be aware of their wants and needs, or of what they are capable and prepared to give (Kotter, 1973; Levinson, et al., 1962). For these individuals, it is possible that their psychological contracts will not emerge until after a period of employment with the organisation (Levinson et al., 1962). Hence, further examination on the emergence of this exchange relationship is required.

Perceptions of Justice in Selection and the Psychological Contract

In addition, Rousseau's (1990) study does not offer insight into whether the MBA students' perceptions of the selection process influenced interpretation of contractual terms. It is likely that perceptions of procedural and distributive justice will have an impact on the psychological contract. Indeed, the psychological contract literature has acknowledged the role of organisational justice in the contracting process, but this link has been in the context of justice reducing the negative impact of contract violations for more long tenured employees (e.g. Arnold, 1996; Daly & Geyer 1994; Herriot & Pemberton, 1996; Rousseau, 1995; Rousseau & Aquino, 1993; Shore & Tetrick, 1994). Research has not yet examined whether selection justice has an impact on the emergence of the psychological contract. Levinson et al. (1962) suggested that a process of reciprocation serves as a vehicle for the evolution of a psychological contract. Based on the norm of reciprocity, it is likely that candidates' perceiving the organisation as providing selection procedural justice in turn perceive that they have higher obligations towards the organisation. Applicants' perceptions of selection justice may also serve as a salient source of information regarding anticipated employer obligations. The use of fair selection procedures may generate expectations of higher levels of contribution in any future relationship with the organisation.

The two dimensions of justice may also map onto the two types of psychological contract (Herriot & Pemberton, 1996; McLean Parks & Kidder, 1994; Shore & Tetrick, 1994). In their model of organisational careers, Herriot and Pemberton (1996) suggested that different forms of justice will be perceived, depending on the nature of the contract. Individuals perceiving transactional contracts which emphasise pecuniary outcomes, will be more concerned with distributive justice; whilst individuals' perceiving relational contracts which are characterised by long term relationships, will be more focused on procedural justice. Herriot and Pemberton (1996) also included a feedback loop in their model to the extent that perceived inequity may result in exit or renegotiating the contract. Going beyond Herriot and Pemberton's (1996) model, it is proposed here that distributive justice may reinforce transactional elements of the contract that focus on specific employment outcomes (e.g. high pay and merit pay), while procedural justice may reinforce the relational components (e.g. career development and loyalty). Indeed, previous researchers have suggested that procedural justice violations may lead to relational elements of the contract being revised such that the exchange becomes more transactional (McLean Parks & Kidder, 1994). Similarly, in selection, perceptions of fair outcomes may lead to the development of higher expectations regarding the instrumental elements of the contract. Through the principle of reciprocity, it may also influence perceptions of employee transactional obligations. Conversely, perceptions of fair selection procedures may lead to the development of higher expectations of relational contractual terms that imply mutual commitment. Through reciprocity, perceptions of fair procedures may lead to higher perceptions of the employee's obligation to provide relational obligations. However, research to date has not examined these possible relationships.

The Psychological Contract During Organisational Socialisation

The second section of this chapter explores changes in the psychological contract during organisational socialisation. Discussion will focus on the dynamic nature of the construct, the mutuality between employee and employer, the predictors of change in perceptions of the psychological contract, and finally, on the impact of change.

Psychological Contract Dynamism

Perceptions of the psychological contract are likely to show temporal change between selection and socialisation. The next section of this chapter examines why changes are likely to be prevalent during the early period of socialisation, and critically reviews existing longitudinal research which has explored change in perceptions of the contract during the early period of employment. Finally, the impact of cultural differences on psychological contract dynamism are examined.

Dynamism During Early Employment

The psychological contract is a dynamic construct, revised throughout an individual's tenure with an organisation according to experience and circumstances (Hiltrop, 1995; Levinson, et al. 1962; Robinson, Kraatz & Rousseau, 1994; Rousseau & Parks, 1993; Schein, 1980; Sparrow, 1996). At recruitment, perceptions of the psychological contract may be somewhat naive, particularly when realistic job previews have not been provided and when contractual obligations have been inferred from implicit messages (Kotter, 1973). This naiveté may become apparent to the recruit as they acquire first hand experience of organisational practices and as they interact with organisational insiders. As a result, recruits will likely redefine the psychological contract during the early period of organisational socialisation (Baker, 1996; Louis, 1980; 1990; Shore & Tetrick, 1994; Thomas & Anderson, 1998).

There is a dearth of longitudinal research examining the development of the psychological contract with only two studies adopting this approach (Robinson, Kraatz & Rousseau, 1994; Thomas & Anderson, 1998). Robinson et al. (1994) conducted follow-up research on Rousseau's (1990) study where MBA students had reported their perceptions of the psychological contract at completion of their studies. Two years later, these students were asked to rate their perceptions of their

own obligations and those of their employer using the original dimensions. Over this period, perceptions of employer obligations increased significantly on three dimensions (advancement, high pay, and merit pay) and decreased significantly for one dimension (training). There were no changes for three employer dimensions (job security, career development and support with personal problems). In relation to employee obligations, five of eight dimensions decreased (overtime, loyalty, transfers, notice and minimum stay) and no significant changes were observed for the remaining three (acceptance of transfers, not supporting competitors, protecting proprietary information and extra role behaviours). Generally, therefore, the adjustments comprised an increase in employer transactional obligations and decrease in relational employee obligations. Robinson et al. (1994) interpreted this as an instrumental response, such that during the two years of employment, employees sought redress in the transactional balance of their relationship with their employer.

However, in the above study, the rate at which psychological contracts change over time is somewhat obscured by the two year interval between measurement points (e.g. Conway & Briner, 1998). It is not clear whether there was a gradual shift towards perceptions of a more transactional agreement, or whether there were cyclical fluctuations between the relationship being perceived as more relational and then more transactional. It is certainly likely that some changes in perceptions of the psychological contract occur more rapidly. The socialisation literature has illustrated that newcomers' adjustment to an organisation can occur over a relatively short period of time (Ashforth & Saks, 1996; Bauer & Green, 1994b; Major, Kozlowski, Chao & Gardner, 1995; Morrison, 1993a,b; Ostroff & Kozlowski, 1992). Hence, in their study of the psychological contract, Thomas and Anderson (1998) examined British Army recruits' perceptions of their psychological contract in terms of seven employer contributions measured on day one and after eight weeks of training. They found recruits' expectations of the army increased significantly for job security, social / leisure aspects, effects on family and accommodation. Thomas and Anderson (1998) note a discrepancy between their findings which demonstrated an increase in expectations of relational contractual components, whilst Robinson et al. (1994) identified an increase in transactional

components. One explanation suggested for this difference concerns the type of individuals comprising each sample: in the former case soldiers typically form a strong identification with the Army, whereas MBA students may focus more on commercial and career-related gains from their relationship with employers. Alternatively, the discrepancy could be attributed to the different measurement intervals. During early socialisation, relational commitments may increase, and with longer tenure, transactional elements may increase. Hence, more research is needed in a variety of organisations using different types of recruits to determine the nature of psychological contract adjustment over time. In addition, since Thomas and Anderson (1998) did not measure recruits' perceptions of employee contributions to the relationship, it is not clear whether the increase in employer relational aspects was accompanied by changes in perceived employee obligations. Further research is needed which examines change in perceptions of reciprocal obligations over short measurement intervals post-organisational entry.

Cultural Differences and Psychological Contract Dynamism

To date, there has been a notable lack of cross-cultural research in psychological contracts, although cultural and institutional differences are likely to lead to differences in perceptions of the employment relationship (Sparrow, 1996). The extent to which these differences remain following entry into a multinational organisation is also open to question. It is quite possible that such differences will diminish when exposed to the reality of the organisational culture.

First, why might cultural differences influence initial perceptions? This is likely since the social contract (Rousseau, 1995), which reflects culturally-based broad beliefs in obligations (including employment relations), will have an impact on individuals' psychological contracts within that culture. For example, Sparrow (1996) notes that relative to the rest of Europe, the UK has been less concerned with the impact of increasing work hours on employee well-being. Hence, a perceived employee obligation to work long hours is perhaps more likely to be incorporated into UK employees' contracts than it is for other Europeans. Specifically, Sparrow (1996) suggests that two factors which mediate the formation of psychological contracts will result in cross-cultural differences: First, information perceived as relevant to the psychological contract is likely to be filtered by individual

predispositions to motivators and these have been shown to differ across Europe. Second, national values may influence the social cues used to decode information which in turn may influence judgements on required standards of behaviour.

Sparrow (1996) suggests three cultural dimensions are especially salient in psychological contracting: uncertainty avoidance (Hofstede, 1991), long-term orientation (Hofstede, 1991) and high context communication (Hall & Hall, 1990). Each will be discussed in turn. First, high uncertainty avoidance countries feel threatened by ambiguity and may therefore prefer more explicit psychological contracts. Both the UK and the Netherlands have moderate levels of uncertainty avoidance and hence are unlikely to differ in this regard (Hofstede, 1980). Long-term orientation cultures place value on past performance and justify change by future economic returns. In Hofstede's (1980) research, The Netherlands scored high on this dimension, whilst the UK scored low. This implies that British employees are more likely to accept psychological contracts that reflect more short-term obligations whereas Dutch employees may focus on long-term, relational commitments. Finally, in high context communication cultures, messages are implicit whereas in low context countries communication is explicit. Hall and Hall (1990) identified Britain as a high context country and therefore contractual obligations may be interpreted from implied promises. The Netherlands was unfortunately not incorporated into Hall and Hall's (1990) research, but an article from an internal Shell journal identifies the Dutch communication style as 'blunt' (SSI Windows, December 1998) which would indicate a low context communication culture. Therefore, Dutch applicants may not draw so many inferences from implicit communication during selection. Given the differences in long-term orientation and possibly in communication, Dutch and British recruits' may differ in their initial perceptions of the psychological contract.

However, it is likely that once an individual has entered an organisation, such national differences will reduce through convergence to insider norms (Major et al., 1995). According to Schneider's attraction-selection-attrition (ASA) theory, there is likely to be some degree of homogeneity in perceptions held by organisational insiders (Schneider, 1983, 1987; Schneider, Kristof, Goldstein & Smith, 1997). Through the experience of similar treatment by the organisation, perceptions are

likely to converge, or else recruits are likely to leave the organisation. Indeed, research indicates that insiders have general agreement of their reciprocal obligations to organisations (Herriot, et al., 1997; Rousseau & Anton, 1991) and that the salience of psychological contract dimensions becomes more aligned to the employee insider norms during the early period of socialisation (Thomas and Anderson, 1998). Hence, national differences observed at entry may reduce post-entry into an organisation. Longitudinal research is therefore needed which examines cultural differences pre- and post-organisational entry.

Psychological Contract Mutuality

The fourth section of this chapter examines psychological contract mutuality (i.e. employee and employer perceptions of reciprocal obligations). First, issues surrounding the employer's perspective are examined. Second, it is argued that the degree of congruence between the two contractual parties will increase from pre- to post-organisational entry. In the third section, it is acknowledged that some mismatches between the two parties will remain and specific areas of divergence are highlighted.

The Employer's Perspective

Classical definitions of the psychological contract refer to an exchange relationship, whereby both the employee and employer hold perceptions of mutual obligations (Levinson, et al., 1962; Kotter, 1973; Schein, 1965, 1980). The psychological contract has been defined by Kotter (1973, p.92) as "an implicit contract between an individual and his [sic] organization which specifies what each expect to give and receive from each other in their relationship". This element of mutuality is central to the concept of the psychological contract. The individual and organisation are likely to presume that both share the same interpretation of the promises made, but in reality, their understanding may be quite different (Baker, 1996; Rousseau, 1989; Robinson & Rousseau, 1994; Rousseau & Parks, 1993). Arnold (1996) suggests that a 'weak' form of mutuality is therefore appropriate since both parties are aware of the psychological contract's existence, but their interpretations may be incongruent. In comparison to the more substantial amount of research exploring the employees' side of the contract (e.g. Rousseau, 1990; Robinson, 1995; 1996; Robinson & Rousseau, 1994; Robinson & Morrison, 1995;

Robinson et al, 1994; Rousseau & Anton, 1988; Thomas & Anderson, 1998), there is a dearth of research exploring the organisation's perspective.

As Robinson and Morrison (1995) note, by identifying the employer as party to the psychological contract, the organisation takes on an anthropomorphic identity. This is tenable given the legal, moral and financial responsibilities organisations hold for the action of their employees and given the continuity provided by organisational policies, regardless of the individuals involved (Robinson & Morrison, 1995). Nevertheless, exploring the employers' side of the contract is complicated by the difficulty of identifying *who* is 'the organisation' (Arnold, 1996; Guzzo, et al., 1994; Robinson et al., 1994; Rousseau & Parks, 1993; Schein, 1980). Organisational events (e.g. recruitment, socialisation, training) and interactions with organisational representatives (e.g. recruiters, managers, human resources personnel, line managers) provide employees with implicit and explicit messages regarding the employer's perspective (Baker, 1996; Conway & Briner, 1998; Herriot, et al., 1997; Levinson et al, 1962; Rousseau, 1995; Shore & Tetrick, 1994; Sparrow, 1996). Although the organisation's message to employees may not be unitary, Herriot and his colleagues argue that this ambiguity represents the reality of organisational experience (Herriot, et al., 1997; Herriot & Pemberton, 1996). On the other hand, Schneider's ASA model would indicate that there is likely to be some degree of homogeneity in the messages relayed (Schneider, 1983, 1987; Schneider, et al., 1997). Indeed, research indicates that organisational representatives have general agreement in their reciprocal obligations to employees (Herriot et al., 1997). Hence, the argument regarding ambiguity may be less relevant post-entry into an organisation since recruits are likely to encounter some consistency in the information communicated regarding reciprocal obligations (Rousseau & Anton, 1991; Shore & Tetrick, 1994).

Increasing Congruence from Pre to Post Organisational Entry

Nevertheless, the messages sent by organisational representatives at selection are likely to be incongruent with those subsequently received post organisational entry. Research from the expectations literature would indicate that, at selection, organisations often oversell themselves in order to lure recruits (e.g. Mabey, 1986; Nicholson & Arnold 1991; Wanous, 1992). Hence, information provided at selection is often inaccurate (Porter, Lawler & Hackman, 1975) with strategies which

could reduce the discrepancies (e.g. realistic job previews) rarely provided (Wanous, Poland, Premack, & Davies, 1992). Indeed, Kotter (1973) investigated 90 middle managers' perceptions of their psychological contract over a one year period following entry to an organisation. He found that a number of mismatches between the individual and the organisation were not recognised at organisational entry. In general, the managers had higher perceptions of receiving employer obligations (e.g. personal development opportunities, interesting work) and lower perceptions of their own contributions (e.g. taking on organisational values and goals, conformity). In comparison with organisational representatives, new recruits may have higher perceptions of employer obligations and lower perceptions of their own obligations.

Once a newcomer has joined the organisation, it is likely that perceptions of the psychological contract will change to become more congruent with the organisational representatives' perspective (Herriot & Pemberton, 1996). During socialisation, newcomers are motivated to increase the predictability of their new environment and reduce the stressful uncertainty by learning about the organisation through a process of sense-making (Feldman, 1976; Fisher, 1985; Louis, 1980; Morrison, 1994; Nelson, 1987; Nelson & Quick, 1991). In particular, the organisational socialisation literature acknowledges the important role that insiders play in providing information to newcomers to facilitate their sense-making (e.g. Major & Kozlowski, 1997; Major, et al., 1995; Nelson & Quick, 1991; Ostroff & Kozlowski, 1992). In terms of the psychological contracting process, insiders may share their perceptions of the new recruits' manager and the organisation more generally, and provide guidance on how equitable the recruits' psychological contract is relative to others (Shore & Tetrick, 1994). Therefore, through observing and communicating with insiders, newcomers' perceptions of the psychological contract may change to become more realistic and closely aligned to the organisational perspective. There is some indirect empirical evidence for this hypothesis. For example, the finding that the majority of new hires perceived their organisation to have violated the psychological contract in the early employment relationship (Robinson & Rousseau, 1994) may have been caused by a re-calibration upwards of new employees perceptions of the organisation's obligations, or possibly by a mismatch between inflated promises made during recruitment and subsequent

experience of organisational reality. Furthermore, research has shown that socialisation plays a more important role than selection in matching individual and organisational values (Chao, O'Leary, Wolf, Klein & Gardner, 1994; Chatman, 1991; O'Reilly, Chatman & Caldwell, 1991). Longitudinal research exploring psychological contract mutuality is therefore required to determine the extent to which congruence between the two parties increases following organisational entry.

Employee - Employer Mismatches

Nevertheless, some mismatches between the individual and organisation are likely even at the end of the socialisation process. Three previous studies have examined the congruence between longer-tenured employees and organisational representatives (Freese & Schalk, 1996; Herriot et al., 1997; Kotter, 1973). Taking these chronologically, Kotter (1973) reports results from a case study in a single organisation exploring perceptions of the psychological contract for employees with different tenure. Three management trainees and three managers with one or two years experience, were separately asked to develop a list of mismatches between their specific expectations of giving and receiving. A third group of four senior managers were asked to compile a list of mismatches they thought new employees would experience. All three lists were different and, although details are not provided, this illustrates that senior managers misconstrued the perceptions of their subordinates and suggests a lack of mutuality.

More recently, Freese and Schalk (1996) conducted a study involving six organisations in The Netherlands. They asked employees to describe their psychological contract and asked their supervisors to describe their perceptions of their subordinates' psychological contract. Substantial differences emerged, but again details are not provided except that supervisors falsely perceived that employees wanted more responsibility.

Herriot et al. (1997) conducted a more detailed study involving employees and organisational representatives in the form of senior employees taking an organisational perspective. Critical incident interviews were used to investigate the psychological contract dimensions identified by both parties. Although they found close agreement on the dimensions comprising the contract, the two parties differed in what they perceived to be the important components. Their results indicated that

employees regarded the basic economic transactional aspects of the contract as most important whereas organisational representatives emphasised relational components. More specifically, employees regarded the outcomes of fair pay, safe working conditions and job security as most important, whilst employer representatives considered humanity, recognition and benefit as more important to employees.

All the above studies confirm the appropriateness of a weak form of mutuality (Arnold, 1996); both parties seem to be aware of the psychological contract and its content, but do not have congruent interpretations of the salient dimensions. Nevertheless, prolonged interaction may lead to some convergence between the two parties (Herriot, Pemberton & Pinder, 1992: cited in Rousseau & Parks, 1993). The research conducted by both Herriot et al. (1997) and Freese and Schalk (1996) involved long-tenured employees and neither study employed a longitudinal framework. In the current research, the focus was on new recruits to determine whether the process of socialisation facilitated alignment with the organisation's perspective.

Predictors of Psychological Contract Adjustment

Past research has examined two possible mechanisms to explain changes in employees' psychological contracts. First, information acquisition during socialisation may enable new employees to determine which aspects of their initial contract are viable (Thomas & Anderson, 1998). A second possibility suggested here is that the frequency and quality of contact with the recruits' manager will also play a role in psychological contract adjustment. Third, it has been suggested that the experience of psychological contract violation may cause employees to alter their perceptions of mutual obligations (Robinson et al., 1994). The present research also offers a unique opportunity to explore the relative contribution of these predictors.

Socialisation Knowledge

Recent socialisation research has placed considerable emphasis on the process of newcomer proactive information acquisition (Louis, 1980; Ostroff & Kozlowski, 1992; Morrison, 1993a; 1993b; Smith & Kozlowski, 1994). Individuals enter organisations as naive newcomers, and during socialisation must reduce initial uncertainty through the acquisition of knowledge relating to task responsibilities, the work group, and the organisational culture (Chao, O'Leary-Kelly, Wolf, Klein, &

Gardner, 1994; Morrison, 1993a, b; Ostroff & Kozlowski, 1992). Knowledge acquired during socialisation may therefore confirm or disconfirm perceptions held following recruitment and may lead to a revision in perceptions of contractual terms (Nadler, Hackman & Lawler, 1983; Thomas & Anderson, 1998). Various typologies of information acquisition have been suggested (e.g. Louis, 1980; Ostroff & Kozlowski, 1992; Morrison, 1993a; 1993b; Smith & Kozlowski, 1994). Thomas and Anderson (1998) propose a four-category framework: *role* knowledge concerns information relevant to job performance; *social* knowledge refers to the establishment of relationships and integration within the proximal work group; *interpersonal resources* knowledge relates to the establishment of a network of relationships with insiders who provide, support, information and / or advice; and *organisation* knowledge includes information regarding the organisation's history, structure and climate. Louis (1980) suggested that the process of psychological contracting may influence newcomer learning, but as Thomas (1998) notes, unless organisations engage in explicit contracting (e.g. through the provision of realistic job previews), it is more likely that psychological contracts develop in light of newcomer learning.

Thomas and Anderson (1998) report the only empirical research linking changes in psychological contracts to the acquisition of knowledge during socialisation. Over an eight week period, they found that the development of socialisation knowledge predicted small but significant proportions of the changes in recruits' expectations of the Army. Specifically, increases in social knowledge accounted for changes in expectations of job security and effects on family, whilst increases in role knowledge accounted for changes in ratings of social/leisure expectations. It is also possible that socialisation knowledge will explain changes in perceptions of employee obligations. However, Thomas and Anderson (1998) did not examine this side of the psychological contract and so the present research is exploratory in this regard.

Recruit-Manager Relationship

A second factor that may well impinge on the adjustment of the recruits' psychological contract towards organisational reality is the amount of contact with the individual's manager and the quality of their relationship. The socialisation

literature has acknowledged the role of supervisors and managers in the integration process (e.g. Bauer & Green, 1994b; Fisher, 1990; Louis, Posner & Powell, 1983; Major et al., 1995). More specifically, Nadler et al. (1983) proposed that newcomers' relationships with their supervisor will have implications for psychological contract development. Indeed, the new recruit is likely to view the supervisor as the chief agent for establishing the psychological contract (Shore & Tetrick, 1994). Further, in a case study reported by Kotter (1973) involving a research and development division of a large consumer products company, new recruits' supervisors were found to be an important factor in the joining-up process partly through their provision of feedback and articulation of expectations. It is therefore possible that interactions with the new manager will prove to be important in facilitating psychological contract adjustment.

Psychological Contract Violation

Violation of the psychological contract occurs when one party perceives that the other has failed to fulfil an obligation or promise, thereby reducing the benefits received. As a result, employees' perceptions of their transactional and relational contributions may change in order to restore the equity between costs and benefits and to compensate for the erosion of trust in the employment relationship (Robinson & Rousseau, 1994). Research indicates that employer violation can lead to employees' withdrawing from their own obligations (Herriot et al., 1997; Kotter, 1973; Robinson et al., 1994). Kotter (1973) found that after the first year, managers began to interpret contractual mismatches as disappointments, and reacted by gradually reducing their contribution to the exchange. In their longitudinal study of MBA students, Robinson et al. (1994) found that perceptions of employer violation were associated with a decrease in employee perceived transactional and relational obligations, but not changes in employer obligations. Employees may feel that adjustment to their own contributions is a more feasible response since employer contributions are less easily changed. Research over a shorter time frame is required to determine whether initial contract violation has a similar impact on changes in recruits' psychological contract. Moreover, alternative explanatory variables need to be investigated which may account for changes in perceptions of employer obligations over time.

Comparing the Relative Contribution of Predictors of Change

The present study provides an opportunity to compare the relative impact of the above variables on psychological contract adjustment. Research to date has not simultaneously explored several predictors of change in employee and employer obligations. Separate studies have shown an impact of psychological contract violation on relational aspects of employee obligations (Robinson et al., 1994) while the acquisition of socialisation knowledge has been shown to impact employer relational components (Thomas & Anderson, 1998). Indeed, it is possible that socialisation knowledge and the recruit-manager relationship will play a more influential role in predicting changes in perceptions of employer obligations than psychological contract violation. This is largely proposed on the basis that a more viable response to employer violations may be for the employee to adjust their own contributions. On the other hand, all three predictors may allow recruits to revise their perceptions of employer obligations as a result of information acquisition. However, since previous research has not directly compared the relative impact of different predictors, no specific hypotheses are made.

The Impact of Change in The Psychological Contract

To date, the research exploring the impact of the psychological contract on outcome measures has focused on perceived violations. Psychological contract violation may signal to employees a lack of employer consideration, such that their contributions are not valued and their well-being is not cared for (Eisenberger, Huntingdon, Hutchinson, & Sowa, 1986; Robinson, 1995) and this may weaken their bond with their employer (Robinson & Rousseau, 1994). Research indicates that perceived violations are negatively associated with employer trust, organisational commitment, organisational citizenship behaviour, job satisfaction, and self-reported performance, and positively associated with intentions to leave and actual turnover (e.g. Freese & Schalk, 1996; Guzzo et al., 1994; Herriot, et al., 1997; Robinson, 1995; 1996; Robinson & Rousseau, 1994; Robinson & Morrison, 1995). However, there are a number of methodological difficulties in the approaches taken to measuring psychological contract violation. Two main approaches have been adopted: difference scores and direct measures. Both approaches have been criticised in the unmet expectations literature for failing to reflect the impact of the

expectation component measured at recruitment (Cronbach & Furby, 1970; Edwards, 1991; Irving & Meyer, 1995; Johns, 1981). Parallel concerns are pertinent for research on the psychological contract violation, since these approaches may not reflect the promissory component measured at recruitment (Arnold, 1996). However, these problems have not been directly acknowledged in existing psychological contract research. Discussion will focus on these measures and on the approach adopted in the present research.

Difference Scores

One approach adopted in psychological contract research is to determine the extent to which applicants' experiences of the organisation fulfil the promises perceived during the selection process (e.g. Robinson, 1996). Hence, a difference score is calculated based on the discrepancy between what was promised and what is fulfilled. A technical debate has arisen relating to the use of difference scores (e.g. Arnold, 1996; Cronbach & Furby, 1970; Edwards, 1991; Irving & Meyer, 1995; Johns, 1981). There are various statistical and psychometric problems associated with the properties of difference scores. Notably, the reliability and validity of the difference score has been questioned (Johns, 1981). Furthermore, it is argued by some researchers that it is logically impossible for difference scores to explain variance in outcome measures beyond that captured by the component measures (Edwards, 1994; Johns, 1981). In the job expectations literature, researchers have found that significant correlations between met expectations (created by difference scores) and outcome variables typically disappear when perceptions of post-entry experiences are controlled. Irving and Meyer (1994) for example, collected data from graduates ($N = 137$) and found that job satisfaction, organisational commitment and turnover intentions were influenced by employees' early work experiences independent of their pre-entry expectations. If these results extend to the psychological contract literature, it is possible that perceptions of organisational fulfilment influence the outcome measures, independent of the pre-entry promises. Clearly, this would change the interpretation of existing findings based on difference scores.

Direct Measures

To avoid use of difference scores, some researchers have adopted direct measures of psychological contract violation by asking respondents to indicate the extent to which their pre-entry promises have been fulfilled (e.g. Robinson & Rousseau, 1994). However, this measure is also susceptible to the same methodological problems inherent in difference scores (Wanous et al., 1992). The direct measure presumes that respondents are able to conduct a mental comparison between the recalled promises at entry and post entry fulfilment. Hence, the direct measure precludes analysis of whether the outcome variable is related to either one or both of the components that went into the mental calculation of the violation. Again, a study in the job expectation literature highlights that this is problematic. Irving and Meyer (1995) conducted a study involving 259 individuals, and found that post-entry experiences had considerably more influence than pre-entry expectations on the way that individuals responded to the direct measure of met expectations. As with the difference scores, direct measures of met expectations or psychological contract violation, may also be contaminated by the evaluation of the intervening experience.

Present Study

To avoid the methodological limitations associated with use of difference scores and direct measures of unmet expectations, an alternative approach was adopted in the present study. First, in order to look at change over time, graduates' perceptions of the content of their psychological contract was assessed post selection and again after four months of employment. Not only does this provide statistical advantages, but also was more valid, since after four months, it is unlikely that respondents would be able to discuss the fulfilment of all contractual terms. Indeed, Irving and Meyer (1994) found that experiences at six months generally accounted for larger proportions of variance in the outcome measures at 12 months, than experiences after one month accounted for in outcome measures at 6 months. They suggested that individuals may have to be employed for a period of time before they can assess their experiences with any certainty. Hence, a re-analysis of the promises may be more meaningful. Furthermore, rather than utilise difference scores, for the

present study regression analyses were conducted entering the ratings from two measurement points separately so that the impact of change could be examined.

Again, it is important to examine both the direct impact of violations and the impact relative to baseline measures. Controlling for initial intentions to remain with the organisation, Robinson and Rousseau (1994) found violations predicted subsequent perceptions of intentions to remain and were positively associated with actual turnover. Since organisational commitment, job satisfaction and job performance could only be meaningfully measured after organisational entry it is not possible to examine the impact of psychological contract violation on a change in these variables. In the present study, baseline measures of organisational attractiveness and intended tenure were taken immediately post selection so that the impact of violations on a change in these variables could be examined.

Summary and Hypotheses

To summarise, previous research has identified the emergence of the psychological contract during recruitment from homogenous groups of MBA recruits where organisational reality remained unknown. Research has not examined the relationship between applicants' reactions to selection procedures and perceptions of the psychological contract, and has not examined the adjustment of recruits' perceptions of both employee and employer obligations during the early period of socialisation. To date, there has also been a lack of cross cultural research in this area, particularly in relation to exploring how national differences may dissipate following entry into multinational organisations. Finally, there is a paucity of research exploring the impact of changes in the psychological contract on outcome variables. The present study aimed to investigate these factors.

Hypothesis 10: *Procedural justice will be associated with relational elements of the psychological contract and distributive justice with transactional elements.*

Hypothesis 11: *There will be significant differences between the Dutch and British recruits post recruitment, but these differences will decrease following organisational entry.*

Hypothesis 12: *Recruits' perceptions of the psychological contract will change across time. For employer obligations the changes will represent an increase, for employee obligations the change will represent a decrease.*

Hypothesis 13: *Changes in recruits' perceptions of the psychological contract will represent greater congruence with the views of organisational representatives.*

Hypothesis 14: *Socialisation knowledge, recruit-manager relationships and psychological contract violations will influence psychological contract adjustment.*

Hypothesis 15: *Changes in perceptions of the psychological contract will have an impact on organisational commitment, job satisfaction, organisational attractiveness, intended tenure and the organisation's rating of job performance.*

Chapter Three

Selection: An Integrated Perspective

Introduction

The previous chapters have argued that selection has a social impact, notably in terms of applicants' reactions to the procedures and in terms of the psychological contract that emerges from the interactions between employer and employee. These social perspectives on selection have not only developed in isolation from each other, but have also remained largely independent of the more traditional approach to selection which has focused on selection validity (Anderson, 1992; Herriot, 1992, 1993). Indeed, Herriot (1992) refers to the "two sub-cultures" which co-exist in selection, the psychometric and social research approaches. As Dipboye (1997) writes in relation to the interview, "it is time to start building bridges to span the gaps that exist in research..." (p.470). The present research aims to provide greater synergy by exploring the impact of the social processes on both predictive and assessment centre construct validity and this is explored in this chapter.

Traditionally, selection has been assumed to provide a procedure from which to predict an individual's capacity to meet the job requirements. Researchers have focused on predictive validity via analysis of the relationship between predictor scores (e.g. selection ratings) and criterion scores (e.g. job performance). The advantage of extending this traditional validation model to include the social episodes that occur during selection is increasingly recognised (e.g. Anderson & Shackleton, 1993; Herriot, 1989; Hesketh & Robertson, 1993). The previous chapters have argued that social dynamics can influence selection performance and subsequent job performance. Hence, these processes are likely to impinge on predictive validity. In this chapter, possible social moderators of predictive validity are explored.

The literatures on assessment centre predictive and construct validity lie in juxtaposition. Meta-analytic reviews have supported high predictive validity (e.g. Gaugler Rosenthal, Thornton, & Bentson, 1987), whilst construct validity research has typically found that the variance is attributable to the exercises rather than the dimensions being measured (e.g. Joyce, Thayer, & Pond, 1994; Robertson, Gratton,

Sharpley, 1987; Schneider & Schmitt, 1992). However, construct validity research has also typically been conducted in the absence of information regarding predictive validity (Chan, 1996). Furthermore, the statistical approaches adopted in many studies may have failed to identify the real proportion of variance attributable to the dimensions (Kleinmann & Köller, 1997). The present chapter argues for the importance of adopting an integrated perspective by evaluating construct and predictive validity simultaneously in the context of assessment centres.

Predictive Validity and Social Impact: An Integrated Approach

Overview

Traditionally, selection methods have been largely viewed as neutral assessment devices that measure candidates' abilities with greater or lesser validity, but with the impact on candidates either ignored, or assumed to be intrusions or biases distorting otherwise clean psychometric observations (Iles & Robertson, 1989, 1997). Hesketh and Robertson (1993) presented a process model of selection validity which incorporates the impact of intervening events between measurement of predictor and criterion on predictive validity. Furthermore, researchers have increasingly acknowledged that the validity of selection techniques may be influenced by candidates' reactions to selection methods (e.g. Iles and Robertson, 1989, Hesketh & Robertson, 1993; Smither, Reilly, Millsap, Pearlman, and Stoffey, 1993), their socialisation experiences (Anderson & Ostroff, 1997) and their self-perceptions (Iles & Robertson, 1997). However, there is a lack of field research exploring the relative impact of different moderating variables. The first section of this chapter aims to discuss these issues and is divided into five parts: (i) predictive validity: the traditional perspective, (ii) Hesketh and Robertson's (1993) process model of selection, (iii) the influence of applicants' reactions and attitudes towards selection methods, (iv) the impact of socialisation, (v) the influence of self-efficacy, and (vi) the relative impact of moderators.

Predictive Validity: The Traditional Perspective

The primary focus of traditional personnel selection research has been the maximisation of predictive effectiveness and minimisation of adverse impact by identifying and selecting individuals with the highest job-relevant ability (Anderson and Ostroff, 1997; Chan & Schmitt, 1997; Iles & Robertson, 1997). The following section briefly reviews some of the findings from this perspective and then argues for the need to expand upon this traditional selection model.

Research from the Traditional Perspective

The traditional criteria used to judge the value of selection methods are predominantly empirically based via criterion-related validity adopting concurrent or predictive designs. Meta-analysis which combines multiple validity studies using

procedures that allow the partialing out of measurement error, has contributed considerably to the development of knowledge in the selection literature (e.g. Herriot & Anderson, 1997; Murphy, 1997; Robertson, 1989). In terms of the two selection methods used in the present research, meta-analyses have found strong evidence of predictive validity. Interviews, especially structured interviews, are considerably more valid and reliable than earlier discursive reviews had suggested (e.g. Huffcutt & Arthur, 1994; McDaniel, Whetzel, Schmidt & Maurer, 1994; Conway, Jako & Goodman, 1995). In one meta-analysis which included 160 studies of interview validity comprising 25,244 individuals, McDaniel et al. (1994) found that the average validity (corrected for restriction of range) was 0.37 for all types of interview combined, but with higher coefficients for structured rather than unstructured interviews. Evidence for the criterion-related validity of the assessment centre is also positive (Gaugler et al., 1987; Hunter & Hunter, 1984). Gaugler et al.'s (1987) meta-analysis of 47 validation studies of assessment centres involving 12,235 individuals, found a mean validity (corrected for statistical artefacts) of .37, with higher validities for future potential, rather than current performance criteria. Existing research therefore provides positive results for the predictive validity for these two selection methods.

Criticisms of the Traditional Approach

Whilst the traditional approach provides an important area of inquiry, a number of criticisms have been made. The assumption underlying this model is that the job is a static entity to be measured and classified (Schein, 1985). However, with the widespread changes towards flexible forms of working and team-based work roles, this assumption has become somewhat outmoded (Cascio, 1995; Fletcher, 1997b; Herriot & Anderson, 1997; Iles & Robertson, 1997). Therefore, the nature and extent of evidence used for predictive validity studies is likely to change (Fletcher, 1997b). Anderson and Herriot (1997) suggest that future evidence will be based on "compressed validity cycles", with much shorter time lapses between selection and the measurement of performance. Fletcher (1997b) also suggests that future validation studies may be less specific to job roles and more related to competency frameworks.

Even with these adaptations, the psychometric approach to selection may not provide a sufficient area of inquiry for the advancement of selection knowledge (Iles & Robertson, 1989, 1997). The traditional approach holds that scores are a composite of the true score plus some form of measurement error. Whilst individual differences in selection performance do contribute significantly to differences in subsequent performance, the systematic effects of social factors which may attenuate or enhance estimates of validity have been largely ignored. If a component of the systematic variance in selection performance reflects social factors (e.g. motivation) then this will influence the construct validity of selection methods (Chan, Schmitt, Sacco, & DeShon, 1998). Alternatively, if the systematic effect of the social processes is subsumed within the random error component of the predictor-criterion relationship, this has an impact on predictive validity. Social factors may therefore either represent independent constructs which may provide incremental predictive validity, or they may moderate the predictor-criterion relationship to the extent that validity coefficients may be higher for more positive social factors (e.g. more motivated applicants).

A similar debate has arisen in the meta-analysis literature, with some researchers arguing that situational factors represent statistical artefacts (e.g. Hunter & Schmidt, 1990), whilst others maintain such factors represent real phenomena (e.g. James, Demaree, Mulaik, & Ladd, 1992). For selection methods which are more interactional and less standardised across settings (e.g. assessment centres and interviews), situational moderators are more likely (Gaugler et al., 1987). Existing research has however explored a limited range of situational moderators; researchers have concentrated on the role of interview structure and content (e.g. Huffcutt & Arthur, 1994; McDaniel, et al., 1994), while for the assessment centre, the focus has been on applicant demographics, recruiter characteristics, and evaluation procedures (e.g. Gaugler et al., 1987). In the present research, it is argued that predictive validity will be influenced by applicants' reactions to selection (e.g. Schmitt & Gilliland, 1992; Schmitt & Ryan, 1992), their experiences during initial socialisation (Anderson & Ostroff, 1997), and their self-perceptions (e.g. Hesketh & Robertson, 1992). However, first, an existing process model of selection is discussed.

Hesketh and Robertson's (1993) Process Model of Selection

Hesketh and Robertson (1993) have proposed the only process model of selection which directly documents the role of intervening factors (organisational / job conditions, situational strength, stage of skill acquisition, task demands, and impact of measurement and feedback process) on the predictive validity relationship. However, there is a lack of empirical research into the veracity of this model. Furthermore, this model presumes that the impact of the selection process intervenes between measurements of the predictor and criterion, whereas it has been argued earlier (see Chapter One) that these perceptions may emerge during measurement of the predictor, and may have a direct or indirect impact on selection performance. Furthermore, Hesketh and Robertson (1993) do not refer to the socialisation process which also intervenes between the predictor and criterion. The present discussion therefore indicates an expansion of this model to include the social processes that occur during measurement of the predictor and also the intervening experience of socialisation. In terms of Hesketh and Robertson's (1993) model, the present research explores two intervening factors: impact of the measurement and feedback processes and organisational / job conditions.

The Impact of the Measurement and Feedback Process

The traditional selection model has not considered the impact of applicants' reactions and attitudes towards procedures and selection feedback on predictive validity. Chapter One highlighted the dynamic nature of the selection process and the possible relationship between selection performance and applicants' reactions to procedures (e.g. Chan, Schmitt, DeShon, Clause, & Delbridge, 1997; Chan et al., 1998; Smither et al, 1993). Of primary interest here however, are the effects of candidates' reactions when assessing the validity of personnel selection procedures. In the following discussion, the role of applicants' reactions and attitudes towards the selection process and applicants' perceptions of the outcome and feedback are examined as possible moderators of selection predictive validity.

Applicants' Reactions and Attitudes Towards the Selection Process

A number of researchers have highlighted the potential impact of applicants' reactions and attitudes to selection on predictive validity (e.g. Arvey, Strickland, Drauden & Martin, 1990; Borman, Hanson, & Hedge, 1997; Herriot & Anderson,

1997; Hesketh & Robertson, 1993; Rynes, 1993a). Recently, empirical research has provided some support for this proposition. In a laboratory study, Thorsteinson and Ryan (1997) examined the impact of overall procedural fairness on the validity of a battery of selection tests. Perceptions of procedural fairness were measured before and after communication of the outcome decision. The criterion scores were high school and current college grade-point average. The results suggested that fairness perceptions moderated the validity of a cognitive test, but not a personality measure. Specifically, for the cognitive test, perceptions of procedural justice measured before the outcome decision moderated the validity with college grade point average as the criterion, and procedural justice post-decision moderated the validities for both criteria. Where procedural justice acted as a significant moderator, higher perceptions of procedural justice yielded higher test validity. Thorsteinson and Ryan (1997) note that two potentially inter-connected explanations may account for their findings: negative reactions towards selection may have decreased performance, or alternatively, applicants' may view selection negatively because they feel the process is not predictive of their ability to perform the job.

Although this study highlights the importance of considering the impact of applicants' reactions both during and after measurement of the predictor, there are a number of limitations. First, the artificial nature of the research may have influenced participants' evaluations since the decision was randomly determined and the outcome yielded receipt of five dollars only. Second, the relationships between the criterion scores and test performance scores were low, which may limit the generalisability of these conclusions to the field setting where the predictive validity may be higher. Third, Thorsteinson and Ryan (1997) did not measure applicants' reactions to the specific justice rules. By measuring the opportunity to perform rule for example, it may be possible to determine the appropriateness of the possible explanation that applicants may view selection negatively because they feel the process is not predictive of their ability to perform the job.

It is also likely that attitudes to selection, such as motivation and anxiety, influence applicants' selection performance (e.g. Arvey, et al., 1990; Chan et al., 1997; Hesketh & Robertson, 1993; Smither et al, 1993). Inferences about predictor-criterion relationships may therefore be misleading if predictor variance is based not

only on ability, but some motivational factor affected by candidate reactions. A number of studies have employed the Test Attitude Survey (TAS: Arvey et al., 1990) which incorporates both a motivation and anxiety subscale, to examine the impact of attitudes on validity (Arvey et al., 1990; Barbera, Ryan, Desmarais & Dyer, 1995; Chan et al., 1997; Schmitt & Ryan, 1992). Research has consistently shown that attitudes towards selection tests do not provide incremental validity beyond test score validity (Arvey et al., 1990; Barbera et al., 1995; Schmitt & Ryan, 1992). Arvey et al. (1990) also did not find empirical support for the moderating role of selection attitudes on criterion-related validity, but the small sample size ($N = 69$) poses a limitation. Other studies have found that some test attitudes moderate criterion-related validity (Barbera et al., 1995; Chan et al., 1997; Schmitt & Ryan, 1992). For example, in a study of over 700 entry-level manufacturing employees, Barbera et al. (1995) found motivation, but not anxiety, moderated the criterion-related validities of cognitive tests. More specifically, the studies supporting moderator effects indicated that higher criterion-related validities may be observed for applicants with more positive cognitive ability test-taking attitudes (Barbera et al., 1995; Schmitt & Ryan, 1992) and with more negative personality test-taking attitudes (Schmitt & Ryan, 1992).

However, as Schmitt and Ryan (1992) acknowledge, in their study the TAS was only measured after the entire battery of tests and therefore any differential attitudes to each test were not captured. Further, most of the existing research in this area is based on laboratory based selection simulations (e.g. Schmitt & Ryan, 1992), or at best on concurrent validity designs (Barbera et al., 1995). In the context of real selection, there may be less variability in applicants' attitudes towards selection, particularly when measured before knowledge of the outcome decision. For example, all applicants may report high motivation. Any restriction of range in the attitudinal variables may reduce the observed impact on validity in field studies (Arvey et al., 1990 Barbera et al., 1995). Furthermore, most of the research has employed cognitive tests and there is a paucity of research documenting the effects of candidates' reactions on predictive validity for more interactive selection methods (e.g. assessment centres). Therefore field research is required to explore the role of both applicants' attitudes and reactions as moderators of criterion-related validity.

Perceptions of the Selection Outcome and Feedback

Applicants' reactions to the outcome decision in terms of distributive justice may also influence the relationship between predictor and criterion scores. Research exploring the impact of selection distributive justice on subsequent job performance has not been supportive, but this may be due to the artificial nature of the research (Gilliland, 1994). Indeed, the effect of equity on performance in the organisational justice literature has been more robustly demonstrated (Friedman & Goodman, 1967; Greenberg, 1988). If selection creates perceptions of overpayment or underpayment inequity, this may lead to higher or lower job performance respectively. In selection for external applicants, analysis is restricted to the potential impact of overpayment equity following a positive outcome. Research is presently lacking in this regard.

The organisation's provision of feedback concerning an applicants' behaviour during selection may also be influential (Hesketh & Robertson, 1993). In the performance appraisal literature, feedback has been considered an important element of the work environment (Bastos & Fletcher, 1995). In particular, researchers have indicated that feedback may facilitate and maintain work performance (Ashford & Cummings, 1983; Kopelman, 1982, cited in Bastos & Fletcher, 1995). Research in selection has not considered the impact of applicants' reactions to selection feedback on the predictive-validity relationship.

The Impact of Job / Organisational Factors and Socialisation Experiences

The traditional selection model also gives scant attention to the intervening events between the predictor and criterion measures which will inevitably impinge on validity (Anderson & Ostroff, 1997; Herriot & Anderson, 1997; Hesketh & Robertson, 1993). Recruits enter dynamic organisations and their behaviour at work will be influenced by both person and situational variables (Robertson & Smith, 1989). In a paper focused on cognitive ability tests, Wagner (1997) writes, "a meaningful understanding of the theoretical relation between cognitive ability and job performance requires a causal model that includes all causal inferences on job performance" (p.1061). The socialisation literature has demonstrated the possible impact of socialisation knowledge (e.g. Morrison, 1993b, Saks & Ashforth, 1997) and recruit-manager relationships (e.g. Ashford & Black, 1996) on initial job performance which may influence validity. In addition, the previous chapter

highlighted that perceptions of the psychological contract may have an impact on job performance (Robinson, 1995). Therefore, in the next section, the possible moderating roles of socialisation knowledge, recruit-manager relationships, and violations of the psychological contract on selection validity are examined.

Socialisation Knowledge

The socialisation process forms a notable intermediary between the measurement of the predictor and criterion variables and is likely to have an impact on predictive validity (Anderson & Ostroff, 1997). In particular, socialisation knowledge may influence job performance. Research on the more general impact of job knowledge would provide some support for this proposition since selection researchers have identified an indirect effect of cognitive ability on job performance via job knowledge (Hunter, 1983; Ree, Carretta & Teachout, 1995; Schmidt, Hunter & Outerbridge, 1986). In terms of the likely role of socialisation knowledge more specifically, researchers have suggested that information seeking reduces newcomer uncertainty which enables more effective job performance (Ashford & Black, 1996; Feldman, 1981; Wanous, 1980). Studies involving new accountants have supported the link between newcomer information seeking and supervisor rated job performance (Morrison, 1993b; Saks & Ashforth, 1997). Morrison (1993b) found that the frequency of newcomer information-seeking measured three months post entry was positively related to job performance measured approximately six months post entry. Saks and Ashforth (1997) found information seeking measured six months post entry approached significance in explaining job performance ten months post entry. If socialisation knowledge does influence job performance, then it may also moderate the predictive validity of selection methods.

However, other research has not identified this link between information-seeking and job performance (Ashford & Black, 1996; Bauer & Green, 1998). These researchers suggest the discrepancy may be due to their inclusion of several proactive socialisation tactics (e.g. relationship building, negotiation of job changes, managerial behaviours) which may have been relatively more important than information-seeking behaviours. Alternatively, they suggest that those individuals performing poorly at six months may also have been performing poorly at three months, which may have prompted greater information-seeking. However, Brett,

Feldman and Weingart (1990) found that for new hires, good adjustment appeared to stimulate information-seeking behaviours. An alternative explanation for the discrepancy is that Ashford and Black (1996) and Bauer and Green (1998) adopted less detailed measures of information-seeking and that Ashford and Black (1996) used a self-report measure of participants' last performance evaluation. Moreover, as Morrison (1993b) notes, it is important to establish the impact of the amount of information obtained from seeking behaviours. It is possible that in Ashford and Black (1996) and Bauer and Green's (1998) studies that information-seeking attempts did not lead to the successful attainment of the desired information (Chao, O'Leary-Kelly, Wolf, Klein & Gardner, 1994; Thomas, 1998). Hence, in the present study a measure of actual socialisation knowledge acquisition is examined as impacting on job performance and hence as a moderator of selection validity.

Recruit-Manager Relationships

Managerial behaviours and relationships have been identified as an important component of the socialisation process (e.g. Bauer & Green, 1998; Reichers, 1987), and so the recruit-manager relationship may also influence predictive validity. In a longitudinal study involving graduates, Bauer and Green (1996) found a relationship between the quality of leader-member exchange and supervisor rated performance measured at both twelve and thirty-four weeks post-organisational entry. Ashford and Black (1996) examined the link between recruits' attempts to build relationships and job performance. They found that proactive attempts to build relationships with the manager increased job performance, whilst attempts to build relationships via networking with inter-departmental peers and general socialising were not linked with job performance at this early stage. Since individuals reported both their performance ratings and their attempts to build relationships with their manager, common method variance represents a limitation of this research. Nevertheless, these studies highlight the possibility of the recruit-manager relationship moderating the predictive validity relationship. Further research is therefore warranted using supervisory ratings of performance.

Violations of the Psychological Contract During Socialisation

Perceptions of the psychological contract may influence the relationship between selection predictors and job performance (Herriot & Anderson, 1997). In

response to perceived organisational failure to fulfil promised obligations, high calibre recruits may reduce their performance levels, which may then attenuate measures of selection validity. Selection methods such as assessment centres aim to assess applicants' maximal performance. Recruits may have the capacity to perform at the predicted level, but psychological contract violation may depress maximal performance. Conversely, psychological contract fulfilment may lead to higher performance and hence enhanced validity. Robinson (1996) found recruits' perceptions of psychological contract violations had an impact on self-rated job performance. However, Robinson (1996) used a two-item measure of performance which required participants to evaluate their own performance and their perceptions of how their employer would rate their performance. These measures were highly correlated and were combined to a single index. Results from research on 360 degree appraisal would however indicate that employees and employer ratings are rarely so closely aligned (e.g. Fletcher & Baldry, 1999; Fletcher, Baldry & Cunningham-Snell, 1998; Harris & Schoebroek, 1988). Hence research is also required on managers' ratings of performance in order to determine whether employee perceptions of violations moderate selection predictive validity.

Furthermore, Anderson and Ostroff (1997) suggest that if managers perceive recruits to have failed to satisfy their contributions to the relationship, lower manager ratings of performance are likely. Employer perceptions of recruits' psychological contract violations may also moderate predictive validity. In particular, recruits who receive high ratings at selection may not receive such positive evaluation post entry into the organisation if they are perceived to have violated promised contributions to the employer. However, researchers to date have not considered the impact of psychological contract violations by either party on predictive validity.

The Impact of Self-Efficacy

As Iles and Robertson (1997) note "subjective self-perceptions are critical determinants of work motivation and performance, and these are influenced by assessment and selection processes" (p.546). Specifically, the role of self-efficacy is considered here. Bandura (1986) notes "perceived self-efficacy is a significant determinant of performance that operates partially independently of underlying skills" (p.391). Indeed, Jones (1986) found that high self-efficacy newcomers took a

more proactive and innovative stance towards their role performance. Saks (1995) explored the moderating effects of self-efficacy on the relationship between socialisation training and work adjustment of newcomers during the first year of employment. He found initial self-efficacy moderated the relationship between training and job performance. Specifically, an increase in training performance was associated with an increase in job performance, but was more pronounced for individuals with initial low self-efficacy. Similarly, self efficacy measured at selection may moderate the relationship between the predictor and criterion. Existing research has not explored this relationship.

Relative Importance

When examining the moderating role of several variables, it is useful to consider their relative contribution to predictive validity. Barbera et al. (1995) explored a number of variables, but power concerns prevented them from analysing all moderators in one regression analysis. Barbera et al. (1995) did though conduct an analysis to examine whether the additive effects of all significant moderators was stronger than their independent effects. They used a unit-weighted composite measure based on the attitudes that showed significant moderating effects. This composite measure provided incremental validities of .015 and .010 for two different selection tests. Hence, from their study, little additional variance was explained by considering the joint effects of the moderating variables. Since their research was based on a concurrent predictive validity study, further research is required adopting a predictive approach.

Summary and Hypotheses

The above discussion has indicated that adopting a more integrated approach to selection may provide greater understanding regarding the impact of selection. Various social factors that occur during the selection process and experiences that intercede between the two measurements may moderate selection validity. Initial empirical research highlights the potential moderating role of applicants' reactions and attitudes towards the selection process on predictive validity. However, the typical use of laboratory studies may have suppressed the real impact of the social processes (e.g. Tepper, 1994) and has required the use of criterion scores based on academic, rather than job, performance. In terms of self-perceptions and the

intervening variables between measurement of the predictor and criterion, existing research concerning the impact of these factors on predictive validity is lacking. The present study therefore aimed to address these issues.

Hypothesis 16: *Perceptions of procedural justice, motivation, anxiety, self-efficacy, equity and feedback measured at selection will moderate selection validity.*

Hypothesis 17: *Post-organisational entry perceptions of socialisation knowledge, manager-recruit relationships and psychological contract violations will moderate selection validity*

Assessment Centre Construct and Predictive Validity: An Integrated Approach

Overview

Despite the proven predictive validity of assessment centres (e.g. Gaugler et al., 1987), research has raised concern over the construct validity of this selection method. The assumption underlying assessment centres is that they measure relatively stable and conceptually distinct characteristics essential to managerial performance. From their observations across a variety of exercises, assessors rate the relevant constructs, but studies have found poor construct validity as the variance is typically attributable to the exercises rather than the dimensions (e.g. Brannick, Michaels, & Baker, 1989; Joyce, et al., 1994; Robertson, et al., 1987; Russell, 1987; Schneider & Schmitt, 1992). However, many studies of assessment centre construct validity have been conducted in the absence of information regarding predictive validity (Chan, 1996). An integrated approach is therefore required which simultaneously explores both predictive and construct validity.

The assessment centre literature has proposed several reasons for the lack of construct validity and has examined the role of various moderating variables such as the number of dimensions (e.g. Gaugler & Thornton, 1989), the transparency of dimensions for applicants (e.g. Kleinmann, 1993), the use of behavioural checklists (e.g. Donahue, Truxillo, Cornwell, Gerrity, 1997; Reilly, Henry & Smither, 1990) and the use of different scoring methods (Silverman, Dalessio, Woods & Johnson, 1986). Although research suggests that various manipulations to the assessment centre design may enhance construct validity, the improvement appears to be only moderate leaving unanswered concerns over the real value of this comparatively costly and time-consuming selection method (Woodruffe, 1997). However, there are a number of methodological limitations associated with much of the existing research. The statistical approaches adopted in many studies may have failed to identify the real proportion of variance attributable to the dimensions (Kleinmann & Köller, 1997) and so further research is warranted. The present research aimed to address two main issues: (i) approaches to construct validity research and (ii) the simultaneous examination of construct and predictive validity.

Statistical Approaches to Construct Validity Research

Various statistical methodologies have been employed in the assessment centre construct validity literature and the following section reviews two traditional methodologies and one more recent approach: multitrait-multimethod correlational matrix (Campbell & Fiske, 1959), traditional exploratory factor analysis (e.g. Smith, 1976), and confirmatory factor analysis (e.g. Kleinmann & Köller, 1997).

Multitrait-Multimethod Correlational Matrix

Campbell and Fiske's (1959) multitrait-multimethod (MTMM) matrix is one of the most widely used paradigms for investigating construct validity (Kleinmann & Köller, 1997; Marsh, 1989; Marsh & Grayson, 1995). In assessment centres, the traits refer to the constructs being measured (e.g. leadership, achievement) and the methods refer to the exercises (e.g. in-trays, group discussions). Campbell and Fiske (1959) identified an approach to analysing MTMM data which involved the examination of three groups of correlation coefficients: first, the monotrait-heteromethod correlations which refer to the correlations for one construct across the different exercises; second, the heterotrait-monomethod correlations which refer to the correlations of different constructs within one exercise; and third, the heterotrait-heteromethod correlations which refer to the correlations of different constructs in different exercises. Campbell and Fiske (1959) proposed four criteria for assessing various types of construct validity within the MTMM matrix: First, the monotrait-heteromethod correlations must be positive and significantly different from zero (convergent validity); second, the convergent validity must be higher than the heterotrait-heteromethod correlations; third, the convergent validity must be higher than the heterotrait-monomethod correlations (discriminant validity); and fourth, the pattern of correlations among heterotrait-monomethods should be similar to correlations among heterotrait-heteromethods (absence of method effects). Inferences regarding construct validity are supported when convergent and discriminant validity are high and method effects are negligible.

Assessment centre research employing this technique has not yielded encouraging results. Studies indicate that assessment centres have, at best, moderate convergent validity and low discriminant validity; in fact, the correlations between dimensions within exercises are usually higher than the correlations for each single

construct across exercises (e.g. Chan, 1996; Fleenor, 1996; Harris, Becker & Smith, 1993; Robertson et al., 1987; Russell, 1987; Sackett & Dreher, 1982; Silverman, et al., 1986; Turnage & Muchinsky, 1982). Assessment centres appear to measure a situation-specific halo as displayed within each exercise and not the set of job-relevant constructs that they are designed to assess (Sackett & Dreher, 1982).

However, the statistical approaches adopted in these studies, rather than the assessment centres, may have been flawed. Indeed, researchers have acknowledged a number of methodological shortcomings associated with this statistical approach (e.g. Bagozzi, Yi & Phillips, 1991, Kenny & Kashy, 1992; Kleinmann & Köller 1997; Marsh, 1988, 1989; Schmitt & Stults, 1986; Widaman, 1985). For example, criticism has highlighted the lack of a definite criterion for evaluating the size of convergent and discriminant validity and the use of correlations that are based on observed variables to draw conclusions about underlying trait and method factors. Through the application of various analytical procedures, Bagozzi et al. (1991) demonstrated that the MTMM correlational analysis can result in both Type I and Type II errors. Therefore, although MTMM correlation matrices provide a useful preliminary inspection of construct validity, they should not provide the sole approach to such analysis (Marsh & Grayson, 1995).

Exploratory Factor Analysis

Exploratory factor analysis (EFA) overcomes some of the limitations of the MTMM. EFA enables inferences to be drawn about the underlying dimensions and is less susceptible to the effects of small fluctuations in the size of the correlation coefficient (Smith, 1976). To illustrate good construct validity, assessment centre ratings should produce factors corresponding to dimensions rather than exercises. However, research has consistently found exercise rather than dimension factors (e.g. Chan, 1996; Fleenor, 1996; Fletcher & Dulewicz, 1984; Robertson et al., 1987; Sackett & Dreher, 1982; Silverman, et al., 1986), although Fletcher and Dulewicz (1984) found evidence for both method effects and performance dimensions. Nevertheless, the exploratory analysis is inconsistent with Campbell and Fiske's conceptualisation of construct validity since "the researcher is not interested in discovering underlying factor structure, but rather in confirming or disconfirming the existence of a single a priori structure across various methods of data collection"

(Schmitt & Stults, 1986 p. 6). In other words, the exploratory approach is limited to the extent that it does not allow the researcher to specify and directly test a structure where each factor comprises all the measures of one dimension.

Confirmatory Factor Analysis

Confirmatory Factor Analysis (CFA) via Structural Equation Modelling (SEM) offers a means of overcoming some of the limitations and provides a more appropriate method for evaluating construct validity (e.g. Bagozzi et al., 1991; Kenny & Kashy, 1992; Kleinmann & Köller, 1997; Marsh 1988, 1989; Marsh & Grayson, 1995; Sagie & Magnezy, 1997; Schmitt & Stults, 1986; Wildaman, 1985: See Chapter Four for information on SEM). This technique has the advantage of corresponding to Campbell and Fiske's (1959) conceptualisation of the MTMM paradigm (Kenny & Kashy, 1992; Marsh & Grayson, 1995). Unlike traditional factor analysis, SEM works within the constraints of fixed and free loadings to yield a factor structure that most closely models the observed correlation matrix of assessment centre ratings (Bycio, Alvares & Hahn, 1987). The correlations among factors can also be modelled (Kleinmann & Köller, 1997). Marsh (1988, 1989) and Widaman (1985) proposed taxonomies of CFA models which systematically varied different characteristics of trait and method effects. Based on these taxonomies Kleinmann and Köller (1997) identified 20 different models for the investigation of assessment centre construct validity which are discussed next.

Table 3.1 displays the taxonomy of models. Five different Method Structures (A to E) are shown across the columns, and four Trait Structures (1 to 4) are shown down the rows. Starting with the most complete model, 4D (As shown in Appendix 1), each measure is modelled to load onto one trait factor and one method factor and is constrained to not load onto any other factor. The correlations among method factors and trait factors are estimated, whilst the correlations between method and exercise factors are fixed at zero. Other models differ from this one in that the method factors are modelled by correlated uniquenesses (Method Structure E, see below) correlations among method factors are fixed at zero (Method Structure C), the correlations among trait factors are fixed at zero (Trait Structure 3), the method variables are modelled to form one general method factor (Method Structure B), the trait variables are modelled

Table 3.1. Taxonomy of Structural Models for MTMM Matrices

Trait Structure	Method Structure				
	A	B	C	D	E
1	1A Null Model	1B Single method factor model	1C Uncorrelated method factors model	1D Correlated method factors model	1E Correlated method uniqueness model
2	2A Single trait model	2B Single method factor / single trait model	2C Uncorrelated method factors / single trait model	2D Correlated method factors / single trait model	2E Correlated uniqueness method / single trait model
3	3A Uncorrelated trait factors model	3B Single method factor / uncorrelated trait factors model	3C Uncorrelated method factors / uncorrelated trait factors model	3D Correlated method factors / uncorrelated trait factors model	3E Correlated uniqueness method / uncorrelated trait factors model
4	4A Correlated trait factors model	4B Single method factor / correlated trait factors model	4C Uncorrelated method factors / correlated trait factors model	4D Correlated method factors / correlated trait factors model	4E Correlated uniqueness method / correlated trait factors model

Source: Adapted from Widaman (1985), Marsh (1988, 1989) and Kleinmann and Köller (1997).

to form one general trait factor (Trait Structure 2), or no method factors are modelled (Method Structure A) or no trait factors are proposed (Trait Structure 1). In the null model all variables are hypothesised to be independent. Models 2A and 1B are actually equivalent, as it is generally not possible to determine whether the single factor reflects trait variance, method variance, or some combination of trait and method variance (Marsh, 1988, 1989; Widaman, 1985).

To expand on Method Structure E, this models method effects via correlated uniquenesses which represent the correlations between pairs of uniquenesses / errors measured with the same method after removing trait effects (Marsh & Bailey, 1991). The difference between Method Structure E and both Method Structures C and D is

that the latter two implicitly assume that method effects associated with a given method can be explained by a latent method factor, whereas the correlated uniqueness models do not (see Appendix 2). Therefore, the correlated uniqueness approach allows for the possibility that within one exercise, one dimension may be overestimated, and another underestimated (Kenny & Kashy, 1992). Comparison of models C and E does though require the presence of at least four traits; where there are only three traits, the number of correlated uniqueness in Structure E equals the number of factor loadings in Structure C and so the two models are equivalent (Kenny & Kashy, 1992; Kleinmann & Köller, 1997; Marsh & Grayson, 1995).

From a statistical perspective, Method Structure E has two main advantages over the other models. First, the correlated uniquenesses prevents improper and unstable solutions (e.g. unidentified models, convergence failures, parameter estimates not within the range of permissible values: Bagozzi et al., 1991; Kenny & Kashy, 1992; Kleinmann and Köller, 1997; Marsh, 1988, 1989; Marsh & Bailey, 1991; Marsh & Grayson, 1995). Second, the correlations between method factors can reflect trait effects, and so Marsh (1989) argues that correlated uniquenesses leads to more valid estimation of trait factor loadings. However, the correlated uniquenesses model does assume that the method-method covariances are zero (i.e. method factors are uncorrelated) and that the true factor loadings are equal across items in each exercise. If methods are correlated, then the average method-method covariance is added to each element of the trait-trait covariance matrix, leading to both overestimated trait variances and trait-trait covariances (Kenny & Kashy, 1992). This would artificially distort interpretations of construct validity. Nevertheless, the correlated uniqueness model is recommended by several researchers as one of the most viable approaches to MTMM analysis (Kenny & Kashy, 1992; Kleinmann & Köller, 1997).

Having defined the taxonomy of models, it is important to briefly highlight how construct validity is analysed. The best fitting model from the full taxonomy is identified and perfect construct validity is obtained when this model has uncorrelated trait factors and no method factors (Model 3A; Kleinmann & Köller, 1997). A lack of convergent validity is indicated when the best fitting model contains only uncorrelated method factors or method correlated uniquenesses (Models 1D and 1E), or by the presence of small trait factor loadings in Trait Models 3 and 4. A lack of discriminant

validity is indicated when large trait factor correlations are obtained. Method effects are indicated when the best fitting model requires method latent factors or correlated uniquenesses, (Method Structures B to E: Marsh & Grayson, 1995).

It is important to note that all the models in the taxonomy in Table 3.1 make an assumption that there is no interrelationship between the trait and method factors. This has been criticised as unrealistic. As Marsh and Grayson (1995) note “the constraint seems to be routinely applied to avoid technical estimation problems and to facilitate decomposition of variance to trait and method effects, not because of the substantive likelihood or empirical reasonableness” (p.181). Nevertheless, a number of researchers have noted the advantages of this technique over the traditional correctional approach proposed by Campbell and Fiske and so this approach is adopted in the present research (e.g. Kleinmann & Köller, 1997; Marsh & Grayson, 1995; Schmitt & Stults, 1986; Widaman, 1985).

Empirical Research Adopting a CFA Approach

Over the past decade, researchers have increasingly adopted the CFA approach to assessment centre construct validity (Bycio, et al., 1989; Donahue et al., 1997; Harris et al., 1993; Kleinmann, Kuptsch, & Köller, 1996; Kleinmann & Köller, 1997; Kudisch, Ladd & Dobbins, 1997; Sackett & Harris, 1988; Sagie & Magnezy, 1997; Schneider & Schmitt 1992). Table 3.2 provides a summary of those studies providing details of their analyses. In overview, some CFA research has confirmed the findings of studies using correlational and traditional factor analysis, indicating exercise factors as the most prominent representation of assessment centre data (Bycio, et al., 1987; Sackett & Harris, 1988; Schneider & Schmitt, 1992). Early studies found support for method-only factors (Sackett & Harris, 1988: Organisation B); or found support for method factors and only one trait factor (Sackett & Harris, 1988: Organisations A and E; Schneider & Schmitt, 1992); or found trait and method factors, but the trait factors explained small amounts of variance (lack of convergent validity) and were highly correlated (lack of discriminant validity: Bycio et al., 1987). The most optimistic findings from these earlier applications of CFA were observed by Sackett and Harris (1988) in Organisation D where method and trait factors explained similar amounts of variance and where the trait factors were not highly correlated ($r = .33$). Interestingly, this assessment centre involved three group discussions, suggesting that exercises may

need to be similar in order to derive substantial dimension factors (Sackett & Harris, 1988). However, more recent studies involving assessment centres with more varied exercises have also found variance being accounted for by both exercise and dimension factors (Donahue et al., 1997; Kleinmann & Köller, 1997; Kleinmann et al., 1996; Kudisch et al., 1997; Sagie & Magnezy, 1997).

A possible reason for the discrepancy is that earlier studies applying CFA to assessment centre construct validity have a number of methodological limitations relating to the number of dimensions, the sample size, and the limited number of models investigated. First, the large number of dimensions explored by Bycio et al. (1987) and Sackett and Dreher (1988: see Table 3.2) may have exceeded the cognitive capacity of assessors and thereby reduced the likelihood of accurate observation and rating of dimensions (Gaugler & Thornton, 1989). Second, the relatively small sample sizes used in some studies (Sackett & Harris, 1988: Organisations A and E; Schneider & Schmitt, 1992) may have made results more prone to sample specific effects. In MTMM analysis, the general model posits that each measured variable is defined by two latent factors which increases the likelihood of unstable solutions (Marsh & Bailey, 1991). Marsh and Grayson (1995) therefore recommend a minimum sample size of 250 for MTMM analysis using CFA. Third, these studies only analysed a small group of possible MTMM models and all reported difficulties associated with model conceptualisation (e.g. factor loadings greater than 1.0) and / or solutions that did not converge. In particular, the omission of correlated uniqueness models for exercise effects represents a shortcoming of these early applications of CFA; as previously discussed, these models nearly always result in proper solutions (Bagozzi et al., 1991; Kenny & Kashy, 1992; Kleinmann and Köller, 1997; Marsh, 1988, 1989; Marsh & Bailey, 1991; Marsh & Grayson, 1995). Hence, by exploring only a small number of possible models, earlier studies may have restricted analysis to the extent that the real proportion of variance attributable to the traits was not identified.

Table 3.2. Summary of Published Research Adopting a CFA Approach to Assessment Centre Construct Validity.

Study ^a	N	Purpose of Centre	N. Exer.	N Trait	Models Analysed ^b	Best Fitting Model	Exercise		Trait	
							Var. ^c	Mean Factor r	Var. ^c	Mean Factor r
Bycio et al. (1987)	1170	Selection (P) / Development	5	8	1A, 4D, 4D', 2D, 1D (ϵ = 5 trait factors ^d)	4D' ^d	62%	.36	16%	.91
Sackett & Harris (1988) ^e										
- Organisation A	86	Selection	6	8	1D, 2D' (ϵ = 1 specific trait factor)	2D'	62%	.19	10%	-
- Organisation B	311	Selection	4 ^f	16	1D	1D	39%	.20	-	-
- Organisation D	346	-	3	8	1D, 4D (4D = 3 trait factors)	4D	39%	.35	31%	.33
- Organisation E	51	-	7	7	1D, 2D' (ϵ = 1 specific trait factor)	2D'	62%	.35	17%	-
Schneider & Schmitt (1992)	89	Research / Development	4	3	1A, 2C and 2D, 2D' (ϵ = 2 correlated exercise content factors, 2 correlated exercise form factors)	2D'	33%	.20	23%	-
Kleinmann et al. (1996)	119	Uni. Training for job applicants	3	3	4A, 1D, 4D, 2D	Nontransparency: 2D Transparency: 4D	NA	NA	NA	NA

Table 3.2 (Continued)

Study ^a	N	Purpose of Centre	N Ex.	N Dim.	Models Analysed ^b	Best Fitting Model	Exercise		Trait	
							Var. ^c	Mean Factor \underline{r}	Var. ^c	Mean Factor \underline{r}
Donahue et al.(1997)	188	Selection (P)	4	9	All, excluding Method Structure E	Behavioural checklist: 4D	37%	.21	23%	.86
			4	9		Graphic rating scale: 4C	30%	NA	33%	.94
Kleinmann & Köller (1997)	1170	Selection (P) / Development	5	8	All	4E ^d	-	-	36%	NA
- Bycio et al. (1987) data										
- Kleinmann & Köller 's own data	70	Uni. Training for job applicants	3	3	All	4E ^d	-	-	44%	.91
Kudisch et al. (1997)	138	Diagnostic	4	7	1A, 4D', 2D, 1C, 3A (' = 6 trait dimensions)	4D'	41%	.35	25%	.10
Sagie & Magnezy (1997)	425	Selection (P)	3	5	4E, 4E', 2E (' = 2 broad performance- and interpersonal- related trait factors)	Managers: 4E'	-	-	25%	.88
			3	5		Psychologists: 4E	-	-	30%	.74

Note: ^a In chronological order; ^b As shown in Table 3.1; ^c The variance attributed to trait and method factors is calculated by averaging the squared factor loadings (Bagozzi et al., 1991) and where a number of models fitted the data, the one explaining the most dimension variance is selected for this table; ^d Bycio et al. (1987) combined three trait factors since their intercorrelations exceeded 1 when modelled separately, where the resulting five rather than eight dimensions were analysed, models are marked ' ; ^e Organisation's A-B are a reanalysis of Sackett & Dreher's (1987) data (Organisation C had a singular correlation matrix, and was therefore not analysed by Sackett & Harris, 1988). ^f Organisation B is described as having 6 exercises, but all analyses in both Sackett & Dreher (1987) and Sackett and Harris (1988) are conducted on 4 exercises. Exer. = Exercise; Var. = Variance; \underline{r} = correlation; (P) = Promotion; (R)= Recruitment; NA = Not Available; Uni. = University.

In recognition of these limitations, more recent studies have used more adequate sample sizes (Sagie & Magnezy, 1997); have attempted to reduce the cognitive demands on assessors either by using a smaller number of dimensions (Kleinmann & Köller, 1997; Kleinmann et al., 1997) or by improving rating techniques (Donahue et al., 1997), and have explored a wider range of CFA models, including correlated uniqueness models (Kleinmann & Köller, 1997; Sagie & Magnezy, 1997). For example, Kleinmann and Köller (1997) re-analysed Bycio et al.'s (1987) data (N = 1170) of an assessment centre containing eight constructs and five exercises. Kleinmann and Köller (1997) computed all 20 models displayed in Table 3.1. In Bycio et al.'s (1987) initial analysis of the data, three trait factors were combined since their intercorrelations exceeded 1 when modelled separately. Therefore, where multiple trait factors were involved, Kleinmann and Köller computed models with both five dimension factors (marked ') and eight dimension factors. Five models provided good fit to the data (2E, 4E, 4E', 2D and 4D') and the amount of explanatory variance in dimension effects was greater than indicated in Bycio et al.'s analysis which had found at best, 16% of the variance accounted for by trait factors. In Kleinmann and Köller's (1997) analysis, the average variance of dimensions explained was 36% in Models 4E and 4E' and 35% in Model 2E. They note "Bycio et al. probably underestimated the dimension effects, ... due to their technique of modelling correlated method factors" (p.73). Kleinmann and Köller (1997) argue that Method Structure E provides a more accurate calculation of convergent validity because it prevents dimension variance being erroneously captured in method correlations. Nevertheless, model 2E contained one dimension factor and fitted the data as well as the models with five and eight dimension factors (Model 4E). To this extent, the results concur with previous studies indicating a lack of discriminant validity (Kleinmann & Köller, 1997).

With the aim of investigating an assessment centre with a small number of highly observable dimensions, Kleinmann and Köller (1997) analysed their own data (N = 70) involving an assessment centre with three dimensions and three exercises. The assessment centre was offered as a university training course for job applicants and the measurement of a small number of highly observable dimensions was specifically chosen to reduce the cognitive demands placed on assessors (Gaugler &

Thornton, 1989). Analysis was again conducted using the full taxonomy of CFA models displayed in 3.1. Three models with well-defined solutions were found to display an adequate fit to the data: Models 2D, 2E and 4E with the average amount of variance explained by dimension factors at 29%, 38% and 44% respectively. A limitation in terms of discriminant validity was therefore again indicated by the amount of explanatory dimension variance for models with one dimension factor (Models 2D and 2E) and by high intercorrelations among the dimension factors in Model 4E. Nevertheless, the results do provide more promising estimates of assessment centre construct validity than have been found in the past. As Kleinmann and Köller (1997) note, "...the results could be interpreted as indicating substantial dimension influences on the behavior rating variance" (pp. 79-80). The findings from both the re-analysis of Bycio et al's (1987) data and Kleinmann and Köller's own data illustrate that modelling exercise effects by correlated uniquenesses rather than via latent factors may lead to more valid estimations of assessment centre construct validity.

A number of criticisms can however, be levelled at the data collected by Kleinmann & Köller (1997). First, the small sample size ($N = 70$) would have increased the likelihood of identification problems and improper solutions (e.g. Bollen, 1989; Boomsma, 1985; Hayduk, 1987). A second limitation concerns the use of psychology students or qualified psychologists as assessors. Research has illustrated that assessment by psychologists can yield higher construct validity (Sagie & Magnezy, 1997) and so the result from Kleinmann and Köller's (1997) data may not generalise to assessment centres involving line managers. Third, the results may not generalise to the context of selection, since the nature of candidates' motivation (e.g. in terms of impression management) may have been affected by the training context and by participants being required to pay to take part in the assessment centre. To date, there has been no identified published research which has addressed all these limitations.

Summary

In summary, recent analysis adopting a CFA approach has indicated a more optimistic outlook for the construct validity of assessment centres. Whilst exercise effects are still observed, the variance attributed to dimensions appears to be greater

than originally identified by MTMM matrices and by traditional factor analysis. Nevertheless, the research adopting a CFA approach to date has involved a number of limitations. It is therefore important for research to be conducted on an assessment centre which shows best practice in terms of design. In other words, the assessment centre should involve a large sample size, a small number of dimensions, line manager assessors and participants who are real applicants for employment. The results must then be analysed via the assessment of the full taxonomy of models to identify the best fitting model(s). The present research fulfilled all these criteria and hence provides a more robust analysis of assessment centre construct validity.

The Simultaneous Examination of Construct and Predictive Validity.

Two fairly robust findings in the assessment centre literature lie in juxtaposition. Research has generally demonstrated good criterion-related validity but a lack of construct validity. In terms of criterion-related validity, both independent and meta-analytic studies have found assessment centres to be predictive of a number of criterion measures (e.g. Hunter & Hunter, 1984; Gaugler et al., 1987; Schmitt, et al., 1984; Turnage & Muchinsky, 1984). On the other hand, as reported above, in general, the assessment centre literature has reported limited evidence for construct validity, with at best both method and dimension effects observed (Donahue et al., 1997; Kleinmann & Köller, 1997; Kleinmann et al., 1996; Kudisch et al., 1997; Sagie & Magnezy, 1997). In the following section, discussion focuses on potential reasons for the discrepancy between the two types of validity and argues for the need to simultaneously examine assessment centre construct and predictive validity.

Various reasons have been proposed to account for the discrepancy between predictive and criterion-related validity, and two will be highlighted here: the 'performance consistency' explanation (Klimoski & Brickner, 1987) and by more inferior centres being used in construct validity research. The performance consistency explanation asserts that assessors evaluate candidates' task performance on the exercises rather than making evaluations about dimensions. Indeed, properly designed situational exercises purposely place the applicants in varying job-related contexts which might result in high predictive validity, but not necessarily convergent validity. Some support for the performance consistency explanation has

been provided (e.g. Jones, Herriot, Long, & Drakeley, 1991; Russell & Domm, 1995) and has lead some researchers to suggest job-related tasks as the organising concepts for the design and implementation of assessment centres (e.g. Gatewood, Thornton, & Hennesey, 1990; Lowry, 1995; 1997; Joyce, et al., 1994; Payne & Anderson, 1992; Robertson et al., 1987; Sackett & Dreher, 1982).

An alternative explanation is however plausible. Russell (1994; cited in Chan, 1996) notes that most research examining construct validity has not simultaneously examined criterion-related validity. Therefore, studies reporting low construct validity may also have had low criterion-related predictive validity, whilst those studies reporting high predictive validity may in fact have had high construct validity (Chan, 1996). Indeed variations in assessment centre design make this explanation possible; research has indicated that different assessment centre methodologies can have an impact on construct and predictive validity (e.g. Gaugler et al., 1987; Silverman, et al., 1986). On the other hand, if the same assessment centre demonstrates good predictive validity and low construct validity, then this would imply a need for further research to determine which constructs underlying the assessment centre explain the high predictive validity (Russell & Domm, 1995). Research is therefore required which provides insight into whether the discrepancy between predictive and construct validity studies is real, or an artefact of the different samples employed.

A second important reason for the simultaneous analysis of predictive and construct validity is that if the assessment centre design is changed in an effort to improve construct validity, it is vital that predictive validity is also monitored to ensure that this is not negatively affected (Kleinmann, 1993; Lievens, 1998; Silverman et al., 1986). For example, research has shown that making the relevant dimensions more transparent to candidates improves assessment centre discriminant validity, but in addition that candidates' subjective hypotheses about the relevant dimensions influences assessors' ratings of the dimension (Kleinmann, 1993; Kleinmann et al., 1993). This raises the question over whether assessment centre predictive validity is also influenced by increasing dimension transparency (Kleinmann & Köller, 1997; Kleinmann et al., 1996). If predictive validity is found to decrease as a result of manipulations to improve construct validity, then there

would be a trade off between optimum predictive validity and construct validity (Kleinmann et al., 1996). The importance attached to these two types of validity may depend on the purpose of the assessment centre. As Bycio et al. (1987) note, construct validity is perhaps more important in development centres where the focus is on feedback to participants at the dimension level, whilst predictive validity may be more paramount when using assessment centres for selection purposes where the priority is to make valid recruitment decisions. Hence, in the context of selection, any improvement in construct validity at the expense of predictive validity may not be a worthwhile trade-off. Therefore, as changes are made to the design and implementation of assessment centres, it is important to establish the impact on both predictive and construct validity.

Chan (1996) conducted a study which simultaneously explored assessment centre predictive and construct validity. The participants were police officers from the Singapore Police Force and the assessment centre comprised fourteen dimensions and six exercises. Construct validity was analysed via MTMM matrix and traditional factor analysis. As with previous studies adopting these techniques, the results indicated low construct validity, for example, low correlations were observed for the same dimensions across exercises and the exploratory factor analysis extracted six exercise factors. The evidence for predictive validity was strong, with a correlation of .56 between the Overall Assessment Rating (OAR) and subsequent promotion two years after the assessment centre. Therefore within this single sample, the findings of high predictive validity and low construct validity were confirmed. Chan (1996) concludes "...high criterion-related validity implies that there must be construct validity in assessment centres but we have not yet identified the constructs" (p.177). In other words, the precise nature of the constructs that assessors accurately tap into remains unclear. However, there are a number of limitations associated with Chan's (1996) study. First, the sample size is extremely small for factor analysis ($N = 46$) and second, the approach adopted to the analysis of construct validity may have failed to accurately capture true dimension variance (Kleinmann & Köller, 1997). Further research is needed based on larger sample sizes and with the more robust assessment of construct validity via CFA.

To further enhance understanding regarding the discrepancy between predictive and construct validity, it is also necessary to analyse criterion-related validity at the dimension and exercise level. Robertson et al. (1987) criticise meta-analytic and local predictive validation studies in their treatment of the assessment centre as a single predictor of future managerial performance. Since exercise ratings have higher reliability than dimensions ratings (e.g. Sackett & Harris, 1988), it may be predicted that exercise scores will provide greater predictive validity. Research has found significant criterion-related validity at the exercise level (Borman, 1982) and has found greater predictive validity for overall assessment centre scores than for dimension ratings (McEvoy, Beatty & Bernardin, 1987; Turnage & Muchinsky, 1984). Moreover, Fleenor (1996) conducted a study on a development centre and found weak evidence for construct validity and weak criterion-related validity at the dimension level. However, there are a number of limitations in this study: First, construct validity was not analysed in a conceptually or statistically adequate manner; second, given the finding of higher predictive validity for criterion ratings of potential rather than performance (e.g. Gaugler et al., 1987), Fleenor (1996) may have found greater dimension level predictive validity if potential on the dimensions had been assessed; and third, the dimension ratings were reached by assessor consensus, rather than statistical computation which may have influenced the validity of dimension ratings (Feltham, 1989; Fleenor, 1996). Hence, research is required which simultaneously examines assessment centre construct validity and predictive validity at the exercise and dimension level, where dimension scores are statistically derived and where the criteria are based on potential ratings.

Summary and Hypotheses

Recent research adopting CFA approaches indicates that the models analysed by earlier studies may have failed to identify the real proportion of variance attributable to the dimensions (Kleinmann & Köller, 1997). However, this more optimistic research has a number of methodological limitations: researchers have either failed to examine the fit of all possible models, or has been characterised by small sample sizes, or has required the assessment of numerous dimensions per exercise which may have placed unreasonable cognitive demands on the assessors. Furthermore, the research that has adopted adequate analysis of assessment centre

construct validity has not simultaneously explored predictive validity. The examination of dimension and exercise level criterion-related validity is also required to gain further understanding of the discrepancy between construct and criterion-related validity. The present research aimed to address these issues leading to the following hypotheses:

Hypothesis 18: *Adopting CFA, assessment centre variance will be explained by both exercise and dimension factors.*

Hypothesis 19: *The assessment centre will display good predictive validity in terms of the overall assessment rating, the exercise ratings and the dimension ratings.*

Table 3.3. Overview of the Hypotheses

Hypothesis 1	There will be significant differences between the Dutch and British applicants in the mean level of response to the procedural justice rules, but not to the distributive justice rule equity.
Hypothesis 2	The relative weighting of the procedural justice rules in explaining overall evaluations of procedural fairness will differ across Dutch and British applicants.
Hypothesis 3	Successful and unsuccessful candidates' perceptions of procedural fairness rules will be significantly different post knowledge of the selection outcome, but not prior to this knowledge
Hypothesis 4	Changes over time from expectations to perceptions of procedural justice will explain perceptions of overall procedural fairness.
Hypothesis 5	Changes over time from expectations to perceptions of procedural justice will have a significant impact on rule expectations for subsequent selection methods with the same organisation.
Hypothesis 6	Changes over time from expectations to perceptions of procedural justice will have an immediate (pre-decision) impact on applicants' motivation, anxiety, self-esteem, organisational attractiveness, job acceptance intentions and organisational ratings of selection performance.
Hypothesis 7	Changes over time from expectations to perceptions of procedural justice will have an intermediate (post-decision) impact on self-esteem, organisational attractiveness, and applicant actual decision-making.
Hypothesis 8	Changes over time from expectations to perceptions of procedural justice will have a long-term (post-employment) impact on self-esteem, organisational attractiveness, job satisfaction, organisational commitment, intended tenure, and organisational ratings of performance.
Hypothesis 9	Feedback will moderate the relationship between pre-decision procedural justice and post-decision self-esteem, organisational attractiveness, applicants decision-making, work performance, job satisfaction, organisational commitment, and intended tenure.
Hypothesis 10	Procedural justice will be associated with relational elements of the psychological contract and distributive justice with transactional elements.
Hypothesis 11	There will be significant differences between the Dutch and British recruits post recruitment, but these differences will decrease following organisational entry.
Hypothesis 12	Recruits' perceptions of the psychological contract will change across time. For employer obligations the changes will represent an increase, for employee obligations the change will represent a decrease.

Table 3.3. (Continued)

Hypothesis 13	Changes in recruits' perceptions of the psychological contract will represent greater congruence with the views of organisational representatives.
Hypothesis 14	Socialisation knowledge, recruit-manager relationships and psychological contract violations will influence psychological contract adjustment.
Hypothesis 15	Changes in perceptions of the psychological contract will have an impact on organisational commitment, job satisfaction, organisational attractiveness, intended tenure and the organisation's rating of job performance.
Hypothesis 16	Perceptions of procedural justice, motivation, anxiety, self-efficacy, equity and feedback measured at selection will moderate selection validity.
Hypothesis 17	Post-organisational entry perceptions of socialisation knowledge, manager-recruit relationships and psychological contract violations will moderate selection validity.
Hypothesis 18	Adopting CFA, assessment centre variance will be explained by both exercise and dimension factors.
Hypothesis 19	The assessment centre will display good predictive validity in terms of the overall assessment rating, the exercise ratings and the dimension ratings.

Chapter Four

Methodology

Overview

This chapter provides an overview of the research and technical methodology employed and is divided into four sections. The present research was conducted at Shell International and the first section provides details regarding their recruitment, selection and socialisation procedures. The second and third sections of this chapter describe the two studies conducted. In Study A applicants responded retrospectively to their selection experiences and in Study B a longitudinal design was adopted in order to track applicants through the selection and socialisation process. In the fourth and final section of this chapter, a technical overview is provided of several of the more complex statistical methodologies employed. In particular, this section focuses on the strategies used to deal with attrition over time, and the approach adopted to analyse cross-cultural data and temporal change.

Research Methodology

Recruitment, Selection and Socialisation in Shell International

Introduction

The host organisation was Shell International, a multinational oil company, which is jointly headquartered in the UK and The Netherlands. The research was conducted in association with the recruitment departments at both sites. These departments are responsible for the selection of high potential graduates and the monitoring of graduates' early careers in Shell. Details regarding the recruitment, selection and socialisation process are provided below.

Graduate Recruitment

Recruitment events provide students with the opportunity to gain insight into Shell and to meet existing Shell staff. Four recruitment activities will be highlighted: interactive presentations, premium placements, business courses and travel bursaries. Interactive presentations are open to all students and take place at various university locations throughout Europe. A member of the recruitment department provides the presentation, and is supported by recent graduate recruits in their early careers with Shell. The remaining three recruitment events (premium placements, business courses and travel bursaries) are offered to students who successfully complete an interview and proposal exercise (see below for a definition of the proposal). First, premium placements are work placements available to students during the summer holiday preceding their final year of study and typically last for three months. Second, business courses take place during the Christmas vacation of students' final year and last for three days. Students work in business teams and have to work to prepare and present business plans for dealing with a fictitious business scenario. Finally, travel bursaries comprising £300 or equivalent, are available to students in the vacation preceding their final year at university.

Graduate Selection

Shell aims to recruit approximately 250 graduates per annum for international service and potentially, for the future management of the Shell Group. The graduates apply to various functions including exploration and production, chemicals, finance, and human resources. The process for all graduates involves three selection phases:

an application form; a semi-structured interview and finally an assessment centre. Shell receives approximately 20,000 application forms, conducts approximately 2,000 first round interviews and holds assessment centres for approximately 700 applicants. The selection of graduates for each business area within Shell is managed by a recruiter working on behalf of the recruitment department. This individual is typically from the same business area and completes approximately three years with the recruitment department. The following section reviews the criteria used to evaluate applicants and provides more detail regarding the selection procedures.

Criteria: Until 1995, Shell used ten criteria for both the selection of recruits and the appraisal of existing staff. These were developed by an external consultant through research. In 1995, during an organisational transformation process, the Committee of Managing Directors decided that changes to these criteria were necessary as part of an attempt to simplify systems throughout Shell. Various approaches to job analysis were adopted in order to re-evaluate the qualities needed to reach the senior management positions in the Shell Group. In one study, 30 Shell employees, (aged 30 - 41) were asked to complete aptitude tests, a personality test and an interview which included critical incident and repertory grid techniques. The responses from individuals with different levels of current estimated potential (in terms of the highest job level that the individual was estimated to reach during their career at Shell) were compared. As a result of the research, the ten criteria were reduced to three: capacity, achievement and relationships. Capacity examines analytical skills, creativity and the ability to identify implications and linkages; achievement evaluates drive, motivation and the ability to set and deliver challenging targets; relationships examines persuasiveness, effective communication and the ability to work with others regardless of status or background.

At all stages of the selection process, applicants are evaluated against these three criteria. For the interview and assessment centre ratings of an individual's potential are made according to the 'Job Group Scale'. This indicates the highest job level the applicant is expected to ultimately achieve if they joined Shell and equates to an 11-point scale with higher ratings indicating a more positive evaluation. Ratings of 1-2 indicate potential for junior management, ratings of 3-6 indicate potential for middle management, ratings of 7-9 indicate potential for senior

management and ratings of 10-11 indicate potential for directorships. At the interview and assessment centre, the overall rating of potential is calculated with the following weighting: 50% capacity, 25% achievement, and 25% relationships. This weighting was based on a content analysis of the data generated from the job analysis research discussed above which indicated that capacity was a more important criterion of success than achievement or relationships.

Application Form: The application form requests background information on academic and non-academic achievements and experiences. Five open-ended competency-based questions are also used to provide more detailed information regarding the criteria. These are screened by staff from the recruitment department or consultants (typically ex-Shell employees) who have received a full day of training on the Shell screening method. The three criteria are evaluated on a ten point rating scale with higher ratings representing more positive evaluations. The total application form score represents the sum of the three criteria, yielding a total possible score of thirty. Applicants scoring above 17 are typically invited to a first round interview with the outcome communicated to all applicants via letter.

Interview: First round semi-structured interviews are conducted by one interviewer at either Shell central offices or at university locations. Interviewers are managers from the function for which the applicant is applying or, where such employees are unavailable, by ex-Shell employees working as consultants. All interviewers attend a two-day training course where the first day covers the theoretical aspects of selection (e.g. assessment biases, diversity, questioning skills) and introduces the interview structure. On the second day, interviewers practice on 'guinea-pig' students and receive feedback from experienced interviewers. The interview itself is structured into four sections: first, applicants are asked about their achievements and experience of working with others; second, they are asked to provide an example of when they have initiated change; third, they are asked to analyse a topic (selected by the interviewer) in increasing breadth; fourth, they are provided with an opportunity to ask their own questions. The interview lasts for approximately 50 minutes. For the interview, applicants need to score above 7 on the Job Group Scale, described above, in order to be invited to the next round. All

applicants receive a letter regarding the outcome approximately one week after their interview. If applicants request feedback then this is provided over the telephone.

Assessment Centre: The evening prior to the assessment centre, applicants are invited to a hotel where they receive a presentation from the recruiter responsible for the process and subsequently have dinner with two recent Shell graduate recruits. The assessors are not involved at this stage and the evening interactions are not evaluated.

The assessment centre itself commences the following morning and lasts for one day. The assessors are senior managers from the function for which the applicants are applying, but again consultants are called upon when necessary. Assessors also attend a two-day training course comparable to the interviewer course, comprising both theory and practice elements. Each assessment centre typically involves eight applicants and four assessors who work in pairs. Three exercises are used: a proposal, an in-tray, and a semi-structured interview. In the *proposal*, the candidate is given a list of five complex general problems (e.g. how to improve the image of the oil industry, how to combat global warming) and is asked to analyse one of them and develop an action plan for dealing with it. The applicant is given thirty to forty minutes to prepare, and then presents a five minute proposal to one pair of assessors. The assessors ask a series of questions to generate additional evidence on the three criteria. In the *in-tray*, the applicant is typically asked to imagine that they have a particular job within a fictitious company and are presented with a series of documents describing some critical issues facing the company. The candidate is given one and a half hours (two hours when English is not their first language) and is requested to make a comprehensive analysis of the situation and to consider how they would deal with some of the issues. The applicant provides a five minute informal presentation on the situation to the second pair of assessors. The assessors then ask a series of questions to generate evidence on the three criteria. Finally, the *semi-structured interview* is conducted by two assessors, one of whom would have seen the candidate at the proposal and the other at the in-tray. The interview follows the same format as the first round interview, but last for approximately thirty minutes.

For each exercise, the two assessors make independent ratings of the applicant's potential according to the three criteria on the 11-point Job Group Scale

described above. The overall assessment centre score is computed mathematically, with the fifty percent weighting for capacity. Applicants typically need to score above 7 in order to receive an offer of employment. During the decision-making session at the end of the day, the assessors discuss each applicant, justify their ratings by reporting the evidence observed, and make final outcome decisions. This session is chaired by a recruiter and typically lasts between one and two hours. Applicants subsequently receive verbal feedback regarding the outcome decision and their performance the following day via telephone. The feedback sessions typically last for fifteen minutes.

Graduate Socialisation

Graduate recruits typically commence work in their home or base country. The new recruits fall into two groups, recruits from the technical function Exploration and Production (EP), and recruits from all other functions, with distinct socialisation programmes for each. On their first day, non-EP recruits meet a human resources manager to discuss various employment issues such as the appraisal system and sickness leave. The newcomer then joins their own department, where individual arrangements are made for introducing the recruit to the team and their job role. EP graduates are socialised collectively, and typically attend an 8 week training course which provides background information on Shell and some technical skills development. This course is conducted at a training centre in The Netherlands. Some technical recruits are also required to attend further training courses focused on developing specific technical competencies.

The recruit's line manager is not directly informed of the selection ratings. Managers are however typically aware of the cut-off scores and would therefore have some insight into the recruits' predicted potential.

Research Methodology

Study A: Retrospective Study of Applicants' Perceptions of Selection

Study A Overview

Study A was conducted to examine applicants' retrospective reactions to Shell International's recruitment process. There were two main themes for this study: First, to examine the impact of the outcome decision on applicants' perceptions of distributive and procedural justice, and second, for successful applicants only, to examine perceptions regarding the psychological contract.

Procedure

394 graduates who had attended an assessment centre between September 1995 and July 1996 were identified from the recruitment department's database. The applicants formed three groups: those who had been successful and accepted the offer (but who had not yet joined Shell); those who had been successful, but turned down the offer; and those who had been unsuccessful. All applicants were mailed a questionnaire to elicit their retrospective reactions to the selection procedure. Candidates who did not reply to the first correspondence were mailed a reminder four weeks later.

Respondents

235 applicants responded to the questionnaire. The sample consisted of 89 successful applicants who had accepted offers (95% response rate), 26 who had turned down offers (79% response rate), 119 unsuccessful candidates (46% response rate). For the total number of respondents, 74% were male and 26% female. 48% were British, 26% Dutch, 20% from other European countries and 6% from countries outside Europe. The mean age was 25.56 (standard deviation 2.73; range 22 to 36). This age range for graduates is higher than typically found in British studies due to educational differences across Europe, with Dutch students in particular completing their university education at a later age than British students. 95% of the sample were of white European origin; 4% Asian, and 1% from a different origin. The applicants had completed an average of 1 year full time work experience (standard deviation 1.81; range 0 to 8 years). In terms of previous contact with Shell, 62% had

attended a Shell presentation, 24% had been on a summer placement, 21% on a business course, and 19% had been awarded a travel bursary.

In terms of the representativeness of this sample, data were available from the recruitment department's database for gender and ethnic origin. Females represented 25% of the applicants throughout the selection process and so the respondents to Study A were representative in this regard. The lower percentage of female applicants generally reflects the predominance of Shell jobs being in the engineering field for which there are less female students. In terms of ethnicity, it should be noted that international variation in the legality of recording such information meant that the recruitment department's database contained considerable missing data for this variable. From the available data, 80% of assessment centre applicants were non-European in origin, indicating that Study A was under-represented in terms of other ethnicities. Further, the sample was slightly over-represented by British applicants. Although exact figures were not available for nationality, the organisation aims to have the selection process reflective of one third each of British, Dutch and other. The higher proportion of British respondents to Study A may have been partly caused by the research being based at a British University.

Quantitative Measures

The selection procedures typically take place in English and the international language of the company is English. The questionnaire was therefore distributed to all participants in English, regardless of their nationality. Items from the scales described below can be found in Appendix 3.

Background Information: Demographic variables included gender, date of birth, ethnic group, amount of previous full time work experience, and previous contact with Shell.

Procedural Justice and Equity Rules: The Selection Fairness Survey (SFS) developed by Gilliland and Honig (1994a) to measure the procedural and distributive justice rules was used. Gilliland and Honig (1994b) generated items from the existing organisational justice and selection literatures (Bies & Shapiro, 1988; Folger & Konovsky, 1989; Kluger & Rothstein, 1991; Konovsky & Cropanzano, 1991; Lounsbury et al., 1989; Schmitt & Coyle, 1976) and from Gilliland's (1995) research involving critical incident interviews conducted with 31 recent job seekers. 81 items

were generated representing ten procedural justice rules (job relatedness, opportunity to perform, consistency of administration, feedback, selection process information, honesty in treatment, interpersonal effectiveness, two-way communication, question propriety and ease of faking) and three distributive justice rules (equity, needs and equality). Four judges randomly assigned the items to procedural and distributive rule categories and items were included in the survey only if three of the judges agreed on the categorisation. As a result of this process, the distributive justice equality rule was eliminated since items were not reliably assigned to this category. The final version therefore represented 10 procedural justice rules and 2 distributive justice rules comprising 56 items. These items were randomly ordered and rated on a five-point scale from 'strongly disagree' to 'strongly agree'.

The survey was completed by 333 recent graduates (Gilliland & Honig, 1994a). From an examination of corrected item-scale correlations and correlations of items with other scales, 36 procedural justice items were retained representing one distributive justice rule: equity, and ten procedural justice rules: job relatedness, opportunity to perform, feedback, selection information, honesty, interpersonal treatment, two-way communication, question propriety, consistency bias (i.e. biases or special treatment during selection) and ease of faking. The consistency of administration rule was not supported, whilst the consistency bias represented an additional rule. In terms of distributive justice, the needs rule was eliminated since it demonstrated unsatisfactory internal consistency ($\alpha = .30$). Nomological validity for the ten procedural justice dimensions and the one distributive justice dimension was provided by a secondary sample comprising 270 undergraduates who completed both the SFS and the Test Attitudes Survey (TAS: Arvey, Strickland, Draudenm & Martin, 1990). Results supported the relative independence of these measures.

From an unpublished factor structure of the original 56 item survey, Gilliland (personal communication, 20th March, 1996) identified a seven factor solution comprising 33 items which explained 59.9 per cent of the variance (See Appendix 4). These factors were defined as: (i) *Informativeness*: a combination of feedback, honesty, two-way communication and selection information items, (ii) *Adequacy*: a combination of the job relevance and opportunity to perform rules (iii) *Appropriateness*: a combination of the question propriety items, one job relevance

item and one interpersonal treatment item, (iv) *Interpersonal Communication*: a combination of interpersonal treatment and two-way communication items, (v) *Feedback Timeliness*, two feedback items (vi) *Selection Information*: three selection information items and (vii) *Bias Suppression*: three bias suppression items. Although the factors did not correspond exactly to the expected sub-scales, these factors represent interpretable dimensions of selection fairness. The reliabilities for these scales ranged from $\alpha = .60$ for bias suppression to $\alpha = .88$ for informativeness. In an effort to improve the synergy across this area, the SFS was used in the present research. Items were included in Study A if they correlated $r = .33$ or stronger with their own scale, and / or if they loaded above .40 on one of Gilliland's seven factors. This resulted in a 47 item survey with a five-point rating scale from (1 = 'strongly disagree', 5 = 'strongly agree'). Items were ordered according to Gilliland's initial survey.

Psychological Contract: The psychological contract measure was only included in questionnaires administered to successful applicants. The dimensions were taken from Rousseau's (1990) measure of both employee and employer obligations. Rousseau (1990) conducted interviews with human resource managers from 13 engineering, accounting and manufacturing firms to identify both the commitments firms sought from recruits during selection and the promises made to new hires. As a result, seven employer obligations (e.g. high pay, career development) and eight employee obligations (e.g. loyalty and volunteering to do non-required tasks on the job) were identified as the most commonly generated during the recruitment process. The dimensions have been used in several studies (Robinson, Kraatz and Rousseau 1994; Robinson & Morrison, 1995; Robinson & Rousseau, 1994; Rousseau, 1990) and item relevance has been confirmed by research on other groups of MBA students (e.g. Robinson, 1996; Rousseau, 1990). Furthermore, Robinson et al. (1994) found moderate to high test-retest reliability for these dimensions ($r = .72$ to $.91$) when administering the survey to 79 MBA students on two occasions, two weeks apart. Consistent with past research, items were rated on a five-point rating scale (1 = 'not at all' to 5 = 'very highly').

Qualitative Measures

Additional Comments: Respondents were asked to note any additional comments or recommendations on the final page. A good proportion of respondents did provide comments, and these were occasionally detailed, emotional and mentioned names of Shell employees encountered. This is likely to indicate that applicants were satisfied that the research data would be treated confidentially.

Questionnaire Pilot

Questionnaire piloting was conducted with a small number of recruiters (N = 3) who provided verbal feedback on the initial questionnaire. Particular attention was paid to the relevance of constructs included and the extent to which items were comprehensible. As a result, two changes were made to the wording of items. First, the measures were developed for research across different organisations and so they make reference to “this organisation”. Since this research involved a single organisation, “Shell” was used to improve questionnaire relevance. Second, applicants were not applying for a specific “job” with Shell, but rather for international careers, and so “job” was replaced with “career”.

Research Methodology

Study B: Longitudinal Study of Applicants' Reactions to Selection and Socialisation

Study B Overview

Study B involved a longitudinal examination of applicants' perceptions of Shell International's recruitment process. Five themes were explored: (i) candidates' expectations of selection justice and their subsequent perceptions of reality, (ii) the immediate and more long-term impact of applicants' perceptions of justice, (iii) the emergence of the psychological contract at recruitment and temporal change during initial socialisation into Shell, (iv) the impact of social variables (e.g. selection justice, psychological contract violations, and acquisition of socialisation knowledge) on selection predictive validity; and finally, (v) assessment centre construct validity.

Main Study

Procedure

Data were collected via questionnaires adopting a longitudinal research design with six measurements: time 1: pre-interview; time 2: post-interview; time 3: pre-assessment centre; time 4: post-assessment centre; time 5: post-final decision; and time 6: four months post-entry into the organisation. At times 2 and 4, applicants had not been informed of the selection outcome. The rationale for selecting times 1 and 3 was based on the need to obtain ratings of graduates' expectations of justice for the interview and assessment centre prior to the applicants' experience of these methods at Shell. These time points were also required in order to obtain baseline ratings of the outcome variables being investigated. Times 2 and 4 were selected immediately following the applicants' experience of the selection process in order to capture their reactions before the outcome decision had been communicated. Time 5 was required after communication of the decision, in order to obtain applicants' ratings of distributive justice, feedback and perceptions of the psychological contract. Finally, the sixth time point, four months post-entry, was consistent with previous socialisation research (e.g. Ostroff & Kozlowski, 1992). The selection questionnaires (times 1 to 5) were administered over a one year period

from October 1996 to October 1997 and the socialisation questionnaire (time 6) was sent from March 1997 to June 1998.

Applicant Interview Questionnaires: The first pre-interview questionnaire was sent to applicants with their invitation letter from Shell. A separate cover letter accompanied the questionnaire and applicants were provided with a pre-paid envelope addressed to the researcher at Goldsmiths College. The second questionnaire was given to applicants at the end of the interview by the interviewer. This was accompanied by a cover letter requesting the immediate completion of the survey. An envelope addressed to the researcher was also provided.

Applicant Assessment Centre Questionnaires: The third and fourth questionnaires were mailed to applicants with their invite letter to the assessment centre. A cover letter and pre-paid return envelopes addressed to the researcher were provided. Applicants were requested to complete the pre-assessment questionnaire immediately and return it to the researcher. Applicants were asked to take the post-assessment centre questionnaire with them to the assessment centre and to complete it immediately after the final exercise. A reminder notice was displayed in reception.

Post-Decision Questionnaire

The fifth questionnaire was mailed to applicants who had responded to either or both times 3 and 4, one week after hearing the outcome decision. This slight delay was chosen to avoid more irrational emotional reactions which may have been elicited immediately post-feedback. Again, a cover letter and a pre-paid return envelope addressed to the researcher at Goldsmiths College was provided. A reminder letter was sent two weeks later to those that had not responded.

Recruit Socialisation Questionnaire: Recruits were mailed a sixth questionnaire four months after their start date. Again, a cover letter and return pre-paid envelope addressed to the researcher at Goldsmiths College was provided. Two weeks later, follow up reminders were sent by email.

Organisational Representatives Questionnaire: The interviewers and assessors involved in the selection process comprised the organisational representatives. Shell International provided a list of individuals involved in the selection process during the period of study. Questionnaires were mailed in October

1996 with a cover letter and pre-paid envelope addressed to the researcher at Goldsmiths College. Follow up reminders were sent by email.

Recruits' Line Manager Questionnaire: The line manager questionnaire was included in the pack sent to recruits at time six. Recruits were asked to pass on the questionnaire to their manager which also included a cover letter and pre-paid reply envelope to Goldsmiths College. Recruits also identified the name and reference code of their manager in their own questionnaire so that follow up email reminders could be sent to line managers once the recruits' questionnaire had been received.

Respondents

Table 4.1 shows the number of respondents to all the questionnaires. For the first five questionnaires which were administered during selection, good response rates and large sample sizes were obtained. The slight drop in the response rate at time 4 (67%) may have been due to applicants' fatigue at the end of a full assessment day. The increase again at time 5 to 85% may be attributed to the fact that reminder letters were sent after two weeks. In terms of the socialisation questionnaire sent four months after recruits' start date, the response rate was high (77%), but a smaller number of individuals were available for questionnaire administration. This was due to a number of reasons, including applicants being rejected from the process, successful applicants turning down offers of employment, and recruits being given deferred entry. Good response rates were obtained from both the interviewers (82%) and assessors (73%), whilst the lowest response rate was obtained from the line managers (59%). From the responses received to the reminder emails from line managers, two main reasons appeared to account for this. First, several commented that time pressures would prevent them from completing the questionnaire. Second, in an organisation where graduate recruits are not typically evaluated for two years, some individuals refused to provide ratings after four months of employment.

Table 4.1. Response Numbers and Rates to Questionnaires in Study B

Time	Questionnaires	N	N sent	Response Rate
1	Pre-Interview	841	990	85%
2	Post-Interview	781	870	90%
3	Pre-Assessment Centre	592	750	79%
4	Post-Assessment Centre	506	750	67%
5	Post-Final Decision	441	520	85%
6	Socialisation	112	146	77%
	Interviewer	49	60	82%
	Assessor	72	99	73%
	Line Manager	86	146	59%

Attrition Over Time

There was a reduction in the sample size from 841 at time 1 to 112 at time 6. This was caused in part by natural termination of questionnaire administration due to both organisational decisions to reject applicants and applicants' decisions to withdraw from the selection process. For example, of the 781 applicants participating at time 2, 70% were rejected by Shell and 3% withdrew from the selection process post-interview and so were not mailed subsequent questionnaires. Further, some successful applicants at the first round interview stage did not attend an assessment centre until after completion of this research and so only received questionnaires 1 and 2. For the 441 responding at time 5, 42% were rejected and 8% turned down offers of employment and hence were not mailed the time 6 questionnaire.

In most longitudinal research, only those respondents participating at the first time point are surveyed at subsequent time points. In this study, the total number of respondents was 1,382 with 61% present at time 1. Participants therefore entered the research at various measurement waves. For example, assessment centre applicants who had experienced their first round interview prior to the start of data collection were only mailed questionnaires from time 3 onwards. Further, due to an administration error, the interview questionnaires were not distributed by The Hague office for the first few months of the study. For both reasons therefore, applicants may have not received the first two questionnaires. Indeed, 439 respondents entered the research at time 3, pre- assessment centre. These reasons, together with the large proportion of respondents exiting from the selection process post-interview, may

explain why the respondents essentially comprised two separate samples, with 745 responding to only the interview questionnaires (time 1 and / or 2 only), and 464 responding to only the assessment centre/ post-decision questionnaires (times 3 and / or 4 and /or 5).

There were 47 response combinations for times 1 to 6 and the matched line manager questionnaire. Table 4.2 presents details relating to the most important response combinations. Good sample sizes were available for those who completed both interview questionnaires (times 1 and 2) and assessment centre questionnaires (times 3 and 4), but a moderate number completed all four questionnaires (N = 85) and a slightly smaller number completed all five selection questionnaires (N = 71). In terms of the socialisation questionnaire, a moderate number of respondents completed the questionnaires 4 to 6 (N = 87), but a small number completed all 6 questionnaires (N = 19). In terms of the pattern of responding over time with the matched line managers' questionnaires, again a more reasonable sample size was available for times 4 to 6 (N = 69) than all six applicants / recruit questionnaires (N = 15). In the next section of this chapter, discussion will address the approach adopted to this attrition over time.

Table 4.2. Response Numbers to the Critical Questionnaire Combinations

Questionnaire Combination (Times)	N
1 and 2	564
3 and 4	470
1 to 4	85
3 to 5	209
1 to 5	71
1 to 6	19
3 to 6	13
4 to 6	87
1 to 6 plus Line Managers' Questionnaire	15
3 to 6 plus Line Managers' Questionnaire	65
4 to 6 plus Line Managers' Questionnaire	69

Note. The calculations are not exclusive, of the 564 completing times 1 and 2 for example, some may also have completed additional questionnaires.

Applicants

Of the 1,382 total number of respondents, 72% were male and 28% female. The mean age was 24.61 (standard deviation 3.03; range 19 to 37). Of the total sample, 46% were British, 25% Dutch, 5% German, 5% French; 8% from other European countries and 11% from countries outside Europe. 86% were of white European origin; 9% Asian, 3% African; and 2% other. 34% were studying for Bachelors degrees (or equivalent); 41% for Masters degrees (or equivalent); 18% for PhDs and 6% for other qualifications (predominantly MBAs). The applicants had conducted an average of 1 year full time work experience (standard deviation 1.75; range 0-13 years). 55% were applying for technical careers (32% exploration and production, 12% manufacturing of oil, and 11% research) and 45% were applying for commercial careers (15% marketing, 9% finance, 6% human resources, 6% information technology, 5% contracting and procurement, and 4% other commercial functions). In terms of previous contact with Shell, at times 1 and 3 respectively, 37% and 44% had experienced a Shell interactive presentation, 6% and 13% had experienced a summer placement, 1% and 13% had experienced a business course and 3% and 11% had been awarded a travel bursary. The average delay between the first round interview and the assessment centre was 2.60 months (SD = 2.34) with a range of 0-12 months. The gap between the assessment centre and participants' start date was on average 5.14 months (SD = 2.72), with a range from 0 - 11 months.

In terms of the sample representativeness relative to the total Shell applicant population limited data were available. As with study A, the sample is representative of the percentage of female applicants, but slightly over-represented by British nationals. In terms of ethnicity, Study B is more representative, with 14% being of non-European origin, although this is still marginally below the figures indicated in the recruitment department's database of 20% of applicants being non-European.

Organisational Representatives

The interviewers and assessors were all line managers from various business areas within Shell. In return for the selection training provided, all had committed to dedicating at least 3 days per year to selecting graduates. The 49 interviewers had been Shell employees for an average of 13 years and been involved with selection for an average of 4 years. The 72 assessors had been Shell employees for an average of

19 years and been involved with selection for an average of 3 years. The longer tenure of the assessors is reflective of the fact that more senior managers adopt this role, whilst the interviewers are typically middle managers.

Recruits' Line Managers

Of the 72 managers providing biographical information, 87% were male and 13% female. In terms of age, 9% were between 26-35; 44% between 36 and 45; 41% between 45 and 55 and 6% over 55. The managers had worked with Shell for an average of 19 years (standard deviation =6.78; range 6 to 33).

Quantitative Measures

As with Study A, all questionnaires were in English and small changes were made to items so that "this organisation" was replaced with "Shell" and the word "job" was replaced with "career". In addition, since this research sought feedback on specific selection methods at times 1 to 4, where items referred to the "selection process" or to a specific method (e.g. "tests"), this was replaced with "interview" at times 1 and 2 and with "assessment centre" at times 3 and 4. At time 5, "selection process" was retained in order to elicit reaction to the whole process involving both the first round interview and the assessment centre. The items used for all scales are shown in Appendix 5.

Table 4.3 provides an overview of the time points at which each measure was taken for applicants / recruits. The questionnaires at times 1 and 3 and questionnaires at time 2 and 4 contained the same measures. Table 4.4 provides an overview of the questionnaires for organisational representatives and recruits' line managers.

Background Information: For applicants, variables included gender, date of birth, ethnic group, amount of previous full time work experience, amount of previous interview / assessment centre experience, and previous contact with Shell. Applicants were also asked to provide the interview / assessment centre date. These questions were asked at times 1 to 4 since applicants could potentially enter the research at any of these time points. At time 6, recruits were requested to provide their start date and the duration of any training courses attended. For organisational representatives', questions concerned length of employment with Shell and length of time acting as an interviewer / assessor. Line managers were asked to report their gender, age, and length of employment with Shell.

Table 4.3. Study B: Overview of Applicants/Recruits Questionnaires

Time 1 and Time 3: Pre-Interview and Pre-Assessment Centre	Time 2 and Time 4: Post-Interview and Post-Assessment Centre	Time 5: Post-Final Decision	Time 6: Four Months Post-Joining
<ul style="list-style-type: none"> • Background Information • Recruitment Experience • Motivation • Anxiety • Procedural Justice Rules • Likelihood of job acceptance • Overall Attractiveness • Self-Esteem • Other Comments 	<ul style="list-style-type: none"> • Background Information • Recruitment Experience • Motivation • Anxiety • Procedural Rules • Overall Procedural Fairness • Likelihood of job acceptance • Overall Attractiveness • Self-Esteem • Other Comments 	<ul style="list-style-type: none"> • Background Information • Feedback rule • Equity Rule • Overall Procedural Justice • Overall Distributive Justice • Overall Attractiveness • Self-Esteem • Self-Efficacy • Other comments <p><u>Successful Applicants Only</u></p> <ul style="list-style-type: none"> • Psychological Contract • Intended Tenure • Actual decision-making 	<ul style="list-style-type: none"> • Background Information • Socialisation Knowledge • Psychological Contract • Psychological Contract Violation • Organisational Commitment • Job Satisfaction • Intended Tenure • Manager Contact & Relationship Quality • Self-Esteem • Self-Efficacy • Other Comments

Table 4.4. Study B: Overview of Organisational Representatives and Recruits' Line Manager Questionnaires

Organisational Representative Questionnaire	Line Manager Questionnaire
<ul style="list-style-type: none"> • Background Information • Psychological Contract 	<ul style="list-style-type: none"> • Background Information • Recruit Contact & Relationship Quality • Ratings of Potential • Rating of Performance • Psychological Contract Violations

Procedural Justice Rules: As in Study A, Gilliland and Honig's (1994a) SFS was again used. However, given the requirements to reduce questionnaire length, only those items that had loaded on Gilliland's factor analysis were included (see Appendix 4). Items were ordered according to the original survey and items were rated on a five point scale (1 = 'strongly disagree', 5 = 'strongly agree'). This survey was included at times 1 to 4. At times 1 and 3 slight changes were made to the wording of items in order that they expressed expectations of fairness. For example, the item "during the interview, I never got to prove myself" was changed to "during the interview, I will never get to prove myself".

Overall Procedural Fairness: Gilliland (1994) developed a four item measure of overall procedural fairness which has been used in previous research (e.g. Gilliland & Honig, 1994b; Ployhart & Ryan, 1997; Thorsteinson & Ryan, 1997). This scale has been shown to have adequate internal homogeneity both before and after communication of the outcome decision ($\alpha = .91$ and $.93$ respectively: Thorsteinson & Ryan, 1997). However, this scale contains items that are very similarly worded which raised concern over this factor representing bloated specifics (Boyle, 1991). For example, the following items were considered too semantically similar: "whether or not I got a job, I feel the selection process is fair" and "whether or not I got a job, the procedures used to select people for this job are fair". Hence, a two item scale was developed ("whether or not I got accepted, I feel the selection process was fair" and "overall, I am satisfied with the selection process"). This was measured at times 2, 4 and 5 with items rated on a five-point scale (1 = 'strongly disagree', 5 = 'strongly agree').

Selection Motivation: Arvey, et al., (1990) developed a 45 item Test Attitudes Survey (TAS) reflecting nine sub-scales of motivational and attitudinal dispositions of test takers. This survey included a ten-item scale of test-taking motivation which demonstrated good internal consistency ($\alpha = .85$). During test development, Arvey et al. (1990) provided some construct validation as the motivation scale was found to be sensitive to different versions of employment tests. Consistent with verbal reports elicited from recruits' during test piloting, 535 Army recruits reported higher motivation for a computer-administered test than a pencil-and paper test. Past selection research has used the TAS (e.g. Barbera, Ryan, Desmarais, & Dryer, 1995; Chan, Schmitt, DeShon, Clause & Delbridge, 1997; Schmitt & Ryan, 1992) with some researchers adapting the survey to generate shorter four item versions of the motivation scale with acceptable reliability ($\alpha = .89$: Barbera, et al., 1995). A shortened four item version was also used in the present research since several items were felt to be too closely related raising concern over bloated specifics (e.g. "I tried my best on this test" and "I tried to do the very best I could do on this test") and given constraints on questionnaire length. The motivation scale was measured at times 1 to 4 with slight changes made to the wording of items at times 1 and 3. For example, "I tried to do the very best I could at the interview" became "I will try to do the very best I can at the interview". Items were rated on a five-point scale: 1 = 'strongly disagree', 5 = 'strongly agree'.

Selection Anxiety: Arvey et al.'s (1990) TAS survey also included a ten item scale of comparative anxiety with good reliability ($\alpha = .80$). Test development provided some construct validation for this scale in terms of its sensitivity to test difficulty: students completing a difficult cognitive reasoning test reported higher test anxiety than students taking a relatively easy one. Past selection research has used shortened versions of the original ten items and found acceptable reliability (e.g. $\alpha = .75$: Barbera et al., 1995). Further, some items from the scale were not relevant to this context, particularly since some candidates were likely to be experiencing assessment centres for the first time (e.g. "My scores don't usually reflect my true abilities", "I usually do pretty well on tests"). Therefore, five items relevant to the present context were selected and measured at times 1 to 4. Again, at times 1 and 3, small changes were made to the items (e.g. "I was very anxious about

having this interview” became “I am very anxious about having this interview”). Items were rated on a five-point scale from 1 = ‘strongly disagree’, 5 = ‘strongly agree’.

Self-Esteem: Self-esteem has been defined as “the evaluation which the individual makes and customarily maintains with regard to the self” (Coopersmith, 1967, pp. 4-5: cited in Ellis & Taylor, 1983). Ellis and Taylor (1983) developed a ten item scale to assess task- specific self-esteem in the job search context. In Ellis and Taylor’s (1983) longitudinal study involving two time points, the internal homogeneity was acceptable ($\alpha = .82$ and $.83$). This measure has also been adopted by Gilliland & Honig (1994b) and has demonstrated good internal consistency ($\alpha = .86$). Ellis and Taylor found this task-specific scale to be more strongly related to search motivation and satisfaction whilst Rosenberg’s (1965 cited in Ellis & Taylor, 1983) scale of global self-esteem was a stronger predictor of behaviour and outcomes involving participants’ social skills (e.g. job source usage and interview evaluations). In the present research, the association between self-esteem and applicants’ fairness reactions was the primary interest, and based on Ellis and Taylor’s’ results, the task specific scale was chosen as most relevant. Since the current research was not focused so broadly on job-search skills, but rather confidence in ability to perform successfully in selection methods, three items relevant to this purpose were taken from this scale (e.g. “I am confident of my ability to make a good impression in job interviews”). These items were measured at times 1 to 5 and rated on a seven-point scale from 1 = ‘strongly disagree’ to 7 = ‘strongly agree’).

Shell Attractiveness: Research indicates that students form a halo impression about an organisation during recruitment (Gaugler & Thornton, 1990; Thornton, 1993). Hence, a single item scale of organisational attractiveness was adapted from Wanous, Keon & Latack (1983) “How would you rate the overall attractiveness of working for Shell?” Wanous, Keon & Latack (1983) used a nine-point scale with ‘neutral’ as the mid-point and the descriptors, ‘slightly’, ‘moderately’, ‘very’ and ‘extremely’ used to discriminate between ratings either side of the mid point. In the present research, a number of respondents’ first language would not be English, and so it was felt that the distinction between these levels might not be clear. Hence, a five point scale was adopted with the following anchors: 1 = ‘extremely

unattractive', 2 = 'moderately unattractive', 3 = 'neutral', 4 = 'moderately attractive' and 5 = 'extremely attractive'. This question was measured at all time points.

Intentions to Accept an Offer of Employment: Consistent with previous research, a single item measure of intentions to accept offers of employment was adopted and measured at times 1 to 4 (e.g. Keenan, 1978; Liden & Parsons, 1986; Ployhart & Ryan, 1998). Applicants were asked to rate the statement, "If I am offered a career with Shell, I will accept the offer" along a five point scale from 1 = 'strongly disagree', 5 = 'strongly agree'.

Selection Feedback: Feedback on the applicants' performance occurred between times 4 and 5 of the current research and so could only be measured at time 5. Gilliland and Honig's (1994a) SFS included a subscale of feedback and this was therefore separated from the other procedural justice rules and used as an independent construct at time 5. In Gilliland's factor analysis of the original items, a two-item scale of feedback timeliness was obtained with acceptable internal homogeneity ($\alpha = .82$). In addition, three items relating to feedback loaded onto the informativeness factor: ("I am satisfied with how I was informed of the decision", "I was provided with informative feedback on my performance" and "I am satisfied with the amount of feedback I received during the selection process"). Hence, all five items were measured at time 5. Items were rated on a five-point scale (1 = 'strongly disagree', 5 = 'strongly agree').

Overall Distributive Fairness: Gilliland's (1994) four item measure of overall distributive fairness has been used in previous research (e.g. Gilliland & Honig, 1994b; Ployhart & Ryan, 1997; Thorsteinson & Ryan, 1997). This scale has been shown to have adequate internal homogeneity (range $\alpha = .79$ to $.91$). Gilliland (1994) demonstrated the statistical discriminability between the measures of procedural and distributive justice through factor analysis. However, this scale contains items that are very similarly worded, raising concerns over bloated specifics (e.g. "Overall, I am dissatisfied with the hiring decision" and "I am dissatisfied with the company's decision about whether or not to hire me"). An adapted two item scale was therefore used ("I feel the decision was fair" and "Overall, I am satisfied with the decision"). The outcome decision also interceded between times 4 and 5 of

the current research and so overall distributive fairness was measured at time 5 according to a five-point scale (1 = 'strongly disagree', 5 = 'strongly agree').

Equity: Decision equity could also only be measured at time 5. Gilliland and Honig's (1994a) SFS included a subscale of equity and this was also separated from the procedural justice rules and used as an independent construct at time 5. In Gilliland and Honig's (1994a) development of the survey, a four item equity scale was found with acceptable homogeneity ($\alpha = .85$). Items were rated on a five-point scale (1 = 'strongly disagree', 5 = 'strongly agree').

Self-Efficacy: Self-efficacy consists of an individual's expectation or belief that they can successfully perform a required behaviour in a certain situation. Self-efficacy was measured here in order to examine the impact of selection on self-perceptions during the initial months of employment. Jones' (1986) measure of self-efficacy has been shown to display good reliability ($\alpha = .71$). This measure was developed specifically for organisational newcomers and hence provided a suitable measure for the present study. Jones (1986) anchored the scale from 'strongly agree' to 'strongly disagree'. In the present research, the anchors were reversed in order to keep all scales in the questionnaires consistent so that higher ratings indicated agreement with the statement. The self-efficacy items were rated on a seven-point scale from (1 = 'strongly disagree', 7 = 'strongly agree') and measured at times 5 and 6.

Psychological Contract: As in Study A, recruits responded to their perceptions of seven employer obligations and eight employee obligations at times 5 and 6 according to the dimensions identified by Rousseau (1990). A five-point rating scale was used (1 = 'not at all' to 5 = 'very highly').

Psychological Contract Violation: Psychological contract violation has been measured by both a single item (e.g. Robinson et al., 1994; Robinson & Rousseau, 1994) and by a multi-item scale (e.g. Robinson, 1995; 1996; Robinson & Morrison, 1995). A decision was adopted to use a single item, since obligations can be quite diffuse and so it is difficult to identify the full array of dimensions included (Herriot, et al., 1997; McLean Parks & Kidder, 1994). Further, measuring a variety of dimensions separately, raises issues of how to aggregate responses. Individuals may be more sensitive to breaches than fulfilment and some dimensions may be more

important to specific individuals than others. Therefore, it is difficult to determine how much weight should be attributed to each dimension when computing the aggregate score (Robinson, 1996). A single item scale avoids these problems, since the individual can weigh up the relative importance of violations and satisfactions and provide an overall rating. Indeed, the literature has confirmed the reliability of single item scales for job satisfaction, where the whole is more than the sum of the parts (Scarpello & Campbell, 1983; Wanous, Reichers & Hudy, 1997; see below).

At time 6 therefore, recruits' perceptions of Shell's psychological contract violation were measured with a single item question. The question was taken from previous research (Robinson et al., 1994; Robinson & Rousseau, 1994: "How well overall has Shell fulfilled the promised obligations that they owed you"). Robinson et al. (1994) found this question showed reasonable test-retest reliability ($r = .77$) when administered to 79 MBA students on two occasions, two weeks apart. A single item regarding employee psychological contract violation was also included in the line manager questionnaire ("How well overall has this person fulfilled the promised obligations that they owed Shell?"). Although previous research on the employer obligation question has used a scale from 1 = "very well fulfilled" to 5 = "very poorly fulfilled", in the present study the scale was anchored in reverse so that a high score indicated a high degree of employer fulfilment. This ensured consistency with other scales in the questionnaire where a high value indicated a positive response to a question or agreement with a statement. The violation questions were therefore reverse scored prior to analysis so that a high response indicated employer violation.

Intended Tenure: A single item measure of intention to stay was developed based on previous selection research (e.g. Ellis & Taylor, 1983; Robinson & Rousseau, 1994). Applicants were asked "How long do you expect to remain with Shell?". Ratings were provided on a six-point rating scale: 'less than a year', '1-2 years', '3-4 years', '5- 6 years', '7-8 years' and '9 years or more'.

Socialisation Knowledge: There are three published measures of socialisation which relate to the knowledge or information that newcomers acquire (Chao, O'Leary-Kelly, Wolf, Kelin & Gardner, 1994; Ostroff & Kozlowski, 1992; Thomas & Anderson, 1998). Ostroff and Kozlowski's (1992) measure of four knowledge dimensions (task, role, social and organisational) did not differentiate the domains in

their research. Chao et al.'s (1994) measure comprised six domains (people, politics, history, performance proficiency, language, and goals and values) and has been criticised on the basis that several scales reflect multiple concepts (Bauer, Morrison, & Callister, 1998). Thomas and Anderson's (1998) 21 item socialisation knowledge inventory has been shown to reliably measure four important components of socialisation knowledge in two longitudinal studies involving newcomers entering two distinct organisations and was therefore adopted in the present study. The four domains are as follows: social knowledge which refers to the integration and camaraderie with colleagues ($\alpha = .87 - .94$); role knowledge which concerns skill mastery and comprehension of performance requirements ($\alpha = .82-.92$), interpersonal resources knowledge which measures the establishment of a network of sources of help ($\alpha = .73-.90$), and finally organisational knowledge which refers to recruits' familiarity with the wider structural and cultural aspects of the organisation ($\alpha = .78-.87$). Consistent with Thomas and Anderson (1998), a seven point rating scale was used (1 = 'not at all' and 7 = 'totally').

Job Satisfaction: An overall measure of job satisfaction was required and therefore a single-item global measure of job satisfaction was used. This was based on previous research comparing different measures of job satisfaction which has demonstrated that the whole of job satisfaction is not equivalent to the sum of its parts (Scarpello & Campbell, 1983). Scarpello and Campbell (1983) suggest that this is caused by the failure of multi-item scales to measure the full range of variables that influence job satisfaction and therefore propose that a single item global rating of satisfaction provides more inclusive measure. Furthermore, a subsequent meta-analysis of research in which single item measures were correlated with multiple item scales has also supported the utility of single item measures (Wanous, et al., 1997). Using 28 correlations from 17 studies with 7,682 individuals, Wanous et al. (1997) found an average corrected correlation of .67. Wanous et al. (1997) recommend use of single item scales when the research question requires their use or when situational constraints limit the use of scales. Given present restraint on questionnaire length, the single-item scale used by Scarpello and Campbell (1983) was chosen and measured at time 6. A five point rating scale was used where 1 = 'extremely unsatisfied' and 5 = 'extremely satisfied'.

Organisational Commitment: There are a number of measures of organisational commitment, with two of the most frequently used being those of Mowday, Porter, and Boulian (1974; Mowday, Steers & Porter, 1979) and of Meyer and Allen (1984; 1988; 1991; Allen & Meyer, 1990; Meyer, Allen & Gellatly, 1991). Past socialisation research has used various combinations of Mowday et al.'s original 15 items with alphas consistently greater than .70 (e.g. Jones, 1986: $a = .71$; Ostroff & Kozlowski, 1992; .80; Vandenberg & Self, 1993: .84-.91). Here the full scale was measured at time 6 and rated on a seven-point scale from 1 = 'strongly disagree' to 7 = 'strongly agree'.

Manager-Recruit Contact and Relationship Quality: Two single item questions were used to evaluate the manager-recruit contact and relationship quality. Both questions were asked at time 6 to the new recruit and to the line manager. The contact question asked "How much contact do you have with this person?" and was rated on a five point scale, 'more than once a day', 'once/twice a day', 'once/twice a week', 'once/twice a month' and 'less than once a month'. The quality question asked "How would you describe your working relationship?" and was also rated on a five-point scale from 1 = 'extremely negative', 5 = 'extremely positive'.

Selection Potential and Outcome: Shell's ratings of applicants at the first interview and assessment centre were obtained from the recruitment department's records. For the first round interview, ratings of potential according to the three criteria of capacity, achievement and relationships, and the overall rating of potential were recorded. For the assessment centre, each assessor's rating of the three criteria in the three exercises were recorded. In addition, the average score for the three exercises, the average score for the three criteria and the overall assessment centre score were taken from the records. For all variables, candidates were rated on the 11 point Job Group Scale where 1 indicated low potential and 11 indicated high potential. Generic behavioural anchored rating scales for four of the ratings (1, 4, 7, and 10) were used at the interview and assessment centre. Scores of 7 and above typically indicated acceptable potential levels from Shell's perspective. At the assessment centre, the independent ratings of the two assessors showed good reliabilities (range $\alpha = .83$ to .91.). For both the interview and assessment centre, the outcome decision was scored 1 = 'reject', 2 = 'accept'.

Applicant Decision-Making: For successful applicants, their actual decisions of whether or not to accept the job offer were taken from the recruitment department's database. This was scored 1 = offer declined, 2 = offer accepted.

Job Performance and Potential: Line managers also rated the potential of the recruits according to the same three criteria used in selection. Brief descriptions of the criteria were provided, consistent with those given to interviewers and assessors at selection. The reliability of these ratings was $\alpha = .88$. In addition, line managers rated the recruits' overall potential and overall performance. All potential ratings were made on the 11 point Job Group Scale with ratings close to 11 being more positive. The performance measure was also rated on an 11 point scale, but from 0% to 100%. Ratings of 0% indicated low performance, 50% indicated average performance and 100% indicated high performance.

Qualitative Measures

At times 1 to 5, applicants were asked to note any comments or recommendations they had regarding their application to Shell. At time 6 recruits' were asked to provide comments in three areas with question wording taken from previous research: They were asked to comment on their ratings of psychological contract violations (Robinson & Rousseau, 1994), to recall significant events that had helped or hindered their transition into Shell (Mabey, 1983), and to provide recommendations on how to improve the integration of graduates into Shell (Mabey, 1983). As with Study A, the openness of these comments indicated that applicants were apparently satisfied that the research data would be treated confidentially.

Pilot Study

During August 1996, the selection questionnaires were piloted with British and Dutch applicants. The aims were three-fold: first, to check the ease of questionnaire administration to candidates, second, to receive feedback from applicants, and third, to run some analyses on the psychometric properties of scales employed. Applicants were mailed questionnaires at five time points: (i) pre-interview, (ii) post-interview, (iii) pre-assessment centre, (iv) post-assessment centre, and (v) post-assessment centre decision. Participants were told that the research was a pilot study for a large research project that would commence in October 1996. Written feedback on the content of the questionnaires was requested. The pilot

sample consisted of 119 candidates with 60 candidates completing at least two questionnaires: 34 pre-interview; 19 post-interview; 61 pre-assessment centre, 58 post-assessment centre and 16 post-assessment centre decision.

A small number of recruiters ($N = 3$) and applicants ($N = 10$) provided verbal feedback on the questionnaires. In these sessions, particular attention was paid to the relevance of constructs included, the questionnaire length and the extent to which the words were comprehensible to applicants whose first language was not English.

The results suggested that the system of administration was adequate, but the length of the questionnaires was criticised. Statistical analyses of scales suggested that a measure of organisational climate (Lawler, Hall & Oldman, 1973) was not acceptable. The five factors structure did not replicate in Confirmatory Factor analysis and hence this measure was removed from all time points in the main study. The biographical questions were added to all questionnaires since it became apparent that not all respondents would return the first questionnaire. Several other measures that were included in the pilot questionnaire, but which are not reported here, were also either removed, or measured at fewer time points. Overall these changes resulted in a reduction in questionnaire length.

Statistical Methodology

Introduction

The second section of this chapter provides a technical overview of several statistical approaches employed in the present research. The first part will explore applicants non-responding over time for study B and the approach taken to deal with attrition. Second, the implications of smaller data sets for multivariate analyses are discussed. Third, a number of analyses utilised structural equation modelling and so a brief review is provided of this technique with particular attention to the evaluation of model fit. Fourth, appropriate strategies for the analysis of cross-cultural data are outlined since the present research included a European sample with the majority of applicants of British and Dutch nationalities. Finally, a longitudinal design was employed to examine changes in applicants' perceptions of selection over time and hence a technical review of the technique used to investigate temporal change is provided.

Respondent Attrition for Study B

In longitudinal research, there is a risk that respondent attrition will reflect non-random responding. As discussed in the previous section, there were a number of reasons why questionnaire administration was terminated which were not caused by individual non-response. In particular, applicant and organisational decision-making resulting in applicants' exiting from the selection process provided a major contribution to the attrition over time. Nevertheless, there is also evidence that some individual non-response occurred since some applicants chose not to respond to the first survey sent, but then participated at subsequent time points. For example 76 applicants entered the research at time 2, and 24 entered at time 4, and both these groups would have received the previous questionnaire at times 1 and 3 respectively. However, since individual non-response represented a small percentage of respondent attrition, it was deemed that this would not unduly impact the results. Furthermore, given the overall complexity of respondent attrition in this study and given that there were 47 combinations of responding across time, analyses into non-random responding would be of questionable validity and utility.

Nevertheless, the small number of respondents available across all time points limits the analyses that can be conducted for the full sample. In order to

preserve adequate sample sizes, the hypotheses were generally tested on the interview and assessment centre questionnaires separately. When examining the hypotheses which proposed that selection would have an impact on socialisation, adequate sample sizes were only available to assess the impact of perceptions regarding the assessment centre (see Table 4.2). More detailed discussion of the approaches adopted is provided in the results chapters.

Implications of Smaller Datasets for Multivariate Analysis

In Study B, the small number of respondents to the time 6 questionnaire ($N = 112$) and the manager questionnaire ($N = 86$) affected the type of analyses that could be conducted on this data. The number of respondents is insufficient for structural equation modelling, since sample sizes above 200 are typically required for small to medium size models (Boomsma, 1983). The sample sizes at these time points also pose limitations for conducting regression analysis. Tabachnick and Fidell (1996) recommend Green's (1991) formulae of $N \geq 50 + 8m$ (where m is the number of independent variables) for testing multiple correlation, and $N \geq 104 + m$ for testing individual predictors. Since the regression analyses using these respondents are generally exploratory the analyses were conducted providing the number of respondents available met the first criterion. Caution is though required when interpreting the results for individual predictors.

Structural Equation Modelling

SEM involves the estimation of unknown parameters (e.g. factor loadings or regression coefficients) based on observed covariance matrices. A model fits the data well if the parameter estimates produce an estimated covariance matrix that approximates the sample covariance matrix (Ullman, 1996). Four groups of analyses were conducted using Structural Equation Modelling (SEM): assessment centre construct validation, confirmatory factor analysis, cross cultural comparisons, and the analysis of longitudinal data. The rationale for using this approach for the analysis of assessment centre construct validity was discussed in Chapter Four. In essence, SEM provides an analysis strategy that more closely approximates the original description of the multitrait-multimethod (MTMM) approach as described by Campbell and Fiske (1959) and therefore more accurately captures the true proportion of variance attributable to method and trait factors. For confirmatory

factor analysis, SEM offers several advantages including the estimation and removal of measurement error when examining the relationships among factors (Ullman, 1996) and the ability to test specific factor structures based on fixed loadings of zero (Cudeck & O'Dell, 1994). Finally, for both cross-cultural and longitudinal data, SEM provides a strategy for establishing the equivalence of measures taken from different cultures, or at different time points. The importance of establishing this equivalence is further discussed below.

The SEM analyses were all computed via AMOS version 3.61 (Arbuckle, 1995). It is suggested that SEM requires sample sizes of at least 200 (Marsh, Balla & McDonald, 1988) and that the ratio of sample size to free parameters should be greater than 5:1 (Bentler & Chou, 1987). In the present research, the analyses were based on the covariance matrix which preserves the scaling information on the model variables (Cudeck, 1989). The matrices were kept to four decimal points to ensure that analyses took full advantage of the precision offered by SEM (Hoyle & Panter, 1995). Model fit is assessed against criteria of chi-square tests and fit indices. A number of fit indices have been developed, but there is little consensus in the SEM literature regarding which are the best fit indices to report (Hoyle & Panter, 1995; Hu & Bentler, 1995; Marsh, Balla & Hau, 1996). The indices used in the present research and the reasons for their inclusion are discussed below.

Assessing Model Fit

For the present research, four types of indices are reported: absolute, incremental, relative and parsimony. Absolute indices give an estimate of the degree to which the covariances implied in the model match the observed covariance matrix for the manifest variables of the model; incremental indices examine the proportionate improvement in fit compared with the preceding model; relative indices make a comparison of each model to the null model which assumes non-significant relations between observed variables; and finally parsimony indices take into account the degree of succinctness in the model. Table 4.5 defines the indices used in the present research.

The absolute indices reported here are chi-square and normed chi-square. Chi-square is reported since it is the only index for which the sampling distribution is known (Hoyle & Panter, 1995). Values of chi-square approaching zero indicate

perfect fit and larger numbers indicate increasing lack of fit and hence chi-square should be non-significant. However, caution is required when interpreting chi-square: for large samples above 250, this statistic may lead to inappropriate rejection of a model with good fit (e.g. Bentler & Bonnet, 1980; Bollen, 1989; Hayduk, 1987, Medsker, Williams & Holahan, 1994). The normed chi-square provides an indication of the parsimony of the model by assessing the chi-square to degrees of freedom ratio. The acceptable value is debated (Medesker, Willilams, & Holahan, 1994). A variety of values have been proposed ranging from <2.00 (Byrne, 1989), <3.00 (Carmines & McIver, 1981) to $<.5.00$ (Wheaton, Muthen, Alwin, & Summers, 1977). Given the moderate sample sizes and the exploratory nature of most analyses, it is argued that a figure below five is acceptable in the present research.

Table 4.5. Indices of Overall Model Fit Used in Analyses Involving Structural Equation Modelling

Index	Description
<u>Absolute Indices</u>	
Chi-Square (χ^2)	Statistical test of the lack of fit resulting from overidentifying restrictions placed on the model
Normed Chi-Square (χ^2/df)	Ratio of chi-square to the degrees of freedom
<u>Incremental Index</u>	
Chi-Square Difference Test ($\Delta\chi^2$)	Evaluates the proportionate improvement in fit of competing models
<u>Relative Indices</u>	
Tucker Lewis Index (TLI)	Estimates the relative improvement per degree of freedom of the target model over the null model
Comparative Fit Index (CFI)	Indicates the relative reduction in lack of fit estimated by the non-central χ^2 of a target model versus the null model
<u>Parsimony Index</u>	
Parsimonious Normed-Fit Index (PNFI)	Adjusts for loss in the degrees of freedom resulting from less restricted models

The chi-square statistic also provides a useful incremental fit index since it allows comparison between competing or 'nested' models (Hoyle & Panter, 1995; Kelloway, 1996). The chi-square difference test evaluates the proportionate

improvement in fit by calculating the difference in the respective chi-squares with the degrees of freedom equal to the difference in the models' respective degrees of freedom (Loehlin, 1987). Significant changes in chi-square indicate that the addition of model constraints significantly worsens the model's fit to the data. Nevertheless, the chi-square difference test is dependent on sample size to the extent that larger samples may lead to inappropriate rejection of the null hypothesis (Bollen, 1989).

The relative indices are used to make a comparison of each model to the null model based on no significant relations between observed variables. Two relative indices (Tucker Lewis Index and Comparative Fit Index: Bentler, 1990) are recommended by both Hoyle and Panter (1995) and Hu and Bentler (1995). The Tucker Lewis Index (TLI) is free from sample size contamination and contains a penalty function based on the number of parameters to be estimated (Tucker & Lewis, 1973; Marsh & Grayson, 1995). The Comparative Fit Index (CFI; Bentler, 1990) employs the non-central chi-square distribution and again assesses fit relative to the null model. Coefficients close to 1.0 indicate good fit, with acceptable fit being above .90 (Marsh, Balla & MacDonald, 1988; Mulaik, James, Van Alstine, Bennett, Lind & Stilwell, 1989). The problem with the relative indices is that goodness of fit indices approaching unity may be artificially obtained by freeing up more parameters in the model (James, Mulaik & Brett, 1982; Mulaik et al 1989).

The final index reported here is recommended by Mulaik et al (1989) and addresses the above limitation. The Parsimonious Normed-Fit Index (PNFI: James et al, 1982) adjusts the index for loss in the degrees of freedom resulting from less restricted models and thereby provides a more robust and comprehensive evaluation of model fit (e.g. Brannick, 1995). This adjustment reduces the index to a value close to zero, but with higher values indicating more parsimonious fit (Marsh et al 1988; Mulaik et al 1989).

There has been some debate over using the value of .90 as an overall criterion for assessing model fit (Bentler & Bonnet, 1980; Kelloway, 1996; Hoyle & Panter, 1995). With the exception of chi-square, the sampling distributions of the overall indices of fit are unknown. Hence, the value of .90 is somewhat arbitrary as there is an inadequate basis for determining whether a value just below .90 is substantially different from a value just above it. Kelloway (1996) argues that attention should be

given to the relative improvement in fit indices when comparing competing models. However, since there is no test to evaluate significant improvements in these fit indices, the .90 rule of thumb is generally endorsed (e.g. Hoyle & Panter, 1995). Given the arbitrary nature of the .90 criterion for the CFI and TLI, a lenient strategy is adopted in the present research. Consistent with other researchers, it is argued that provided one index exceeds .90, then a model may be deemed as fitting the data sufficiently well (e.g. Schaubroeck & Green, 1989).

Interpreting Inconsistent Fit Indices

It is possible to obtain inconsistent results between the chi-square statistics and the other fit indices. In particular, it is not unusual for the chi-square statistic to be significant and therefore unacceptable, whilst the other fit indices remain acceptable, which indicates that the model accounts for the data better than the significance of the chi-square would suggest (James, et al., 1982; Mulaik, 1987; Mulaik, et al., 1989). This inconsistency may be due to the data failing to meet a number of conditions necessary for the chi-square test (Mulaik et al, 1989; Ullman, 1996). Therefore, when chi-square statistics are significant, the other indices will be evaluated to determine whether the model reproduces the data adequately.

Analysis of Cross-Cultural Data

Respondents to the current research were predominantly Dutch or British and therefore, the measurement equivalence of the multi-item measures across these cultural should be investigated (e.g. Kline, 1998; Riordan & Vandenberg, 1994; Van de Vijver & Poortinga, 1991). In particular, two potential sources of non-equivalence must be eliminated before inferences can be made about cultural differences: (i) construct equivalence and (ii) calibration of true scores (Riordan & Vandenberg, 1994). In terms of the first issue, if cultural groups use different frames of reference, comparison between groups at the average level of response becomes meaningless because scores refer to different constructs for each group (Millsap & Everson, 1991; Millsap & Hartog, 1988). The second issue concerns the extent to which calibration of measurement intervals is similar across cultures. For example, if the rating 3 on a five-point Likert scale is anchored “neither agree nor disagree”, it is possible that the one group may interpret this to mean a neutral response whilst another group may interpret this to indicate some agreement with the

statement. This would lead to inappropriate interpretation of apparent mean differences between cultural groups (Riordan & Vandenberg, 1994).

Existing selection research has typically failed to establish construct equivalence prior to investigating substantive differences between cultural groups (e.g. Steiner & Gilliland, 1996). In the present study, the construct equivalence of fairness measures between Dutch and British respondents was examined prior to interpreting any mean differences between the two groups. The techniques adopted by Riordan and Vandenberg (1994) to directly test the assumptions of conceptual and true-score equivalence were applied. As a preliminary check, the biographic equivalence of the two groups is explored and the impact of any differences on responses to the variables of interest is determined. This is followed by four phases of analysis: (i) establishing the equivalence of the variance-covariance matrices across cultural groups, (ii) testing for differences in the conceptualisation of constructs, (iii) testing for equality in scaling, and (iv) testing for mean differences. A more detailed review of each phase is provided below.

Preliminary Check: Establishing Biographic Equivalence

As a first step, the two samples are compared on available demographic variables. Pairwise t-tests or two-way frequency analyses are conducted to ensure that there are no differences between the two groups which could account for any variation between the responses to measures. Analyses of variance can also be conducted on the dependent variables to examine for the main effects and interactions between demographic variables and nationality to ensure that biographic variables do not bias responses to the dependent variables.

Phase One: Equivalence of the Variance-Covariance Matrices

Phase One examines the null hypothesis that the two sample variance-covariance matrices are equal for both groups. This hypothesis is tested using the multi-group facility available in SEM. This is an omnibus test since rejection of this hypothesis indicates that some differences exist between the two groups (Schaubroek & Green, 1989; Schmitt, 1982; Riordan & Vandenberg, 1994). The only appropriate fit index at this phase is the chi-square test of significance since this analysis involves comparison of only one covariance matrix with another (Riordan & Vandenberg, 1994). If variance-covariance matrices are not equivalent, then a series

of models can be evaluated to identify the source of this non-equivalence. However, further analyses investigating the measurement equivalence should be conducted even where this preliminary analysis is non-significant since this initial omnibus test is not always dependable (Byrne, 1989; Muthén, 1988).

Phase Two: Testing for Conceptual Equivalence

This phase investigates conceptual equivalence by examining whether the factor structure is the same across cultural groups (Models 1). Evidence of different factor structures indicates that responses to the measure are made relative to different frames of reference (Riordan & Vandenberg, 1994). The conceptual equivalence of measures is established using a latent mean approach with the multi-group feature of SEM. The same factor structure is specified for each group; for unidimensional constructs, all items load onto a single factor with error terms specified for each item. For identification purposes, it is necessary to fix one factor loading to one and its corresponding intercept term to zero (Bollen, 1989). Evidence of a lack of conceptual equivalence through poor model fit indicates that further tests are not warranted because the measure represents different constructs to the different cultural groups. As Riordan and Vandenberg note, "...evidence of a lack of conceptual equivalence also makes it impossible to interpret any observed mean differences between the groups since the mean values represent responses to different underlying constructs" (p.653).

Phase Three: Testing for Equality in Scaling

Providing Phase One leads to acceptance of the null model that the constructs are equivalent across groups, then the third phase determines equality in scaling by adding additional constraints to Model 1. In Model 2 equal factor loadings are specified across the two samples. For example, the loading of an item on a latent factor for the Dutch sample is constrained to be equal to the loading of that item for the British sample. Constraining the factor loadings to be equal provides an assessment of scaling unit equality (Schaubroek & Green, 1989; Vandenberg & Self, 1993). This model is compared with the previous model and any significant loss in fit indicates inequality in factor loadings.

Phase Four: Testing for Mean Differences

If Phases Two and Three support full measurement equivalence, and the initial omnibus tests indicates non-equivalent variance-covariance matrices, then a test of mean differences between the two groups is warranted. This can be computed using SEM which is superior to SPSS since small measurement inconsistencies are controlled. Model 2 which specified unequal latent means, is compared with a third model where the latent means are constrained to be equal across the two groups. If Model 3 results in a worsening of fit, then it can be concluded that the means across cultural groups are significantly different.

Summary

In summary, the procedures outlined above provide a robust technique for examining the differences between Dutch and British applicants' reactions to selection procedures. By ensuring that the constructs are conceptually equivalent and that the rating scale is calibrated in the same manner, it is possible to attribute any observed substantive differences to true, rather than error differences between candidates from the two nations.

Analysis in Longitudinal Research

The present analyses explored change in applicants' perceptions of selection across time. This raises a methodological issue relating to the treatment of temporal change in longitudinal research. Most longitudinal studies in work and organisational psychology have assumed that changes over time, as shown by tests of statistical difference between mean levels of response to questionnaire items, reflect true change, called *alpha* change (Golembiewski, Billingsley, & Yeager, 1976; Schmitt, 1982). However, as with the cross-cultural research, the presence of alpha change can only be established if questionnaire variables display construct equivalence across time. In particular, two types of change may result in construct non-equivalence, namely *beta* and *gamma* change. Beta change refers to respondents' recalibrating the measurement scale and gamma change refers to a change in respondents' understanding of the construct itself (Golembiewski et al., 1976).

Schmitt (1982) developed a confirmatory factor analytic technique for operationalising beta and gamma change where multi-item scales are used to

measure latent variables. This procedure has subsequently been developed by other researchers and provides a stringent method for the assessment of alpha change by incorporating the effects of gamma and beta change on observed alpha change (Schaubroeck & Green, 1989; Thomas, Cunningham-Snell & Anderson, 1998; Vandenberg & Self, 1993). The overall assessment of alpha change consists of three stages (Vandenberg & Self, 1993; Thomas, Cunningham-Snell & Anderson, 1998). A preliminary phase assesses whether there is any change over time and hence whether further analysis is merited. Second, four hierarchical phases are employed, two assessing whether gamma change is present, followed by a further two assessing beta change. Last, when no significant gamma or beta changes are observed, the third phase examines whether alpha change is present. A review of these phases for assessing change across time is provided.

Step One: Equivalence of the Variance-Covariance Matrix

As with the first phase of cross-cultural comparisons, the first step involves an omnibus test of the null hypothesis that the variance-covariance matrices are equivalent across measurements. The data from different measurement periods are treated as coming from different groups to assess whether there is any change across time (Vandenberg & Self, 1993). Rejection of the null hypothesis shows that changes are present in the data, providing a rationale for further analyses investigating the sources of such differences. Again though, since this initial omnibus test is not always dependable (Byrne, 1989; Muthén, 1988), further analyses investigating gamma and beta change should be conducted even where this preliminary analysis is non-significant.

Step 2: Assessing Gamma and Beta Change

The second stage assesses a sequence of four models with increasing restrictions imposed to reflect possible sources of gamma and beta change (Schaubroeck & Green, 1989; Schmitt, 1982; Thomas, Cunningham-Snell & Anderson, 1998; Vandenberg & Self, 1993: See Appendix 6). The first two models assess gamma change: Model 1 specifies the same number of factors across measurement points. This is based on the premise that the factor structure provides an indication of the measure's conceptual domain (Schaubroeck & Green, 1989). If a three item measure of procedural justice is rated at three time points for example,

then three latent factors are modelled, with three items from the respective time point loading onto each factor. Error terms associated with each item are incorporated and the latent factors are allowed to covary across time. If the results indicate acceptable fit to the data, then it can be concluded that the dimensionality of the factor structure is consistent across time. In Model 2, the covariance paths between latent means are constrained to be equal. In effect, positing no gamma change means the relationship among latent factors across time should be equal (Schmitt, 1982). If in comparison to Model 1, there is no reduction in fit, then it can be concluded that gamma change has not occurred. On the other hand, if Model 1 indicates poor fit to the data, or if Model 2 results in a significant worsening of fit, then gamma change has occurred across time. This would indicate that the measures represent different constructs across time and so further analyses are not warranted. As Vandenberg and Self (1993) note "...it serves little purpose to examine the equality of the true-score continua...if responses are made relative to different conceptual domains" (p.559). In addition, substantive tests exploring temporal change are rendered uninterpretable since the observed values do not represent the same construct across time.

On the other hand, if the first two models provide good fit to the data, indicating no gamma change, then analysis can continue with two further models to examine potential beta change. In Model 3, the factor variances are constrained to be equal. It is suggested that beta change is present if there is a change in the variance of a construct over time (Schaubroek & Green, 1989; Schmitt, 1982 Vandenberg & Self, 1993). Providing that the additional constraint of equal factor variances does not lead to a significant worsening of fit relative to Model 2, then analysis can progress to second assessment of beta change. In Model 4, the factors loadings of each item across measurement points are constrained to be equal. The loading of an item across time points is therefore constrained to be equal (See Appendix 6). This provides an assessment of scaling unit equality across time (Schaubroek & Green, 1989; Vandenberg & Self, 1993). If there is a significant reduction in fit, this indicates the presence of beta change, rendering further longitudinal substantive comparisons meaningless. If there is no worsening of fit, then it can be concluded that gamma and beta change have not occurred and so temporal comparisons can be made. As with the cross-cultural analyses, it is argued that unless all fit indices

indicate a loss of fit in each nested model, then subsequent models should be assessed (Vandenberg & Self, 1993).

Step 3: Assessing Alpha Change

If no change is present and the initial omnibus analysis shows significant differences across time, the last stage may be conducted to investigate the presence of alpha change. In this phase, the effects of even minor gamma and beta change are included. In their assessment of alpha change, Schaubroek and Green (1989) used a procedure normally employed for comparing cohort groups across measurement time points (Joreskog & Sorbom, 1985). Vandenberg & Self (1993) however argue that this may have meant that beta change was not adequately operationalised since adapting the cohort model to a single group prevents the identification of intercept terms. Essentially this meant that Schaubroek and Green's (1989) assumed that there was no systematic bias in the regression estimates of observed variables on their operational true scores. Hence, Vandenberg & Self (1993) recommend an alternative approach for the assessment of the effects of beta and gamma change on alpha change.

Vandenberg and Self's (1993) procedure is an extension of the CFA approach. In this analysis, identification is achieved by fixing the loading of one item to one for each latent variable and the corresponding intercept to zero (Bollen, 1989; Vandenberg & Self, 1993). This sets the scale of the latent means to that of the fixed variable. Since the intercept of the same item across measurement points can be set to zero, this does not obscure the interpretation of latent means. The procedure for assessing alpha change involved comparing two models. First, a baseline model is computed by taking Model 4, the most constrained model, and allowing the means of latent variables to be freely estimated (Model 5). This is compared with Model 6, for which a further restriction is added: that the latent means across measurement points are equal. Using the chi-square significance test the two models are compared. If there is a significant worsening in fit for Model 6, then it can be assumed that one or more of the latent means are significantly different across measurements. When more than two latent means are involved, it is necessary to estimate models in which pairs of latent means are constrained to be equal and evaluate them relative to the baseline model (Vandenberg & Self, 1993).

Application in the Present Research

The use of SEM to explore the construct equivalence of cross-cultural and longitudinal data provides a robust analysis for comparisons across nationalities and time respectively. In Study B, measures of the procedural justice rules were available for predominantly British and Dutch applicants and also across four time points. For the cross-cultural analyses, if full measurement equivalence is established between the British and Dutch applicants in their perceptions of procedural justice, then further comparisons between the two nationalities are merited. For the longitudinal assessment of applicants' justice reactions, if the presence of gamma and beta change are minimal and controlled for, then any temporal differences can be attributed to alpha change. The application of these stringent statistical techniques represents a departure from existing selection research.

Chapter Five

Psychometric Properties of Multi-Item Scales

Overview

This chapter reports a series of psychometric validations of the multi-item scales used in the research. Discussion will be divided into two sections. In the first section, the statistical properties of the Selection Fairness Survey will be reported. In the second section, the remaining, more established scales taken from the existing literature for Study B will be analysed. In particular, discussion in this final section will focus on those scales which did not demonstrate the expected psychometric properties.

Selection Fairness Survey (SFS)

Overview

The first section of this chapter reports the psychometric properties of the Selection Fairness Survey (SFS: Gilliland & Honig, 1994a). Data were available from Study A post-selection and Study B at four time points during the selection process. Exploratory factor analyses were conducted and followed up with confirmatory analyses. For Study B, the sample sizes were sufficient for the use of AMOS in the confirmatory factor analyses of the SFS across time. Finally, for both studies, the means, standard deviations, inter-item correlations and inter-factor correlations are presented.

Study A: Selection Fairness Survey

Exploratory Principal Components Analysis

An exploratory principal components analysis was conducted on the 47 item SFS. Following listwise deletion, data were available for 208 cases. Since this represented 89% of the total respondents, this provided a conservative approach for handling missing data (Tabachnick & Fidell, 1996). The sample exceeded the guide provided by Comrey and Lee (1992) who suggested that sample sizes over 200 are required. The data were suitable for factor analysis as indicated by the Bartlett Sphericity test of 4517.78, $p < .0001$ and the Kaiser-Meyer-Olkin of 0.86. 20% of the residuals were significant. The skew statistics for the 47 items ranged from -1.72 to .51 which falls within the range of ± 2.00 recommended by Muthen and Kaplan (1985). The kurtosis statistics ranged from -1.19 to 4.34 with 4.3% of the coefficients exceeding the ± 2.00 range which meets Ferguson and Cox's (1993) criterion of $< 25\%$. Therefore transformations were not applied to the data.

A principal components analysis was conducted using varimax rotation (see Table 5.1) and, as recommended by Ford, MacCallum and Tait (1986), multiple criteria were used to determine an initial set of factors: Kaiser's criterion of eigenvalues greater than one, Cattell's (1966) scree test and Cronbach's internal consistency. Twelve factors met the eigenvalue criterion accounting for 64.9% of variance. Factor 12 was deleted because the factor was poorly defined with only one item loading on the factor. Factor 8, 9, and 11 were also deleted due to unacceptable

Table 5.1. Study A: Principal Components Analysis on the SFS

Item	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12
1. The type of questions asked during the selection process were directly related to a career with Shell.	-.08	.13	.66	-.12	-.02	-.27	.18	-.03	-.00	.11	.15	.13
2. I am satisfied with the amount of feedback I received during the selection process.	.27	.14	.10	.09	.15	.01	.75	.04	-.02	.05	.06	.01
3. I feel the selection process cut down on favouritism that can sometimes be a problem when people are selected for jobs.	.12	.01	.03	-.05	.04	.13	.07	.11	.08	-.00	.71	-.01
4. Given my ability and experience, I was not evaluated correctly by the selection process. (R)	.79	.23	.09	-.02	.02	-.02	.10	.01	.15	.06	.03	.06
5. I feel Shell lied about the selection process and the way they choose people for careers. (R)	.34	.14	.11	.23	.20	.19	-.02	.20	.35	.03	-.10	.36
6. Lack of interactive or two-way communication was a problem in the selection process. (R)	.34	.38	.03	-.05	.57	-.01	-.06	.07	.24	-.01	-.18	.16
7. The selection process did not capture the extent to which I am a hard worker. (R)	.55	.18	.08	.17	.13	.22	.01	.09	-.06	.02	.20	.08
8. I think some people would distort their responses during the selection process to try to make themselves look better.	.02	.15	.11	.24	-.08	-.18	.12	.71	-.11	.09	.18	.08
9. I was offered an explanation of the types of factors that affect the selection process decision.	.14	.15	.11	.51	.05	-.03	.22	-.02	-.06	.09	.15	.44
10. I was treated with warmth, sincerity and thoughtfulness during the selection process.	.08	.78	.12	.15	.15	.04	.13	-.05	.01	.04	.10	-.16
11. The selection process was directly relevant to a Shell career because it involved the same things that are required in the career.	.19	.13	.68	.13	.03	.13	.01	.05	.15	-.05	.05	.05
12. The company should have been more honest with me when telling me about the position and my chances of being accepted. (R)	.17	.19	.19	.11	.27	.53	.01	.14	-.04	.34	.03	.02
13. In a way, I was able to conduct my own interview, asking questions about my career and Shell.	.09	.28	.12	.14	.67	-.00	.03	-.08	-.02	-.02	.24	-.11
14. I received an adequate explanation of how the process would be scored.	.19	.20	.03	.76	.10	-.01	.19	-.02	-.02	-.01	-.02	.11
15. The selection process got right down to what I could and could not do.	.40	-.05	.30	.09	.18	-.17	.09	.18	.02	.05	.45	.14

Table 5.1. (Continued)

Item	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12
16. Given my past experience looking for a job, I feel I received an appropriate evaluation.	.74	.23	.13	.10	.03	-.03	.19	-.01	.03	.04	.03	.02
17. There did not appear to be any bias or discrimination on the basis of sex or anything.	.06	.45	.09	.16	-.29	.30	.03	.09	.24	-.08	.21	-.07
18. It would be easy for people to be dishonest when answering questions and make themselves look good.	.18	.14	.22	.11	.07	.15	.01	.52	.04	-.17	.04	-.29
19. The questions asked of me during the selection process were neither relevant nor important for a Shell career. (R)	.25	.07	.66	.02	.18	.26	.05	.06	.09	-.07	-.06	.27
20. I was given an adequate opportunity to demonstrate my skills and abilities.	.73	.16	.19	.11	.22	.17	.01	.04	-.07	-.09	.13	.17
21. I am satisfied with the communication that occurred during the selection process.	.27	.59	.06	.15	.33	.02	.23	-.03	-.03	.01	.16	.07
22. I was treated honestly and openly during the selection process.	.30	.60	.13	.12	.19	.20	.08	.00	.02	-.07	-.01	.31
23. During the assessment centre I feel I was treated more like a number than a human being.	.23	.56	.11	.17	.28	.10	.02	.19	.15	-.06	-.15	.21
24. The outcome of the selection process was not a good reflection of my job capacities.	.87	.03	.01	.09	.07	.05	.09	.05	.07	.07	-.01	-.02
25. I thought you could beat the selection process if you were smart and gave the answers they were looking for.	-.01	-.04	-.10	-.05	.02	.40	.00	.62	-.09	-.04	.02	.08
26. I am satisfied with how I was informed of the hiring decision.	.32	.17	.22	.15	-.01	.07	.49	.03	.01	.35	-.20	.03
27. It took a long time to hear back from Shell. (R)	-.16	-.04	.00	.08	-.02	.03	-.08	-.07	.09	.81	.01	-.02
28. The selection process was more like an interrogation - the people were cold and rigid. (R)	.23	.73	.16	.02	.14	.05	-.02	.06	.10	-.04	-.14	-.05
29. Some of the questions asked during the selection process were intrusive of my privacy.	-.08	.09	.04	.02	.15	-.01	.01	-.05	.82	.06	.17	-.00
30. It was made clear what was expected of me from the onset of the selection process.	.33	.18	.23	.37	.05	.07	.03	.02	.09	-.04	.15	.50
31. I had control over the factors that influenced my performance during the selection process.	.34	.14	.63	.03	.03	.22	-.12	-.14	.12	-.19	.43	.12

Table 5.1. (Continued)

Item	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12
32. I think that my hiring decision was affected by special treatment offered to some people. (R)	.11	.20	.10	-.01	.07	.73	.22	.16	.14	.11	.11	.08
33. I was told how the selection process scores would be used to make a decision.	.04	.07	.01	.79	-.03	.10	.20	-.08	.00	-.10	-.06	.04
34. I <u>don't</u> think that the selection process can predict whether or not I will be successful in a Shell career. (R)	.40	.08	.41	.15	.09	.24	.15	.17	.00	-.03	.10	-.23
35. I received information on the hiring decision in a timely manner.	.13	.02	-.06	-.14	.06	.08	.13	-.02	.02	.85	-.04	.04
36. Personal motives or biases appeared to influence the selection process. (R)	.21	.21	.12	.04	-.01	.50	.16	.08	.42	-.04	.25	-.07
37. People were candid and frank with me during the selection process.	.15	.58	.12	.10	.23	.23	.19	.07	-.02	.14	.02	.34
38. It was obvious how you should respond to some of the questions if you want to be accepted by Shell.	.02	.01	.03	-.23	.01	.09	-.03	.71	.24	-.06	-.04	.01
39. I was not offered sufficient opportunity to ask questions. (R)	.15	.23	.01	.04	.69	.19	.10	-.01	.11	-.00	.00	.05
40. The results of the selection process were consistent with how I view myself.	.70	.19	.12	.22	.06	-.03	.21	.05	.11	-.08	.11	-.11
41. The recruiters were straightforward and sincere about the career and what it entails.	.03	.27	.29	.13	.50	.01	.12	.06	.14	.14	.02	.10
42. I can see a connection between the selection procedures and performance in a Shell career.	.26	.16	.69	.18	.12	.11	.04	.04	-.04	-.02	.04	-.15
43. I was given a reasonable explanation for why the specific selection procedures were used to hire people.	.28	.03	.21	.61	.22	-.01	-.15	.16	.10	.11	.02	-.13
44. During the selection process, the people made the difference - they were friendly and made me feel at ease.	.22	.80	.03	.00	.14	.05	.05	.08	.15	.04	.08	.06
45. During the interview, I never got the chance to prove myself. (R)	.61	.27	.14	.03	.09	.25	-.03	-.05	.10	-.08	.08	.19
46. I was asked questions that I feel were inappropriate or discriminatory.	.29	.14	.08	-.03	.05	.13	-.02	.11	.73	.05	-.07	.04
47. I was provided with informative feedback on my performance.	.05	.09	.06	.23	.03	.20	.81	.02	.03	-.06	.07	.05
Eigenvalue	12.07	2.58	2.49	2.14	1.96	1.70	1.53	1.49	1.24	1.15	1.11	1.05
Percent of variance explained	25.7	5.5	5.3	4.5	4.2	3.6	3.3	3.2	2.6	2.5	2.4	2.2
Cronbach Alpha	.89	.86	.73	.76	.72	.76	.72	-	-	.71	-	-

Note. N = 208

reliabilities ($\alpha = .63$, $\alpha = .11$ and $\alpha = .41$ respectively). Hence, eight factors were identified accounting for 55.2 % of the variance. In creating the scales representing the eight factors, items with low primary ratings (under .32: Tabachnick & Fidell, 1996), and items with poor substantive interpretation on the factors were excluded. Items 3, 8, 18, 29, 38, and 46, were excluded because they did not load above .32 on any of the eight factors; items 17 and 21 were excluded because they did not fit substantively with Factor 2 and the reliability of the scale ($\alpha = .86$) remained unchanged with these two items removed; item 5 was removed from Factor 1 as it did not fit substantively with this factor and again the reliability of the factor was unaffected by the exclusion of this item; and finally items 25 and 12 were deleted from Factor 6 since they did not fit substantively and the deletion of these items improved the reliability of this factor from $\alpha = .67$ to $\alpha = .76$. Items that cross loaded onto more than one factor were retained at this exploratory stage of analysis and assigned to one factor according to substantive interpretation. In summary, 36 items comprising eight factors were extracted representing the following procedural fairness rules: (i) opportunity to perform and equity (items 7, 15, 20, 31, 45, 4, 16, 24, 40), (ii) interpersonal effectiveness (items 10, 22, 23, 28, 37, 44), (iii) career relatedness (items 1, 11, 19, 34, 42), (iv) informativeness (items 9, 14, 30, 33, 43), (v) two-way communication (items 6, 13, 39, 41), (vi) bias suppression (items 36, 32), (vii) adequacy of feedback (items 2, 26, 47) and (viii) feedback timeliness (items 27, 35).

Confirmatory Factor Analysis

Confirmatory Factor Analysis (CFA) was conducted using SPSS since the ratio of sample size to free parameters did not meet the 5:1 ratio recommended by Bentler and Chou (1987) for SEM analysis. A confirmatory analysis using Maximum Likelihood specifying an eight factor solution for the remaining 36 items was then conducted. The sample size to variable ratio was acceptable at 5.78:1 (Gorsuch, 1983). Following identification of the number of factors to be extracted, Tabachnick and Fidell (1996) recommend that confirmatory analysis is initially conducted using an oblique rotation to ascertain the level of correlation between factors. This facilitates the decision between the appropriateness of oblique versus orthogonal rotation. Tabachnick and Fidell (1996) suggest that if correlations exceed

.32 then oblique rotation should be considered since there is at least a 10% overlap in variance among factors. A CFA with 36 items specifying an eight factor solution with Maximum Likelihood and oblique (oblimin) rotation was therefore conducted. Examination of the factor correlation matrix indicated that seven out of the twenty-eight factor correlations exceeded .32 and therefore this confirmatory analysis with this oblique rotation was retained. The solution accounted for 62.0% of the total variance. However, items 23 and 26 cross loaded onto two factors and item 31 did not load on any factor above .32. Hence the analysis was repeated excluding these items. The final confirmatory analysis was conducted with 33 items with an eight factor solution specified. The solution accounted for 63.9% of the variance (see Table 4.2) The eight factors represent the following justice rules: (i) opportunity to perform and equity, (ii) interpersonal effectiveness, (iii) career relatedness, (iv) informativeness, (v) two-way communication, (vi) bias suppression, (vii) adequacy of feedback, and (viii) feedback timeliness. The Cronbach alpha reliabilities for all scales were adequate, ranging from $\alpha = .71$ - .89.

Table 5.3 displays the means, standard deviations and item-scale correlations for the SFS in Study A. The means for all factors fell slightly above the mid-point of the scale indicating that the selection process was generally regarded as fair. The standard deviations ranged from .66 to 1.15 and the item-scale correlations were all significant at the $p < .001$ level, ranging from .56 - .90. Table 5.4 displays the factor correlation matrix for the eight factors with listwise deletion of missing cases. The strong to moderate correlations between the first seven factors were expected given that these represent sub-factors of perceptions of procedural justice. Factor 8, feedback timeliness, was not significantly correlated with the other factors. This factor is distinct in being concerned with timing rather than procedure, and this may explain the low association with the other factors.

Summary

In summary, the SFS for Study A comprised eight factors with good internal consistency. With the exception of the feedback timeliness rule, the factors were significantly correlated.

Table 5.2. Study A: Confirmatory Factor Analysis of the SFS with Maximum Likelihood and Oblique Rotation.

Item	F1	F2	F3	F4	F5	F6	F7	F8
7.	.40	.01	.02	.09	.12	-.15	-.03	-.03
15.	.33	-.02	.29	.05	.07	-.03	-.04	-.03
20.	.60	-.02	.09	.05	.19	-.11	.01	-.11
45.	.48	.13	.03	-.02	.08	-.20	.01	-.09
4.	.76	.13	.01	-.08	.02	-.00	-.01	.07
16.	.68	.17	.06	.07	-.04	.05	-.07	.05
24.	.94	.06	-.11	.03	-.00	.00	-.02	.08
40.	.67	.07	.02	.12	-.01	.04	-.10	-.09
10.	-.06	.77	.03	.07	-.05	-.07	-.05	-.02
22.	.12	.38	.01	.08	.23	-.16	-.02	-.05
28.	.09	.65	.06	-.01	.10	.03	.05	-.06
37.	-.02	.41	.03	.09	.25	-.15	-.09	.12
44.	.09	.79	-.03	-.02	.05	-.05	.01	.01
1.	-.10	.06	.56	-.05	-.02	.11	-.05	.05
11.	.04	.02	.59	.08	.01	-.15	.05	-.04
19.	.08	-.10	.51	.01	.22	-.21	.04	-.04
34.	.26	.00	.33	.04	-.04	-.18	-.08	-.05
42.	.11	.06	.63	.07	.02	.01	-.05	-.03
9.	.04	.04	.07	.46	.06	.01	-.15	.07
14.	.02	.05	-.07	.80	.07	.07	-.06	.00
30.	.19	.06	.14	.34	.11	-.08	.01	-.06
33.	-.09	-.00	-.09	.80	-.06	.01	-.09	-.04
43.	.15	-.01	.14	.48	.03	-.06	.20	.03
6.	.18	.16	-.06	-.07	.63	.07	.10	-.00
13.	-.06	.04	.06	.11	.55	.04	-.02	-.02
39.	-.02	-.02	-.04	-.01	.69	-.05	-.07	.02
41.	-.09	.18	.20	.06	.34	-.05	-.05	.06
36.	.09	.15	.01	-.01	-.06	.58	-.04	-.03
32.	-.12	.02	-.06	-.04	.02	.98	-.08	.09
2.	.20	.04	.08	.04	.04	-.03	.57	.08
47.	-.03	-.03	.01	.09	.01	-.09	.87	-.08
27.	-.11	-.03	.05	.10	-.05	-.04	.08	.75
35.	.18	-.01	-.04	-.09	.07	-.01	-.07	.78
Eigenvalue	9.62	2.24	2.07	1.71	1.68	1.53	1.17	1.08
% of var.	29.1	6.8	6.3	5.2	5.1	4.6	3.5	3.3
α	.89	.85	.73	.76	.72	.76	.74	.71

Note. N = 208. F1: Factor 1 (Opportunity to Perform and Equity); F2: Factor 2 (Interpersonal Effectiveness); F3: Factor 3 (Career Relatedness); F4: Factor 4 (Informativeness); F5: Factor 5 (Two-Way Communication); F6: Factor 6 (Bias Suppression); F7: Factor 7 (Adequacy of Feedback); F8: Factor 8 (Feedback Timelines).

Table 5.3. Study A: Means, Standard Deviations and Item-Scale Correlations for the SFS.

Item	Mean	SD	r
Factor 1: Opportunity to perform and equity	3.27	.86	-
Factor 2: Interpersonal effectiveness	3.77	.73	-
Factor 3: Career relatedness	3.37	.66	-
Factor 4: Informativeness	3.27	.78	-
Factor 5: Two-Way communication	3.62	.74	-
Factor 6: Bias suppression	3.90	.83	-
Factor 7: Adequacy of feedback	3.30	1.04	-
Factor 8: Feedback timeliness	3.80	1.15	-
<u>Factor One: Opportunity to perform and equity</u>			
7. The selection process did not capture the extent to which I am a hard worker (R)	3.22	1.12	.67*
15. The selection process got right down to what I could and could not do	2.65	1.03	.56*
20. I was given an adequate opportunity to demonstrate my skills and abilities	3.39	1.11	.82*
45. During the interview, I never got the chance to prove myself (R).	3.73	1.01	.71*
4. Given my ability and experience, I was not evaluated correctly by the selection process.	3.41	1.22	.81*
16. Given my past experience looking for a job, I feel I received an appropriate evaluation	3.32	1.11	.78*
24. The outcome of the selection process was not a good reflection of my job capacities.	3.24	1.24	.85*
40. The results of the selection process were consistent with how I view myself.	3.31	1.21	.78*
<u>Factor Two: Interpersonal effectiveness</u>			
10. I was treated with warmth, sincerity and thoughtfulness during the selection process	3.61	.98	.81*
22. I was treated honestly and openly during the selection process.	3.92	.82	.76*
28. The selection process was more like an interrogation - the people were cold and rigid (R).	3.90	1.06	.80*
37. People were candid and frank with me during the selection process	3.79	.85	.76*
44. During the selection process, the people made the difference - they were friendly and made me feel at ease	3.52	.97	.86*
<u>Factor Three: Career relatedness</u>			
1. The type of questions asked during the selection process were directly related to a career with Shell	3.28	1.02	.58*

Table 5.3. (Continued)

Item	Mean	SD	r
11 The selection process was directly relevant to a Shell career because it involved the same things...	3.36	.96	.75*
19 The questions asked of me during the selection process were neither relevant nor important for a Shell career (R)	3.94	.82	.74*
34 I <u>don't</u> think that the selection process can predict whether or not I will be successful in a Shell career (R).	2.81	1.09	.67*
42 I can see a connection between the selection procedures and performance in a Shell career	3.46	.85	.77*
<u>Factor Four: Informativeness</u>			
9 I was offered an explanation of the types of factors that affect the selection process decision	3.57	1.12	.72*
14 I received an adequate explanation of how the selection process would be scored.	3.16	1.15	.82*
30 It was made clear what was expected of me from the onset of the selection process.	3.58	.95	.67*
33 I was told how the selection process scores would be used to make a decision.	2.78	1.17	.75*
43 I was given a reasonable explanation for why the specific selection procedures were used to hire people.	3.19	1.05	.66*
<u>Factor Five: Two-way Communication</u>			
6 Lack of interactive or two-way communication was a problem in the selection process	3.82	1.07	.77*
13 In a way, I was able to conduct my own interview, asking questions about my career and Shell	3.19	1.07	.76*
39 I was not offered sufficient opportunity to ask questions (R)	3.78	1.00	.77*
41 The recruiters were straightforward and sincere about the career and what it entails	3.65	.91	.67*
<u>Factor Six: Bias suppression</u>			
36 Personal motives or biases appeared to influence the selection process	3.82	.93	.90*
32 I think that my hiring decision was affected by special treatment offered to some people	4.00	.91	.90*
<u>Factor Seven: Adequacy of feedback</u>			
2 I am satisfied with the amount of feedback I received during the selection process	3.29	1.18	.90*
47 I was provided with informative feedback on my performance	3.38	1.13	.89*
<u>Factor Eight: Feedback timeliness</u>			
27 It took a long time to hear back from Shell	3.85	1.32	.89*
35 I received information on the hiring decision in a timely manner	3.79	1.25	.87*

Note. N = 214 * p <.001. SD = Standard Deviation; r = correlation with sub-scale.

Table 5.4. Study A: SFS Factor Correlations

Factor	F1	F2	F3	F4	F5	F6	F7	F8
F1: Opp. to Perform & Equity	-							
F2: Interpersonal Effectiveness	.50*	-						
F3: Career Relatedness	.50*	.40*	-					
F4: Informativeness	.46*	.38*	.38*	-				
F5: Two-Way Communication	.44*	.59*	.39*	.35*	-			
F6: Bias Suppression	.38*	.43*	.34*	.22+	.29*	-		
F7: Adequacy of Feedback	.37*	.33*	.32*	.37*	.25*	.33*	-	
F8: Feedback Timeliness	-.03	-.00	-.02	-.02	.05	.03	.04	-

Note. N = 214 * p < .001; + p < .01. F = Factor; Opp. = Opportunity.

Study B: Selection Fairness Survey

Exploratory Principal Components Analysis

Unfortunately, the results from Study A were not available during the questionnaire design phase of Study B. Due to demands from the organisation to reduce questionnaire length, only items that loaded onto Gilliland's factor structure were included in Study B. All items that related to the decision (e.g. distributive justice, equity and feedback) were also eliminated since the SFS was completed before communication of outcome. Due to these changes, an exploratory analysis was initially conducted to identify the underlying dimensions from the 28 item SFS at time 2. The use of time 2 data for the exploratory analysis was chosen as small changes were made to the wording of the SFS at time 1 in order to measure candidates' expectations of selection fairness. Following listwise deletion of cases, time 2 data were available for 760 cases. This represented 97% of the total respondents, and so listwise deletion was appropriate since few cases were lost (Tabachnick & Fidell, 1996). The case-to-item ratio was 27.14:1, which exceeds the 5:1 ratio recommended by Gorsuch (1983). The data were suitable for factor analysis as indicated by the Bartlett Sphericity test of 5287.31, $p < .001$; and the Kaiser-Meyer-Olkin of 0.87. The skew statistics ranged from -2.00 to .10 and the kurtosis statistics from -1.00 to 6.46 which are within the limits recommended by West, Finch and Curran (1995) and Ferguson and Cox (1993). Furthermore, Tabachnick and Fidell (1996) argue that the effects of skewness and kurtosis with large sample sizes rarely influence the analysis and so transformations were not

applied to the data. Less than 35% of the residuals were significant. Based on these criteria, the data were judged suitable for factor analysis.

A principal components analysis was conducted using varimax rotation (see Table 5.5) and, as recommended by Ford et al. (1986), multiple criteria were used to determine an initial set of factors: Kaiser's criterion of eigenvalues greater than one, Cattell's (1966) scree test and Cronbach's internal consistency. Seven factors met the eigenvalue criterion accounting for 53.6% of variance. Factor 7 was deleted because the factor was poorly defined with only one item loading on the factor. Factor 6 was also deleted because the reliability was unacceptable ($\alpha = .46$). Hence, five factors were identified accounting for 45.8% of the variance. In creating the scales representing these five factors, items with low primary ratings (under .32: Tabachnick & Fidell, 1996), and items with poor substantive interpretation were excluded. Items 6, 22 and 23 were excluded since they did not load above .32 on any of the five remaining factors. Item 1 was deleted because it did not fit substantively with Factor 1; item 5 was excluded because it did not fit substantively with Factor 3 and it reduced the reliability of Factor 3 from $\alpha = .63$ to $\alpha = .60$; and item 12 was removed from Factor 2 as it did not fit substantively with this factor. Since there were three additional time points to confirm the factor structure, items which cross loaded in this exploratory analysis were retained at this stage: Item 8 cross loaded on Factors 2 and 4, but was grouped with Factor 2 since it fitted substantively with this factor; Item 14 cross loaded onto Factors 2 and 3, but was also grouped substantively with Factor 1. The reliabilities for the five remaining factors ranged from $\alpha = .63$ to $\alpha = .78$.

To summarise therefore, from the exploratory analysis of time 2, 22 items from the SFS provided a five factor solution which can be defined as: (i) interpersonal effectiveness (items 3, 13, 14, 15, 21, 26); (ii) opportunity to perform (items 2, 8, 11, 27); (iii) bias suppression (items 9, 16, 20, 28) (iv) career relatedness (items 4, 10, 19, 24) and (v) informativeness (items 7, 17, 18, 25). In this exploratory analysis, this accounted for 45.8% of the variance.

Table 5.5. Study B: Exploratory Factor Analysis of the SFS Procedural Justice Rules at Time 2.

Description	1	2	3	4	5	6	7
1. I feel the interview cut down on favouritism that can sometimes be a problem when people are selected for jobs	.32	-.04	-.02	.15	-.13	.10	-.60
2. The interview did not capture the extent to which I am a hard worker (R)	.07	.69	.04	.17	.10	.08	.14
3. I was treated with warmth, sincerity and thoughtfulness during the interview	.75	.07	.11	.19	.01	.04	-.10
4. The interview was directly relevant to a Shell career because it involved the same things that are required in the career	.15	-.01	.08	.77	.09	.13	.01
5. Shell should have been more honest when telling me about the position and my chances of being accepted (R)	-.12	.30	.34	.02	.24	.16	-.10
6. In a way, I was able to conduct my own interview, asking questions about my career and Shell	.20	.02	-.13	.19	-.02	.56	.50
7. I received an adequate explanation of how the interview would be scored	.01	.11	-.04	-.04	.78	.19	.15
8. The interview got right down to what I could and couldn't do	.09	.36	-.12	.38	.09	-.09	.34
9. There did not appear to be any bias or discrimination on the basis of sex, ethnic group etc.	.23	-.03	.55	.05	.08	.01	-.05
10. The questions asked of me during the interview were neither relevant nor important for a Shell career (R)	-.02	.25	.32	.60	-.04	.05	.06
11. I was given an adequate opportunity to demonstrate my skills and abilities	.29	.66	.10	.17	.07	.04	-.00
12. I am satisfied with the communication that occurred during the interview	.49	.61	.09	.11	.05	.03	-.02
13. I was treated honestly and openly during the interview	.57	.28	.33	.05	.05	.10	-.08
14. During the interview I feel I was treated more like a number than a human being (R)	.44	.19	.44	.10	.04	-.03	.31
15. The interview was more like an interrogation - the people were cold and rigid (R)	.55	.17	.42	-.01	-.04	.01	.26
16. Some of the questions asked during the interview were intrusive of my privacy (R)	.16	-.01	.75	.04	-.10	-.01	.16
17. It was made clear what was expected of me from the onset of the interview	-.08	.15	.20	.12	.33	.39	-.21
18. I was told how the interview scores would be used to make a decision	.03	.08	-.10	.02	.83	.02	.11
19. I <u>don't</u> think that the interview can predict whether or not I will be successful in a Shell career (R)	.08	.44	.13	.51	.06	.08	-.10
20. Personal motives or biases appeared to influence the interview (R)	.02	.11	.57	.18	-.03	.09	-.15
21. The interviewers were candid and frank with me during the interview	.32	.07	.01	-.12	.14	.37	-.11
22. I was not offered sufficient opportunity to ask questions (R)	-.14	.17	.27	.07	-.09	.64	.03
23. The interviewers were straightforward and sincere about the career and what it entails	.24	.04	-.04	.27	.08	.62	-.06

Table 5.5. (Continued)

Description	1	2	3	4	5	6	7
24. I can see a connection between the selection procedures and performance in a Shell career	.16	.26	.01	.64	.13	.17	-.10
25. I was given a reasonable explanation for why the specific selection procedures were used to hire people	.07	.03	.10	.25	.67	-.12	-.11
26. During the interview, the people made the difference - they were friendly and made me feel at ease	.74	.19	.11	.12	.00	.07	-.06
27. During the interview, I never got the chance to prove myself (R)	.15	.73	.23	.10	.07	.18	.01
28. I was asked questions that I feel were inappropriate or discriminatory (R)	.15	.25	.61	.02	-.02	.08	-.05
Eigenvalue	6.1	2.3	1.6	1.5	1.3	1.2	1.0
Percent of variance explained	21.8	8.2	5.5	5.5	4.8	4.2	3.6
Cronbach Alpha	.74	.68	.63	.71	.66	-	-

Note. N = 760

Confirmatory Factor Analyses

A series of CFAs were run to examine different theoretically possible models including a null model, a one-factor model, Gilliland's six factor model and the five factor model extracted from the above exploratory factor analysis. These were computed using AMOS version 3.51 (Arbuckle, 1995) with Maximum Likelihood estimation. As recommended by Cudeck (1989), all analyses were based on the covariance matrix in order to preserve the scaling information on the model variables. Specifically, six separate CFAs were run on the time 2 data. First, a null model was computed (Bentler & Bonnet, 1980; Bryne, 1989; Loehlin, 1992) since it is possible that no relationship existed between the SFS items. Second, a one factor model was computed with all items loading onto a single factor. It is conceivable that the SFS simply measured a general construct of selection procedural fairness. Four further models were computed in order to compare Gilliland's six factor solution with the five factor solution generated from the exploratory analysis of this data set. The third and fourth models were computed to test Gilliland's six factor solution (involving all 28 items): in model three, a six factor uncorrelated model was tested, and in model four covariance paths were specified between the latent variables to allow for correlation between the six factors. Comparison of these models provided an opportunity to determine whether an orthogonal or oblique solution provided a more parsimonious fit for the SFS. Finally, an orthogonal and oblique five factor model were computed with 22 items loading onto each latent factor as identified in the exploratory analysis. In the fifth model, a five uncorrelated factor model was tested and in model six covariance paths were specified between these latent factors in order to test for model fit including intercorrelation between the five sub-scales. To summarise, six models were tested: (i) null model, (ii) one factor model, (iii) six factor uncorrelated model (iv) six factor correlated model (v) five factor uncorrelated model, and (vi) a five factor correlated model. In order to cope with missing data in a conservative manner, listwise deletion of values was used.

The sample size of 760 at time 2 was acceptable since the ratio of sample size to free parameters for all models exceeded the 5:1 ratio recommended by Bentler and Chou (1987). Table 5.6 shows the fit statistics for all six models at time 2 (see

Chapter Four for an overview of these statistics) and indicates that the five factor correlated model provided the most parsimonious fit. Although chi-square was significant, it had the lowest value of all models. The chi-square to degrees of freedom ratio was below the recommended value of 3 (Carmines & McIver, 1981) and the chi-square difference test indicated that this model was better than the five uncorrelated factor model. The application of the chi-square difference test to the next best model, the six correlated factor model, again indicated that the five factor correlated model provided a significant improvement in fit ($\Delta X^2 = 417.59, \Delta df = 136, p < .001$). Overlooking the other fit indices, the relative indices (TLI and CFI) were both above .9. The parsimony index for this model also represents the highest value (PNFI = .77), confirming that this model provides the best fit to the data at time 2.

Table 5.6. Study B: Confirmatory Factor Analyses for the SFS at Time 2

Model	X^2	df	X^2/df	ΔX^2	Δdf	TLI	CFI	PNFI
Null	3446.07*	378	9.12	-	-	-	-	-
One factor	1484.79*	350	4.24	1961.28*	28	.60	.63	.53
Six uncorrelated factors	1564.13*	350	4.47	-79.34	0	.57	.60	.51
Six correlated factors	719.41*	335	2.15	845.13*	15	.86	.88	.70
Five uncorrelated factors	795.66*	209	3.81	-76.25	126	.74	.76	.64
Five correlated factors	301.82*	199	1.52	193.84*	10	.95	.96	.77

Note. N = 760 * p < .001; † p < .01; † p < .05. TLI = Tucker Lewis Index; CFI = Comparative Fit Index; PNFI = Parsimonious Normed-Fit Index.

The six CFA analyses were then repeated for the three other time points (time 1, 3 and 4: see Table 5.7). The skewness and kurtosis values at these time points were also acceptable according to the criteria of West, et al. (1995) and Ferguson and Cox (1993). Again, the sample size at all time points exceeded the 5:1 ratio between sample size and free parameters recommended by Bentler and Chou (1987). Overlooking the table, it is apparent that the results again supported the parsimony of the five factor correlated model. At times 3 and 4, the chi-square was non-significant and at all three time points this model provided a better fit than the next best model, the six correlated factor model (T1: $\Delta X^2 = 236.88, \Delta df = 136, p < .001$; T3: $\Delta X^2 = 184.37, \Delta df = 136, p < .001$; T4: $\Delta X^2 = 257.62, \Delta df = 136, p < .001$). At all time points, the five factor correlated model exceeded the minimum fit criteria for all

indices and provided the best fit to the data. Therefore, this five correlated factor model representing the factors interpersonal effectiveness, opportunity to perform, bias suppression, career relatedness and informativeness was stable across time.

Table 5.7. Study B: Confirmatory Factor Analyses for the SFS at Times 1, 3 and 4

Model	X ²	df	X ² /df	ΔX ²	Δdf	TLI	CFI	PNFI
<u>Time 1^a</u>								
Null	2565.62*	378	6.79	-	-	-	-	-
One factor	968.84*	350	2.77	1596.78*	28	.69	.72	.58
Six uncorrelated factors	1284.06*	350	3.67	-585.22	0	.54	.57	.46
Six correlated factors	560.14*	335	1.67	723.92*	15	.88	.90	.69
Five uncorrelated factors	826.30*	209	3.95	-266.16	126	.64	.68	.56
Five correlated factors	323.26*	199	1.62	503.04*	10	.93	.94	.73

<u>Time 3^b</u>								
Null	1752.30*	378	4.64	-	-	-	-	-
One factor	739.73*	350	2.11	*1012.57	28	.69	.72	.54
Six uncorrelated factors	860.20*	350	2.46	-120.47	0	.60	.63	.47
Six correlated factors	402.38 [†]	335	1.20	457.82*	15	.95	.95	.68
Five uncorrelated factors	518.78*	209	2.48	-116.40	126	.72	.74	.58
Five correlated factors	218.01	199	1.10	300.77*	10	.98	.98	.73

<u>Time 4^c</u>								
Null	2451.48*	378	6.49	-	-	-	-	-
One factor	937.86*	350	2.68	1513.62*	28	.69	.72	.57
Six uncorrelated factors	1134.04*	350	3.24	-196.18	0	.59	.62	.50
Six correlated factors	457.00*	335	1.36	677.04*	15	.93	.94	.72
Five uncorrelated factors	601.69*	209	2.88	-144.69	126	.74	.77	.62
Five correlated factors	199.38	199	1.00	402.31*	10	1.00	1.00	.77

Note. ^a N = 797; ^b N = 561; ^c N = 462. * p < .001; [†] p < .01; [‡] p < .05. TLI = Tucker Lewis Index; CFI = Comparative Fit Index; PNFI = Parsimonious Normed-Fit Index.

Test of Parameter Estimates

Having identified the five correlated factor model of the SFS as the best fitting model, analysis continued with an examination of the significance of the parameter estimates of the regression weights for the remaining items in the SFS. Essentially the parameter estimates represent the loadings of items onto factors and these are predicted to be significantly different from zero. This prediction must be

tested by estimating statistically the values of these parameters and conducting tests of significance on the estimates (e.g. James, Mulaik, & Brett, 1982; Kelloway, 1996). The test statistic represents the parameter estimate divided by the standard error (e.g. Byrne, 1995). It therefore acts as a z-test to determine whether the estimate is significantly different from zero. Significant values imply that the parameters are consistent with the empirical data. Based on an alpha level of $p < .001$, the test statistic needs to be greater than 3.50. Table 5.8 displays the parameter estimates based on the Maximum Likelihood estimation of the regression weights for the five factor correlated model across all four time points. The results indicated that the parameter estimates for the regression weights for all items across all time points were indeed significant.

Scale Statistics

Using SPSS, item statistics, item-scale correlations and Cronbach alphas for the five SFS factors across all four time-points were calculated (see Table 5.9). The results demonstrated that the factor means were slightly above the mid point of the scale. This indicated that applicants had positive expectations of the interview and assessment centre process fairness (times 1 and 3) and that their perceptions of reality were also positive (times 2 and 4). Across all time points, the highest mean was for bias suppression, whilst informativeness had the lowest mean ratings at the interview and opportunity to perform received the lowest ratings at the assessment centre. The standard deviations of the factors were quite low, ranging from 0.49 to 0.73, indicating that the variance of these scales was somewhat restricted. This was perhaps an inevitable consequence of conducting research in a single organisation where the procedures experienced are generally standardised. However, this is counter-balanced by the added control over questionnaire administration and insight provided when interpreting results. The item to sub-scale correlations were all highly significant indicating that each item is consistent with other items in the scale.

Table 5.8. Study B: Parameter Estimates of the Regression Weights for the Five Factor Correlated Model Across Time

Item	Time One ^a					Time Two ^b					Time Three ^c					Time Four ^d				
	F1	F2	F3	F4	F5	F1	F2	F3	F4	F5	F1	F2	F3	F4	F5	F1	F2	F3	F4	F5
3.	1.00					1.00					1.00					1.00				
13.	0.97*					0.86*					0.91*					0.84*				
	(.14)					(.12)					(.15)					(.13)				
14.	0.94*					1.08*					1.00*					1.05*				
	(.14)					(.13)					(.16)					(.14)				
15.	1.19*					1.10*					1.16*					1.14*				
	(.15)					(.13)					(.17)					(.15)				
21	0.73*					0.46*					0.60*					0.82*				
	(.12)					(.10)					(.13)					(.13)				
26.	0.90*					1.14*					0.69*					1.08*				
	(.13)					(.13)					(.14)					(.14)				
2.		1.00					1.00					1.00					1.00			
8.		0.51*					0.59*					0.92*					1.28*			
		(.08)					(.07)					(.13)					(.16)			
11.		1.03*					0.92*					1.09*					1.35*			
		(.10)					(.08)					(.14)					(.17)			
27		0.89*					1.02*					0.66*					1.12*			
		(.09)					(.08)					(.12)					(.15)			
9.			1.00					1.00					1.00					1.00		
16.			1.06*					1.06*					1.04*					1.22*		
			(.18)					(.22)					(.17)					(.29)		

Table 5.8. (Continued)

Item	Time One ^a					Time Two ^b					Time Three ^c					Time Four ^d				
	F1	F2	F3	F4	F5	F1	F2	F3	F4	F5	F1	F2	F3	F4	F5	F1	F2	F3	F4	F5
20.			1.37*					1.34*					0.99*					1.38*		
			(.21)					(.25)					(.16)					(.32)		
28.			1.39*					1.34*					1.10*					1.30*		
			(.21)					(.25)					(.17)					(.31)		
4.				1.00					1.00					1.00					1.00	
10.				0.90*					0.92*					0.69*					0.96*	
				(.15)					(.11)					(.12)					(.14)	
19.				1.79*					1.27*					1.18*					1.25*	
				(.23)					(.13)					(.15)					(.15)	
24.				1.36*					1.12*					1.03*					1.02*	
				(.18)					(.12)					(.14)					(.14)	
7.					1.00					1.00					1.00					1.00
17.					0.58*					0.29*					0.55*					0.43*
					(.06)					(.05)					(.07)					(.05)
18.					0.73*					1.00*					0.81*					0.84*
					(.06)					(.06)					(.09)					(.05)
25.					0.51*					0.55*					0.34*					0.36*
					(.05)					(.05)					(.06)					(.05)

Note. ^a N = 797; ^b N = 760; ^c N = 561; ^d N = 462. * p < .001. F1 = Factor 1 (Interpersonal Effectiveness); F2 = Factor 2 (Opportunity to Perform); F3 = Factor 3 (Bias Suppression); F4 = Factor 4 (Career Relatedness); F5 = Factor 5 (Informativeness). Standard errors in parentheses

Given the lack of existing analyses regarding the psychometric properties of this survey, a lenient Cronbach alpha of $\geq .65$ was chosen as the criterion for acceptability, rather than the more usual .70 (Nunnally, 1978). Acceptable Cronbach alphas were obtained for the first factor of interpersonal effectiveness at all times points (from $\alpha = .71$ to $.81$), and for the factors opportunity to perform ($\alpha = .68$ and $.73$), career relatedness ($\alpha = .71$ and $.76$), and informativeness ($\alpha = .66$ and $.72$) at times 2 and 4 respectively. However, at times 2 and 4, the bias suppression factor had poor reliabilities ($\alpha = .63$ and $\alpha = .64$ respectively). In addition, the reliabilities for factors 2 to 5 at time 1 ($\alpha = .58 - \alpha = .61$) and for factor 2 at time 3 ($\alpha = .64$) were below the value taken here to indicate acceptable homogeneity. When analysing this data via SEM, attenuation due to measurement error is explicitly accounted for and so avoids the possibility of biased parameter estimates due to measurement error (Kelloway, 1996). In the subsequent chapters however, SPSS is also used for some analyses involving these scales and so caution is required when interpreting the results.

Table 5.10 displays the correlations between the five factors across all time points. Use of listwise deletion in this analysis would have dramatically reduced the sample size ($N = 72$) and so to control for missing data in a conservative manner, pairwise deletion was used (Tabachnick & Fidell, 1996). The stability coefficients, reflecting test-retest reliability, range from .21 to .65 (average: interpersonal effectiveness .35; opportunity to perform .39; bias suppression .47; career relatedness .49; and informativeness .40). These were not expected to be high since some change was anticipated pre- and post- experience of each selection procedure.

The moderate to strong significant correlations between factors within time points were expected since determinants of overall procedural fairness are inevitably interrelated (Gilliland & Honig, 1994b). The only exception to this was the weak or non-significant correlation between bias suppression and informativeness at time 1 (.11, $p < .01$) and time 2 (.04, $p = \text{NS}$) respectively. For selection procedures which are inherently social in nature, it is possible that bias suppression represents an absolute rule and informativeness represents a relative rule, depending on the degree of familiarity with the selection procedure. Since interviews are a more common

form of selection (e.g. Shackleton & Newell, 1997), applicants may not expect, or receive much information from the organisation about the procedure. Hence, expectations and perceptions of informativeness may not be highly correlated with an absolute rule, such as bias suppression. Since assessment centres are used less frequently (e.g. Shackleton & Newell, 1997), applicants may have expected and received satisfaction of both the relative informativeness rule and the absolute bias suppression rule. This may explain the significant moderate correlations between these factors at times 3 and 4.

The moderate correlations between factors across times 1 and 2 and across times 3 and 4 were expected given that applicants were likely to have some insight into how they would be treated at the interview and assessment centre from their previous selection experiences and from colleagues who may have attended the Shell selection process. The correlations of factors across time and across selection procedures remained at a similar level, although the significance levels were lower given the smaller samples sizes involved in these analyses. This association between interview and assessment centre fairness was also expected since applicants generally react positively to both these procedures (e.g. Kravitz, Stinson, & Chavez 1996; Macan, Avedon, Paese & Smith, 1994).

Table 5.9. Study B: Item Descriptives, Item correlations with Sub-scales and Cronbach Alphas of the SFS Across Time

Factor/Item	T1			T2			T3			T4		
	Mean	SD	r	Mean	SD	r	Mean	SD	r	Mean	SD	r
Interpersonal Effectiveness Factor	3.70	0.49	-	4.13	0.50	-	3.81	0.49	-	4.06	0.55	-
Opportunity to Perform Factor	3.39	0.60	-	3.40	0.68	-	3.48	0.57	-	3.35	0.66	-
Bias Suppression Factor	3.89	0.57	-	4.43	0.49	-	3.93	0.58	-	4.36	0.50	-
Career Relatedness Factor	3.59	0.60	-	3.55	0.64	-	3.71	0.59	-	3.69	0.62	-
Informativeness Factor	3.15	0.70	-	3.01	0.73	-	3.50	0.66	-	3.42	0.73	-
<u>Interpersonal Effectiveness</u> ($\alpha = .70, .74, .72, .81$)												
3. I was treated with warmth, sincerity and thoughtfulness during the interview	3.40	0.78	.69*	4.10	0.74	.72*	3.60	0.78	.73*	4.06	0.71	.76*
13. I was treated honestly and openly during the interview.	3.97	0.66	.68*	4.28	0.59	.68*	4.01	0.61	.70*	4.20	0.60	.72*
14. During the assessment centre I feel I was treated more like a number than a human being	3.83	0.81	.58*	4.25	0.80	.68*	3.96	0.83	.61*	4.18	0.84	.69*
15. The interview was more like an interrogation - the people were cold and rigid (R).	3.92	0.84	.68*	4.41	0.78	.70*	3.96	0.83	.69*	4.18	0.82	.75*
21. The interviewers were candid and frank with me during the interview	3.50	0.80	.54*	3.79	0.87	.49*	3.67	0.72	.56*	3.78	0.84	.63*
26. During the interview, the people made the difference - they were friendly and made me feel at ease.	3.56	0.77	.64*	3.92	0.79	.74*	3.67	0.71	.62*	3.95	0.76	.78*
<u>Opportunity to Perform</u> ($\alpha = .61, .68, .64, .73$)												
2. The interview did not capture the extent to which I am a hard worker (R)	3.00	1.03	.71*	3.04	1.06	.77*	3.01	0.93	.74*	2.83	0.96	.72*
8. The interview got right down to what I could and couldn't do	2.98	0.88	.57*	2.96	0.94	.63*	3.00	0.88	.69*	2.98	0.92	.75*
11. I was given an adequate opportunity to demonstrate my skills and abilities	3.61	0.86	.75*	3.75	0.87	.73*	3.81	0.75	.77*	3.62	0.84	.80*
27. During the interview, I never got the chance to prove myself (R).	3.95	0.81	.66*	3.85	0.92	.74*	4.09	0.68	.59*	3.98	0.80	.72*

Table 5.9. (Continued)

Factor/Item	T1			T2			T3			T4		
	Mean	SD	r	Mean	SD	r	Mean	SD	r	Mean	SD	r
<u>Bias Suppression</u> ($\alpha = .61, .63, .65, .64$)												
9. There did not appear to be any bias or discrimination on the basis of sex, ethnic group etc.	4.26	0.79	.64*	4.56	0.66	.65*	4.28	0.74	.68*	4.48	0.71	.66*
16. Some of the questions asked during the interview were intrusive of my privacy (R).	3.99	0.82	.66*	4.62	0.59	.68*	3.92	0.90	.72*	4.49	0.65	.70*
20. Personal motives or biases appeared to influence the interview (R).	3.19	0.97	.70*	4.02	0.89	.73*	3.34	0.92	.68*	3.90	0.87	.72*
28. I was asked questions that I feel were inappropriate or discriminatory (R).	4.12	0.78	.72*	4.51	0.68	.70*	4.20	0.74	.74*	4.58	0.65	.72*
<u>Career relatedness</u> ($\alpha = .58, .71, .67, .76$)												
4. The interview was directly relevant to a Shell career because it involved the same things that are required in the career	3.43	0.95	.65*	3.49	0.91	.74*	3.66	0.87	.73*	3.69	0.79	.76*
10. The questions asked of me during the interview were neither relevant nor important for a Shell career (R)	4.27	0.75	.60*	4.02	0.79	.69*	4.12	0.76	.66*	3.99	0.77	.73*
19. I don't think that the interview can predict whether or not I will be successful in a Shell career (R).	3.08	1.01	.71*	3.11	0.91	.74*	3.35	0.88	.74*	3.34	0.93	.77*
24. I can see a connection between the selection procedures and performance in a Shell career	3.60	0.85	.73*	3.57	0.85	.76*	3.73	0.79	.73*	3.73	0.76	.78*
<u>Informativeness</u> ($\alpha = .64, .66, .65, .72$)												
7. I received an adequate explanation of how the interview would be scored.	3.07	1.19	.79*	2.78	1.15	.80*	3.48	1.05	.78*	3.18	1.15	.83*
17. It was made clear what was expected of me from the onset of the interview.	3.64	0.87	.66*	3.82	0.89	.53*	3.82	0.80	.67*	3.80	0.82	.67*
18. I was told how the interview scores would be used to make a decision.	2.42	1.03	.70*	2.31	1.06	.79*	2.86	1.09	.76*	2.86	1.14	.80*
25. I was given a reasonable explanation for why the specific selection procedures were used to hire people.	3.48	0.94	.62*	3.13	1.02	.68*	3.82	0.81	.57*	3.83	0.83	.63*

Note. ^a N = 812; ^b N = 770; ^c N = 571; ^d N = 473. * p <.001

r = correlation with sub-scale. Cronbach alphas are in chronological order (e.g. time 1, time 2, time 3, time 4)

Table 5.10. Study B: Correlations between Fairness Sub-Scales Across Time

Factor	Time One					Time Two					Time Three					Time Four					
	F1	F2	F3	F4	F5	F1	F2	F3	F4	F5	F1	F2	F3	F4	F5	F1	F2	F3	F4	F5	
T1 F1	-																				
T1 F2	.37*	-																			
T1 F3	.42*	.29*	-																		
T1 F4	.34*	.52*	.31*	-																	
T1 F5	.20*	.30*	.11 [†]	.25*	-																
T2 F1	.28*	.19*	.27*	.17*	.02	-															
T2 F2	.20*	.40*	.19*	.25*	.12 [†]	.44*	-														
T2 F3	.25*	.17*	.42*	.25*	.10 [†]	.45*	.28*	-													
T2 F4	.22*	.33*	.21*	.47*	.15*	.37*	.51*	.30*	-												
T2 F5	.11 [†]	.20*	.03	.15*	.40*	.12*	.27*	.04	.24*	-											
T3 F1	.49*	.32*	.24 [†]	.42*	.13	.29*	.31*	.30*	.25 [†]	.15	-										
T3 F2	.35*	.48*	.36*	.45*	.10	.33*	.40*	.32*	.37*	.13	.30*	-									
T3 F3	.39*	.38*	.65*	.32*	.26*	.26	.26 [†]	.43*	.24 [†]	.22 [†]	.39*	.33*	-								
T3 F4	.37*	.44*	.42*	.57*	.14	.24 [†]	.20 [†]	.38*	.48*	.16	.30*	.56*	.31*	-							
T3 F5	.17 [†]	.04	.12	.10	.35*	.00	.06	.19 [†]	.15	.34*	.27*	.23*	.19*	.22*	-						
T4 F1	.30*	.18	.24 [†]	.24 [†]	.19 [†]	.32 [†]	.32*	.32 [†]	.38*	.26 [†]	.40*	.26*	.25*	.21*	.16*	-					
T4 F2	.30*	.24 [†]	.15	.19 [†]	.02	.17	.34*	.23 [†]	.20	.21 [†]	.26*	.49*	.19*	.34*	.24*	.47*	-				
T4 F3	.12	.27 [†]	.38*	.16	.11	.24 [†]	.28 [†]	.44*	.19	.13	.25*	.23*	.47*	.19*	.15 [†]	.49*	.34*	-			
T4 F4	.17	.28 [†]	.19	.36*	.06	.17	.24 [†]	.19	.48*	.10	.22*	.44*	.18*	.57*	.20*	.47*	.58*	.34*	-		
T4 F5	.31*	.21 [†]	.15	.26 [†]	.35*	.08	.25 [†]	.07	.24 [†]	.48*	.25*	.26*	.20*	.27*	.48*	.40*	.40*	.21*	.38*	-	

Note. $N = 95 - 834$. * $p < .001$; [†] $p < .01$; [‡] $p < .05$. T = Time; F1 = Factor 1 (interpersonal effectiveness); F2 = Factor 2 (opportunity to perform); F3 = Factor 3 (bias suppression); F4 = Factor 4 (career relatedness); F5 = Factor 5 (informativeness).

Summary of SFS Psychometric Properties in Both Studies

The results of both studies provide insight into the underlying factor structure of the SFS, with Study B indicating this to be consistent across four time points. It was expected that the psychometric analysis would show the measure to have a factor structure consistent with the three components of procedural justice identified in the organisational justice literature (Greenberg, 1993). Indeed, the procedural factors represented rules regarding the formal characteristics of the selection process (e.g. career relatedness and opportunity to perform), rules relating to the information offered during the selection process (e.g. feedback on performance and selection process information), and rules regarding interpersonal treatment (e.g. interpersonal effectiveness, two-way communication and bias suppression). The results from Study A provided good reliabilites for all scales whilst in Study B the Cronbach alphas were generally acceptable, except for some factors measured at time 1 and the bias suppression factor measured across all time points. The procedural justice factors were all generally correlated both within and across time and were rated above the midpoint of the scale. The rules included in the survey items in Study A that were not supported were ease of faking and honesty in treatment and in Study B, the two-way communication and honesty in treatment rules were included, but not supported. Generally however, the results from both studies provided support to the survey representing various factors of procedural justice.

Analyses of the Other Multi-Item Scales

Overview

The remaining constructs used in Study B were taken from the selection and socialisation literatures and provide the focus of the second section of this chapter. Each multi-item scale was analysed to ensure it met three criteria. First, descriptives were examined to verify that data were normally distributed. Second, Confirmatory Factor Analysis (CFA) was conducted to establish whether the data supported the anticipated factor solution. Third, Cronbach alphas were examined to verify that the scale had an internal consistency above $\alpha = .70$ (Nunnally, 1978). When the reliability fell below this value, items were deleted if they demonstrated low (i.e. $<.40$) inter-item and corrected item-scale correlations. Listwise deletion represents the most stringent method for dealing with missing data, and since it did not dramatically reduce the sample size, it was adopted in each of these analyses (Tabachnick & Fidell, 1996). Discussion will focus on scales which did not demonstrate the expected psychometric properties.

Descriptive Statistics

The descriptive statistics for the remaining items comprising the scales from Study B are provided in Appendix 7. The inter-correlations of scales across times 1 and 2 and across times 3 to 6 are provided in Appendices 8 and 9 respectively. At times 1-5, the CFAs were computed using AMOS version 3.51 (Arbuckle, 1995) with Maximum Likelihood estimation based on the covariance matrix (Cudeck, 1989). Given the smaller sample size ($N = 110$) at time 6, analyses were computed using SPSS. As shown in Table 5.10, the single factor structure for overall procedural fairness, overall distributive fairness, and equity was confirmed and Cronbach alphas indicated acceptable levels of internal homogeneity at all relevant time points. Discussion will therefore focus on the remaining scales which did not display the anticipated psychometric properties.

Table 5.11. Study B: Scale Composition, Means, Standard Deviations and Cronbach Alphas

Scale	Code	Items	Time One			Time Two			Time Three			Time Four			Time Five			Time Six		
			Mean	SD	α	Mean	SD	α	Mean	SD	α	Mean	SD	α	Mean	SD	α	Mean	SD	α
Motivation	M	1-3	4.72	0.42	.75	4.54	0.50	.80	4.64	.43	.74	4.48	0.52	.79	-	-	-	-	-	-
Anxiety	A	1,2,4,5	2.27	0.68	.68	2.26	0.74	.70	2.31	0.68	.66	2.47	0.80	.72	-	-	-	-	-	-
Self Esteem	SE	1-3	5.14	0.97	.62	4.88	1.03	.69	5.24	0.94	.67	4.96	1.01	.75	5.11	1.02	.75	-	-	-
Self Efficacy	SF	1,2,5,6,8	-	-	-	-	-	-	-	-	-	-	-	-	5.51	0.69	.69	-	-	-
Ov. Proc. Fair.	PF	1,2	-	-	-	4.00	0.64	.79	-	-	-	3.94	0.65	.85	3.78	0.79	.81	-	-	-
Ov. Distrib. Fair.	DF	1,2	-	-	-	-	-	-	-	-	-	-	-	-	3.66	1.05	.82	-	-	-
Feedback	FB	1-5	-	-	-	-	-	-	-	-	-	-	-	-	3.72	0.73	.71	-	-	-
Equity	E	1-4	-	-	-	-	-	-	-	-	-	-	-	-	3.42	0.92	.87	-	-	-
Social Know.	SK	1-8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.12	0.76	.81
Role Know.	RK	1-5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.77	1.16	.90
Organis. Know.	OK	1-5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.65	0.88	.81
Inter. Res. Know.	IRK	1-3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.94	1.22	.76
Organis. Commit.	OC	1-15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.10	0.75	.85

Note. Ov. Proc.Fair = Overall Procedural Fairness; Ov. Distrib.Fair. = Overall Distributive Fairness; Social Know. = Social Knowledge; Role know. = Role Knowledge; Organis. Know. = Organisation Knowledge; Inter. Res. Know. = Interpersonal Resources Knowledge; Organis. Commit. = Organisational Commitment.

Selection Motivation: The motivation scale adapted from Arvey et al. (1991) comprised four items, three positively worded and one negatively worded. The item descriptives for the motivation items demonstrated high kurtosis values for two items (M2 = 11.22 and M4 = 7.41: see Appendix 5 for item wording) at time 1. However, given that the kurtosis values fell within the recommended limits at times 2-4 (West et al., 1995) and given the large sample size (Tabachnick & Fidell, 1996), transformations were not applied to the data. At all time points, the fit indices for a single factor solution were adequate and chi-square values were non-significant. However, the reliabilities fell marginally below the $\alpha = .70$ criterion (Nunnally, 1978) at time 1. This appeared to be caused by the fourth item which was negatively worded and had a corrected item-total correlation of .26. The inter item correlations of this item with M1, M2 and M3 (see Appendix 5) were .20, .20 and .23. The values of both the item-total correlation and the inter-item correlations were notably lower than for the three positively worded items which were all above the .40 criterion. Deletion of item M4 improved the reliability of the scale to $\alpha = .77$. At time 3, the item scale correlation of this item was also below the .40 criterion (.34), but at times 2 and 4 the correlations were adequate (.48 and .44 respectively). Deletion of M4 did nevertheless improve the reliability of the scale at all time points and hence, the selection motivation scale was computed with three items.

Selection Anxiety: The anxiety scale, also adapted from Arvey et al. (1991), contained five items, all positively worded, but one reverse scored item captured lack of anxiety (A3: *I expect to be among the people who do really well at this interview*). The skewness and kurtosis values fell within the recommended limits (West et al., 1995) and the CFAs at all time points supported a single factor solution. However, the reliability of the scale at times 1 and 3 fell below $\alpha = .70$ ($\alpha = .66$ and $\alpha = .62$ respectively). Examination of the corrected item-scale correlations indicated that A3 correlated below .40 at all four time points (.24, .36, .14 and .25 respectively). The inter-item correlations for A3 with A1, A2, A4 and A5 (see Appendix 5) at times 1 and 3 also fell below .40 (.22, .09, .15, .24 and .20, .01, .02, .20). By deleting A3, the reliability of the scale improved at all time points. However, at times 1 and 3 the value remained marginally below the $\alpha = .70$ criterion normally considered to show acceptable homogeneity. However, since slight changes had been made to the

wording of the scale at these time points, and given that the reliability was acceptable at the other two time points, this scale was retained. Hence, the selection anxiety scale was computed using four items.

Job Search Self-Esteem: Three items were taken from Ellis and Taylor's (1983) job search self-esteem scale and measured at the first five time points. Two items were positively worded and one negatively. For three item scales, the number of free parameters to be estimated equals the number of distinct sample moments and therefore, confirmatory factor analysis can not be conducted using SEM. Confirmatory factor analysis was therefore computed via SPSS. The reliability fell below the level of $\alpha = .70$ at times 1, 2 and 3 ($\alpha = .62, .69, .67$ respectively). The corrected item scale correlations indicated that SE1 correlated .37 at time 1 and .39 at time 2. SE3 also correlated below .40 at time 1 ($r = .37$). However, removing SE1 did not consistently improve the reliability of the scale across time. Hence, since the scale only marginally failed to meet the criterion, all three items were retained in the computation of this scale.

Self Efficacy: Jones' (1986) scale of self efficacy comprised eight items and was measured at times 5 and 6. The data did not depart substantially from normality. At time 5, although the CFA of a single factor with eight items provided a better fit to the data than the null model, the solution was not satisfactory (see Table 5.12). Furthermore, the CFA via SPSS for time 6, provided a solution accounting for only 24.6% of the variance and two items did not load above .32 on the single factor solution. The Cronbach alphas for this 8 item one factor solution were also poor ($\alpha = .46$ at time 6; $\alpha = .59$ at time 5).

Since the CFA of time 6 data indicated that three factors had eigenvalues greater than one, an Exploratory Principal Components Analysis was conducted using SPSS and varimax rotation at time 5. The number of factors extracted was determined by Kaiser's criterion of eigenvalues greater than one and by Cattell's (1966) scree plot. Results indicated a two factor solution accounting for 50.8 percent of the variance. Items SF1, SF2, SF4, SF5, and SF6 loaded onto the first factor accounting for 30.2% of the variance and SF3 and SF7 loaded onto the second factor accounting for 20.7% of the variance. SF8 cross loaded onto both factors (see Appendix 5 for these items). However, the reliability values of the second factor

were unacceptably poor with and without SF8 ($\alpha = .54$ and $.57$ respectively). Since SF3 and SF7 did not load above $.32$ on the first factor, the CFA was conducted using AMOS, specifying a one factor solution comprising six items: SF1, SF2, SF4, SF5, SF6, and SF8. As shown in Table 5.12, the results indicated a significant improvement in chi-square, but the fit statistics remained below the accepted criterion and scale reliability remained less than ideal ($\alpha = .63$). At time 6, the confirmatory factor analysis explained only 17.8% of the variance and had a reliability of $\alpha = .44$. Results indicated that the corrected item-total correlations were below $.40$ for SF4. Finally, CFAs were conducted excluding SF4. Again, at time 5 significant improvements were observed in chi-square and the fit statistics and reliability improved, although remained marginally below the usual criterion of $\alpha = .70$. At time 6 however, the five item single factor solution accounted for only 15.6% of the variance and the reliability remained poor at $\alpha = .46$. Examination of the inter-item correlations indicated weak association between these five items, with no correlation exceeding $.26$, and only two of the ten correlations reached significance. Therefore, the self-efficacy measure at time 6 was not computed.

Table 5.12. Study B: Overall Fit indices for Self Efficacy at Time 5

Model	α	X^2	df	X^2/df	ΔX^2	Δdf	TLI	CFI	PNFI
Null Model	-	1245.75*	28	44.49	-	-	-	-	-
1 Factor - 8 items	.59	675.42*	20	33.77	570.33*	8	.25	.46	.33
1 Factor - 6 items	.63	89.28*	9	9.92	586.14*	10	.72	.83	.49
1 Factor - 5 items	.69	22.62*	5	4.52	66.66*	4	.89	.94	.67

Note. N = 430. $p^* < .001$; $^\ddagger p < .01$; $^\dagger p < .05$. Δ = Change; TLI = Tucker Lewis Index; CFI = Comparative Index; PNFI = Parsimonious Normed-Fit Index.

Socialisation Knowledge: A 21 items scale of organisational socialisation knowledge was measured at time 6 (Thomas & Anderson, 1998; Thomas, 1998). This comprised four factors: social knowledge, role knowledge, organisation knowledge, and interpersonal resources knowledge. The data were normally distributed and following listwise deletion, data for 100 respondents were available providing a ratio of 100:21 or 4.76:1, which closely approximated the 5:1 ratio recommended by Gorsuch (1983). The other criteria were satisfied: the Kaiser-Meyer-Olkin Measure of Sampling Adequacy was 0.80; the Bartlett test of

Sphericity was 1072.41, ($p < .001$) and less than 47% of the residuals were significant. A CFA was conducted using SPSS with Maximum Likelihood and varimax rotation. The solution accounted for 60.4% of the variance (See Table 5.13). One item from the organisation knowledge scale only loaded at .39 and cross loaded onto the role scale at .36 (O1: *I know what Shell values*). The correlations with the other four organisation items O2-5 (.26, .31, .45, .33, respectively) and with the total scale (.40) were moderate and significant. The internal homogeneity of the organisation knowledge scale was also acceptable with the inclusion of this item ($\alpha = .81$). The cross loading onto the role scale has also been observed in Thomas' (1988) research; she argues that the item is substantively more appropriately placed with the organisational scale and, consistent with previous research, this item was retained on the organisation knowledge scale. A second item from the interpersonal resources scale loaded onto social knowledge (P3: *I have someone I feel comfortable going to if I need help with personal problems*). However, this item correlated significantly with both the other interpersonal resources items, IR1 and IR2 (.41 and .45) and with the total scale (.47). The internal consistency of this scale was also acceptable with the inclusion of IR3 ($\alpha = .76$) and hence was retained.

Table 5.13. Study B: Confirmatory Factor Analysis of the Social Knowledge Questionnaire, Time 6.

Code	Item Question	S	R	O	IR
S1	I know how to get along with others in my team	.42	.06	.15	.18
S2	I know the characters of others in my team	.44	.08	.04	.06
S3	I enjoy spending time with others in my team	.73	.04	.21	.08
S4	Others in my team usually tell me the team gossip/news	.52	.16	.04	-.06
S5	Others in my team usually include me in social outings	.62	.08	.02	.15
S6	I can easily be identified as "one of the team"	.69	.13	.14	.15
S7	I know who to trust in my team	.59	.26	-.02	.07
S8	I've made some close friends in my team	.60	.04	.01	.04
R1	I understand what my personal responsibilities are	.31	.71	.05	.09
R2	I know what my supervisor considers as good performance	.14	.81	.15	.18
R3	I know the limits of my authority	.30	.67	.21	.20
R4	I know what behaviour is rewarded	.09	.74	.23	.09
R5	I know what it takes to do well	.14	.83	.18	.02
O1	I know what Shell values	.03	.36	.39	.23
O2	I am familiar with the history of Shell	.01	.09	.57	.06
O3	I know the internal structure of Shell	.13	.17	.62	-.04
O4	I have learned how things really work at Shell	.08	.16	.91	.11
O5	I am familiar with the unwritten rules of how things are done at Shell	.13	.11	.75	.07
IR1	I feel there is someone to go to for advice related to training	.26	.26	.14	.91
IR2	I have someone I feel comfortable going to if I need help preparing for an assignment/project	.38	.23	.13	.59
IR3	I have someone I feel comfortable going to if I need help with personal problems	.52	.30	.01	.21
Eigenvalue		6.69	2.69	2.00	1.29
Percentage of variance explained		31.8	12.8	9.5	6.1
Cronbach Alpha		.80	.90	.81	.74

Note. $N = 100$. S = Social; R = Role, O = Organisational; IR = Interpersonal Resources

Chapter Six

Organisational Justice Results

Introduction

This chapter explores the results relating to organisational justice theory and is divided into two parts. First, the analyses focused on applicants' perceptions of procedural justice in selection. Five hypotheses were proposed in the first part of Chapter One. The first two propounded that there would be cultural differences between the British and Dutch applicants in terms of their perceptions of procedural, but not distributive justice (Hypothesis 1) and in terms of the salience of the procedural justice rules (Hypothesis 2). Hypothesis 3 suggested that successful and unsuccessful applicants' perceptions of procedural justice would only differ when measured post-communication of the decision. Two further hypotheses proposed that significant differences between applicants' expectations of selection justice and their subsequent perceptions of reality would impact on overall procedural fairness (Hypothesis 4) and on justice expectations for subsequent procedures with the same organisation (Hypothesis 5).

In the second section of this chapter, the impact of procedural justice is examined. Four hypotheses were proposed in the second part of Chapter One. Hypotheses 6 to 8 postulated that changes from expectations to perceptions of the procedural justice rules would have an immediate (pre-decision), intermediate (post-decision) and long-term (post-organisational entry) impact on a number of affective, attitudinal and behavioural variables. Hypothesis 9 suggested that perceptions of feedback would moderate the relationship between perceptions of procedural justice and intermediate and long-term outcomes.

Applicants' Perceptions of Procedural Justice in Selection

Cross-Cultural Differences in Perceptions of Procedural Justice

Hypothesis 1 proposed that there would be differences between British and Dutch applicants in their perceptions of the procedural justice rules, but not the distributive justice rule, equity. As outlined in Chapter Four, it is important to ensure that the constructs are equivalent before commencing with substantive analyses comparing the two groups. In particular, two issues may underlie apparent national differences: first in terms of different conceptual understanding of the construct and second in terms of different interpretation of the measurement intervals on the rating scale (Riordan & Vandenberg, 1994). Hence, before analysing mean differences, the equivalence of responses to the SFS were examined across the two nationalities.

To briefly reiterate, the analysis requires a preliminary check on potential biographical differences between the two groups, followed by four phases of analysis (Riordan & Vandenberg, 1994). First, an omnibus test is computed to examine whether there are any differences between the two groups. Significant results provide a rationale for investigating the source of such differences. The second phase explores possible conceptual non-equivalence and the third phase explores possible differences in calibration of the rating scale. Providing the initial omnibus test indicates non-equivalence and that the subsequent models provide good fit to the data, then substantive comparisons between the two groups are made in phase four.

Descriptive statistics

The sample sizes obtained for Study A were not sufficient for the analysis of cultural differences via SEM (British $N = 38$; Dutch $N = 21$). Analysis therefore proceeded with Study B (range of British $N = 124-481$; Dutch $N = 143-169$). First, the means, standard deviations and alpha reliabilites of the SFS rules for Dutch and British applicants are shown in Table 6.1. Across all time points, the means were above the scale mid-point and the standard deviations were relatively small for both groups. The internal consistency coefficients were typically lower for the Dutch applicants. At times 1 and 4 the differences were only slight, but the discrepancies were larger at time 2, notably for opportunity to perform and at time 3 for bias suppression. This may indicate that the two samples had different interpretations of

some SFS scales. Possible reasons for the weaker reliabilities observed for the Dutch applicants will be discussed in Chapter Nine.

Table 6.1. Means, Standard Deviations and Reliability of the SFS for Dutch and British Applicants, Study B.

Justice Rule	T1 British N = 481			T1 Dutch N = 148			T2 British N = 443			T2 Dutch N = 143		
	Mean	SD	α	Mean	SD	α	Mean	SD	α	Mean	SD	α
Interpers. Effect.	3.69	.50	.71	3.59	.45	.67	4.14	.48	.70	4.01	.46	.75
Opp. to Perform	3.36	.63	.63	3.45	.54	.62	3.41	.71	.70	3.41	.55	.58
Bias Suppression	3.96	.56	.62	3.74	.52	.57	4.43	.50	.65	4.42	.43	.56
Career Relevance	3.58	.61	.60	3.62	.55	.57	3.56	.62	.69	3.49	.65	.76
Informativeness	3.08	.72	.65	3.38	.63	.61	2.89	.72	.66	3.34	.62	.58
Justice Rule	T3 British N = 169			T3 Dutch N = 169			T4 British N = 124			T4 Dutch N = 158		
	Mean	SD	α	Mean	SD	α	Mean	SD	α	Mean	SD	α
Interpers. Effect.	3.79	.47	.72	3.73	.46	.68	4.09	.55	.82	3.99	.54	.84
Opp. to Perform	3.53	.62	.69	3.44	.49	.57	3.34	.78	.83	3.32	.58	.66
Bias Suppression	4.03	.60	.70	3.83	.52	.57	4.39	.53	.67	4.30	.46	.60
Career Relevance	3.77	.62	.73	3.75	.45	.53	3.82	.66	.79	3.67	.56	.73
Informativeness	3.33	.66	.60	3.68	.59	.65	3.33	.74	.71	3.54	.67	.72

Note. Interpers. Effect. = Interpersonal Effectiveness; Opp. = Opportunity.

At time 5, the descriptive statistics for the distributive justice rule, equity were: British (N = 128) mean: = 3.51, standard deviation = .88, α = .85 and Dutch (N = 136) mean = 3.38, standard deviation = .83, α = .83. The similar standard deviations and reliabilities would indicate that group differences are less likely for this variable.

Establishing the Biographic Equivalence of the Dutch and British Respondents

As a preliminary step, Riordan and Vandenberg (1994) recommend establishing the biographic equivalence of the two samples. This was conducted for the following variables: gender, age, ethnicity, full-time work experience, and past experience of interviews and assessment centres. Two-way contingency analyses were used to investigate the differences across cultures for the dichotomous variables (i.e. all except age). To control for Type I error, Bonferroni corrections were used throughout (.05 / 5 = .01). As indicated in Table 6.2, there were no significant

differences for full time work experience, past interview experience or past assessment centre experience. However, differences were observed for gender and ethnicity. There were more women and more non-European applicants than expected in the British sample and fewer in the Dutch. Independent samples t-tests for the continuous variable, age, indicated that Dutch applicants were significantly older than British applicants ($t = -14.58 (1, 946), p < .001$).

Table 6.2. Two-Way Contingency Analyses of Demographic Differences Between the Dutch and British Applicants

Demographic Variable	N	χ^2	P	Phi Coefficient
Gender	995	25.86	0.00	-0.16*
Ethnicity	953	12.82	0.00	-0.12*
Full-time work experience	861	4.89	0.03	-0.08
Interview experience	646	2.46	0.12	0.06
Assessment centre experience	343	0.00	0.95	-0.00

Note. * $p < .001$; † $p < .01$.

Analyses were conducted in order to determine whether the differences in gender, ethnicity and age caused any biasing effect in response to the SFS. For gender and ethnicity, two repeated measures MANOVAs were conducted on each SFS procedural justice factor. For each demographic variable, the first MANOVA was conducted on respondents to the interview questionnaires (times 1 and 2) and the second was conducted on the respondents to the assessment centre questionnaires (times 3 and 4). Separating the analyses according to the selection method was necessary due to the small number of respondents completing all four selection questionnaires. The ratings of the SFS across time served as the dependent variable, and the between-subjects factors were gender ethnicity, and nationality. For the time 5 measure of equity, an analysis of variance (ANOVA) was conducted with equity as the dependent variable and the between-subjects factors as gender ethnicity and nationality. The significant main effects were followed up with univariate tests using Bonferroni corrections to control for Type 1 error.

Table 6.3 reports the main effects of the biographic variables gender and ethnicity, and their interaction with nationality. Two significant main effects for

ethnicity were found, but none of the interactions with nationality were significant. Thus, the differences in gender and ethnicity did not bias national responses to either the procedural or distributive justice rules.

Table 6.3. Effects of Demographic Variables and their Interaction with Nationality

Variable	Times	df	Gen. F	Gen.x Nat. F	Eth. F	Eth.x Nat. F
Interpers. Effect.	1-2	1, 525	1.44	1.79	0.08	0.72
Interpers. Effect.	3-4	1, 258	0.05	1.31	1.08	0.78
Opp. to Perform	1-2	1, 529	0.95	0.04	0.08	0.08
Opp. to Perform	3-4	1, 264	0.07	0.01	0.01	0.58
Bias Suppression	1-2	1, 527	0.01	1.11	11.31 ^{*a}	0.01
Bias Suppression	3-4	1, 261	2.27	0.58	0.18	0.44
Career Relevance	1-2	1, 529	1.58	0.00	1.03	0.39
Career Relevance	3-4	1, 261	0.05	0.46	0.96	0.16
Informativeness	1-2	1, 527	3.44	0.12	0.02	0.71
Informativeness	3-4	1, 254	0.01	0.18	0.79	0.90
Equity	5	1, 263	0.01	0.01	5.82 ^{tb}	1.54

Note. p ^{*}<.001; p [‡]<.01; p [†]<.05. Gen. = gender; Eth. = ethnicity; Interpers. Effect. = Interpersonal Effectiveness; Opp. to Perform = Opportunity to Perform. ^a Significant differences were at time 1 (t = 5.01, df 1, 830; p <.001) and time 2 (t = 2.89, df = 1, 772, p <.01) to the extent that ethnic minority applicants had lower perceptions of bias suppression. ^b Significant differences (t = 2.34, df = 1, 262; p <.05) to the extent that minority applicants had lower perceptions of equity.

Analyses were also conducted to determine whether perceptions of justice were influenced by the significant differences between the British and Dutch applicants in terms of the continuous variable age. Separate hierarchical regression analyses were conducted for each SFS rule at each time point. The SFS factor comprised the dependent variable with age entered in the first step, nationality in the second step and their interaction in the third step. The results were not significant for interpersonal effectiveness, opportunity to perform, career relevance or equity, but some differences were observed for bias suppression and informativeness. The results in Table 6.4 indicate a number of main effects for age and nationality on bias suppression and informativeness, but non-significant interactions. Therefore, the differences in age did not affect national responses to the SFS. In summary, these preliminary analyses indicate that any differences between the British and Dutch in

terms of perceptions of justice are not likely to be attributable to the observed biographic differences between the two cultures.

Table 6.4. The Effects of Age, Nationality and their Interaction on Responses to the Bias Suppression and Informativeness Rules of the SFS, Study B

	R	R ²	AR ²	R ² Δ	FΔ (df)	Int.	<u>B</u>	B
<u>Bias Suppression</u>								
T1 Step 1: Age	.11	.01	.01	.01	8.17(1,636) [†]	4.52	-.11 [†]	-.03
Step 2: Nationality	.17	.03	.03	.02	11.37(2,635)*	4.41	-.15*	-.19
Step 3: Interaction	.18	.03	.03	.00	1.17(3,634)	5.16	.53	.02
T2 Step 1: Age	.01	.00	-.00	.00	0.04(1,588)	4.46	-.01	-.00
Step 2: Nationality	.01	.00	-.00	.00	0.01(2, 587)	4.47	.01	.01
Step 3: Interaction	.01	.00	-.00	.00	0.04(3,586)	4.34	-.10	-.00
T3 Step 1: Age	.10	.01	.01	.01	3.75(1,341)	4.43	-.10	-.02
Step 2: Nationality	.19	.03	.03	.02	8.22(2,340) [†]	4.42	-.16 [†]	-.19
Step 3: Interaction	.19	.03	.03	.00	0.08(3,339)	4.64	.16	.01
T4 Step 1: Age	.06	.01	.00	.00	0.91(1,288)	4.57	-.06	-.01
Step 2: Nationality	.08	.01	.00	.00	1.13(2,287)	4.58	-.07	-.07
Step 3: Interaction	.09	.01	-.00	.00	0.39(3,286)	5.05	.38	.01
<u>Informativeness</u>								
T1 Step 1: Age	.14	.02	.02	.02	12.28(1,634)*	2.20	.14*	.04
Step 2: Nationality	.18	.03	.03	.02	9.93(2,633) [†]	2.35	.14 [†]	.23
Step 3: Interaction	.18	.03	.03	.00	0.03(2,632)	2.49	.08	.00
T2 Step 1: Age	.12	.02	.01	.02	9.88(1,590) [†]	2.11	.13 [†]	.04
Step 2: Nationality	.27	.07	.07	.06	37.16(2,589)*	2.39	.27*	.46
Step 3: Interaction	.28	.08	.07	.00	0.62(3,588)	3.11	.39	.02
T3 Step 1: Age	.11	.01	.01	.01	4.05(1,336) [†]	2.89	.05 [†]	.02
Step 2: Nationality	.27	.07	.07	.06	22.65(2,335)*	2.93	.27*	.35
Step 3: Interaction	.27	.08	.07	.00	0.40(3,334)	2.36	-.37	-.02
T4 Step 1: Age	.13	.02	.01	.02	4.94(1,285) [†]	2.66	.13 [†]	.03
Step 2: Nationality	.18	.03	.02	.01	4.59(2,284) [†]	2.62	.13 [†]	.18
Step 3: Interaction	.18	.03	.02	.00	0.03(3,283)	2.82	.11	.01

Note. * p < .001; [†] p < .01; [†] p < .05. T = Time. AR² = Adjusted R²

Equivalence of the Variance/Covariance Matrices

The first phase of establishing measurement equivalence involves exploring the variance-covariance matrices using the AMOS multi-group facility. If the variance-covariance matrices are not equivalent, then a series of models are evaluated

to identify the source of the non-equivalence. Separate analyses were computed for each rule for three principal reasons: First the Dutch sample size was too small to complete simultaneous analysis of all five rules; second this analysis does not focus on the causal relationships between latent variables, and third, the interrelationships between latent variables would create specification problems (Vandenberg & Self, 1993; Riordan & Vandenberg, 1994). The interpersonal effectiveness rule had six items and the remaining rules had four items, giving acceptable ratios of sample size to free parameters (ranging from 7.83:1 to 26.21:1).

Phase one is tested by chi-square, this being the only suitable statistic for comparing one covariance matrix with another (Riordan & Vandenberg, 1994). Overlooking the preliminary results shown in Table 6.5, the chi-square test indicated that the variance-covariance matrices were generally not equivalent across the two samples. This indicates that there are differences across the two groups, but at this stage, it cannot be concluded whether this is a result of measurement non-equivalence or mean difference. The results were however not significant for bias suppression at time 2, career relevance at times 1 and 4, and informativeness at times 1, 2 and 4. In addition, the results for the time five measure of equity indicated cultural equivalence ($X^2 = 10.99$, $df = 8$, $p < .001$). Nevertheless, further analyses investigating the conceptual and scaling equivalence were conducted for all rules since this initial omnibus test is not always dependable (Byrne, 1989; Muthén, 1988).

Table 6.5. Tests for the Equality of the Variance-Covariance Matrices in the SFS for Dutch and British Applicants

Factor	df	T1		T2		T3		T4	
		χ^2	p	χ^2	p	χ^2	p	χ^2	p
Interpersonal Effectiveness	24	88.98	.000	73.06	.000	69.85	.000	61.50	.000
Opportunity to Perform	8	25.78	.001	44.43	.000	27.88	.000	18.85	.016
Bias Suppression	8	16.30	.038	3.43	.904	18.27	.019	17.28	.027
Career Relevance	8	8.84	.356	20.52	.009	27.09	.001	15.39	.052
Informativeness	8	10.38	.239	10.79	.214	23.08	.003	7.09	.527

Testing for Conceptual Equivalence, Equality in Scaling and Mean Differences

Interpersonal Effectiveness

Conceptual Equivalence: To explore conceptual equivalence, Model 1 compares the factor structure across cultural groups. A latent means approach using the multi-group feature of AMOS was adopted with a unidimensional construct specified for each group. Evidence of a lack of conceptual equivalence through poor model fit, indicates that responses to the measure are made relative to different frames of reference (Riordan & Vandenberg, 1994). The results for interpersonal effectiveness are shown in Table 6.6. With the exception of the significant chi-squares, at all time points, Model 1 indicated good fit to the data. As discussed in Chapter Four, Vandenberg and Self (1993) endorsed the approach that unless all fit indices supported rejection of the null hypothesis, further analyses should be conducted. Since the relative and parsimony indices were adequate, the interpersonal effectiveness factor structure was similar across the cultural groups at all time points, which provides evidence for conceptual equivalence.

Table 6.6. Tests for Measurement Equality and Mean Differences in Interpersonal Effectiveness.

Time	Model	X ²	df	X ² /df	ΔX ²	Δdf	TLI	CFI	PNFI
T1	1	69.84*	18	3.88	-	-	.99	1.00	.43
	2	88.51*	23	3.85	18.67 [†]	5	.99	1.00	.54
	3	105.43*	24	4.39	16.92*	1	.99	.99	.57
T2	1	50.03*	18	2.78	-	-	.99	1.00	.43
	2	72.11*	23	3.14	22.08*	5	.99	1.00	.55
	3	89.54*	24	3.73	17.43*	1	.99	1.00	.57
T3	1	55.44*	18	3.08	-	-	.99	1.00	.43
	2	69.71*	23	3.03	14.27 [†]	5	.99	.99	.54
	3	73.89	24	3.08	4.18 [†]	1	.99	.99	.57
T4	1	54.72*	18	3.04	-	-	.99	.99	.43
	2	61.48*	23	2.67	6.76	5	.99	.99	.54
	3	68.17*	24	2.84	6.69 [†]	1	.99	.99	.57

Note. British N = 128-492; Dutch N = 145-173. * p <.001; [‡] p <.01; [†] p <.05. T = Time; TLI = Tucker Lewis Index; CFI = Comparative Fit Index; PNFI = Parsimonious Normed-Fit Index.

Equality in Scaling: Model 2 assesses the equality in scaling by specifying equal factor loadings for each item across cultural groups. As illustrated in Table 6.6, the change in chi-square from Model 1 was not significant at time 4, but was

significant at times 1, 2 and 3. If type 1 error were to be controlled over all analyses, the logic of planned comparisons would make it appropriate to assess these at ≤ 0.025 ($.05/2$), in which case only times 1 and 2 would be significant. At all time points, the other fit indices remained above the acceptable criteria. At times 1 and 2 therefore, the fit indices were incongruent with chi-square indicating inadequate fit and the other indices indicating acceptable fit. Despite the likely cause being the sensitivity of chi-square to sample size, Riordan and Vandenberg (1994) adopted the stringent strategy of examining the magnitude of the Modification Indices (MI) for each of the equality constraints. MIs of 5.00 or greater on the same parameter within both groups indicate that the associated equality constraint should be relaxed. In the present analyses, none of the MIs for the constrained factor loadings across the two groups exceeded 5.00 at any time point and so any lack of equivalence between factor loadings was probably trivial. Therefore, at all time points, Model 2 indicated scaling equality across cultural groups.

Mean Differences: The last phase investigates mean differences by comparing two models. Model 2 which specifies unequal latent means, is compared with a third model where the latent means are constrained to be equal across the two groups. A worsening of fit in Model 3 indicates that the means across cultural groups are significantly different. At each time point, the chi-square difference test was significant, indicating that Model 2, allowing the means within each cultural group to differ, gave a better fit to the data. The latent mean estimated by AMOS and SPSS are given in Table 6.7. At times 1 and 2, the AMOS results agree with the independent t test conducted in SPSS which showed a significant mean difference, but, at times 3 and 4, the t -tests conducted via SPSS were not significant. The two methods of analyses can provide slightly different results, showing the effects of controlling for non-significant random error on mean estimation. Nonetheless, with both AMOS and SPSS the British applicants had higher mean responses.

Table 6.7. Mean Ratings of Interpersonal Effectiveness for Dutch and British Applicants

Time	British		Dutch		t (SPSS)
	AMOS	SPSS	AMOS	SPSS	
1	3.41	3.69	3.12	3.59	2.19 [†]
2	4.14	4.14	3.85	4.01	2.76 [‡]
3	3.59	3.79	3.42	3.73	1.01
4	4.13	4.09	3.91	3.99	1.60

Note. * $p < .001$; [‡] $p < .01$; [†] $p < .05$

Opportunity to Perform

Conceptual and Scaling Equivalence: At all time points, Model 1 defining the opportunity to perform factor structures as equivalent, showed acceptable fit although the chi-square was significant at times 1 to 3 (see Table 6.8). Model 2, specifying equality in scaling, showed good fit at all time points. It can be concluded that the Dutch and British applicants' ratings of opportunity to perform showed conceptual and scaling equality at all time points.

Table 6.8. Tests for Measurement Equality and Mean Differences in Opportunity to Perform

Time	Model	X ²	df	X ² /df	ΔX ²	Δdf	TLI	CFI	PNFI
T1	1	18.55*	4	4.64	-	-	.99	1.00	.20
	2	20.21 [‡]	7	2.89	1.66	3	1.00	1.00	.35
	3	34.79*	8	4.35	14.58*	1	.99	1.00	.40
T2	1	22.46*	4	5.62	-	-	.99	1.00	.20
	2	25.12*	7	3.59	2.66	3	.99	1.00	.35
	3	25.86*	8	3.23	0.74	1	.99	1.00	.40
T3	1	14.77 [‡]	4	3.69	-	-	.99	1.00	.20
	2	21.38 [‡]	7	3.06	6.61	3	.99	1.00	.35
	3	28.06*	8	3.51	6.68 [‡]	1	.99	1.00	.40
T4	1	4.98	4	1.25	-	-	1.00	1.00	.20
	2	7.76	7	1.11	2.78	3	1.00	1.00	.35
	3	10.55	8	1.32	2.79	1	1.00	1.00	.20

Note. British $N = 130 - 493$; Dutch $N = 144 - 174$. * $p < .001$; [‡] $p < .01$; [†] $p < .05$. T = Time; TLI = Tucker Lewis Index; CFI = Comparative Fit Index; PNFI = Parsimonious Normed-Fit Index.

Mean Differences: At times 1 and 3, Model 2 allowing the means to be freely estimated, resulted in a significantly better fit to the data. At time 1, the mean was higher for the Dutch group, and at time 3 it was higher for the British group. The means calculated via SPSS showed the same pattern (see Table 6.9), although the

independent t-tests were marginally non-significant. At times 2 and 4, Model 3 which constrained the means to be equal, did not result in a significant loss of fit, indicating that there were no cultural differences in opportunity to perform at these time points. This concurs with the independent t-tests at times 2 and 4.

Table 6.9. Mean Ratings of Opportunity to Perform for Dutch and British Applicants

Time	British		Dutch		t (SPSS)
	AMOS	SPSS	AMOS	SPSS	
1	2.92	3.36	3.27	3.45	-1.75 [¥]
2	3.06	3.42	3.06	3.41	0.07
3	3.14	3.52	2.88	3.42	1.70 [¥]
4	2.76	3.32	2.76	3.31	0.03

Note. * $p < .001$; [‡] $p < .01$; [†] $p < .05$; [¥] $p < .10$

Bias Suppression

Conceptual and Scaling Equivalence: For the third procedural justice dimension, bias suppression, Models 1 and 2 showed good fit at all time points (see Table 6.10). The significant chi-square for Model 1 at times 1 and 4, and the significant change in chi-square for Model 2 at time 3, is likely a reflection of chi-square's sensitivity to sample size. Examination of the MIs indicated that none of the indices for the constrained factor loadings across the two groups exceeded 5.00. In conclusion, the bias suppression scale was stable across cultures at all time points.

Mean Differences: At time 2, the initial omnibus test did not indicate non-equivalence between the two cultures for bias suppression and so Model 3 was not analysed. For the remaining time points, chi-square difference tests between Models 2 and 3 were not significant indicating that the model constraining the means to be equal had adequate fit to the data. The means are shown in Table 6.11. At time 4, the AMOS result concurs with the non-significant independent t-test. However, at times 1 and 3, the t-tests were significant, again indicating the effect of small measurement non-equivalence on the interpretation of mean differences.

Table 6.10. Tests for Measurement Equality and Mean Differences in Bias Suppression

Time	Model	X ²	df	X ² /df	ΔX ²	Δdf	TLI	CFI	PNFI
T1	1	12.91 [†]	4	3.23	-	-	1.00	1.00	.20
	2	15.82 [†]	7	2.26	2.91	3	1.00	1.00	.35
	3	16.01 [†]	8	2.01	0.19	1	1.00	1.00	.40
T2	1	0.79	4	0.20	-	-	1.04	1.00	.20
	2	2.70	7	0.39	1.91	3	1.00	1.00	.35
T3	1	3.79	4	0.95	-	-	1.00	1.00	.20
	2	17.13 [†]	7	2.45	13.34 [‡]	3	.99	1.00	.35
	3	18.31 [†]	8	2.30	1.18	1	.99	1.00	.40
T4	1	9.48 [†]	4	2.37	-	-	.99	1.00	.20
	2	16.48 [†]	7	2.35	7.00	3	.99	1.00	.35
	3	16.95 [†]	8	2.12	0.47	1	1.00	1.00	.40

Note. British N = 130-492 -; Dutch N = -. * p <.001; ‡ p <.01; † p <.05. T = Time; TLI = Tucker Lewis Index; CFI = Comparative Fit Index; PNFI = Parsimonious Normed-Fit Index.

Table 6.11. Mean Ratings of Bias Suppression for Dutch and British Applicants

Time	British		Dutch		t (SPSS)
	AMOS	SPSS	AMOS	SPSS	
1	4.30	3.96	4.30	3.74	4.28*
3	4.27	4.02	4.27	3.82	3.34*
4	4.45	4.04	4.45	4.03	1.34

Note. * p <.001; ‡ p <.01; † p <.05; † p <.10

Career Relevance

Conceptual and Scaling Equivalence: Models 1 and 2 for career relevance, showed acceptable fit to the data at all time points, with the change in chi-square for Model 2 only marginally significant at time two (see Table 6.12). None of the MIs for the constrained factor loadings across the two groups exceeded 5.00 at time 2 and so scaling equality was apparent across the two cultures at all time points.

Table 6.12. Tests for Measurement Equality and Mean Differences in Career Relevance

Time	Model	X ²	df	X ² /df	ΔX ²	Δdf	TLI	CFI	PNFI
T1	1	4.91	4	1.23	-	-	1.00	1.00	.20
	2	7.76	7	1.11	2.85	3	1.00	1.00	.35
T2	1	11.81 [†]	4	2.95	-	-	1.00	1.00	.20
	2	19.68	7	2.81	7.87 [†]	3	1.00	1.00	.35
	3	23.38	8	2.92	3.70	1	1.00	1.00	.40
T3	1	7.65	4	1.91	-	-	1.00	1.00	.20
	2	10.33	7	1.48	2.68	3	1.00	1.00	.35
	3	12.95	8	1.62	2.62	1	1.00	1.00	.40
T4	1	5.36	4	1.34	-	-	1.00	1.00	.20
	2	9.68	7	1.38	4.32	3	1.00	1.00	.35

Note. British $N = 128-493$; Dutch $N = -$. * $p < .001$; [‡] $p < .01$; [†] $p < .05$. T = Time; TLI = Tucker Lewis Index; CFI = Comparative Fit Index; PNFI = Parsimonious Normed-Fit Index.

Mean Differences: The initial omnibus test did not indicate non-equivalence between the two cultures for career relevance at times 1 and 4 and so Model 3 was computed at times 2 and 3. At both time points, the fit indices for Model 3 remained acceptable and the chi-square difference test was not significant, indicating no significant mean differences between the cultures. The means at times 2 and 3 were 3.46 and 3.68 respectively. The results from the independent t-tests via SPSS confirm this result: At time 2, the British and Dutch means were 3.56 and 3.42 respectively ($t = 1.18$, $p = .24$), and time 3, the means were both 3.76 ($t = 0.12$, $p = .90$).

Informativeness

Conceptual and Scaling Equivalence: As shown in Table 6.13, Models 1 and 2 showed good fit to the data at all time points for the informativeness rule. Therefore, there is evidence of conceptual and scaling equality across the two cultures.

Mean Differences: The initial omnibus test indicated equivalence between the two cultures for informativeness at times 1, 2 and 4 and so these scales were not tested for mean differences. At time 3, Model 3 showed a significant worsening of fit, indicating that the means were significantly different. The means for the British and Dutch applicants were 3.16 and 3.72 respectively. Similarly, the Dutch applicants had higher expectations of informativeness at time 3 according to the independent t-test (British mean = 3.32; Dutch mean = 3.68; $t = -5.22$, $p < .001$).

Table 6.13. Tests for Measurement Equality and Mean Differences in Informativeness

Time	Model	X ²	df	X ² /df	ΔX ²	Δdf	TLI	CFI	PNFI
T1	1	6.93	4	1.73	-	-	1.00	1.00	.20
	2	8.58	7	1.23	1.65	3	1.00	1.00	.35
T2	1	5.10	4	1.27	-	-	1.00	1.00	.20
	2	9.10	7	1.30	4.00	3	1.00	1.00	.35
T3	1	15.77 [‡]	4	3.94	-	-	.99	1.00	.20
	2	21.73 [‡]	7	3.10	5.96	3	1.00	1.00	.35
	3	47.11	8	5.89	25.38*	1	.98	.99	.40
T4	1	3.88	4	0.97	-	-	1.00	1.00	.20
	2	7.00	7	1.00	3.12	3	1.00	1.00	.35

Note. British $N = 128 - 489$; Dutch $N = 145 - 170$. * $p < .001$; [‡] $p < .01$; [†] $p < .05$. T = Time; TLI = Tucker Lewis Index; CFI = Comparative Fit Index; PNFI = Parsimonious Normed-Fit Index.

Equity

Conceptual and Scaling Equivalence: In terms of the distributive justice rule, Models 1 and 2 showed good fit to the data at all time points for equity (see Table 6.14). It can be concluded that there was conceptual and scaling equality across the two cultures for measure of equity.

Mean Differences: The initial omnibus test did indicated equivalence between the two cultures and so mean differences in equity were not analysed.

Table 6.14. Tests for the Equality of Factor Structures and Factor Loadings in Equity

T	M	X ²	df	X ² /df	ΔX ²	Δdf	TLI	CFI	PNFI
T5	1	7.99	4	2.00	-	-	.97	.99	.33
	2	10.65	7	1.52	2.66	3	.99	.99	.57

Note. British $N = 128$; Dutch $N = 139$. * $p < .001$; [‡] $p < .01$; [†] $p < .05$. T = Time; TLI = Tucker Lewis Index; CFI = Comparative Fit Index; PNFI = Parsimonious Normed-Fit Index.

Summary

In summary, the above analyses have shown that all procedural and distributive justice rules displayed conceptual and scaling equivalence across the British and Dutch cultures. Controlling for small measurement non-equivalence, mean differences were observed for some of the procedural justice rules. Specifically, the British candidates had higher perceptions of interpersonal effectiveness at all time points and of opportunity to perform at time 3. Conversely,

the Dutch applicants had higher perceptions of opportunity to perform at time 1 and of informativeness at time 3. For the distributive justice rule equity, there were no mean differences across the two cultures. This generally supports Hypothesis 1 that there would be cultural differences in procedural, but not distributive justice.

Predicting Overall Perceptions of Procedural Justice

Hypothesis 2 proposed that the salience of the procedural justice rules in explaining overall perceptions of procedural fairness would differ across nationalities. For Study A, the sample size was not sufficient for the analysis of this hypothesis. For Study B, the hypothesis was tested with four regression analyses using SPSS. Separate analyses were conducted for the British and Dutch applicants and for the interview and assessment centre. The five procedural justice rules measured post-interview (time 2) or post-assessment centre (time 4) were regressed onto overall perceptions of procedural fairness measured at times 2 or 4 respectively.

The results are shown in Table 6.15. For the British applicants, post-interview perceptions of the procedural justice rules significantly explained 43% of the variance in procedural fairness. For the Dutch applicants, post-interview perceptions of the procedural justice rules also emerged as significant predictors, together explaining 32% of the variance in overall procedural fairness. Whilst all interview procedural justice rules were significantly correlated with the measure of overall interview fairness for both nationalities, the informativeness rule did not have a significant beta weight for either nationality, and the interpersonal effectiveness and bias suppression rules were not significant for the Dutch applicants. The correlations and beta-weights indicate that the most salient rules were interpersonal effectiveness for the British applicants, and opportunity to perform for the Dutch. However, differences in terms of the reliability of the overall procedural justice scale across cultures (British $\alpha = .87$; Dutch $\alpha = .62$) warrant caution in interpreting these results. Unfortunately, cross-cultural measurement equivalence could not be evaluated via AMOS due to the use of a two-item overall procedural fairness measure. Nevertheless, the results indicate that the procedural justice rules are significant predictors of overall evaluation of procedural fairness, but that there are few cultural differences in terms of the salient dimensions.

Table 6.15: Regression Analysis for Overall Procedural Fairness at the Interview for British and Dutch Applicants

Procedural Rules	British				Dutch			
	r	<u>B</u>	B	t	r	<u>B</u>	B	t
Interpers. Effect.	.56*	.34	.46	7.65*	.37*	.09	.10	1.01
Opp. to Perform	.50*	.22	.20	4.83*	.50*	.30	.29	3.34*
Bias Suppression	.43*	.15	.19	3.50*	.27*	.13	.16	1.70
Career Relevance	.45*	.15	.16	3.48*	.46*	.24	.07	2.88 [†]
Informativeness	.16*	.01	.00	0.13	.21 [†]	.08	.07	1.11
Overall R	.66				.58			
Overall R ²	.43				.34			
Adjusted R ²	.43				.32			
Degrees of Freedom	5,433				5,136			
F	66.06*				14.10*			

Note. * $p < .001$; [†] $p < .01$; [‡] $p < .05$. r = correlation with overall procedural fairness. Interpers. Effect. = Interpersonal Effectiveness; Opp. = Opportunity.

In terms of the assessment centre, both British and Dutch applicants' perceptions of the procedural justice rules explained significant amounts of variance in overall procedural fairness (see Table 6.16). For the British applicants, 45% of the variance was explained and for the Dutch applicants 55% of the variance was explained. For both nationalities, the opportunity to perform and the career relevance rules emerged as significant predictors, whilst the interpersonal effectiveness rule was significant for the Dutch applicants only. In terms of the salient dimensions, the opportunity to perform rule had the highest correlation with overall procedural fairness and the highest beta weight for both cultures. Given that the reliabilities of the overall procedural justice scale were acceptable ($\alpha = .88$ and $\alpha = .83$ for British and Dutch applicants respectively), it can be concluded that these rules explain the majority of variance in overall perceptions procedural fairness with the salient dimensions reasonably comparable. Overall therefore, there was little support for Hypothesis 2.

Table 6.16. Regression Analysis for Overall Procedural Fairness at the Assessment Centre for British and Dutch Applicants

Procedural Rules	British				Dutch			
	r	<u>B</u>	B	t	r	<u>B</u>	B	t
Interpers. Effect.	.52*	.08	.09	0.84	.56*	.28	.34	4.18*
Opp. to Perform	.60*	.32	.25	3.56*	.65*	.41	.46	6.01*
Bias Suppression	.39*	.08	.10	1.04	.32*	.00	.00	0.04
Career Relevance	.59*	.27	.26	2.85 [†]	.59*	.19	.22	2.79 [†]
Informativeness	.43*	.11	.09	1.31	.38*	.07	.07	1.22
Overall R	.69				.72			
Overall R ²	.47				.57			
Adjusted R ²	.45				.55			
Degrees of Freedom	5,118				5,151			
F	20.87*				39.46*			

Note. * $p < .001$; [‡] $p < .01$; [†] $p < .05$. r = correlation with overall procedural fairness. Interpers. Effect. = Interpersonal Effectiveness; Opp. = Opportunity.

Impact of the Outcome Decision

Hypothesis 3 predicted that there would be significant differences between successful and unsuccessful applicants in terms of their perceptions of selection justice post-feedback of the outcome, but not prior to this feedback. The procedural justice rules were measured after communication of the outcome in Study A, and before the decision in Study B at times 2 and 4. Three MANOVAs were therefore conducted. The procedural justice rules were the dependent variables and selection outcome (successful or unsuccessful) was the between subjects factor. The results for Study A, involving eight dimensions of procedural justice, indicated that there were significant differences between the two groups ($T^2 = .78$, $F(8,180) = 17.65$, $p < .001$; Hotelling, 1931). In Study B, which involved five procedural justice dimensions, there were no significant differences at time 2 ($F(5,708) = 1.01$, $p = \text{NS}$) or time 4 ($F(5,416) = 2.03$, $p = \text{NS}$). In support of Hypothesis 3, the results indicated that prior to applicants knowing the selection outcome, there were no significant differences in terms of perceptions of procedural justice rules. Post-communication of the decision, there were significant differences between successful and unsuccessful applicants.

The significant differences observed in Study A were followed up with independent t-tests for each procedural justice rule, controlling for Type 1 error using

Bonferroni correction ($.05 / 8 = .006$). The results, shown in Table 6.17, indicated that for seven of the eight dimensions, significant differences emerged, to the extent that successful candidates had higher perceptions of the following rules: opportunity to perform and equity, interpersonal effectiveness, career relevance, informativeness, two-way communication, bias consistency and adequacy of feedback.

The cross-sectional approach adopted in the above analyses represents a limitation as sample differences, rather than the outcome decision, may account for the result. To establish whether this was likely, comparisons were made between the successful and unsuccessful applicants' overall perceptions of fairness in Study B at times 4 (pre-decision) and 5 (post-decision). Using listwise deletion, two separate analyses of variance were conducted. The results indicated that there were no significant differences between the two groups in their perceptions of overall procedural fairness prior to receiving the decision ($F(1,267) = 0.36, p = .547$), but differences were found after the decision ($F(1,267) = 77.68, p < .001$). Again, higher perceptions were held by the successful applicants at time 5. This adds further support to Hypothesis 3 that perceptions of procedural justice were directly influenced by the outcome decision.

Table 6.17. Descriptive Statistics and T-Tests comparing Successful and Unsuccessful Candidates Perceptions of the Procedural Justice Rules in Study A.

Procedural Justice Sub-Scale	Successful		Unsuccessful		t
	Mean	SD	Mean	SD	
Opportunity to Perform and Equity	3.86	0.52	2.74	0.77	11.92*
Interpersonal Effectiveness	4.07	0.51	3.48	0.83	6.04*
Career Relevance	3.63	0.55	3.13	0.67	5.42*
Informativeness	3.48	0.71	3.05	0.82	3.79*
Two-way Communication	3.89	0.59	3.35	0.80	5.34*
Bias Consistency	4.12	0.73	3.71	0.87	3.43*
Adequacy of Feedback	3.57	0.91	3.09	1.11	3.28*
Feedback Timeliness	3.62	1.27	4.00	0.93	-2.26 [†]

Note. Successful N = 81; Unsuccessful N = 108. * $p < .001$; [‡] $p < .01$; [†] $p < .05$.

Longitudinal Analyses of the SFS Rules

Hypothesis 4 predicted that changes from expectations to perceptions of justice would have an impact on overall evaluations of procedural fairness. First,

potential change across applicants' expectations of procedural justice and their subsequent perceptions of reality were analysed using AMOS. As discussed in Chapter Four, it is necessary initially to establish the equivalence of the measures of expectations of justice and perceptions of justice before examining alpha, or mean temporal change. In particular, two issues may underlie potential change across time: first in terms of gamma change whereby respondents' conceptual interpretation of the construct may alter, and second in terms of beta change whereby respondents' may recalibrate the measurement scale across time (Golembiewski, Billingsley, & Yeager, 1976). To briefly reiterate, analysis of temporal change involves three main phases (Thomas, Cunningham-Snell, & Anderson, 1998; Vandenberg & Self, 1993). First, a preliminary phase assesses whether there is any change over time and hence whether further analysis is merited. Second, four hierarchical phases are employed, two assessing whether gamma change is present, followed by a further two assessing beta change. Last, when no significant gamma or beta changes are observed, the third phase examines alpha change.

Descriptive statistics

Longitudinal analysis of procedural justice was only conducted in Study B. First, the observed means, standard deviations and alpha reliabilites among the SFS rules across time are shown in Chapter Five, Table 5.9. At all time points the means were above the mid-point of the scale and the standard deviations were relatively small, but reasonably consistent across time. With the exception of the bias suppression rule, the internal consistency coefficients were typically lower for the measure of justice expectations (at times 1 and 3) than justice perceptions (times 2 and 4). This may provide some indication of error change in these scales across time.

Equivalence of the Variance-Covariance Matrix

The first step examines the equivalence of the variance-covariance matrix by treating the two measurements as two groups. Since the sample size was not adequate for analyses across all four time points, two temporal changes were explored: across times 1 and 2, and across times 3 and 4. For all rules, acceptable ratios of sample size to free parameters were available (ranging from 25.11:1 to 57.92:1). As with the analysis of cultural data, phase one is tested by chi-square since it involves the comparison of only one covariance matrix with another (Riordan & Vandenberg,

1994; Vandenburg & Self, 1993). Table 6.18 indicates that the chi-squares were significant for all rules, except career relevance across times 3 and 4. Generally therefore, the variance-covariance matrices were not equivalent across measurements which provides the rationale for further investigation regarding the source of this non-equivalence. Since the omnibus test is not always dependable, beta and gamma change were also analysed for career relevance across times 3 and 4 (Byrne, 1989; Muthén, 1988).

Table 6.18. Tests for the Equality of the Variance-Covariance Matrices in the SFS Across Time

Factor	df	Time 1 & 2			Time 3 & 4		
		N	χ^2	p	N	χ^2	p
Interpersonal Effectiveness	24	692	151.28	.000	452	129.04	.000
Opportunity to Perform	8	692	50.58	.000	461	46.79	.000
Bias Suppression	8	692	22.29	.004	454	20.34	.009
Career Relevance	8	695	26.76	.001	458	10.79	.214
Informativeness	8	693	55.17	.000	446	48.84	.000

Assessing Gamma, Beta and Alpha Change

The following section reviews the results relating to the second phase of analysis relating to gamma and beta change, and the third phase of analysis relating to alpha change in perceptions of procedural justice. The five justice rules are examined in terms of change observed across the interview ratings (times 1 and 2) and then across the assessment centre ratings (times 3 and 4).

Interpersonal Effectiveness: Times 1 and 2

Gamma Change. Gamma change is investigated by Models 1 and 2. Model 1 specifies a single factor model across measurement points. As shown in Table 6.19, Model 1 for the comparison of interpersonal effectiveness at times 1 and 2 had a significant chi-square and the TLI and CFI were below the .90 criterion indicating that the model did not provide a good fit to the data. The modification indices were examined for suggested improvements to the model. The largest modification indices were observed for correlated measurement errors between the same item across measurement points. The correlation of measurement errors reflects method variance for the particular item, and does not alter the interpretation of results. In accordance

with the SEM literature (Byrne, Shavelson & Muthén, 1989; Hoyle & Panter, 1995; Millsap & Hartog, 1988; Schumacker & Lomax, 1996; Thomas, 1998), correlated measurement errors were therefore added to Model 1 sequentially, until at least one of the two indices reached the .90 criterion. This resulted in the specification of covariance paths between the error terms across times 1 and 2 for items 21 and 14 (see Appendix 5 for SFS items, Study B). As a result of these modifications, the revised Model 1 showed acceptable fit to the data. Model 2, which specifies equal covariances between latent factors, is not relevant when only two measurement points are included, and so is not analysed for any justice rule. Hence, based on Model 1 it can be concluded that there was no gamma change in interpersonal effectiveness over the two measurements.

Beta Change: The second part of this analysis phase explores potential beta change (Models 3 and 4). In Model 3, the factor variances are constrained to be equal. Compared with Model 1, Model 3 did not show a significant loss in chi-square and the fit indices were above the criterion. In Model 4, the factor loadings across measurement points are constrained to be equal. For interpersonal effectiveness, no significant losses of fit were observed and there were only small changes in the other fit indices. Hence, there was no evidence for beta change in this procedural justice rules across times 1 and 2. This provides justification for analysing alpha change in the final phase.

Alpha Change: The presence of alpha change is assessed by comparing two models, one where the latent means are freely estimated and one where the means are constrained to be equal (Mn (fr) and Mn (cn) respectively). For interpersonal effectiveness, the chi-square difference test showed a loss of fit when the latent means were constrained, which showed that the model allowing the free estimation of latent means provided a more parsimonious fit to the data. Thus, the means were significantly different. The means estimated by AMOS were 3.42 at time 1 and 4.10 at time 2. A paired t-test computed without accounting for measurement error via SPSS also indicated mean change (mean time 1 = 3.71; mean time 2 = 4.12; $t = -18.24$, $p < .001$). In summary, controlling for non-significant gamma and beta change, alpha change occurred to the extent that applicants' perceptions of interview interpersonal effectiveness were higher than their prior expectations.

Table 6.19. Tests for Gamma, Beta and Alpha Change in Interpersonal Effectiveness at Times 1 and 2

Model	X ²	df	X ² /df	ΔX ²	Δdf	TLI	CFI	PNFI
1	287.30*	53	5.42	-	-	.83	.87	.68
1R	195.23*	51	3.83	92.07*	2	.89	.92	.69
3	195.31*	52	3.76	0.08	1	.90	.92	.70
4	221.09*	57	3.88	25.78	5	.89	.91	.76
Mn (fr)	221.09*	57	3.88	-	-	.99	.99	.73
Mn (cn)	510.46*	58	8.80	289.37*	1	.98	.98	.73

Note. N = 692. * p < .001; † p < .01; ‡ p < .05. R = Revised; Mn (fr) = freely estimated means; Mn (fx) = constrained means; TLI = Tucker Lewis Index; CFI = Comparative Fit Index; PNFI = Parsimonious Normed-Fit Index.

Interpersonal Effectiveness: Times 3 and 4

Gamma Change. As shown in Table 6.20, Model 1 specifying a single factor model across times 3 and 4, showed inadequate fit to the data. Chi-square was significant and the TLI and CFI were below .90. The modification indices suggested improvement by correlated measurement errors and these parameters were added sequentially until at least one index was above .90. This resulted in the specification of correlated measurement errors across times 3 and 4 for items 21, 14, and 15. As a result, the revised Model 1 showed acceptable fit. It can be concluded that there was no conceptual change in perceptions of interpersonal effectiveness over time.

Beta Change: Model 3, which constrains the factor variances be equal, did not show a significant loss in chi-square and the fit indices remained acceptable. In Model 4, specifying equal factor loadings, a significant loss of fit in chi-square was observed, but the other fit indices remained acceptable. Therefore, respondents did not appear to recalibrate the measurement scale for interpersonal effectiveness across times 3 and 4.

Alpha Change: The chi-square difference test showed a loss of fit when the latent means at times 3 and 4 were constrained which indicated significant mean difference. The means estimated by AMOS were 3.59 at time 3 and 4.03 at time 4 and again, this is comparable with the results of the paired t-tests computed via SPSS (mean time 3 = 3.81, mean time 4 = 4.04; (t = -8.43, p < .001). In summary, controlling for non-significant gamma and beta change, applicants' perceptions of

assessment centre interpersonal effectiveness were higher than their prior expectations.

Table 6.20. Tests for Gamma, Beta and Alpha Change in Interpersonal Effectiveness at Times 3 and 4

Model	X ²	df	X ² /df	ΔX ²	Δdf	TLI	CFI	PNFI
1	289.00*	53	5.45	-	-	.80	.84	.65
1R	170.56*	50	3.41	118.44*	3	.89	.92	.67
3	170.88*	51	3.35	0.32	1	.90	.92	.69
4	186.86*	56	3.34	15.98*	5	.90	.91	.75
Mn (fr)	186.86*	56	3.34	-	-	.99	.99	.71
Mn (cn)	290.89*	57	5.10	104.03*	1	.98	.99	.72

Note. N = 452. * p < .001; † p < .01; ‡ p < .05. R = Revised; Mn (fr) = freely estimated means; Mn (cn) = constrained means TLI = Tucker Lewis Index; CFI = Comparative Fit Index; PNFI = Parsimonious Normed-Fit Index.

Opportunity to Perform

Gamma Change. As shown in Tables 6.21 and 6.22, Model 1 specifying a single factor model for opportunity to perform showed inadequate fit to the data across times 1 and 2 and across times 3 and 4. The modification indices for times 1 and 2 suggested improvement by adding a covariance path across the error terms for item 8, which resulted in the revised Model 1 showing acceptable fit. At times 3 and 4, the sequential addition of covariance paths between the error terms for items 2 and then 8, resulted in the revised Model 1 showed acceptable fit. Hence gamma change was not observed across either measurement pair.

Beta Change: For both measurement pairs, Model 3 with equal factor variances, did not show a significant loss in chi-square and the fit indices remained acceptable. In Model 4, specifying equal factor loadings, a significant loss of fit was observed, but the other fit indices remained acceptable, and so there was no evidence for beta change.

Alpha Change: For opportunity to perform across times 1 and 2, the chi-square difference test did not show a loss of fit when the latent means were constrained, indicating that the means were not significantly different. The mean estimated by AMOS was 3.02. This concurs with the SPSS paired t-test results which indicated no significant mean change (time 1 mean = 3.39; time 2 mean = 3.40; t = -

0.32, $p = .75$). In summary, controlling for non-significant gamma and beta change, applicants' perceptions of interview opportunity to perform at time 2 were equal to their time 1 expectations.

Table 6.21. Tests for Gamma, Beta and Alpha Change in Opportunity to Perform at Times 1 and 2.

Model	X ²	df	X ² /df	ΔX ²	Δdf	TLI	CFI	PNFI
1	150.86*	19	7.94	-	-	.81	.87	.58
1R	89.20*	18	4.96	61.66*	1	.89	.93	.59
3	90.10*	19	4.74	0.90	1	.90	.93	.62
4	110.68*	22	5.03	20.58*	3	.89	.91	.70
Mn (fr)	110.68	22	5.03	-	-	.99	.99	.61
Mn (cn)	111.51	23	4.85	0.83	1	.99	.99	.63

Note. N = 692. * $p < .001$; † $p < .01$; ‡ $p < .05$. R = Revised; Mn (fr) = freely estimated means; Mn (cn) = constrained means; TLI = Tucker Lewis Index; CFI = Comparative Fit Index; PNFI = Parsimonious Normed-Fit Index.

However, for opportunity to perform across times 3 and 4, the chi-square difference test showed a loss of fit when the latent means were constrained, indicating significant mean difference. The means estimated by AMOS were 2.97 and 2.85 at times 3 and 4 respectively. This concurs with the SPSS paired t-test results which indicated significant temporal change (time 1 mean = 3.45; time 2 mean = 3.34; $t = 3.82$, $p < .001$). In summary, controlling for non-significant gamma and beta change, applicants perceptions of assessment centre opportunity to perform were lower than their prior expectations.

Table 6.22. Tests for Gamma, Beta and Alpha Change in Opportunity to Perform at Times 3 and 4.

Model	X ²	df	X ² /df	ΔX ²	Δdf	TLI	CFI	PNFI
1	203.45*	19	10.70	-	-	.70	.80	.53
1R	69.03	17	4.06	134.42*	2	.91	.94	.56
3	70.48*	18	3.92	1.45	1	.91	.94	.59
4	91.30*	21	4.35	20.82*	3	.90	.92	.68
Mn (fr)	91.30*	21	4.35	-	-	.99	.99	.58
Mn (cn)	99.39	22	4.52	8.08 [†]	1	.99	.99	.61

Note. N = 461. * p < .001; [‡] p < .01; [†] p < .05. R = Revised; Mn (fr) = freely estimated means; Mn (cn) = constrained means; TLI = Tucker Lewis Index; CFI = Comparative Fit Index; PNFI = Parsimonious Normed-Fit Index.

Bias Suppression

Gamma Change. Table 6.23 shows the results for the third procedural justice rule, bias suppression. Model 1 across times 1 and 2 showed adequate fit to the data which indicated that there was no conceptual change. However, across times 3 and 4, Model 1 showed inadequate fit for both the TLI and CFI. Based on the modification indices, the addition of a covariance path between the error terms for item 20 resulted in the revised Model 1 showing acceptable fit and hence no gamma change

Beta Change: At both measurement comparisons, Model 3 did not show a significant loss in chi-square and the fit indices remained acceptable. Across times 3 and 4 only, there was a significant loss of fit for Model 4, but this was only at the .05 level and the other indices remained acceptable. Therefore, there was no evidence for recalibration of the bias suppression rating scale across either measurement pair.

Alpha Change: The chi-square difference test showed a loss of fit when the latent means were constrained which indicated that the means were significantly different. At times 1 and 2, the means estimated by AMOS were 4.26 and 4.56 respectively. This is comparable with the paired t-tests computed via SPSS (mean time 1 = 3.89, mean time 2 = 4.43; ($t = -24.77$, $p < .001$)). At times 3 and 4, the means estimated by AMOS were 4.27 and 4.49 respectively. Again, this is consistent with the paired t-tests computed via SPSS (mean time 1 = 3.93, mean time 2 = 4.35; ($t = -15.99$, $p < .001$)). In summary, controlling for non-significant gamma and beta change, applicants' perceptions of bias suppression were higher than their prior expectations for both selection methods.

Table 6.23. Tests for Gamma, Beta and Alpha Change in Bias Suppression

Model	X ²	df	X ² /df	ΔX ²	Δdf	TLI	CFI	PNFI
<u>Times 1 and 2</u>								
1	98.24*	19	5.17	-	-	.86	.90	.60
3	99.40*	20	4.97	1.16	1	.86	.90	.63
4	107.17*	23	4.66	7.77	3	.88	.90	.72
Mn (fr)	107.17*	23	4.66	-	-	.99	1.00	.64
Mn (cn)	177.03	24	7.38	69.86*	1	.99	.99	.66
<u>Times 3 and 4</u>								
1	97.86*	19	5.15	-	-	.83	.88	.58
1R	58.42*	18	3.25	39.44*	1	.91	.94	.59
3	60.18*	19	3.17	1.76	1	.91	.94	.62
4	68.60*	22	3.12	8.42 [†]	3	.91	.93	.71
Mn (fr)	68.60*	22	3.12	-	-	.99	1.00	.61
Mn (cn)	92.91*	23	4.04	24.31*	1	.99	1.00	.63

Note. N = 692 (times 1 and 2), N = 454 (times 3 and 4). * p < .001; † p < .01; ‡ p < .05. R = Revised; Mn (fr) = freely estimated means; Mn (cn) = constrained means; TLI = Tucker Lewis Index; CFI = Comparative Fit Index; PNFI = Parsimonious Normed-Fit Index.

Career Relevance

Gamma Change. As shown in Table 6.24, Model 1 at both times 1 and 2 and times 3 and 4 showed adequate fit to the data for career relevance. Only the TLI fell marginally below the acceptable criterion and so it can be concluded that there was no gamma change across either the interview or assessment centre measurements.

Beta Change: At times 1 and 2, Model 3 remained acceptable, but for Model 4, both the TLI and CFI fell below the .90 criterion indicating that beta change may have occurred. For times 3 and 4, both Models 3 and 4 are acceptable, indicating no beta change. Since Model 4 was not acceptable at times 1 and 2, and since the preliminary analysis for career relevance at times 3 and 4 did not yield a significant result, it can be concluded that there was no mean change in assessment centre perceptions of career relevance. The final phase of analysis is therefore not required.

Table 6.24. Tests for Gamma, Beta and Alpha Change in Career Relevance.

Model	X ²	df	X ² /df	ΔX ²	Δdf	TLI	CFI	PNFI
<u>Times 1 and 2</u>								
1	110.34*	19	5.84	-	-	.86	.91	.61
3	117.72*	20	5.89	7.38 [‡]	1	.86	.90	.63
4	128.84*	23	5.60	9.39 [†]	3	.87	.89	.72
<u>Times 3 and 4</u>								
1	93.67*	19	4.93	-	-	.88	.92	.61
3	94.36*	20	4.72	0.43	1	.89	.92	.64
4	99.73*	23	4.34	4.90	3	.90	.92	.74

Note. N = 695 (times 1 and 2); N = 458 (times 3 and 4). * p <.001; [‡] p <.01; [†] p <.05. TLI = Tucker Lewis Index; CFI = Comparative Fit Index; PNFI = Parsimonious Normed-Fit Index.

Informativeness

Gamma Change. As shown in Table 6.25, Model 1 for informativeness at times 1 and 2 did not show adequate fit to the data. Based on the modification indices, the addition of a covariance path between the error terms for item 25 at times 1 and 2 resulted in the revised Model 1 showing acceptable fit and hence no gamma change. Similarly, the addition of this covariance path resulted in acceptable model fit across times 3 and 4, again indicating no gamma change.

Beta Change: Model 3 did not result in a significant reduction in fit at times 1 and 2, but did result in a significant reduction in fit at times 3 and 4, although the other indices remained acceptable. Model 4 resulted in a worsening of fit for times 1 and 2, but not times 3 and 4. Since the other indices remained acceptable there is no evidence for beta change in informativeness across each measurement pair.

Alpha Change: At both times 1 and 2 and times 3 and 4, the chi-square difference test showed a loss of fit when the latent means were constrained, which indicated significant mean difference. At times 1 and 2, the means estimated by AMOS were 3.09 and 2.81 respectively. This is consistent with the results of the paired t-tests computed via SPSS (mean time 1 = 3.17, mean time 2 = 3.04; (t = 4.44, p <.001). Similarly, at times 3 and 4, the means estimated by AMOS were 3.50 and 3.18 respectively, and the paired t-tests computed via SPSS indicated significant change (mean time 3 = 3.50, mean time 4 = 3.41; t = 2.57, p <.01). In summary, controlling for non-significant gamma and beta change, applicants' perceptions of

interview and assessment centre informativeness were lower than their prior expectations.

Table 6.25. Tests for Gamma, Beta and Alpha Change in Informativeness

Model	X ²	df	X ² /df	ΔX ²	Δdf	TLI	CFI	PNFI
<u>Times 1 and 2</u>								
1	143.19*	19	7.54	-	-	.83	.89	.59
1R	69.83*	17	4.11	73.36*	2	.92	.95	.57
3	71.23*	18	3.96	1.40	1	.93	.95	.60
4	104.94*	21	5.00	33.71*	3	.90	.92	.68
Mn (fr)	104.94*	21	5.00	-	-	.99	.99	.58
Mn (cn)	133.59*	22	6.07	28.65*	1	.99	.99	.61
<u>Times 3 and 4</u>								
1	106.38*	19	5.60	-	-	.84	.89	.59
1R	80.91*	18	4.50	25.47*	1	.88	.92	.58
3	87.72*	19	4.62	6.81 [‡]	1	.88	.92	.61
4	91.22*	22	4.15	3.50	3	.89	.92	.70
Mn (fr)	91.22*	22	4.15	-	-	.99	.99	.61
Mn (fx)	122.21*	23	5.31	30.99*	1	.99	.99	.63

Note. N = 693 (times 1 and 2). N = 446 (times 3 and 4) * p < .001; [‡] p < .01; [†] p < .05. R = Revised; Mn (fr) = freely estimated means; Mn (cn) = constrained means; TLI = Tucker Lewis Index; CFI = Comparative Fit Index; PNFI = Parsimonious Normed-Fit Index.

Summary

Examining temporal change in the SFS via the stringent approach of first exploring potential beta and gamma change, these results indicate that across times 1 and 2, three dimensions showed alpha change and across times 3 and 4, four rules showed alpha change. For the comparison across both times 1 and 2 and across times 3 and 4, the mean response to the interpersonal effectiveness and bias suppression rules significantly increased. Hence, for these rules applicants' perceptions of fairness were higher than their prior expectations at both the interview and assessment centre. At both comparison time points, the means for the informativeness rule significantly decreased and the means for opportunity to perform rule decreased across times 3 and 4 only. Applicants' perceptions of interview and assessment

centre informativeness, and their perceptions of assessment centre opportunity to perform were therefore lower than their prior expectations.

Effects of Changes in Procedural Justice Rules on Overall Procedural Fairness

To further test Hypothesis 4, analyses were conducted to evaluate the impact of these significant temporal changes in responses to the procedural justice rules on overall perceptions of procedural fairness. In Study B, overall procedural justice was measured at three time points (times 2, 4 and 5) and a separate hierarchical analysis was conducted on each measure. The possibility of multicollinearity amongst the justice rules was recognised; the inter-scale correlations shown in Table 5.10, Chapter Five, do not exceed the .70 criterion suggested by Tabachnick and Fidell (1996), and therefore all justice rules showing change may be included.

In the first analysis involving the interview data, the time 2 measure of overall procedural justice was the dependent variable. The time 1 rating of the three fairness rules which demonstrated change across time (interpersonal effectiveness, bias suppression and informativeness) were entered as the independent variables in the first block and their time 2 ratings were entered in the second block. A significant change in the variance accounted for by the entry of the time 2 ratings indicates that a change in justice ratings significantly predicts overall perceptions of fairness. In the second analysis, the same procedure was followed but with the times 3 and 4 assessment centre data involving the four justice rules which demonstrated change across time (interpersonal effectiveness, opportunity to perform, bias suppression and informativeness). In the third analysis, the time 5 rating of the overall assessment centre procedural justice rule was analysed as the dependent variable. Here the independent variables were entered in three blocks. Since the time 5 rating occurred after communication of the outcome decision, perceptions of distributive justice were entered in the first block to act as a control variable. In the second block, the time 3 rating of the four fairness rules which demonstrated change across times 3 and 4 were entered and in the third and final block their time 4 ratings were entered. For each analysis, the sample size exceeded Green's (1991) formulae for interpreting individual predictors as recommended by Tabachnick and Fidell (1996: $N \geq 104 + \underline{m}$, where \underline{m} is the number of independent variables). This requires a sample size of =

112 at times 2 and 4 and of = 113 at time 5. The smallest available sample size was 322 at time 5.

The results of the multiple hierarchical regressions are shown in Table 6.26. These indicated that controlling for justice expectations, perceptions of procedural justice significantly predicted between 8% and 33% of the variance in overall perceptions of procedural fairness. More specifically, across times 1 and 2, the change in interpersonal effectiveness, bias suppression and informativeness had a positive impact on overall procedural fairness. Together these rules explain 27% of the variance in the time 2 rating of overall procedural justice. Across times 3 and 4, the change in interpersonal effectiveness, opportunity to perform and informativeness had a positive impact on overall procedural fairness at time 4. Together these results accounted for 33% of the variance in the time 4 rating of overall procedural fairness. Finally, controlling for perceptions of distributive justice, changes in bias suppression and opportunity to perform across times 3 and 4 had a positive impact on the time 5 rating of overall procedural fairness, Together these changes explained 8% of the variance. In support of Hypothesis 4 therefore, significant changes in applicants' ratings of justice had an impact on overall evaluations of fairness both before and after communication of the outcome decision.

Table 6.26. Multiple Regression Analyses Investigating the Impact of Temporal Change in the Procedural Justice Rules on Overall Procedural Fairness

D. Var.	Final Block	R	R^2	A R^2	$R^2\Delta$	F Δ (df)	\underline{B}	B
T2		.58	.34	.33	.27	89.90(6,667)*		
	Inter. Effect.						.44*	.56
	Bias Suppre.						.17*	.23
	Inform.						.09 [†]	.08
T4		.68	.46	.45	.33	63.22(8,422)*		
	Inter. Effect.						.33*	.40
	Opp to Perf.						.39*	.38
	Bias Suppre.						-.01	-.01
	Inform.						.11 [†]	.09
T5		.68	.47	.45	.08	11.81(9,312)*		
	Inter. Effect.						.09	.12
	Opp to Perf.						.19*	.21
	Bias Suppre.						.15 [†]	.23
	Inform.						.02	.02

Note. * $p < .001$; [†] $p < .01$; [†] $p < .05$. D. Var. = Dependent Variable; A R^2 = Adjusted R^2 ; Overall P. Fairness = Overall Procedural Fairness; Inter. Effect. = Interpersonal Effectiveness; Opp to Perf. = Opportunity to Perform; Bias Suppre. = Bias Suppression; Informative. = Informativeness.

The Impact of Temporal Change in Procedural Justice Rules on Justice Expectations in Subsequent Encounters with the Organisation.

Hypothesis 5 predicted that changes from applicants' expectations to perceptions of justice would influence expectations of justice for subsequent encounters with the organisation. The correlations between the justice scales across all four time points are shown in Table 5.10, Chapter Five. For interpersonal effectiveness, bias suppression, and informativeness, the intra-scale correlations across times 1 and 3 were .49, .65 and .35 respectively, and across times 2 and 3 were .29, .43 and .34 respectively. To analyse Hypothesis 5, two phases of analyses were conducted. First, in terms of the change in applicants' expectations of justice across times 1 and 3 and second in terms of the impact of mean change in the justice rules at the interview on assessment centre justice expectations.

The change in applicants' expectations of justice across times 1 and 3 were examined with a repeated measures MANOVA. The time 1 and 3 ratings of the three rules showing change across times 1 and 2 were entered as the within subjects factor,

and time entered as the between subjects factor. The results indicated a significant overall difference across time ($F(1,144) = 57.50, p < .001$) and for the interactions between time and all three justice expectations ($F(2,143) = 3.33, p < .05$). These were followed up with paired t-tests for each justice expectation across time using listwise deletion, with type 1 error controlled using Bonferroni correction ($.05 / 3 = .017$). At this criterion level the change in all three justice expectations was significant. As shown in Table 6.27, applicants' expectations of interpersonal effectiveness significantly increased across times 1 and 3, whilst expectations of bias suppression and informativeness significantly decreased.

Table 6.27. T-Tests of Change in Justice Expectations Across Times 1 and 3.

	N	Time 1		Time 3		t
		Mean	SD	Mean	SD	
Inter. Effectiveness	151	3.67	0.47	3.89	0.48	-5.69*
Bias Suppression	150	4.05	0.56	3.88	0.59	4.11*
Informativeness	147	3.42	0.67	3.06	0.68	5.61*

Note. * $p < .001$. Inter. = Interpersonal

To examine the impact of changes in ratings of interview justice on expectations at time 3, three separate hierarchical regressions were computed, one for each justice rule which showed change across times 1 and 2. The time 3 expectation of the rule was entered as the dependent variable. The time 1 expectations of interpersonal effectiveness, bias suppression, and informativeness were entered in the first block and the time 2 perceptions in the second block. Significant increments in the amount of variance explained at the second block indicate that a change in justice evaluations significantly predicts subsequent justice expectations. The sample size for each analysis met Green's (1991) formulae for interpreting individual predictors as recommended by Tabachnick and Fidell (1996).

The results are displayed in Table 6.28. The regressions for the time 3 expectations of interpersonal effectiveness and informativeness were significant. Bias suppression at time 2 accounted for 7% of the variance in the change in expectation of interpersonal effectiveness at time 3, whilst informativeness at time 2 accounted for 7% of the variance in the change in expectation of informativeness at time 3. For the

expectation of interpersonal effectiveness, the significant impact of the bias suppression rule was unexpected and will be further discussed in Chapter Nine. Nevertheless, in support of Hypothesis 5, for two of the three dimensions showing change across times 1 and 2, the mean change had an impact on justice expectations at the assessment centre.

Table 6.28: Multiple Regression Analyses Investigating the Impact of Temporal Change in the Procedural Justice Rules on Subsequent Fairness Expectations

D. Var.	Final Block	R	R ²	A R ²	R ² Δ	FΔ(df)	<u>B</u>	B
T3 Inter Effect.		.56	.32	.28	.07	3.56(6,109) [†]		
	T2 Inter. Effect						.15	.14
	T2 Bias Suppre						.20 [†]	.19
	T2 Inform						-.00	-.00
T3 Bias Suppre.		.71	.51	.48	.02	1.42(6,109)		
	T2 Inter. Effect						.01	.01
	T2 Bias Suppre.						.14	.17
	T2 Inform						-.04	-.03
T3 Inform.		.46	.21	.17	.07	3.28(6,108) [†]		
	T2 Inter. Effect						.15	.20
	T2 Bias Suppre.						-.18	-.26
	T2 Inform.						.22 [†]	.21

Note. * p <.001; [‡] p <.01; [†] p <.05. D. Var. = Dependent Variable; A R² = Adjusted R²; Inter. Effect. = Interpersonal Effectiveness; Bias Suppre. = Bias Suppression; Inform. = Informativeness; Opp. = Opportunity.

The Impact of Procedural Justice on Immediate, Intermediate and Long-Term Outcomes

Impact of Change in Ratings of Justice

Three hypotheses postulated that changes between justice expectations and perceived fairness reality would have an immediate (pre-decision) impact on candidates' motivation, anxiety, self-esteem, organisational attractiveness, intentions to accept offers of employment, and Shell's ratings of potential at selection (Hypothesis 6); an intermediate (post-decision) impact on self-esteem, organisational attractiveness, and actual offer acceptance decisions (Hypothesis 7); and a long term (post-employment) impact on job satisfaction, organisational commitment, intended tenure, and Shell's ratings of both potential and performance post-employment (Hypothesis 8). Since these variables were not measured in Study A, this hypothesis was analysed in relation to Study B only.

Correlations Between Justice and Outcome Measures

The correlations between the immediate outcome variables at time 2 and applicants' perceptions of the justice dimensions showing change across times 1 and 2 are shown in Table 6.29. For each separate outcome measure, the analyses were computed with listwise deletion of cases. Significant correlations were observed for all applicant-rated immediate outcome measures and the interpersonal treatment and

Table 6.29. Correlations Between Justice Rules and Immediate Interview Variables

	Motivation	Anxiety	Org. Attract.	Self- Esteem	Accept Intention	Selection Rating
<u>Time 1</u>						
Inter. Effect.	.21*	-.14*	.11+	.19*	.13*	-.02
Bias Suppression	.28*	-.16*	.13*	.13*	.16*	-.02
Informativeness.	.15*	-.03	.07	.12+	.18*	.01
<u>Time 2</u>						
Inter. Effect.	.33*	-.26*	.22*	.24*	.26*	.10†
Bias Suppression	.33*	-.26*	.23*	.20*	.24*	-.01
Informativeness	.04	-.07	.07	.17*	.10+	-.01

Note. N =664-676. * p <.001; + p < .01; † p < .05. Inter. Effect. = Interpersonal Effectiveness; Org. Attract. = Organisational Attractiveness; Accept. = Acceptance.

bias suppression rules at times 1 and 2. The relationship between the outcomes and the informativeness rule, were generally smaller, although significant correlations were observed between the time 1 rating of informativeness and motivation and the times 1 and 2 rating with self-esteem and intentions to accept a job offer. For Shell's rating of potential at selection however, there were no significant correlations with the justice rules, except a small but significant correlation with perceptions of interpersonal effectiveness at time 2.

Table 6.30 shows the correlations for the four justice rules showing change across times 3 and 4 with the immediate (time 4), intermediate (time 5) and long-term outcome variables (time 6). Again, for each separate outcome measure, the analyses were computed with listwise deletion of missing cases. The results indicate that the justice rules were generally significantly correlated with the immediate variables measured at time 4, although again, smaller associations were observed for informativeness, especially at time 3. For Shell's selection ratings of potential, small, but significant correlations were observed for the time 3 expectations of bias suppression and informativeness, and the time 4 perceptions of opportunity to perform and bias suppression. For the intermediate outcome variables, the justice rules showed some significant associations with both self-esteem and organisational attractiveness measured at time 5. For applicants' actual decision-making and intended tenure, there were generally non-significant associations with justice. Finally, in terms of the long-term outcomes, there were no significant correlations with the justice rules. It is important to note that data were only available from successful applicants for the long-term outcome variables and that the sample size was small ($N = 56-82$). Nevertheless, many of the correlations were close to zero, indicating that, contrary to Hypothesis 8, the justice rules did not have a significant long-term impact. In summary, significant correlations were only observed with immediate and intermediate variables. Overall, the size of the significant correlations are generally small to moderate, but this may in part, be due to the lack of variability in the ratings of the justice rules as indicated by the small standard deviations which range from .49 - .73 (see Table 5.9, Chapter Five).

Table 6.30. Correlations Between Justice Rules and Assessment Centre Outcome Variables

	Immediate (N = 240 - 443)						Intermediate (N = 166 - 315)			Long-Term (N = 56 - 82)					
	Motiv.	Anx.	Attr.	S-Est.	Acpt Int.	Sel. Rat.	S-Est.	Attr.	D-M ^a	J. Sat.	Attr.	O. Com.	Int. Ten.	Perf.	Pot.
<u>Time 3</u>															
Inter. Effect.	.18*	-.03	.21*	.13+	.16*	.07	.13+	.18*	-.01	-.13	-.05	.04	-.08	-.09	.07
Opp. to Perform	.23*	-.15*	.23*	.23*	.19*	.01	.21*	.19*	.07	.02	.10	.09	-.10	-.21	-.06
Bias Suppression	.26*	-.05	.17*	.20*	.15*	.10+	.09	.25*	-.03	.07	-.02	.06	.04	.14	.04
Informativeness	.09	-.05	.12+	.11+	.06	-.11+	.12+	.09	-.04	-.06	-.01	.03	.09	-.06	-.12
<u>Time 4</u>															
Inter. Effect.	.31*	-.15+	.29*	.25*	.20*	.09	.14+	.31*	.06	.01	.09	.05	-.01	-.04	.02
Opp. to Perform	.25*	-.31*	.29*	.34*	.17*	.12+	.17+	.27*	-.08	-.04	.10	.12	-.08	-.15	-.11
Bias Suppression	.27*	-.15+	.24*	.17*	.16*	.10+	.14+	.24*	-.05	.15	.10	.17	.18	.00	-.08
Informativeness	.20*	-.05	.20*	.17*	.15*	.01	.08	.18+	-.05	-.00	.07	.16	.18	-.14	-.04
<u>Time 5</u>															
Distributive Fair.	.15+	-.08	.07	.18*	.04	.45*	.20*	.24*	.39*	.02	-.04	.10	-.05	.03	-.05
Feedback	.20*	.00	.21*	.12+	.17+	.17*	.07	.32*	.06	-.04	.14	.21	.17	-.11	.08

Note. * $p < .001$; + $p < .01$; † $p < .05$. ^a Spearman Correlation. Inter. Effect. = Interpersonal Effectiveness; Opp. = Opportunity; Fair. = Fairness; Motiv. = Motivation; Anx. = Anxiety; Attr. = Attractiveness; S-Est. = Self-Esteem; Acpt Int. = Acceptance Intentions; D-M = applicants actual decision-making; Int. Ten. = Intended Tenure; sel. Rat. = Selection Rating; J. Sat. = Job satisfaction; O. Com. = Organisational Commitment; Perf. = Job Performance; Pot. = Job Potential.

Table 6.30 also displays the correlations between the outcome variables and perceptions of distributive justice and feedback. As expected, there were significant correlations between Shell's ratings of potential and applicants' perceptions of both distributive justice and feedback. Importantly, in term of Hypothesis 7, distributive justice was found to correlate significantly with self-esteem, attractiveness, and applicant decision-making at time 5. Therefore, to provide a robust test of the impact of the pre-decision procedural justice rules, it is necessary to control for perceptions of distributive justice in the analysis of the intermediate variables.

Multiple Regression Analyses

Where significant correlations were found, a number of regression analyses were conducted in order to assess Hypotheses 6 and 7. Since no significant correlations were observed for the long-term outcome variables, no further analyses were conducted on Hypothesis 8.

Immediate Impact

Motivation, anxiety, organisational attractiveness, self-esteem, and intentions to accept offers of employment were measured at times 1 and 2 (pre- and post-interview) and at times 3 and 4 (pre- and post-assessment centre). In addition, Shell's ratings of applicants' potential at the interview and assessment centre were also available. The correlations between these variables and the measures of the procedural justice rules were generally significant, although notably smaller for the selection ratings of potential. Two separate regression analyses were therefore conducted for each variable based first on the interview data and second, on the assessment centre data. For analysis of the interview data, the dependent variable comprised the time 2 measure of either motivation, anxiety, organisational attractiveness, self-esteem, self-efficacy, intentions to accept offers of employment, or ratings of applicants' potential. The time 1 measure of the dependent variable was entered in the first step to control for applicants' initial levels of these variables. Changes in perceptions of justice were investigated by entering the time 1 measure of the those justice rules which showed change across time in the second block and by entering the time 2 measure of those rules in the third block. The only exception to this procedure was for the analysis of the ratings of applicants' interview potential, where a baseline measure was not available, and so analysis commenced with the

second step described above. For the analysis of the assessment centre, the same procedure was followed, except the time 1 and 2 measures were replaced by the time 3 and 4 measures respectively.

Table 6.31. Multiple Regression Analyses Investigating the Immediate Impact of Temporal Change in the Procedural Justice Rules at the Interview.

D. Var.	Final Block	R	\underline{R}^2	A \underline{R}^2	$\underline{R}^2\Delta$	F Δ (df)	\underline{B}	B
T2: Motivation		.63	.40	.40	.05	16.90(7,663)*		
	Inter. Effectiveness						.19*	.19
	Bias Suppression						.08+	.09
	Informativeness						-.03	-.02
T2: Anxiety		.64	.41	.40	.05	19.47(7,659)*		
	Inter. Effectiveness						-.17*	-.25
	Bias Suppression						-.13*	-.20
	Informativeness						.03	.02
T2: Org. Attractiveness		.52	.27	.26	.04	9.31(7,667)*		
	Inter. Effectiveness						.15*	.17
	Bias Suppression						.07	.08
	Informativeness						.02	.02
T2: Self-Esteem		.62	.39	.38	.03	10.11(7,654)*		
	Inter. Effectiveness						.13*	.27
	Bias Suppression						.05	.10
	Informativeness						.07	.09
T2: Intentions to Accept		.69	.47	.47	.03	12.50(7,668)*		
	Inter. Effectiveness						.16*	.22
	Bias Suppression						.05	.08
	Informativeness						.00	.00
T2: Interview Potential		.13	.02	.01	.02	3.65(6,656)†		
	Inter. Effectiveness						.14+	.37
	Bias Suppression						-.06	-.15
	Informativeness						-.05	-.08

Note. * $p < .001$; + $p < .01$; † $p < .05$. D. Var. = Dependent Variable; A \underline{R}^2 = Adjusted \underline{R}^2 ; Inter. = Interpersonal; Org. = Organisational.

Table 6.31 shows the results for the interview. The results indicate that in support of Hypothesis 6, the change between time 1 ratings of justice expectations and time 2 perceptions of justice accounted for changes in motivation (5%), anxiety

(5%), organisational attractiveness (4%), self-esteem (3%), and intentions to accept offers of employment (3%) across times 1 and 2. The difference also explained 2% of the variance in ratings of applicants' potential. Specifically, changes in applicants' ratings of interpersonal effectiveness and bias suppression influenced changes in perceptions of motivation, anxiety, and self-esteem. For organisational attractiveness, intentions to accept offers of employment and ratings of interview potential, interpersonal effectiveness emerged as the only significant predictor. Had the direct impact been observed the amount of explained variance would have ranged from 8% for intentions to accept offers of employment to 15% for motivation. This indicates that the analyses conducted provided a more stringent approach to investigating the impact of perceptions of procedural justice.

In terms of the assessment centre, the results in Table 6.32 indicate that across times 3 and 4, the change in ratings of justice accounted for changes in assessment centre motivation (5%), anxiety (4%), organisational attractiveness (5%), and self-esteem (6%). The results were not significant for intentions to accept offers of employment or assessment centre ratings of potential, although the beta weight of the change in opportunity to perform was significant for ratings of potential. Specifically, changes in applicants' ratings of interpersonal effectiveness and opportunity to perform had an impact on motivation and self esteem. For anxiety, the change in opportunity to perform was the only significant predictor, whilst for organisational attractiveness, no specific rule emerged as the significant predictor. These results provided additional support to Hypothesis 6 regarding the immediate impact of justice. Had the direct impact been observed, the amount of explained variance would have ranged from 5% for intentions to accept offers of employment to 13% for self-esteem. This illustrates that the effect sizes of the last measurement point may be overestimated if initial levels of both the independent and dependent variables are not controlled.

Table 6.32. Multiple Regression Analyses Investigating the Immediate Impact of Temporal Change in the Procedural Justice Rules at the Assessment Centre

D. Var.	Third Block	R	R ²	A R ²	R ² Δ	FΔ(df)	B	B
T4: Motivation		.70	.49	.48*	.05	9.24(9,421)*		
	Inter. Effectiveness						.16*	.14
	Opp to Perform						.11+	.08
	Bias Suppression						.03	.03
	Informativeness						.01	.00
T4: Anxiety		.69	.47	.46*	.04	9.32(9,422)*		
	Inter. Effectiveness						-.07	-.10
	Opp to Perform						-.23*	-.27
	Bias Suppression						.04	.06
	Informativeness						.09	.09
T4: Org. Attractiveness		.64	.41	.40*	.05	9.03(9,419)*		
	Inter. Effectiveness						.11	.13
	Opp to Perform						.12	.12
	Bias Suppression						.09	.11
	Informativeness						.02	.02
T4: Self-Esteem		.63	.40	.39*	.06	11.01(9,414)*		
	Inter. Effectiveness						.11+	.22
	Opp to Perform						.24*	.37
	Bias Suppression						-.07	-.14
	Informativeness						.00	.00
T4: Intentions to Accept		.74	.55	.54*	.01	1.98(9,422)		
	Inter. Effectiveness						.05	.08
	Opp to Perform						.06	.07
	Bias Suppression						.02	.03
	Informativeness						.01	.01
T4: AC Potential		.22	.05	.03+	.02	1.96(8,419)		
	Inter. Effectiveness						.00	.01
	Opp to Perform						.14+	.18
	Bias Suppression						.03	.06
	Informativeness						.01	.00

Note. * p < .001; + p < .01; + p < .05. D. Var. = Dependent Variable; A R² = Adjusted R²; Inter. = Interpersonal; Opp. = Opportunity.

Intermediate Impact

In terms of Hypothesis 7, the intermediate impact of changes in perceived justice were hypothesised using the time 5 ratings of organisational attractiveness,

self-esteem and candidates' decision-making. The correlations displayed in Table 6.30 indicated that there were no significant relationships between the procedural justice rules and applicants' decision-making and so this outcome was not analysed further. For the remaining two outcomes, the dependent variable comprised the time 5 measure of organisational attractiveness or self-efficacy. In the first step of the regression, the time 3 measure of the dependent variable was entered, together with distributive fairness in order to control for applicants' reactions to the outcome decision. The time 3 measures of the justice rules showing change across time were entered in the second block and the time 4 measures of those rules were entered in the third block.

The results in Table 6.33 indicate that, controlling for distributive fairness, the change between the time 3 and 4 ratings of procedural justice accounted for 4% of the change in perceptions of organisational attractiveness across times 3 and 5. The results were not significant for post-decision self-esteem. For the significant result, the change in applicants' ratings of interpersonal effectiveness predicted the change in organisational attractiveness. The direct impact of the time 4 justice rules on time 5 organisational attractiveness explained 10% of the variance, again illustrating the importance of this stringent approach.

Table 6.33. Multiple Regression Analyses Investigating the Intermediate Impact of Temporal Change in the Procedural Justice Rules at the Assessment Centre

D. Var.	Third Block	R	\underline{R}^2	\underline{AR}^2	$\underline{R}^2\Delta$	F Δ (df)	\underline{B}	B
T5: Org. Attractiveness		.56	.3	.29*	.04	4.55(10,307)+		
	T4 Inter. Effectiveness						.18+	.21
	T4 Opp to Perform						.08	.08
	T4 Bias Suppression						.04	.05
	T4 Informativeness						-.01	-.01
T5: Self-Esteem		.63	.40	.38*	.00	0.01(10,307)		
	T4 Inter. Effectiveness						.00	.00
	T4 Opp to Perform						-.00	-.00
	T4 Bias Suppression						.01	.02
	T4 Informativeness						-.00	-.00

Note. * $p < .001$; + $p < .01$; + $p < .05$. D. Var. = Dependent Variable; \underline{AR}^2 = Adjusted \underline{R}^2 ; Inter. = Interpersonal; Opp. = Opportunity.

The Moderating Role of Feedback on the Impact of Procedural Justice

Hypothesis 9 proposed that perceptions of feedback would moderate the relationship between the procedural justice rules and post-decision organisational attractiveness, job acceptance decisions, self-esteem, work performance, job satisfaction, organisational commitment and intentions of leaving. As noted above, there were significant correlations between the procedural justice rules and time 5 ratings of organisational attractiveness, job acceptance decisions, and self-esteem. However, there were no significant relationships between the procedural justice rules at time 4 or feedback at time 5 and the outcome measures at time 6. Therefore this hypothesis was only analysed for the time 5 outcome variables.

The hypothesis was examined via two moderated multiple regression analyses for the time 5 ratings of organisational attractiveness and self-esteem. To control for reactions to the outcome decision, distributive justice was entered in the first step, perceptions of feedback in the second step, the five procedural justice rules measured at time 4 in the third step, and finally the five interaction terms for the justice rules and feedback in the fourth step.

The results are presented in Table 6.34. Distributive justice explained significant amounts of variance for organisational attractiveness ($R^2 = .07$, $p < .001$) and self-esteem ($R^2 = .06$, $p < .001$) and therefore its inclusion provided a more stringent analysis of the moderator effects. The moderator variable, feedback, explained significant amounts of incremental variance in organisational attractiveness ($\Delta R^2 = .05$, $p < .001$) and self-efficacy ($\Delta R^2 = .05$, $p < .001$). At the third level of entry, the procedural justice rules at time 4 explained a significant amount of incremental variance in organisational attractiveness ($\Delta R^2 = .05$, $p < .001$). Finally, the interaction terms explained a significant amount of additional variance in organisational attractiveness ($\Delta R^2 = .04$, $p < .05$). Specifically, the interaction between feedback and career relevance explained additional variance in organisational attractiveness. For self-esteem, the interaction terms approached significance ($\Delta R^2 = .03$, $p = .056$).

Table 6.34. Moderated Multiple Regression Analyses of Feedback and Procedural Justice

		R	R ²	AR ²	R ² Δ	FΔ (df)	<u>B</u>	B
<u>Org. Attractiv. T5</u>								
Step 1:	DJ	.26	.07	.06	.07	23.41 (1,330)*	.26*	.17
Step 2:	FB	.35	.12	.11	.05	19.93 (2,329)*	.25*	.25
Step 3:	PJ1	.41	.17	.15	.05	4.08 (7,324)*	.10	.12
	PJ2						-.03	-.03
	PJ3						.08	.11
	PJ4						.15†	.16
	PJ5						.01	.01
Step 4:	PJ1 X FB	.46	.21	.18	.04	2.95 (12,319)†	-.22	-.04
	PJ2 X FB						.30	.05
	PJ3 X FB						-.27	-.05
	PJ4 X FB						-1.55+	-.27
	PJ5 X FB						.36	.06
<u>Self Esteem T5</u>								
Step 1:	DJ	.24	.06	.05	.06	19.94 (1,333)*	.24*	.22
Step 2:	FB	.24	.06	.05	.00	0.02 (2,332)	.01	.01
Step 3:	PJ1	.29	.09	.07	.03	2.09 (7,327)	.06	.10
	PJ2						.13	.19
	PJ3						.06	.12
	PJ4						-.02	-.03
	PJ5						-.02	-.02
Step 4:	PJ1 X FB	.34	.12	.08	.03	2.18 (12,322)	.61	.16
	PJ2 X FB						-.19	-.05
	PJ3 X FB						-1.49	-.38
	PJ4 X FB						.96	.24
	PJ5 X FB						.65	.16

Note. * $p < .001$; + $p < .01$; † $p < .05$. Attractiv. = Attractiveness; T = time; DJ = Distributive Justice; FB = Feedback; PJ1 = Interpersonal Effectiveness; PJ2 = Opportunity to Perform; PJ3 = Bias Suppression; PJ4 = Career Relevance; PJ5 = Informativeness.

For the dichotomous variable of candidate decision-making, a logistic regression was performed to assess prediction of membership of the offer accepted or offer rejected group. First, distributive justice was entered as a control, second, feedback was added, third, the five procedural justice rules were entered and finally, the interactions between the procedural justice rules and feedback were added in the

fourth step. The results in Table 6.35 indicate that for the first three steps, the variables did not contribute to the prediction of applicant decision-making. At the fourth step, comparison of the log likelihood ratios showed reliable improvement ($X^2(5, N = 178) = 16.59, p < .01$). This indicates that the interaction terms, as a set, reliably distinguished between those who accepted and rejected offers of employment. At step four, 22% of those rejecting offers and 98% of those accepting offers were correctly predicted, with an overall success rate of 87%. The Wald test provides an indication of which individual predictors are reliably associated with the outcome. The interaction of feedback with interpersonal effectiveness ($z = 4.54, p < .05$) and the interaction between feedback and career relevance ($z = 7.39, p < .01$) significantly contributed to the prediction of candidate decision-making.

Table 6.35. Logistic Regression Analysis of Applicant Decision-Making as a Function of the Interaction between Feedback and Procedural Justice Rules

Step	Variables	Log-likelihood	Model X^2	R	<u>B</u>	Wald test (Z ratio)
Step 1:	DJ	148.19	3.33	.10	0.65	3.43
Step 2:	FB	147.95	0.25	.00	0.18	0.25
Step 3:	PJ1	143.48	4.46	.00	0.78	1.90
	PJ2			.10	-0.78	2.72
	PJ3			.86	-0.10	0.03
	PJ4			.70	0.18	0.15
	PJ5			.58	-0.21	0.31
Step 4:	PJ1 X FB	126.90	16.59+	-.13	-2.22	4.54+
	PJ2 X FB			.00	0.92	1.24
	PJ3 X FB			.10	2.40	3.53
	PJ4 X FB			-.19	-2.70	7.39+
	PJ5 X FB			.00	0.94	1.91

Note. N = 151 accepted offers; 27 rejected offers. * $p < .001$; + $p < .01$; † $p < .05$. Attractiv. = Attractiveness; T = time; DJ = Distributive Justice; FB = Feedback; PJ1 = Interpersonal Effectiveness; PJ2 = Opportunity to Perform; PJ3 = Bias Suppression; PJ4 = Career Relevance; PJ5 = Informativeness.

In summary, three interaction terms were found to be significant: The interaction of feedback and career relevance on organisational attractiveness, the interaction of feedback and career relevance for applicant decision-making, and the interaction between feedback and interpersonal effectiveness for candidate decision-

making. In order to determine the form of these interactions, Cohen and Cohen (1983) recommend plotting values of the interaction at one standard deviation above and below the mean. For the interactions involving applicant decision-making, no individual rated feedback more than one standard deviation below the mean and the procedural justice rules at more than one standard deviation above the mean. Therefore, high and low ratings were evaluated by plotting applicants at half a standard deviation above and below the mean (see Appendix 10). As predicted, in each case, the results indicated that feedback had the greatest impact on organisational attractiveness and candidate decision-making when procedural justice rule was low. This offers some support to Hypothesis 9.

Chapter Seven

Psychological Contract Results

In relation to Hypotheses 10 -15, this results chapter provides the analyses relating to the emergence of the psychological contract at selection and organisational socialisation. Hypothesis 10 suggested that perceptions of procedural justice would be associated with perceptions of relational elements of the psychological contract and distributive justice with transactional elements. The eleventh hypothesis proposed that there would be cultural differences in perceptions of the psychological contract pre-, but not post-organisational entry. Hypothesis 12 proposed that recruits' perceptions of the psychological contract would change across time, to the extent that perceptions of employer obligations would increase and employee obligations would decrease. Changes were also hypothesised to represent greater congruence with the views of organisational representatives, although some significant differences between the two parties would remain (Hypothesis 13). Hypothesis 14 suggested that adjustment in perceptions of the psychological contract would be influenced by psychological contract violation, socialisation knowledge and department manager contact. Finally, Hypothesis 15 proposed that psychological contract change would influence organisational commitment, organisational attractiveness, job satisfaction, job performance and intended tenure.

Emergence of the Psychological Contract at Selection and Organisational Socialisation

Overview of Descriptive Statistics

Successful applicants rated their perceptions of the psychological contract at the end of selection in both studies, and after four months of employment in Study B. Interviewers and assessors also provided ratings of the content of the psychological contract from the employers' perspective during the course of Study B. For all results reported from Study B, only those individuals who responded to both times 5 and 6 were included in any analysis. The means and standard deviations for the psychological contract items from Study A and B are shown in Table 7.1.

Looking at recruits' perceptions of both Shell's and their own obligations in Study A and Study B at times 5 and 6, the means were generally above the midpoint of the five point scale, the only exceptions being recruits' perceptions of two employer obligations (long term job security and support with personal problems) in Study A and Study B at time 6. In terms of the normality of the distribution, the standard deviations were generally not overly narrow, with the exception of the rating of the employee obligation to protect proprietary information which had a standard deviation of .34 in Study A. In Study A and B the skewness statistics ranged from -2.27 to -0.23, and -2.26 to 0.70 respectively, and the kurtosis values from -0.93 to 6.21 and -1.06 to 4.46 respectively. Two separate Multiple Analysis of Variance (MANOVAs) were conducted, comparing the respondents to Study A and B on perceived employer and employee obligations. These were both significant (Employer obligations: $F(7,173) = 2.78, p < .01$; Employee obligations: $F(8,169) = 1.99, p = .05$). These were followed up with paired t-tests for each dimension with type 1 error controlled using Bonferroni correction (employer obligations: $.05 / 7 = .007$; employee obligations $.05/8 = .006$). At this criterion level, two employer obligations were significant: in Study A, recruits had lower perceptions of Shell's obligation to provide high pay ($t = 2.93, p < .007$) and support with personal problems ($t = 2.82, p = < .007$). For employer obligations, none of the obligations were significantly different across the two samples. Overall, therefore, there were only small changes to recruits' perceptions of the psychological contract across the recruitment years of 1995/1996 and 1996/1997.

Table 7.1. Descriptive Statistics for Perceptions of the Psychological Contract for Recruits and Organisational Representatives.

	Recruit Study A		Recruit Study B				Org. Rep.	
	Mean	SD	T5		T6		Mean	SD
			Mean	SD	Mean	SD		
<u>Employer Obligations</u>								
Promotion	3.43	1.07	3.80	0.91	3.48	1.04	2.94	1.06
High pay	3.20	0.93	3.55	0.76	3.47	0.86	2.88	0.96
Performance based pay	4.22	0.74	4.10	0.66	4.09	0.75	4.33	0.79
Training	4.60	0.52	4.58	0.58	4.44	0.64	4.33	0.63
Long term job security	2.91	0.98	3.13	1.03	2.87	1.03	2.40	1.02
Career development	4.42	0.68	4.51	0.64	4.27	0.77	4.01	0.73
Support with personal problems	2.70	1.07	3.11	0.96	2.49	0.95	3.01	1.03
<u>Employee Obligations</u>								
Working extra hours	3.85	0.89	3.85	0.85	3.73	0.92	3.39	1.03
Loyalty	4.22	0.93	4.36	0.70	4.20	0.75	3.25	1.07
Volunteering to do non-required tasks	3.73	1.00	3.50	0.92	3.82	0.77	3.05	1.00
Advance notice if taking a job elsewhere	4.21	0.88	4.09	0.74	4.02	0.93	3.29	1.17
Willingness to accept a transfer	4.09	0.78	3.86	0.83	3.72	0.93	3.85	0.79
Refusal to support Shell's competitors	3.45	1.30	3.64	0.98	3.40	1.17	2.96	1.27
Protection of proprietary information	4.87	0.34	4.73	0.52	4.78	0.49	4.77	0.53
Spending a minimum of 2 years at Shell	3.88	1.38	4.00	1.27	3.43	1.38	2.19	1.27

Note: $N = 86$ Recruits Study A. $N = 88$ Recruits Study B; $N = 115$ Representatives. * Employer obligations $p < .007$; * Employee obligations $p < .006$; † $p < .01$; † $p < .05$. Org. Rep. = Organisational Representative.

For the organisational representatives, analyses were conducted to assess whether there were significant differences between interviewers' and assessors' ratings of the psychological contract of graduate recruits. Two separate MANOVAs were conducted, comparing the two groups on employer and employee obligations. These were both non-significant (Employer obligations: $F(7,112) = 1.26, p = .276$; Employee obligations: $F(8,107) = 0.63, p = .753$). Hence, the two groups were combined to represent a single organisational representative sample. The means for the organisational representatives indicated that most obligations were rated on average around the scale midpoint, with three employer obligations (promotion, high pay and long term job security) and two employee obligations (refusal to support Shell's competitors and spending a minimum of two years in Shell) falling just below the scale midpoint. The data did not depart substantially from a normal distribution: the standard deviations were not overly narrow, the skewness statistics ranged from -2.32 to 0.73, and kurtosis values from 4.45 to -0.86.

Emergence of the Psychological Contract and Perceptions of Justice

Hypothesis 10 proposed that there would be an association between perceptions of justice and the psychological contract. In particular, it was expected that procedural justice would be associated with relational elements of the contract and distributive justice with more transactional elements. Correlations were computed separately for each measure of justice using listwise deletion.

In Study A, justice was measured by eight procedural justice rules and an overall measure of procedural and distributive fairness. The correlations between these measures and perceptions of the psychological contract are shown in Table 7.2. In terms of the justice rules, a small number of moderate and significant interrelationships were observed with both transactional and relational elements of the contract. For example, interpersonal effectiveness was significantly associated with merit pay, working extra hours, loyalty and extra role behaviours. There were no significant correlations for overall distributive fairness and there were no associations between any justice dimension and training, support with personal problems, giving notice, not supporting competitors, protection of proprietary information or the requirement to stay for a minimum period of time. Furthermore,

only 17 out of a possible 150 correlations were significant, which is only slightly above what would be expected by chance. Overall, the results from Study A do not support Hypothesis 10.

Table 7.2. Study A: Correlations between Justice and the Psychological Contract.

	PJ1	PJ2	PJ3	PJ4	PJ5	PJ6	PJ7	PJ8	Ov. PJ	Ov. DJ
<u>Employer</u>										
Promotion	-.15	-.13	.22	.04	-.05	-.24 [†]	-.04	-.05	-.25 [†]	-.04
High Pay	-.06	-.11	.04	.10	.06	-.26 [†]	.04	-.03	-.06	-.13
Merit Pay	.09	.33 [‡]	.09	.08	.32 [‡]	.08	.26	.10	.22	.13
Training	.01	-.02	.12	.13	.08	-.06	.02	.01	.06	.12
Job Security	.06	-.04	-.08	.02	-.10	-.28 [‡]	-.04	-.04	-.07	-.07
Career Dev.	.17	.12	.28 [‡]	.02	.16	.05	.15	.12	.23 [†]	.23
Support	.06	.12	-.15	-.13	.04	.01	-.02	-.15	.10	.12
<u>Employee</u>										
Overtime	-.12	.33 [‡]	.13	-.06	.17	-.01	.07	-.12	.00	.05
Loyalty	.04	.37 [*]	.24 [†]	.06	.14	.13	.25 [†]	-.15	.19	.17
Extra Roles	.01	.24 [†]	-.14	-.10	.24 [†]	.18	.09	.21 [†]	.07	.07
Notice	.02	.10	.19	.18	.19	-.01	.20	-.02	.21	.09
Transfers	.13	.14	.30 [‡]	.11	.35 [*]	.03	.20	.05	.18	.18
No Competitors	.08	.19	.20	.01	.04	.17	.10	-.05	.04	.07
Proprietary	.03	.01	.07	.11	.11	.20	.07	-.04	.07	.15
Minimum Stay	.03	.06	.11	.06	.10	-.13	.08	-.12	.21	.12

Note. N = 72-87. p* <.001; ‡ p <.01; † p <.05. Ov PJ = Overall Procedural Justice; Ov. DJ = Overall Distributive Justice; PJ1 = Opportunity to Perform and Equity; PJ2 = Interpersonal Effectiveness; PJ3 = Career Relevance; PJ4 = Informativeness; PJ5 = Two-Way Communication; PJ6 = Bias Consistency; PJ7 = Adequacy of Feedback; PJ8 = Feedback Timeliness; Dev. = Development.

Table 7.3 shows the correlations for Study B in terms of the five procedural justice rules measured at time 4 and the overall perceptions of procedural and distributive fairness measured at time 5. Where procedural justice was measured prior to communication of the decision, only 7 out of a possible 75 correlations were significant, and if Bonferonni corrections were made to control for Type 1 error, these correlations would not be significant. In terms of the overall perceptions of fairness measured post-communication of the decision, a small number of significant correlations were observed with both employee and employer obligations. Overall, it would appear that significant correlations were more likely when justice was measured after communication of the outcome decision, but even then, the

associations were not particularly strong. Therefore, Hypothesis 10 was not supported.

Table 7.3. Study B: Correlations between Justice and the Psychological Contract.

	PJ1	PJ2	PJ3	PJ4	PJ5	Ov. PJ	Ov. DJ
<u>Employer</u>							
Promotion	.02	.07	-.05	.02	-.04	.07	.16
High pay	-.15	-.09	.26 [†]	-.10	-.07	.07	.21 [†]
Merit Pay	.17	.18	.18	.19	.13 [†]	.22 [†]	.05
Training	.03	-.04	.10	.04	.05	.26 [†]	.14
Job Security	-.01	.00	-.17	-.11	.01	-.20	.02
Career Dev.	.08	.09	.01	-.01	-.01	.15	.23 [†]
Support	-.04	.05	-.05	.02	.18	-.14	.07
<u>Employee</u>							
Overtime	-.14	-.04	-.05	-.02	-.07	.03	.02
Loyalty	.00	.03	.07	.06	.05	.13	.15
Extra Roles	.18	.13	.05	-.09	.08	-.04	-.03
Notice	.28 [†]	.14	.21	.01	.04	.04	.02
Transfers	.01	-.06	-.01	.06	-.03	.06	-.03
No Competitors	.10	.19	.17	.23 [†]	.10	.24 [†]	.12
Proprietary	.29 [†]	.17	.25 [†]	.23 [†]	.06	.24 [†]	.29 [†]
Minimum Stay	-.05	.05	-.05	-.04	-.04	-.04	.11

Note. N 194-202. =. p * <.001; † p < .01; ‡ p < .05. Ov PJ = Overall Procedural Fairness; Ov. DJ = Overall Distributive Fairness. PJ1 = Interpersonal Effectiveness; PJ2 = Opportunity to Perform; PJ3 = Bias Suppression; PJ4 = Career Relevance; PJ5 = Informativeness; Dev. = Development.

National Differences

Hypothesis 11 proposed that there would be differences between the Dutch and British recruits in terms of their perceptions of the psychological contract post-selection, but that these differences would reduce following organisational entry. Data from selection and post-organisational entry were available in Study B only. It should be noted however that the number of British and Dutch recruits' responding to both times 5 and 6 was quite small (Ns of 30 and 25 respectively). To maintain adequate power, MANOVA requires there to be more cases than dependent variables in every cell (Tabachnick & Fidell, 1996). At most there were 8 dependent variables in each analysis giving an acceptable sample size. Four MANOVAs were therefore conducted with the employee or employer dimensions at either time 5 or 6 as the within factors variables, and nationality as the between factor. The results did not indicate significant differences at either time 5 (employer obligations: F (7,45) =

0.92, $p = .497$; employee obligations: $F(8,43) = 1.96$, $p = .075$) or time 6 (employer obligations: $F(7,47) = 1.28$, $p = .283$; employee obligations: $F(8,45) = 0.78$, $p = .620$). Hence, Hypothesis 11 was not supported.

Temporal Changes in Recruits' Perceptions of the Psychological Contract

Hypothesis 12 proposed that recruits' perceptions of both employer and employee obligations would change across time to the extent that perceptions of employer obligations would increase and employee obligations decrease. This was analysed using data from Study B at times 5 and 6. The means in Figures 7.1 and 7.2 show a decrease for all employer and employee obligations across time, with the exception of two employee obligations which show an increase (volunteering to do non-required tasks on the job and protection of proprietary information). Repeated measures MANOVAs were computed for both employee and employer obligations. For employer obligations, the results indicated a significant overall difference across time ($F(1,91) = 20.13$, $p < .001$) and a significant interaction between time and the seven employer obligations ($F(6,546) = 4.96$, $p < .001$). Similarly, for employee obligations, both the main effect of time ($F(1,88) = 7.53$, $p < .01$) and the interactions between time and the eight employee obligations were significant ($F(7,616) = 6.23$, $p < .001$). These were followed up with paired t-tests for each dimension across time using listwise deletion, with type 1 error controlled using Bonferroni correction (employer obligations: $.05 / 7 = .007$; employee obligations $.05/8 = .006$). At this criterion level, two employer obligations were significant, with perceptions of employer obligations to provide promotion and support with personal problems decreasing across time. For employee obligations, again two dimensions were significant, with recruits perceiving a greater obligation to volunteer to do non-required tasks on the job, but lower obligations to spend a minimum of two years with Shell. Given the relatively short measurement interval of four months post-organisational entry, this offered some support for Hypothesis 12.

Figure 7.1. Mean Ratings of Employer Obligations of the Recruits at Times 5 and 6, and of the Organisational Representatives.

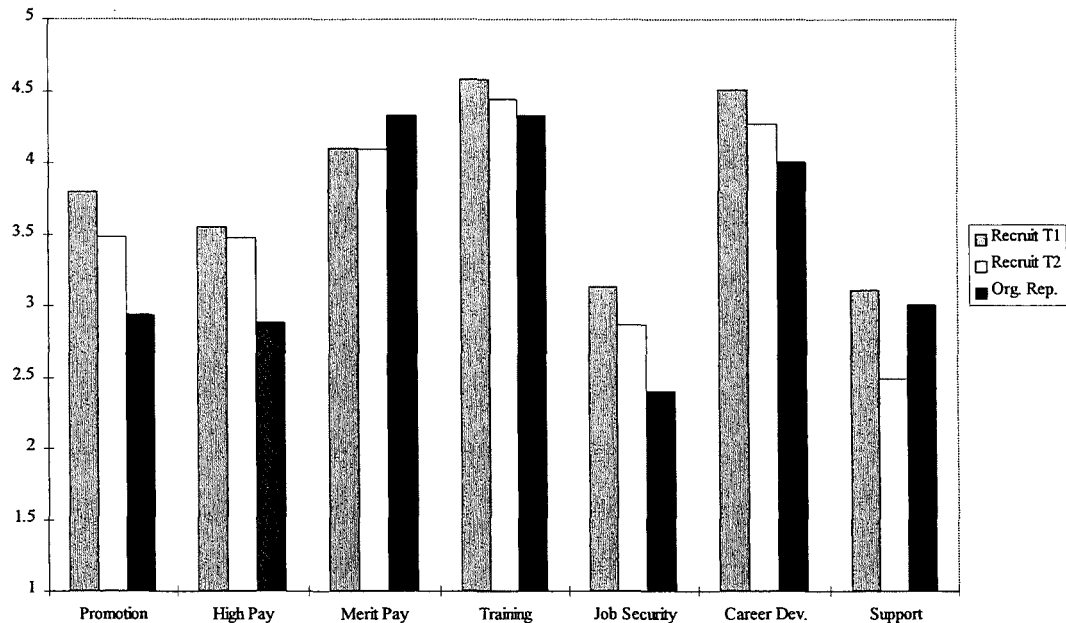


Table 7.4. T-Tests for Changes in Recruits' Perceptions of Employer Obligations Across Time and for Congruence with Organisational Representatives.

T	Promotion	High pay	Merit Pay	Training	Job Security	Career Dev	Support
a	2.86*	0.91	0.12	1.79	2.35 [†]	2.46 [†]	5.35*
b	6.05*	5.38*	-2.23 [†]	2.88*	5.02*	5.11*	0.74
c	3.61*	4.54*	-2.18 [†]	1.25	3.29*	2.48 [†]	-3.69*

Note: Recruits N = 88; Representatives N = 115. * p < .007; [†] = p < .05. a = recruits times 5 versus 6; b = recruits time 5 versus organisational representatives; c = recruits time 6 versus organisational representatives. Dev = Development.

Psychological Contract Congruence

Hypothesis 13 proposed that recruits' perceptions of the psychological contract would become more congruent with the organisational representative's perspective post-organisational entry. The means in Figures 7.1 and 7.2 indicate that for both employer and employee obligations, recruits generally had higher perceptions of the reciprocal obligations than organisational representatives, the exceptions to this being for the employee obligation of protecting proprietary information and the employer obligation of merit pay. Across time, the recruits' means generally became closer aligned to the organisation's perspective, except for the obligations of merit pay, personal problem support and taking on extra roles.

Figure 7.2. Mean Ratings of Employee Obligations of the Recruits at Times 5 and 6, and of the Organisational Representatives.

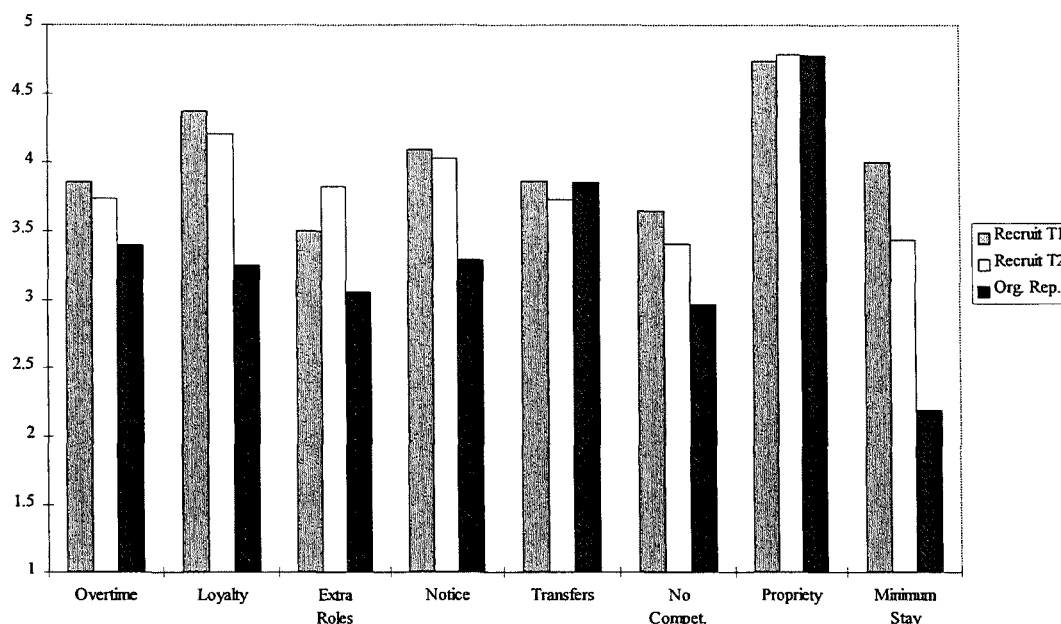


Table 7.5. T-Tests for Changes in Recruits' Perceptions of Employer Obligations Across Time and for Congruence with Organisational Representatives.

T	Overtime	Loyalty	Extra Roles	Notice	Transfers	No Compet.	Propriety	Min. Stay
a	1.27	2.10 [†]	-3.02*	0.65	1.42	2.23 [†]	-0.80	3.50*
b	3.48*	8.91*	3.27*	5.99*	0.10	4.16*	-0.63	10.06*
c	2.41	7.45*	6.18*	4.99*	-1.10	2.54 [†]	0.14	6.64

Note: Recruits N = 88; Representatives N = 115. * $p < .006$ [†] = $p < .05$. a = recruits times 5 versus 6; b = recruits time 5 versus organisational representatives; c = recruits time 6 versus organisational representatives. Compet. = Competitor; Min. = Minimum.

Two separate MANOVAs were conducted for employer and employee obligations comparing organisational representatives and recruits' time 5 responses. Two further MANOVAs were conducted comparing organisational representatives with recruits' time 6 data. Employee or employer obligations were used as the within factor and respondent (recruit/representative) as the between factor. The results revealed that at time 5, both employer obligations $F(7,202) = 10.23, p < .001$ and employee obligations ($F(8,198) = 22.86, p < .001$) were rated significantly differently by recruits and representatives. Significant differences were also obtained

at time 6 (employer obligations: $F(7,201) = 8.15, p < .001$; employee obligations: $F(8,198) = 16.18, p < .001$). These were followed up with independent sample t-tests with listwise deletion and Bonferonni corrections as before (see Tables 7.4 and 7.5).

The results indicated that pre-organisational entry, recruits had significantly higher ratings of training and career development on the employer's side, and working extra hours and refusal to support Shell's competitors on the employees' side, than the organisational representatives. These differences decreased during the first four months post-entry to the extent that there were no longer significant differences between the two parties. Initial differences between recruit and representative on the other dimensions also generally decreased, although significant differences remained. The exceptions were for the employee obligation for extra role behaviour where the significant difference became more powerful after four months, and for the employer obligation to provide support with personal problems which showed no significant differences between the two parties at the end of selection, but after four months of employment, recruits had significantly lower perceptions than the organisational representatives. Overall, the direction of change was towards greater congruence with the organisational representatives which offered some support to Hypothesis 13.

Predictors of Change in Recruits' Psychological Contract

Hypothesis 14 proposed that socialisation knowledge, department manager contact and psychological contract violation would influence changes in recruits' perceptions of the psychological contract. Psychological contract dimensions were included in the analysis of Hypothesis 14 if they fulfilled one of two criteria: (i) recruits' mean responses showed significant change across times 5 and 6 or (ii) recruits' responses approached significant mean change (i.e. $< .05$) and represented significant closer alignment with the organisational representatives. The latter criterion was adopted on the basis that Type 1 error was less likely to account for the change if it represented a closer alignment between the two contractual parties. Two employer obligations fulfilled the first criterion (promotion and support with personal problems) and one met the second criterion (career development). For employee obligations, two met the first criterion (taking on extra roles and minimum stay) and one fulfilled the second (refusal to support Shell's competitors). To

reiterate, the change for extra role behaviour represented an increase across time, whilst changes in the other dimensions represented a decrease.

As a preliminary check, the six obligations showing change across time were correlated with the hypothesised predictors of change. These were conducted separately for each group of predictors using listwise deletion. Table 7.6 shows the results for the time 6 obligations. It can be seen that the positive correlations between some socialisation knowledge domains and employer obligations were significant, or approaching significance. However, there were no significant correlations with employee obligations. Significant positive correlations were observed between elements of the recruit-manager relationship and promotion, career development, no competitor support and staying for a minimum period of time. Finally, in terms of psychological contract violations, there was a positive correlation with the employer obligation regarding promotion which approached significance, and a negative correlation with career development which was significant. Further analyses regarding the potential predictors of psychological contract change were only conducted where the correlations between these constructs were significant, or approached significance.

Table 7.6. Correlations between Obligations Showing Change and Violations, Knowledge and Manager Relationship.

Psychological Contract (T6)	Socialisation Knowledge ^b				R-M Relat. ^b		Viol. ^a
	Social	Role	Org	Int. Res.	Cont.	Qual.	
<u>Employer Obligations</u>							
Promotion	.20 [†]	.21 [†]	.09	.03	.20 [†]	.01	.15 [‡]
Career Development	.16 [‡]	.17 [‡]	.16 [‡]	.15 [‡]	.08	.20 [†]	-.20 [†]
Personal Prob Support	.20 [†]	.10	.09	.30 [‡]	.10	.11	-.09
<u>Employee Obligations</u>							
Extra Role Behaviours	.04	.13	.12	.12	.03	.01	.00
No Comp Support	.02	.13	.07	.08	.24 [†]	.16 [‡]	-.09
Minimum Stay	.01	.07	.12	.03	.25 [‡]	.06	-.06

Note. ^a N = 88; ^b N = 82. * p < .001; [‡] p < .01; [†] p < .05; [‡] p < .1 (one-tailed). R-M Relat. = Recruit-Manager Relationship; Viol. = Violation; Org. = Organisation; Int.Res. = Interpersonal Resources; Cont. = Contact; Qual. = Quality

The number of respondents to both questionnaires five and six (employer obligations = 92; employee obligations $N = 89$) meets Green's (1991 cited in Tabachnick and Fidell, 1996) formulae for testing multiple correlation ($N \geq 50 + 8m$, where m is the number of independent variables), but not for interpreting individual predictors ($N \geq 104 + m$). This reduces the likelihood of finding significant effects and limits the replicability of the analyses. Since the present research is the first longitudinal field study to explore these variables as predictors of change in both employee and employer obligations of the psychological contract, the analyses are considered exploratory. Therefore, the analyses were computed, using a lenient p value of $<.10$ to highlight results approaching significance. Nevertheless, given the small sample size, caution is required when generalising these results.

Due to sample size limitations, the hypothesised predictors of change were analysed separately. For each predictor, hierarchical multiple regressions were conducted separately for each psychological contract dimension. The time 6 rating of the dimension served as the dependent variable and the time 5 rating was entered in the first step such that subsequent independent variables entered into the regression would only account for a change in perceptions of the obligation. In the second step, recruit's ratings of the time 6 predictor were entered (i.e. psychological contract violation, or the four socialisation knowledge domains, or the frequency and quality of the recruit-manager relationship).

Socialisation Knowledge

Table 5.11 in Chapter 5 shows the means and standard deviations for the knowledge domains. The domains were significantly correlated from $r = .21$ between social and organisation knowledge, to $r = .55$ between social and interpersonal resources knowledge. The four knowledge domains were entered together in order to force the domains to compete for variance to control for possible overlap between them. This had the disadvantage of losing degrees of freedom, but since the domains are all components of an overall construct, this was necessary and consistent with previous analyses (Thomas & Anderson, 1998). As shown in Table 7.7, the knowledge domains significantly predicted change in perceptions of support with personal problems. Specifically, the change in perceptions of interpersonal support was positively associated with the acquisition of interpersonal resources

knowledge. The changes in promotion and career development were not significantly predicted by the four socialisation knowledge domains, although the positive influence of social and role knowledge on promotion approached significance.

Table 7.7. Multiple Regression Analyses Investigating Psychological Contract Change as Predicted by Socialisation Knowledge, the Recruit-Manager Relationship and Violations

DV	IV at Step 2	R	R ²	AR ²	R ² Δ	FΔ(df)	<u>B</u>	B
<u>Socialisation Knowledge</u>								
Promotion	Social	.57	.33*	.28	.07	1.91 (5,77)	.19 [‡]	.27
	Role						.21 [‡]	.19
	Organis. Interpers.						-.10 -.19	-.13 -.17
Career Development	Social	.29	.08	.02	.05	1.09(5,77)	.12	.12
	Role						.03	.02
	Organis. Interpers.						.10 .06	.10 .04
Personal Problem Support	Social	.50	.22*	.17	.11	2.62(5,77) [†]	.10	.13
	Role						-.17	-.13
	Organis. Interpers.						.01 .33 [†]	.01 .27
<u>Recruit-Manager Relationship</u>								
Promotion	Frequency	.50	.25*	.23	.04	2.12 (3,80)	.21 [†]	.18
	Quality						.07	.11
Career Development	Frequency	.34	.12 [†]	.09	.06	2.90 (3,80) [‡]	.17	.11
	Quality						.26 [†]	.30
No competitor Support	Frequency	.60	.37*	.34	.06	3.40 (3,78) [†]	.17	.16
	Quality						.24 [†]	.42
Minimum stay	Frequency	.43	.18 [†]	.15	.06	3.09 (3,79) [†]	.27 [†]	.29
	Quality						.06	.12
<u>Psychological Contract Violation</u>								
Promotion	Violation	.45	.21*	.19	.02	2.57(2,87)	.15	.22
Career Dev	Violation	.28	.08 [†]	.06	.04	4.78(2,88) [†]	-.22 [†]	-.24

Note. p * <.001; † p < .01; ‡ p < .05; § p <.1. DV = Dependent Variable; IV = Independent Variable.

Department Manager Relationship

The means for department manager quality and frequency of contact were 2.48 (standard deviation = 1.30) and 3.99 (standard deviation = 0.66) respectively. Interestingly, these variables were negatively correlated ($r = -.36, p < .001$). The

quality and frequency of contact were entered together in order to force the domains to compete for variance in order to control for possible overlap between them. As shown in Table 7.7, the results indicated that recruits' perceptions of the relationship with their manager accounted for significant additional variance for the two regressions involving employee obligations, and approached significance for one employer dimension, career development. For the significant regression analyses, the department manager relationship predicted 6% of the adjustment in recruits' perceptions of their obligations to not support competitors and 6% of the change in staying for a minimum period of time. For lack of competitor support, the quality of the relationship predicted the change, whereas the frequency of contact predicted the change for minimum stay. For the employer obligation regarding the provision of career development, the combined effect of both variables approached significance, with the beta weight for the quality of contact being significant. Finally, although the combined effect of the variables measuring recruit-manager relationship were not significant for the employer obligation to provide promotion, the independent positive impact of frequency of contact was significant.

Psychological Contract Violation

Finally, the mean response for employer violation was 2.06 with a standard deviation of 0.80. This indicated that the average employee reported some failure in contract fulfilment. Employer violation was correlated with recruits' perceptions of the employer's obligations to provide promotion and career development. As illustrated in Table 7.7 the results indicated that perceptions of psychological contract violation predicted 4% of the change in recruits' perceptions of career development, whilst the results for promotion were not significant.

Relative Impact of Predictors

For changes in career development, violation of the psychological contract served as a significant predictor (4% of variance) and the manager relationship approached significance (6% of the variance). A regression was therefore computed to examine the relative effects of these predictors. As shown in Table 7.8, the results indicated that these variables accounted for 9% of the adjustment in recruits' perceptions of this obligation, with violation and relationship quality approaching

significance. Therefore, the combined impact of both predictors resulted in more explained variance than either produced in isolation.

Table 7.8. Multiple Regression Analyses Investigating Change in Career Development Predicted by violation and the Recruit-Manager Relationship

D. Variable	IV Step 2	R	R ²	AR ²	R ² Δ	FΔ(df)	<u>B</u>	B
Career	Violation	.39	.15 [‡]	.11	.09	2.74 (4,78) [†]	-.18 [¥]	.18
Development	Frequency						.12	
	Quality						.21 [¥]	.11

Note. p < .001; [‡] p < .01; [†] p < .05; [¥] p < .1. D. Variable = Dependent Variable.

Summary

In summary, the results for Hypothesis 14 indicated that perceptions of psychological contract violations, socialisation knowledge and the recruit-manager relationship predicted some changes in employer obligations. Specifically, perceptions of violations predicted the change in perceptions regarding career development, perceptions of the recruit-manager relationship also approached significance for this obligation, and socialisation knowledge predicted the change in perceptions of personal problem support. For career development, the combined impact of both psychological contract violation and quality of recruit-manager relationship explained greater variance than either predictor explained in isolation. For changes in ratings of employee obligations, perceptions of the recruit-manager relationship emerged as significant predictors for no competitor support and minimum stay. These results offered some support to Hypothesis 14.

Impact of Changes on Outcomes

Hypothesis 15 proposed that psychological contract change would influence organisational commitment, organisational attractiveness, job satisfaction, job performance and intended tenure. The six dimensions analysed in the previous hypothesis were again selected here. As a preliminary check, the six obligations showing change across time were correlated with the outcome variables. The correlations between the time 5 and 6 ratings of the obligations were computed using listwise deletion for each outcome variable. The results for the time 6 ratings are displayed in Table 7.9. With the exception of organisational attractiveness, at least one employer obligation and one employee obligation was significantly associated

with each outcome variable at $p < .05$, or approached significant at $p < .1$. Further analyses were not therefore conducted on the impact of changes in the employer obligations on organisational attractiveness.

Table 7.9. Correlations between Psychological Contract Obligations Showing Change and Outcome Variables

	Com.	Attr.	JS	Tenu.	J. per.	J. pot.
<u>Employer Obligations</u>						
Promotion	.04	-.02	.02	.11	.09	.14 [¥]
Career Development	.25 [†]	.12	.18 [†]	.13	.25 [†]	.08
Personal Prob Support	.19 [†]	.10	.11	.20 [†]	.01	-.16 [¥]
<u>Employee Obligations</u>						
Extra Role Behaviours	.07	.20 [†]	-.25 [†]	-.06	.24 [†]	.09
No Comp. Support	.21 [†]	.04	.03	-.03	.28 [†]	.19 [¥]
Minimum Stay	.30 [‡]	.11	.03	.15 [¥]	-.20 [¥]	-.16 [¥]

Note. $N = 83-90$; ^a $N = 76$. $p < .001$; [‡] $p < .01$; [†] $p < .05$; [¥] $p < .1$. Com = Organisational Commitment; Attr. = Organisational Attractiveness; JS = Job Satisfaction; Tenu = Tenure; J. Per. = Job Performance; J. Pot. = Job Potential; Prob. = Problem; Comp. = Competitor.

Hierarchical regression were conducted with the time 6 rating of the outcome variable served as the dependent variable. For organisational commitment, job satisfaction and job performance, two blocks of independent variables were entered. In block one, the time 5 measures of the dimensions showing change were entered and in the second block, the time 6 measure of those obligations were entered. A significant change in the variance accounted for by adding this second block shows that a change in perceptions of the psychological contract from time 5 to 6 predicts the time 5 outcome. For intended tenure and organisational attractiveness, measures of these variables at time 5 were available and so a more stringent analysis procedure was adopted whereby the impact of change in the psychological contract was examined on the change in the outcome variable across the same time period. The independent variables were entered in three blocks. First, the time 5 rating of the dependent variable was entered so that subsequent independent variables only accounted for a change in the outcome measure. In the second and third steps, the time 5 and time 6 ratings of the psychological contract dimensions showing change across time were entered respectively.

Table 7.10. Multiple Regression Analyses Investigating the Impact of Changes in Perceptions of Employer Obligations on Outcomes

IV Final Step	R	R ²	A R ²	R ² Δ	FΔ(df)	<u>B</u>	B
<u>Org. Commitment^a</u>	.29	.08	.01	.06	1.56(6,78)		
Promotion						-.10	-.07
Career Dev.						.20	.20
Pers. Prob. Sup.						.13	.11
<u>Job Satisfaction^a</u>	.26	.07	.00	.04	1.22(6,83)		
Promotion						-.01	-.01
Career Dev.						.22 [‡]	.27
Pers. Prob. Sup.						.04	.03
<u>Job Performance^a</u>	.31	.09	.00	.04	0.86(6,59)		
Promotion						.00	.00
Career Dev.						.21	.45
Pers. Prob. Sup.						-.03	-.04
<u>Job Potential^a</u>	.33	.11	.02	.05	1.09(6,62)		
Promotion						.05	.07
Career Dev.						.21	.20
Pers. Prob. Sup.						-.14	-.10
<u>Intended Tenure^b</u>	.56	.31	.25	.05	1.86 (7,77)		
Promotion						-.08	-.09
Career Dev.						.15	.25
Pers. Prob. Sup.						-.12	-.15

Note. p * <.001; ‡ p < .01; † p < .05; †† p = .10. Pers. Prob. = Personal Problem. ^a = 2 blocks in the regression; ^b = 3 blocks in the regression.

The results for the employer obligations are shown in Table 7.10. Although 3% - 6% of the variance in the outcome measures was explained by the changes in perceptions of all three obligations, none of the overall results were significant. The independent effect of changes in career development did though have a significant impact on job satisfaction. As shown in Table 7.11, for employee obligations, the results were significant for one dimension, job performance, and approached significance for the remaining outcome variables, except job potential. For those results approaching significance, changes in perceptions of employee obligations predicted 8% of the variance in organisational commitment, 8% of the change in perceptions of organisational attractiveness, 6% of the variance in job satisfaction,

and 6% of the change in intended tenure. For both organisational commitment and the change in intended tenure, the significant predictor was the change in perceptions of the obligation to stay for a minimum period of time. For the change in organisational attractiveness, the change in perceptions of extra role behaviour approached significance. For job satisfaction, none of the changes in employee obligations approached significance. For the significant effect involving job performance, 17% of the variance in this outcome variable was explained by changes in perceptions of employee obligations to not support competitors, and the change in extra role behaviour approached significance. In summary, there was some support for Hypothesis 15 in terms of employee obligations, but not for employer obligations.

Table 7.11. Multiple Regression Analyses Investigating the Impact of Changes in Perceptions of Employee Obligations on Outcomes

	R	R ²	A R ²	R ² Δ	FΔ(df)	B	B
<u>Org. Commitment^a</u>	.36	.13	.06	.08	2.20 (6,75) [‡]		
Extra Role						.08	.08
No Comp. Supp.						.15	.09
Min Stay						.28 [†]	.15
<u>Job Satisfaction^a</u>	.33	.11	.04	.06	1.91(6,81) [‡]		
Extra Role						-.18	-.23
No Comp. Supp.						.17	.14
Min Stay						.10	.07
<u>Job Performance^a</u>	.49	.24	.15	.17	3.98 (6,54) [†]		
Extra Role						.24 [‡]	.45
No Comp. Supp.						.33 [†]	.44
Min Stay						-.20	-.21
<u>Job Potential^a</u>	.33	.11	.02	.05	1.09 (6,62)		
Extra Role						.05	.07
No Comp. Supp.						.21	.20
Min Stay						-.14	-.10
<u>Org. Attractiveness^b</u>	.39	.16 [†]	.08	.08	2.69 (7,82) [‡]		
Extra Role						.19 [‡]	.15
No Comp. Supp.						.16	-.08
Min Stay						.17	.08
<u>Intended Tenure^b</u>	.58	.34 [*]	.28	.06	2.44 (7,75) [‡]		
Extra Role						.04	.06
No Comp. Supp.						-.07	-.08
Min Stay						.27 [†]	.24

Note. p^{*} < .001; † p < .01; ‡ p < .05; ‡ p = .10. No Comp. Supp. = No Competitor Support. ^a = 2 blocks in the regression; ^b = 3 blocks in the regression. ^a = 2 blocks in the regression; ^b = 3 blocks in the regression.

Chapter Eight

Results: Integration of the Social Impact and Validity Perspectives

Introduction

In line with the argument regarding the need for greater integration across selection perspectives, the relationships amongst social impact, predictive validity and assessment centre construct validity were investigated. First, the impact of various social moderators on predictive validity were examined. Two hypotheses were proposed, the first focused on possible moderator variables measured during the selection process (Hypothesis 16) and the second proposed possible moderators measured during the socialisation process (Hypothesis 17).

The second part of this final results chapter addresses the argument for greater integration across assessment centre construct and predictive validity research. The first hypotheses postulated that via confirmatory factor analysis, assessment centre variance would demonstrate both exercise and dimension factors (Hypothesis 18). The second hypothesis suggested that the assessment centre would show good predictive validity for the overall rating and both exercise and dimension ratings (Hypothesis 19).

Social Impact Moderators of Predictive Validity

Limitations of Sample Size

The analyses of exploring social impact moderators of predictive validity required use of the criterion data collected from managers four months following recruits' start date. As discussed in Chapter Four, the small number of respondents to this questionnaire ($N = 86$) does not meet Green's (1991) formula for interpreting individual predictors ($N \geq 104 + \underline{m}$, where \underline{m} is the number of independent variables) as recommended by Tabachnick and Fidell (1996). Further, the sample size does not meet Stone's (1988) criterion of sample sizes exceeding 120 for moderated multiple regression analyses (MMRs). The small sample size reduces the likelihood of finding significant moderating effects and limits the replicability of the analyses. However, in a laboratory study exploring moderators of predictive validity, Thorstenson and Ryan (1997) ran MMRs on a sample where $N = 85$ and did find significant effects. Since the present research is the first longitudinal field study to investigate social moderators of validity, the analyses are considered exploratory. Therefore, the analyses are computed using a lenient p value of $<.10$ to highlight results approaching significance. Nevertheless, given the small sample size, caution is required when interpreting these results.

Descriptive Statistics for Social Process Variables

Table 8.1 displays the means and standard deviations for all variables considered as possible moderators of predictive validity. Variables from the interview questionnaires were not included due to the small sample size resulting from respondent attrition between the applicant questionnaire post interview (time 2) and the line manager's questionnaire four months post-entry ($N = 21$). For the assessment centre data, the possibility of multicollinearity amongst the moderator and the predictor or criterion was recognised. As shown in Table 8.1, the inter-correlations did not exceed the .70 criterion suggested by Tabachnick and Fidell (1996), and therefore all moderators were examined. Where available, these statistics are given for the total applicant population and for successful applicants for whom criterion data were available. This illustrates that for the moderator variables measured in selection, the successful candidate data displays less variability than was obtained from the full sample. It should be noted that this may artificially suppress

the results obtained from the regression analyses for the selection moderators. Although data are not available for the unselected sample for the socialisation moderators, the significant correlations between assessment centre performance and role knowledge, interpersonal resources knowledge and frequency of manager contact would indicate that the effects of range restriction through implicit selection may also influence these analyses.

Table 8.1. Descriptive Statistics for the Predictor, Criterion, and Moderators for Successful and Unsuccessful Applicants

Variable	Successful Applicants				Total Sample	
	r pred.	r criter.	Mean	SD	Mean	SD
<u>Predictor</u>						
AC Score ^a	-	.19 [¥]	7.01	0.70	6.57	0.88
<u>Criterion</u>						
Estimated Potential ^a	.19 [¥]	-	7.01	1.07	-	-
<u>Selection Moderators</u>						
Overall Procedural Justice (T4)	.03	-.02	4.05	0.54	3.94	0.65
Overall Procedural Justice (T4)	.02	.13	4.15	0.47	3.78	0.79
Motivation (T4)	.25 [†]	.13	4.58	0.44	4.48	0.52
Anxiety (T4)	-.06	.13	2.43	0.74	2.47	0.80
Self-efficacy (T5)	.27 [†]	.10	5.59	0.65	5.51	0.69
Equity (T5)	.19	-.07	3.92	0.59	3.42	0.92
Feedback (T5)	.09	.08	3.83	0.63	3.72	0.73
<u>Socialisation Moderators (T5)</u>						
Shell PC Violation	.05	.05	2.11	0.84	-	-
Recruit PC Violation ^a	-.03	-.39 [*]	1.80	0.75	-	-
Social Knowledge	-.17	.12	5.12	0.74	-	-
Role Knowledge	-.21 [¥]	-.00	4.79	1.21	-	-
Int. Res. Knowledge	-.26 [†]	.04	5.00	1.20	-	-
Organisational Knowledge	.14	-.05	4.63	0.92	-	-
Recruit-Manager Quality	.10	.24 [†]	4.05	0.65	-	-
Recruit-Manager Frequency	-.19 [¥]	-.17	2.24	1.21	-	-

Note. N = 70-81. p * <.001; † p < .01; ‡ p < .05; ¥ p < .10. ^a Successful applicant data is based on those for whom criterion ratings were available; ^a = ratings provided by Shell Managers. r pred. = correlation with the predictor; r criter. = correlation with the criterion.

Moderators of Selection Validity Measured During Selection

Hypothesis 16 proposed that applicants' perceptions of selection would moderate selection predictive validity. Analyses were conducted via moderated multiple regression (MMR). The criterion used in these analyses was the managers' ratings of the recruits' overall potential, four months post-entry into Shell. The independent variable was the overall assessment centre score. Power concerns prevented all moderators from being included in a single analysis. Seven separate MMRs were therefore conducted for each moderator: pre-decision procedural justice, post-decision procedural justice, selection motivation, selection anxiety, post-decision self-efficacy, post-decision equity and post-decision feedback. The criterion was regressed onto the assessment centre predictor score (entered in the first step), the moderator variable (entered in the second step) and the interaction term (entered in the third step).

The results are displayed in Table 8.2. The results indicated that the main effect of the assessment centre score approached significance for the four analyses involving the time 5 moderators. The small fluctuations in the relationship between the predictor and criterion across analyses was caused by slight variations in the available sample. None of the main effects for the moderator variable were significant, and none of the interaction terms were significant ($p < .05$). However, the interactions between assessment centre score and both motivation at time 4 ($R^2\Delta = .04$, $p < .10$) and self-efficacy at time 5 ($R^2\Delta = .04$, $p < .10$) approached significance. Since it is likely that the small sample size and restriction of range in variables limited the chance of finding significant moderator effects, the interactions between assessment centre score and both motivation and self-efficacy were further analysed.

The sample was split at the mean of motivation and self-efficacy, resulting in two groups for each moderator (i.e. high and low motivated groups, high and low self-efficacy groups). Uncorrected validity coefficients were calculated for each group, although it is important to highlight that the small sub-sample sizes mean that caution is required when interpreting these results. As displayed in Table 8.3, the results indicated that relative to the total sample, criterion-related validity was larger for individuals with higher motivation ($r = .19$) and self-efficacy ($r = .25$) and smaller for those with lower motivation ($r = .05$) and self-efficacy ($r = .10$).

Table 8.2. Social Impact Variables Measured During Selection as Moderators of Predictive Validity

	R	R ²	A R ²	R ² Δ	FΔ(df)	<u>B</u>	B
<u>Procedural Justice T4^a</u>							
Step 1: AC	.16	.03	.01	.03	1.77 (1,67)	.16	.25
Step 2 PJ	.16	.03	-.00	.00	0.04 (2,66)	-.02	-.05
Step 3: AC x PJ	.17	.03	-.02	.00	0.15 (3,65)	-.80	-.19
<u>Procedural Justice T5</u>							
Step 1: AC	.21	.04 [¥]	.03	.04	3.07 (1,69) [¥]	.21 [¥]	.33
Step 2 PJ	.24	.06	.03	.02	1.23 (2,68)	.13	.30
Step 3: AC x PJ	.26	.07	.03	.01	0.75 (3,67)	1.86	.45
<u>Motivation T4</u>							
Step 1: AC	.16	.02	.01	.02	1.72 (1,69)	.16	.24
Step 2 MOT	.18	.03	.00	.01	0.63 (2,68)	.10	.24
Step 3: AC x MOT	.27	.07	.03	.04	2.23 (3,67) [¥]	3.48 [¥]	.75
<u>Anxiety T4</u>							
Step 1: AC	.16	.02	.01	.02	1.70 (1,68)	.16	.24
Step 2 ANX	.21	.04	.02	.02	1.38 (2,67)	.14	.21
Step 3: AC x ANX	.22	.05	.01	.01	0.40 (3,66)	.73	.15
<u>Self Efficacy T5</u>							
Step 1: AC	.21	.04 [¥]	.03	.04	3.02 (1,68) [¥]	.21 [¥]	.33
Step 2 SFEF	.21	.04	.02	.00	0.16 (2,67)	.05	.08
Step 3: AC x SFEF	.30	.09	.05	.04	3.11 (3,66) [¥]	3.53 [¥]	.56
<u>Equity T5^a</u>							
Step 1: AC	.21	.04 [¥]	.03	.04	3.07 (1,69) [¥]	.21 [¥]	.33
Step 2 EQ	.23	.05	.03	.01	0.59 (2,68)	-.11	-.20
Step 3: AC x EQ	.25	.06	.02	.01	.057 (3,67)	-1.08	-.22
<u>Feedback T5</u>							
Step 1: AC	.22	.05 [¥]	.03	.05	3.35 (1,65) [¥]	.22 [¥]	.32
Step 2 FB	.23	.05	.02	.00	0.25 (2,66)	.06	.10
Step 3: AC x FB	.23	.05	.01	.00	0.12 (3,65)	-.64	-.12

Note: [¥] p = .10. AR² = Adjusted R²; AC = Assessment Centre Score; PJ = Procedural Justice; MOT = Motivation; ANX = Anxiety; SFEF = Self-Efficacy; EQ = Equity; FB = Feedback; T = time. ^a Separate analyses were conducted on the five procedural justice rules at time 4 and on overall distributive fairness, but none were significant.

However, since low variability can suppress the magnitude of a correlation, it is possible that sub-group differences in the variances of the predictor and criterion scores had an artefactual impact on the results obtained. The equality of the variances across the sub-samples was therefore tested. According to Levene's test

for the equality of variances, the sub-sample with the lower validity coefficient for motivation had significantly smaller predictor variances ($F(28,43) = 4.09, p < .05$), but not criterion variances ($F(28,43) = 0.17, p = .90$). For self-efficacy, there were no significant differences between the variances of the two samples in either the predictor ($F(19,51) = 0.05, p = .945$), or the criterion ($F(19,51) = 0.17, p = .90$). There were also no mean differences in the predictor or criterion ratings of the subgroups for either moderator. In terms of the significant result, it is possible that the restriction of range in the predictor for low motivated applicants suppressed the size of the coefficient relative to the high motivation group. This correlation was therefore re-calculated by correcting for the restriction of range in the predictor using Thorndike's (1965) Case I formula (cited in Guilford, 1965). In accordance with Schmitt and Ryan (1992), the predictor scores of the group with the larger validity coefficient were used as the unrestricted distribution. The restriction of variance in the low motivation group accounted for only .03 of the difference between the two sub-samples, increasing predictive validity to .08 for the low motivation group. In comparison with the correlation of .19 for the high motivation group, these results lend support to the impact of motivation, rather than range restriction, on the validity coefficients. In summary, low assessment centre motivation and low self-efficacy attenuated predictive validity, whilst high motivation and high self-efficacy enhanced it. Since the regression analyses approached significance ($p < .10$), this offered only partial support to Hypothesis 16.

Table 8.3. Predictive Validities, Means and Standard Deviations for those with High and Low Motivation and Self-Efficacy

Moderator	Group	N	Validity ^a	Validity ^b	Predictor		Criterion	
					Mean	SD	Mean	SD
Motivation	Total	71	.16	-	6.99	0.72	7.00	1.09
	High	43	.19	-	7.09	0.80	7.03	1.20
	Low	28	.05	.08	6.82	0.53	6.95	1.05
Self-Efficacy	Total	70	.21	-	7.02	0.67	7.03	1.07
	High	51	.25	-	7.14	0.66	7.03	1.09
	Low	19	.10	-	6.71	0.61	7.03	1.03

Note. ^a uncorrected validity coefficient; ^b corrected for restriction of range relative to the group with higher motivation (this validity coefficient does not account for restriction of range relative to the unselected applicant sample).

Moderators of Predictive Validity Measured During Socialisation

Hypothesis 17 proposed that socialisation knowledge, recruit-manager relationships, and psychological contract violations would moderate selection validity. Analyses were again conducted via Moderated Multiple Regression (MMR). The criterion used in these analyses was the managers' ratings of the recruits' overall potential, four months post-entry into Shell. The independent variable was the overall rating of potential from the assessment centre. Again, power concerns prevented all moderators from being included as separate variables in a single analysis. Eight separate MMR analyses were therefore conducted for each moderator: social knowledge, role knowledge, interpersonal resources knowledge, organisation knowledge, frequency of recruit-manager contact, quality of recruit-manager relationship, employer psychological contract violation and employee psychological contract violation. The criterion was regressed onto the assessment centre predictor score (entered in the first step), the moderator variable (entered in the second step) and the interaction term (entered in the third step).

The results of these moderated regressions are displayed in Table 8.4. Again, the main effects for the assessment centre score were significant, or approached significance in some analyses, depending on the available sample. Main effects were also observed for two moderators (i) employee violations of the psychological contract, and the quality of the recruit-manager relationship. The main effect of social knowledge also approached significance ($p < .10$). Results also indicated that two interaction terms explained incremental variance above these main effects. The interactions with the assessment centre score were significant for both manager's ratings of employee violations of the psychological contract ($R^2\Delta = .05$, $p < .05$) and employee ratings of social knowledge ($R^2\Delta = .08$, $p < .01$). The non-significant correlations between assessment centre performance and both recruit violation of the psychological contract ($r = -.03$) and social knowledge ($r = -.17$) indicated that the effects of range restriction through implicit selection were unlikely to be high for either moderator variable. Analyses progressed to the interpretation of these moderator effects.

Table 8.4. Social Variables Measured during Selection as Moderators of Selection Predictive Validity

	R	R ²	A R ²	R ² Δ	FΔ(df)	<u>B</u>	B
<u>Social Knowledge</u>							
Step 1: AC	.19	.04 [‡]	.02	.04	2.94(1,76) [‡]	.19 [‡]	.30
Step 2 SK	.25	.06 [‡]	.04	.03	2.02(2,75) [‡]	.16 [‡]	.24
Step 3: AC x SK	.38	.15 [†]	.11	.08	7.29(3,74) [†]	4.13 [†]	0.74
<u>Role Knowledge</u>							
Step 1: AC	.18	.03	.02	.03	2.54(1,75)	.18	.29
Step 2 RK	.18	.03	.01	.00	0.08(2,74)	.03	.03
Step 3: AC x RK	.21	.04	.00	.01	0.79(3,73)	1.12	.14
<u>Interpersonal Resources Knowledge</u>							
Step 1: AC	.19	.04 [‡]	.02	.04	2.93(1,78) [‡]	.19 [‡]	.29
Step 2 IRK	.21	.04	.02	.01	0.67(2,77)	.09	.08
Step 3: AC x IRK	.27	.07	.04	.03	2.37(3,76)	1.61	.21
<u>Organisation Knowledge</u>							
Step 1: AC	.18	.03	.02	.03	2.72(1,77)	.18	.29
Step 2 OK	.20	.04	.01	.01	0.40(2,76)	-.08	-.07
Step 3: AC x OK	.26	.07	.03	.03	2.11(3,75)	2.25	.32
<u>Recruit-Manager Contact^b</u>							
Step 1: AC	.19	.04 [‡]	.02	.04	2.88(1,75) [‡]	.19 [‡]	.29
Step 2 MC	.24	.06	.03	.02	1.49(2,74)	-.14	-.13
Step 3: AC x MC	.24	.06	.02	.00	0.09(3,73)	-.37	-.05
<u>Recruit-Manager Quality^b</u>							
Step 1: AC	.19	.04 [‡]	.02	.04	2.84(1,74) [‡]	.19 [‡]	.29
Step 2 MQ	.30	.09 [†]	.06	.05	4.00(2,73) [†]	.22 [†]	.38
Step 3: AC x MQ	.30	.09 [‡]	.05	.00	0.30(3,72)	.81	.15
<u>Employer PC Violation</u>							
Step 1: AC	.23	.05 [†]	.04	.05	4.41(1,77) [†]	.23 [†]	.36
Step 2 ER PC	.24	.06	.03	.00	1.02(2,76)	.04	.04
Step 3: AC x ER PC	.24	.06	.02	.00	0.02(3,75)	-.12	-.02
<u>Employee PC Violation^a</u>							
Step 1: AC	.19	.04 [‡]	.02	.04	2.93(1,78) [‡]	.19 [‡]	.29
Step 2 EE PC	.43	.19 [*]	.17	.15	14.37(2,77) [*]	-.39 [*]	-.56
Step 3: AC x EE PC	.49	.24 [†]	.21	.05	5.12(3,76) [†]	-2.21 [†]	-.44

Note. p * <.001; † p < .01; ‡ p < .05; ‡ p = .10. ^a As rated by the manager. AR² = Adjusted R²; AC = Assessment Centre Score, ER PC = Employer Psychological Contract Violation; EE PC = Employee Psychological Contract Violation; SK = Social Knowledge; RK = Role Knowledge; IR Interpersonal Resources Knowledge; OK = Organisational Knowledge; MC = Recruit-Manager Contact; MQ = Recruit-Manager Relationship Quality.

Again, the sample was split in half at the mean of the two moderator variables and uncorrected validity coefficients were calculated for each group. As displayed in Table 8.5, the results indicated that criterion-related validity was higher for individuals with lower employee psychological contract violations and higher social knowledge. Furthermore, according to Levene's test for the equality of variances, there were no sub-sample differences in the variances of the predictor (violation: $F(31,49) = 1.44, p = .233$; knowledge: $F(32,44) = 1.85, p = .178$) or criterion (violation: $F(31,49) = 1.08, p = .457$; knowledge: $F(32,44) = 1.21, p = .086$). Therefore, differences in range restrictions across the sub-samples did not explain the different validity coefficients. There were though significant mean difference in the criterion ratings for the psychological contract violation, to the extent that those with low violations had higher criterion scores ($t(1,78) = 3.63, p < .001$). In summary, high employee violation and low social knowledge attenuated the estimate of predictive validity, whilst low employee violation and high social knowledge enhanced it. This offered some support to Hypothesis 17 that variables measured during socialisation would moderate predictive validity.

Table 8.5. Predictive Validities, Means and Standard Deviations of the Assessment Centre for High and Low Employee Psychological Contract Violation and Social Knowledge

Moderator	Group	N	Validity ^a	Predictor		Criterion	
				Mean	SD	Mean	SD
Employee Violation	Total	80	.19	7.01	0.70	7.01	1.07
	High	49	.02	6.96	0.62	6.68	1.08
	Low	31	.42	7.08	0.81	7.52	0.85
Social Knowledge	Total	78	.19	7.02	0.70	7.01	1.09
	High	34	.32	7.16	.52	7.03	.92
	Low	44	-.14	6.92	.79	6.99	1.21

Note. ^a uncorrected validity coefficient.

Assessment Centre Construct and Predictive Validity

Overview

Research was conducted involving an assessment centre with three exercises (in-tray, proposal and semi-structured interview) and three dimensions (capacity, achievement and relationships). Two assessors provided independent ratings of each dimension at the end of each exercise. The following analyses explore both assessment centre construct and predictive validity.

Descriptive Statistics

Descriptive statistics for the assessment centre are given in Table 8.6. Based on ratings from the 11 point scale, the mean potential ratings ranged from 6.76 (interview ratings of achievement) to 6.41 (proposal rating of achievement), whereas the standard deviations were between 1.23 (in-tray rating of capacity) and 0.95 (interview ratings of relationships).

Table 8.6. Descriptive Statistics for Assessment Centre Ratings

Rating	M	SD	Kurtosis	Skewness
In-tray				
Achievement	6.44	1.14	-.12	-.10
Relationships	6.42	1.08	.01	-.05
Capacity	6.60	1.23	-.12	-.15
Proposal				
Achievement	6.41	1.02	.07	-.16
Relationships	6.43	1.01	.05	-.06
Capacity	6.53	1.10	-.08	-.10
Interview				
Achievement	6.76	.99	.23	.01
Relationships	6.67	.95	.28	.05
Capacity	6.56	1.07	.06	.04

Note. $N = 516$

Table 8.7 shows the multitrait-multimethod correlation matrix and the variance-covariance matrix. The reliability ratings between the two assessors were adequate, ranging from .83 to .91 with an average of .87. The average monotrait-heteromethod correlation was .46, the average heterotrait-heteromethod correlation was .44 and the average heterotrait-monomethod correlation was .80. Therefore, the moderate monotrait-heteromethod correlations suggested some convergent validity,

Table 8.7. Multitrait-Multimethod Correlation Matrix and Variance-Covariance Matrix

Exercise	Dimension	In-tray			Proposal			Interview		
		Ach.	Rel	Cap.	Ach.	Rel	Cap.	Ach.	Rel	Cap.
In-tray	Achievement	<i>(1.31)</i>	1.01	1.21	.32	.27	.38	.62	.55	.70
	Relationships	.82	<i>(1.16)</i>	1.07	.30	.29	.34	.60	.58	.64
	Capacity	.86	.80	<i>(1.51)</i>	.34	.31	.41	.66	.63	.81
Proposal	Achievement	.28	.27	.27	<i>(1.04)</i>	.83	.91	.51	.49	.56
	Relationships	.23	.26	.25	.80	<i>(1.03)</i>	.89	.47	.50	.53
	Capacity	.31	.29	.30	.82	.80	<i>(1.20)</i>	.53	.53	.62
Interview	Achievement	.55	.56	.54	.50	.47	.49	<i>(0.98)</i>	.76	.77
	Relationships	.51	.57	.54	.50	.52	.51	.81	<i>(0.90)</i>	.76
	Capacity	.57	.55	.62	.51	.48	.53	.72	.75	<i>(1.16)</i>

Note. $N = 516$. All correlations are significant at $p < .001$. Ach: Achievement; Rel: Relationships, Cap: Capacity. Values below the diagonal = correlations, Values on the diagonal in parentheses = variances; values above the diagonal = covariances. Italicised values = monotrait-heteromethod; solid line triangle = heterotrait-monomethod; broken line triangles = heterotrait-heteromethod

but these correlations were only marginally higher than the heterotrait-heteromethod correlations and were almost half the size of the heterotrait-monomethod correlations. This provided evidence of low discriminant validity. Furthermore, the difference between the heterotrait-monomethod correlations and the heterotrait-heteromethod correlations indicated the presence of exercise effects. This preliminary analysis therefore provided weak evidence for construct validity.

Hypothesis 18 indicated that via Confirmatory Factor Analysis, assessment centre variance would be explained by both exercise and dimension factors. All factor structures in Table 3.1 (Chapter Three) were tested using the covariance matrix as input to AMOS. To briefly re-iterate, the taxonomy involved five Method Structures and four Trait Structures, resulting in 20 alternative models. These varied in terms of whether they modelled method factors, trait factors, or a combination of both factors. Table 8.8 reports the corresponding goodness-of-fit statistics from the analysis for the different models.

According to the fit indices, Models 1D, 2C, 2D, 2E, 3D, 4C, 4D and 4E show an adequate fit to the data. Although the fit indices are equal for Method Structures C and D, the definition problems vary across the two approaches (Kleinmann & Koller, 1997). Nevertheless, in the present application, ill-defined solutions in terms of negative variances and factor loadings, emerged for both Method Factors C and E. Furthermore, in the computation of some models, non-positive definite covariances were observed which may have been caused by collinearity, or linear dependency, in the data set (Wothke, 1993). The high correlations between variables, particularly the heterotrait-monomethod correlations, may have resulted in a matrix that could not be inverted (Ullman, 1996). Wothke, (SEMNET, 19th November, 1998) also indicated that positive definite matrices may be caused by misspecified models, such as when indicators that should have been assigned to the same factor are forced to load onto different factors. In the present analyses, it is possible that the high heterotrait-monomethod correlations resulted in misspecification when models contained trait factors.

Table 8.8. Goodness of Fit Indices for Confirmatory Factor Analyses of the Different Structural Models

Model	X ²	df	X ² /df	TLI	CFI	PNFI	Problem
1A	4112.43*	36	114.23	-	-	-	-
1B/2A	1676.88*	27	62.11	.46	.60	.44	-
1C	574.80*	27	21.29	.82	.87	.65	-
1D	97.09*	24	4.05	.97	.98	.65	-
1E	574.80*	27	21.29	.82	.87	.65	-
2B	418.55*	19	22.03	.81	.90	.47	-
2C	62.23*	18	3.46	.98	1.00	.49	2,5
2D	24.50	15	1.63	.99	1.00	.41	1
2E	62.23*	18	3.46	.98	1.00	.49	2, 3
3A	2998.39*	27	111.05	.03	.27	.20	3
3B	1664.94	19	87.63	.24	.60	.31	1
3C	513.77*	18	28.54	.76	.88	.44	-
3D	45.69*	15	3.05	.98	.99	.41	1,2
3E	513.77*	18	28.54	.76	.88	.44	-
4A	1564.22*	24	65.18	.43	.62	.41	-
4B	402.02*	15	26.80	.77	.91	.38	1,2,4
4C	23.07	15	1.54	1.00	1.00	.41	2,5
4D	9.62	12	.80	1.00	1.00	.33	1,2,4
4E	23.07	15	1.54	1.00	1.00	.41	2,3

Note. N = 516 * p <.001. TLI = Tucker Lewis Index; CFI = Comparative Fit Index; PNFI = Parsimonious Normed-Fit Index. Models refer to Table 3.1, Chapter Three. Problems: 1 = negative regression weights, 2 = covariance matrix not positive definite, 3 = negative errors, 4 = negative factor correlations, 5 = negative factor variances.

Model 1D which has correlated exercise latent factors, was the only model with adequate fit and acceptable parameter estimates. For Model 1D, the correlations of the interview with the other exercises were relatively high ($r = .69$ with the in-tray, and $r = .64$ with the proposal), and moderate between the in-tray and proposal ($r = .34$). Table 8.9 displays the amount of variance explained by the latent exercise factors. The results indicated that on average 79.3% of variance in the assessment centre was accounted for by exercise factors. Hypothesis 18 which postulated that variance would be explained by both exercise and dimension factors, was not therefore supported.

Table 8.9. Proportion of Variance Explained by Method Factors for Model 1D.

Source of Rating	Variance Component		
	In-tray	Proposal	Interview
Achievement	86%	81%	77%
Relationships	77%	79%	81%
Capacity	85%	81%	71%
Average	82%	80%	76%

The Simultaneous Analysis of Predictive and Content Validity

Hypothesis 19 proposed that the assessment centre would display predictive validity at the overall level and at both the exercise and dimension level. In order to examine the predictive validity, correlations were computed between initial estimates of potential and performance measured four months post-entry and the assessment centre dimension scores, exercise scores and overall scores. Corrections were made using Thorndike's (1949) Case I formulae (see Appendix 11).

Table 8.10. Predictive Validity of the Assessment Centre by Overall Score, by Dimensions and by Exercises.

AC Rating	α	Overall Performance		Overall Potential	
		Uncorrected	Corrected	Uncorrected	Corrected
Overall	-	.03	.04	.19 [†]	.24
Achievement	.82	-.05	-.06	.27 [‡]	.32
Relationships	.81	.06	.07	.16	.18
Capacity	.84	-.03	-.04	.21 [†]	.26
In-tray	.93	.02	.03	.17	.21
Proposal	.93	.04	.05	.27 [†]	.33
Interview	.92	-.02	-.02	.24 [†]	.27

Note. N = 80-57. p * <.001; ‡ p < .01; † p < .05 (one-tailed). AC = Assessment Centre. Corrections with Thorndike's (1949) Case I Formula, cited in Guilford (1965).

As indicated in Table 8.10, there were near zero correlations between the assessment centre and initial ratings of performance. Significant correlations were though observed for the initial ratings of potential. Indeed, this was expected given that the assessment centre was designed to measure potential rather than performance. Interestingly, the reliabilities of both the dimension and exercises

scales had high reliabilities. The uncorrected correlations indicated that the ratings of the dimensions achievement and capacity provided significant predictors of subsequent estimates of potential and that the ratings of the proposal and interview exercises provided significant predictors of subsequent estimates of potential. Therefore, despite the finding that the assessment centre demonstrated an absence of dimension variance, both dimension and exercise scores showed reasonable validity for ratings of subsequent potential. The discussion will further consider possible explanations for this finding.

Chapter Nine

Discussion

Introduction

The present research adopted various perspectives on selection in order to integrate previous disparate areas in the literature. In particular, four main perspectives were examined: procedural justice, emergence of the psychological contract, moderators of predictive validity and the simultaneous analysis of assessment centre construct and predictive validity. The results relating to each of these areas will be discussed in the first four sections of this discussion chapter. For each area, future research directions and the implications for practice are discussed. The fifth section addresses the strengths and weaknesses of the present research and in conclusion, the main contributions are summarised.

Organisational Justice in Selection

Overview of Results

Nine hypotheses relating to the procedural justice of selection were analysed and are summarised in Table 9.1. In addition, the psychometric properties of the Selection Fairness Survey (SFS) were investigated. The following discussion focuses on five emerging themes: (i) the SFS, (ii) cultural differences, (iii) the impact of the outcome decision, (iv) the impact of changes over time from expectations to perceptions of justice, and (v) feedback as a moderator of the impact of justice. The implications for both theoretical research and practice will also be highlighted.

Table 9.1. Overview of the Organisational Justice Results

Hypothesis	Supported?	Summary
1	Partial	There were some cultural differences in applicants' mean responses to the procedural justice rules.
2	No	There were no cultural differences in terms of the salient dimensions of overall procedural fairness.
3	Yes	Successful and unsuccessful candidates' perceptions of procedural justice differed only following communication of the outcome decision.
4	Yes	Changes over time from expectations to perceptions of procedural justice had an impact on overall evaluations of procedural justice.
5	Yes	Changes over time from expectations to perceptions of procedural justice had an impact on expectations of subsequent selection methods with the same organisation.
6	Yes	Changes over time from expectations to perceptions of procedural justice had an immediate (pre-decision) impact on affective and attitudinal variables at the interview and assessment centre, and on behavioural variables at the interview only.
7	Partial	Changes over time from expectations to perceptions of procedural justice had an intermediate (pre-decision) impact on organisational attractiveness, but not self-esteem or candidate decision-making.
8	No	Changes over time from expectations to perceptions of procedural justice did not have a long-term (post-employment) impact.
9	Partial	Feedback moderated the impact of perceptions of some procedural justice rules.

Selection Fairness Survey

Review of the Results

Construct Validity. In partial support of the SFS construct validity, the present research provided insight into its underlying factor structure. In Study A, a 47 item version of the questionnaire yielded an eight factor solution, and in Study B, a 28 item version yielded a five factor solution which replicated across four time points. The factor structures from both studies were consistent with the three components of procedural justice identified by Greenberg (1993a): the formal characteristics of the process (i.e. career relatedness and opportunity to perform), the information offered during the process (i.e. selection process information), and interpersonal treatment (i.e. interpersonal effectiveness, two-way communication and bias suppression). In both studies, the procedural justice rules were generally correlated within time, and for Study B, across time. Overall, the results supported the SFS as representing various dimensions of procedural fairness.

Although the factor structures obtained were different from that obtained by Gilliland (Personal Communication, 20 March, 1996: See Appendix 4), they were more consistent with the original design of the survey (Gilliland & Honig, 1994a). Methodological issues may explain this finding. Gilliland and Honig (1993a) asked applicants to evaluate justice in retrospect and in relation to the candidates' own choice of selection process, whereas the present research used real time data in Study B and ratings were made in relation to an identified selection process in both studies. These factors may have enabled the present applicants to make more meaningful ratings of the procedural justice dimensions. The analyses also indicated that Dutch-British responses to the SFS had demographic and measurement equivalence. This adds further support to the psychometric properties of the measure and would indicate that future development and research are warranted.

Reliability. In terms of reliability, the SFS demonstrated good internal consistencies in Study A, but was less adequate in Study B for four sub-scales: opportunity to perform, bias suppression, career relevance and informativeness. Two possible explanations are offered: First, shorter versions of these scales were adopted in Study B which may have reduced variance and suppressed the reliability of ratings relative to Study A. Second, the weaker reliabilities were generally observed at times

1 and 3 where revisions had been made to the item wording, so that they would reflect a measure of justice expectations rather than perceptions. It is possible that applicants who were new to the particular selection method had greater difficulty rating their justice expectations. However, the internal consistencies for the justice rules at times 1 and 3 showed only marginal differences when computed separately for those with and without previous experience of an interview or assessment centre respectively. Therefore, the reduction in number of items per scale is likely to be the main cause of the difference across studies.

Future Research

Clearly, further research is needed on the psychometric properties of the SFS. A 31 item survey based around the following six procedural justice rules is suggested for future validation (see Appendix 12): (i) interpersonal effectiveness, (ii) career relevance, (iii) informativeness, (iv) two-way communication, (v) opportunity to perform, and (vi) bias suppression. The justification for this recommendation is the good reliability obtained for a six item scale of interpersonal effectiveness in both studies, and also the good reliability observed for the longer versions of the career relevance, informativeness and two-way communication factors in Study A. Additional items also need to be developed for the opportunity to perform and bias suppression factors. It is recommended that this survey is used in relation to identified and real selection procedures and that reactions are measured in close temporal proximity to the actual selection experience. Further cross-cultural validation of the psychometric properties of the measure would also be of value.

Investigating Cultural Differences

Mean Differences in Perceptions of Justice

Controlling for small, non-significant measurement non-equivalence, mean differences were observed for some of the procedural justice rules, partially supporting Hypothesis 1. The British candidates had higher mean perceptions of interpersonal effectiveness at all time points and higher expectations of assessment centre opportunity to perform. Conversely, the Dutch applicants had higher expectations of interview opportunity to perform and assessment centre informativeness. As predicted in Hypothesis 1, there were no mean differences across the two cultures for the distributive justice rule, which was likely to be due to

the outcome decision being the main determinant of equity perceptions (Gilliland & Honig, 1994b). Overall, the results provided some support for Hypothesis 1.

Interestingly, the Dutch applicants had higher mean expectations of opportunity to perform at the interview, but lower expectations at the assessment centre. Schuler's (1993) discussion of the importance of providing applicants with an opportunity to exert control is likely to be influential here, together with cultural differences in the extent to which universities prepare students for selection procedures. In the UK, university careers services typically offer workshops and practice interviews, whereas Dutch universities provide little formal support in this regard. British applicants may therefore expect a more structured and methodological approach to interviews which may result in students expecting the organisation to largely control the interaction. Dutch applicants on the other hand, may expect a more informal conversation, leading to greater anticipated freedom to sell themselves and opportunity to perform. These different expectations would be unlikely to affect the assessment centre since the structured approach is likely to be evident to both nationalities. Previous research has supported a link between national frequency of selection method usage and justice reactions (Steiner & Gilliland, 1996). The lower expectations of opportunity to perform observed for the Dutch applicants at the assessment centre may therefore be a result of the less frequent use of this procedure in The Netherlands (Hodgkinson & Payne, 1998).

Differences in the Relative Weighting of Procedural Justice

Congruent with previous cross-cultural research conducted on American and French applicants (Gilliland & Steiner, 1996), the present results indicated few British-Dutch differences in terms of justice rule salience. Although the most salient interview procedural justice rule differed across the two groups, inconsistent reliabilities in the overall measure of interview procedural fairness represented a limitation. Furthermore, the results indicated some degree of cross-cultural similarity in the salient dimensions at both the interview and assessment centre. For example, at the assessment centre, opportunity to perform was the most salient rule for both cultures, and bias suppression and informativeness were not significant in either culture. Overall therefore, there was limited support for Hypothesis 2.

It is possible that characteristics of the selection method are more influential than nationality in determining the salience of various procedural justice rules. Since both the interview and assessment centre are relatively interactive selection methods designed to measure maximum performance, it is not surprising that there is some overlap in the most salient dimensions. For example, the opportunity to perform and career relevance influenced both British and Dutch applicants perceptions of overall procedural fairness for both selection methods. This was the first research to compare the salience of different procedural justice rules for interviews and assessment centres. Gilliland (1995) found the interpersonal effectiveness rule dominated interview evaluations, with the job relatedness, two-way communication, opportunity to perform, feedback and honesty rules also salient. Since Shell's assessment centre involved an interview, these rules would be likely to influence the overall evaluation of this method. Furthermore, the inclusion of a work sample test (i.e. the in-tray) would further support the salience of the career relevance rule (Dodd, 1977; Gilliland, 1995; Schmidt, Greenthal, Hunter, Berber & Seaton, 1977; Schmitt, Gilliland, Landis & Devine, 1993).

Future Research

This study provided a fairly conservative test of cultural differences in terms of justice reactions since the British and Dutch are reasonably aligned along some cultural dimensions (e.g. Hofstede, 1980). Nevertheless, some differences in expectations and perceptions of justice were observed. Future intervention studies may examine the impact of providing interview preparation workshops to Dutch applicants in order to determine whether this would reduce cultural differences in terms of expectations of interview opportunity to perform. Future research will also benefit from examining cultural differences across a range of selection methods. In addition, research on more disparate cultures (i.e. outside North America and Western Europe) will provide further insight into the cultural equivalence of the SFS factor structure and into the extent to which the salience of the justice dimensions for certain selection methods are internationally generalisable. The continued and more widespread application of the robust SEM procedures adopted here to ensure the equivalence of measures across cultures, is also recommended.

The Impact of the Outcome Decision on Justice Evaluations

In Study B, prior to knowing the selection outcome, there were no significant differences in terms of successful and unsuccessful applicants' perceptions of the procedural justice rules. In Study A, following communication of the decision, there were significant differences between these groups of applicants. Paired comparisons across time in Study B also indicated that there were no significant differences between successful and unsuccessful applicants post-, but not pre-decision. Together, these results provide support for Hypothesis 3 and indicate that emotional reactions to the outcome directly influence applicants' perceptions of procedural justice to the extent that successful candidates' perceptions are heightened, whilst unsuccessful applicants' perceptions are lowered. This suggests that post-decision perceptions are influenced by either 'emotional bruising' or 'emotional uplifting' which may obscure the objectivity of the reactions elicited (Cunningham-Snell, Fletcher, Anderson & Gibb, 1997).

Future Research

If the selection decision radically alters perceptions of procedural justice, future theoretical investigations into applicants' objective perceptions of procedural justice should measure this construct prior to feedback of the decision, otherwise the measure is likely to be contaminated by outcome evaluations. In addition, future longitudinal research is required to examine which justice dimensions are adjusted following communication of the outcome. It is therefore important that researchers take multiple measures of this construct during the selection process. Recent selection research adopting an organisational justice perspective has recognised the need to take measures of overall procedural fairness both pre- and post- the outcome decision (e.g. Thornsteinson & Ryan, 1997). Future research should continue to draw comparisons between different time points, but should also measure the justice rules which provide more detailed insight into applicants' justice evaluations.

The Impact of Temporal Change in Justice Expectations to Perceptions of Reality

Five hypotheses were posed to examine the impact of change from expectations to perceptions of justice on (i) overall perceptions of procedural fairness, (ii) subsequent justice expectations and (iii) immediate (pre-decision), (iv) intermediate (post-decision), and (v) long-term (post-organisational entry) outcome

measures. For these hypotheses, changes from expectations to perceptions of justice were investigated by the stringent approach of first ensuring temporal measurement equivalence via SEM. The results from the preliminary analysis are reported first, followed by the results relating to the impact of temporal change.

Temporal Measurement Equivalence

With one exception, the procedural justice rules measured across times 1 and 2 and times 3 and 4, did not show any error change. Since ratings of expectations and perceptions of procedural justice were equivalent, this provided a justification for investigating change over time, the exception being for the career relevance rule which showed beta change across times 1 and 2. For the other rules, controlling for non-significant beta and gamma change, a number of significant mean changes were obtained. For interpersonal effectiveness and bias suppression, the results indicated that applicants' perceptions of these rules increased from expectations to perceptions at both the interview and assessment centre. Conversely, applicants' perceptions of informativeness decreased at both selection methods, and their perceptions of opportunity to perform decreased at the assessment centre. Overall therefore, the SEM analyses supported the robustness of the SFS factors across time and showed that while controlling for small amounts of beta and gamma change, some temporal changes were found. This adds further support to the utility of the SEM approach.

Impact on Overall Procedural Fairness

In support of Hypothesis 4, overall procedural fairness evaluations rated pre-decision were associated with change from expectations to perceptions of the justice rules. For example, at the assessment centre, the change in interpersonal effectiveness, opportunity to perform, and informativeness influenced the overall evaluations. In addition, the change in evaluations of the justice rules had an impact on post-decision overall procedural fairness, even after controlling for perceptions of distributive justice.

Contrary to Gilliland's (1993) suggestion that negative information would be more salient than positive information, this research indicates that changes in both directions can influence applicants' perceptions of overall fairness. This result also seems inconsistent with Ployhart and Ryan's recent (1998) study where negative rule violation, but not positive rule violation, resulted in significantly different

perceptions of overall procedural fairness relative to rule satisfaction. This inconsistency may be due to the different selection methods investigated, or due to different research methodologies. In tests, negative information may have a greater impact, whereas in more interactive procedures, both positive and negative information may influence perceptions of fairness. Alternatively, the difference may be attributed to the artificial manipulation of the administration consistency rule in Ployhart and Ryan's (1998a) study which may have inflated the salience of negative rule violation. In the present field research, experiences leading to perceptual change may have been more subtle and hence led to an impact of change in both directions.

Impact on Subsequent Expectations of Procedural Justice

Consistent with Hypothesis 5, the results indicated that changes from expectations to perceptions of justice at the interview had an impact on justice expectations for the subsequent assessment centre with Shell. In particular, change in perceptions of interview informativeness explained expectations of this rule at the assessment centre. Further, change in interview bias suppression had a significant impact on subsequent expectations of interpersonal effectiveness. The latter may be explained by the fact that these two rules are both from the 'interpersonal treatment' category identified in Greenberg's (1990a) taxonomy. The moderate correlations among these justice rules also mean that discrepancies between expectations and perceptions of one justice rule may lead to a change in expectations of another rule. Therefore, in support of Hypothesis 5, for two dimensions, significant differences between justice expectations and perceptions of reality at the interview predicted expectations of justice at the assessment centre. This further adds to Rosse, Miller and Stecher's (1994) research which indicated that reactions to selection methods were influenced by the additional methods that they were used in conjunction with.

Immediate Impact

In support of Hypothesis 6, changes from interview expectations to perceptions of justice were associated with changes in motivation, anxiety, self-esteem, organisational attractiveness, intentions to accept offers of employment and ratings of interview potential. At the assessment centre, differences in justice perceptions were associated with changes in motivation, anxiety and self esteem. The change in perceptions of organisational attractiveness at the assessment centre

was also significantly predicted by the combined impact of changes in justice, but no specific rule explained the finding. At the assessment centre, changes in perceptions of justice did not predict intentions to accept offers of employment or assessment centre ratings of potential.

The small amount of variance accounted for in these analyses leads one to question the real significance of these findings. In terms of the applicant-rated dependent variables (i.e. all variables except organisational selection ratings), a stringent analytical approach was adopted whereby the impact of changes in justice on changes in outcome variables was assessed. Here the amount of variance accounted for ranged from (3% - 6%), but had the direct impact of these variables been examined the amount of variance accounted for would have ranged from (7% - 15%). In addition, the small variance obtained in applicants' ratings of procedural justice and these immediate variables, would have artificially deflated the relationships observed. Arguably, the results provide some support to the immediate impact of justice evaluations on applicant-rated variables. Nevertheless, it is important to highlight that the data do not allow conclusions to be drawn regarding the direction of effect. Since measures of justice and these 'outcome' variables were taken simultaneously, it is also possible that changes in motivation, for example, lead to a re-evaluation of procedural justice.

In terms of the behaviour-related variables (i.e. intentions to accept an offer of employment and organisational ratings of selection potential), the results indicated that the interview had a greater impact than the assessment centre. This difference may be explained by the fact that the assessment centre provided applicants with much greater scope to find out about career opportunities in the organisation. This information may have therefore been more influential than perceptions of justice in determining applicants' employment acceptance decisions. Indeed, Gilliland (1993) suggested that perceptions of procedural justice may have a greater impact on behavioural intentions in the absence of detailed information regarding the nature of the job or organisation. The result is also consistent with previous research which has shown that perceptions of the selection process, notably interviewer characteristics and empathy, are important in impression formation during early

selection rounds, whereas other factors, notably job characteristics, become more important at subsequent stages in the process (Taylor & Bergmann, 1987).

However in the present study, the change in procedural justice for both the interview and assessment centre explained similar amounts of variance in the behavioural variables. The respective amount of variance explained at interview and assessment centre for intentions to accept job offers were 3% and 1% and for selection potential were 2% and 2%. Hence, a more likely explanation for the different findings in the present analyses is the smaller sample size available at the assessment centre (interview $N = 663$, assessment centre $N = 438$). In fact, the restriction of range at the assessment centre caused by selection at the interview would have suppressed the effect sizes at the assessment centre. This seems likely on the basis of the standard deviations of the interview and assessment centre scores which were 1.29 and .88 respectively. Therefore, caution is required when comparing the impact of justice across several stages of a selection process where initial selection methods lead to a truncation in the data for subsequent methods.

Furthermore, the practical significance of explaining 2% of the variance is doubtful for either selection method. A less stringent approach was adopted for organisational ratings at selection than for the applicant-rated variables since the direct impact of change in procedural justice on selection scores was examined. An alternative possibility is that the relationship between selection justice reactions and selection scores is indirect; justice evaluations may influence selection behaviour through their impact on affective variables. Research has supported the relationship between selection performance and self-esteem (e.g. Ellis & Taylor, 1983), motivation (e.g. Arvey et al., 1990), and anxiety (e.g. Arvey et al., 1990). In the present study, the association between fairness reactions and these variables is apparent at both the interview and assessment centre. The likely indirect effect is consistent with Chan et al.'s (1997) research which demonstrated that face validity perceptions on a cognitive ability test had an indirect influence on performance on a subsequent parallel test through test-taking motivation. Hence future research should examine in more detail the potential indirect impact of procedural justice reactions on performance across a range of selection procedures.

Intermediate Impact

The results provided some support for Hypothesis 7 regarding the intermediate, post-decision impact of assessment centre procedural justice. Specifically, controlling for perceptions of distributive fairness, changes in ratings of organisational attractiveness from time 3 to 5 were predicted by changes in perceptions of justice across times 3 and 4. This is consistent with previous research which has found procedural justice to be more strongly associated with evaluations of the organisation than distributive justice (Gilliland & Honig, 1994b; Smither, Reilly, Millsap, Pearlman & Stoffey, 1993). The present results extend these findings and indicate that the more objective pre-decision measure of procedural justice can also add incremental variance in explaining applicants' evaluations of the organisation over and above distributive fairness reactions.

However, perceptions of procedural justice did not have an impact on post-decision self-esteem or candidate decision-making, and the results indicated that perceptions of distributive fairness had the main impact on these variables. This is contrary to previous research which has supported the impact of procedural justice reactions on post-decision self-esteem (Gilliland & Honig, 1994b) and to qualitative research on the impact of social variables on candidate decision-making (Rynes, Bretz & Gerhart, 1991). However, both these studies elicited reactions to the selection process in retrospect, where perceptions were inevitably contaminated by the outcome decision. This is likely to have resulted in an over-estimation of the impact of reactions to the selection process. Overall therefore, controlling for perceptions of distributive fairness, procedural justice discrepancies had only a limited intermediate impact.

Long-Term Impact

Hypothesis 8 was not supported as perceptions of assessment centre procedural justice did not have a long-term impact on outcome variables measured four months post-entry into the organisation. The lack of long-term impact is consistent with laboratory research conducted by Gilliland (1994) over a shorter interval of two weeks. However, the results are inconsistent with other researchers who have found lasting effects of justice one-month after selection (Smither et al., 1993) and with the long-term impact observed for other social process variables (e.g.

self-esteem: Fletcher, 1991). The lack of long-term impact for procedural justice in the present study may have been due to a number of factors. First, data were only available from successful applicants leading to a smaller sample size and a restriction of range in perceptions of justice relative to the total applicant sample. Second, there was an average delay of 5.14 months (range 0-11) between selection and entering the organisation, leading to an average 9 month gap between the measurements of justice and the long-term outcome variables. This inevitably suppressed the post-employment impact of justice. Third, consistent with organisational justice research on equity (Greenberg, 1982, 1988), it is likely that over time, overpayment justice is perceived similarly to justice satisfaction, whereas justice underpayment is remembered as such and is therefore more likely to have a long-term impact. The negative change in informativeness and opportunity to perform observed in the present study may have failed to show a long term impact because applicants had the lowest justice expectations of these rules and their subsequent perceptions of these rules were still above the midpoint of the scale. Hence, in the long-term, overall positive evaluations of the selection process may have been discounted rather than compensated for by increased satisfaction, commitment, performance and so on.

Future Research

The results of the SEM analyses highlight the importance of not assuming that any statistically significant temporal change in mean scores is attributable to true alpha change. Rather, it is important that future research applies these procedures to evaluate the presence of different types of change in longitudinal data sets. In addition, by measuring the justice rules pre-selection, these expectations could be controlled to determine more precisely the impact of the procedural justice experienced during the selection process. The stringent approach adopted here may also be usefully applied to other areas of selection research.

Previous researchers have queried whether statistical artefacts would result in a reduced impact of social process variables (e.g. Arvey et al., 1990). The present research has illustrated that despite this range restriction, reactions to the selection procedures did have an immediate impact, but less of an intermediate impact and no long-term impact. Given the greater immediate impact of justice at the interview, future research may also usefully measure the impact of justice evaluations post-

communication of the interview outcome to determine whether justice perceptions influence withdrawal from the process. Furthermore, research is needed on the long-term impact of justice perceptions where procedures are less positively evaluated and where there is a shorter delay between selection and organisational entry.

Finally, more fine grained analysis of assessment centre procedural justice is required. In the present research, the assessment centre comprised three exercises, but applicants were requested to respond to their reactions to the process as a whole. Differential reactions to each exercise were therefore not captured. The varied content of the exercises, particularly in terms of the extent to which they were career relevant may have resulted in varied reactions. On the other hand, the three exercises were of a similar format, involving an interaction between one applicant and two assessors. Where assessment centres involve more diverse exercises (e.g. group discussions, psychometric tests), the measurement of differential reactions to each exercises will be important.

Feedback as a Moderator of the Impact of Procedural Justice

Controlling for perceptions of distributive fairness, three feedback moderator effects were observed: the interaction of feedback and perceptions of career relevance on organisational attractiveness, the interaction of feedback and career relevance for applicant decision-making, and the interaction between feedback and interpersonal effectiveness for candidate decision-making. Consistent with Francis-Smythe and Smith (1997), no moderator effects were observed for post-decision self-esteem. For each significant effect, the results indicated that feedback had the greatest impact on organisational attractiveness or candidate decision-making when the procedural justice rule was low. This offered some support for Hypothesis 9.

These findings consolidate previous research in the organisational justice and selection literatures. Previous organisational justice research has found that offering a justification for a decision can influence fairness perceptions (Bies and Shapiro, 1988; Greenberg, 1990b), but has not examined the potential moderating role of these explanations on other outcome variables. In the selection literature, Gilliland (1994) found that explanations regarding the selection process appeased the negative reactions of rejected candidates in terms of recommendation intentions, but he did not examine the role of an explanation regarding the outcome. The present research

therefore builds on these findings by illustrating that the provision of a justification for the decision can moderate some outcome variables. The finding regarding the impact on applicant decision-making is important. Since this may have a direct impact on the utility of the selection process (Murphy, 1986), an organisation's investment in good feedback procedures may prove cost effective in the long term.

Future Research

The present longitudinal research also indicates the inappropriateness of considering feedback as a procedural justice rule. As argued in Chapter One, feedback is delivered with the outcome decision and is a distinct element from the selection process itself. This research illustrates that it should be more appropriately perceived as a potential moderator of procedural justice, over and above the impact of distributive justice. Future selection justice frameworks should therefore not incorporate feedback as a sub-dimension of procedural justice. Furthermore, as Briscoe (1997) notes, in more collectivist cultures (e.g. Japan), the provision of individualised feedback is problematic and may be perceived differently. Cross cultural research on the role of feedback as a moderator of procedural justice is therefore required.

Practical Recommendations Regarding Selection Justice

Through using the SFS pre- and post-selection (prior to feedback), organisations can identify where selection methods fail and exceed candidates' justice expectations. The possibility of positively influencing the process through exceeding applicants' expectations of fairness has also been illustrated. Positive change from expectations to perceptions of interpersonal effectiveness and bias suppression were observed and these influenced a number of other variables. In terms of negative change, there was a decrease across both selection methods for informativeness, and for opportunity to perform at the assessment centre only. Comments provided by candidates indicated a need for clearer explanations regarding the assessment centre exercises and so more explicit communication may help to increase applicants' perceptions of these rules. Hence, by identifying applicants' expectations and perceptions of selection procedural justice, organisations can identify ways to reduce negative change. In addition, multinational organisations can use the SFS to identify cultural differences in expectations of selection fairness

and may moderate the process accordingly. The importance of cross-cultural awareness in terms of differential reactions to selection procedures will take on greater significance as organisations introduce selection beyond their national frontiers.

This research has clearly illustrated the utility of measuring expectations and pre-decision perceptions of procedural justice. Nevertheless, the final impression also remains critical. Previous research has illustrated that post-decision perceptions of procedural fairness are linked with a number of outcome variables, such as recommendation intentions (e.g. Cunningham-Snell, et al., 1997; Gilliland, 1994; Smither et al., 1993). Since shared information with colleagues can influence applicants' decisions about whether to proceed with an organisation's selection process (e.g. Arvey, Gordon, Massengill & Mussio, 1975; Rynes et al., 1991), the final impression remains critical. It may therefore be worth attempting to inoculate candidates at the beginning of the process by informing them that negative results can lead to a lowered perception of selection fairness. As illustrated in the present study, organisations also need to consider carefully how they communicate the decision. The results examining the moderating role of feedback would indicate that this might help to counteract negative pre-decision perceptions of justice. Likewise, good feedback may mediate post-decision perceptions of procedural justice and may therefore prove a worthwhile investment by the organisation.

To conclude, the results for these first nine hypotheses have illustrated the importance that organisations should attach to applicants' reactions to the selection process and to subsequent feedback procedures. The SFS can be used to monitor where changes in the process are likely to have most beneficial impact.

Emergence of the Psychological Contract

Overview of Results

Six hypotheses relating to the emergence of recruits' psychological contract were analysed and Table 9.2 provides an overview of the results. The following discussion focuses on five themes: (i) the link with perceptions of justice, (ii) cultural differences, (iii) temporal change, (iv) predictors of temporal change, and (v) the impact of temporal change on outcomes. The implications for both theory and practice will be highlighted.

Table 9.2. Overview of the Psychological Contract Results

Hypothesis	Supported?	Summary
10	No	There were few significant relationships between perceptions of the psychological contract at selection and perceptions of justice.
11	No	There were no British-Dutch differences in perceptions of the psychological contract either pre- or post-organisational entry.
12	No	Temporal change was observed in recruits' perceptions of the psychological contract, but not in the predicted direction.
13	Partial	Temporal change in recruits' perceptions of the psychological contract generally represented some increased congruence with the organisational representatives' perspective.
14	Partial	Temporal change in perceptions of employer obligations were predicted by socialisation knowledge and psychological contract violations whereas changes in employee obligations were predicted by the recruit-manager relationship.
15	Partial	Temporal changes in perceptions of employee obligations had some impact on outcome variables, but changes in employer obligations did not.

The Psychological Contract and Perceptions of Justice

Overall, there was little support for Hypothesis 10 that relational elements of the contract would be correlated with procedural justice, and transactional elements with distributive justice. In fact, there were few significant correlations between any

psychological contract obligations and justice dimensions. Although slightly more significant relationships were observed when procedural justice was measured post-communication of the outcome decision, the relationship was still weak and the slight increase probably reflected a greater impact of common method variance given that psychological contracts were also measured post-communication of the decision. There are possible reasons for the lack of association between the two constructs. First, the relationship would have been artificially suppressed by the lack of variability in both measures, and second, as will be discussed in more detail in a subsequent section, the construct validity and reliability of the psychological contract measure is unknown. Nevertheless, overall the support is limited and a more appropriate avenue for future research may be to investigate possible intermediate constructs. For example, perhaps perceptions of procedural justice influence perceptions of the job and organisational characteristics which in turn influence perceptions of the psychological contract.

Cultural Differences

The cross cultural analyses did not support Hypothesis 11. There were no differences between the British and Dutch applicants in terms of their perceptions of either employee or employer obligations at selection or four months post-entry. This would indicate information available during the selection process led to both nationalities developing similar perceptions of the exchange relationship. However, it is possible that cultural differences existed in terms of the importance attached to these dimensions. Future cross-cultural research should also elicit the salience of the dimensions. Furthermore, research on psychological contract perceptions and salience is required on more disparate cultures undergoing the same selection procedures. As mentioned above, the British and Dutch are two of the more closely aligned cultures and so caution is warranted in terms of generalising this result more widely

Temporal Change

Direction of Change

Hypothesis 12 proposed that adjustments in perceptions of the psychological contract would be evident, to the extent that perceptions of employer obligations would increase and employee obligations would decrease. Although some changes

were observed, they were generally in the opposite direction to that hypothesised. The results indicated that perceptions of employer obligations to provide promotion and support with personal problems decreased across time, and perceptions of employee obligations to stay for a minimum of two years decreased, whereas perceptions of the obligation to volunteer for extra tasks increased.

Hypothesis 13 also proposed that the adjustments would lead to greater congruence with the organisation's perspective. Results indicated that the recruits' ratings of training, career development, working extra hours and refusal to support Shell's competitors decreased between selection and four months post entry to the extent that there were no longer significant differences between the two parties. Discrepancies in the other dimensions also generally decreased, although significant differences remained. There were two exceptions: First, for perceptions of the employee obligation for extra role behaviour, the significant difference became greater after four months. Second, the employer obligation to provide support with personal problems showed no significant difference between the two parties at the end of selection, but after four months of employment, recruits had significantly lower perceptions than the organisational representatives.

In terms of the direction of change, the results are contrary to previous research which has found temporal increases in perceptions of employer obligations (e.g. Robinson, Kraatz & Rousseau, 1994; Thomas & Anderson, 1998) and decreases in employee obligations (e.g. Robinson et al., 1994). In the present study, one of the two employee dimensions showing significant temporal change actually increased, whilst both employer obligations decreased. In terms of the discrepancy with Robinson et al.'s (1994) research, this may reflect sample differences. In the present research, the students were of predominantly technical disciplines and may have held inflated expectations in comparison to Robinson et al.'s (1994) MBA students. Indeed, in comparison to the 97% of Robinson et al.'s (1994) respondents who had acquired more than 2 years of work experience, only 20% in Study A and 21.5% in Study B had acquired this amount of experience. Therefore, Shell's applicants may have held more naive perceptions and hence initial change reflected a reality adjustment. Indeed, the general pattern of closer congruence with the organisational representative's perspective would provide some support. Furthermore, the different

time frames are likely to have influenced the results. MBA graduates are highly marketable and usually have short organisational tenure (Robinson & Rousseau, 1994). Therefore, after two years of employment they may have perceived that in return for their incumbency, increases in the organisation's contributions were warranted. After only four months of employment, the recruits in the present study were unlikely to have had enough opportunity to perceive that they had adequately fulfilled their own contributions to merit a corresponding adjustment in their employer's obligations. Hence the transactional shift observed in Robinson et al.'s (1994) study would have been premature and unjustified.

The present findings were different from those observed by Thomas and Anderson (1998) in a study investigating employer obligations only. Over eight weeks of training, they found increases in employer obligations. Sample differences may again explain the difference. In comparison to the average of 13% who had experienced previous employment with Shell in terms of summer placements, one third of the British Army recruits sampled by Thomas and Anderson (1998) had previous experience with the Armed Forces. Furthermore, one third of their recruits had close family members in the Armed Forces, whereas less than 1% of the recruits in the present study had relatives working for Shell which may have influenced initial perceptions of the psychological contract. Shell's recruits may have held more inflated views of the employment relationship, hence leading to a downward adjustment during socialisation. On the other hand, the British Army recruits may have underestimated their emotional attachment to the organisation to the extent that after eight weeks of training, they rapidly increased the relational aspects of the contract (Thomas & Anderson, 1998). It is likely therefore that sample and organisational characteristics are likely to influence the dynamic nature of the psychological contract. Future research comparing different work settings and sample characteristics using the same methodology is warranted.

In terms of the degree of congruence with organisational representatives, the majority of change was in the direction of greater congruence, and although several statistical differences remained, it is possible that with longer tenure further adjustment would have taken place. However, for two dimensions, change in recruits' perceptions resulted in decreased alignment between the parties. Recruits

increased perception of their obligation to take on extra tasks may have resulted from being required to contribute to real business issues promptly after their start date. Several recruits commented on the early responsibility and stated that they would have liked more time for development and mentoring. In terms of the decrease in employer obligations to provide personal problem support, recruits' comments would indicate that the decrease in congruence between the two parties may have been due to the relocation problems experienced by several recruits. This may have led to a generalised sense of lack of personal support from the organisation.

Predictors of Temporal Change

Hypothesis 14 predicted that changes in recruits' perceptions of the contract would be predicted by socialisation knowledge, the recruit-manager relationship and psychological contract violations. This was partly confirmed. Specifically, socialisation knowledge predicted changes in perceptions of personal problem support, violations predicted changes in career development, and the recruit-manager relationship also approached significance for career development. Interestingly, the combined impact of both psychological contract violation and quality of recruit-manager relationship on changes in the employer obligation of career development, explained additional variance than either predictor explained in isolation. For changes in perceptions of employee obligations, only perceptions of the recruit-manager relationship emerged as significant predictors for no competitor support and minimum stay.

The acquisition of socialisation knowledge had an impact on changes in employer obligations, but not employee obligations. The findings for employer obligations were in accordance with Thomas and Anderson (1998) and will be discussed first. The change in personal problem support was predicted by interpersonal resources knowledge. Intuitively it seems likely that higher establishment of a network of insiders would explain changes in perceptions of the organisation's obligations to provide support. In addition, although changes in promotion were not significantly predicted by the knowledge domains, the impact of social and role knowledge approached significance. The small samples sizes available for these analyses may have meant that significant results were not found. Since these knowledge domains explained between 5% and 11% of the variance of

changes in perceptions of employer obligations, this indicates that future research investigating the role of knowledge acquisition in psychological contract adjustment is warranted.

Socialisation knowledge did not predict changes in employee obligations. To the author's knowledge, this was the first study to explore the relationship between these constructs. The results indicate that during initial socialisation, newcomers' information-seeking leads to greater learning in terms of employer contributions to the relationship, rather than their own contributions. Indeed, the main impetus behind information-seeking is to reduce the uncertainty in the organisational environment (e.g. Louis, 1980). This suggests that initial information-seeking post-organisational entry aids recruits' interpretation of only employer obligations of the contract.

The quality of the recruit-manager relationship predicted change in not supporting competitors, whilst the frequency of contact predicted change in perceptions of minimum length of stay. Perceptions of the relationship therefore represented the only predictor which explained changes in employee obligations. This may be due to the fact that recruits and their managers would have jointly set targets for the recruit and these interactions presumably served to provide information regarding the organisation's perceptions of employee contributions to the relationship. In addition, the quality of recruit-manager relationship approached significance in explaining the change in the employer obligation to provide career development. Since Shell require employees to take responsibility for managing their career development, perhaps those with more positive relationships felt that their managers would be more likely to agree to their proposals. For employee obligations at least, these results would lend some support to Shore and Tetrick's (1994) suggestions that new recruits view the supervisor as a chief agent for establishing the psychological contract.

Contrary to Robinson et al.'s (1994) research, recruits' perceptions of psychological contract violation did have an impact on employer obligations and not employee obligations. Again, this is likely to be a result of the different samples and the time frames investigated. Violations after four weeks may have served to inform

recruits about the reality of their employment relationship, whereas after two years of employment may be interpreted as the employer renegeing on promised obligations.

Impact of Temporal Change on Outcomes

In partial support of Hypothesis 15, changes in perceptions of employee, but not employer obligations, had an impact on some of the outcome variables examined. Taking the employer obligations first, if recruits are aware of their naivety and that they have based their perceptions of employer obligations on implicit messages, they may tolerate initial adjustment in these perceptions as a result of experiencing organisational reality. Alternatively, the non-significant results may be due to the methodological limitations previously discussed. Overall however, these results suggest a limited impact of initial changes in perceptions of employer obligations, but this requires confirmation in further research.

For employee obligations, the changes had a significant impact on job performance, and approached significance for the remaining outcome variables, except job potential. For example, the change in perceptions of the obligation to stay for a minimum period of time predicted both organisational commitment and the change in intended tenure. For the change in organisational attractiveness, the change in perceptions of extra role behaviour approached significance. The results therefore indicate that the change in different employee dimensions had an impact on different outcome variables. The effects were positive, indicating that the adjustment did not negatively impact on the employment relationship.

Future Research

It is vital that future qualitative research is conducted to identify the extent to which perceptions of obligations really emerge during selection and early socialisation. Two quotes from recruits at time 6 are worthy of note. A geologist commented, “they [Shell] don’t particularly owe me anything! These days, everyone is out for themselves it seems. They owe it to themselves to get the best out of their employees, and if they fail to do so, it is Shell that loses...”. On the other hand, an engineer seemed more comfortable with the idea of a reciprocal exchange of obligations “Payment, training and atmosphere are good. In response I try to fulfil my obligations to Shell to the best of my capabilities”. Future research needs to examine some of the individual difference variables (e.g. amount of previous work

experience) that render the use of the word “obligations” unacceptable to some recruits. Furthermore, future research is required to provide greater precision in terms of how psychological contracts develop. Qualitative research may provide a useful starting point to address these issues. Subsequently, quantitative research at several intervals post-entry into an organisation may provide more detailed insight into the dynamic nature of the contract following organisational entry.

Research is also required in order to generate a more comprehensive measure of the psychological contract dimensions (Anderson & Schalk, 1998; Rousseau & Tijoriwala, 1998). Certainly the use of single-item scales with unknown reliability was a limitation in the present study. Rousseau’s (1998) recent development of the Psychological Contract Inventory (cited in Rousseau & Tijoriwala, 1998) may prove useful. This 25 item inventory contains seven factors representing two relational subdimensions, two transaction subdimensions and three balanced dimensions. Rousseau & Tijoriwala (1998) suggest that “this approach promises more stable, generalisable measures of discrete contract terms across populations” (p. 688). The ratio between items to factors may be a limitation, but future cross-organisational, cross-worker and cross-cultural research is required to determine whether this measure will indeed provide a more robust measure of this construct. This research should be both qualitative and quantitative in order to determine the content and construct validity of the measure.

The use of a multi-item measure of psychological contract dimensions would also enable more precise research to be conducted in terms of the type of change that occurs during initial organisational entry. It has been proposed here that some of the changes may have reflected conceptual change as a result of moving from naive perceptions at selection to more informed perceptions following initial socialisation. In other words, it is likely that gamma change occurs for some dimensions, and not alpha change. As Thomas, Cunningham-Snell & Anderson (1998) note, it is possible that non-significant results are due to the analysis focusing on the wrong type of change. Future research may well benefit from exploring the degree of gamma change in recruits’ ratings of psychological contract dimensions across time.

This research illustrated the utility of exploring psychological contract mutuality by providing a benchmark on which to interpret changes in recruits’

perceptions of the psychological contact. In particular, the general decline in perceptions of employer obligations represented an unexpected result, but was at least partly a reflection of increased reality. Future research is required where matched responses are obtained from the recruit and the organisational representatives with whom they interact during the selection process. This would provide more detailed insight into psychological contract mutuality during the selection process. Future research should also examine organisational representatives' perspective at more than one time point in order to calculate test-retest reliability coefficients. Again, through measuring recruits' perceptions of the psychological contract over several intervals during the socialisation process, the threshold of congruence between the two parties may be identified.

In general, the level of psychological contract analysis should be more focused at the level of interaction between the employee and employer. However, as Guest (1998) notes, this presents an "analytical nightmare", although developments in statistical approaches for evaluating congruence in organisation-person fit research (e.g. Edwards, 1994) may prove informative, as illustrated in recent psychological contract research (Porter, Pearce, Tripoli & Lewis, 1998). In addition, SEM comparisons of the construct equivalence in recruits' and organisational representatives' perceptions at both recruitment and following a period of organisational tenure may provide an alternative approach to examining changes in congruence between the two contractual parties.

As a note of caution, the small sample posed a limitations in the analyses and may have resulted in Type I and II error. Spurious results may have been found, or alternatively, the real effect sizes may have been suppressed by the lack of available data. Future research with larger samples is therefore warranted to further investigate predictors of psychological contract change and its impact on outcome variables. This research should further investigate the joint effects of several predictors of psychological contract change.

Practical Recommendations

This research illustrates that measuring recruits' perceptions of the psychological contract provides a starting point for identifying appropriate interventions. The discrepancies with organisational representatives can be addressed, so that recruits commence with more accurate perceptions of the employment relationship. To some extent, this reiterates recommendations made in the job expectations literature, where researchers have repeatedly called for selection systems to send more realistic messages to applicants in order to suppress the inflated expectations usually generated (e.g. Nicholson & Arnold, 1991; Wanous, 1992; Wanous & Colella, 1989). However, in competitive labour markets, organisations may not heed this advice, presumably due to greater concern for attracting and recruiting the best applicants. This research highlights an alternative approach. Organisations can attend to their socialisation process and use this as vehicle to facilitate psychological contract adjustment. Attention should be given to both sides of the contract, to gain an understanding of what recruits expect from the organisation, and to communicate the organisation's expectations of the recruit. If recruits' perceptions are naive, then the socialisation practices can be used to help the individual rapidly adjust to the reality of the organisation. The results from this study indicate that changes in initial perceptions of particularly employer obligations, has minimal impact and hence may not cause significant detriment to the employment relationship. Early adjustment may prevent more serious consequences resulting from change and violations previously identified after longer organisational tenure (e.g. Robinson, 1996; Robinson & Rousseau, 1994).

Alternatively, rather than making recruits more realistic, the organisation may attempt to unleash their apparent enthusiasm. Recruits seemed to be prepared to provide greater contributions to the relationship, and expected more in return. If these represent feasible contributions, then the organisation may increase their contribution to the relationship, and in return may benefit from the employee fulfilling their part of the contract to a higher level. For example, organisations may encourage recruits to stay for longer and may offer more career development in return. This may lead to mutual benefits, but is clearly dependent on future research establishing the viability of the perceptions expressed by recruits.

Selection and Socialisation Moderators of Predictive Validity

Overview of Results

As summarised in Table 9.3, a series of analyses were conducted in relation to Hypotheses 16 and 17 which revealed the presence of various social process moderators in the predictor-criterion relationship. For all four moderators, the effect indicated that positive social processes (e.g. high motivation, low employee violation) enhanced selection validity, whilst low social processes (e.g. low motivation, high employee violation) attenuated validity. Discussion will initially focus on the selection moderators, and then the socialisation moderators.

Table 9.3. Overview of the Moderators of Predictive Validity Results

Hypothesis	Supported?	Summary
16	Partial	Selection motivation and self-efficacy approached significance as moderators of assessment centre validity. The results were not significant for selection justice, feedback or anxiety.
17	Partial	Post organisational entry, social knowledge (as rated by the recruit) and employee psychological contract violations (as rated by the line manager), were identified as significant moderators of assessment centre validity. The results were not significant for employer psychological contract violations, other socialisation knowledge domains, or the recruit-manager relationship.

Selection Moderators

In partial support of Hypothesis 16, the results indicated motivation as a likely moderator of assessment centre predictive validity. Indeed, despite, lower criterion variances for the group with lower validity, differences in the coefficients obtained for the high and low motivation sub-samples were still present after corrections were made for the restriction of range. Previous researchers have also found that motivation moderates cognitive test predictive validity (Barbera, Ryan, Desmarais & Dyer, 1995; Schmitt & Ryan, 1992). The present research not only provided some support for the role of motivation in a different selection method, but was also the first to adopt a predictive validity design in a field study. The results would appear to provide further support to Schmitt and Ryan's (1992) argument that

high motivation acts as a positive influence on criterion-related validity for selection methods which assess maximum performance.

In terms of the second selection moderator which approached significance, self-efficacy, this was the first study to examine its impact on validity. The findings indicated that high self-efficacy enhanced predictive validity. Previous socialisation research has examined the moderating role of self-efficacy on the relationship between training and job performance, but has found more pronounced associations between training and job performance for those with low self-efficacy (Saks, 1995). The inconsistency is inevitably a result of differences between the context of training and selection. As Saks (1995) suggested, those with low self-efficacy may have treated training as more than a symbolic event and hence taken training more seriously. These individuals may therefore have derived greater benefit from the training in terms of subsequent job performance. In selection however, applicants' awareness of being evaluated is highly salient and may result in those with low self-efficacy being inhibited from being able to demonstrate their maximum potential. Hence, those with higher selection self-efficacy yield higher predictive validity.

In Study B, moderating effects were not observed for perceptions of justice, feedback or selection anxiety. Previous research on cognitive tests has also not supported the moderating role of anxiety (Barbera et al., 1995). Recent research with measures of overall procedural fairness measured pre- and post-communication of the decision, has similarly not found a moderating effect for personality tests, but has found an effect for cognitive tests (Thornsteinson & Ryan, 1997). Whilst it is possible that procedural justice plays a moderating role in cognitive tests, but not assessment centres, methodological differences between the studies may explain the different results. Thornsteinson and Ryan's (1997) findings may have been spurious due to the artificial nature of their research, or alternatively, the present research may have failed to capture a moderating effect due to range restriction. In the present research the standard deviations of overall assessment centre fairness for the successful group were .54 pre-decision and .47 post-decision. In Thornsteinson and Ryan's (1997) study, the pre- and post- decision standard deviations for overall cognitive test fairness were .94 and .98 respectively. The lower variability in the present research would have been affected by the use of a shortened version of

Gilliland's (1995) measure of overall fairness and by the availability of data from successful applicants only. Thornsteinson and Ryan (1997) on the other hand, used the full version of the scale and their data were not truncated by the effects of selection. In the present study, the opportunity to detect a moderating effect may have been further limited by the use of managers' ratings as a criterion which may be susceptible to more errors and contamination than Thornsteinson and Ryan's (1997) use of academic performance scores. The limitations of the criterion measure used in the present research will be further discussed at the end of this section.

Socialisation Moderators

Previous research has not examined the impact of socialisation on predictive validity, and hence the present results represent a particular contribution in this area. In partial support of Hypothesis 17, two of the socialisation variables were identified as significant moderators, these being social knowledge and employee violations of the psychological contract. The other socialisation moderators were not significant, these being: employer violations of the psychological contract, other socialisation knowledge domains, and measures of the manager-recruit relationship. The socialisation knowledge domains will be discussed first, followed by the measures of the recruit-manager relationship, and subsequently the psychological contract violations.

Taking social knowledge first, the results indicated that low social knowledge attenuated predictive validity, whilst high knowledge enhanced it. In fact, the validity coefficient became negative for the low social knowledge subgroup, but the small sub-sample sizes merits caution here. This particular domain of socialisation knowledge may have emerged as a significant moderator as the establishment of team relationships may be apparent to the line manager during the first few months of employment. The acquisition of social knowledge may therefore impact on initial ratings of recruits' potential. In order to acquire social knowledge, recruits may have to demonstrate other behaviours such as openness, social boldness, self confidence and extroversion. These qualities may result in more direct evidence being available to the line manager from which they can judge recruits' future potential. Furthermore, individuals with these characteristics may display more consistent evidence across both selection and socialisation resulting in the closer association

between their assessment centre and criterion scores. Conversely, if recruits fail to acquire social knowledge immediately then managers' rating may be more prone to error due to a smaller amount of evidence upon which to base the evaluation. Those acquiring low social knowledge may be more introverted and closed and hence may not provide so much consistent evidence across the selection and socialisation contexts, thus resulting in lower predictive validity.

Although the remaining socialisation knowledge domains did not emerge as significant predictors, this may have been due to sample size limitations. Interestingly, for the organisation and interpersonal resources domains, a non-significant 3% of the variance in the criterion was explained by their interaction with the assessment centre score. When controlling for the main effects of the variables comprising the interactions term, it is not unusual to find significant moderators explaining only 1% of the variance (Aiken & West, 1991, Chapter 8). Therefore, the present sample size poses a limitation. Alternatively, these domains may have emerged as significant moderators of validity had the criterion been taken after longer tenure. Further research involving the collection of criterion data at a number of measurement waves post-organisational entry is therefore warranted.

The second area concerned recruits' perceptions of the recruit-manager relationship and these variables did not emerge as significant predictors. The quality of the relationship had a main effect on the criterion, but the interaction with assessment centre score was not significant. Whilst it is possible that recruits and managers had different perceptions of their relationship, this did not appear to be the case. Managers' and recruits' ratings of both the quality and amount of contact were significantly correlated ($r = .29$ $p < .01$, and $r = .36$ $p < .001$ respectively). Furthermore, managers' ratings of these items did not significantly moderate predictive validity. However, the unknown reliability of the single-item measure of the recruit-manager relationship adopted in the present research is a limitation, as the power of moderated multiple regression is greatly reduced as the reliability of the measure decreases (Aiken & West, 1991, Chapter 8). The moderate correlations between the ratings provided by the recruit and manager provide some indication of reliability, but multi-item scales from the leader-member exchange literature (Scandura & Graen, 1984) for example, would have provided more direct insight.

Future research adopting more robust measures of the relationship between the recruit and manager should further analyse the impact on predictive validity.

The third area of possible socialisation moderators concerned violations of the psychological contract. Employee violations as rated by the line manager were significant, whereas employer violations as rated by the recruit were not. For employee violation, the analysis indicated that the association between selection and job performance was more pronounced for those with low violation. In fact, the validity coefficient was near zero for the high violation group, possibly because violations to the psychological contract obscured manager's ability to objectively rate recruits' long-term potential. Indeed, employees with high violation had significantly lower criterion scores than those with low violation.

In terms of the non-significant employer violations, it is likely that during initial organisational tenure, recruits' are motivated to impress their managers and hence do not allow initial violations to impact on their work behaviour. Furthermore, the recruits' mean rating of 2.06 on the measure of employer violation indicated that the majority perceived a reasonable degree of contract fulfilment and this may further explain the non-significant finding. Future research after longer tenure will provide further insight into the role of employer violations on predictive validity.

This research has illustrated that the traditional perspective's assumption that selection performance is a function of true score plus error is likely inaccurate. Certainly aspects of motivation and self-efficacy also appear to be important components of the process. In addition, experiences that intervene between measures of selection and the criterion are also likely to impact on predictive validity. As noted by Arvey et al. (1990), the moderator factors can "operate to enhance prediction and therefore help increase the ceiling on validities that has been observed in the research literature before" (p.713).

Future Research

A number of recommendations are made for future research. In particular, future research on moderators of predictive validity should be conducted on larger sample sizes. In the present analyses only 4 out of 15 moderator analyses were significant or approached significance, and so it is possible that the effects observed were spurious. Alternatively, with larger sample sizes, more variables may have

emerged as significant moderators of predictive validity. For small samples to generate significant results, the effect sizes would have to be large, and yet the restriction of range inherent in both the moderator and predictor variables would have deflated the effect sizes. Power concerns also prevented the simultaneous analysis of moderator variables and so further research on the moderating role of predictive validity on larger samples ($N > 120$: Stone, 1988) is warranted. However, as illustrated in the present research, even in organisations where relatively large numbers of recruits are selected into the organisation, practical constraints on longitudinal research designs may pose limitations on whether this can be achieved. In order to provide greater power, it may be useful to integrate a number of studies to conducted meta-analyses on these moderator effects. Indeed Cascio (1991) recommends this approach for the analysis of selection moderators, but cautions against the possibility of both Type I and II error if an inadequate number of studies are included (< 6) and if the studies contain inadequate sample sizes.

Future research should also consider the possibility of generating more psychometrically robust criteria. In the present research there were a number of possible limitations: First, some managers may have been privy to the selection results leading to contamination effects; second, each rating was provided by a different manager providing greater opportunity for rater error; and third, the use of early ratings of the criteria after a relatively short time may have resulted in opportunity bias. Future research may also therefore benefit from taking criterion measures at various time points post organisational entry and by using multiple raters for each individual to allow the computation of inter-rater reliability coefficients.

Consistent with the present study, future research should also examine a wide range of selection and socialisation moderators, but should also draw comparison across different selection methods. In addition to the variables explored in the present research, future research would also benefit from examining the moderating role of job motivation and post-organisational entry self-efficacy. The examination of multiple moderators or the use of subgrouping may also prove beneficial (Cascio, 1991). For example, it might be the case that subgroups with high selection motivation and high social knowledge post organisational entry provide enhanced validity coefficients above the independent effects of either moderator in isolation.

Furthermore, future research may benefit from adopting several measurement points post-entry into the organisation since it is possible that different moderators will have stronger or weaker effects depending on the length of organisational tenure.

Practical Recommendations

As has been previously discussed in the literature, these findings have implications for the nature of validation studies conducted (Schmitt & Ryan, 1992). Previous research has shown job incumbents have lower motivation in concurrent validity designs (Arvey et al., 1990) which may lead to an underestimate of the true validity of assessment centres. As research on selection validity has demonstrated, even small difference among validities from different designs have practical significance for an organisation in terms of utility pay-back (Cascio, 1987). This study would suggest that programmes during selection aimed at increasing participants' motivation and self-efficacy might improve selection validity. This may also be achieved by ensuring the selection process exceeds applicants' expectations of justice since the present research has illustrated that this may have had impact on motivation and self-perceptions. Furthermore, during the initial period of socialisation, actions aimed at facilitating the recruits' acquisition of social knowledge and their understanding their obligations in the psychological contract, may also improve predictive validity. As Barbera et al. (1995) note in relation to their proposal for motivation programmes, research is needed to determine if such interventions can be developed, and if so, to identify the extent to which they impact on the moderator variables, and subsequently on validity.

Assessment Centre Construct and Predictive Validity

Review of Results

Two hypotheses were analysed in relation to the assessment centre construct and predictive validity. The results are reviewed in Table 9.4 and will be discussed together with the implications for theory and practice.

Table 9.4. Overview of the Assessment Centre Construct Validity Results

Hypothesis	Supported?	Summary
18	No	The assessment centre demonstrated exercise factors, but not dimension factors.
19	Partial	With a criterion rating of potential, the assessment centre demonstrated reasonable predictive validity in terms of the overall assessment centre score, the dimension ratings and the exercise dimensions. With a criterion rating of performance, the assessment centre had no validity.

Assessment Centre Construct Validity

There was no support for Hypothesis 18 that the assessment centre would have both dimension and exercises factors. Rather, by comparing the full taxonomy of models identified by Kleinmann and Köller (1997), the CFA results indicated Model 1D with exercise factors only had the best fit to the data. The exercise factors explained an average of 79.3% of the assessment centre variance. Therefore, despite the large sample size, the small number of dimensions, the use of real applicants, and the application of the full taxonomy of models, the assessment centre demonstrated weak construct validity via the presence of exercise effects. Consistent with earlier applications of CFA to assessment centre construct validity (e.g. Bycio, Alvares & Hahn, 1987; Sackett & Harris, 1988; Schneider & Schmitt, 1992), the ratings appeared to measure situation-specific behaviour as displayed within the exercises and not the three criteria it was designed to assess. This raises fundamental questions regarding this selection method. Is the assessment centre an illusion of fidelity where the ratings perversely have predictive validity? In accordance with early construct validity research, these results indicate that assessment centres may be more

appropriately developed according to critical job situations, and not dimensions (e.g. Robertson, Gratton & Sharpley, 1987).

Explanations for the Weak Construct Validity

However, there are a number of possible reasons why these results were not in line with recent more optimistic results regarding assessment centre construct validity (e.g. Donahue, Truxillo, Cornwell & Gerrity, 1997; Kleinmann & Köller; Sagie & Magnezy, 1997). These include the high multicollinearity across variables, direct rating contamination, the use of higher-order criteria, differences in the observability of dimensions, rating complexity, exercise specificity, and the lack of transparency for applicants.

High Multicollinearity. The CFAs revealed a number of identification problems which may provide insight into the cause of the weak construct validity. The identification problems were surprisingly evident in the correlated uniquenesses models (Method Structure E) which typically avoids identification problems. Furthermore, for models with both exercise dimensions / uniquenesses and dimension factors (e.g. 4D and 4E), parts of the covariance matrix were nonpositive definite rendering the solution inadmissible because the matrix could not be inverted as required by CFA. Wothke (1993) highlights that covariance matrices from trait and method scores can have collinearity problems “because the sum of the trait scores will equal the sum of the method scores” (p. 263) and argues that this can be the source of indefiniteness. Consistent with previous research, the high multicollinearity between ratings appeared to be the cause of the positive definite correlation matrices (Fleenor, 1996; Sackett and Harris, 1988: Organisation C).

It is useful to note, however, that some correlations across the different dimensions are expected since the criteria are unlikely to be completely independent. This would serve to suppress discriminant validity. As Robertson, et al. (1987) note, “it is difficult to decide the extent to which the pattern of positive relationships observed is due to halo effects, true interrelationships, or both” (p.192). In the present study however, the extremely high heterotrait-monomethod correlations are presumably at least partly influenced by halo effects.

Direct Rating Contamination. Second, direct contamination in the interview ratings was caused by two factors: the assessors were informed of the in-tray and

proposal ratings prior to the interview and the overlap of one assessor from each of the previous exercises. Indeed, this may explain the high correlation between the interview and other exercises (average .67) compared to the more moderate correlation between the proposal and in-tray (.34). It should be noted however, that the exercise variance is unlikely to be solely attributed to rater error given the good reliability in the independent ratings made by the two assessors in each exercise.

Higher-Order Criteria. Third, the nature of the dimensions themselves may have resulted in the halo effect. The three dimensions essentially represented higher order criteria of the old ten criteria: Capacity (helicopter or wide perspective, analysis, sense of reality and imagination), achievement (business sense, achievement motivation, decisiveness) and relationships (influencing and motivating, communication, planning and organising). Hence, the three criteria encompassed a number of sub-components. However, Gaugler and Thornton's (1989) research which demonstrated the positive impact of a smaller number of dimensions on construct validity, employed more narrow, low-order qualities (e.g. planning and organising, self-confidence, initiative). Hence, the use of higher order criteria may not have the intended reduction in cognitive complexity experienced by the assessors. Furthermore, it is possible that different exercises may have tapped into different aspects of the higher order criteria, thereby suppressing convergent validity.

Dimension Observability. Fourth, halo effects may have resulted from unequal opportunity to obtain evidence on each criterion. Anecdotal evidence from assessors suggests that for all exercises, the evidence for capacity is highly observable, whereas the evidence for achievement and relationships is dependent on the adequacy of the assessor probing. As Kenrick and Stringfield (1980) found, cross situational consistency is more obtainable when target behaviours are highly publicly observable. If capacity were more observable however, the monotrait-heteromethod correlations should be higher for this dimension, and yet there was little difference in these correlations across the criteria. Alternatively, if as a result of the lack of direct observability, assessors used evidence obtained for capacity to infer applicants' potential at relationships and achievement, then this would indeed result in similar levels of monotrait-heteromethod correlations across dimensions. Hence, differences in criteria observability may have added to the halo effect.

Rating Complexity. Furthermore, the schedule at the Shell assessment centre allowed very limited time for assessors to classify and rate the evidence obtained. As a result, some assessors appeared to take shortcuts by deriving overall scores and gave little attention to differentiating between the three criteria. The time restrictions appeared to result in limited consultation of the behavioural anchored rating scales (BARS) which may also have suppressed construct validity. Furthermore, even when the BARS were used, they only provided anchors for four of the eleven points on the rating scale. Assessors' ability to accurately map the evidence observed on the intermediate rating points for which anchors were not provided is questionable. This may have also limited assessors' ability to accurately distinguish between dimensions, leading to a general halo effect.

Exercise Specificity. Sixth, the lack of discriminant validity may be a result of behaviour being situationally specific. Indeed, this has been suggested as a reason why previous research incorporating more similar forms of exercise has yielded more positive construct validity (e.g. Sackett and Harris, 1988; Scheider & Schmit, 1992). However, in Shell's assessment centre, the exercises were similar in that they all involved the same structure (one applicant and two assessors), with ratings made on observations of the verbal behaviour only, and with the interactions being of the same duration. Therefore, differences in content rather than format may explain the lack of cross-situational consistency. Notably, the proposal required analysis of a general topic, whereas the in-tray required the analysis of a business scenario. This would appear to support Bycio et al.'s (1987) comment that content differences in exercises may be pivotal in construct validity.

Lack of Transparency. Finally, a lack of transparency to applicants in terms of which components of the exercises measured achievement and relationships, may also have reduced the construct validity of the assessment centre. Interestingly, applicants' ratings of the justice rules would appear to indicate an awareness for the focus on capacity and absence of direct assessment regarding achievement and relationships. At the assessment centre, the lowest justice ratings were for opportunity to perform and applicants' comments are informative:

- "At the end I have just the feeling that I developed different ideas, without talking about my own performances"

- “[I had] no opportunity to discuss ‘achievements’ of ‘changes made’ as detailed in the assessment pack”
- “I did not demonstrate my social skills”

As Kleinmann and colleagues have illustrated, applicants’ ability to recognise dimensions impacts on assessment centre convergent and discriminant validity (Kleinmann, 1993; Kleinmann, Kuptsch, & Köller, 1996). They argue that informing applicants about the behaviours being assessed allows more consistent behaviour across exercises. Whilst Shell applicants were informed about the three criteria, the lack of transparency in how the assessment of achievement and relationships mapped onto the exercises may have reduced the transparency. This link between applicants’ reactions and the psychometric approach adds further justification to the importance of adopting multiple perspectives in selection research.

Assessment Centre Predictive Validity

Overall Assessment Rating

In terms of predictive validity, the evidence for the assessment centre was reasonable. In partial support of Hypothesis 19, the corrected correlation between the overall assessment centre score and ratings of potential four months post organisational entry was .24. Although this is lower than the average correlation of .37 identified in the meta-analysis by Gaugler, Rosenthal, Thornton, and Bentson. (1987), this may be due to a number of factors which will be discussed below. Nevertheless, in this single sample, these findings indicated the simultaneous presence of reasonable predictive validity and low construct validity. The robust approach adopted here to construct validity adds to Chan’s (1996) findings that the discrepancy between assessment centre predictive and construct validity is unlikely to be explained by different quality assessment centres being used in the two previously disparate areas of research.

To return to the issue of the lower criterion-related validity than has been observed in meta-analytical studies, there are a number of possible explanations. First, the accuracy of the criterion may be limited given the short interval between organisational entry and the measurement of job potential. Second, the lower validity may be partly due to the fact that the three exercises comprising the assessment centre were of similar format. It is possible that assessment centres

involving a greater range of exercises yield higher validity coefficients. Third, the validity coefficient would have been suppressed by the effectiveness of the first two stages of the selection process. The corrected correlations based on Case 1 (Guilford, 1965) were .13 and .53 for the application form and interview respectively which would have led to a restriction of range in assessment centre scores. The implications regarding the assessment of predictive validity in multi-stage selection procedures will be further discussed under the recommendations for future research.

Dimension and Exercise Ratings

In terms of the ratings of potential, the results were more positive and indicated reasonable similarity across these ratings, with two exercises and two dimensions being significantly correlated with the criterion of potential. Notably, the average reliability of the dimensions scales (.82) was dramatically higher than has been found in previous studies (e.g. Chan, 1996; Sackett & Harris, 1988). The large halo effect observed in the present assessment centre may explain these findings. The moderate to high correlations across exercises inevitably boosted the reliability of the dimensions ratings and may account for the near equal predictive validity of dimension and exercise ratings.

Interestingly, there were no significant correlations between any assessment centre rating and subsequent measures of performance. Gaugler et al. (1987) similarly found higher validities for potential as opposed to performance criteria, but the present findings indicate a greater difference. At least two explanations are possible here. First, the assessment centre criteria were designed to measure future potential and not performance at the first job. It is quite possible that an individual could perform successfully in their first assignment, but not demonstrate the qualities required for potential at more senior positions. Indeed, the correlation of .53 between the manager's ratings of potential and performance would indicate that there was not a complete overlap between these ratings. Second, since the same ratings scale was used for the criterion potential rating, but not the performance rating, it is possible that both direct and indirect contamination occurred in the criterion ratings of potential. Despite the intention that selection scores are withheld from recruits' managers, this information is sometimes relayed, which may have biased the criterion ratings. The subtle criterion contamination explanation (Klimoski &

Strickland, 1977 in Klimoski & Brickner, 1987) may also explain the higher correlations with potential rather than performance scores. This suggests that selection ratings are made on the basis of assessors' knowledge of additional factors needed to advance in the organisation (e.g. person-organisation fit) which inevitably correlated more highly with managers potential rather than performance ratings. Overall, the lower correlations with performance were not unexpected.

Theoretical Implications

Although the lack of construct validity has been argued to be less significant for selection than development, it remains important to actively strive to increase our understanding of the assessment centre process. As Bycio et al. (1987) suggest, if dimensions can be more reliably measured, this may increase predictive validity. Given the numerous reasons highlighted for the present finding of exercise effects, it would be premature to recommend a complete dismissal of the dimension approach to assessment centre design. Rather, future research is required which addresses some of the limitations observed in the present assessment centre.

In terms of the criterion-related validity, the present research highlights the need for greater attention to be devoted to multistage selection processes. Much of the research from the predictivist perspective has focused on exploring the validity of isolated selection methods. However, the validity provided by different selection methods may be affected by the other measures that they are used in conjunction with. This may reflect both an artefact of range restriction that results from selection decisions made at previous stages in the process, or may be a result of selection methods explaining overlapping variance. In terms of the restriction of range issue, this will artificially suppress correlations between the assessment centre and job performance. Therefore, future research is required to develop appropriate predictive validity techniques which allow the researcher to take into account the restriction of range caused by previous selection methods. Furthermore, increased attention to incremental validity is required such that more informed decisions can be made regarding the appropriate use of selection methods across different stages in the process. Ideally, this research would require all applicants to take part in each stage of selection in order to accurately assess this incremental validity. Applied studies will inevitably encounter opposition to such methodology.

These results serve to highlight the importance of not assuming that results regarding assessment centres can be generalised. The content of assessment centres varies widely, some contain mainly groups exercises (e.g. Sackett & Harris, 1988); others have a mixture of group and individual exercises (e.g. Klienmann & Köller, 1997), whilst others, like the present one, have individual exercises only. It is vital that future research continues to provide details regarding the content of assessment centres to identify the optimal mix of exercises for predictive and construct validity.

Practical Recommendations

In order to reduce the cognitive demands on assessors, time should be devoted in the assessment centre schedule to allow appropriate evaluation of evidence for each criteria. Benefits may accrue from shortening the rating scale, providing behavioural anchors for all rating points, encouraging the use of BARS, and training assessors in halo effects. In accordance with Fleenor (1997) and Gaugler and Thornton (1989), it is recommended that a small number of less-complex dimensions are adopted in order to further reduce rating complexity. The present results also imply that it would be more appropriate to give applicants feedback in terms of exercises rather than dimensions.

The halo effect is likely to be partly caused by the exercises being weighted in capacity assessment, and so additional exercises which provide greater opportunity to assess the other dimensions are therefore recommended. In particular, a structured group exercise is suggested to provide more direct evidence on the relationships quality. However, as Lievens (1998) notes, the use of a larger number of structurally different exercises represents a trade-off; it allows for the sampling of a broad and complex job domain, but may also result in even weaker convergent validity. Finally, given the apparent impact of variations in assessment centre design, the results from the present study reiterate the importance of organisation's validating their own procedures. This should be done for both predictive and construct validity.

Finally, organisations may benefit for using assessment centres as a pre-entry socialisation opportunity (e.g. Andersen & Ostroff, 1997). Assessment centres designed around typical job situations can serve as a realistic job preview for applicants, may produce predictively valid ratings, and may generate input into development plans of new recruits.

Strengths and Limitations of the Present Research

Overview

As highlighted in the introductory chapters, there are a number of shortcomings in the existing selection empirical literature which the present research aimed to address. Most notably, the strengths of this research are in relation to the integrated approach, the longitudinal design in an applied setting, the cross-cultural perspective, and the application of robust statistical procedures. Each of these areas will be discussed, together with the potential limitations.

The Integrated Approach

A key contribution of the present research has been the simultaneous analysis of multiple perspectives in selection. To date, the selection literature has contained various disparate approaches and this has been acknowledged as a likely limitation in the explanatory power of the research (e.g. Dipboye, 1997; Robertson, 1994). More specifically, researchers and theorists have called for integration across criterion-related and construct validity perspectives (e.g. Chan, 1996; Lievens, 1998), across predictivist and social impact models (e.g. Herriot, 1992; Hesketh & Robertson, 1993), and across the selection and socialisation literatures (e.g. Anderson & Ostroff, 1997).

The present research aimed to provide greater synergy across these perspectives and has subsequently highlighted the utility in adopting this approach. First, however, the hypothesised link between selection justice and the emergence of the psychological contract was not supported. Whilst this may have been due to inadequacies in the psychological contract measure, it is likely that the relationship between justice and perceptions of obligations is weak or at best, indirect. Second, the present research highlighted the likely role of some selection and socialisation experiences as moderators of predictive validity. This suggests that the ceiling for validity coefficients may be higher than has previously been estimated (Arvey et al., 1990). Third, the simultaneous analysis of criterion-related and construct validity illustrated the concordance of a lack of dimension factors and reasonable predictive validity. In addition, applicants' reactions to the procedure indicated an awareness of the inherent halo effects, adding further support to the results from the confirmatory

factor analyses. Overall therefore, the results supported the importance of adopting a more integrated perspective.

Applied Longitudinal Research

This research differed from previous selection studies in that a longitudinal design was adopted following external applicants through a multistage selection process and post-organisational entry. Researchers exploring the social impact of selection have called for longitudinal research in an applied setting (e.g. Arvey et al., 1990; Gilliland, 1994; Ployhart & Ryan, 1998). Since much of the existing research has been based on laboratory studies, the present use of an applied setting where permanent selection decisions were being taken represents a contribution to the literature. Psychological contract researchers have also recognised the need for longitudinal research, and more specifically, for short measurement intervals (e.g. Conway & Briner, 1998; Thomas & Anderson, 1998). The present research provided the only examination of change in recruits' perceptions of both employer and employee obligations after a relatively short period of organisational tenure. In addition, in terms of examining moderators of validity, a predictive design was adopted which represented a departure from existing research.

From both predictivist and social impact perspectives, this research has illustrated the potential utility of taking a more holistic view of selection systems, rather than the traditional focus on isolated selection methods. Specifically, in terms of the predictivist perspective, range restriction resulting from several selection stages may exert greater impact on estimates of predictive validity than has previously been estimated. From the social impact perspective, applicants' reactions to initial stages of selection are likely to influence their reactions to subsequent procedures. Therefore, the use of a longitudinal field study represents a strength of the current research.

The use of an applied setting though did have some limitations. Practical constraints made it impossible to administer the pre-interview and pre-assessment centre questionnaires immediately prior to applicants' experience of these selection procedures. If between completing the pre- and post- selection questionnaires individuals experienced selection methods with other organisations, their responses to those procedures may have influenced the apparent change over time. However,

paired t-tests indicated that there were no significant differences in prior experience of various selection methods across times 1 and 2 or across times 3 and 4. Hence, possible contamination caused by interim experience of selection procedures with other organisations is likely to be limited.

A second possible weakness is that social desirability may have been influential. Due to the need to match applicants' responses across time and to the organisational ratings, individuals had to identify their names in the questionnaires. Applicants may not have given honest reactions for fear that these would influence the outcome decision. However, the cover letters emphasised the academic basis of this research and both verbal discussions with candidates and their quite detailed and frank comments in response to the open-ended questions would indicate that applicants were assured of the confidential nature of the research.

It is also possible that some findings are specific to the host organisation. Indeed, Shell is a relatively high image organisation and it is generally perceived as an attractive employer in both the UK and The Netherlands. Nevertheless, these findings are likely to generalise to graduate selection and initial socialisation in other high profile organisations. Furthermore, the construct validity of the Selection Fairness Survey may generalise more widely.

European and Cross Cultural Perspective

The majority of previous selection research adopting an organisational justice or psychological contract perspective has been conducted in North America. Given likely cultural differences in perceptions of both justice (Steiner & Gilliland, 1996) and psychological contracts (Sparrow, 1996), and given increases in global selection (Shackleton & Newell, 1997), the dearth of cross-cultural research represented a notable limitation. The present use of European applicants with the opportunity for comparisons across the British and Dutch nationalities therefore provided an important contribution to the literature.

In terms of comparisons with previous North American research, the results indicated that the salient procedural justice dimensions previously observed (Gilliland, 1995) were also salient in Europe. However, in terms of the psychological contract, a number of findings were inconsistent with previous North American research (e.g. Robinson et al., 1990), and comments from a minority of

recruits' indicated that the use of the word 'obligation' was inappropriate. Although the different results may have been due to sample, methodological and / or cultural differences, this does confirm the importance of directly establishing the cultural generalisability of research findings.

The present research also indicated the importance of cross-cultural comparisons. For example, by identifying cultural differences in terms of reactions to selection justice for example, organisation can modify their procedures to improve the selection experiences for applicants of differing nationalities. Although there were no differences between the British and Dutch recruits' in their perceptions of the psychological contract, a limitation of the research was the close proximity of these two cultures along several dimensions (Hofstede, 1980). Future research on more disparate cultural groups is required to further identify how applicants of differing nationalities use information available during selection to make inferences regarding their future working relationship with the organisation.

Statistical Procedures

When examining the social impact of selection, Macan et al. (1994) acknowledged the importance of measuring and controlling for the initial level of the outcome variable so that the relationship between reactions to selection and outcome measures are not over-estimated. A more stringent approach also requires controlling for initial levels of the independent variables. Hence, in the analysis of justice reactions, the real impact of the selection process on the outcome measures was analysed via a conservative approach.

The present research has illustrated the importance of applying structural equation modelling (SEM) techniques to investigate both temporal change and cross-cultural differences. Researchers need to be alert to possible error (beta and gamma) change in the analysis of longitudinal data sets, otherwise, Type 1 error may result if beta and gamma change are falsely interpreted as alpha change (Golembiecki et al., 1976; Thomas, Cunningham-Snell & Anderson, 1998). Similarly, if cultures differ in their interpretation of either the construct or the rating scale, then a lack of measurement equivalence may lead to erroneous conclusions regarding cultural differences (Riordan & Vandenberg, 1994). The present research has shown the

utility of adopting the robust SEM procedures in longitudinal and cross-cultural personnel selection research.

The application of CFA procedures to the analysis of assessment centre construct validity also represents a strength of the present research. Previous research analysing the full taxonomy of models is scarce and marked by small sample sizes and the use of assessment centres for training, rather than selection purposes. The large sample size available here, and the use of assessment centre for permanent selection decisions therefore provides a contribution to this area.

A weakness of the analytical procedures was the use of a small sample size in the regression analysis involving the psychological contract and moderators of predictive validity. Given the large number of analyses performed, significant results may have been spurious. The small sample sizes largely resulted from sample attrition, for which non-response was only a small cause. Given the large sample sizes obtained at the initial time points and given the relatively large selection targets in the host organisation, this illustrates the practical constraints of conducting research in this area.

Common method variance may represent a further limitation since the use of self-report measures may inflate the relationship among attitudinal and behavioural intention measures (e.g. Bagozzi & Yi, 1990; Feldman & Lunch, 1988). However, the additional use of ratings from other sources, e.g. managers, interviewers and assessors, in the analyses for some hypotheses at least partly addressed this issue. For those hypotheses involving only self-report data, the risk of applicants wishing to appear consistent was probably reduced by the large number of responses elicited covering a variety of perceptions and attitudes (Ostroff and Kozlowski, 1992; Thomas, 1998). In addition, where possible, the use of independent and dependent variables measured at different time points (e.g. the intermediate impact of justice rules) would have reduced the impact of common method variance. Finally, the comments provided on the questionnaires and the insights obtained from frequent site visits substantiated the quantitative results. The use of research interviews would nevertheless have been valuable in an attempt to identify the causal direction between variables (e.g. between motivation and perceptions of justice).

Conclusion

In conclusion, there are a number of key findings which extend beyond the existing literature. First, despite the range restriction observed in this field research, positive and negative change from expectations to perceptions of procedural justice had an impact on overall perceptions of procedural fairness, justice expectations on subsequent selection methods, and various immediate and some intermediate outcome variables. Second, the emergence of the psychological contract during selection and early socialisation is a dynamic process with an early onset which can influence a number attitudinal and behavioural variables. Third, the social process of selection and experiences during socialisation are likely to moderate predictive validity; and finally, that weak construct validity of the assessment centre remained despite the relatively simple design of three exercises and three dimensions, and despite the reasonable predictive validity. Overall, the main contributions were in relation to the methodology of a longitudinal field design, the cross-cultural approach, the application of robust analytical procedures and the integration across the existing disparate areas within the selection literature and across the selection and socialisation literatures more generally.

References

- Adams, J.S. (1963). Inequity in social exchange. In L. Berkowitz (ed.) Advances in Experimental and Social Psychology, 2, 267-299.
- Adams, J.S. (1965). Inequity in Social Exchange. In L. Berkowitz (Ed.) Advances in Experimental Psychology. Vol. 2, 267-299. New York: Academic Press.
- Aiken, L.S. & West, S.G. (1991). Multiple Regression: Testing and Interpreting Interactions. Newbury Park, CA: Sage.
- Alderfer, C.P., & McCord, C.G. (1970). Personal and situational factors in the recruitment interview Journal of Applied Psychology, 54, 377-385.
- Allen, N.H. & Meyer, J.P. (1990). The measurement and antecedents of affective, continuance and normative commitment to the organisation. Journal of Occupational Psychology, 63, 1-18.
- Anderson, N.R. & Cunningham-Snell, N. (in press). Personnel Selection. In Chmiel, N. (Ed.) Introduction to Work and Organisational Psychology, Oxford: Blackwell.
- Anderson, N. & Ostroff, C. (1997). Selection as Socialisation. In N.R. Anderson & P. Herriot (Eds.) Assessment and Selection in Organizations: An International Handbook. pp. 413-440. Chichester: Wiley
- Anderson, N. & Schalk, R. (1998). The psychological contract in retrospect and prospect. Journal of Organizational Behavior, 19, 637-647.
- Anderson, N.R., & Shackleton, V.J. (1993). Successful Selection Interviewing. Oxford: Blackwell.
- Arbuckle, J.L. (1995). Amos Version 3.61. Smallwaters Corporation, Chicago, IL.
- Arnold, J. (1996). The Psychological contract: A concept in need of closer scrutiny? European Journal of Work and Organizational Psychology, 5 (4), 511-520.
- Arthur, W. Jr & Doverspike, D. (1997). Employment-related drug testing: Idiosyncratic characteristics and issues. Public Personnel Management, 26, 77-87.
- Arvey, R.D. (1992). Fairness and ethical considerations in employee selection. In New Approaches to Employee Management: Fairness in Employee Selection, Vol 1, pp. 1-19. JAI Press
- Arvey, R.D., Gordon, M.E., & Massengill, D.P. (1975). Differential dropout rates of minority and majority candidates due to "time lags" between selection procedures. Personnel Psychology, 2, 175-180.

- Arvey, R.D., & Sackett, P.R. (1993). Fairness in selection: Current developments and perspectives. In N. Schmitt & W. Borman (Eds.) Personnel Selection In Organizations. San Franssco: Jossey Bass.
- Arvey, R.D., Strickland, W., Drauden, G., & Martin, C. (1990). Motivational components of test taking. Personnel Psychology, *43*, 695-716.
- Ashford, S.J. & Black, J.S. (1996). Proactivity during organizational entry: The role of desire for control. Journal of Applied Psychology, *81*, 199-214.
- Ashford, S.J. & Cummings, L.L. (1983). Feedback as an individual resource: Personal strategies of creating information. Organizational Behavior and Human Performance, *32*, 370-398.
- Ashforth, B.E. & Saks, A.M. (1996). Socialization tactics: Longitudinal effects on newcomer adjustment. Academy of Management Journal, *39*, 149-178.
- Baker, H.G. (1996). The psychological contract between employer and employee. Psychology: A Journal of Human Behavior, *33*, 16-30.
- Bagozzi, R.P., Yi, Y., & Phillips, L.W. (1991). Assessing construct validity in organizational research. Administrative Science Quarterly, *36*, 421-458.
- Baker, H.G. (1996). The psychological contract between employer and employee. Psychology: A Journal of Human Behavior, *33*, 16-30.
- Bandura, A. (1986). Social Foundations of Thought and Action: A Social Cognitive Theory. Engelwood Cliffs, NJ: PRentice-Hall.
- Barbera, K.M., Ryan, A.M., Desmarais, L.B., & Dyer, P.J. (1995). Multimedia employment tests: Effects of attitudes and experiences on validity. Paper presented at the Tenth Annual Conference of the Society for Industrial and Organizational Psychology, Inc., Orlando, FL, May, 1995.
- Baron, H., & Janman, K. (1996). Fairness in the assessment centre. In C.L. Cooper & I.T. Robertson (Eds.). International Review of Industrial and Organizational Psychology, Vol 11, 61-113.
- Bastos, M.W., & Fletcher, C. (1995). Exploring the individual's perception of sources and credibility of feedback in the work environment. International Journal of Selection and Assessment, *3*, 29- 40.
- Bauer, T.N., & Green, S.G. (1994a). Effect of newcomer involvement in work-related activities: A longitudinal study of socialization. Journal of Applied Psychology, *79*, 211-223.

- Bauer, T.N., & Green, S.G. (1994b). Newcomer Socialization: The influence of prior work experience, pre-entry contact, early newcomer performance and managerial behavior. Working Paper.
- Bauer, T.N., & Green, S.G. (1996). Development of leader-member exchange: A longitudinal test. Academy of Management Journal, *39*, 1538-1567.
- Bauer, T.N., & Green, S.G. (1998). Testing the combined effects of newcomer information seeking and manager behavior on socialization. Journal of Applied Psychology, *83*, 72-83.
- Bauer, T.N., Morrison, E.W. & Callister, R.R. (1998). Organizational socialization: A review and directions for further research. In G.R. Ferris & K.M. Rowland (Eds.), Research in Personnel and Human Resource Management, *16*, Greenwich, CT: JAI Press.
- Bentler, P.M. (1990). Comparative fit indices in structural models. Psychological Bulletin, *107*, 238-246.
- Bentler, P.M & Bonnett, D.G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. Psychological Bulletin, *88*, 588-606.
- Bierhoff, H.W. , Cohen, R.L. & Greenberg, J. (1986). Justice in Social Relations. New York. Plenum.
- Bies, R.J., & Moag, J.S. (1986). Interactional Justice: Communication criteria of fairness. Research on Negotiation in Organizations, *1*, 43-55.
- Bies, R.J. & Shapiro, D.L. (1988). Voice and justification: Their influence on procedural fairness judgements. Academy of Management Journal, *31*, 676-685.
- Bollen, K.A. (1989). A new incremental fit index for general structural equation models. Sociological Methods and Research, *117*, 313-316.
- Bollen, K.A. (1989). Structural Equations with Latent Variables. New York: Wiley.
- Boomsma, A. (1985). Nonconvergence, improper solutions, and starting values in LISREL maximum likelihood estimation. Psychometrika, *50*, 229-242.
- Borman, W. (1982). Validity of behavioral assessment for predicting military recruiter performance. Journal of Applied Psychology, *67*, 3-9.
- Borman, W.C., Hanson, M. A., & Hedge, J.W. (1997). Personnel selection. Annual Review of Psychology, *48*, 299-337.
- Boudreau, J.W. & Rynes, S.L. (1985). The role of recruitment in staffing utility analysis. Journal of Applied Psychology, *70*, 354-366.

- Boyle, G.J. (1991). Does item homogeneity indicate internal consistency or item redundancy in psychometric scales? Personality and Individual Differences, 12, 291-294.
- Brannick, M.T., Michaels, C.E., & Baker, D.P. (1989). Construct validity of in-basket scores. Journal of Applied Psychology, 74, 957-963.
- Brett, J.M., Feldman, D.C., & Weingart, L.R. (1990). Feedback-Seeking Behavior of New Hires and Job changers. Journal of Management, 16, 737-749.
- Bretz, R.D. Jnr & Judge, T.A. The role of human resource systems in job applicant decision processes. Journal of Management, 20, 531-551.
- Brockner, J., & Wiesenfeld, B.M. (1996). An integrative framework for explaining reactions to decisions: Interactive effects of outcomes and procedures. Psychological Bulletin, 120, 189-208.
- Burke, M.J., Normand, J., Raju, N.S. (1987). Examinee attitudes toward computer-administered ability testing. Computers in Human Behavior, 3, 95-107.
- Bycio, P., Alvares, K.M., & Hahn, J. (1987). Situational specificity in assessment center ratings: A confirmatory factor analysis. Journal of Applied Psychology, 72, 463-474.
- Byrne, B.M. (1989). A Primer of LISREL. Basic Applications and Programming for Confirmatory Factor Analytic Models. New York: Springer-Verlag.
- Byrne, B.M., Shavelson, R.J., & Muthen, B. (1989). Testing for the equivalence of factor covariances and mean structures: The issue of partial measurement invariance. Psychological Bulletin, 105, 456-466.
- Campbell, D.T. & Fiske, D.W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. Psychological Bulletin, 56, 81-105.
- Carmines, E.G. & McIver, S.P. (1981). Analysing models with unobserved variables: Analysis of covariance structures. In G.W. Bohrnstedt and E.F. Borgatta (Eds.) Social Measurement: Current Issues (pp.65-115). Beverly Hills, CA:Sage.
- Cascio, W.F. (1995). Whither industrial and organizational psychology in a changing world of work? American Psychologist, 50, 928-939.
- Cascio, W.F. (1991). Applied Psychology in Personnel Management. Fourth Edn. New Jersey: Englewood Cliffs.
- Cattell, R. (1966). Handbook of Multivariate Experimental Psychology. Rand McNally, Chicago.
- Chan, D. (1996). Criterion and construct validation of an assessment centre. Journal of Occupational and Organizational Psychology, 69, 167-181.

- Chan, D. (1997). Racial subgroup differences in predictive validity perceptions on personality and cognitive ability tests. Journal of Applied Psychology, 82, 311-320
- Chan, D. & Schmitt, N. (1997). Video-based versus paper-and-pencil method of assessment in situational judgement tests: subgroup differences in test performance and face validity perceptions. Journal of Applied Psychology, 82, 143-159.
- Chan, D., Schmitt, N., DeShon, P., Clause, C.S., & Delbridge, K. (1997). Reactions to cognitive ability tests: The relationships between race, test performance, face validity perceptions, and test-taking motivation. Journal of Applied Psychology, 82, 300-310.
- Chan, D., Schmitt N., Jennings, D. Clause, C.S. & Delbridge, K. (1998a). Applicant perceptions of test fairness: Integrating justice and self-serving bias perspectives. International Journal of Selection and Assessment, 6, 232-239.
- Chan, D., Schmitt, N., Sacco, J.M., & DeShon, R.P. (1998b). Understanding pretest and posttest reactions to cognitive ability and personality tests. Journal of Applied Psychology, 83, 471-485.
- Chao, G.T., O'Leary-Kelly, A.M., Wolf, S., Klein, H.J., & Gardner, P.D. (1994). Organizational socialization: Its content and consequences. Journal of Applied Psychology, 79, 730-743.
- Chatman, J.A. (1991). Matching people and organizations: Selection and socialization in public accounting firms. Administrative Science Quarterly, 36, 459-484.
- Cohen, J., & Cohen, P. (1983). Applied Multiple Regression for Analysis for Behavioral Science. Second Edn. Hillsdale, New Jersey, Lawrence Erlbaum.
- Comrey A.L. & Lee, H.B. (1992). A First Course in Factor Analysis. (2nd. Ed.) Hillsdale, NJ: Erlbaum.
- Conway, J.M., Jako, R.A., & Goodman, D. E. (1995). A meta-analysis of interrater and internal consistency reliability of employment interviews. Journal of Applied Psychology, 80, 565-579.
- Conway, N., & Briner, R.B. (1998). The storm in a teacup: Qualitative data from a daily diary study of psychological contract violation. Paper presented at the International Work Psychology Conference, Sheffield, 1-3 July, 1998.
- Cook, M. (1993). Personnel Selection and Productivity. Second Edition, Chichester: Wiley.
- Cronbach, L.J., & Furby, L. (1970). How should we measure "change" - or should we? Psychological Bulletin, 74, 68-80.
- Cropanzano, R., & Folger, R. (1989). Referent cognitions and task decision autonomy: beyond equity theory. Journal of Applied Psychology. 74, 293-299.

- Cudeck, R. (1989). The analysis of correlation matrices using covariance structure models. Psychological Bulletin, *1-5*, 317-327.
- Cudeck, R., & O'Dell, L.L. (1994). Applications of standard error estimates in unrestricted Factor Analysis: Significance tests for factor loadings and correlations. Psychological Bulletin, *115*, 475-487.
- Cunningham-Snell, N, Anderson, N., Fletcher, C., & Gibb (1998). What influences candidates' perceptions of procedural fairness: due process or final verdict? Paper presented at the British Psychological Society Occupational Psychology Conference, Eastbourne, January, 1998.
- Cunningham-Snell, N., Fletcher, C., & Anderson, N. (1998). Interview Process Fairness: The impact of exceeding candidates' expectations. Paper presented at the International Work Psychology Conference, University of Sheffield, July, 1998
- Cunningham-Snell, N., Fletcher, C., Anderson, N., & Gibb (1997). Candidates' perceptions of Assessment Centre Procedural Fairness: A longitudinal Study on the Impact of unmet expectations. Paper presented at the British Psychological Society London Conference, London, December 1997.
- Daly, J & Geyer, P.D. (1994). The role of fairness in implementing large-scale change: employee evaluations of process and outcome in seven facility relocations. Journal of Organizational Behaviour, *15*, 623-638.
- Dipoye, R.L. (1992). Selection Interviews: Process Perspectives. Cincinnati, Ohio. South-Western Publishing Co.
- Dipboye, R.L (1997). Structured Selection Interviews: Why do they work? Why are they underutilized? In N. Anderson & P. Herriot (Eds.) International Handbook of Selection and Assessment, pp 455-473. Chichester: Wiley
- Deutsch, M. (1975). Equity, equality and need: What determines which value will be used as the basis for distributive justice? Journal of Social Issues, *31*, 137-149.
- Dodd, W.E. (1977). Attitudes toward assessment center programs. In J.L. Moses & W.C. Byham (Eds.) Applying the Assessment Center Method. Pergamon: New York.
- Donahue, L.M., Truxillo, D.M., Cornwell, J.M., & Gerrity, M.J. (1997). Assessment center construct validity and behavioral checklists: Some additional findings. In R.E. Riggio & B.T. Mayes (eds.). Assessment centres: Research and applications [Special issue]. Journal of Social Behavior and Personality, *12*, 5, 85-108.
- Dulewicz, V., Fletcher, C., & Wood, P. (1983). A study of the internal validity of an assessment centre and of participants' background characteristics and attitudes: A

- comparison between British and American findings. Assessment Center Technology, 6, 15-24.
- Dunahee, M.H. & Wangler, L.A. (1974). The psychological contract: A conceptual structure for management/employee relations. Personnel Journal, July, 518-526, 548.
- Dreher, G.F. & Sachett, P. (1983). Perceptions on Employee Staffing and Development: Readings and Commentary. Homewood I.L. Irwin.
- Edwards, J.R. (1991). Person-job fit: A conceptual integration, literature review and methodological critique. In C.L. Cooper & I.T. Robertson (Eds.). International Review of Industrial and Organizational Psychology, Vol 6, pp 285-357, New York, Wiley.
- Edwards, J.R. (1994). The study of congruence in organizational behavior research: Critique and a proposed alternative. Organizational Behavior and Human Decision Processes, 58, 51-100.
- Eisenberger R, Huntington, R, Hutchison, S, & Sowa, D. (1986). Perceived organizational support. Journal of Applied Psychology, 71, 500-507.
- Ellis, A.R. & Taylor, M.S. (1983). Role of self-esteem within the job search process. Journal of Applied Psychology, 68, 632-640.
- Feldman, D.C. (1976). A contingency theory of Socialization. Administrative Science Quarterly, 21, 433-452.
- Feldman, D. (1981). The multiple socialization of organization members. Academy of Management Review, 6, 309-318.
- Feltham, R.T. (1989). Assessment centres. In P.Herriot (Ed.). Handbook of Assessment in Organizations. Chichester: Wiley
- Ferguson, E & Cox, T. (1993). Exploratory factor analysis: A users' guide. International Journal of Selection and Assessment, 1, 84-94.
- Fink, A.M. & Butcher, J.N. (1972). Reducing objections to personality inventories with special instructions. Educational and Psychological Measurement, 32, 631-639.
- Fiske, S.T. & Taylor, S.E. (1984). Social Cognition. New York: Random House.
- Fisher, C.D. (1985). Social Support and adjustment to work: A longitudinal Study. Journal of Management, 11, 39-53.
- Fleener, J.W. (1996). Constructs and developmental assessment centers: Further troubling empirical findings. Journal of Business and Psychology, 10, 319-333.
- Fletcher, C. (1991). Candidates' reactions to assessment centres and their outcomes: A longitudinal study. Journal of Occupational Psychology, 64, 117-127.

- Fletcher, C. (1997a). The future of psychometric assessment: Fostering positive candidate attitude and reactions. Selection and Development Review, 13 (4), 8-11
- Fletcher, C. (1997b). Performance Appraisal in Context: Organizational Changes and their Impact on Practice. In N. Anderson & P. Herriot (Eds.) International Handbook of Selection and Assessment. Chichester: Wiley.
- Fletcher, C., & Baldry, C. (1999). Multi-source feedback systems: A research perspective. In C. Cooper, & I.T. Robertson, (Eds). International Review of Industrial and Organizational Psychology, Vol 14, New York / London: Wiley.
- Fletcher, C., Baldry, C., & Cunningham-Snell, N. (1998). The psychometric properties of 360 degree feedback: An empirical study and a cautionary tale. International Journal of Selection and Assessment, 6, 19-34
- Fletcher, C., & Dulewicz, V (1983). An empirical study of a UK-based assessment centre. Journal of Management Studies, 21, 83-97.
- Folger, R. & Greenberg, J. (1985). Procedural Justice: An interpretative analysis of personnel systems. Research in Personnel and Human Resources Management, 3, 141-183.
- Folger, R. & Konovsky, M.A. (1989). Effects of procedural and distributive justice on reactions to pay raise decisions. Academy of Management Journal, 31, 115-130.
- Folger, R., Rosenfield, D., Hays, R.P. (1978). Equity and intrinsic motivation: The role of choice. Journal of Personality and Social Psychology, 36, 557-564.
- Ford, J.K., MacCallum, R.C., & Tait, M. (1986). The application of exploratory Factor Analysis in applied psychology: A critical review and analysis. Personnel Psychology, 39, 291-314.
- Francis-Smythe, J. & Smith, P.M. (1997). The psychological impact of assessment in a development center. Human Relations, 50, 149-167.
- Freese, C., & Shalk, R. (1996). Implications of differences in psychological contracts for human resource management. European Journal of Work and Organizational Psychology, 5, 501-509.
- Fryxell, G.E. & Gordon, M.E. (1989). Workplace Justice and job satisfaction and productivity. Organizational Behavior and Human Performance, 3, 340-352.
- Fusilier M.R. & Hoyer, W.D. (1980). Variables affecting perceptions of invasion of privacy in a personnel selection situation. Journal of Applied Psychology, 65, 623-626.

- Gatewood, R., Thornton III, G.C., & Hennessey Jr., H.W. (1990). Reliability of exercise ratings in the leaderless group discussion. Journal of Occupational Psychology, 63, 331-342.
- Gaugler, B.B., Rosenthal, D.B., Thornton, G.C., & Bentson, C.(1987). Meta-analysis of assessment centre validity. Journal of Applied Psychology, 72, 493-511.
- Gaugler, B.B. & Thornton, G.C. III (1989). Number of assessment center dimensions as a determinant of assessor accuracy. Journal of Applied Psychology, 74 (4), 611-618.
- Gaugler, B.B., & Thornton, III, G.C. (1990). Matching job previews to individual applicant's needs. Psychological Reports, 66, 643-652.
- Gergen, K.J., Greenberg, M.S. & Willis, R.H. (1980). Social Exchange Advances in Theory And Research. New York and London. Plenum Press.
- Ghiselli, E.E., Campbell, J.P., Zedeck, S. (1981). Measurement Theory for the Behavioral Sciences. New York: W.H. Freeman and Company.
- Gilliland, S.W. (1993). The perceived fairness of selection systems: An organizational justice perspective. Academy of Management Review, 18, 696-734
- Gilliland, S.W. (1994). Effects of procedural and Distributive Justice on Reactions to a Selection System. Journal of Applied Psychology, 79, 691-701.
- Gilliland, S.W. (1995). Fairness from the applicant's perspective: Reactions to employee selection procedures. International Journal Of Selection and Assessment, 3, 11-19.
- Gilliland, S.W. & Beckstein, B.A. (1996). Procedural and distributive justice in the editorial review process. Personnel Psychology, 49, 669-691.
- Gilliland, S.W. & Honig, H. (1994a). Development of the Selection Fairness Survey. Paper presented at the 9th Annual Conference of the Society for Industrial and Organizational Psychology, Nashville, TN, April 1994
- Gilliland, S.W. & Honig, H. (1994b). The perceived fairness of employee selection systems as a predictor of attitudes and self-concept. In S.W. Gilliland (Chair) Selection from the applicant's perspective: Justice and employee selection procedures. Symposium presented at the 9th Annual Conference of the Society for Industrial and Organizational Psychology, Nashville, TN, April, 1994
- Golembiewski, R.T., Billingsley, K. & Yeager, S. (1976). Measuring change persistently in human affairs: Types of change generated by OD designs. Journal of Applied Behavioural Science, 12, 133-157.
- Gomez-Mejia, L.R. & Balkin, D.B. (1987). Dimensions and characteristics of personnel manager perceptions of effective drug-testing programs. Personnel Psychology, 40, 745-763.

- Goodman, P. & Friedman, A. (1968). An examination of the effect of wage inequity in the hourly condition. Organizational Behavior and Human Performance, 3, 340-352.
- Gorsuch, R.L. (1983). Factor Analysis, Hillsdale, NJ: Lawrence Erlbaum.
- Green, S.G. (1991). Professional entry and the adviser relationship. Socialization, commitment and productivity. Group and Organization Studies, 16, 387-407.
- Greenberg, J. (1986). Determinants of perceived fairness of performance evaluations. Journal of Applied Psychology, 71, 340-342.
- Greenberg, J. (1987). Reactions to procedural injustice in payment distributions: Do the means justify the ends? Journal of Applied Psychology, 72, 55-61.
- Greenberg, J. (1988). Equity and workplace status: A field experiment. Journal of Applied Psychology, 73, 606-613.
- Greenberg, J. (1990a). Organizational justice: Yesterday, today and tomorrow. Journal of Management, 16, 399-432.
- Greenberg, J. (1990b). Employee theft as a reaction to underpayment inequity: The hidden cost of pay cuts. Journal of Applied Psychology, 75, 561-568.
- Greenberg, J. (1993). Stealing in the name of justice: Informational and interpersonal moderators of theft reactions to underpayment inequity. Organizational Behaviour and Human Decision Processes, 54, 81-103.
- Guest, D.E. (1998). Is the psychological contract worth taking seriously? Journal of Organizational Behavior, 19, 649-664.
- Guilford, J.P. (1965). Fundamental Statistics in Psychology and Education. Fourth Edition. McGraw-Hill.
- Guzzo, R.A., Noonan, K.A., & Elron, E. (1994). Expatriate managers and the psychological contract. Journal of Applied Psychology, 79, 617-626.
- Hall, E.T. & Hall, M.R. (1990). Understanding Cultural Differences. Yarmouth, MA: Intercultural Press.
- Harris, M.M., Beckaer, A.S., & Smith, D.E. (1993). Does the assessment center scoring method affect the cross-situational consistency of ratings? Journal of Applied Psychology, 78, 675-678.
- Harris, M.M. & Fink, L.S. (1987). A field study of applicant reactions to employment opportunities: Does the recruiter make a difference? Personnel Psychology, 40, 765-784.
- Harris, M.M. & Schaubroek, J. (1988). A meta-analysis of self-supervisor, self-peer and peer-supervisor ratings. Personnel Psychology, 41, 43-62.

- Hayduk, L.A. (1987). Structural Equation Modeling with LISREL. Baltimore: The John Hopkins University Press.
- Herriot, P. (1989). Selection as a social process. In M. Smith & I.T. Robertson (Eds.) Advances in Staff Selection. Chichester: Wiley.
- Herriot, P. (1992). Selection: The two subcultures. European Work and Organizational Psychologist, 2, 129-140.
- Herriot, P. (1993). A paradigm bursting at the seams. Journal of Organizational Behavior, 14, 371-375.
- Herriot, P. & Anderson, N. (1997). Selecting for change: How will personnel and selection psychology survive? In N. Anderson & P. Herriot (Eds.) International Handbook of Selection and Assessment. Chichester: Wiley
- Herriot, P., Manning, W.E.G., & Kidd, J.M. (1997). The content of the psychological contract. British Journal of Management, 8, 151-162.
- Herriot, P. & Pemberton, C. (1995). A new deal for middle managers. People Management, 1, 32-35.
- Herriot, P. & Pemberton, C. (1996). Contracting careers. Human Relations, 49, (6) 757-790.
- Hesketh, B. & Robertson, I. (1993). Validating personnel selection: A process model for research and practice. International Journal of Selection and Assessment. 1 (1) 3-17.
- Hiltrop, J. (1995) The changing psychological contract: The human resource challenge of the 1990s. European Management Journal, 13, 286-294.
- Hodgkinson, G.P. and Payne, R.L. (1998). Graduate selection in three European countries. Journal of Occupational and Organisational Psychology, 71, 359-365.
- Hofstede, G. (1980). Culture's Consequences: International Differences in Work Related Values. Beverly Hills CA: Sage.
- Hofstede, G. (1991). Cultures and Organizations: Software Of The Mind. London: McGraw-Hill.
- Homans, G.C. (1961). Social Behaviour: Its Elementary Forms. New York: Harcourt Brace & World.
- Hoyle, R.H., & Panter, A.T. (1995). Writing about Structural Equation Models. In R.H. Hoyle (Ed.) Structural Equation Modeling: Concepts, Issues and Applications, pp 158-176. Thousand Oaks: Sage Publications.

- Hu, L.T., & Bentler, P.M. (1995). Evaluating Model Fit. In R.H. Hoyle (Ed.) Structural Equation Modeling: Concepts, Issues and Applications, pp 76-99, Thousand Oaks: Sage Publications.
- Huffcutt, A.I., & Arthur, W. Jr (1994). Hunter and Hunter (1984) revisited: Interview validity for entry-level jobs. Journal of Applied Psychology, *79*, 184-190.
- Hunter, J.E. (1983). A causal analysis of cognitive ability, job knowledge, job performance, and supervisor ratings. In F. Landy, S. Zedeck, & J. Cleveland, (Eds.). Performance and Measurement Theory, pp 257-266, Hillsdale, NJ: Erlbaum.
- Hunter, J.E. & Hirsch, H.R. (1987). Applications of meta-analysis. In C.L. Cooper and I.T. Robertson (Eds.) International Review of Industrial and Organizational Psychology. Chichester: Wiley,
- Hunter, J.E., & Hunter, R.F. (1984). Validity and utility of alternative predictors of job performance. Psychological Bulletin, *96*, 72-98.
- Hunter, J.E., & Schmidt, S.L. (1990). Methods of meta-analysis: Correcting error and bias in research findings. Newbury Park, CA: Sage.
- Iles, P. (1989). Using assessment and development centres to facilitate equal opportunity in selection and career development. Equal Opportunities International, *8*, 1-26.
- Iles, P. & Forster, A. (1994). Developing organizations through collaborative development centers. Organization Development Journal, *12*, 45-51
- Iles, P., & Mabey, C. (1993). Managerial career development programmes: Effectiveness, availability and acceptability. British Journal of Management, *4*, 103-118.
- Iles, P.A., & Robertson, I.T. (1997). The impact of personnel selection procedures on candidates. In N. Anderson & P. Herriot (Eds.) International Handbook of Selection and Assessment. Chichester: Wiley
- Iles, P.A., & Robertson, I.T. (1989). The impact of personnel selection procedures on candidates. In P. Herriot (Ed.) Handbook of Assessment in Organizations. Chichester: Wiley
- Iles, P. Robertson, I., & Rout, U. (1989). Assessment-based development centres. Journal of Managerial Psychology, *4*, 11-16.
- Irving, P.G. & Meyer, J.P. (1994). Reexamination of the met-expectations hypothesis: A longitudinal analysis. Journal of Applied Psychological, *79*, 937-949.
- Irving, P.G. & Meyer, J.P. (1995). On using direct measures of met expectations: A methodological note. Journal of Management, *21*, 1159-1175.
- James, L.R. & Brett, J.M. (1984). Mediators, moderators and tests for mediation. Journal of Applied Psychology, *69*, 307-321.

- James, L.R., Mulaik, S.A., & Brett, J.M. (1982). Causal Analysis: Assumptions, Models, and Data. Beverly Hills: Sage.
- Johns, G. (1981). Difference score measures of organizational variables: A critique Organizational Behavior and Human Performance, *27*, 443-463.
- Jones, A., Herriot, P., Long, B., & Drakeley, R. (1991). Attempting to improve the validity of a well-established assessment centre. Journal of Occupational Psychology, *64*, 1-21.
- Jones, G.R. (1986). Socialization tactics, self-efficacy, and newcomers' adjustments to organizations. Academy of Management Journal, *29*, 262-279.
- Joyce, L.W., Thayer, P.W., Pond, III, S.B. (1994). Managerial functions: An alternative to traditional assessment center dimensions? Personnel Psychology, *47*, 109-121.
- Keenan, A. (1978). The selection interview: Candidates' reactions and interviewers' judgements. British Journal of Social and Clinical Psychology, *17*, 201-209.
- Kelloway, E.K. (1996). Common practices in structural equation modelling. In C.L. Cooper & I.T. Robertson, International Review of Industrial and Organizational Psychology, Vol. 11, 141-180. Chichester: Wiley.
- Kenny, D.A. & Kashy, D.A. (1992). Analysis of the multitrait-multimethod matrix by confirmatory factor analysis. Psychological Bulletin, *112*, 165-172.
- Kenrick, D.J., & Stringfield, D.O. (1980). Personality traits and the eye of the beholder. Crossing some traditional philosophical boundaries in the search for consistency in all of the people. Psychological Review, *87*, 88-104.
- Kleinmann, M., (1993). Are rating dimensions in assessment centers transparent for participants? Consequences for criterion and construct validity. Journal of Applied Psychology, *78*, 988-993
- Klienmann, M., Kuptsch, C., & Koller, O. (1996). Transparency: A necessary requirement for the construct validity of assessment centres. Applied Psychology: An International Review, *45*, 1, 67-84.
- Klienmann, M., & Koller, O. (1997). Construct Validity of Assessment Centers: Appropriate Use of Confirmatory Factor Analysis and Suitable Construction Principles. In R.E. Riggio & B.T. Mayes (Eds.). Assessment centres: Research and applications [Special issue]. Journal of Social Behavior and Personality, *12* (5), 65-84.
- Klimoski, R., & Brickner, M. (1987). Why do assessment centers work? the puzzle of assessment centre validity. Personnel Psychology, *40*, 243-260.

- Kline, P. (1998). The anglicization of American personality tests: a comment on the debate. Selection and Development Review, *14*, 15-17.
- Kluger, A.N. & Rothstein, H.R. (1991, April). The influence of selection test type on applicant reactions to employment testing. In R.R. Reilly (Chair), Perceived validity of selection procedures: Implications for organizations. Symposium conducted at the 6th annual Society for Industrial/Organizational Psychology Conference, St Louis, MO.
- Konovsky, M.A., & Cropanzano, R. (1991). Perceived fairness of employee drug testing as a predictor of employee attitudes and job performance. Journal of Applied Psychology, *76*, 698-707.
- Konovsky, M.A., Folger, R. & Cropanzano, R. (1987). Relative effects of procedural and distributive justice on employee attitudes. Representative Research in Social Psychology, *17*, 15-24.
- Kotter, J.P. (1973). The psychological contract: Managing the joining-up process. California Management Review, *15*, 91-99.
- Kravitz, D.A., Stinson, V., & Chavez, T.L. (1996). Evaluations of tests used for making selection and promotion decisions. International Journal of Selection and Assessment, *4*, 24-34.
- Kudisch, J.D., Lass, R.T., & Dobbins, G.H. (1997). New Evidence on the construct validity of diagnostic assessment centers: The findings may not be so troubling after all. In R.E. Riggio & B.T. Mayes (Eds.). *Assessment centres: Research and applications* [Special issue]. Journal of Social Behavior and Personality, *12*, 129-144.
- Landy, F.J., Shankster, L., & Kohler, S.S. (1994). Personnel selection and placement. Annual Review of Psychology, *46*, 261-296.
- Lawler, E.E., III, Hall, D.T., & Oldham, G.R. (1974). Organizational Climate: Relationship to Organizational Structure, Process and Performance. Organizational Behavior and Human Performance, *11*, 139-155.
- Lee, T.W., Ashford, S.J., Walsh, J.P. & Mowday, R.T. (1992) Commitment propensity, organizational commitment, and voluntary turnover, A longitudinal study of organizational entry process. Journal of Management, *18*, 15-32
- Leventhal, G.S. (1980). What should be done with equity theory? New approaches to the study of fairness in social relationships. In K.J. Gergen, M.S. Greenberg and R.H. Willis (eds.), Social Exchange: Advances in Theory and Research (pp.27-55). New York: Plenum Press.

- Levine, E.L., Spector, P.E., Menon, P.E., Narayanan, L., & Cannon-Bowers, J. (1996). Validity generalization for cognitive, psychomotor, and perceptual test for craft jobs in the utility industry. Human Performance, 9, 1-22.
- Levinson, H., Price, C.R., Munden, K.J., Mandl, H.J., & Solley, C.M. (1963). Men Management and Mental Health. Cambridge, MA: Harvard University Press.
- Liden R.C. & Parsons C.K. (1986). A field study of job applicant interview perceptions, alternative opportunities, and demographic characteristics. Personnel Psychology, 39, 109-122.
- Leung, K. & Li, W. (1990). Psychological mechanisms of process-control effects. Journal of Applied Psychology, 75, 613-620.
- Lievens, F. (1998). Factors which improve the construct validity of assessment centers: A review. International Journal of Selection and Assessment, 6, 141-152.
- Loehlin, J.C. (1987). Latent Variable Models: An Introduction to Factor, Path and Structural Analysis. Hillsdale, NJ: Lawrence Erlbaum.
- Louis, M.R. (1980). Surprise and sense-making: What newcomers experience in entering unfamiliar organizational settings. Administrative Science Quarterly, 25, 226-251.
- Louis, M. R. (1990). Acculturation in the workplace: Newcomers as lay ethnographers. In B. Schneider (ed.) Organizational Climate and Culture: San Francisco, CA: Jossey-Bass.
- Lounsbury, J., Borrow, W., Jensen, J. (1989). Attitudes toward employment testing: Scale development, correlates, and "known-group" validation. Professional Psychology: Research and Practice, 20, 340-349.
- Lowry, P.E. (1993). The assessment center: An examination of the effects of assessor characteristics on assessor scores. Public-Personnel-Management, 22, 487-501
- Lowry, P.E. (1995). The assessment center process: Assessing Leadership in the Public Sector. Public Personnel Management, 24, 443-450.
- Lowry, P.E. (1997). The assessment center process: New directions. In R.E. Riggio & B.T. Mayes (Eds.). Assessment centres: Research and applications [Special issue]. Journal of Social Behavior and Personality, 12 (5), 53-62.
- Mabey, C. (1984). Managing graduate entry. Journal of General Management, 10 (2), 67-79.
- Mabey, C. (1986). Graduates into Industry. London: Gower Press.
- Macan, T.H., Avedon, M.J., Paese, M., & Smith, D.E. (1994). The effects of applicants' reactions to cognitive ability tests and an assessment center. Personnel Psychology, 47, 715-738.

- Macan, T.H. & Dipboye, R.L. (1988). The effects of interviewers' impressions on information gathering. Organizational Behavior and Human Decision Processes, 42, 364-387.
- Mael, F. A. (1991). A Conceptual Rationale for the Domain and Attributes of Biodata Items. Personnel Psychology, 44, 762-792.
- Major, D.A. & Kozlowski, S.W.J. (1997). Newcomer information seeking: Individual and contextual influences. International Journal of Selection and Assessment, 5, 16-28.
- Major, D.A. & Kozlowski, S.W.J., Chao, G.T. & Gardner, P.D. (1997). A longitudinal investigation of newcomer expectations, early socialization outcomes, and the moderating effects of role development factors. Journal of Applied Psychology, 80, 418-431.
- Marsh, H.W. (1988). Multitrait-Multimethod Analysis. In J.P. Keeves (Ed.) Educational Research, Methodology, and Measurement: An International Handbook. Oxford: Pergamon.
- Marsh, H.W. (1989). Confirmatory factor analyses of multitrait-multimethod data: Many problems and a few solutions. Applied Psychological Measurement, 13, 335-361.
- Marsh, H.W., Balla, J.R. & Hau, K-T. (1996). An evaluation of incremental fit indices: A clarification of mathematical and empirical properties. In G.A. Marcoulides & R.E. Schumacker (Eds.) Advanced SEM: Issues and techniques. New Jersey: Lawrence Erlbaum.
- Marsh, H.W. & Balla, J.R. & McDonald R.P. (1988). Goodness-of-fit indexes in confirmatory factor analysis: The effect of sample size. Psychological Bulletin, 103, 391-410.
- Marsh, H.W. & Bailey, M. (1991). Confirmatory factor analysis of multitrait-multimethod data: A comparison of alternative models. Applied Psychological Measurement, 15, 47-70.
- Marsh, H.W. & Grayson, D. (1995). Latent variable models of multitrait-multimethod data. In R.H. Hoyle (Ed.). Structural Equation Modeling: Concepts, Issues and Applications. Thousand Oak: Sage Publications.
- Maurer, S.D., Howe, V., & Lee, T.W. (1992). Organizational recruiting as marketing management: An interdisciplinary study of engineering graduates. Personnel Psychology, 45, 807-833.
- McDaniel, M.A., Whetzel, D.L., Schmidt, F.L. & Maurer, S. (1994). the validity of employment interviews: A comprehensive review and meat-analysis. Journal of Applied Psychology, 79, 599-616.

- McEnvoy, G., Beatty, R., & Bernardin, J. (1987). Unanswered questions in assessment center research. Journal of Business and Psychology, 2, 97-111.
- McFarlin, D.B. & Sweeney, P.D. (1992). Distributive and procedural justice as predictors of satisfaction with personal and organizational outcomes. Academy of Management Journal, 35, 626-637.
- McLean Parks, J., & Kidder, D.L. (1994). "Till death us do part..." Changing work relationships in the 1990s. In C.L. Cooper & D.M. Rousseau (eds.) Trends in Organizational Behavior, Vol 1 (pp.111-136). Chichester: John Wiley.
- Medsker, G.J., Williams, L.J. & Holahan, P.J. (1994). A review of current practices for evaluating causal models in organizational behaviour and human resources management research. Journal of Management, 20, 439-464.
- Meyer, J.P. & Allen, N.J. (1984). Testing the "side-bet theory" of organizational commitment: Some methodological considerations. Journal of Applied Psychology, 69, 372-378.
- Meyer, J.P. & Allen, N.J. (1988). Links between work experiences and organizational commitment during the first year of employment. Journal of Occupational Psychology, 61, 195-209.
- Meyer, J.P. & Allen, N.J. (1991). A three-component conceptualisation of organizational commitment. Human Resource Management Review, 1, 61-89.
- Meyer, J.P., Allen, N.J., & Gellantly, I.R. (1990). Affective and continuance commitment to the organization: Evaluation of measures and analysis of concurrent and time-lagged relations. Journal of Applied Psychology, 75, 710-720.
- Millsap, R.E. & Everson, H. (1991). Confirmatory measurement model comparisons using latent means. Multivariate Behavioral Research, 26, 479-497.
- Millsap, R.E. & Hartog, S.B. (1988). Alpha, beta and gamma changes in evaluation research: A structural equation approach. Journal of Applied Psychology, 73, 574-584.
- Moorman, R.H. (1991). Relationship between organizational justice and organizational citizenship behaviors: Do fairness perceptions influence employee citizenship? Journal of Applied Psychology, 76, 845-855.
- Morrison, D.E. (1994). Psychological contracts and change. Human Resource Management, 33, 353-372.
- Morrison, E.W. (1993a). Longitudinal study of the effects of information seeking on newcomer socialization. Journal of Applied Psychology, 78, 173-183.

- Morrison, E.W. (1993b). Newcomer information seeking: exploring types, modes, sources and outcomes. Academy of Management Journal, 36, 557-589.
- Mowday, R.T., Porter, L.W., & Steers, R.M. (1982). Employee-Organizational Linkages: The Psychology of Commitment, Absenteeism, and Turnover. San Diego, CA: Academic Press.
- Mowday, R.T., Steers, R.M. & Porter, L.W. (1979). The measurement of organizational commitment. Journal of Vocational Behaviour, 14, 224-247.
- Mulaik, S.A., James, L.R., Van Alstine, J., Bennet, V., Lind, S. & Stilwell, D.C. (1989). Evaluation of goodness-of-fit indices for structural equation models. Psychological Bulletin, 105, 430-445.
- Murphy, K. R. (1986). When your top choice turns you down: Effects of rejected offers on the utility of selection tests. Psychological Bulletin, 99, 133-138.
- Murphy, K.R. (1997). Meta-analysis and Validity Generalization. In N. Anderson & P. Herriot (Eds.) International Handbook of Selection and Assessment, pp 323-342. Chichester: Wiley
- Muthen, B., & Kaplan, D. (1985). A comparison of some methodologies for factor analysis of non-normal latent variables. British Journal of Mathematics and Statistical Psychology, 38, 171-189.
- Nadler, D.A., Hackman, J.R. & Lawler III, E.E. (1983). Staffing Organizations. In Hackman, R.J., Lawler III, E.E., & Porter, L.W. (Eds.). Perspectives on Behavior in Organizations, pp 129-138. New York: McGraw Hill Inc.
- Nelson, D (1987). Organizational Socialization: A stress perspective. Journal of Occupational Psychology, 8, 311-324.
- Nelson, D.L. & Quick, J.C. (1991). Social support and newcomer adjustment: attachment theory at work? Journal of Organizational Behavior, 12, 543-554.
- Nicholson, N., & Arnold, J. (1991). From expectation to experience: Graduates entering a large corporation. Journal of Organizational Behavior, 12, 413-429.
- Nisbett, R. & Ross, L. (1980). Human Inference: Strategies and Shortcomings of Social Judgement. Engelwood Cliffs, NJ: Prentice Hall.
- Noe, R.A., & Schmitt, N. (1986). The influence of trainee attitudes on training effectiveness: test of a model. Personnel Psychology, 39, 497-523.
- Noe, R.A., & Steffy, B.D. (1987). The influence of individual characteristics and assessment center evaluation on career exploration behavior and job involvement. Journal of Vocational Behavior, 30, 187-202.

- O'Reilly III, C.A., Chatman, J., & Caldwell, D.F. (1991). People and organizational Culture: A profile comparison approach to assessing person-organization fit. Academy of Management Journal, 34, 487-516.
- Ostroff, C., & Kozlowski, S.W.J. (1992). Organisational Socialization as a learning process: The role of information acquisition. Personnel Psychology, 45, 849-874.
- Payne, T. & Anderson, N. (1992). Assessment centres: A second coming. Selection and Development Review, 8 (4), 1-3.
- Pearn, M.A. (1989). Fairness in employment selection: a comparison of UK and USA experience. In M. Smith & I.T. Robertson (Eds.). Advances in Selection and Assessment, Chichester: Wiley.
- Pearn, M. (1993). Fairness in selection and assessment: A European Perspective. In H. Schuler, C.J.L. Farr, & M. Smith (Eds.). Personnel Selection and Assessment: Individual and Organizational Perspectives. New Jersey: Lawrence Earlbaum.
- Ployhart, R. E. & Ryan, A.M. (1997). Toward an explanation of applicant reactions: An examination of organizational justice and attribution frameworks. Organizational Behavior and Human Decision Processes, 72 , 308-335.
- Ployhart, R.E. & Ryan, A.M. (1998). Applicants' reactions to the fairness of selection procedures: The effects of positive rule violation and time of measurement. Journal of Applied Psychology, 83, 3-16.
- Porter, L.W., Pearce, J., Tripoli, A.M., & Lewis, K.M. (1998). Differential perceptions of employers' inducements: Implications for psychological contracts. Journal of Organizational Behavior, 19, 769-782.
- Pritchard, R.D., Dunnette, M.D. & Jorgenson, D.O. (1972). Effects of perceptions of equity and inequity on worker performance and satisfaction. Journal of Applied Psychology, 56, 75-94.
- Reichers, A.E. (1987). An interactionist perspective on newcomer socialization rates. Academy of Management Review, 12, 278-287.
- Reilly, R., Henry, S., & Smither, J.W. (1990). An examination of the effects of using behavior checklists on the construct validity of assessment centre dimensions. Personnel Psychology, 43, 71-84.
- Riordan, C.M. & Vandenberg, R.J. (1994). A central question in cross-cultural research: Do employees of different cultures interpret work related measures in an equivalent manner? Journal of Management, 20, 643-671.
- Robbins, S.P. (1988). Organisational Behaviour: Concepts, Controversies, and Applications. 4th edn. Englewood Cliffs, NJ: Prentice Hall

- Robertson, I.T. (1993). Personality Assessment and Personnel Selection. European Review of Applied Psychology, 43, 187-194.
- Robertson, I. (1994). Personnel selection research: where are we now? The Psychologist, 7, 17-21
- Robertson, I.T., Iles, P.A., Gratton, L., & Sharpley, D. (1991). The impact of personnel selection and assessment methods on candidates. Human Relations, 44, 963-982.
- Robertson, I.T., Gratton, L., & Sharpley, D. (1987). The psychometric properties and the design of managerial assessment centres: Dimension into exercises won't go. Journal of Occupational Psychology, 60, 187-195.
- Robertson, I.T., & Kandola, R.S. (1982). Work sample tests: validity, adverse impact and applicant reaction. Journal of Occupational Psychology, 55, 171-182.
- Robertson, I.T. & Smith, J.M. (1989). Personnel Selection. In J.M. Smith and I.T. Robertson (eds.). Advances in Selection and Assessment. Chichester: John Wiley.
- Robinson, S.L. (1995). Violation of psychological contracts: Impact on employee attitudes. In L.E. Tetrick & J. Barling (Eds.), Changing Employment Relations: Behavioral and Social Perspectives (pp 91-108). Washington, DC: American Psychological Association.
- Robinson, S.L. (1996). Trust and breach of the psychological contract. Administrative Science Quarterly, 41, 574-599.
- Robinson, S.L., Kraatz, M.S., & Rousseau, D.M. (1994). Changing obligations and the psychological contract: A longitudinal study. Academy of Management Journal, 37, 137-152.
- Robinson, S.L. & Morrison, E.W. (1995). Psychological contracts and OCB: The effect of unfulfilled obligations on civic virtue behavior. Journal of Organizational Behavior, 16, 289-298.
- Robinson, S.L. & Rousseau D.M. (1994). Violating the psychological contract: not the exception but the norm. Journal of Organisational Behaviour, 15, 245-259.
- Rosse, J.G., Miller, J.L., Stecher, M.D. (1994). A field study of job applicants' reactions to personality and cognitive ability testing. Journal of Applied Psychology, 79, 987-992.
- Rousseau, D.M. (1989). Psychological and implied contracts in organizations. Employee Rights and Responsibilities, 2, 121-139
- Rousseau, D.M. (1990). New hire perceptions of their own and their employer's obligations: A study of psychological contracts. Journal of Organizational Behaviour, 11, 389-400

- Rousseau, D.M. (1995). Psychological Contracts in Organizations. London: Sage.
- Rousseau, D.M. & Anton, R.J. (1988). Fairness and implied contract obligations in termination: A policy capturing study. Human Performance, *1*, 273-289.
- Rousseau, D.M. & Anton, R.J. (1991). Fairness and implied contract obligations in termination's: The role of contributions, promises and performance. Journal of Organizational Behaviour, *12*, 287-299.
- Rousseau, D.M. & Aquino, K. (1993). Fairness and implied contract obligations in termination: The role of remedies, social accounts, and procedural justice. Human Performance, *6*, 135-149.
- Rousseau, D.M. & Parks, J.M. (1993). The contracts of individuals and organizations. In L.L. Cummings and B.M. Straw (Eds.) Research in Organizational Behaviour, Vol *15*, (pp 1-43). Greenwich, CT: JAI Press.
- Rousseau, D.M. & Tijoriwala, S.A. (1998). Assessing psychological contracts: Issues, alternatives and measures. Journal of Organizational Behavior, *19*, 679-695.
- Russell, C.J. (1987). Person characteristic versus role congruency explanations for assessment centre ratings. Academy of Management Journal, *30*, 817-826.
- Russell, C.J. & Domm, D.R. (1995). Two field tests of an explanation of assessment centre validity. Journal of Occupational and Organizational Psychology, *68*, 25-47
- Ryan, A.M. & Sackett, P.R. (1987). Pre-employment honesty testing: Fakability, reactions of test takers, and company image. Journal of Business and Psychology, *1*, 248-256.
- Rynes, S.L. (1991). Recruitment, job choice, and post hire consequences: A call for new research directions. In M.D. Dunnette (Ed.), Handbook of Industrial and Organisational Psychology (2nd ed., pp. 399-444). Palo Alto, CA: Consulting Psychologists' Press.
- Rynes, S. (1993a). Who's selecting whom? Effects of selection practices on applicant attitudes and behavior. In N. Schmitt & W. Borman (Eds.). Personnel Selection in Organizations. San Fransisco: Jossey-Bass.
- Rynes, S.L. (1993b). When recruitment fails to attract: Individual expectations meet organizational realities in recruitment. In H. Schuler, C.J.L. Farr, & M. Smith (Eds.). Personnel Selection and Assessment: Individual and Organizational Perspectives. New Jersey: Lawrence Earlbaum.
- Rynes, S.L., Bretz Jr., R.D., & Gerhart, B. (1991). The importance of recruitment in job choice: A different way of looking. Personnel Psychology, *44*, 487-521.
- Rynes, S.L., & Connerly, M.L. (1993). Applicant reactions to alternative selection procedures. Journal of Business and Psychology, *7*, 261-277.

- Rynes, S.L., Hememan, H.G. & Schwab, D.P. (1980). Individual reactions to organizational recruiting: A review. Personnel Psychology, 33, 529-542.
- Rynes, S.L., & Miller, H.E. (1983). Recruiter and job influences on candidates for employment. Journal of Applied Psychology, 68, 147-154.
- Sackett, P.R., & Harris, M.M. (1988). A further examination of the constructs underlying assessment center ratings. Journal of Business and Psychology, 3, 214-229.
- Sackett, P.R., Burris, L.R., & Callahan, C. (1989). Integrity testing for personnel selection: An update. Personnel Psychology, 42, 491-529.
- Sackett, P.R., & Dreher, G.F. (1982). Constructs and assessment centre dimensions: Some troubling empirical findings. Journal of Applied Psychology, 67, 401-410.
- Sagie, A., & Magnezy, R. (1997). Assessor type, number of distinguishable dimension categories, and assessment centre construct validity. Journal of Occupational and Organizational Psychology, 70, 103-108.
- Saks, A.M. (1989). An examination of the combined effects of realistic job previews, job attractiveness and recruiter affect on job acceptance decisions. Applied Psychology: An International Review, 38, 145-163.
- Saks, A.M. (1992). Applicants reactions to protected group membership inquiries during the recruitment process. In D. Saunders (ed) New Approaches to Employee Management: Fairness in Employee Selection, Vol 1, pp. 131-157. Greenwich, CT: JAI Press
- Saks, A.M. (1995). Longitudinal field investigation of the moderating and mediating effects of self-efficacy on the relationship between training and newcomer adjustment. Journal of Applied Psychology, 80, 211-225.
- Saks, A.M. & Ashforth, B.E. (1997). Socialization tactics and newcomer information acquisition. International Journal of Selection and Assessment, 5, 48-61.
- Scandura, T.A., & Graen, G.B. (1984). Moderating effects of initial leader-member exchange status on the effects of a leadership intervention. Journal of Applied Psychology, 69, 428-436.
- Scarpello, V., & Campbell, J.P (1983). Job satisfaction: Are all the parts there? Personnel Psychology, 36, 577-600.
- Schaubroeck, J. & Green, S.G. (1989). Confirmatory factor analysis procedures for assessing change during organizational entry. Journal of Applied Psychology, 74, 892-900.
- Schein, E.H. (1965). Organizational Psychology. Englewood Cliffs: Prentice Hall.

- Schein, E.H. (1980). Organizational Psychology. 3rd edn, Englewood Cliffs: Prentice Hall.
- Schein, E (1985). Organizational Culture and Leadership. San Fransisco: Jossey-Bass.
- Schein, E.H. (1988). Organizational Psychology. Third Edition, New York, Prentice Hall.
- Schmidt, F.L. Greenthal, A.L. Hunter, J.E. Berber, J.G., & Seaton, F.W. (1977). Job sample vs. paper-and-pencil trades and technical tests: Adverse impact and examinee attitudes. Personnel Psychology, 30, 187-197.
- Schmidt, F.L. & Hunter, J.E. (1998). The validity and utility of selection methods in personnel psychology: Practical and theoretical implications of 85 years of research findings. Psychological Bulletin, 124 (2), 262-274.
- Schmidt, F.L., Hunter, J.E., & Outerbridge, A.N. (1986). The impact of job experience and ability on job knowledge, work sample performance, and supervisory ratings of job performance. Journal of Applied Psychology, 73, 46-57.
- Schmidt, F.L., Urry, U.M. & Gugel, J.F. (1978). Computer assisted tailored testing: Examinee reactions and evaluations. Educational and Psychological Measurement, 38, 265-273.
- Schmitt, M.J. & Ryan, A.M. (1992). Test taking dispositions: A missing link? Journal of Applied Psychology, 77, 629-637.
- Schmitt, N. (1982). The use of analysis of covariance structures to assess beta and gamma change. Multivariate Behavioural Research, 17, 343-358.
- Schmitt, N. & Coyle, B.W. (1976). Applicants decisions in the employment interview. Journal of Applied Psychology, 61, 184-192.
- Schmitt, N., Ford, J.K. & Stults, D.M. (1986). Changes in self-perceived ability as a function of performance in an assessment centre. Journal of Occupational Psychology, 59, 327-335.
- Schmitt, N., & Gilliland, S.W. (1992). Beyond Differential Prediction: Fairness in selection. In D. Saunders (ed.) New Approaches to Employee Management: Fairness in Employee Selection, Vol 1, pp. 21-46. Greenwich, CT: JAI Press.
- Schmitt, N., & Gilliland, S.W., Landis, R.S., & Devine, D (1993). Computer-based testing applied to selection of secretarial applicnats. Personnel Psychology, 46, 149-165.
- Schmitt, N., Gooding, R.Z., Noe, R.A., & Kirsch, M. (1984). Meta-analysis of validity studies published between 1964 and 1982 and the investigation of study characteristics. Personnel Psychology, 37, 407-422..
- Schmitt, N., & Stults, D.M. (1986). Methodology review: Analysis of multitrait-multimethod matrices. Applied Psychological Measurement, 10, 1-22.

- Schneider, B. (1983). Interactional psychology and organizational behavior. Research in Organizational Behavior, 5, 1-31.
- Schneider, B. (1987). The people make the place. Personnel Psychology, 40, 437-453.
- Schneider, B., Kristof-Brown, A.L., Goldstein, H.W., & Smith, D.B. (1997). What is this thing called fit? In N. Anderson & P. Herriot (Eds.) International Handbook of Selection and Assessment. Chichester: Wiley
- Schneider, J.R. & Schmitt, N. (1992). An exercise design approach to understanding assessment centre dimension and exercise constructs. Journal of Applied Psychology, 77, 32-41.
- Schuler, H. (1993). Social validity of selection situations: A concept and some empirical results. In H. Schuler, C.J.L. Farr, & M. Smith (Eds.). Personnel Selection and Assessment: Individual and Organizational Perspectives. New Jersey: Lawrence Earlbaum.
- Schuler, H., Farr, J., & Smith. (1993). The individual and organizational sides of personnel selection and assessment. In H. Schuler, C.J.L. Farr, & M. Smith (Eds.). Personnel Selection and Assessment: Individual and Organizational Perspectives. New Jersey: Lawrence Earlbaum.
- Schuler, H., & Fruhner (1993). Effects of assessment center participation on self-esteem and on evaluation of the selection situation. In H. Schuler, C.J.L. Farr, & M. Smith (Eds.). Personnel Selection and Assessment: Individual and Organizational Perspectives. New Jersey: Lawrence Earlbaum.
- Schumacker, R.E., & Lomax, R.G. (1996). A Beginner's Guide to Structural Equation Modeling. New Jersey: Lawrence Erlbaum.
- Shackleton, V.J., & Newell, S. (1997). International Selection and Assessment. In N. Anderson & P. Herriot (Eds.) International Handbook of Selection and Assessment. Chichester: Wiley
- Sheppard, B.H. & Lewicki, R.J. (1987). Toward general principles of managerial fairness. Social Justice Research, 1, 161-176
- Shore, L.M. & Tetrick, L.E. (1994). The psychological contract as an explanatory framework in the employment relationship. In C.L. Cooper & D.M. Rousseau (eds.) Trends in Organizational Behavior, Vol 1, (pp.91-109). Chichester: John Wiley.
- Silverman, W.H., Dalessio, A., Wood, S.B., & Johnson, R.L. Jr (1986). Influence of assessment center methods on assessors' ratings. Personnel Psychology, 39, 565-578.

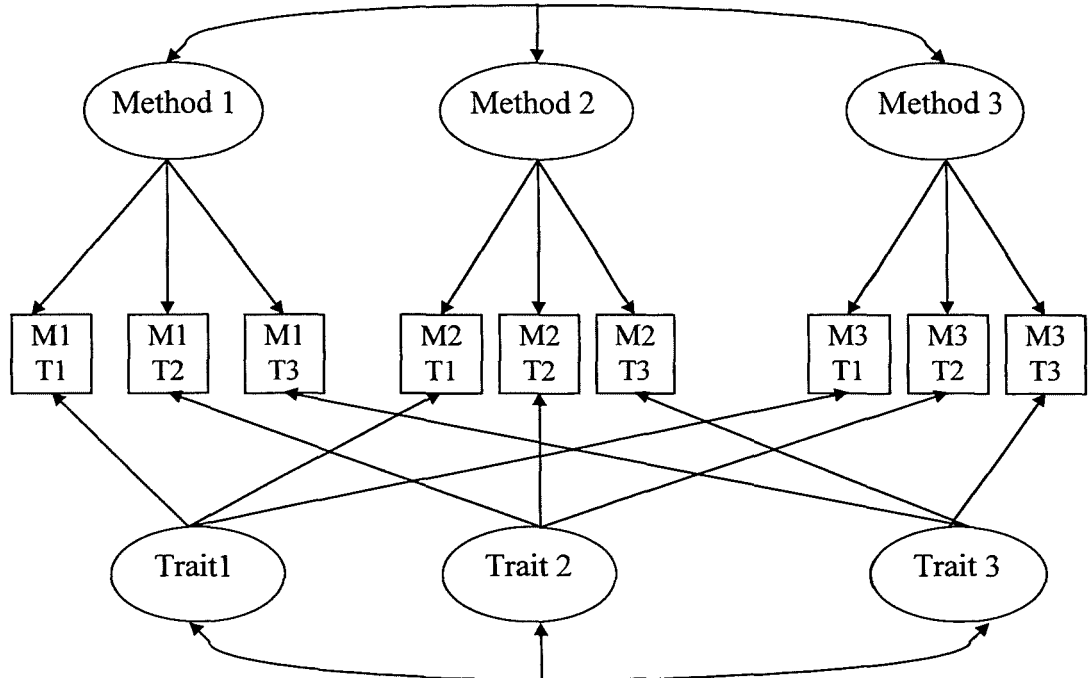
- Smith, E.M. & Kozlowski, S.W.J. (1994). Socialization and adaptation: Individual and contextual influences on social learning strategies. Paper presented at the 9th Annual Conference of the Society for Industrial and Organization Psychology, Nashville, Tennessee, April, 1994.
- Smith, M., Farr, J.L., & Schuler, H. (1993). Individual and organisational perspectives on personnel procedures: Conclusions and horizons for future research. In H. Schuler, C.J.L. Farr, & M. Smith (Eds.). Personnel Selection and Assessment: Individual and Organizational Perspectives. New Jersey: Lawrence Earlbaum.
- Smith, M., & Robertson, I.T. (1993). The Theory and Practice of Systematic Personnel Selection. Second Edition, London: Macmillan.
- Smith, P.C. (1976). Behaviors, results, and organizational effectiveness: The problem of criteria. In M.D. Dunnette (Ed.). Handbook of Industrial and Organizational Psychology. Chicago: Rand McNally.
- Smither, J.W., Reilly, R.R., Millsap, R.E., Pearlman, K., & Stoffey, R.W. (1993). Applicant reactions to selection procedures. Personnel Psychology, 46, 49-76.
- Sorbom, D. & Joreskog, K.G. (1982). The use of structural equation models in evaluation research. In C. Fornell (Ed.) A Second Generation of Multivariate Analysis, Vol. 2. New York: Praeger.
- Sparrow, P.R. (1996). Career and the psychological contract: Understanding the European Context. European Journal of Work and Organizational Psychology, 5, 479-500.
- SSI Window, (1998). Shell Services International, Vol 2, December 1998.
- Steiner, D.D., & Gilliland, S.W. (1996). Fairness reactions to personnel selection techniques in France and the United States. Journal of Applied Psychology, 81, 134-141.
- Stone, D.L. & Jones, G.E. (1997). Perceived Fairness of biodata as a function of the purpose of the request for information and gender of the applicant. Journal of Business and Psychology, 11 (3), 313- 323.
- Stone, D.L. & Kotch, D.A. (1989). Individuals' attitudes toward organizational drug testing policies and practices. Journal of Applied Psychology, 74, 518-521.
- Stone, E.F., & Stone, D.L. (1990). Privacy in organizations: Theoretical issues, research findings, and protection mechanisms. In G.R. Ferris & K.M. Rowland (Eds.). Research in Personnel and Human Resources Management, 8, 349-411. Greenwich: JAI Press Inc.

- Stone, E.F. (1988). Moderator variables in research: A review and analysis of conceptual and methodological issues. Research in Personnel and Human Resource Management, Vol 6, pp. 191-229.
- Sweeney, P.D. & McFarlin, D.B. (1997). Process and outcome: gender differences in the assessment of justice. Journal of Organizational Behavior, 18, 83-98.
- Tabachnick, B.G. & Fidell, L.S. (1996). Using Multivariate Statistics. Third Edition. New York. Harper Collins.
- Taylor, M.S. & Bergmann, T.J. (1987). Organizational recruitment activities and applicants' reactions at different stages of the recruitment process. Personnel Psychology, 40, 261-285.
- Teel, K.S. & DuBois, H. (1983). Participants' reactions to assessment centers. Personnel Administrator, March, 85-91.
- Tepper, B.J. (1994). Investigation of general and program-specific attitudes toward corporate drug-testing policies. Journal of Applied Psychology, 79 (3) 392-401.
- Thibaut, J & Walker, L. (1975). Procedural Justice: A Psychological Analysis. Hillsdale NJ: Erlbaum.
- Thomas, H.D.C. (1998). Organisational Socialisation: Longitudinal Investigations into Newcomer Sense-Making and Adjustment. Thesis for PhD in Psychology. Goldsmiths College. University of London.
- Thomas, H.D.C., & Anderson, N. (1998). Changes in Newcomer' psychological contracts during organisational socialisation: A study of recruits' entering the British Army. Journal of Organizational Behavior, 19, 745-767.
- Thomas, H.D.C.*, Cunningham-Snell, N.*, & Anderson, N. (1998). Abracadabra with alpha beta gamma: now you see it now you don't. Assessing true and error change in longitudinal research. Paper presented at the International Work Psychology Conference, University of Sheffield, July, 1998. (* joint first authors)
- Thornsteinson, T.J. & Ryan, A.M. (1997). The effect of selection ratio on perceptions of the fairness of a selection battery. International Journal of Selection and Assessment, 5 (3), 159-168.
- Thornton, III, G.C. (1993). The effect of selection practices on applicants' perceptions of organizational characteristics. In H. Schuler, C.J.L. Farr, & M. Smith (Eds.). Personnel Selection and Assessment: Individual and Organizational Perspectives. New Jersey: Lawrence Earlbaum.
- Tucker, L.R. & Lewis, C. (1973). A reliability coefficient for maximum likelihood factor analysis. Psychometrika, 38 (1), 1-10.

- Turnage, J.J. & Muchinsky, P.M. (1982). Transsituational variability in human performance within assessment centers. Organizational Behavior and Human Performance, *30*, 174-200.
- Tyler, T.R., & Bies, R.J. (1990). Beyond formal procedures: The interpersonal context of procedural justice. In J.S. Carroll (ed.). Applied Social Psychology and Organizational Settings. Hillsdale, New Jersey: Lawrence Earlbaum Associates.
- Ullman, J.B (1996). Structural equation modeling. In Tabachnick, B.G. & Fidell, L.S. (1996). Using Multivariate Statistics, pp. 709-810. Third Edition. New York. Harper Collins.
- van de Vijver, F.J.R. & Poortinga, Y.H. (1991). Testing across cultures. In R.K. Hambleton & J.N. Zaad (Eds.) Advances in Educational and Psychological Testing. Boston: Kluwer Academic Publishers.
- van den Bos, K. Vermut, R., & Wilke, H.A.M. (1997). Procedural and distributive justice: What is fair depends more on what comes first than on what comes next. Journal of Personality and Social Psychology, *72*, 95-104.
- Vandenberg, R. J. & Self, R.M. (1993). Assessing newcomers' changing commitments to the organization during the first 6 months of work. Journal of Applied Psychology, *78*, 557-568.
- Wagner, R.K. (1997). Intelligence, training, and employment. American Psychologist, *52* (10) 1059-1069.
- Wanous, J.P. (1973). Effects of realistic job preview on job acceptance, job attitudes, and job survival. Journal of Applied Psychology, *58*, 327-332.
- Wanous, J (1980). Organizational Entry, Reading Mass: Addison-Wesley Publishing Co.
- Wanous, J.P. (1992). Organizational Entry. Recruitment, Selection, Orientation and Socialization of Newcomers (Second Edition), Reading MA: Addison Wesley.
- Wanous, J.P. & Collella, A. (1989). Status and organizational entry research: Current status and further directions. In K. Rowland & G. Ferris (Eds.). Research in Personnel and HRM. Greenwich, CT: JAI Press.
- Wanous, J., & Keon, T.L., & Latack, J.C. (1983). Expectancy theory and occupational / organizational choices: A review and a test. Organizational Behavior and Human Performance, *32*, 66-86.
- Wanous, J.P., Poland, T.D., Premack, S.L. & Davies, K.S. (1992). The effects of met expectations on newcomer attitudes and behaviours: A review and meta-analysis. Journal of Applied Psychology, *77*, 288-297.

- Wanous, J.P., Reichers, A.E., & Hudy, M.J. (1997). Overall job satisfaction: How good are single-item measures? Journal of Applied Psychology, *82*, 247-252.
- West, S.G., Finch, J.F., & Curran, P.J. (1995). Structural equation models with nonnormal variables. In R.H. Hoyle (ed.) Structural Equation Modelling: Concepts, Issues and Applications. Thousand Oaks; Sage.
- Wheaton, B., Munhen, B., Alwin, D.F. & Summers, G.F. (1977). Assessing reliability and stability in panel models. In D.R. Heise (Ed.) Sociological Methodology. San Fransisco. Jossey Bass.
- Widaman, K.F. (1985). Hierarchically nested covariance structure models for multitrait-multimethod data. Applied Psychological Measurement, *9* (1), 1-26.
- Woodruffe, C. (1997). Assessment Centres: Identifying and Developing Competence. London: Institute of Personnel Management.
- Wothke, W. (1993). Nonpositive definite matrices in structural modeling. In K.A. Bolen & J.S. Long (Eds.) Testing Structural Equation Models. Newbury Park. CA: Sage.

Appendix 1
Confirmatory Factor Analysis with SEM: Model 4D



Source: Marsh & Grayson, 1995.

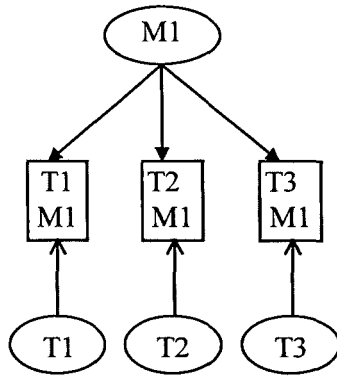
Note: = observed variable; = latent factor; M = Method; T = Trait.
 Measurement errors are not modelled in this diagram.

Appendix 2

Comparison Methods C and E with Three versus Four traits

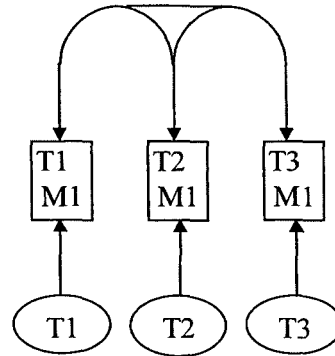
A: Method C (Latent Factor)

Three Traits



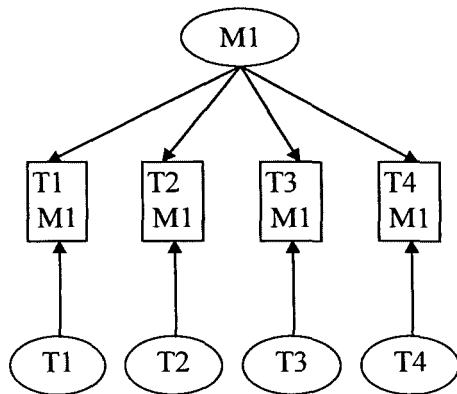
B: Method E (Correlated Uniqueness)

Three Traits



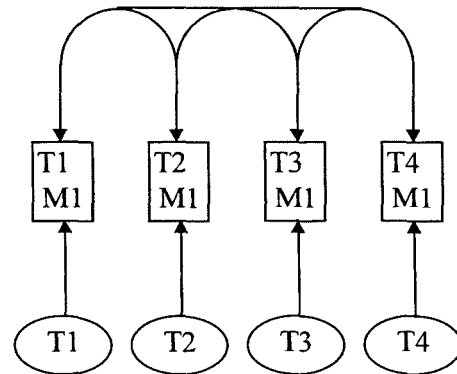
C: Method C (Latent Factor)

Four Traits



D: Method E (Correlated Uniqueness)

Four Traits



Note: This model is simplified so that only one method is displayed. T = Trait, M = Method. With three traits (quadrants A and B) the number of factor loadings ($N = 3$) equals the number of correlated uniqueness ($N = 3$). With four traits (quadrants C and D), the number of factor loadings ($N = 4$) does not equal the number of correlated uniqueness ($N = 6$). Hence, with three traits, Method Structures C and E are equivalent models (Kleinmann & Köller, 1997; Marsh & Grayson, 1995).

Appendix 3

Scales for Study A

Selection Fairness Survey (Gilliland & Honig, 1994a)

1 = Strongly disagree, 2 = Disagree; 3 = Neither; 4 = Agree; 5 = Strongly Agree

- 1 The type of questions asked during the selection process were directly related to a career with Shell
- 2 I am satisfied with the amount of feedback I received during the selection process
- 3 I feel the selection process cut down on favouritism that can sometimes be a problem when people are selected for jobs
4. Given my ability and experience, I was not evaluated correctly by the selection process. (R)
- 5 I feel Shell lied about the selection process and the way they choose people for careers (R)
- 6 Lack of interactive or two-way communication was a problem in the selection process (R)
7. The selection process did not capture the extent to which I am a hard worker (R)
- 8 I think some people would distort their responses during the selection process to try to make themselves look better
- 9 I was offered an explanation of the types of factors that affect the selection process decision
10. I was treated with warmth, sincerity and thoughtfulness during the selection process
- 11 The selection process was directly relevant to a Shell career because it involved the same things that are required in the career
- 12 The company should have been more honest with me when telling me about the position and my chances of being accepted (R)
- 13 In a way, I was able to conduct my own interview, asking questions about my career and Shell
- 14 I received an adequate explanation of how the process would be scored
15. The selection process got right down to what I could and could not do
16. Given my past experience looking for a job, I feel I received an appropriate evaluation
- 17 There did not appear to be any bias or discrimination on the basis of sex or anything
- 18 It would be easy for people to be dishonest when answering questions and make themselves look good
- 19 The questions asked of me during the selection process were neither relevant nor important for a Shell career (R)
20. I was given an adequate opportunity to demonstrate my skills and abilities
- 21 I am satisfied with the communication that occurred during the selection process
- 22 I was treated honestly and openly during the selection process
- 23 During the assessment centre I feel I was treated more like a number than a human being (R)
24. The outcome of the selection process was not a good reflection of my job capacities (R)
- 25 I thought you could beat the selection process if you were smart and gave the answers

- they were looking for
- 26 I am satisfied with how I was informed of the hiring decision
 - 27 It took a long time to hear back from Shell (R)
 - 28 The selection process was more like an interrogation - the people were cold and rigid (R).
 - 29 Some of the questions asked during the selection process were intrusive of my privacy
 - 30 It was made clear what was expected of me from the onset of the selection process.
 31. I had control over the factors that influenced my performance during the selection process
 - 32 I think that my hiring decision was affected by special treatment offered to some people (R)
 - 33 I was told how the selection process scores would be used to make a decision.
 - 34 I don't think that the selection process can predict whether or not I will be successful in a Shell career (R).
 - 35 I received information on the hiring decision in a timely manner
 - 36 Personal motives or biases appeared to influence the selection process (R)
 - 37 People were candid and frank with me during the selection process
 - 38 It was obvious how you should respond to some of the questions if you want to be accepted by Shell
 - 39 I was not offered sufficient opportunity to ask questions (R)
 40. The results of the selection process were consistent with how I view myself
 - 41 The recruiters were straightforward and sincere about the career and what it entails
 - 42 I can see a connection between the selection procedures and performance in a Shell career
 - 43 I was given a reasonable explanation for why the specific selection procedures were used to hire people.
 - 44 During the selection process, the people made the difference - they were friendly and made me feel at ease
 45. During the interview, I never got the chance to prove myself (R).
 - 46 I was asked questions that I feel were inappropriate or discriminatory
 - 47 I was provided with informative feedback on my performance

Psychological Contract (Rousseau, 1990)

1 = Not at all; 5 = Very Highly

<u>Employer Obligations</u>	<u>Employee Obligations</u>
1 Promotion	1 Working extra hours
2 High pay	2 Loyalty
3 Performance based pay	3 Volunteering to do non-required tasks
4 Training	4 Advance notice if taking a job elsewhere
5 Long term job security	5 Willingness to accept a transfer
6 Career development	6 Refusal to support Shell's competitors
7 Support with personal problems	7 Protection of proprietary information
	8 Spending a minimum of 2 years at Shell

Appendix 4
Gilliland's Unpublished SFS Factor Analysis

Original	Description	1	2	3	4	5	6	7
HO	The company should have been more honest when telling me about the position and my chances of being hired (R).	0.69						
SI	It was made clear what was expected of me from the onset of the selection process	0.68						
FB	I am satisfied with how I was informed of the hiring decision	0.65						
HO	People were candid and frank with me during the selection process	0.60						
IT	I was treated honestly and openly during the selection process.	0.59						
HO	They were straightforward and sincere about the job and what it entails.	0.57						
TWC	I am satisfied with the communication that occurred during the selection process.	0.56						
FB	I am satisfied with the amount of feedback I received during the selection process.	0.48						
FB	I was provided with informative feedback on my performance	0.42						
JR	The selection process was directly relevant to the job because it involved the same things that are required on the job	0.70						
OP	I was given an adequate opportunity to demonstrate my skills and abilities	0.65						
OP	During the selection process, I never got the chance to prove myself (R).	0.62						
OP	The selection process did not capture the extent to which I am a hard worker (R)	0.60						
OP	I <u>don't</u> think that the selection process can predict whether or not I will be successful on the job (R).	0.59						
JR	I can see a connection between the selection procedures and performance in a Shell career	0.57						
OP	The selection process got right down to what I could and couldn't do	0.56						

Original	Description	1	2	3	4	5	6	7
	Eigenvalue	10.50	2.55	1.82	1.39	1.21	1.20	1.11
	Percent of variance explained	31.80	7.70	5.50	4.20	3.70	3.60	3.40
	Cronbach Alpha	0.88	0.84	0.74	0.77	0.82	0.65	0.60

Note: Original = Original sub-scale. JR: job relatedness; OP: opportunity to perform; FB: feedback on performance; SI: selection information, HO: honesty in treatment; IE: interpersonal effectiveness; TWC: two-way communication; and BS: Bias Suppression

Appendix 5

Scales for Study B

Selection Fairness Survey (Gilliland & Honig, 1994a)

1 = Strongly disagree, 2 = Disagree; 3 = Neither; 4 = Agree; 5 = Strongly Agree

1. I feel the interview cut down on favouritism that can sometimes be a problem when people are selected for jobs.
2. The interview did not capture the extent to which I am a hard worker (R)
3. I was treated with warmth, sincerity and thoughtfulness during the interview
4. The interview was directly relevant to a Shell career because it involved the same things that are required in the career
5. Shell should have been more honest when telling me about the position and my chances of being accepted (R)
6. In a way, I was able to conduct my own interview, asking questions about my career and Shell
7. I received an adequate explanation of how the interview would be scored.
8. The interview got right down to what I could and couldn't do
9. There did not appear to be any bias or discrimination on the basis of sex, ethnic group
10. The questions asked of me during the interview were neither relevant nor important for a Shell career (R)
11. I was given an adequate opportunity to demonstrate my skills and abilities
12. I am satisfied with the communication that occurred during the interview.
13. I was treated honestly and openly during the interview.
14. During the interview I feel I was treated more like a number than a human being (R)
15. The interview was more like an interrogation - the people were cold and rigid (R)
16. Some of the questions asked during the interview were intrusive of my privacy (R)
17. It was made clear what was expected of me from the onset of the interview
18. I was told how the interview scores would be used to make a decision.
19. I don't think that the interview can predict whether or not I will be successful in a Shell career (R)
20. Personal motives or biases appeared to influence the interview (R)
21. The interviewers were candid and frank with me during the interview
22. I was not offered sufficient opportunity to ask questions (R)
23. The interviewers were straightforward and sincere about the career and what it entails
24. I can see a connection between the selection procedures and performance in a Shell career
25. I was given a reasonable explanation for why the specific selection procedures were used to hire people
26. During the interview, the people made the difference - they were friendly and made me feel at ease
27. During the interview, I never got the chance to prove myself (R)
28. I was asked questions that I feel were inappropriate or discriminatory (R)

Overall Procedural Fairness: Gilliland (1994)

1 = Strongly disagree, 2 = Disagree; 3 = Neither; 4 = Agree; 5 = Strongly Agree

PF1 Whether or not I get accepted, I feel the interview process is fair

PF2 Overall, I am satisfied with the interview process

Selection Motivation: Arvey, Strickland, Drauden and Martin (1990)

1 = Strongly disagree, 2 = Disagree; 3 = Neither; 4 = Agree; 5 = Strongly Agree

M1 Doing well at this interview is important to me

M2 I tried to do the very best I could at the interview

M3 I was extremely motivated to do well at this interview

M4 I didn't put much effort into this interview (R)

Selection Anxiety: Arvey, Strickland, Drauden and Martin (1990)

1 = Strongly disagree, 2 = Disagree; 3 = Neither; 4 = Agree; 5 = Strongly Agree

A1 During the interview I often thought about how poorly I was doing

A2 I was very anxious about having this interview

A3 I expect to be among the people who do really well at this interview (R)

A4 During the interview I found myself thinking about the consequences of being rejected

A5 During the interview, I got so nervous, I couldn't do as well as I should have

Job Search Self Esteem: Ellis and Taylor (1983)

1 = Strongly disagree, 7 = Strongly Agree

SE1 In general I am not very good at impressing potential employers with my qualifications (R)

SE2 I am confident of my ability to make a good impression in job selection procedures

SE3 If I am really interested in a job, I can persuade the employer to make me an offer

Selection Feedback: Gilliland and Honig (1994a)

1 = Strongly disagree, 2 = Disagree; 3 = Neither; 4 = Agree; 5 = Strongly Agree

FB1 I am satisfied with the amount of feedback I received during the selection process.

FB2 I am satisfied with how I was informed of the decision.

FB3 It took a long time to hear back from Shell. (R)

FB4 I received information on the selection decision in a timely manner.

FB5 I was provided with informative feedback on my performance.

Overall Distributive Fairness: Gilliland (1994)

1 = Strongly disagree, 2 = Disagree; 3 = Neither; 4 = Agree; 5 = Strongly Agree

DF1 I feel the decision was fair.

DF2 Overall, I am satisfied with the decision.

Equity: Gilliland (1994)

1 = Strongly disagree, 2 = Disagree; 3 = Neither; 4 = Agree; 5 = Strongly Agree

EQ1 Given my ability and experience, I was not evaluated correctly by the selection procedures.

EQ2 Given my past experience looking for a job, I feel I received an appropriate evaluation.

EQ3 The outcome of the selection process was not a good reflection of my job capabilities.

EQ4 The results of the selection process were consistent with how I view myself.

Self Efficacy: Jones (1986)

1 = Strongly disagree, 7 = Strongly Agree

SEF1 This Shell career is well within the scope of my abilities.

SEF2 I do not anticipate any problems in adjusting to work in this organisation.

SEF3 I feel I am overqualified for the Shell career.

SEF4 I have all the technical knowledge I need to deal with a Shell career, all I need now is practical experience .

SEF5 I feel confident that my skills and abilities would equal or exceed those of my future colleagues.

SEF6 My past experiences and accomplishments increase my confidence that I would be able to perform successfully in this organisation .

SEF7 I could handle a more challenging career than this one.

SEF8 Professionally speaking, this Shell career would exactly satisfy my expectations of myself .

Psychological Contract (Rousseau, 1990)

See Appendix 3

Socialisation Knowledge: Thomas & Anderson (1998)

1 = Not at all; 7 = Totally

- S1 I know how to get along with others in my team
- S2 I know the characters of others in my team
- S3 I enjoy spending time with others in my team
- S4 Others in my team usually tell me the team gossip/news
- S5 Others in my team usually include me in social outings
- S6 I can easily be identified as "one of the team"
- S7 I know who to trust in my team
- S8 I've made some close friends in my team
- R1 I understand what my personal responsibilities are
- R2 I know what my supervisor considers as good performance
- R3 I know the limits of my authority
- R4 I know what behaviour is rewarded
- R5 I know what it takes to do well
- O1 I know what Shell values
- O2 I am familiar with the history of Shell
- O3 I know the internal structure of Shell
- O4 I have learned how things really work at Shell
- O5 I am familiar with the unwritten rules of how things are done at Shell
- IR1 I feel there is someone to go to for advice related to training
- IR2 I have someone I feel comfortable going to if I need help preparing for an assignment/project
- IR3 I have someone I feel comfortable going to if I need help with personal problems

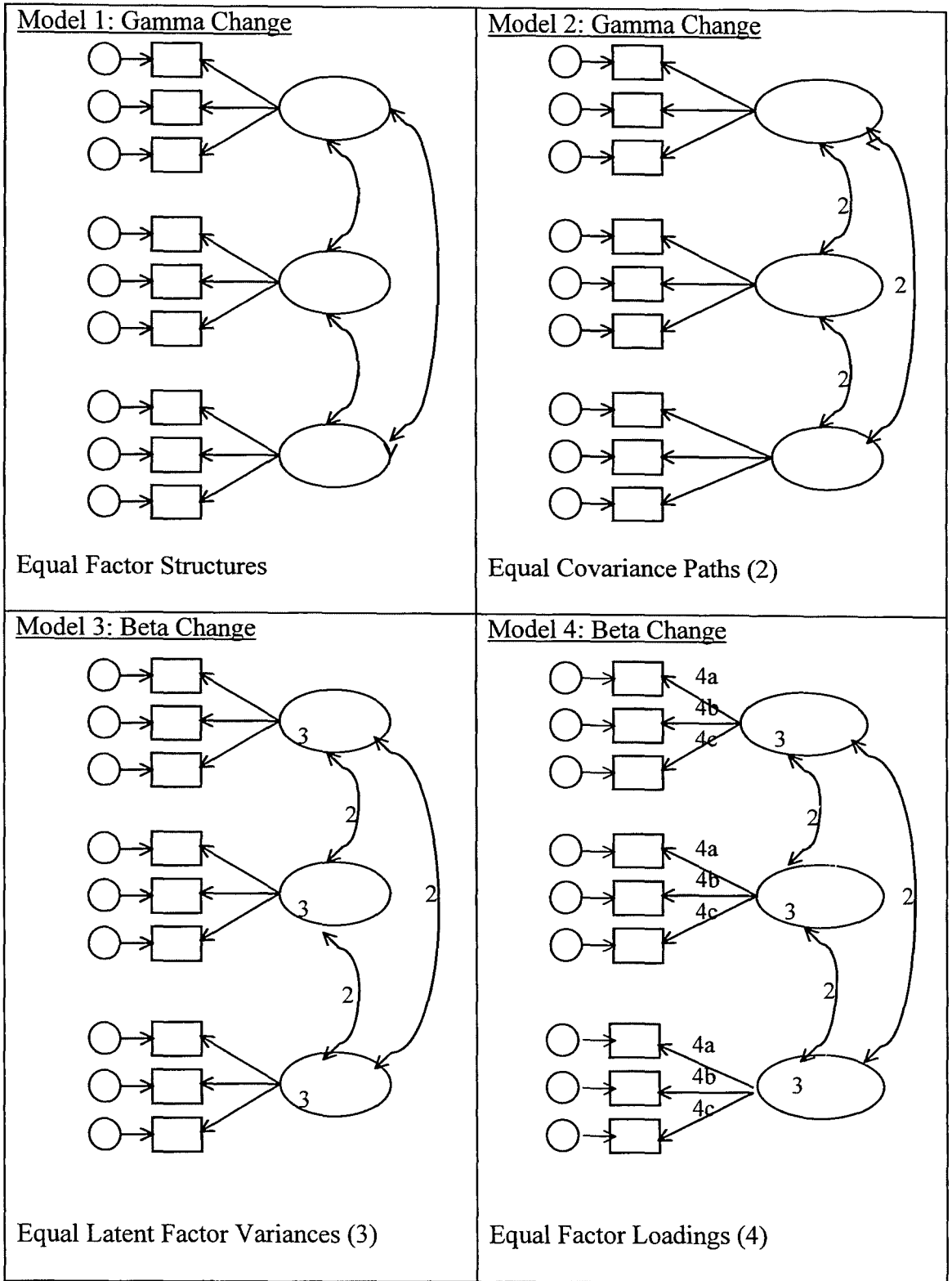
Organisational Commitment: Mowday, Porter & Boulian (1974)

1 = Strongly disagree, 2 = Moderately disagree; 3 = Slightly Disagree; 4 = Neither; 5 = Slightly Agree; 6 = Moderately Agree; 7 = Strongly Agree

- OC1 I am willing to put in a great deal of effort beyond that normally expected in order to help Shell be successful.
- OC2 I talk up Shell to my friends as a great organisation to work for
- OC3 I feel very little loyalty to Shell (R)
- OC4 I would accept almost any type of job assignment in order to keep working for Shell
- OC5 I find that my values and Shell's values are very similar
- OC6 I am proud to tell others that I am part of Shell.
- OC7 I could just as well be working a different type of organisation as long as the type of work was similar. (R)
- OC8 Shell really inspires the very best in the way of job performance.
- OC9 It would take very little to change my present circumstances to cause me to leave Shell.
- OC10 I am extremely glad that I chose Shell to work for over others I was considering at the time I joined.
- OC11 there's not much to be gained by sticking with Shell indefinitely (R)
- OC12 Often I find it difficult to disagree with shell's policies on important matters relating to its employees. (R)
- OC13 I really care about the fate of Shell.
- OC14 For me this is the best of all possible organisations to work for.
- OC15 Deciding to work for Shell was a definite mistake on my part (R)

Appendix 6

Examining Gamma and Beta Change



Key:



Latent Factor



Item



Error

Appendix 7:

Means, Standard Deviations, Kurtosis and Skewness for Study B Questionnaire Items

	Time One				Time Two				Time Three				Time Four				Time Five			
	Mean	SD	Kurt.	Skew.	Mean	SD	Kurt.	Skew.	Mean	SD	Kurt.	Skew.	Mean	SD	Kurt.	Skew.	Mean	SD	Kurt.	Skew.
<u>Motivation</u>																				
M1	4.72	.49	5.43	-1.88	4.60	.55	2.07	-1.17	4.60	.53	-0.46	-0.83	4.48	.59	1.83	-0.92	-	-	-	-
M2	4.86	.38	11.22	-3.03	4.63	.53	2.57	-1.29	4.83	.40	5.37	-2.21	4.60	.59	3.45	-1.52	-	-	-	-
M3	4.56	.64	4.45	-1.73	4.39	.68	0.39	-0.86	4.50	.65	0.68	-1.09	4.37	.70	1.21	-1.00	-	-	-	-
M4	4.59	.80	7.41	-2.57	4.44	.78	2.98	-1.63	4.55	.82	6.85	-2.47	4.43	.82	4.04	-1.84	-	-	-	-
<u>Anxiety</u>																				
A1	2.12	0.89	-0.24	0.53	2.25	1.05	-0.71	0.45	2.09	0.91	-0.05	0.60	2.34	1.03	-0.62	0.42	-	-	-	-
A2	2.88	1.05	-0.79	0.02	2.92	1.10	-0.82	-0.08	2.78	1.07	-0.86	0.10	2.94	1.12	-1.00	-0.14	-	-	-	-
A3	2.32	0.73	-0.14	0.12	2.42	0.85	-0.01	0.28	2.25	0.72	0.30	0.20	2.44	0.83	-0.10	0.24	-	-	-	-
A4	1.91	0.88	0.34	0.88	1.81	0.91	0.28	1.00	2.23	0.99	-0.55	0.54	2.46	1.15	-1.15	0.26	-	-	-	-
A5	2.17	0.96	-0.03	0.70	2.03	1.03	-0.31	0.73	2.12	0.85	0.07	0.56	2.16	1.03	0.15	0.81	-	-	-	-
<u>Self Esteem</u>																				
SE1	5.43	1.47	0.32	-1.03	5.22	1.47	-0.57	-0.63	5.45	1.34	0.50	-1.06	5.12	1.44	-0.60	-0.63	5.35	1.32	0.74	-1.05
SE2	5.32	1.16	0.98	-0.96	5.01	1.26	0.10	-0.66	5.41	1.06	0.93	-0.89	5.11	1.13	0.01	-0.59	5.31	1.13	1.36	-1.13
SE3	4.67	1.23	-0.03	-0.46	4.40	1.20	0.01	-0.28	4.86	1.25	0.11	-0.55	4.64	1.17	-0.17	-0.29	4.68	1.29	0.00	-0.51
<u>Overall Procedural Fairness</u>																				
PF1	-	-	-	-	4.01	0.69	1.69	-0.79	-	-	-	-	3.97	0.69	1.03	-0.67	3.88	0.78	1.90	-1.14
PF2	-	-	-	-	3.99	0.71	1.99	-0.98	-	-	-	-	3.92	0.71	1.61	-0.89	3.68	0.95	0.63	-1.00

	Time Five				Time Six			
	Mean	SD	Kurt.	Skew.	Mean	SD	Kurt.	Skew.
<u>Overall Distributive</u>								
<u>Fairness</u>								
DF1	3.70	0.99	0.51	-0.94	-	-	-	-
DF2	3.62	1.28	-0.87	-0.58	-	-	-	-
<u>Feedback</u>								
FB1	3.33	1.08	-0.68	-0.47	-	-	-	-
FB2	3.74	1.07	0.45	-1.01	-	-	-	-
FB3	4.17	1.16	1.14	-1.44	-	-	-	-
FB4	3.95	0.99	1.00	-1.09	-	-	-	-
FB5	3.41	1.08	-0.48	-0.56	-	-	-	-
<u>Equity</u>								
EQ1	3.51	1.07	-0.31	-0.62	-	-	-	-
EQ2	3.54	0.95	-0.08	-0.53	-	-	-	-
EQ3	3.29	1.22	-0.95	-0.33	-	-	-	-
EQ4	3.34	1.13	-0.66	-0.52	-	-	-	-
<u>Self-Efficacy</u>								
SEF1	5.91	0.84	0.46	-0.68	4.17	0.87	2.50	-1.37
SEF2	5.32	1.23	-0.03	-0.75	3.32	1.10	-1.08	-0.19
SEF3	2.62	1.27	-0.06	0.67	2.59	1.04	0.03	0.69
SEF4	4.40	1.65	-0.89	-0.28	2.99	1.20	-1.19	0.35
SEF5	5.28	1.12	0.23	-0.56	3.56	0.83	0.78	-0.86
SEF6	5.82	0.83	0.85	-0.62	4.16	0.69	0.53	-0.57
SEF7	4.05	1.39	-0.22	-0.09	3.54	0.90	-0.76	0.03
SEF8	5.18	1.24	0.33	-0.65	3.19	1.04	-0.55	-0.38

Time Six					Time Six				
	Mean	SD	Kurt.	Skew.		Mean	SD	Kurt.	Skew.
<u>Socialisation Knowledge</u>					<u>Organisational Commitment</u>				
<u>Social Knowledge</u>					OC1	5.78	1.04	0.89	-0.87
S1	5.54	0.86	0.49	-0.071	OC2	5.58	1.39	0.48	-0.98
S2	5.17	0.83	0.16	-0.33	OC3	5.83	1.30	2.29	-1.53
S3	5.44	0.90	0.25	-0.57	OC4	1.85	1.19	3.42	1.83
S4	4.60	1.45	-0.79	-0.53	OC5	4.90	1.42	-0.55	-0.44
S5	5.35	1.28	-0.27	-0.66	OC6	5.70	1.28	0.79	-1.13
S6	5.49	1.16	0.80	-0.97	OC7	4.45	1.70	-0.90	-0.42
S7	5.20	1.10	0.63	-0.64	OC8	4.51	1.29	-0.10	-0.35
S8	4.08	1.62	-0.86	0.19	OC9	5.77	1.43	1.36	-1.37
<u>Role Knowledge</u>					OC10	5.89	1.23	1.16	-1.20
R1	5.17	1.29	1.41	-1.08	OC11	4.30	1.52	-0.83	-0.12
R2	4.52	1.57	-0.14	-0.77	OC12	5.04	1.40	-0.70	-0.47
R3	4.75	1.24	0.42	-0.86	OC13	5.62	1.05	1.12	-0.89
R4	4.75	1.44	0.11	-0.71	OC14	4.64	1.41	-0.10	-0.30
R5	4.94	1.28	0.96	-1.04	OC15	6.57	0.97	7.86	-2.77
<u>Organisational Knowledge</u>									
O1	5.15	1.07	0.38	-0.59					
O2	4.76	1.29	1.24	-1.19					
O3	4.73	1.14	0.31	-0.59					
O4	4.53	1.13	-0.11	-0.27					
O5	4.20	1.13	-0.35	0.20					
<u>Interpersonal Resources Knowledge</u>									
P1	5.47	1.52	0.12	-1.05					
P2	5.52	1.28	0.84	-1.11					
P3	3.72	1.71	-0.90	0.14					

Appendix 8

Means, Standard Deviations, and Correlation Matrix for Study B Scales at Times 1 and 2

Measure	Mn.	SD	N	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
<u>Biographic</u>																		
1. Age	24.61	3.03	1345	1.00														
2. Gender ^a	1.28	0.45	1376	-.21*	1.00													
3. Ethnic ^a	1.14	0.35	1373	-.03	.04	1.00												
4. Employ ^a	1.37	0.48	1235	.47*	-.09*	.09 [†]	1.00											
<u>Time One</u>																		
5. Int Exper. ^a	1.86	0.35	834	.05	.06	-.05	.01	1.00										
6. Fair 1	3.70	0.49	835	.01	-.00	.05	-.03	.01	1.00									
7. Fair 2	3.39	0.60	833	.06	.03	-.03	-.03	.02	.37*	1.00								
8. Fair 3	3.89	0.57	834	-.10 [†]	.04	-.17*	-.05	-.00	.42*	.29*	1.00							
9. Fair 4	3.59	0.60	838	-.01	.09	.04	-.05	.05	.34*	.52*	.31*	1.00						
10. Fair 5	3.15	0.70	832	.14*	.04	.01	-.00	.06	.20*	.30*	.11 [†]	.25*	1.00					
11. Motivation	4.72	0.42	834	.01	.02	.01	-.02	.04	.20*	.16*	.23*	.27*	.14*	1.00				
12. Anxiety	2.27	0.68	831	-.09 [†]	.07 [†]	.04	-.08 [†]	-.08 [†]	-.23*	-.28*	-.24*	-.16*	-.02	.02	1.00			
13. S-Esteem	5.14	0.97	838	.06	.05	.04	.01	.11 [†]	.21*	.30*	.18*	.25*	.13*	.14*	-.43*	1.00		
14. Attract.	4.65	0.59	840	.04	.02	.03	-.00	-.02	.19*	.15*	.21*	.23*	.09 [†]	.37*	.01	.13*	1.00	
15. Intn. Acpt.	4.20	0.75	841	.06	.06	.04	-.03	.03	.12*	.12*	.17*	.18*	.13*	.35*	.09 [†]	.07 [†]	.45*	1.00

Measure	Mn.	SD	N	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
<u>Time Two</u>																		
16. Language ^a	1.20	0.40	771	.19*	-.07	.34*	.09 [†]	-.03	.06	.03	-.09 [†]	.01	.01	-.01	-.05	.12 [†]	.02	.10 [†]
17. Fair 1	4.13	0.50	777	-.01	.05	.12*	.00	-.01	.28*	.19*	.27*	.17*	.02	.18*	-.10 [†]	.13*	.12*	.14*
18. Fair 2	3.40	0.68	778	.04	.04	.03	.01	-.02	.20*	.40*	.19*	.25*	.12 [†]	.11 [†]	-.21*	.23*	.08 [†]	.09 [†]
19. Fair 3	4.43	0.49	778	-.02	.01	-.09 [†]	-.06	-.00	.25*	.17*	.42*	.25*	.10 [†]	.24*	-.17*	.18*	.23*	.20*
20. Fair 4	3.55	0.64	779	.02	.08 [†]	.05	.00	-.01	.22*	.33*	.21*	.47*	.15*	.18*	-.15*	.22*	.15*	.15*
21. Fair 5	3.01	0.73	781	.14*	-.01	-.01	.03	.06	.11 [†]	.20*	.03	.15*	.40*	.03	-.08 [†]	.13*	.05	.08 [†]
22. Overall PF	4.00	0.64	777	-.10 [†]	.07*	.10 [†]	-.01	.01	.23*	.21*	.21*	.25*	.06	.15*	-.14*	.15*	.18*	.12 [†]
23. Motivation	4.54	0.50	776	.06	.06	.06	-.02	.00	.20*	.20*	.28*	.28*	.14*	.58*	-.07	.20*	.34*	.40*
24. Anxiety	2.26	0.74	774	-.07 [†]	.06	.03	-.07	-.02	-.13*	-.19*	-.15*	-.11 [†]	-.03	.00	.59*	-.29*	-.01	.05
25. S-Esteem	4.88	1.03	766	.05	-.03	.07	.11 [†]	.02	.19*	.25*	.13*	.23*	.12*	.14*	-.41*	.60*	.12*	.05
26. Attract.	4.60	0.60	777	.03	.03	-.00	.06	-.01	.11 [†]	.10 [†]	.13*	.15*	.07	.32*	-.06	.10 [†]	.50*	.35*
27. Intent Acpt.	4.20	0.72	778	.05	.07	.08 [†]	.02	.06	.13*	.18*	.17*	.20*	.17*	.35*	-.03	.11 [†]	.42*	.66*
<u>Interview Scores</u>																		
28. Overall Pot.	6.25	1.29	1215	.16*	.01	-.02	.11*	.07 [†]	-.01	.06	-.02	-.02	.00	.05	-.07	.11 [†]	-.03	-.02
29. Org. Decis. ^a	1.47	0.50	1174	.27*	-.05	-.03	.14*	-.01	-.06	.03	-.00	-.01	-.02	.02	-.04	.04	-.01	.06
30. Ap. Decis. ^a	1.07	0.25	558	-.14*	.07	.07	-.09 [†]	.09 [†]	.01	-.01	-.01	.00	-.03	-.01	-.17 [†]	.15 [†]	.02	-.10

Measure	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.
<u>Time Two</u>															
16. Language ^a	1.00														
17. Fair 1	.07	1.00													
18. Fair 2	.03	.44*	1.00												
19. Fair 3	-.03	.45*	.28*	1.00											
20. Fair 4	.06	.37*	.51*	.30*	1.00										
21. Fair 5	-.00	.12*	.27*	.04	.24*	1.00									
22. Overall PF	.01	.55*	.50*	.38*	.47*	.15*	1.00								
23. Motivation	.03	.33*	.26*	.31*	.31*	.04	.27*	1.00							
24. Anxiety	-.08 [†]	-.25*	-.31*	-.26*	-.23*	-.06	-.24*	-.14*	1.00						
25. S-Esteem	-.08 [†]	.25*	.34*	.20*	.31*	.15*	.30*	.23*	-.49*	1.00					
26. Attract.	-.04	.21*	.10 [†]	.22*	.21*	.07	.18*	.35*	-.04	.13*	1.00				
27. Intent Acpt.	.08 [†]	.25*	.16*	.23*	.17*	.09 [†]	.19*	.41*	-.03	.13*	.48*	1.00			
<u>Interview Scores</u>															
28. Overall Pot.	.02	.11 [†]	.12*	.00	.06	-.02	.01	.06	-.17*	.13*	.02	-.03	1.00		
29. Org. Decis. ^a	.01	.08 [†]	.07	.04	.05	-.01	.00	.01	-.11 [†]	.09 [†]	.05	.02	.73*	1.00	
30. Ap. Decis. ^a	.04	.01	.00	-.11	-.02	.06	.02	-.08	-.08	.06	-.05	-.10	.02	-	1.00

Note. $p < .001$; [†] $p < .01$; [†] $p < .05$. ^a ordinal data with Spearman rho correlations. Correlations were calculated using pairwise deletion. Int Exper. = Previous Interview Experience; Fair 1 = Interpersonal Effectiveness; Fair 2 = Opportunity to Perform; Fair 3 = Bias Suppression; Fair 4 = Career Relevance; Fair 5 = Informativeness; S-Esteem = Self-Esteem; Attract. = Attractiveness; Intn. Acpt. = Intention to Accept; Overall PF = Overall Procedural Fairness; Overall Pot. = Overall Potential; Org. Decis. = Organisational Decision-Making; Ap. Decis. = Applicant decision-Making

Appendix 9

Means, Standard Deviations, and Correlation Matrix for Study B Scales at Times 3 to 6

Measure	Mn.	SD	N	1.	2.	3.	4.	31.	32.	33.	34.	35.	36.	37.	38.	39.	40.	41.
<u>Time Three</u>																		
31. AC Exper. ^a	1.50	0.5	577	-.12 [†]	.08 [†]	-.05	-.09 [†]	1.00										
32. Fair 1	3.81	0.49	584	.01	.04	.08 [†]	.02	-.03	1.00									
33. Fair 2	3.47	0.57	589	-.06	.12 [†]	-.04	-.02	.02	.30*	1.00								
34. Fair 3	3.93	0.58	584	-.11 [†]	.05	-.04	-.01	-.01	.39*	.33*	1.00							
35. Fair 4	3.71	.059	586	-.07	.10 [†]	-.03	.01	-.00	.30*	.56*	.31*	1.00						
36. Fair 5	3.50	0.66	581	.09 [†]	.04	-.05	.00	.02	.27*	.23*	.19*	.23*	1.00					
37. Motivation	4.64	0.43	587	-.07	.07	-.02	-.04	-.01	.23*	.19*	.23*	.27*	.09 [†]	1.00				
38. Anxiety	2.31	0.68	588	-.06	.03	.05	-.06	-.10 [†]	-.19*	-.24*	-.21*	-.20*	-.12 [†]	.02	1.00			
39. S-Esteem	5.24	0.94	583	-.03	.08	.12	.02	.04	.24*	.23*	.20*	.21*	.08	.15*	-.38*	1.00		
40. Attract.	4.58	0.56	588	.11 [†]	-.03	.08	.08	-.00	.20*	.21*	.17*	.21*	.08	.40*	.05	.10 [†]	1.00	
41. Intent Acpt.	4.07	0.79	589	.10 [†]	.06	.03	.07	-.00	.17*	.25*	.17*	.22*	.06	.38*	.09 [†]	.05	.55*	1.00
<u>Time Four</u>																		
42. Language ^a	1.59	0.49	493	.34*	-.15*	-.01	.02	-.07	.00	-.02	-.07	-.06	.09 [†]	-.15*	-.17*	.06	.03	-.03
43. Fair 1	4.05	0.55	488	.06	.08	.00	.04	-.09	.40*	.26*	.25*	.21*	.16*	.16*	-.13 [†]	.14 [†]	.12 [†]	.15 [†]
44. Fair 2	3.34	0.65	493	-.02	-.00	.02	.09	-.03	.26*	.49*	.19*	.34*	.24*	.11 [†]	-.23*	.16*	.12 [†]	.13 [†]
45. Fair 3	4.35	0.50	491	-.02	.05	-.01	.02	-.06	.25*	.23*	.47*	.19*	.15 [†]	.18*	-.21*	.17*	.12 [†]	.14 [†]
46. Fair 4	3.69	0.63	491	-.16*	.14 [†]	-.05	-.01	-.04	.22*	.44*	.18*	.57*	.20*	.15*	-.13 [†]	.10 [†]	.16*	.17*
47. Fair 5	3.40	0.73	486	.05	.04	.01	-.05	.04	.25*	.26*	.20*	.27*	.48*	.15*	-.11 [†]	.08	.12 [†]	.14 [†]
48. Overall PF	3.94	0.65	494	-.02	.03	.01	.02	-.08	.24*	.29*	.23*	.27*	.16*	.08	-.17*	.14 [†]	.09	.11 [†]
49. Motivation	4.48	0.52	503	-.07	.09 [†]	-.04	-.06	.02	.20*	.23*	.27*	.30*	.08	.63*	-.04	.16*	.31*	.34*
50. Anxiety	2.47	0.80	503	-.12 [†]	.09 [†]	.06	-.06	-.08	-.06	-.17*	-.07	-.06	-.05	.10 [†]	.66*	-.31*	.09 [†]	.14 [†]

Measure	Mn.	SD	N	1.	2.	3.	4.	31.	32.	33.	34.	35.	36.	37.	38.	39.	40.	41.
51. S-Esteem	4.96	1.01	497	-.02	.06	.02	.05	.13 [†]	.13 [†]	.21*	.18*	.24*	.10 [†]	.10 [†]	-.37*	.57*	.03	-.01
52. Attract.	4.54	0.63	492	-.00	.01	.01	.03	.04	.23*	.23*	.18*	.23*	.14 [†]	.32*	-.02	.11 [†]	.59*	.44*
53. Intent Acpt.	4.03	0.80	491	.04	.07	.07	.03	.00	.15*	.18*	.15*	.20*	.07	.32*	.03	.01	.47*	.74*
<u>Time Five</u>																		
54. Equity	3.42	0.92	446	-.02	.07	-.04	-.03	.02	.14 [†]	.22*	.11	.23*	.11 [†]	.09	-.09	.06	.06	.05
55. Feedback	3.72	0.73	436	-.10 [†]	.16*	.06	.02	.07	.17*	.20*	.16 [†]	.23*	.11 [†]	.11 [†]	-.09	.12 [†]	.05	.09
56. Overall PF	3.78	0.79	447	-.02	-.01	.02	.02	-.03	.15 [†]	.26*	.13 [†]	.22*	.14 [†]	.06	-.13 [†]	.06	.08	.05
57. Overall DF	3.66	1.05	447	-.00	.04	-.02	-.02	.02	.15 [†]	.10	.10 [†]	.11 [†]	.10 [†]	.10 [†]	-.01	.08	.03	-.02
58. S-Esteem	5.11	1.02	443	.02	.03	.03	.02	.14 [†]	.20*	.20*	.14 [†]	.14 [†]	.12 [†]	.16*	-.34*	.60*	.08	.02
59. S-Efficacy	5.51	0.69	435	.10 [†]	.05	.16*	.10 [†]	.07	.18*	.18*	.19*	.12 [†]	.13 [†]	.25*	-.18*	.28*	.22*	.19*
60. Attract.	4.47	0.73	442	.02	.01	.04	.06	.02	.13 [†]	.22*	.23*	.21*	.06	.21*	-.03	.07	.41*	.33*
61. Exp. Tenur.	4.94	1.15	222	.18 [†]	-.13 [†]	.01	.10	-.08	-.04	.09	.15*	.05	.14 [†]	.18 [†]	-.04	.09	.23*	.32*
<u>AC Scores</u>																		
62. Overall Pot.	6.57	0.88	640	-.15*	.07	.03	-.11 [†]	.07	.05	.01	.06	-.04	-.12 [†]	.03	-.05	.11 [†]	-.03	-.16
63. Org. Decis. ^a	1.50	0.50	601	.06	-.03	-.08 [†]	-.04	-.00	.03	.03	.07	-.01	.04	.06	.03	.03	.07	-.03
64. Ap. Decis. ^a	1.80	0.40	276	.10	.04	-.07	.03	-.01	.04	.06	.03	.06	-.01	.23*	.00	.01	.28*	.34*
<u>Time 6</u>																		
65. Training	6.40	4.86	96	-.14	.00	.12	.11	.03	-.01	.20	.02	.19	-.02	-.11	-.20	.20	.11	.02
66. M. Contact	2.48	1.30	103	.07	-.08	.02	.01	.11	.08	.09	-.07	.00	.20	-.11	.05	.00	.12	.05
67. M. Quality	3.99	0.66	100	.12	-.12	.10	.11	-.18	-.15	.07	.20	-.05	-.05	.08	-.06	.23 [†]	.06	.23 [†]
68. Soc. Know.	5.12	0.75	106	-.00	-.06	.00	-.04	.19	-.12	.02	-.16	.08	.03	-.02	.03	.13	-.06	.08
69. Role Know.	4.79	1.16	107	.13	-.08	.06	.07	-.04	-.24 [†]	.03	.03	.01	.04	-.02	-.01	.11	-.10	.14
70. Org. Know.	4.65	0.87	110	-.13	-.01	-.01	-.02	.09	.10	.22 [†]	.16	.12	.03	.09	-.18	.17	.12	.01
71. IR Know.	4.94	1.22	110	.12	.13	.03	.03	-.00	-.13	-.16	.04	-.05	.18	-.03	-.07	.04	-.10	.01

Measure	Mn.	SD	N	1.	2.	3.	4.	31.	32.	33.	34.	35.	36.	37.	38.	39.	40.	41.
72. ER PC Vio.	2.06	0.80	109	-.03	.17	.09	.01	.01	.15	-.04	.02	.01	.07	.07	-.07	.07	.08	-.10
73. Org. Com.	5.10	0.75	102	.02	-.12	-.09	-.07	.25 [†]	-.02	-.03	.01	.14	.07	.03	.14	-.04	.03	-.01
74. Job Satisf.	3.82	0.95	109	.04	-.02	-.05	-.04	.10	-.15	.07	.01	.10	-.08	.14	.05	.04	.06	.05
75. Attrac.	4.39	0.61	111	.02	-.10	-.03	.04	.15	.06	.03	-.01	.18	.01	.04	-.03	.11	.03	.05
76. Exp. Tenur.	4.94	1.18	103	.03	-.15	-.07	-.01	.00	-.13	-.07	-.00	.05	.11	.09	.18	.03	-.04	.02

Measure	42.	43.	44.	45.	46.	47.	48.	49.	50.	51.	52.	53.	54.	55.	56.	57.	58.	59.
<u>Time Four</u>																		
42. Language ^a	1.00																	
43. Fair 1	-.02	1.00																
44. Fair 2	.08	.47*	1.00															
45. Fair 3	.02	.49*	.34*	1.00														
46. Fair 4	-.07	.47*	.58*	.34*	1.00													
47. Fair 5	.06	.40*	.40*	.21*	.38*	1.00												
48. Overall PF	.03	.56*	.59*	.33*	.54*	.39*	1.00											
49. Motivation	-.13 [†]	.28*	.23*	.24*	.20*	.16*	.19*	1.00										
50. Anxiety	-.17*	-.15*	-.30*	-.13 [†]	-.14*	-.06	-.27*	.03	1.00									
51. S-Esteem	.01	.25*	.34*	.17*	.22*	.16*	.27*	.14 [†]	-.43*	1.00								
52. Attract.	-.01	.27*	.29*	.25*	.35*	.22*	.28*	.38*	.01	.06	1.00							
53. Intent Acpt.	-.02	.19*	.17*	.16*	.22*	.15*	.16*	.41*	.14*	.00	.52*	1.00						
<u>Time Five</u>																		
54. Equity	-.04	.31*	.34*	.21*	.24*	.17*	.28*	.22*	-.15 [†]	.21*	.11 [†]	.08	1.00					
55. Feedback	-.09	.29*	.28*	.25*	.27*	.24*	.28*	.20*	.00	.12 [†]	.21*	.17 [†]	.43*	1.00				

Measure	42.	43.	44.	45.	46.	47.	48.	49.	50.	51.	52.	53.	54.	55.	56.	57.	58.	59.
56. Overall PJ	-.06	.35*	.39*	.30*	.31*	.22*	.43*	.15 [†]	-.18*	.16 [†]	.17 [†]	.09	.65*	.50*	1.00			
57. Overall DF	-.06	.22*	.23*	.15 [†]	.15 [†]	.07	.20*	.14 [†]	-.08	.18*	.07	.04	.80*	.40*	.60*	1.00		
58. S-Esteem	.04	.14 [†]	.21*	.15 [†]	.15 [†]	.10	.17*	.09	-.40*	.67*	.01	-.11 [†]	.16*	.07	.13 [†]	.20*	1.00	
59. S-Efficacy	.03	.14 [†]	.15 [†]	.13 [†]	.13 [†]	.12 [†]	.12 [†]	.27*	-.08	.21*	.24*	.25*	.03	.17*	.08	.02	.26*	1.00
60. Attract.	-.07	.29*	.24*	.25*	.29*	.16 [†]	.26*	.34*	.05	.03	.58*	.42*	.34*	.32*	.40*	.24*	.03	.30*
61. Exp. Tenur.	.04	.09	.07	.06	.11	.14	.11	.07	-.10	.01	.25*	.32*	.12	.06	.20 [†]	.09	.09	.21 [†]
<u>AC Scores</u>																		
62. Overall Pot.	-.15*	.10 [†]	.10 [†]	.07	.11 [†]	-.02	.07	.10 [†]	-.14 [†]	.19*	.04	.18*	.45*	.17*	.30*	.45*	.22*	.09
63. Org. Decis. ^a	-.09	.13 [†]	.10 [†]	.09	.10 [†]	.07	.09 [†]	.06	-.10 [†]	.16 [†]	.08	.01	.69*	.27*	.48*	.72*	.18*	.05
64. Ap. Decis. ^a	-.04	.09	-.04	-.02	-.01	.01	.08	.13 [†]	.10	-.09	.22*	.38*	.05	.05	.07	.10	-.11	.14 [†]
<u>Time 6</u>																		
65. Training	.00	.01	.05	-.02	.03	.02	.18	-.18	-.14	.11	-.03	-.15	.13	.09	.04	.13	.11	-.09
66. M. Contact	.21	-.16	-.06	.06	.02	-.04	-.07	-.08	-.04	-.21	-.07	-.00	-.04	-.09	.09	-.10	-.07	-.06
67. M. Quality	-.19	.17	.22 [†]	.16	.10	.21	.05	.36*	.16	.17	.14	.28 [†]	.05	-.01	.17	.08	.11	.15
68. Soc. Know.	-.15	-.02	.04	.10	-.01	-.01	-.17	.14	.03	-.07	.02	-.01	-.11	.03	.08	-.08	.15	.01
69. Role Know.	.01	.04	.06	.08	-.01	.08	-.13	.12	.15	.02	.22 [†]	.02	.02	-.01	.07	.03	.13	.07
70. Org. Know.	-.19	.15	.19	.12	.12	.11	.07	.15	-.04	.10	.32 [†]	-.06	.10	.32 [†]	.13	.18	.15	.19
71. IR Know.	.10	.10	.17	.10	-.02	.25 [†]	-.10	.08	.10	-.10	.22 [†]	.12	.01	.05	.20 [†]	.07	.06	.00
72. ER PC Vio.	-.01	.08	-.08	-.06	-.13	.04	.04	-.10	-.09	.13	-.22	-.09	.17	-.15	-.04	-.13	.07	-.04
73. Org. Com.	.16	.01	.08	.15	.19	.15	.08	.09	.14	-.23 [†]	.15	.01	-.10	.21	.14	.10	-.08	.18
74. Job Satisf.	.06	-.02	-.01	.12	.05	-.03	-.09	.19	.09	-.21 [†]	.04	-.09	-.14	-.04	.01	-.02	-.11	.19
75. Attract.	.01	.03	.07	.10	.13	.01	.05	.09	.14	-.16	.31 [†]	.09	-.03	.14	.13	-.04	-.07	.19
76. Exp. Tenur.	.01	-.05	-.08	.13	.01	.13	-.07	-.03	.17	-.22 [†]	.13	-.06	-.06	.17	.02	-.05	-.05	-.09

Measure	60.	61.	62.	63.	64.	65.	66.	67.	68.	69.	70.	71.	72.	73.	74.	75.	76.
<u>Time Five</u>																	
60. Attract.	1.00																
61. Exp. Tenur.	.33*	1.00															
<u>AC Scores</u>																	
62. Overall Pot.	.15 [†]	-.10	1.00														
63. Org. Decis. ^a	.33*	.13	.60	1.00													
64. Ap. Decis. ^a	.24*	.25*	-.03	.07	1.00												
<u>Time 6</u>																	
65. Training	-.03	-.04	.05	-	-	1.00											
66. M. Contact	-.18	-.06	-.20 [†]	-	-	-.02	1.00										
67. M. Quality	.20	.12	.04	-	-	-.16	-.36*	1.00									
68. Soc. Know.	-.10	-.16	-.15	-	-	-.14	.11	.15	1.00								
69. Role Know.	-.05	.08	-.20 [†]	-	-	-.11	-.02	.42*	.36*	1.00							
70. Org. Know.	.18	.03	.06	-	-	.18	-.10	.23 [†]	.23 [†]	.40*	1.00						
71. IR Know.	.02	.12	-.21 [†]	-	-	-.15	.01	.30 [†]	.54*	.49*	.23 [†]	1.00					
72. ER PC Vio.	-.01	.09	.08	-	-	.02	-.10	-.13	-.19	-.28 [†]	-.25 [†]	-.20 [†]	1.00				
73. Org. Com.	.11	.05	-.10	-	-	-.02	.31 [†]	.05	.20 [†]	.20 [†]	.16	.34*	-.33*	1.00			
74. Job Satisf.	-.05	-.05	-.14	-	-	-.04	.14	.23 [†]	.28 [†]	.42*	.24 [†]	.29 [†]	-.54*	.45*	1.00		
75. Attract.	.16	.08	-.13	-	-	.12	.03	.08	.18	.28 [†]	.28 [†]	.28 [†]	.43*	.63*	.44*	1.00	
76. Exp. Tenur.	-.03	.48*	-.22 [†]	-	-	.02	.09	.01	.26 [†]	.30 [†]	.10	.26 [†]	-.32*	.43*	.41*	.44*	1.00

Note. * $p < .001$; [†] $p < .01$; [‡] $p < .05$. ^a Spearman rho correlations. AC Exper. = Assessment Centre Experience; Fair 1 = Interpersonal Effectiveness; Fair 2 = Opportunity to Perform; Fair 3 = Bias Suppression; Fair 4 = Career Relevance; Fair 5 = Informativeness; S-Esteem = Self-Esteem; Attract. = Attractiveness; Intn. Acpt. = Intention to Accept; Overall PF = Overall Procedural Fairness; Overall Pot. = Overall Potential; Org. Decis. = Organisational Decision-Making; Ap. Decis. = Applicants Decision-Making; Overall DF = Overall Distributive Fairness; S-Efficacy = Self-Efficacy; M. Contact = Manager Contact; M. Quality = Manager Relationship Quality; Soc. Know. = Social Knowledge; Role Know. = Role Knowledge; Org. Know. = Organisational Knowledge; IR Know = Interpersonal Resources Knowledge; ER PC Vio. = Employer Psychological Contact Violation.

Appendix 10

Interactions Between Feedback and the Procedural Justice Rules on Post-Decision Outcome Measures

Figure 1: The Interaction Between Feedback (Time 5) and Career Relevance (Time 4) on Organisational Attractiveness (Time 5)

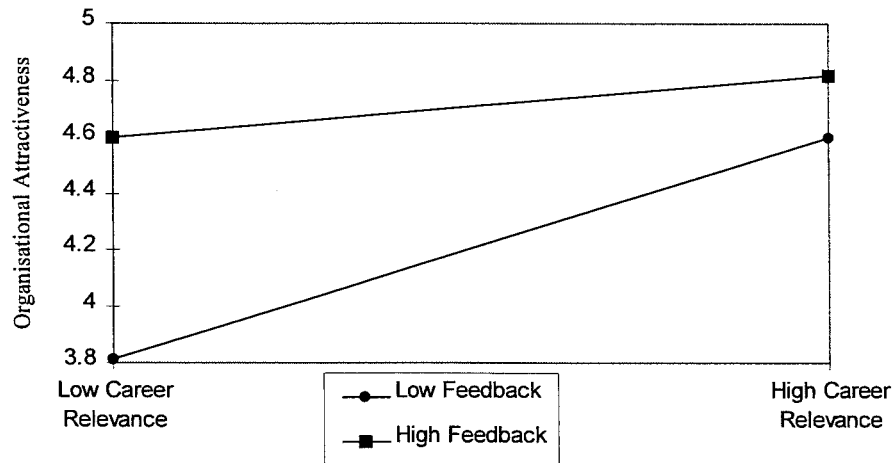


Figure 2: The Interaction Between Feedback (Time 5) and Career Relevance (Time 4) on Offer Acceptance Decisions (Time 5)

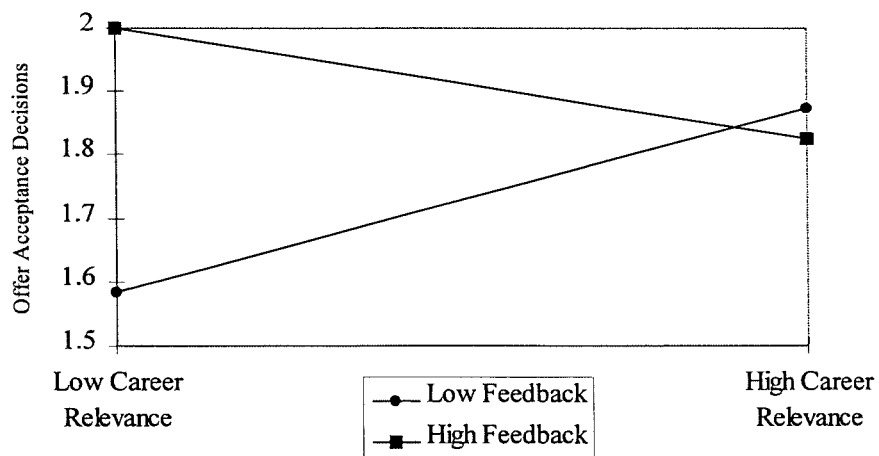
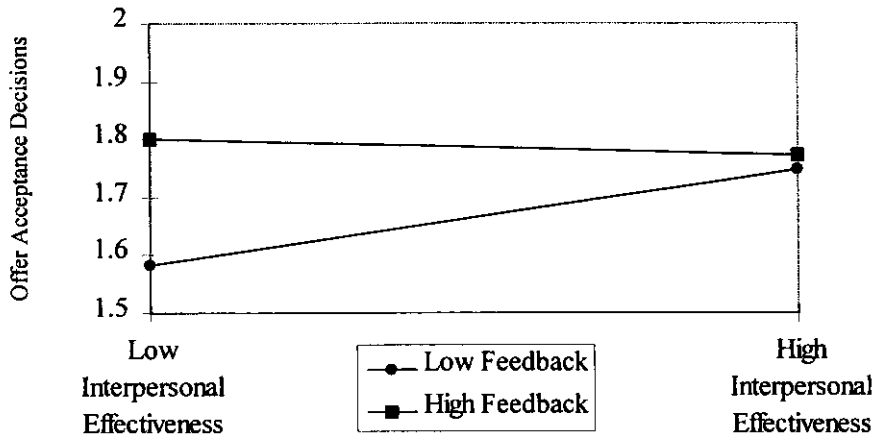


Figure 3: The Interaction Between Feedback (Time 5) and Interpersonal Effectiveness (Time 4) on Offer Acceptance Decisions (Time 5)



Appendix 11

Thorndike's (1949) Case 1 Formulae for Correction of Restriction of Range

The following formula is used when restriction is produced by selection on the basis of a variable X_1 (i.e. the predictor) and there is knowledge of the standard deviation in X_1 for both restricted (i.e. selected applicants only) and unrestricted groups (i.e. all applicants):

$$R_{12} = r_{12} \left(\frac{\sigma_{unrestricted}}{\sigma_{restricted}} \right) / \sqrt{1 - r_{12}^2 + r_{12}^2 \left(\frac{\sigma_{unrestricted}}{\sigma_{restricted}} \right)^2}$$

Where, R_{12} = the estimate of the correlation in an unrestricted sample; r_{12} = the correlation found with the restricted sample; $\sigma_{unrestricted}$ = the standard deviation of the measure in the unrestricted population; and $\sigma_{restricted}$ = the standard deviation of the measure in the restricted population

Cited in Guilford (1965)

Appendix 12

Suggested SFS Procedural Rules Scales for Future Research

(i) Interpersonal Treatment

1. I was treated with warmth, sincerity and thoughtfulness during the selection process
2. I was treated honestly and openly during the selection process.
3. During the selection process I feel I was treated more like a number than a human being
4. The selection process was more like an interrogation - the people were cold and rigid (R).
5. People were candid and frank with me during the selection process
6. During the selection process, the people made the difference - they were friendly and made me feel at ease

(ii) Career Relevance

7. The type of questions asked during the selection process were directly related to a career with Shell
8. The selection process was directly relevant to a Shell career because it involved the same things that are required in the career
9. The questions asked of me during the selection process were neither relevant nor important for a Shell career (R)
10. I don't think that the selection process can predict whether or not I will be successful in a Shell career (R).
11. I can see a connection between the selection procedures and performance in a Shell career

(iii) Informativeness

12. I was offered an explanation of the types of factors that affect the selection process decision
13. I received an adequate explanation of how the selection process would be scored.
14. It was made clear what was expected of me from the onset of the selection process.
15. I was told how the selection process scores would be used to make a decision.
16. I was given a reasonable explanation for why the specific selection procedures were used to hire people.

(iv) Two way communication

21. Lack of interactive or two-way communication was a problem in the selection process
22. In a way, I was able to conduct my own interview, asking questions about my career and Shell
23. I was not offered sufficient opportunity to ask questions (R)
24. The recruiters were straightforward and sincere about the career and what it entails

(v) Opportunity to Perform

25. The selection process did not capture the extent to which I am a hard worker (R)
26. The selection process got right down to what I could and could not do
27. I was given an adequate opportunity to demonstrate my skills and abilities
28. During the selection process, I never got the chance to prove myself (R).
29. During the selection process, I was able to communicate my capabilities.

(vi) Bias Suppression

26. There did not appear to be any bias or discrimination on the basis of sex or anything
27. Some of the questions asked during the selection process were intrusive of my privacy
28. Personal motives or biases appeared to influence the selection process
29. I think that the hiring process is affected by special treatment offered to some people
30. I was asked questions that I feel were discriminatory