The Psychological Impact of a Personnel Selection Process on Applicants of English Speaking and Non-English Speaking Backgrounds

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Table of Contents

List of Figures

List of Tables

Abstract

The central focus of applicant reactions research has been applicant's perceptions of fairness and related organisational outcomes. Limited research has examined the psychological impact of selection process participation, and the related personal outcomes. Research which has considered applicant wellbeing has assessed the impact of attending assessment centres rather than more commonly used selection procedures, such as psychological testing. The current study using a graduating sample (N = 120) sought to explore the psychological impact of selection process participation. Psychological impact was operationalised as the direct effect that taking part in a selection process, the procedures involved, and the subsequent outcome had on an applicant's wellbeing.

The influences of selection procedure type and language background on wellbeing were also examined. The present study hypothesised that wellbeing as measured by one's test taking self-efficacy, general self-efficacy, satisfaction with life, and positive and negative affect would change across three separate time periods (Time 1. before a selection interview, Time 2. after a selection procedure, and Time 3. after receiving a selection decision). Language background, procedure type and selection decision were hypothesised to moderate any change found. Language background was additionally hypothesised to influence an applicant's performance on the ability test. Once recruited, graduating students participated in a simulated selection process. Each applicant was randomly selected into one of four groups: 1) interview + cognitive ability testing, 2) interview + personality testing, 3) interview + cognitive ability + personality testing, and

4) interview only. A longitudinal design was utilised, with participants completing questionnaires at the three time periods. Results suggested that there was a significant change in an applicant's wellbeing from before commencing a selection process to after receiving a selection decision. The extent of the change was found to depend on the type of selection procedures completed, as well as the final selection decision (whether the applicant was selected or rejected). Wellbeing was not affected by an applicant's language background, nor was there a difference on ability test scores between language background groups.

The present study lends support to the notion that an applicant's psychological health and future testing performance can be bolstered or harmed by participating in an employment selection process. Organisations and applicants should be made aware of the impact in order to overcome the potential negative effects.

Statement of Authorship

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university or other institution. To the best of my knowledge, this thesis contains no material previously published or written by another person, except where due reference is made in the text of the thesis.

Signed_____ Date_____

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CHAPTER 1

Overview of Thesis

Applicant reactions have been widely studied mostly using an organisational justice and/or fairness perceptions theoretical framework. Implications of these perceptions for organisations have been examined extensively. By contrast, the personal implications for applicants are less well studied. In particular, there is a dearth of research into the personal implications of specific selection procedure techniques and selection decisions based on those techniques. Moreover, the impact of unpleasant experiences during the selection process or a negative selection outcome remains poorly understood (Anderson & Goltsi, 2006). It is a research priority to understand the impact of a selection process beyond fairness perceptions and to examine the psychological cost of being involved in a selection process involving multiple selection procedures. The purpose of this study was to address these needs in applicant reactions research. Drawing on previous applicant reactions literature, the present study sought to address the above gap by undertaking exploratory research with the aim of examining the effects of an employee selection process on applicant wellbeing.

Overview of Literature Review

The following chapters will form a review of literature pertaining to the current study. The first chapter will provide an overview of literature relating to employee selection and employment testing. Next an overview of previous applicant reaction research and the importance of examining individual psychological reactions will be provided. This chapter will be followed by an overview of the wellbeing variables which

are predicted to be affected by selection process participation. Applicant diversity and language proficiency will be discussed, with the provision of previous research examining the effect one's language proficiency has on test performance. On completion of the literature review, the study design, aims, and hypotheses will be provided.

Personnel Selection and the Use of Employment Testing

The process of recruitment and selection is the first step in attracting and retaining talent. The use of poor job advertisements risks repelling desired applicants or not attracting them. Secondly, if applicants are treated poorly or feel that there has been injustice during the selection process, their attraction to the organisation can decrease (Hausknecht, Day & Thomas, 2004). Thus, the way in which applicants are recruited and selected requires serious attention by human resource professionals. There are many factors involved in the process of selecting the right applicant and these factors will be discussed in the following chapter, with a focus on the use of appropriate selection methods.

The chapter will begin with an overview of personnel selection processes before providing greater detail about three common procedures. This is followed by a discussion on the use of three common selection procedures; cognitive ability tests, personality tests, and interviews. Each procedure is compared on the constructs measured and their use as a predictor of job performance.

Selection processes and procedures are discussed as the reactions formed on the completion of these procedures form the basis of the current research. As will be highlighted in the next chapter, perceptions of job relatedness and how favourably an

applicant views a selection procedure are strongly related to applicant reactions. This is in addition to an applicant's perceptions of the fairness of the selection decision based on their performance on these procedures. Therefore, it is important to gain an understanding of how these procedures are constructed so as to gain insight into the differences between the procedures that form the basis of differing applicant reactions.

Personnel Selection

Process

Personnel selection is a set of procedures by which employers collect information about potential applicants in order to make employment decisions. The purpose of selection is to provide information to employers about who is the most qualified for the position at hand (Robertson & Smith, 2001). This involves choosing applicants with the requisite knowledge, abilities, skills and other characteristics. Although selection can refer to promotions within an organisation, it generally refers to the initial hiring of new employees, and this will be the focus of the chapter. Personnel selection decisions have consequences for an organisation's profitability and effectiveness, but also for an applicant's career progression and psychological health. It is therefore critical that organisations invest in the creation of sound selection processes in order to maximise productivity and minimise negative reactions from applicants.

The first step in a typical selection process is to conduct a job analysis. This is important for understanding what the job is and what is required for successful performance. This information creates the basis for the selection procedures (Ployhart, 2006; Roberton & Smith, 2001). Next the employer will make a decision to recruit and

advertise the position. The way in which applicants are recruited is an important issue in itself, but will not be discussed in this thesis. The next step is for applicants to be short listed for further selection procedures. Selection procedures are implemented once the applicant has successfully completed the first selection stage (Landy, Shankster & Kohler, 1994). The choice of selection procedures requires careful thought; beginning with explicit recognition of the applicant attributes the organisation needs to measure; namely those that predict job performance.

Successful selection processes focus on criterion-referenced (i.e., performance) attributes of applicants (Robertson & Smith, 2001). As observed by Robertson and Smith (2001), the choice of criteria is often determined by convenience or ease of measurement rather than through job analyses. That is, the criteria chosen to predict job performance may not necessarily have been chosen based on an analysis of the job requirements at hand; rather based on the ease of measurement or administration. The process of choosing selection procedures often proceeds similarly - guided by convenience and implementation cost rather than psychometric properties and predictive validity (Ployhart, 2006). The following section will provide information on common selection procedures including information on reported usage and factors which guide the choice of procedure.

Common Selection Procedures

Selection procedures refer to any procedure used singly or in combination with other procedures used to make selection decisions (Ployhart, 2006). The challenge for organisations is to develop a process containing procedures which will provide them

with suitable information for determining the best person for the job. Psychological testing is regarded by researchers and many practitioners as a key component of best practice selection (Guest, Michie, Conway & Sheehan, 2003). Despite this, their use in practice is not commonly reported. This was demonstrated in a survey by Piotrowski and Armstrong (2006). They reported that nearly all Fortune 1000 organisations surveyed (N = 151) used resumes (98%) and reference checks (97%). Half the sample used skills testing (50%) and only 19% of organisations used personality testing. Cognitive ability testing was omitted from the survey. These findings are consistent with those found by Di Milia (2004) in an Australian context. Of the top 500 performing organisations (N = 218), less than 7% reported using personality assessments 'always' and 80% reported that they were never used. On average, half of the organisations reported 'never' using cognitive ability testing, while roughly 12% reported 'always' using cognitive ability tests. Interview use was reported by 93% of organisations and 86% of organisations 'always' used resumes. This suggests that there is a gap between what research has demonstrated to be the most effective measures of job performance and what organisations actually use.

Several reasons have been suggested which guide an organisation's decision to use a selection procedure. Cost effectiveness, ease of use, and whether the method is legally defensible are some of the key considerations for organisation's choice in the use of selection procedures (Konig, Klehe, Berchtold, & Kleinmann, 2010). Furthermore, issues such as social acceptability are also considered. That is, organisations may not use particular methods due to a concern that they will not be viewed favourably by the applicants (Society for Industrial and Organisational Psychology, 2003). Selection

methods which have in the past been successfully challenged or which are viewed as controversial, will be less likely to be chosen as part of an organisation's selection process (SIOP, 2003). Konig et al. (2010) demonstrated that the role of predictive validity in the decision to use particular selection procedures was modest. Assumed applicant reactions, cost, and how widely the methods were used in the field, were the strongest predictors of use. Legal considerations were significant predictors, although weak (Konig et al., 2010).

The remainder of this chapter will focus on three procedures separately in order to provide a more in depth overview of each one's use in personnel selection. The three procedures of interest are cognitive ability testing, personality testing and employment interviews.

Cognitive Ability Testing

Cognitive ability tests are well-established as one of the best single predictors of job performance (Schmidt & Hunter, 1998). Consistent with this, the use of cognitive ability tests in selection settings have become increasingly prevalent (Carless, 2007; Salgado & DeFruyt, 2005; Schmidt & Hunter, 2004). Cognitive ability tests are designed to test an applicant's intellectual abilities. This is most commonly referred to as general mental ability or general cognitive ability (Schmidt & Hunter, 1998). With regard to personnel selection, all jobs require some degree of intelligence, with the need for intellectual abilities increasing as the intellectual demands of the job increase (Hough & Oswald, 2000; Ployhart, 2006). Cognitive ability measures are usually tests containing problems and questions related to verbal material, quantitative material, spatial material,

and sometimes mechanical material (Schmidt & Hunter, 2004). General cognitive ability tests are designed to measure only general cognitive ability or *g*. Cognitive abilities that are narrower than general mental ability are called aptitudes. These include verbal, spatial, and numerical (Schmidt & Hunter, 2004).

Multiple aptitude tests are typically longer than general cognitive ability tests and are designed to measure multiple aspects of intelligence (Hough & Oswald, 2000; Ployhart, 2006; Robertson & Smith, 2001). The evidence suggests that assessing separate aptitudes has produced little or no increase in validity over and above the use of a measure of general mental ability (Schmidt & Hunter, 2004). It is suggested that this is because aptitude tests measure overall general mental ability as well as a specific aptitudes, such as spatial aptitude. The general mental ability component of specific aptitude tests however appears to be responsible for the prediction of job performance (Schmidt & Hunter, 2004).

Predicting job performance

Well-constructed tests have usually been developed over a long period of time and have good psychometric qualities. Repeatedly, tests of general mental ability have produced sound reliability and validity estimates (Bertua, Anderson & Salgado, 2005; Salgado, Anderson, Moscoso, Bertua, de Fruyt, & Rolland, 2003; Schmidt & Hunter, 1998). The validity of tests is defined as the degree to which scores can be used to infer one or more measures of individual work performance (Thomas & Scroggins, 2006). Cognitive ability tests have shown to be a good predictor of job performance (p = .51) (Schmidt & Hunter, 1998). Work sample tests have shown to have slightly higher

validity (p = .54), but tend to be more costly. Hence cognitive ability tests are regarded as one of the most effective and efficient methods for personnel selection (Schmidt & Hunter, 1998).

The magnitude of operational validities for cognitive ability tests has in general been larger for training success (p = .56) than for job performance ratings (p = .51) (Schmidt & Hunter, 1998). Cognitive ability tests predict job related learning, or the acquisition of knowledge after experience is gained on the job, and the amount of learning that takes place in training programs (Bertua et al., 2005; Salgado et al., 2003; Schmidt & Hunter, 1998). Bertua et al. (2005) found the operational validity for training success (p = .50) to be larger than for job performance (p = .48). Thus when an employer uses cognitive ability tests as a method for selecting employees, it is likely they will be selecting applicants who will benefit from training and development programs and thus acquire new job knowledge quickly and efficiently (Schmidt & Hunter, 1998). Although cognitive ability has shown to be a stronger predictor of training success than job performance, research has demonstrated that the strength of the operational validities is dependent on occupational groups. That is, how strongly cognitive ability tests predict training and job performance varies among different job types.

Salgado et al. (2003) compared the validity coefficients of cognitive ability tests in the European community with those of the United States. The largest operational validity for job performance was for managerial occupations (p = .67), followed by sales occupations (p = .66) and engineer occupations (p = .63). Compared to US meta-analyses for similar occupational groups, the operational validities were similar or

slightly larger for the European Community. Similar results were found by Bertua et al. (2005) in that the largest operational validity for job performance was found for professional occupations (p = .74) followed by engineers (p = .70) and managers (p = .69). The lowest operational validity was found for clerical occupations (p= .32). In terms of training success, Salgado et al. (2003) found the largest operational validities were for the engineer occupational group (p= .74), followed by the chemist job category (p= .72), and information and message distribution clerks (p= .69). These results were similar but slightly lower than validities found in US meta-analyses for the same occupational groups. Where clerical occupations had the lowest operational validity for job performance in Bertua et al's (2005) study, it had one of the highest operational validities for training success (p= .55). The highest validity for training was found for engineers (p = .64) and professional occupations (p= .59).

Controversy and Debate

There is no controversy that cognitive ability tests are sound predictors of job performance across a range of jobs and therefore are a useful tool to aid employment decisions. On the other hand, there has been considerable controversy about score differences between racial groups on cognitive ability tests. Outtz (2002) suggested that the score differences do not mean that the tests are biased or unfair, but indicated that investigation is warranted as the tests may not be suitable for all employment situations. Score differences produced by cognitive ability tests are most often associated with racial differences (Hough & Oswald, 2000; Ployhart, 2006). Racial score differences produced by ability tests are substantially higher than racial differences on measures of

job performance. This suggests that ability tests measure constructs not required for successful job performance or that the applicant's compensate for cognitive ability on the job (Outtz, 2002).

It is commonly accepted that Blacks score approximately one standard deviation below Whites on measures of general intelligence (Hough, et al., 2001). Hough et al. (2001) suggested that employers need to consider the cognitive requirements needed on the job and determine whether tests of general intelligence are appropriate for use in selection decisions. A high level of interest in this issue seems warranted given the individual, group, organisational and social consequences of using measures of cognitive ability in selection for employment. Furthermore Outtz (2002) claimed that issues surrounding score differences are more important with the demographic changes in the applicant population which has taken place over several years. It is suggested that employers must find ways to meet their workforce needs by identifying a larger number of qualified workers from racial and ethnic minority groups (Hough et al, 2001).

The issue of score differences and the use of ability testing with minorities has an extensive literature associated with it. The above discussion should only be used as a guide to the debate surrounding ability testing. A more detailed discussion of score differences will be provided in Chapter 4.

Personality Testing

Tests of personality evaluate aspects of an applicant's personal nature and values, and predict personal conduct that can be expected in the future by the applicant (Hogan, Hogan & Roberts, 1996). Some aspects of personality have been found to

predict work performance, whilst other aspects predict socially related aspects of performance such as personal conduct and organisational citizenship (Hogan et al., 1996; Hough & Oswald, 2000). Personality measurement involves the systematic assignment of numbers to the characteristic features of a person's interpersonal style according to some explicit rule. These numbers can then be used to make predictions about that person's responses in future settings (Hogan et al., 1996). Personality measurement in selection is most often based on self-report data (Hogan et al., 1996; Rothstein & Goffin, 2006). Self-report measurement typically consists of a series of items requiring applicants to respond using multiple choice answers.

Personality testing until recently has not been positively accepted by organisations. This is partly due to research documenting its low predictive validity and potential for privacy invasion based on item content (Thomas & Scroggins, 2006). Since the 1990s, estimates of the validity of personality testing have increased due to the development of factorial approaches to personality that have become known as the Big Five personality dimension. The Big Five appear to be the core elements of personality assessment (Morgeson, Campion, Dipboye, Hollenback, Murphy, Schmitt, 2007a; Ones, Dilchert, Viswesvaran & Judge, 2007; Rothstein & Goffin, 2006). The Big Five dimensions include: neuroticism, extraversion, openness, agreeableness and conscientiousness (Costa & McCrae, 1994). The introduction of the Big Five has provided organisations with taxonomy of personality characteristics (Rothstein & Goffin, 2006). This has been useful in that it provides practitioners and researchers with a set of dimensions for describing behaviour at work, and provides a basis for promoting personality dimensions in organisational settings (Rothstein & Goffin, 2006).

Predicting job performance

Barrick and Mount (1991) produced one of the first meta-analyses using the Big Five model of personality which led to a more optimistic view of personality assessment. Although modest, they found that the correlations between personality dimensions and performance range from r = .04 for Openness to Experience to r = .22 for Conscientiousness. Extraversion was found to be a predictor of sales (p= .09) and managerial (p= .11) jobs. Emotional stability has recently been shown to predict overall job performance, although the validity coefficient was low (r= .13) (Hurtz & Donovan, 2000). Of the Big Five factors, Conscientiousness has shown to be the best predictor of job performance; it predicts task performance (p= .15) and job performance (p= .23) (Ones et al., 2004). In a previous meta-analysis, Schmidt and Hunter (1998) provided evidence that measures of conscientiousness were predictive of job performance (p= .31) and training success (p= .30).

It has been suggested that conscientiousness predicts performance through the characteristics of conscientiousness that individuals display (Ones & Viswesvaran, 1996; Witt, Burke, Barrick & Mount, 2002). That is, conscientious individuals invest greater effort and time in a task, resulting in greater job knowledge and increased productivity (Ones & Viswesvaran, 1996; Witt et al., 2002). Secondly, conscientious individuals will tend to display more organisational citizenship behaviour, resulting in increased productivity and positive work behaviour (Ones & Viswevaran, 1996). Fallon, Avis, Kudisch, Gorret and Frost (2000) found that the personality dimensions of hard work and dependability were positively related to current employee performance. Furthermore, conscientiousness was positively related to whether supervisors would

rehire an employee, employee attendance, and employee performance (Fallon et al., 2000). A later study found that the relationship between conscientiousness and job performance was moderated by agreeableness (Witt et al., 2002). Agreeableness refers to such traits as cooperativeness, helpfulness and flexibility, and appears to be relevant to jobs in which collaboration is required (Witt et al., 2002). Witt et al. (2002) found that employees who were rated as highly conscientious and low on agreeableness received lower supervisory ratings of performance than employees high on conscientiousness and agreeableness. This suggests that agreeableness contributes to the positive work outcomes associated with conscientious behaviours.

Controversy and debate

Recently a series of articles were published in Personnel Psychology which debated the use of personality testing for selection purposes. The issue debated the usefulness of personality inventories as predictors of job performance (Morgeson, Campion, Dipboye, Hollenback, Murphy, Schmitt, 2007a). One basis for this argument was that personality inventories showed low validity for predicting job performance (Morgeson et al, 2007a). Morgeson et al. (2007b) suggested that the optimism for the use of personality inventories was premature due to the use of corrected validities. Morgeson et al. (2007b) argued that reported validity coefficients which have been high were potentially inflated due to extensive corrections and methodological weaknesses. Ones, et al. (2007) on the other hand suggested that observed correlations were biased due to the influence of statistical artefacts, therefore the use of corrected validity coefficients is appropriate.

Another issue extensively debated is distorted responses and faking. Faking has been defined as "impression management, where individuals consciously misrepresent themselves in order to create a positive image" (Converse, Oswald, Imus, Hedricks, Roy & Butera, 2008, p. 156). The concern with faking is that it distorts the criterion-related validity of personality testing (Converse et al., 2008; Morgeson et al., 2007a; Rothstein & Goffin, 2006). Faking has been found to decrease the criterion-related validity of personality instruments measuring conscientiousness and agreeableness (Douglas, McDaniel & Snell, 1996). In the study, honest and faking conditions were compared (N= 600). The criterion related validity of a personality instrument was found to approach zero (p = .04) for the faking condition, whereas in the honest condition, criterion related validity remained high (p = .26) (Douglas et al., 1996).

Research has suggested that higher response distortion scores were found for job incumbents compared to job applicants (Rosse, Stecher, Miller & Levin, 1998). O'Connell, Kung and Tristan (2011) however found the opposite result in that job applicants scored higher on faking scales than job incumbents, suggesting that job applicants inflate their responses on self-report measures in selection settings. Morgeson et al. (2007b) argued that applicants may not believe that they are faking, but are in fact distorting their scores due to lack of self-insight. By projecting an idealised image of oneself or by projecting a future image of oneself which could be true in certain situations, but has not necessarily been true in all past situations, can distort personality scores. Ones et al. (2007) questioned the generalisability of studies in which participants are directly asked to 'fake good' as this does not relate to actual selection

situations. Despite the above limitations, personality testing is one of the most popular selection procedures (Carless, 2007; Salgado & de Fruyt, 2005).

Employment Interview

Employment interviews are one of the most frequently used methods to assess applicant employment suitability (Macan, 2009). In the past, employment interviews were held as a casual conversation between applicant and employer. There were no specific job descriptions and employers were simply looking to fill the position with someone who would 'fit' the job (Cook, 2009). This type of interview is more formally known as an unstructured interview. Unstructured interviews do not contain a standard set of questions, which creates variation amongst each interview. Organisations now more commonly use structured or semi-structured interviews (Macan, 2009).

The difference between structured and unstructured interviews lies in the format of the interview. Structured interviews contain predetermined questions and acceptable responses which are specified in advance. Unstructured interviews gather information in a less systematic way (McDaniel, et al., 1994; Campion, Palmer & Campion, 1997). Within the structured interview category are situational interviews and behavioural or job related interviews (McDaniel, Whetzel, Schmidt & Maurer, 1994). Situational interviews focus on the applicant's ability to project future behaviour in a given situation, whereas behavioural interviews focus on evaluation of reactions in actual job situations (McDaniel et al., 1994).

Interviews can be designed to assess a variety of predictor constructs (Huffcutt, 2009). The characteristics rated in the interview however should reflect what is

important for the job. Research comparing interview ratings with other assessments gives some indication of what interviews assess. A meta-analysis by Huffcutt, Roth and McDaniel (1996) found a corrected mean correlation of .40 between employment interviews and cognitive ability scores. This suggests that approximately 16% of the variance in interview constructs represents cognitive ability. This was supported by a later review of literature in which structured interviews were reported to correlate with tests of cognitive ability (Campion, et al., 1997). Salgado and Moscoso (2002) found that interviews and cognitive ability were related however, only when the interview was "conventional". Conventional interviews were described as ones in which information about credentials, past experience and self-evaluative information was obtained. Behaviour interviews which did not correlate with cognitive ability examined job knowledge, job experience and behaviour descriptions.

Additional findings from Salgado and Moscoso (2002) suggested that employment interviews assess social skills as well as dimensions of personality. Results showed that social skills correlated strongly with both conventional (p= .46), and behavioural (p= .65) interviews. The Big Five personality factors were more strongly correlated with conventional interviews than behavioural interviews. This could be explained by the type of interview questions relating to each form of interview. Where conventional interviews were related to credentials and self-evaluative information which could lend itself to information about an applicant's personality, the behavioural interview questions related more to experience and knowledge (Salgado & Moscoso, 2002) rather than personality dimensions. Neuroticism was found to correlate most strongly with conventional interviews (p= .38) followed by extraversion (p= .34).

Extraversion also correlated strongly with the behavioural interview (p= .21) (Salgado & Moscoso, 2002). In summary, there is some consensus that interviews assess aspects of cognitive ability and personality, however this is dependent on the type of interview.

Predicting job performance

Although structured interviews are more costly to develop and more time consuming to implement they are more valid than an unstructured interview (Huffcutt & Arthur, 1994; Macan, 2009; Schmidt & Hunter, 1998). The average validity for job performance of the structured interview is (p = .51) and for the unstructured interview is (p = .38) (Schmidt & Hunter, 1998).

Findings by Taylor and Small (2002) suggested that validity can be increased by increasing structure. When comparing past behavioural interviews and situational interviews Taylor and Small (2002) found that behavioural interviews yielded higher validity for predicting job performance when anchored rating scales were used. Anchored rating scales are commonly used for assessing employment interviews. The scales use examples to illustrate scale points. This reduces ambiguity and semantic differences possible with adjective anchors (Campion, et al., 1997). Anchors can be example answers or illustrations of answers applicants are expected to use (Campion et al., 1997). Validity has been found to increase behavioural interviews from .47 when anchors were not used to .63 when anchors were used. This suggests that validity can be improved from the use of a highly structured approach to answer scoring (Tayor & Small, 2002).

Combining Common Selection Procedures

It is evident that there are many ways to select people for jobs, however procedures are rarely used in isolation. In a study of graduate recruitment and selection practices, Carless (2007) found that 24% of organisations studied (*N*= 50) used both personality and cognitive ability tests. On average, organisations were found to use 4.3 selection methods with the modal response being 3. This suggests that organisations do not rely on one selection procedure to make a selection decision and understand the added benefit of combining procedures together.

According to the Society for Industrial and Organisational Psychology's Principles, the combination of procedures should be based on evidence of validity; otherwise the introduction of a predictor of unknown quality may reduce the effectiveness of the overall selection process (Schmidt & Hunter, 1998; SIOP, 2003). It is important to ensure that selection measures are combined so that each procedure provides incremental validity. Incremental validity is a type of validity which assesses whether a new psychometric measure will add to the predictive validity of an already existing measure. General mental ability tests are considered the primary personnel measure for recruitment decisions, with other methods seen as supplements to ability testing (Schmidt & Hunter, 1998). The predictive value of cognitive ability tests can be increased by combining them with another procedure such as interviews or personality measures. The validity of a selection procedure is directly proportional to its practical value or utility (Schmidt & Hunter, 1998). Therefore in order for utility to increase, validity must increase as well.

When combined with a cognitive ability test, the interview provides a substantial gain in validity. The amount of gain however is dependent upon the level of structure of the interview. The structured interview has shown to be the best interview to combine with cognitive ability in order to produce a practical gain in utility. The combination of the structured interview and tests of ability yields a validity of .63 (Schmidt & Hunter, 1998). This was later supported by Cortina, Goldstein, Payne, Davison & Gilliland (2000) in that highly structured interviews explained an additional 12.3% - 22.2% of variance in job performance over and above cognitive ability and conscientiousness. In comparison structured interviews explained an additional 6.2% of variance in job performance, whereas unstructured interviews only explained almost no additional variance (1.5%) in job performance. This suggests that the contribution to the prediction of job performance made by interviews depends on structure. Combined with an ability test a structured interview can create a cost effective method for predicting future job performance and can assist greatly in the selection decision for both entry level and experienced applicants (Schmidt & Hunter, 1998).

Tests of conscientiousness provide less of a gain in validity (18%) than that of a structured interview, nevertheless combined with cognitive ability provide greater predictive validity than ability tests alone. Keeping these results in mind, it is possible to see the attraction of combining multiple procedures. Although it may be more costly, the gain in practical utility will outweigh the initial cost.

Summary

This chapter provided an overview of selection processes in general as well as three commonly used selection procedures. The procedures were discussed with regards to what they measure and how well they predict job performance. Practical and research issues surrounding the procedures were discussed. The selection procedures discussed are only three options employers have when deciding upon a selection process. However these three reflect commonly used procedures and thus forms the basis of the current research. The next chapter will focus on applicant reactions to these three selection procedures.

CHAPTER 2

Applicant Reactions to Selection

In recent years the area of applicant reactions has received increased attention. This was in response to the call for research to move away from the validity and utility of selection procedures toward the outcomes associated with the use of such procedures. Understanding the importance of applicant reactions, researchers (Gilliland, 1993; Rynes, 1993) sought further information on the formation of applicant perspectives. This chapter reviews research into applicant reactions. Where possible, meta-analyses were used to summarise results of previous research, due to the extensive amount of literature. First, the meaning of applicant reactions is reviewed and a brief outline of the history of applicant reactions research is provided. This historical overview provides the background for the current research in that applicants form reactions based on their experience with the selection process and procedures.

Next, the antecedents and outcomes of applicant reactions will be reviewed, along with perceptions of procedure favourability. Finally, it argued that there is a pressing need to examine psychological reactions and the impact that participation in selection processes has on the psychological health of applicants. Reactions research has had a predominant focus on justice reactions and related organisational outcomes. The personal investment applicants have in a selection process opens up the possibility of psychological harm to the applicant. A broadening of reactions research is required, encompassing the psychological outcome related to selection process participation.

Applicant Reactions

Applicant Reactions Defined

Applicant reactions research has been limited by conceptual imprecision of the constructs measured. That is, constructs such as fairness have been operationalised differently across studies, leading to different results concerning applicant reactions. This hinders the ability to summarise applicant reactions research and makes it difficult to define applicant reactions. Research undertaken in the applicant reactions domain has investigated the effects of favourability ratings of selection procedures (e.g., Gilliland, 1996), fairness perceptions of the procedures and process (e.g., Bauer, Dolen, Maertz Jr. & Campion, 1998), various aspects of procedural and distributive justice such as job relatedness (e.g., Smither, Reilly, Millsap, Pearlman, & Stoffey, 1993), attitudes toward taking tests (e.g., Arvey, Strickland, Drauden, & Martin, 1990) and outcomes of applicant perceptions (e.g., Ployhart & Ryan, 1997). Each of these studies were specific in the constructs assessed, yet are examined under the broader term of applicant reactions.

Given the variation in constructs studied under applicant reactions, the term itself should be considered a broad overarching category that encompasses several areas of research, rather than a specific construct. In an attempt to simplify and draw together the common elements of applicant reactions research, Ryan and Ployhart's (2000) definition will be utilised. Applicant reactions are defined as the "attitudes, affect, or cognitions an individual might have about the hiring process" (Ryan & Ployhart, 2000, p. 566).

The predominant theoretical approach to applicant reaction research has been organisational justice, with a key focus on fairness. As a result of this focus, few studies

have examined actual behaviours, leading to a weak link between applicant's perceptions of the selection process and their importance to organisational outcomes. An understanding of applicant behaviour after the hiring process is beneficial as it highlights the overall importance of applicant reactions. That is, if the perception an applicant holds about the selection process leads to no long term consequences for the organisation or the applicant, the overall importance is minimised.

The focus on fairness perceptions and their impact on organisational outcomes such as attraction has meant little attention has been paid to the personal impact participating in a selection process has on an applicant. Ryan and Ployhart's (2000) definition includes affect. This component of applicant reactions has with the exception of a few studies (e.g. Fletcher, 1991; Robertson & Smith, 1989), been neglected. In order to understand applicant reactions more comprehensively, a distinction should be made between applicant reactions relating to organisational outcomes such as organisational attractiveness, and personal outcomes such as wellbeing. In other words, researchers need to distinguish between the effects participating in a selection process have on the organisation, as well as the individual applicant.

In summary, applicant reactions comprises a vast body of research. Due to the variance in the conceptualisation of constructs, it is difficult to summarise and compare results of applicant reactions research. For the purposes of this research, Ryan and Ployhart's (2000) definition will be drawn upon. That is, applicant reactions will be viewed as the effect participating in a selection process has on an applicant's cognitions, attitudes and affect, in addition to their behaviour and self evaluations, during and after the selection process. A distinction will be made between organisational and individual

related outcomes. The remainder of this chapter will provide an overview of applicant reactions research and a discussion on the importance of shifting the focus from well-established organisational related research toward the impact selection processes have on the individual.

Applicant Reactions: A Brief Overview

Early applicant reactions studies compared favourability reactions to varying procedures. The research was descriptive in nature and did not explain how the reactions were formed (Chan & Schmitt, 2004). To overcome this limitation in research, studies moved away from a descriptive design and focused on the formation of reactions. The selection process was included as a potential antecedent of the formed reactions (Rynes, 1993) and there was a greater emphasis on the outcomes of applicant reactions (Chan & Schmitt, 2004).

Theoretical background

There are currently two lines of applicant reactions research; a focus on fairness and other characteristics of the selection methods and how these influence an applicant's attraction to the organisation; and secondly a focus on test-taker attitudes and their influence on applicants' performance during the selection process (Ryan & Ployhart, 2000). Combined these two lines of research examine the perceptions of procedures and decisions as well as the cognitions and behaviours which occur during the procedure and after the decision. Ryan and Ployhart (2000) suggested that "both streams of research are

important for understanding what an applicant might think, feel and do based on having participated in a selection process" (p. 568).

The first line of research is related to fairness perceptions developed from the integration of organisational justice research into applicant reactions research (Gilliland, 1993; Hausknecht et al., 2004). Gilliland (1993) developed a model designed to explain the relationship between components of the selection process and applicants' perceptions of the fairness of the processes. Gilliland (1993) improved on previous models of fairness by including the psychological processes underlying applicant perceptions. Key determinants were hypothesised and combined to form fairness perceptions. Gilliland's (1993) model drew on both procedural and distributive justice and suggested that "situational and personal conditions influence the extent to which procedural and distributive rules are perceived as satisfied or violated" (p. 700). That is, selection characteristics such as the type of test and the personnel involved in the process influence an applicant's perceptions about the procedural justice of the selection process. Combined, the violation or satisfaction of procedural rules leads to an overall evaluation of the fairness of the selection process. Factors such as performance expectations were proposed to influence distributive rules such as equity, and combined, the distributive rules create an overall evaluation of the decision outcome. Gilliland (1993) included outcomes of fairness within his model. It was proposed that reactions during the hiring (e.g., test motivation), reactions after hiring (e.g., job satisfaction) and self-perceptions (e.g., self-efficacy) were influenced by the overall fairness perceptions of the selection process and selection decision (Gilliland, 1993).

The focus of the second line of research was on applicants' attitudes toward taking employment selection tests. Specifically, the focus was on the influence of test taking attitudes on performance (Arvey, et al., 1990). Research indicated a small but significant relationship between test taking motivation and performance on employment selection procedures (Arvey et al., 1990; Chan, Schmitt, DeShon, Clause & Delbridge, 1997). In a study of 198 undergraduate psychology students Chan et al. (1998) found that for cognitive ability tests, pre-test reactions affected one's performance on the test. In addition, pre-test reactions mediated the relationship between beliefs held about the test and test performance. In other words, students who had positive beliefs about testing had greater pre-test reactions toward the test, which positively influenced their performance through greater motivation. Chan et al.'s research suggested that the relationship between pre-test and post-test reactions is slightly different for personality testing compared to cognitive ability testing. Personality post-test reactions are not formed on the basis of the applicant's perceived performance. As the applicant is unable to determine whether their answers are right or wrong, they are unable to self-assess their performance and form subsequent reactions regarding the test and their future performance.

The two lines of research discussed are distinct, yet related. Testing attitude research has important implications for justice related research in that if an applicant has a negative attitude toward an employment test their motivation may decrease, leading to a decreased performance. The distinction is made in that fairness research is focused on applicants' perceptions of selection procedures and the decision, and test attitude

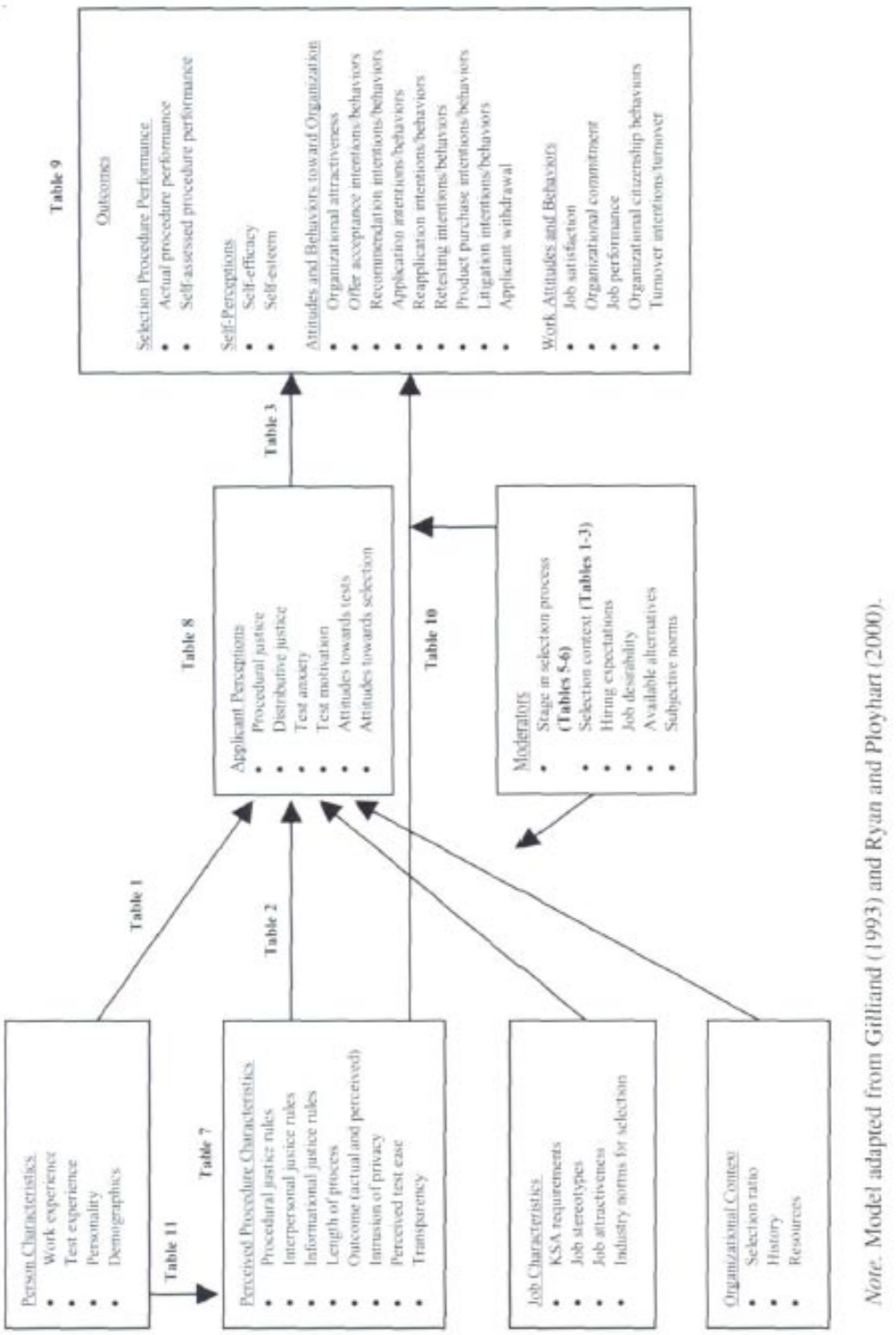
research is focused on applicants' perceptions of their own cognitions whilst undertaking the procedures and receiving a decision (Ryan & Ployhart, 2000).

Models of Applicant Reactions

Ryan and Ployhart (2000) developed a heuristic model of applicant reactions. The model was built on Gilliland's (1993) framework and included additional antecedent and moderator variables. The basic premise of the model is that important organisational and personal outcomes are predicted by applicant perceptions of the selection process (Ryan & Ployhart, 2000). The adapted model was built on justice considerations and included perceptions of one's affective and cognitive states during the process, and general perceptions about testing and selection. These perceptions were included as possible determinants of various personal and organisational outcomes. Ryan and Ployhart (2000) suggested that applicants receive information regarding the selection process and procedures from four classes of antecedents, and that this information is used by the applicant to form four types of perceptions: 1) perceptions of the procedure/process; 2) perceptions of one's affective/cognitive state during the procedure; 3) perceptions of the selection outcome, and 4) perceptions of selection procedures and processes in general. The perceptions formed by the applicant influence their future thoughts and behaviours.

Hausknecht et al. (2004) extended Ryan and Ployhart's (2000) model by specifying actual outcomes which can be influenced by applicant perceptions of the selection process. That is, although Ryan and Ployhart (2000) identified important categories of outcomes relating to applicant perceptions, they neglected to specify

outcomes associated with each category. For the purpose of this chapter, the model as developed by Ryan and Ployhart (2000) and adapted by Hausknecht et al. (2004) will briefly be described, followed by a more detailed discussion of key determinants of applicant perceptions of selection processes and their relationship with personal outcomes. Hausknecht et al.'s model is shown in Figure 1.



Note. Model adapted from Gilliland (1993) and Ryan and Ployhart (2000).

Figure 1. Applicant Reactions model as developed by Ryan and Ployhart (2000) and adapted by Hausknecht et al. (2004)

Determinants

As seen in Figure 1, there are four categories of determinants of applicant reactions. The categories include person characteristics, job characteristics, procedure characteristics, and organisational context. Each of these is an antecedent to applicant perceptions. Person characteristics include demographic variables and personality variables. Perceived procedure characteristics included many of the justice rules identified by Gilliland (1993), such as job relatedness. Ryan and Ployhart (2000) included characteristics such as length of assessment and outcome favourability which were maintained by Hausknecht et al. (2004), as it was thought that applicants viewed shorter assessments more favourably. Furthermore the amount and type of information provided to applicants about the tests and the outcome decision was proposed to influence applicant perceptions of the selection process (Gilliland, 1994; Ryan & Ployhart, 2000).

Perceptions

Perceptions of the procedure and overall process are formed by the applicant in addition to perceptions of how the applicant perceives they are feeling and what they are thinking during the procedure (Hausknecht et al., 2004). Applicant perceptions of selection processes and selection procedures in general are influenced by their past experiences. A strength of Hausknecht's model is that he specified how the applicant perceptions are formed and what they are related to which allows for a deeper understanding of the influence perceptions have on outcomes. A limitation of Gilliland's model was by simply generalising all perceptions into one overall perception of the selection process; it is not possible to determine which components of the process influence outcomes.

Outcomes

The outcome categories identified by Hausknecht et al. (2004) are: actual and self-assessed performance, self-perceptions, perceptions of the job and organisation, behavioural intentions and actual behaviours. The latter three categories are organisational outcomes, whereas the performance and self-perceptions categories are personal outcomes. For organisations, it is important to understand how their selection processes will impact upon an applicant's future behaviour within the organisation, not only in terms of their ability to perform, but also whether job satisfaction and commitment will be affected. In addition, organisations intend that their selection processes form a positive image of the organisation rather than a negative one. For an applicant, as will be discussed later in the chapter, positive perceptions of a selection process lead to enhanced self-perceptions, whereas negative perceptions have a detrimental effect on an applicant's self-perceptions and may hinder their performance.

As seen in Figure 1, the perception one forms of the selection process and procedures influences an applicant's performance and self-perceptions. An applicant's performance will affect the selection outcome, which will also influence one's self-perceptions. Self-perceptions are only one form of psychological reactions and further reactions such as affect and happiness require consideration. Although there has been a shift away from recruiter decision making and organisational perspectives toward applicant perspectives (Anderson, Salgado, Hulsheger, 2010), the same shift has not occurred for the examination of outcomes. In other words, organisational related outcomes remain the dominantly studied outcome in contrast

to personal outcomes. This is a significant limitation of previous research, as personal outcomes affect the individual and the organisation.

A selection process resulting in a negative personal reaction may hinder the applicant's future selection process performance, and may lead to negative consequences for the organisation and applicant. The reverse can also be said in that positive reactions can lead to positive personal and organisational outcomes. In the next section, determinants of applicant reactions as identified in Hausknecht et al.'s (2004) model will be discussed. These are: job relatedness, and selection procedure favourability, and the selection outcome. Key personal outcomes such as self-efficacy and performance will be included in the discussion.

Key Determinants of Applicant Reactions and Personal Outcomes

It is necessary to understand the formation of perceptions of selection processes if one is to influence future applicant behaviour and cognitions during and after the selection process. The most commonly studied perceptions are applicant perceptions of the validity or job relatedness of the selection process, perceptions of the fairness of various aspects of the process, fairness of the outcome, and test-taking motivation (Ryan & Ployhart, 2000). In his seminal article, Gilliland (1993) suggested that fairness perceptions may affect a diverse range of outcomes such as self-esteem, wellbeing, test taking attitudes, organisational attractiveness, and purchase intentions. Despite this early suggestion, wellbeing was not included in either of Ryan and Ployhart's (2000) or Hausknecht et al.'s (2004) applicant reactions models discussed.

The present discussion will focus on job relatedness and favourability ratings, as well as the selection outcome. These factors are suggested to be the most influential on the formation of perceptions and consequent outcomes (Ployhart, 2000). It expected that these determinants will remain the most influential on psychological reactions due to their strong relationship with organisational and personal outcomes. In other words, previous applicant reactions research provides indirect evidence that the job relatedness and related favourability ratings, as well as the selection outcome, will evoke psychological reactions within the applicant.

Job Relatedness

The perceived job relatedness of a selection procedure has been regarded as the most influential procedural rule in determining applicant reactions (Gilliland, 1993; Ryan & Ployhart, 2000). Job relatedness is a perception of how well the selection procedure is related to the job being selected for. The two factors applicants draw on to develop their perceptions of job relatedness are: face validity and perceived predictive validity. That is, applicants base their perceptions of job relatedness on whether the selection procedure *appears* to measure job performance based on face value, as well as their perceptions of how well the selection procedure can predict job performance (Gilliland, 1993). Since Smither et al. (1993) developed a two factor measure of job relatedness based on face and predictive validity, this has become the common method for examining job relatedness in applicant reactions research. It is important to note that job relatedness is not a statistical construct, rather a social perception.

Smither et al.'s seminal study (1993) examined job relatedness in a study of managers' perceptions of selection procedures. Managers were asked to judge the job

relatedness of selection procedures based on sample descriptions. Simulations, interviews and cognitive tests with concrete items were rated as significantly more job related than personality, biodata and cognitive tests with abstract items. This was later confirmed through a meta-analysis by Anderson, Salgado and Hulsheger (2010). Job relatedness was operationalised as face validity, and it was found that the work sample tests, resumes, interviews and cognitive ability tests were perceived as the most job related procedures.

Hausknecht et al.'s 2004 meta-analysis reported that the more job relevant a procedure is perceived, the more favourable reactions are evoked. For example, job relatedness was positively correlated with perceptions of procedural justice (p = .61). In addition, face validity (p = .54) and perceived predictive validity (p = .52) were positively related to attitudes towards tests (Hausknecht et al., 2004). Furthermore, perceptions of face validity (p = .35) and to a lesser extent perceived predictive validity (p = .18) have been found to positively relate to test taking motivation (Hausknecht et al., 2004).

Based on these relationships, job relatedness can have important implications for an applicant's performance. That is, if an applicant is not motivated to perform on a test, this will have a negative impact on their ability to perform well. Although the direct relationship between perceived job relatedness and performance was not directly examined by Hausknecht et al. (2004), conceptually the relationship is plausible. Earlier it was noted that perceived job relatedness and procedural justice were positively related. Although moderately related, procedural justice is positively related to actual test performance (p = .13). Thus, as perceived job relatedness increases, so too do perceptions of procedural justice, which positively influences an applicant's performance. An applicant's performance impacts upon the selection

decision outcome; that is, whether the applicant will be selected or not. As demonstrated by Gilliland (1994), and as will be discussed later, an applicant's selection performance and related outcome has a strong influence on their psychological reactions. Furthermore, the perception of whether the outcome was fair is influenced by the job relatedness of the selection procedure used.

Gilliland (1994) found that there was an interaction between job relatedness and distributive fairness. Further analysis revealed that job relatedness influenced perceived distributive fairness for rejected applicants but not hired applicants. That is, job relatedness was found to be more important for rejected applicants than hired applicants when forming an opinion of the fairness of the selection outcome. Job relatedness in addition to whether an applicant was hired or rejected had an impact on an applicant's self-efficacy. Job relatedness was found to have a negative impact on self-efficacy for applicants who were rejected and a positive impact on applicants who were hired. In other words, applicants who received a rejection decision noted a decrease in their self-efficacy, particularly when the selection procedure was perceived to be highly job related. Applicants who were hired on the other hand reported an increase in their self-efficacy.

Self-efficacy and performance are linked (Gist & Mitchell, 1992), thus any change in self-efficacy as a result of the perceived job relatedness of the selection procedure will impact upon an applicant's future performance. This relationship will be discussed in greater detail in the following chapter; however a decrease in an applicant's self-efficacy decreases their ability to perform successfully in subsequent selection processes. Therefore, although increasing the job relatedness of a selection procedure leads to organisational outcomes, the implications for rejected applicants are not so positive.

Favourability Ratings

Closely related to job relatedness are ratings of favourability of selection procedures. Favourability ratings are related to an applicant's selection procedure preference. That is, the preferred or most favourable selection procedure for identifying the best candidate for the job. Steiner and Gilliland (1996) conducted one of the first studies examining favourability ratings. Student samples from the United States and France rated ten selection methods on selection process favourability and procedural justice. Ratings were given based on a description of the nature and purpose of each selection procedure. Process favourability was rated via two items: 'This method is effective for identifying qualified people for the job I indicated above' and 'If I did not get the job based on this selection method, I would think the procedure is fair' (Steiner & Gilliland, 1996). The study identified that interviews, work sample tests and resumes were perceived as most favourable, regardless of country.

These results have been replicated on several occasions by studies using the same procedure description questionnaire, and the same favourability items. These studies have examined favourability ratings of selection procedures across countries and contexts (Anderson, et al., 2010; Anderson & Witvliet, 2008; Bilgic & Acarlar, 2010; Bertolino & Steiner, 2007; Ispris, Illie Illescu, Johnson & Harris, 2010; Marcus, 2003; Moscoso & Salgado, 2004; Nikolaou & Judge, 2007; Phillips & Gully, 2002). Ispris et al. (2010) suggested that "examining applicant reactions in different contexts sheds light on aspects of selection systems that are universally favoured (or disparaged), as well as aspects that engender reactions that may be unique from employees in specific countries" (p. 102).

Regardless of country and context, the favourability of selection procedures have generally been rated similarly. Similar to results of the meta-analysis by Hausknecht et al. (2004), Anderson, et al. (2010) found work sample tests (M = 5.38), interviews (M = 5.22) and resumes (M = 4.97) to be the most favourably rated. This was followed by cognitive tests (M = 4.59) and personality tests (M = 4.08). Note that means of the favourability ratings were rescaled so that all findings were on a five point rating scale. It is not surprising that this ranking is similar to job relatedness ratings, considering the greater a procedure is perceived to be job related, the more favourable it is rated. Thus it follows that high favourability would be related to positive organisational and personal outcomes, keeping in mind that this may only be the case for accepted applicants.

Caution studying procedures in isolation

Anderson et al. (2010) and Ryan and Ployhart (2000) caution that when comparing literature which has examined perceptions of specific selection methods, it is necessary to clarify which characteristics of the method led to the particular perception. Not all similar selection methods can be grouped into the same category due to their innate differences. For example although cognitive ability measures should be measuring the same construct, the way in which this is done by each test may be different. That is, the format of the questions may differ between tests, although measuring the same construct. Therefore they suggest caution when generalising ratings of favourability and overall perceptions of selection procedures. Furthermore, Ryan and Ployhart (2006) suggested that "procedures may be viewed differently depending upon what else is part of the process" (p.589). This may include factors such as the combination of selection methods and the order of testing.

In particular they suggested that examining a selection procedure in isolation is inappropriate if that procedure is generally used in combination with other procedures. A study which highlights the importance of this suggestion is one by Rosse, Miller and Stecher (1994) who found that perceptions of selection procedures were dependent on the combination of the procedures.

The study utilised an experimental design in that the combination of testing which applicants undertook was manipulated. Two strengths of the study were (1) the use of genuine applicant sample (N = 80), and (2) that the psychological tests were completed, rather than applicants reading a description of the procedure. There were three groups of testing: 1) Interview only; 2). Interview + Personality test; 3). Interview + Personality test + Cognitive Ability test. Applicants were from either a job fair, or from direct applications to the company. Each applicant completed the structured interview as part of an organisation's standard selection process. Applicants were then assigned to a testing condition or a control group. The assignment to groups was based on convenience in that if no test administrator was available, the applicants would not receive testing and would form a control group. The personality test consisted of a shortened version of the NEO Personality Inventory Revised, and the cognitive ability test consisted of the popular Wonderlic Personnel Test. Applicants were asked to rate the privacy and appropriateness of each procedure. As both scales were highly inter-correlated, they were combined into a single measure of appropriateness.

All testing conditions were generally positive, with the most favourable ratings given to the combination of interview plus cognitive ability and personality tests (M = 4.3). This was followed by the interview only condition (M = 4.2). The least favourable was the interview plus personality test condition (M = 3.5). This

suggests that favourability ratings of an otherwise poorly rated selection procedure can be increased by combining it with a highly rated selection procedure. A limitation of the study however was that applicants were not randomly assigned to the experimental groups. Applicant rating may have been affected by whether they were walk-ins at the job fair or direct applicants. This does not allow for a separation of test content reactions and test context reactions.

Selection Outcome

Research has shown that procedural justice perceptions are important before applicants receive their selection decision. However, after a decision is known the outcome becomes more important (Bauer, Maertz, Dolen & Campion, 1998). In other words, once outcome (select/reject) information is given, perceptions about the selection process are less important and may show a smaller relationship with personal outcomes as a result. For example, Bauer et al. (1998) reported that the importance of procedural justice perceptions as a predictor of outcomes decreased once the selection decision was given to the applicants. An explanation for this is that once the applicants have received the selection decision, they are more aware of the direction of the outcome (select/reject) than the components of the selection process (Bauer et al., 1998).

Outcome favourability (pass/fail information) was included in Hausknecht et al.'s (2004) updated model as a component of the perceived procedure characteristics category. More positive reactions were expected from hired applicants compared to rejected applicants. Early research by Lounsbury, Bobrow and Jensen (1989) found that applicants for a position in an apparel manufacturing company (N = 172) who failed an internal battery of tests and did not receive a job offer, had more negative

attitudes towards testing than applicants who passed and were awarded a job. Similar results were found by Bauer et al. (1998); more favourable perceptions of testing fairness were given by applicants who received a 'pass' outcome compared to applicants who were given a 'fail' outcome. A strength of Bauer et al.'s (1998) research was the addition of personal outcomes. That is, rather than only examining an applicant's perceptions of fairness, personal outcomes such as self-efficacy were included in the study.

Bauer et al. (1998) studied reactions of applicants (N = 144) for an entry level accounting job. Perceptions of the firm's selection process were taken at three time periods: pre-testing, post-testing and post-feedback. Results demonstrated that prior to feedback, test taking self-efficacy was predicted by treatment at the test site and opportunity to perform. No difference in test taking self-efficacy was found between applicants who passed the tests and those who failed, as both sets of applicants were found to have an increase in test taking self-efficacy after feedback was given. One explanation for this result is that simply completing the test increased one's confidence regardless of whether they were successful or not.

Earlier research by Ployhart and Ryan (1997) demonstrated similar findings to Bauer et al. (1998); applicants (N = 297) who completed a selection process for a graduate school in psychology which was deemed as fair, showed no difference in self-efficacy between the pass and fail group. Applicants who completed a selection process perceived as an unfair and who also passed had lower self-efficacy than applicants who completed a perceived unfair process and failed (Ployhart & Ryan, 1997). Thus the fairness perceptions of the test were found to mediate the relationship between test outcome and self-efficacy.

Later, Truxillo, Bauer and Sanchez (2001) examined an interaction between job relatedness and test performance and its influence on test taking self-efficacy. It was predicted that job relatedness would interact with test performance to affect an applicant's test taking self-efficacy after they had received their results. Law enforcement officers (N = 379) were required to complete a written multiple choice test and a video based test which consisted of scenarios for which the applicants responded orally to open-ended questions. It was found that for applicants who received a low score on the video based test, there was a negative relationship between job relatedness and video based test taking self-efficacy. In addition, a slight positive relationship was found between job relatedness and video based test taking self-efficacy for applicants who received a high score. No significant results were found for the multiple choice test. These results suggest that an applicant's test taking confidence can be altered by their test performance and that this relationship is dependent on how job related the applicant perceives the test to be.

This research is relevant in that it demonstrates that fairness perceptions and test performance, or pass/fail information can influence an applicant's self-perceptions. This is not only limited to self-efficacy. Schroth and Schah (2000) studied changes in self-esteem as a factor of testing outcomes in 59 undergraduate students. The students participated in a managerial assessment task consisting of ten exercises simulating managerial duties. Once completed, a recruiter indicated whether the students would have been hired or not for an entry level position. Fair procedures led to higher ratings of self-esteem than unfair procedures when the outcome was positive. When the outcome was negative however, fair procedures led to lower ratings of self-esteem than unfair procedures. The results suggest that

applicant reactions and related outcomes are not only related to fairness perceptions and organisational outcomes; psychological reactions to testing are evident.

Summary and New Directions

Applicant reactions are a well-established line of research and have helped organisations to develop selection processes which are viewed favourably by the applicants. Applicant reactions are broad, and encompass a number of categories such as perceptions, behaviour, attitudes and affect. Each has been studied in different contexts and with different samples. The common basis of most applicant reactions research is its grounding in organisational justice theory. Applicant reactions research has tended to focus on fairness perceptions of selection processes and on favourability ratings of selection procedures. The relationship between these perceptions and important organisational outcomes such as organisational attractiveness has been well established. Important personal outcomes such as self-perceptions, although included in applicant reactions models, have been less well studied. Job relatedness and selection outcome have been discussed as two important contributors to psychological reactions (i.e. personal outcomes). Job relatedness has been found to not only influence applicant's perceptions of the selection process, but also an applicant's self-perceptions. The selection outcome plays a major role in an applicant's perceptions of the selection process, and also influences applicant perceptions of their abilities: in general perceptions increase for hired applicants and decreased for rejected applicants.

Greater research into the impact of selection procedures and selection outcomes on an applicant's psychological health, otherwise known as wellbeing, such as self-perceptions and subjective wellbeing is warranted. Although limited,

research has indicated that self-perceptions are affected by the selection process. There is a need for research that examines components of a selection process which may affect the daily functioning of an applicant, and the characteristics of the selection procedure which will affect an individual's future ability to perform.

Psychological Impact of Selection Processes

Beyond Perceptions of Fairness

Research demonstrating that overall wellbeing may be altered by events such as employment status, social relationships and position, and one's financial situation (Diener & Ryan, 2009) highlights the importance of examining changes to wellbeing as a result of taking part in an employment selection process. An employment outcome can influence all the factors identified by Diener and Ryan (2009) positively or negatively depending on the direction of the outcome. Furthermore, the nature of a selection process in terms of the importance placed on the outcome, and the emotional and mental challenges applicants face during the procedures, lends itself to the potential harm of an applicant's wellbeing.

When discussing the development of an applicant reactions model, Gilliland (1993) acknowledged that wellbeing is important. Although not included in the final model, Gilliland stated that "from an ethical perspective, organisations should be concerned with the effects of selection procedures on the psychological wellbeing of applicants" (p. 695). Earlier, Robertson and Smith (1989) and Iles and Robertson (1989) suggested that negative selection process experiences and rejection decisions may produce immediate stress for the applicant as well as reduced later work commitment and job involvement. Ill health, lowered self esteem and lowered

psychological wellbeing were suggested as consequences of a negative selection outcome.

Despite these early suggestions of ill effects on an applicant's psychological health, little research has focused on the psychological impact of selection processes, despite the consequences for an applicant's positive functioning. Psychological impact may be viewed as the direct affect that taking part in a selection process, the procedures involved, and the subsequent outcome has on an applicant's wellbeing. The remainder of this chapter will examine the limited research on psychological outcomes related to selection process participation.

Early Research

Until the 1980's, little work was conducted on the psychological impact of selection processes. Noe and Steffy (1987) were one of the first researchers to move beyond fairness perceptions. Career exploration behaviour was the main variable of interest. The selection procedure was set within an assessment centre for secondary school principles (N = 107). The assessment centre tested twelve skills deemed as important for school administrators: problem analysis, judgement, leadership, organizational ability, stress tolerance, range of interests, oral communication, written communication, sensitivity, decisiveness, personal motivation, and educational values. Results of the study indicated that the evaluation from the assessment centre with regard to promotional potential influenced an individual's motivation to acquire career information. Assessment centre participants who were given a favourable recommendation participated in further career exploration whereas participants whose recommendation was not as favourable did not. In addition, favourable recommendations were related to participant's perceptions of

the assessment centre's credibility in that favourable recommendations were associated with more credible perceptions. A limitation of this research was that no pre-test measures were administered. This makes it difficult to determine whether it was the participation in the assessment centre which influenced career exploration behaviour, or whether other factors may have influenced the decision.

Further studies of assessment centres, were conducted by Fletcher (1991) and Robertson, Iles, Gratton and Sharpley (1991). Assessment centres were examined as their nature, in terms of duration and number of assessment techniques used, were thought to produce a strong emotional impact upon participants (Fletcher, 1991; Robertson et al., 1991). Fletcher (1991) examined affective and behavioural responses to assessment centres, and Robertson et al. (1991) examined cognitive responses to assessment centres.

Robertson et al. (1991) studied a group (N = 141) of managers participating in a management development program. Managers were required to participate in a situational interview, an assessment centre, and a self-development centre, followed by a second assessment centre. The total time elapsed between the beginning and end of the process was approximately ten years. The first assessment centre (A) consisted of tasks which were related to junior level management jobs, such as in basket exercises, staff appraisals and customer complaint discussions. The second assessment centre (B) consisted of activities related to senior management, and included a personality test and two cognitive ability tests. Participants either passed or failed each of the components of the development program. After participants received their results, self-report data was collected on measures of job commitment, adequacy of procedures, perceived career impact and psychological health as measured by the General Health Questionnaire.

Results of the study indicated that perceived impact on career was significantly greater for rejected than accepted applicants. Rejected applicants had greater intentions to leave jobs and careers compared to accepted applicants. This was only the case however for the situational interview and Assessment Centre B (senior management). In other words, there was no difference in perceived impact on career for applicants who passed and failed Assessment Centre A (junior management). Perceived adequacy of procedures was examined in order to determine whether there was a significant difference in perceptions of the three procedures; interview, assessment centre A and assessment centre B. Applicants who completed all assessment centre activities were found to have greater perceptions of procedure fairness or adequacy than applicants who simply completed the situational interview. This result has implications for organisations that choose to use only one selection procedure type in their selection process.

An interesting finding of Robertson et al.'s (1991) study was that psychological health as measured by the General Health Questionnaire, and self-esteem were found to be unrelated to the pass/fail decision. That is, there was no significant difference between applicants who passed or failed on levels of self-esteem and psychological health. This was the same regardless if the participant completed the interview, assessment centre A, or interview, assessment centre A plus assessment centre B. This is unexpected given the previous procedural justice literature indicated that an applicant's self-perceptions after a selection process are moderated by the selection outcome. It may be that as the applicants remained employed even if they failed a component of the development process they were able to maintain the same level of self-esteem and psychological health as before they

entered the development program. These findings are in contrast to Fletcher's (1991) results.

Fletcher (1991) examined applicants from a bank who had undertaken an assessment centre to assess management potential (N = 70). The assessment methods used were an in-tray exercise, group discussion, self-report form, interview and psychometric testing. Fletcher (1991) measured each person's need for achievement, wellbeing, as measured by self-esteem and depressed mood at work, and job involvement. The impact of the selection decision outcome and participation in the assessment centre on need for achievement and wellbeing were examined. Fletcher used a longitudinal design with measures taken before and after the assessment centre, as well as six months after the process. The most striking results were an individual's fluctuation in self-esteem and depressed mood. Successful candidates were found to have significantly lower levels of depressed mood at work than unsuccessful candidates (Fletcher, 1991). Furthermore, self-esteem levels of all participants were seen to increase immediately after the assessment centre. Six months later however, they dropped to a level that was lower than before the assessment centre. This affect was seen to a greater extent in unsuccessful candidates (Fletcher, 1991).

A possible explanation for the difference in results regarding self-esteem between Robertson et al.'s (1989) and Fletcher's (1991) study is that Fletcher analysed both the successful/unsuccessful decision, and assessment centre participation as independent variables. That is, Fletcher examined whether participating in the assessment centre impacted upon the applicant's wellbeing, independent of the decision. Robertson et al. (1991) simply analysed pass/fail outcome and did not take into account the effect actually participating in the exercise

had on the applicant. The effect on self-esteem in Fletcher's (1991) study may have been attributed to the each component of the assessment centre and enhanced by a reject decision, and this is why no affect was found in Robertson et al.'s (1991) study as the impact of the actual procedures was not considered.

Defining Psychological Effects

Anderson and Goltsi (2006) suggested that a limitation with previous research examining psychological impact was a lack of clear definitions of negative and positive psychological effects. They sought to overcome this limitation by developing definitions of both. Negative and positive psychological effects were defined as either a decline or increase in psychological wellbeing, or core self esteem, and important aspects of mental health. Anderson and Goltsi (2006) tested these definitions by directly examining the impact of an assessment centre on an applicants' mental health as measured by the General Health Questionnaire, self-esteem, and negative and positive psychological effects, measured by the Positive and Negative Affect Schedule. The participants of the assessment centre were applicants for a managerial graduate training program (N = 107). The assessment centre lasted two days and consisted of activities assessing nine managerial dimensions. In addition, applicants completed an interview toward the end of the assessment centre as well as verbal and numerical testing.

Measurements of each of the variables were systematically administered at: 1) a point prior to the assessment centre, 2) immediately after the assessment centre but before a decision was known, and 3) six months after the assessment centre (Anderson & Goltsi, 2006). The longitudinal design allows for an examination of impact beyond immediate level reactions. This is important for determining whether

the lasting psychological effects, if any, have a subsequent effect on other aspects of the applicant's life or future ability to perform in selection procedures.

Results from Anderson and Goltsi's (2006) study indicated that applicants who were rejected suffered no long term (i.e., 6 months later) negative psychological effects from attending the assessment centre. Although scores on wellbeing as measured by the GHQ, and self-esteem were lower for rejected applicants, there was no statistically significant difference compared to accepted applicants. Interestingly, there was a slight decrease in wellbeing and positive affect for accepted applicants compared to their first measurement, however this was not significant (Anderson & Goltsi, 2006). Although results were not significant, they suggest that that taking part in an assessment centre may lead to negative psychological effects. This is highlighted by the fact that even successful applicants had a decline in positive psychological effects.

The non-significant effects may be explained by limitations of the research. For example, although measurement times were at intervals, there is a need for further time periods to be measured to determine whether affects are present before the six months period. That is, although applicants were measured for positive and negative psychological effects immediately after the assessment centre, there was no measurement shortly after a decision was known. Thus, there may have been a decrease in wellbeing for applicants who were unsuccessful, however this was not measured. A number of factors could account for maintained levels of wellbeing six months after the assessment centre. Anderson and Goltsi themselves suggested examining the employment status of rejected applicants during this time; if participants were employed soon after the assessment centre for example, this may have influenced the lack of long term negative psychological effects. In terms of

wellbeing, it may be that the General Health Questionnaire is more appropriate for measuring clinical disorders, and not more minor fluctuations in an individual's wellbeing. By examining an applicants' affect as measured by the Positive and Negative Affect Schedule (Watson, Clark & Tellegen, 1988) subtle changes in wellbeing may be detected more strongly.

Summary

The above discussion indicates that selection processes have the potential to influence an applicant's cognitive processes and affective responses, which in turn can have an impact on the individual's behaviour. The results have been mixed and making it difficult to create a clear link between selection procedures and psychological impact. In addition, although psychological impact has been examined in terms of career exploration and career impact, which may in turn impact upon an applicant's health and wellbeing, there has been limited research examining the direct relationship between the selection procedure and an applicant's wellbeing. Selection procedures can produce high levels of pressure and stress on the applicant which may leave a lasting psychological impact on the individual. Thus it is necessary to determine the direct impact a selection procedure has on an applicant's wellbeing.

There is a need for research examining specific psychological variables such as subjective wellbeing as measured by positive and negative affect and happiness, and self-efficacy, in addition to research examining how specific selection procedures may impact upon them. All previous research has examined the impact of assessment centres on the applicant. Unknown is the impact of individual selection procedures such as cognitive ability tests, personality tests, and interviews, or the

impact of a specified combination of procedures. The following chapter will discuss the psychological factors of self-efficacy and subjective wellbeing expected to be impacted on by participating in the present selection process.

CHAPTER 3

Psychological Impact

As more organisations choose to use employment testing as part of their selection process, it is vital to understand how specific procedures affect the individual applicant, and whether these procedures have a lasting effect on an applicant's wellbeing. As applicants are unaware of the theoretical background behind the use of psychological testing within a selection process, being selected and rejected on the basis of testing outcomes has the potential to impact upon an applicant's self-perception and psychological health. Furthermore due to the high cognitive load required to complete a cognitive ability test, or the intrusion of one's identity through completing a personality test, simply taking part in the testing phase of a selection process may have lasting effects on the applicant. This chapter will outline psychological factors which have the potential to be affected in applicants participating in a selection process involving testing and a subsequent selection decision based on testing performance.

Self-Efficacy

Cognitive processes play a prominent role in the acquisition and retention of new behaviour. By examining previous responses to behaviour, an individual will learn to behave in ways that will lead to success and avoid harmful situations, yet if they have doubts about their abilities to perform, success is not likely to follow (Bandura, 1977). The thoughts that an individual holds about their ability are known as self-efficacy. More specifically self-efficacy refers to the beliefs in one's capabilities to mobilise the motivation, cognitive resources and courses of action

necessary to meet situational demands (Maertz, Bauer, Mosley, Posthuma & Campion, 2005). Bandura (1977) proposed four sources of self-efficacy: performance accomplishments, vicarious learning, verbal persuasion, and physiological arousal. The most powerful antecedent of self-efficacy is a person's combination of previous experiences. A person will accumulate successes and failures across different task domains, leading to varying levels of self-efficacy (Bandura, 1977).

Specific and General Self-Efficacy

Bandura proposed that self-efficacy is the belief that one can be successful in a given context. This suggests that a person has a level of self-efficacy related to any number of tasks of which they are to undertake. With regard to selection procedures, self-efficacy has important implications for an applicant's performance on employment testing. Specifically, test taking self-efficacy, which is one's confidence in their ability to undertake written testing (Bauer et al., 1998), will be of particular importance. Although Bandura (1977) conceptualised self-efficacy as being situation or task specific, researchers have become interested in an individual's tendency to view themselves as capable in a broad number of contexts (Chen, Gully & Eden, 2001). Chen, Gully and Eden (2001) suggested individuals have a level of general self-efficacy relating to their overall competence across a wide variety of situations. Similar antecedents to specific self-efficacy have been proposed, however the most powerful antecedent of general self-efficacy is the accumulation of past experiences (Chen et al., 2001). In summary, an applicant can have beliefs about their confidence in specific situations as well as have a broader perception of their confidence across a variety of situations. The similarity of both specific and general self-efficacy is that

the strength of self-efficacy, either specific or general, is related to one's past experiences.

Self-Efficacy and Performance

In terms of a selection procedure, the two most important sources of self-efficacy proposed by Bandura (1977) are performance accomplishments and physiological arousal. Applicants who are not vulnerable to the stress of the situation will likely expect success and perform better. In addition, applicants with previous testing experience will be able to understand the task requirements better and have a greater understanding of their abilities, leading to increased chances of performance success (Bandura, 1977; Gist & Mitchell, 1992). Efficacy expectations are related to performance in that they will determine the effort that is expended by the individual, and how long they will persist in situations with obstacles and aversive experiences (Bandura, 1977). This relationship is important to an applicant's performance in a testing phase, as if they do not have confidence in their ability to perform well, their chances of success will be decreased.

The self-efficacy performance relationship has been demonstrated empirically on several occasions (Bauer et al., 1998; Maertz et al., 2005; Silver, Mitchell & Gist, 1995; Stajkovic & Luthans, 1998). In a series of studies by Silver et al. (1995) undergraduate business students (N = 68) completed practice tests, received answers and completed surveys of self-efficacy levels. The real test was completed shortly after the practice test. Results of the study indicated that participants with higher levels of self-efficacy before the real test performed better than participants with lower levels of self-efficacy (Silver et al., 1995). A concern with these findings however is that performance results may have been influenced by practice.

Participants who had higher levels of self-efficacy before the real test had performed well on the practice test, thus their successful performance on the real test may have been a factor of the practice test, not their self-efficacy. Nevertheless, there is some indication that self-efficacy causes and is caused by performance. This was also confirmed by Maertz et al. (2005).

In Maertz et al.'s (2005) study, 287 utility company job applicants' self-efficacy was examined before and after the testing process, and after feedback was received. An additional variable examined was whether the applicants had previous experience with being hired via a selection process that involved testing. Results of Maertz et al.'s (2005) study revealed that applicants who had previously been hired via a selection process involving testing reported higher levels of self-efficacy than those applicants who had no experience with testing at all. The lowest levels of self-efficacy were seen in applicants who had been through selection procedures involving testing, and had not been hired. The findings of this study suggest a reciprocal relationship between test performance and self-efficacy in that past performance experience influences self-efficacy, which in turn influences future performance (Maertz et al., 2005). Self-efficacy was seen to increase for those who passed the testing phase and decreased for those who failed. However failing had a smaller negative effect on self-efficacy for those applicants who had been hired previously by ability tests, than for those who had not been hired by them (Maertz et al., 2005).

Early research by Schmitt, Ford and Stults (1986) indicated that it is not only the outcome of the task, such as pass/fail, which can influence an individual's self-perceptions, but that the task itself can change a person's self-perceived abilities. Schmitt et al. (1986) examined the changes in self-perceived ability as a function of

performance in an assessment centre. They found that regardless of specific feedback, applicants changed their perceptions of their abilities after participating in an assessment centre. Interestingly, changes in self-perceptions changed in accordance with the type of exercise undertaken, for example role plays played the most significant role in predicting changes in decision making and the in-tray exercise produced changes in a person's perception of their ability to plan and organise. Thus, the type of activity an individual participates in appears to mediate the relationship between performance and self-perceptions.

Attributions

Gist and Mitchell (1992) identified two types of assessment processes in the formation of self-efficacy: the first, an analysis of task requirements, and the second an attribution analysis of experience; that is, why did previous performance happen the way it did? In the case of employment testing, applicants will attribute their performance either to their own abilities or to external sources such as number of resources available, task complexity and task environment. Thus, depending on whether internal or external attributions are made about one's performance, a person's self-efficacy will increase or decrease accordingly. Silver et al. (1995) supported this notion in a study in which undergraduate business students (N = 103) were seen to alter their levels of self-efficacy depending on the attributions made. The students were required to complete a component of the Graduate Management Admissions Test and rate their self-efficacy after completing a practice version. The students then completed the real version and results were given. Students were asked to make attributions about their performance and re-rate their self-efficacy. Students with previously high self-efficacy attributed unsuccessful performance to bad luck,

whereas low self-efficacy participants attributed unsuccessful performance to lack of ability. Students who made external attributions maintained levels of self-efficacy, whereas students who made internal attributions saw a further decrease in self-efficacy.

Although it has not been explicitly examined, an individual's attributions appear to be related to their level of general self-efficacy. General self-efficacy positively influences specific self-efficacy across tasks and situations (Chen et al., 2001). General self-efficacy is hypothesised to moderate the impact external influences have on a person's specific self-efficacy. That is, the specific self-efficacy such as test taking self-efficacy of high general self-efficacy individuals is less susceptible than is the specific self-efficacy of low general self-efficacy individuals. Thus, in the situation of passing or failing an employment test, generally it is those individuals who have higher levels of self-efficacy who rate success to their own ability and failure to external sources (Chen et al., 2001; Silver et al., 1995).

Self-Efficacy Summary

A person's self-efficacy, in particular their test taking self-efficacy, is an important personal factor for the testing phase of selection process. The above research shows that a person's experience and subsequent self-efficacy can lead to successful or unsuccessful performance. If an applicant already has a low level of testing efficacy before the selection process, this may lead to poor performance, and an even further decrease in efficacy. This could lead to negative efficacy spirals, where the applicant goes through a continual process of poor performance and decreased efficacy. This may lead the applicant to view the selection process as unfair due to the testing, or it may even deter the applicant from applying to future

organisations where testing is involved. The research conducted in this area however has been limited in its examination of testing within a selection context. Furthermore, there has been a lack of studies manipulating the specific test taken. The next section of this chapter will examine subjective wellbeing, which is additionally proposed to be influenced by selection processes involving testing and the subsequent decision.

Subjective Wellbeing

Theories and Models

The 1950's saw an increased interest by psychologists in positive emotions and feelings of wellbeing. There was a consensus that self-reports about people's lives could convey information about underlying emotional states (Diener, Oishi & Lucas, 2003; Diener, Suh, Lucas & Smith, 1999; Ryff, 1989). There have been a number of approaches to defining, conceptualising and studying wellbeing; two key conceptualisations are hedonic wellbeing and eudaimonic wellbeing. Hedonic wellbeing is related to a person's feelings and focuses on the balance between positive and negative affect. Eudaimonic wellbeing on the other hand goes beyond what a person is feeling and focuses more on what a person is doing or thinking and their quest to actualise human potential (Diener et al., 2003). Both the hedonic and eudaimonic approach to wellbeing can be viewed as a philosophical position on wellbeing as they are concerned with how developmental and social processes relate to wellbeing as well as prescribing approaches to living. From these philosophical viewpoints, operational definitions of wellbeing have developed. From hedonic research the concept of subjective wellbeing has emerged.

Although subjective wellbeing is not the same as happiness, it is derived of factors that are associated with happiness and satisfaction with life. Specifically,

subjective wellbeing consists of three related yet distinct components: life satisfaction, positive affect and the absence of negative affect (Diener, et al., 2003; Diener, et al., 1999 & Lent, 2004). These can be combined into two broader components; an affective component which is associated with the presence of positive affect and the absence of negative affect, and a cognitive component. The affective component is guided by a person's emotions and feelings, while the cognitive component is an evaluation of one's life. Here people judge whether their life meets their expectations of their 'ideal' life (Diener et al., 2003). Although each of the components of subjective wellbeing are an evaluation of a particular situation, each of the facets are largely independent (Diener et al., 2003). That is, both the affective and cognitive components combine to form an overall evaluation of subjective wellbeing, however the components can also be evaluated independently of the other.

There has been argument though over whether positive and negative affect are separate constructs (Schmukle, Egloff & Burns, 2002). Watson et al.'s (1988) original factor analyses demonstrating positive affect and negative affect to be separate, have been replicated on several occasions (Crawford & Henry, 2001; DePaoli & Sweeney, 2000). Positive affect is a pleasurable experience and reflects the extent to which a person feels enthusiastic. In contrast, negative affect reflects subjective distress and aversive mood states. Although it may seem that these two constructs are polar opposites, evidence suggests that negative affect, but not positive affect is related to self-reported stress and poor coping, and positive affect but not negative affect is related to social activity and satisfaction (De Paoli & Sweeney, 2000; Watson et al., 1988).

Ryff and Keyes (1995) have argued against subjective wellbeing arguing that satisfaction and affect based measures of wellbeing are not based on theory. Ryff and Keyes (1995) suggested that wellbeing is more than happiness and pleasure and posited a multifaceted model of wellbeing. Psychological wellbeing, which is closely aligned to the eudaimonic view of wellbeing, encompasses positive self-regard, mastery of the surrounding environment, quality relations with others, continued growth and development, purposeful living, and the capacity for self-determination (Ryff & Keyes, 1995). Ryff (1989) viewed wellbeing as related to realising potential in oneself. Happiness is not absent from the model, yet will come as a consequence of leading a life with positive emotional and physical health. It could be argued that achieving psychological wellbeing may be a lifelong quest, as one may never realise their full potential. Thus although measures have been derived, they are only be able to establish broader concepts of wellbeing. Hence, in order to conceptualise wellbeing more simply, examining one's happiness and life satisfaction in the form of subjective wellbeing is more appropriate.

Wellbeing and Work

Research has demonstrated that working is important and can in fact be essential to a person's psychological health (Blustein, 2008). Work and psychological health are not necessarily directly related, however one's psychological health can be enhanced by the associated benefits related to working. For example, working connects people to a broader social and economic network, and can provide a means for feelings of satisfaction and accomplishment. There is no arguing that work can pose a threat to psychological health particularly during times

of high stress, however for the majority of the time working plays a central role in the development and maintenance of psychological health.

In a study of German households (N = 5184) it was found that individuals who lost their jobs experienced a decline in subjective wellbeing as measured by one's happiness and satisfaction. This was expected, however a crucial finding was that these people failed to return to their original level of wellbeing even after they were re-employed in another organisation (Lucas, Clarke, Georgellis & Diener, 2004). This highlights the affect employment or lack of can have on a person's health. McKee-Ryan, Song, Wanberg and Kinicki (2005) suggested that unemployment deteriorates a person's mental health and decreases their capacity to shape their environment in a positive way, as well as reducing their job search intention and behaviour and lowering their reemployment probability. This has been highlighted further by Strauser, Lustig and Giftci (2008). Psychological wellbeing was found to affect career development decision making and motivation to engage in career development activities. Applicants who were found to have increases in negative affect became inhibited by confusion and negative emotion states regarding career decision making, leading to decreased levels of motivation to actively seek out future jobs.

Wellbeing and Employment Testing

Research has shown that people are more likely to be satisfied within a given life domain when they see themselves as making progress toward personally valued goals, possessing capabilities necessary for successful attainment of those goals, and when they feel they are likely to attain valued outcomes within the specific domain (Lent, Singley, Sheu, Gainor, Brenner, Treistman & Ades, 2005). Thus as

employment plays a prominent part in everyday life (Blustein, 2008), a rejection selection decision based on employment testing performance may be viewed by the individual as on obstruction to attaining a valued outcome, and lead to a self-perception of having inadequate capabilities. If this does occur, satisfaction may decrease and an increase in negative affect may be visible.

Schinkel, van Dierendonck and Anderson (2004) studied the effects different types of selection feedback had on student's (N = 119) wellbeing. The students were required to complete two general mental ability tests and received either performance feedback in the form of a percentile rank or were simply told their performance did not meet the criteria. Applicants who received performance feedback had a decrease in core self-evaluations whereas the no performance feedback group had an increase. That is, students who were able to compare their performance to others saw a decrease in their core self-evaluations, whereas students who could not compare felt no impact upon their core self-evaluations. In addition both groups had a significant decrease in affective wellbeing suggesting that regardless of whether performance information is given or not, negative feedback will influence an individual's wellbeing to some degree.

Research has additionally indicated that simply taking part in a selection process can impact upon an applicant's wellbeing. Malde (2006) conducted research on how assessment centres treat candidates and it was found that applicants felt that too much focus was placed on the job and not enough on the candidate. This raised candidates' levels of anxiety during the process and there was also an indication that a candidate's self-worth was affected during and after the process. This was particularly the case for candidates who were not successful.

Subjective Wellbeing Summary

An individual's wellbeing is vital to their day to day functioning and future performance, both generally and in employment. A selection process has the potential to influence an applicant's subjective wellbeing due to the negative consequences associated with a negative outcome. Positive outcomes can benefit an applicant's wellbeing; however the impact a negative outcome has can potentially be far reaching and therefore warrants attention. Very limited research has examined the influence specific selection procedures have on an applicant's subjective wellbeing, and how a subsequent selection outcome based on the testing results further impacts upon subjective wellbeing levels.

CHAPTER 4

Selecting From a Diverse Population

The previous chapters have discussed the personnel selection process and the testing procedures commonly included within the process. The procedures have been discussed in terms of what they measure and predict and any controversy which may surround the use of such methods. This was followed by a discussion about the different types of reactions applicants may have to selection processes involving the use of testing procedures and the implications for organisations and individual applicants. It was noted that previous applicant reactions research has had a central focus on organisational justice and fairness perceptions, with little research examining the psychological reactions an applicant may have to selection procedures. An applicant's wellbeing was suggested as an aspect of an applicant's psychological health which may be impacted. The focus will now shift toward the construction of testing procedures and the score differences that arise from the use of testing procedures. An applicant's ethnicity and language background are suggested to influence an applicant's testing performance. An applicant's performance will in turn have an effect on the perceptions of the selection processes and the psychological reactions which occur during and after the testing process.

A Diverse Labour Market

Demographics

Australia is a diverse country built on a rich indigenous and migrant history. Each year, Australia welcomes more than 120, 000 migrants and resettles around 13, 000 people under its humanitarian program. In 2006, almost one in four of

Australia's estimated resident population of 21 million was born overseas (Australian Bureau of Statistics, 2006). At the 2006 Census, overseas-born people in Australia were from North-West Europe (1.4 million), Southern and Eastern Europe (722, 000), South-East Asia (553, 000), Oceania (496, 000), North-East Asia (389, 000), Southern and Central Asia (268, 000), North Africa and the Middle East (251, 000), Sub-Saharan Africa (192, 000) and the Americas (180, 000) (Australian Bureau of Statistics, 2006). Australia's population speaks nearly 400 different languages (Australian Bureau of Statistics, 2009) and observes a variety of religious and cultural traditions. Each new member to Australia's society brings unique experiences. Migrants are classified as either skilled, family or humanitarian. Family migrants are granted entry into the country based on reunification of families. Skilled migrants are considered to have skills valuable to the Australian workforce, and humanitarian migrants are granted entry based on humanitarian ground.

A migrant's status can influence their ability to settle into a new life. Migrants with greater social support find the transition into a new society less difficult than migrants with no support and limited language proficiency or employable skills. Data from the Australian Bureau of Statistics (2006) suggests that only 17% of humanitarian migrants are employed, and 50% of skilled and 36% of family migrants are employed within a year of their arrival to Australia. Furthermore, skilled migrants find themselves working in jobs in which the skills required are at a lower level than which they are qualified (Ethnic Communities Council Victoria, 2008). Migrants and refugees who find themselves in this situation for a long period of time become disillusioned and are affected by decreased levels of confidence. For migrants in low skilled work areas, it can be difficult to break into an area in which

they are qualified as they are unable to develop professional networks or local experience within the field (Ethnic Communities Council Victoria, 2008).

Applicant Language Proficiency

According to the Australian Bureau of Statistics, one of the greatest challenges migrants face when gaining employment is their English language proficiency. Limited language skills make it difficult for low proficiency individuals to communicate in the workplace, thus are not viewed as favourably as applicants who have high levels of language proficiency. Furthermore, in order to be viewed favourably throughout the selection process, applicants require a high level of language proficiency in order to communicate during interviews, and complete any employment testing that may be required (Ethnic Communities Council Victoria, 2008). Often employment testing takes the form of a written test such as a cognitive ability test or personality test. Assessment centre activities also require applicants to understand instructions and demonstrate their knowledge through role playing or by completing common workplace activities.

Employment testing requires the applicant to have high levels of language proficiency if they are to complete them successfully. For tests such as cognitive ability and personality tests, the nature of the questions requires a strong understanding of language components such as grammar, spelling and colloquialisms (Robertson & Smith, 2001). For an applicant who is new to a country or has limited English language, it may be difficult for them to firstly understand what is being asked in the testing items, and secondly to answer correctly. In a non-written testing situation, if applicants are unable to verbalise their knowledge, or converse to a standard which is expected in the workplace, they will be less successful in the

employment selection process. The Ethnic Communities Council of Victoria (2008) found that migrants, who were relatively proficient at English, were hindered by the use of jargon, acronyms, slang, and other 'insider language'.

The challenge that employers face in these situations is that applicants with limited English language skills may have greater technical skills and knowledge than other applicants, however are unable to demonstrate this due to language constraints. Inability to perform successfully can result in a non-select decision which has implications for the applicant's wellbeing. As was noted in chapter 2, applicants who are not selected may react negatively to current and future testing situations, and demonstrate a decrease in their wellbeing. Thus if organisations choose to use employment testing that is known to produce differences in scores amongst subgroup members, consequences for the organisation and the applicant can be negative.

This chapter will propose components of test construction and administration which affect an applicant's ability to perform successfully. Although previous research has examined score differences with regard to racial differences, this chapter will suggest alternate sources of score differences, namely English language proficiency, and factors such as test taking experience related to applicants' cultural backgrounds. The chapter will begin with an overview of previous score differences resulting from testing use, before suggesting possible determinants for the score differences.

Determinants of Group Differences on Employment Testing Scores

Overview of Score Differences

Organisations are faced with the challenge of developing selection processes which include valid selection procedures that do not discriminate unfairly and do not

result in unjustified differences in the selection rate of ethnic minorities compared to majority group applicants. The dilemma organisations face is one of diversity versus validity in that there is a tendency for group differences to occur as the validity of selection procedures is increased (Kravitz, 2008). The use of cognitive ability tests creates the concern that although tests of general mental ability are consistently good predictors of a wide range of criteria, they result in substantial adverse impact decreasing the chance for minority members to be selected on the basis of this form of testing (Murphy, Cronin & Tam, 2003).

The most commonly studied score differences have been between Black and White test takers. It is commonly accepted that Blacks score approximately one standard deviation below Whites on measures of general intelligence (Hough, Oswald & Ployhart, 2001). Subgroup differences are not confined to ability testing; however the magnitude of the differences is strongest using this method. Interviews have produced smaller group differences than ability tests. Compared to one standard deviation for ability tests, interviews produce scores one quarter of a standard deviation lower for Black and Hispanic individuals compared to White individuals (Hough et al., 2001). Furthermore, although research has demonstrated group differences in personality measures (Hough, 1998), generally the use of personality testing decreases the potential for differential hiring rates (Risavy & Hausdorf, 2011). Given the complexity of ability testing and the magnitude of score differences produced by ability testing, the majority of the discussion will focus on this selection method.

The aim of a selection procedure is to distinguish between high performing and lower performing applicants. In order to distinguish between applicants, the procedures need to produce testing scores which can differentiate the levels of

performance. When the score differences favour one applicant group over another however, differential hiring rates occur (Hough et al., 2001). In other words, there will be different selection rates for different group members. This is highlighted in situations where there are a large number of applicants but only a small number of positions available. In this instance only the top scoring individuals will be selected, therefore if minorities are known to score on average lower than majority groups on employment testing, they will have less of a chance to be selected. The difficulty for selection practitioners is determining whether the differences that do occur are due to true differences in ability, or due to factors relating to the construction of the test and the way it is delivered.

Test Content as a Determinant of Score Differences

Tests with a high 'g' loading

The degrees to which a test is loaded on 'g' or whether a test is culturally loaded are two content related determinants of score differences. Whenever a significant correlation is found between a *g*-factor loading and any variable, a Jensen Effect is said to occur (Jensen, 1980). One of the most well-known Jensen Effects is the Black-White difference on tests of general intelligence. Jensen noted that racial score differences were smaller on tests of non-verbal ability and short term memory, than tests of verbal ability, abstract reasoning and transforming information (Jensen, 1980). Jensen found the solution in Spearman's hypothesis about general intelligence, which holds that Black-White differences in mean scores on intelligence tests are dependent on the *g* loading of the tests (Jensen, 1980). The higher the *g* loading, the larger the score difference (Goldstein, Yusko, Braverman, Smith & Chung, 1998; Roth, Huffcut, Bobko, 2003). This suggests that the level of

intelligence required to complete the test is influencing the score differences between groups.

Cultural equivalence

In some cases, items require test takers to recognise certain situations, events or things that are common to Western cultures but less common in other cultures. Helms-Lorenz, van de Vijver and Poortinga (2003) proposed that Jensen effects or a high *g* loading are not the major contributors of group score differences, but instead the differences are caused by cultural differences. In research which focuses on multi-group comparisons, it is assumed that the measurement tools used function the same way for all groups and that the underlying construct has the same psychological and theoretical meaning across the groups (Helms-Lorenz, et al., 2003). This cannot be assumed, and like other psychometric properties of any instrument, must be tested. When the comparisons made in research are between groups from the same culture, assessment techniques are generally straightforward. Comparing multi-cultural groups however adds the potential for nuisance factors due to the diversity amongst groups (Helms-Lorenz, et al., 2003). This issue becomes pertinent in personnel selection processes as it is necessary to ensure that the decision is based on a true comparison and not one that is confounded by external variables.

Lonner (1981) discussed four types of test cultural equivalence requiring consideration during test construction and administration. The aim for test constructors is to achieve functional equivalence. This occurs when test scores have the same meaning across cultures and measure psychological characteristics which occur with equal frequency across the groups. The second form is conceptual equivalence which relates to the familiarity and meaning of the test content. In other

words, do the questions mean the same thing across cultures? Conceptual equivalence is important when translating tests from one language to another. Translation of psychological tests involves more than rewriting the text in another language. A direct translation of the questions will not always capture the cultural meaning leading to an incorrect interpretation of the intended measure. Personality measures are particularly difficult to translate and have been found to measure different constructs in Eastern countries due to diverse beliefs and cultural differences.

When used in a non-Western culture, caution must be given to the interpretation of personality scores. Many items that describe personality characteristics may contain idiomatic expressions that are unfamiliar to non-native speakers, therefore inaccurate understanding of the items may bias test results (Cheung, 2004). Ability tests too have proven to cause problems during translation due to the many meanings which can apply to direct translations into an Asian language (Cheung, 2004).

Sampling equivalence ensures that the samples of subjects representing each racial or ethnic group are comparable at the test development, validation and interpretation stages. Testing condition equivalence relates to the way the test is taken and how it measures the construct and whether these methods are equally acceptable and familiar across groups. It is unlikely that each of these types of equivalence are met for every person who undertakes a test for employment, however it is important for recruiters to be aware of the external factors which influence an applicant's performance (Lonner, 1981).

Summary

Score differences have been found between Whites, Blacks and other ethnic minorities on tests of general intelligence. The source of these differences is unclear. Cultural loading and *g* loading have been suggested as test content determinants of score differences. The content of a test in terms of the way it is developed and administered can have implications for minority group members. General intelligence or *g*, related to test content, is also related to a person's ability. Cultural equivalence on the other hand is related to test content but also to a person's experience. In other words, if score differences are found to occur due to a high loading on *g*, this suggests that there is a difference in the test takers cognitive abilities. Alternatively, differences found on tests with items that have a high cultural loading may suggest that the difference is due to something more than the person's intelligence. Researchers have turned their attention to alternate sources of variance such as English language proficiency and test taking strategies (Nguyen, O'Neal, & Ryan, 2003).

Individual Differences as Determinants of Score Differences

English language proficiency

Proficiency in English is fundamental for full participation in Australian society, as it holds the key to understanding the economic, educational, social and political domains within the country (Stevens, 1999). Immigrants who are not proficient in the English language face a number of obstacles in their quest for full participation in the country. Age at entry can play a large part in the assimilation of immigrants, as younger individual's will have the opportunity to gain exposure to the English language as well as the Australian educational system (Stevens, 1999). Older

immigrants on the other hand may find it more difficult to assimilate as they will have an already established language, and find it harder to acquire English as a second language (Stevens, 1999). It is requirement however that individuals applying for work visas have a vocational level of English (Department of Immigration & Citizenship, 2011).

To satisfy this requirement, the individual must have a reasonable command of the English language. They must be able to read, write, understand and speak English well enough to communicate effectively for most purposes and in their field of business (Department of Immigration & Citizenship, 2011). A common method of assessing English language proficiency is via the International English Language Testing System (IELTS) test scheme. The requirements for this test ask that the individual achieves at least 5 points (modest user) for all four components of the test. The components are made up of speaking, reading, listening, and writing (Department of Immigration & Citizenship, 2011). Considering the applicant only has to demonstrate a modest use of the English language, this may create future difficulties for the individual, particularly when seeking out employment. Many selection procedures involve the use of techniques with challenging verbal components (Solorzano, 2008), therefore any individual who does not have a good understanding of written and spoken English, may find it difficult to complete these tasks.

English language proficiency and employment testing

Achievement tests are not designed with second language test takers in mind resulting in potentially less valid decisions being made on the basis of the achieved test scores (Solorzano, 2008). The assumption made is that due to the rigorous

development process, the test will be valid, reliable and fair, and results comparable across populations (Solorzano, 2008). The difficulty in this assumption however is that English language learners are not taken into consideration during test construction. Cummins (1981) argued that because constructing a representative sample often means that the sample will be taken from a majority group, the bulk of items selected for 'try-out' will reflect the prior learning experiences of the majority group. The American Educational Research Association (1999) addresses this issue. They state

> it is important to consider language background in developing, selecting, and administering tests and in interpreting test performance..... Test norms based on native speakers of English either should not be used with individuals whose first language is not English or such individual's test results should be interpreted as reflecting in part current level of English proficiency rather than ability, potential, aptitude or personality characteristics or symptomatology (p. 91).

Although these standards are referring to the education system, the issues apply to employment testing. When tests are developed using English as the language reference, it is likely that some form of cultural and language bias will be integrated into the test. Bias occurs if score differences on the indicators of a particular construct do not correspond to differences in the underlying trait or ability (Reeve & Bonaccio, 2009). In the case of language, if score differences are found which are not related to ability, but are related to language, then language bias is a result. This creates problems when interpreting test results of job applicants whose first language is not English. If an applicant is not proficient in the language of the tests, their performance is likely to be affected by construct irrelevant variance. That is, their

test score is likely to underestimate their knowledge of the area being tested due to irrelevant performance factors (Solorzano, 2008).

Testing design emphasises speed, accuracy or a combination of the two. The emphasis placed on speed and accuracy for job performance in different cultures, will impact the way the individual approaches their performance in testing (Baron, et al., 2003). In Western cultures, speed of performance is highly valued, whereas in Eastern cultures, performance quality and relationships are valued. When transferred to a testing situation, individuals from cultures that place less emphasis on speed may underperform unless they have more generous time limits (Baron, et al., 2003). Certain linguistic features of test items make it difficult for English language learners to read and comprehend the test items at a sufficient level necessary for successful performance. Passive voice, comparative structures, sentence and discourse structure can all slow down the reader if they are not proficient in the English language (Solorzano, 2008). This can result in English language learners being disadvantaged in a testing situation with time limits as they will need more time to process the questions (Baron et al., 2003).

The language background of applicants and the influence on test performance

The development of language proficiency for migrants is influenced by several factors, the most influential being age of acquisition, environmental conditions such as ethnic neighbourhood concentration, and language background (Ethnic Communities Council Victoria, 2008). Individuals who were born in a non-English speaking country and whose parents do not speak English will have greater difficulty developing proficiency than someone who was born in an English speaking

country and speak a language other than English at home (Stevens, 1999). Furthermore, individuals who were born in a non-English speaking country, but have at least one parent who speaks English will find it easier to learn the English language (Stevens, 1999). Carstairs, Myors, Shores and Fogarty's (2006) studied the effects on specific language background categories on intelligence test performance.

Language categories were divided into English speaking background (ESB) or non-English speaking background (NESB). Furthermore, NESB was divided into 'first spoke a language other than English (NESB OE)' or 'first spoke English (NESB E)'. Verbal IQ, Performance IQ and overall IQ were found to be susceptible to language background. Performance on verbal IQ was best for participants with an ESB, followed by NESB E, NESB OE (Cartstairs et al., 2006). That is, individuals who had an English speaking background performed better on measures of verbal IQ than non-English speaking background individuals. This suggests that the difference was due to language background. In contrast, performance IQ, although English speaking background participants performed better overall, there was no difference between the two non-English speaking background groups. That is, there was no difference in scores on performance IQ between non-English speaking background participants regardless of whether they spoke English or another language first. This suggests that testing which has a strong verbal component and less of a performance component will disadvantage applicants with a language background other than English, or applicants who have not had the opportunity to develop their language skills.

A major influence on language proficiency development is the amount of exposure the individual has to the language (Stevens, 1999). If migrants are immersed in the culture and language of their new country, their ability to develop

the language skills will be greatly increased. Related to this is age of acquisition, as children of migrants will be exposed to the education system and therefore the language of the country, and will therefore develop greater proficiency than their parents (Stevens, 1999).

In a study examining entry into the police force, immigrant applicants from Turkey, Morocco & the Caribbean were studied in comparison to first and second generation Dutch applicants (de Meijer, Born, Terlouw & van der Molen, 2006). Results of the study showed that ethnic differences in cognitive ability scores were considerably larger than ethnic differences in measures of job performance. This suggests that applicants who perform poorly on tests of cognitive ability are still able to perform on the job to the same level as applicants who performed well on the tests. Specific results showed that for cognitive ability tests and to a lesser extent personality tests and interviews, Dutch applicants scored higher than the groups from Turkey, Morocco and The Caribbean (de Meijer et al., 2006).

An interesting finding was that there were differences found between first generation Dutch applicants and second generation Dutch applicants. Second generation applicants were found to outperform first generation applicants on all selection procedures. This result was investigated further for the cognitive ability test. The test was divided into subtests for crystalised intelligence (measures of verbal comprehension, numerical reasoning, word fluency and picture arrangement) and fluid intelligence (measures of inductive reasoning and spatial ability). As with the overall result, score differences favoured second generation applicants; however the score difference for subtests of fluid intelligence were somewhat smaller than for subtests of crystallised intelligence (de Meijer et al., 2006). In other words, second

generation Dutch applicants performed better on measures of verbal ability than first generation Dutch applicants.

An explanation given for the above results was applicants' Dutch language proficiency. The variance in cognitive ability test scores explained by Dutch language proficiency was 16%, compared to .05% for education and .05% for ethnicity. For the personality test, Dutch language proficiency explained more variance than education and ethnicity, accounting for 0.60% of variability in test scores compared to 0.02% for education and ethnicity combined (de Meijer et al., 2006). The explained variances suggest that an applicant's language proficiency influences their test scores more so than their education and ethnicity. This was highlighted further by the result where second generation Dutch applicants scored higher on measures of verbal comprehension than first generation Dutch applicants.

Second generation Dutch are born in the Netherlands, and therefore have been brought up in a Dutch-speaking environment and educated in the Dutch education system. Even though second generation Dutch may speak their native language at home, they have a language advantage over their parents due to being exposed at a young age to the Dutch culture, values, norms and most importantly language. This proposition was supported by Bleichrodt and Van den Berg (1995) who found that first generation ethnic minority group members who moved to the Netherlands before the age of seven (before starting their primary education) scored significantly higher on cognitive ability tests than first generation ethnic minorities who moved to the Netherlands after the age of seven.

In summary, language background has been proposed to influence test score differences above cultural and ethnic differences. Individuals who are from a

minority background but have been exposed to their new language and culture at a young age tend to outperform individuals who have not had this exposure.

Summary

The current chapter has raised issues relating to test construction and how cultural and linguistic factors can influence an applicant's ability to perform successfully in a selection process, particularly one involving ability testing. As a substantial proportion of cognitive ability tests, or even personality tests require verbal ability in terms of reading comprehension, or knowledge of the English language, language proficiency may potentially be a contributor to group differences. Furthermore, subtests such as picture completion require some knowledge of the culture in which the test was developed. There has been little to no research in the applicant reaction domain where a clear definition of the cultural dimensions being examined has been imposed, or the language proficiency of applicants has been examined. Since many organisations are establishing themselves globally, and with the increased number of international applicants required to fill labour jobs, the issue of cultural background and language proficiency will become prominent for many organisations. In order to ensure that applicants who have adequate skills to perform the job have every opportunity to be selected, alternate influences on testing outcomes such as language proficiency require examination.

CHAPTER 5

The Current Study

The aim of the present study was to extend applicant reactions research by exploring the psychological impact of personnel selection processes involving selection testing. Applicants' wellbeing was assessed at three time periods: before applicants completed an employment interview (Time 1), after applicants completed a selection procedure (Time 2), and finally after the applicant received a selection decision (Time 3). The advantage of the three time periods is that this enables an examination of how an applicant's perceptions of their wellbeing changes as a factor of components of the selection process (testing and decision). The design of the present study also allowed for an examination of how various combinations of selection procedures affect an applicant's wellbeing. Applicant's language background was examined allowing for an exploration of language effects on testing performance and changes in wellbeing.

Design Considerations

Ployhart and Ryan (1998) and Chan, Schmitt, Sacco and DeShon (1998) have called for more basic experimental research into applicant reactions. An advantage of experimental design studies is that selection procedures can be manipulated and the impact on an applicant observed. Ployhart and his colleague (1998) argued that manipulations in field settings are difficult as it is inappropriate to treat one group of applicants differently from another, as there may be benefit to one group and not the other. Hence it is recognised that experimental design precludes actual applicants and will consist of a student population. In order to be able to examine moderators and

mediators and create the necessary manipulations, an experimental research design was used in the current study. The current study aimed to overcome the limitations of previous research by manipulating the type of selection procedure the applicant undertakes as well as the outcome (i.e., select/not select).

Chan and Schmitt (2004) argued that it is important to examine changes in applicant reactions over time. Previous applicant reactions research has been limited in its ability to examine changes over time due to the lack of multiple measurements; most often the reaction was measured only once. The few studies, which have looked at reactions over time, have only looked at pre- and post-test. Greater longitudinal research is needed to allow for a better understanding of how each stage of the selection process influences applicant reactions (Ployhart & Ryan, 2000). The current research included three measurement periods: Time 1, before interview + testing; Time 2, immediately after testing but before the outcome; and Time 3, after the outcome. This design allowed for a better understanding of the changes in an applicant's wellbeing from one selection stage to the next, and also observed how the selection procedure and decision outcome moderate this change.

Aims and Hypotheses

Aims

The aim of the proposed research was to investigate whether participating in an employment selection process involving employment testing and a subsequent selection outcome had a significant effect on an applicant's level of test taking self-efficacy, general self-efficacy, positive affect, negative affect and satisfaction with life. Combined, these variables are referred to as an applicant's wellbeing. The research also aimed to examine the psychological variables across three time periods

during the selection process. In addition to psychological effects, the research aimed to determine whether there was a significant difference in psychological reactions to an employment selection process between applicants of an English Speaking Background (ESB) and applicants of a non-English speaking background (NESB).

Hypotheses

Applicant reactions research has highlighted that applicants alter their perceptions based on descriptions of selection procedures as well as the experience of completing a selection procedure. Limited research (Robertson et al., 1989; Fletcher, 1991) has suggested that an individual's core self-evaluations and affective responses can be altered by taking part in a selection process. Furthermore self-efficacy is strongly influenced by previous performance, and altered accordingly (Gist & Mitchell, 1998). Based on these results as well as the need to explore psychological impact further, the following hypotheses were proposed:

Hypothesis 1: Test taking self-efficacy, general self-efficacy, satisfaction with life, positive affect and negative affect will significantly change from Time 1 to Time 2; from Time 2 to Time 3; and from Time 1 to Time 3.

Hypothesis 2: Following employment testing there will be a significant difference in applicant test taking self-efficacy scores with applicants in the interview only group scoring the lowest and applicants in the cognitive-testing group scoring the highest.

Hypothesis 3: Following employment testing, there will be a significant difference in positive affect and negative affect scores between applicants in the four testing groups.

Hypothesis 3a: Applicants in the interview-only group will have the lowest scores on negative affect and the highest scores on positive affect.

Hypothesis 3b: Applicants in the cognitive + personality-testing group will have the highest scores on negative affect and the lowest on positive affect.

Hypothesis 3c: There will be no significant difference in scores of satisfaction with life between applicants in all testing groups.

Hypothesis 4: Following a selection decision outcome, selected applicants will demonstrate a pre- to post-outcome increase in test taking self-efficacy and general self-efficacy, whereas non-selected applicants will demonstrate a decrease in test taking self-efficacy and general self-efficacy.

Hypothesis 5: Applicants who receive a positive selection outcome will have increased levels of subjective wellbeing from Time 2 to Time 3, whereas applicants who receive a negative selection outcome will have decreased levels of subjective wellbeing from Time 2 to Time 3. This will be indicated by increased levels of positive affect and increased levels of negative affect respectively.

Hypothesis 6: Applicants who are selected will see an increase in satisfaction with life from Time 2 to Time 3, whereas non- selected applicants will see a decrease in satisfaction with life from Time 2 to Time 3.

Previous research (Ryan et al., 1998) has suggested that the use of employment testing varies by nation. The results from this research suggested that English speaking countries had greater experience with employment testing, and testing in general. Furthermore previous research has suggested that majority group members perform more successfully than minority group members on tests of

general mental ability (de Meijer, et al., 2006). The experience that an individual has with a task can impact their general and specific self-efficacy, which suggests that individuals with greater testing experience will have greater test taking self-efficacy. Based on this previous literature it was hypothesised that:

Hypothesis 7: English speaking background applicants will have more experience with employment testing and general written testing than non-English speaking background applicants.

Hypothesis 8: English speaking background applicants will have higher scores on test taking self-efficacy at all three time points than non-English speaking background applicants.

Hypothesis 9: Time 1 test taking self-efficacy, previous written testing experience, and previous employment testing experience will predict general mental ability scores.

Hypothesis 10: English language proficiency and years living in Australia will predict general mental ability scores.

Hypothesis 11: English speaking background applicants will score higher on verbal and overall ability scores compared to non-English speaking background applicants.

CHAPTER 6

METHOD

Participants

Participants were students and graduates from Monash University and the University of Melbourne. The student sample was restricted to students who were in their final year of study and currently preparing for the job seeking process. Graduates who were currently job seeking were also included in the sample. Data collection occurred at three points in time. A total of 135 participants provided data at Time 1. Of these, 130 provided data at Time 2 and 127 at Time 3. The final useable sample consisted of 120 participants. The decrease in participants across time was due to unreturned and incomplete surveys, however the response rate was considered to be excellent.

The useable sample consisted of 55 males (46%) and 65 females (54%). The average age of the sample was 26.76 years (*SD*= 8.38). 66 participants were born overseas and 54 were born in Australia: 73 had a non-English speaking background (NESB) and 47 an English speaking background (ESB).

For 59 participants (49%), English was not their first language as they were either born in a country where English was not the dominant language, or they were from a non-English speaking background family. For 14 (11%) participants, English was their first language; however they were from a non-English speaking background. For these 14 participants, one or both of their parents came from a non-English speaking country, however chose to teach their children English as their primary language. The remaining 47 participants (39%) were from an English speaking background and English

was their first language. Participants had been living in Australia for an average of 17.53 years (*SD* = 12.11). In terms of employment testing, on average participants had little experience with employment testing, and were somewhat experienced with general written testing.

A power analysis revealed that at the $p < .05$ level based on a two tailed test, the sample of 120 yielded 85% power to detect an effect size of 0.3.

Measures

Participants were required to undertake three questionnaires throughout the research process. The questionnaire consisted of a demographic questionnaire, measures of self-efficacy, and measures of wellbeing. Copies of the questionnaires are in Appendices A and B and C.

Demographic Questionnaire

Participants were given a short demographic questionnaire which was used to determine their language background and country of origin.

Language background

The responses to the language background questions were used to categorise the participants into two groups: English speaking background and Non English speaking background. The questions were: “Where were you born?”, “How long have you lived in an English speaking country?” and “Please specify one of the following options: e.g., I am of non-English speaking background and the first language I spoke as a child was not

English". The language background questions were derived from second language research conducted by Carstairs et al. (2006). Applicants were categorised as being from a non-English speaking background if they were born in a non-English speaking country or if one or both of their parents were born in a non-English speaking country and their first language was not English. Applicants were categorised as being from an English speaking background if they were born in an English speaking country or if they were born overseas, but the first language they spoke was English.

Experience with testing

One item was used to assess the level of experience participants had with general written testing and employment testing was identified using a scale ranging from 1 (No experience) to 5 (Very Experienced).

Wellbeing

Psychological wellbeing was measured via four self-report wellbeing measures. These were the: (1) New General Self Efficacy Scale (Chen, Gully & Eden, 2001); (2) Test Taking Self Efficacy Scale (Bauer, Maertz, Dolen & Campion, 1998); (3) The Positive and Negative Affect Schedule (Watston, Clark, & Tellegen, 1988); and (4) The Satisfaction With Life Scale (Diener, Emmons, Larsen, & Griffin, 1985). Each measure has good reliability and validity and has been used extensively by researchers. The following table summarises each measure's psychometric properties as reported by the test developers.

Table 1

Measures of Wellbeing

Measure	Construct	No. of items	Reliability
New General Self Efficacy Scale	General Self Efficacy	8	0.86
Test Taking Self Efficacy Scale	Test Taking Self Efficacy	3	0.88
Satisfaction with Life Scale	Satisfaction with Life (subjective wellbeing)	5	0.87
Positive & Negative Affect Schedule	Positive Affect	10	0.90
	Negative Affect	10	0.87

General self-efficacy

General self-efficacy was measured with eight items developed by Chen, Gully and Eden (2001). A sample item is "I am confident that I can perform effectively on many different tasks". Each item was measured on a five point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). General self-efficacy was measured at all three time periods.

The New General Self Efficacy Scale (NGSE) was developed in order to overcome the limitations of previously developed scales, for example, the Sherer General Self Efficacy Scale (SGSE) (Sherer, Maddux, Mercandante, Prentice-Dunn, Jacobs, & Rogers, 1982) and specific self-efficacy scales. The General Self Efficacy Scale is not considered to be a replacement of specific self-efficacy scales, rather it can be used as a supplement for situations where performance is generalised. As part of the development process, the New General Self Efficacy Scale was compared to Sherer et

al.'s (1982) scale. The New General Self Efficacy scale was found to be unidimensional whereas the SGSE was found to be multidimensional. With the addition of an extra item, the NGSE demonstrated higher predictive validity and better content validity than the SGSE. Moderate test retest reliability estimates have been reported (Chen, Gully & Eden, 2001). The current study yielded high reliability estimates across all three times (Time 1: $\alpha = 0.89$, Time 2: $\alpha = 0.88$, Time 3: $\alpha = 0.92$).

Test taking self-efficacy

Participant test taking self-efficacy was measured with three items developed by Bauer, Maertz, Dolan, and Campion (1998). An example of the items is "I am confident in my ability to do well on written tests". Previous research indicates that internal consistency of the items are acceptable (range = 0.73 to 0.92; Bauer et al., 1998). The response format was a 5 point Likert scale with 1 (strongly disagree) to 5 (strongly agree). As with other studies using these items (Maertz et al., 2005), the current study yielded high reliability estimates at all three times (Time 1: $\alpha = 0.90$, Time 2: $\alpha = 0.93$, Time 3: $\alpha = 0.96$).

Positive and negative affect

The positive and negative affect schedule (PANAS) developed by Watson, Clark and Tellegen (1988) contains twenty items; ten measuring positive affect, and ten measuring negative affect. Respondents are required to read each item (e.g., scared, determined) and indicate to what extent they have felt that way during the past week.

The response format was a 5 point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

The PANAS was developed by using factor analysis to create constructs that were relatively pure markers of either positive affect or negative affect, that is, the terms had to have a substantial loading (> .60) on one factor, but near zero (<.25) on the other. Beginning with sixty factors, or mood states, the analyses yielded ten terms for both positive affect and negative affect with appropriate factor loadings. Responses were obtained from both students and employees and no differences were found between the two samples. The PANAS has been used extensively in research and high alpha reliabilities have been reported, these have ranged from .86 to .90 for positive affect, and from .84 to .87 for negative affect. Test-retest reliability estimates have ranged from .47 to .68 for positive affect and .39 to .71 for negative affect (Watson et al., 1988; DePaoli & Sweeney, 2000). The current study yielded moderate to good reliability coefficients for the overall PANAS scale across all three times (Time 1: $\alpha = 0.84$, Time 2: $\alpha = 0.83$, Time 3: $\alpha = 0.75$). In addition, the individual scales also yielded moderate to good reliability coefficients for all three times (PA: Time 1: $\alpha = 0.79$, Time 2: $\alpha = 0.81$, Time 3: $\alpha = 0.78$; NA: Time 1: $\alpha = 0.82$, Time 2: $\alpha = 0.79$, Time 3: $\alpha = 0.76$).

Satisfaction with life.

The satisfaction with life scale developed by Diener, Emmons, Larsen, and Griffin (1985) was designed to assess a person's satisfaction with life as a whole. The scale contains five items which assess satisfaction with life in general. The response format is a 7 point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree).

Diener, et al. (1985) sought to improve on the single item measures of general satisfaction with life by developing a multiple item measure. Factor analysis was used to analyse 48 self report items related to satisfaction with one's life. The initial analysis resulted in three factors positive affect (PA) and negative affect (NA) and Life Satisfaction. As affect was not the focus of attention, PA and NA items were eliminated, together with items that had loadings less than 0.60 on the satisfaction with life scale. Ten items remained, however due to semantic similarities, 5 items were eliminated, leaving a 5 item measure of life satisfaction. The reported alpha coefficient was 0.87 with a test-retest correlation coefficient of 0.82 (Diener et al., 1985). These results were replicated in a later study by Pavot and Diener (1993). The current study produced strong reliability coefficients across all three times (Time 1: $\alpha = 0.87$, Time 2: $\alpha = 0.87$, Time 3: $\alpha = 0.89$).

Cognitive ability

As part of the simulated selection process, participants were required to complete the Wonderlic Personnel Test (WPT; Wonderlic, 1992). The WPT provides a brief measure of intellectual functioning and is the most popular cognitive ability test used for selection purposes (Gatewood & Feild, 1998). It is a 50-item paper-and-pencil measure of problem solving ability, with an administration time of approximately 15 minutes. Odd-even reliability estimates range from .88 to .94 (McKelvie, 1989), and test-retest reliabilities have ranged from .82 to .94 (Dodrill, 1983, Wonderlic, 1992). The Wonderlic had been found to correlate well with the General Aptitude Battery (.56-.80) and very highly with scores on the WAIS-R (.96; Dodrill, 1983). Hand calculations were

used to calculate a total score. As individual level item data was not available, an alpha coefficient was not calculated.

Personality

The NEO Personality Inventory Revised (NEO PI-R) (Costa & McCrae, 1985) is a measure of the five major domains of personality as well as the six facets that define each domain. It is a popular measure of personality and used by many organisations. Taken together, the five domain scales and thirty facet scales of the NEO PI-R give a comprehensive assessment of normal adult personality. Based on the Five-Factor model, the NEO PI-R measures the interpersonal, motivational, emotional, and attitudinal styles of adults and adolescents. It consists of 240 personality items and 3 validity items. The authors report that internal consistency coefficients range from .86 to .95 for domain scales, and from .56 to .90 for facet scales. The NEO PI-R has been validated against other personality inventories and projective techniques (Costa & McCrae, 1995). Hand calculations were used to calculate a total score. As individual level item data was not available, an alpha coefficient was not calculated.

English language proficiency

An English Language Proficiency rating scale, developed by International English Language Testing System (IELTS) researchers (Cotton & Conrow, 1998) was used in this study. The IELTS rating consists of 7 categories which describe English proficiency; the range from 1 which represents a *very limited user* to 7 which represents an *excellent user.* A brief description of English competency is given for each rating.

Examples include ‘Below level of functional competence. General meaning can be understood in simple sentences but there are frequent breakdowns in communication’ for a limited user and ‘No problems of expression or comprehension; Ability equivalent to native speaker of English’ for an excellent user.

Participants were asked to rate themselves on this scale, and also received a separate rating from the interviewer using the same scale. These two ratings were then cross checked to ensure consistency. A copy of the scale can be found in Appendix D.

Design and Procedure

Design

The research was conducted as a quantitative, longitudinal, experimental design. A typical selection process was simulated in order to overcome threats to external validity. The focus of this research was on reactions to psychological testing.

As the research was an experimental design each participant was randomly assigned to one of four testing groups. The testing groups were as follows:

1. Interview + cognitive ability testing (N= 34)
2. Interview + personality testing only (N = 32)
3. Interview + cognitive ability testing and personality testing (N = 36)
4. Interview only (N = 18)

The interview only group was included as a control group. This was needed in order to determine whether the effects seen after employment testing were in fact associated with completing the tests and whether there was any difference between reactions to testing and interviews.

Each testing group contained two levels: applicant meets selection criteria (selected), and applicant does not meet selection criteria (not selected). In order to create a realistic selection environment, participants were informed that the selection decision would be based on their testing and/ or interview performance. For statistical and research purposes the participants were randomly assigned to a selection outcome group (select/not select) by the researcher, once they had completed their selection procedure. The participants were not aware of this until formal feedback was provided during the participant's feedback and debrief session.

Procedure

Data was collected from participants at three points in time over approximately one month. Table 2 summarises the research activities and the variables measured at each time point.

Table 2

Selection procedure phases

Time 1 (before interview)	Post Time 1 Activity			Time 2 (after selection procedure)	Post Time 2 Activity	Time 3 (after selection decision)
Questionnaire 1	**Selection Procedure 1**	**English language proficiency rating**	**Selection Procedure 2**	**Questionnaire 2**	**Selection Decision**	**Questionnaire 3**
Demographics	Employment Interview	Applicant Self Rating & Interviewer rating of Applicant	Employment Testing	General Self Efficacy	Applicant Receives Selection Decision via Email	General Self Efficacy
Experience with Written Testing			Cognitive Ability OR	Test Taking Self Efficacy		Test Taking Self Efficacy
Experience with Employment Testing			Personality OR	Positive and Negative Affect		Positive and Negative Affect
Experience with Selection Processes			Cognitive + Personality	Satisfaction with Life		Satisfaction With Life
General Self Efficacy						
Test Taking Self Efficacy						
Positive and Negative Affect						
Satisfaction With Life						
Curriculum Vitae						

Participants were recruited by the researcher and a colleague. Participants were recruited via messages posted on the Monash University online memo board and via written handouts given to students who attended Monash Universities Employment and Career Development's information sessions (see appendix E for an example). For the sample obtained from the University of Melbourne, written handouts were provided to students by staff at the university's career centre.

Participants expressed their interest in the project by emailing the researcher whose contact details were provided. The researcher emailed the interested student an explanatory statement (Appendix F) and consent form (Appendix G). As participants returned their consent forms they were randomly assigned to one of four testing groups using an online randomisation program.

Participants received an email from the researcher (Appendix H) explaining that they had been accepted to participate in the research and this would involve them partaking in an interview and for participants in the employment testing group, they were additionally informed that they would be completing some form of employment testing. In addition participants were informed that they would be required to perform in the top 20% in order for them to be successful in the selection process.

Time 1 questionnaire (before employment interview)

The first stage of the process was a request for the participant's curriculum vitae (CV) and the completion of the first questionnaire. The information contained on the CV remained confidential and was only viewed by the main researcher and her research colleague. The CV was important as it created the impression that the

participant was actually applying for a job and it also provided the researchers with information they could discuss in the employment interview. The information was not used for any statistical analyses. Participants were invited to complete the Time 1 survey containing questions regarding their demographic background, testing experience and current wellbeing levels. Once completed, the participant emailed their CV and the Time 1 survey to the researchers.

Selection procedure 1

After the participant returned their Time 1 survey, the researcher contacted them in order to advise them of an interview and employment testing time (if required). Approximately one week later the interview and testing took place. The interview consisted of a simulated one on one employment interview between either the main researcher or her research colleague and the participant. The researchers were provided with employment interview training by the Monash University Employment and Career Development centre.

The interview duration was 20 minutes which consisted of a 15 minute interview and 5 minutes of feedback. Appendix I contains the interview schedule which was made up of general and behavioural employment interview questions. The feedback was brief and other than responding to specific questions from the participant about their performance, the researcher provided only information about interview performance in general. Upon completion of the interview the participant rated their English language proficiency. At the same time the interviewer used the same rating scale to rate the interviewee's language proficiency. The two ratings

were later compared to ensure both ratings were the same. For ratings which differed between the interviewer and interviewee, a mean rating was used.

After a short 5 minute break, the interview only participants were invited to complete the Time 2 survey on the spot and return it to the researcher. Interview only participants were then informed that they would be notified of the selection decision in approximately one week.

Selection procedure 2

Participants in the three testing groups were given a 30 minute break and then invited to participate in employment testing. Participants in the cognitive only group completed the Wonderlic Personnel Test (Wonderlic, 1992), participants in the personality only group completed the NEO Personality Inventory Revised (Costa and McCrae, 1995), and participants in the group both completed both the Wonderlic and the NEO PI-R.

In the group where both forms of testing were completed, the order in which the tests were given was counterbalanced to control for any sequence effects. Participants were given instructions on how to complete the tests and were given the opportunity to ask any questions before completing the tests. In addition participants were reminded that only applicants who are in the top 20% of testing performers will be successful.

Time 2 questionnaire (after testing)

Immediately after the completion of interview or interview plus employment testing, the participant completed the Time 2 survey. This was completed at the

university and returned directly to the researcher. Once the survey was returned participants were randomly assigned to the select or not select group by the researcher.

Time 3 questionnaire (after selection notification)

Approximately one week later participants received an email (Appendix J) notifying them of their selection decision (selected for the position or not selected). Participants were asked to complete the attached Time 3 survey and return it to the researcher within the next two days. Participants were given two days to respond and if the researchers had not received a survey a reminder email would be sent. This was followed up with a phone call if there was still no response.

Approximately one week after the participant received their selection notification and returned their Time 3 survey they were contacted by the researcher and received verbal feedback. Participants who completed the Wonderlic were provided with their percentile rank and an explanation of their result. Participants who completed the NEO PI-R were given feedback on their profile as well as information on the use of personality testing for employment in general. The fact that the process was a simulation was reiterated, and it was explained that the top 20% criteria used for a selection decision was completely arbitrary and the select or not select decision was random. Participants were thanked for their time and informed if they had any further questions regarding the research they were able to contact the researcher at any time.

CHAPTER 7

RESULTS

Analyses

The results of this study were examined through: (a) a series of independent samples t-tests, (b) Mixed Model Analysis of Variance (ANOVA) (also known as a mixed between –within subjects ANOVA (Tabachnick & Fidell, 2007)), and, (c) regression analyses. The independent samples t-tests were used to analyse differences in initial demographic data. The mixed model ANOVA involved the comparison of two or more different groups known as the between subjects factor as well as a repeated measures variable known as the within subjects factor. This technique is an extension of the repeated measures design (Pallant, 2007). The mixed model ANOVA produced main effects and interactions.

For the present study the results included two main effects. The first main effect was Time (within subjects) which examined the change in wellbeing across three Time periods. The second main effect was Group (between subjects) which examined the difference in wellbeing between separate groups. There were three types of groups examined: (a) selection procedure groups (N = 4); (b) language background groups (N = 2); and (c) selection decision groups (N = 2).

The ANOVA also produced interaction effects which examined whether the change in scores over time was the same for the different groups. In other words, the interaction demonstrated whether the impact of one variable was influenced by the level of the second variable (Pallant, 2007). If the interaction effect was significant, the main effects were examined with caution. In order to examine an interaction, simple main

effects analysis were undertaken. This test considers the difference in means within each group (Hinkle, Wiersma & Jurs, 1994).

Conceptually, simple main effects analysis comprises the completion of a one way ANOVA for each group involved in the interaction. In addition, an examination of profile plots is undertaken. Here the lines were examined and if the lines in the plot were parallel this suggested a non-significant interaction. Significant interactions create a number of patterns, however usually the lines are not parallel (Hinkel et al., 1994). For the present study each ANOVA conducted for simple main effects analysis determined whether the change in wellbeing across Time was significant for each group; (a) selection procedure groups, (b) selection decision groups and (c) language background groups.

For each mixed model ANOVA preliminary analyses were conducted to ensure no violation of homogeneity of variance or equality of covariance matrices. For analyses where violations occurred a more stringent alpha value was set. For analyses where the repeated measures variable of Time contained only two levels, the assumption of sphericity was not necessary, therefore Mauchy's test of sphericity was not examined. Where the repeated measure variable of Time contained more than two levels, Mauchy's test of sphericity was examined. Where the assumption of sphericity was violated, the Huynh-Feldt statistic was examined as a more conservative value.

Turning to regression analysis, this technique was used to examine the predictors of general mental ability scores as measured by the Wonderlic Personnel Test.

Results Overview

The results will begin with the examination of correlations of all variables. Independent samples t-tests will then be used to highlight significant differences in demographic data. Next the results will highlight selection procedure effects. Selection procedure groups were compared and results of the ANOVAs are highlighted and any interactions which occurred. This is followed by results of multiple regression analysis. These results indicated whether experience with written testing, employment testing, or self-efficacy were significant predictors of general mental ability. The next section of the results highlights the effects of the selection decision. Again ANOVA results and interactions are given. Finally language background effects are examined. Selected and non-selected applicants were compared and results of ANOVA analysis and interactions are highlighted. Results of a one way ANOVA examining differences in general mental ability between language background groups are given. Finally results of a multiple regression are presented. These results examined whether language background and English language experience predicted general mental ability scores.

Initial Relationships Between Variables

Correlations

Table 3 contains means, standard deviations and correlations for all study variables at the three time periods. All internal consistencies were acceptable for each of the scales at each measurement period. As expected, experience with written testing was positively correlated with Time 1 test taking self-efficacy scores (r =.23), although the relationship was modest. Thus applicants with greater experience with written testing

had higher confidence in their abilities to perform well on written tests. It is interesting to note that both years in Australia and English language proficiency were positively correlated with Time 1 satisfaction with life scores (r =.25; r = .27).

Table 3

Means, Standard Deviations, and Correlations for Study Variables Times 1 to 3

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1.Yrs in Aust	17.53	12.11																					
2. ELP rating	6.39	0.93	.56**																				
3.ET Exp	2.08	0.96	.04	.02																			
4.WT Exp	3.00	1.32	.16	.06	.33**																		
5.SP exp	2.11	0.92	-.14	-.10	-.50*	.24*																	
6.GSE1	31.83	4.81	.03	.00	.06	.12	-.19*																
7.GSE2	31.46	4.23	.06	-.06	.07	.15	-.15	.50**															
8.GSE3	30.46	5.31	.04	-.03	.09	.15	-.14	.40**	.41*														
9.PA1	34.63	6.75	-.20	0.22	.20*	.06	-.12	.20*	.28**	.19*													
10.PA2	35.06	7.08	-.16	-.05	.14	-.11	-.19*	.18*	.33*	.16	.59**												
11.PA3	33.84	7.76	-.03	.07	.06	.04	-.01	.15	.16	.48**	.43**	.36**											
12. NA1	19.31	6.50	-.11	-.10	-.07	-.12	.25**	-.23*	-.35*	-.19*	-.20*	-.07*	-.31**										
13. NA2	19.17	7.10	.10	.02	.01	.07	.13	-.21*	-.33*	-.09	.04	-.01	.13	.58**									
14. NA3	19.92	7.25	-.02	-.10	-.01	.11	.09	-.10	-.31**	-.43**	-.07	.00	-.31**	.42**	.46**								
15.TTSE1	10.62	2.77	-.13	-.05	.11	.23*	-.10	.29**	.45*	.29**	.02	.16	.05	-.10	-.08	-.09							
16.TTSE2	10.95	2.73	-.12	.-10	.03	.09	-.04	.28**	.53*	.26**	.03	.16	.06	-.08	-.11	-.15	.71*						
17.TTSE3	11.05	3.18	-.06	-.05	-.02	.112	.02	.23**	.34*	.59**	.13	.11	.44**	-.01	.06	-.32**	.46*	.47*					
18.SWL1	24.06	6.12	.13	.15	.14	.03	.31**	.31**	.28*	.25*	.26**	.13	.18	-.35**	-.11	-.27**	.20	.12	.04				
19.SWL2	25.28	5.57	.18*	.11	.17	.05	-.22*	.19*	.29*	.17	.25**	.18*	-.01	-.29**	-.12	-.13	.23*	.17	-.02	.69*			
20.SWL3	25.32	5.39	.25**	.27**	-.01	.04	-.15	.20*	.20*	.36**	.23*	.16	.28**	-.21*	-.12	-.37**	.07	.11	.22	.51*	.52*		
21.WPT	38.10	5.41	.09	.08	-.33*	.71	.01	.07	.16	-.02	-.03	-.30*	-.11	-.07	-.18	-.01	17	-.23	.15	.01	-.01	.02	

*Note:*ELP= English language proficiency, ET Exp = Employment testing experience, WT Exp = Written testing experience, SP Exp = Selection process experience, GSE = General self-efficacy, PANA = Positive and negative affect, TTSE = Test taking self-efficacy, SWL = Satisfaction with life, WPT = Wonderlic personnel Test (ability scores)

Comparison of Demographic Variables

Independent Samples t-tests

Independent samples t-tests were used to check for sample differences between English speaking background applicants and non-English speaking background applicants. The findings showed no significant differences in experience with written employment testing (t (118) = 0.37, p = 0.73); experience with general written testing (t (118) = 0.42, p = 0.34); or previous selection process experience (t (118) = 1.53, p = 0.73) between English speaking background (M= 2.04; 3.06; 1.96 SD= 1.04; 1.34; 0.93) and non-English speaking background (M= 2.11; 2.96; 2.22, SD= 0.93; 1.31; 0.90) applicants. Differences in the number of years applicants had lived in Australia and their English language proficiency were also examined between the two language groups.

As expected, English speaking background applicants had lived in Australia on average longer (M= 25.61, SD= 8.90) than non-English speaking background applicants (M= 12.32, SD= 11.03). In addition, as was expected, English speaking background applicants had a higher English language proficiency rating (M= 6.96, SD= 0.20) than non-English speaking background applicants (M= 6.03, SD= 1.03). The range for English speaking background applicants English language proficiency was from 6 (very good user) to 7 (excellent user). For non-English speaking background applicants the range was from 3 (modest user) to 7 (excellent user).

Impact of Selection Procedure on Changes in Wellbeing

Five mixed model analysis of variance (ANOVA) were conducted to assess the impact of selection procedure type (4 conditions) on wellbeing as indicated by test taking self-efficacy, general self-efficacy, positive and negative affect, and satisfaction with life. The selection procedures were a combination of employment interview and employment testing, or simply an employment interview. The four procedural groups were: (1) interview + cognitive ability test, (2) interview + personality test, (3) interview + cognitive ability test + personality test, and, (4) interview only. ANOVAs were used to determine whether there was a change in applicants' wellbeing scores from before the interview (Time 1) to after the applicant had completed a selection procedure (Time 2) to after the applicant received a selection decision (Time 3), and whether the change (if any) was the same for each selection procedure group.

The ANOVA analyses demonstrated whether the main effect of Group (between subjects effect) and the main effect of Time (within subject effect) were significant. The main effect for Group indicated whether there was a statistically significant difference on the examined wellbeing measure between the four selection procedure groups. Post hoc analysis demonstrated between which groups the wellbeing measure differed and at which Time. The main effect of Time indicated whether the overall change in each of the wellbeing measures from Time 1 to Time 2 to Time 3 was significant. The interactions examined whether change in an applicant's wellbeing from Time 1 to Time 2, and Time 2 to Time 3 was the same for all four groups, or whether the change varied

according to the selection procedure group the applicant was in. In other words, the results indicated whether there was a significant change in wellbeing over time for all applicants and whether this change was dependent upon the type of selection procedure they completed.

Table 4 presents the means and standard deviations of the mixed model ANOVAs conducted to compare changes in wellbeing from Time 1 to Time 2 to Time 3. Table 5 which is presented below Table 4 for ease of readability summarises the results of the repeated measures ANOVA analyses.

Table 4

Means and Standard Deviations of Wellbeing Variables at 3 Measurement Times by Selection Procedure Group

Group		Interview + Cognitive (Group 1)		Interview + Personality (Group 2)		Interview + Cognitive + Personality (Group 3)		Interview only (Group 4)	
Wellbeing Measure	Measurement Time	M	SD	M	SD	M	SD	M	SD
Test Taking Self Efficacy	Time 1 (before interview)	11.05	2.22	10.40	2.87	11.00	2.55	9.44	3.63
	Time 2 (after procedure)	10.73	2.76	11.12	2.33	11.64	2.34	9.66	3.64
	Time 3 (after decision)	11.59	3.03	11.22	3.26	11.16	2.91	9.50	3.60
Positive Affect	Time 1 (before interview)	34.70	7.50	34.59	6.02	33.69	7.51	36.44	4.64
	Time 2 (after procedure)	35.50	7.52	35.53	6.22	35.22	8.76	33.11	4.05
	Time 3 (after decision)	35.06	8.28	34.25	6.86	32.88	9.13	32.72	5.01
Negative Affect	Time 1 (before interview)	19.64	5.83	19.78	6.41	19.97	7.55	16.50	5.26
	Time 2 (after procedure)	19.17	5.83	18.37	6.79	19.33	8.14	20.22	5.52
	Time 3 (after decision)	19.41	8.06	20.93	7.41	19.00	6.78	20.94	6.47
Satisfaction With Life	Time 1 (before interview)	24.73	5.67	23.59	6.63	22.88	6.31	25.94	5.40
	Time 2 (after procedure)	25.97	4.70	23.93	6.10	24.38	6.97	28.16	5.56
	Time 3 (after decision)	25.53	4.92	24.25	6.10	24.69	5.66	28.05	3.37
General Self Efficacy	Time 1 (before interview)	32.32	6.10	32.03	5.05	31.83	3.50	30.55	3.95
	Time 2 (after procedure)	31.52	4.31	31.84	4.86	31.63	4.00	30.27	3.32
	Time 3 (after decision)	30.61	4.48	30.03	6.85	30.16	5.44	31.50	3.12

Table 5

Significance Values from Mixed Model ANOVA Time x Selection Procedure (Time 1-2-3)

Wellbeing Measure	Effect	*MS*	*df*	*F*	*p*	Partial Eta^2
Test Taking Self Efficacy	Time	5.52	1	1.22	*ns*	.01
	Time x Selection Procedure	4.20	3	0.96	*ns*	.02
	Group	40.02	3	2.33	*ns*	.06
Positive Affect	Time	50.24	1	1.64	*ns*	.01
	Time x Selection Procedure	35.68	3	1.16	*ns*	.02
	Group	28.93	3	.28	*ns*	.00
Negative Affect	Time	36.27	1	1.46	*ns*	.01
	Time x Selection Procedure	49.42	3	1.99	<.05	.04
	Group	2.92	3	.03	*ns*	.00
Satisfaction With Life	Time	67.03	1	4.72	<.05	.04
	Time x Selection Procedure	5.73	3	.40	*ns*	.01
	Group	18.43	3	2.68	<.05	.06
General Self Efficacy	Time	35.38	1	2.68	*ns*	.02
	Time x Selection Procedure	13.49	3	1.02	*ns*	.00
	Group	6.11	3	.14	*ns*	.00

Satisfaction with life was the only wellbeing measure to obtain a significant main effect for Time. Additionally, satisfaction with life obtained a between subjects effect at Time 3 (after selection decision). In other words, applicant scores on satisfaction with life changed across the time periods and this change was significant. Additionally, a significant main effect for Group at Time 3 indicated that applicant scores on

satisfaction with life differed between the four selection procedure groups at Time 3. Table 6 highlights the mean difference for Time 1 to Time 2, and Time 2 to Time 3 for satisfaction with life. An examination of the mean differences indicated that the change in satisfaction with life from Time 1 to Time 2 was significant; however the change in satisfaction with life from Time 2 to Time 3 was not significant. Additionally the change in satisfaction with life from Time 1 to Time 3 was significant.

Table 6

Mean difference of satisfaction with life scores across Time periods

Time	Mean Difference	Lower Bound	Upper Bound
Time 1-2	-1.32*	-2.39	-.259
Time 2-3	-.02	-1.26	1.23
Time 1-3	-1.34*	-2.66	-.01

* significant at .05 level

The results indicated that when satisfaction with life scores from each selection procedure group were combined, average scores at Time 2 appeared to be higher than scores at Time 1. Furthermore, satisfaction with life scores at Time 3 appeared to be higher than scores at Time 1. In summary, satisfaction with life scores significantly increased from Time 1 (before interview) to Time 2 (after testing), but not Time 2 (after selection procedure) to Time 3 (after selection decision) for applicants in all selection procedure groups. There was also an increase in scores for applicants in all selection procedure groups from Time 1 (before interview) to Time 3 (after decision).

As stated previously, the ANOVA produced a significant main effect for Group in that satisfaction with life was found to differ between the four selection procedure groups at Time 3 (after selection decision) (F (3, 116) = 3.34, $p < .05$). It was not evident

from the main effect which of the six possible selection procedure comparisons produced significant mean differences. Thus, in order to examine which selection procedures significantly differed on satisfaction with life at Time 3, post hoc analysis (Tukeys HSD) was conducted. Table 7 shows the mean difference and significance values of the six possible comparisons. The post hoc analyses revealed that the interview + personality test group and the interview only group were the only two groups that had significantly different satisfaction with life scores at Time 3. All other comparisons were not significant. At Time 3, applicants in the interview only group had higher satisfaction with life scores compared to the interview + personality group.

In summary out of the six possible comparisons, the interview only group and the interview + personality test group differed on satisfaction with life at Time 3. Conversely, the comparisons of groups which involved cognitive ability testing did not obtain any significant differences on satisfaction with life. In addition there were no significant mean differences between any of the selection procedure groups for test taking self-efficacy, general self-efficacy, positive and negative affect.

Table 7

Mean difference of satisfaction with life scores between selection procedure groups at Time 3.

Comparison	Mean Difference	Lower Bound	Upper Bound
1 (group 4 – 3)	3.57	-.03	7.16
2 (group 4 – 2)	2.36	-1.27	5.99
3 (group 4 – 1)	4.02*	.34	7.69
4 (group 2 – 3)	-.45	-2.58	3.47
5 (group 2 – 1)	-1.65	-4.72	1.41
6 (group 1 – 3)	1.21	-1.77	4.19

Note: Comparisons: 1) Interview only – Cognitive + Personality, 2) Interview only – Cognitive only, 3) Interview only – Personality only, 4) Personality – Cognitive + Personality, 5) Personality only – Cognitive only, 6) Cognitive only – Cognitive + Personality

* Significant at .05

no significant main effect however

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of the selection procedure

Time 1 (before interview)

decision). Additionally

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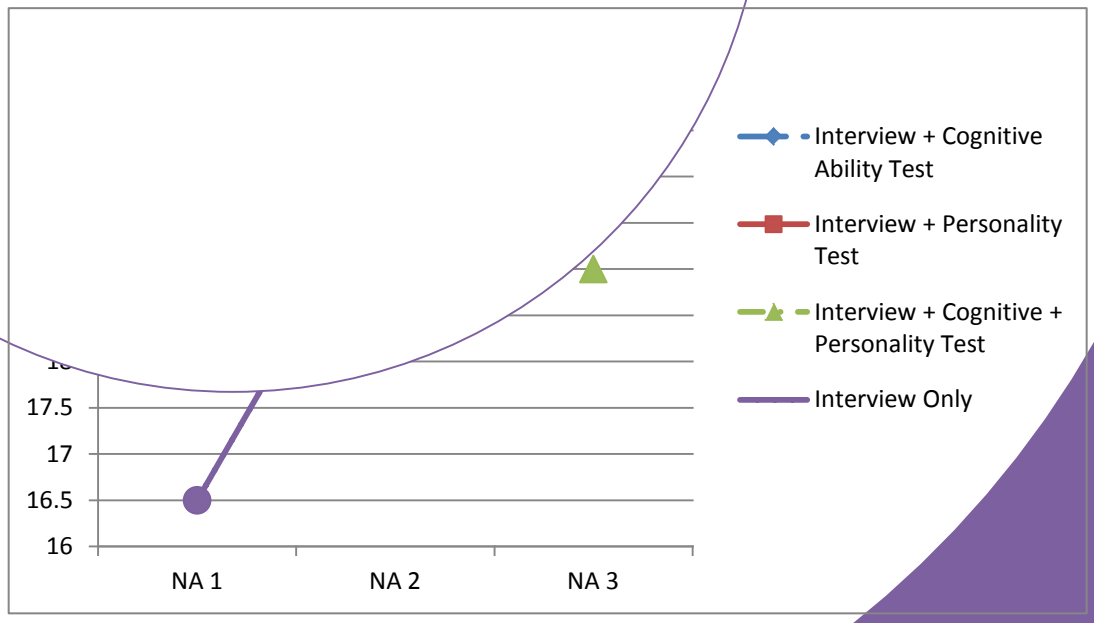

Figure 2. Interaction between time and selection procedure upon n

The interaction was examined in order to determi

egative affect across Time was significant f

selection procedure group examining the change in negative affect from Time 1 to Time 2.

Another set of four ANOVAs were conducted; again one for each selection procedure group. This set of ANOVAs examined the change in negative affect from Time 2 to Time 3 for each separate selection procedure group. Simple main effects analysis revealed a statistically significant increase in negative affect from Time 1 to Time 2 for the Interview only group ($F(1,17) = 7.19$, $p < .05$) . There was no significant change in negative affect from Time 1 to Time 2 nor Time 2 to Time 3 for the other three groups: the interview + cognitive group, the interview + cognitive + personality group, or for the interview + personality group.

These findings suggest that an applicant's wellbeing was influenced to some degree by the completion of an employment selection procedure. The direction of change was found to depend on the type of wellbeing being measured and the selection procedure group. This was highlighted in that satisfaction with life increased from Time 1 to Time 2 for all selection procedure groups, whereas negative affect increased from Time 1 to Time 2 only for the interview only group.

Predicting General Mental Ability

A standard multiple regression was undertaken to determine whether Time 1 test taking self-efficacy, experience with employment testing, or experience with general written testing predicted general mental ability scores. The results of the analyses are presented in Table 8. Two of the three predictor variables were significant predictors: experience with employment testing ($B = 0.40$, $p<.05$) and experience with general

written testing (*B*= 0.27, p<.05). Time 1 test taking self-efficacy was unrelated to cognitive ability scores (*B* = .110, p>.05). A modest amount of variance in cognitive ability test score was explained by these two variables (19.5%).

Table 8

Multiple Regression Analysis - Predicting General Mental Ability Scores

Model	Standardised *B*	*T*
Constant		11.22**
Experience with employment testing	-.40	-3.39**
Experience with general written testing	.27	2.27*
Test taking self-efficacy	.110	.86
R^2		.15**
Adjusted R^2		.19**

** significant at .01 level * significant at .05 level

Selection Decision Effects

Impact of Selection Decision on Changes in Wellbeing

Five mixed model ANOVA were conducted to assess the impact of the outcome of a selection decision (selected or not selected) on applicants' scores of test taking self-efficacy, satisfaction with life, positive affect, negative affect and general self-efficacy. ANOVAs were used to determine whether there was a change in applicants' wellbeing scores from after the applicant had completed a selection procedure (Time 2) to after the applicant received a selection decision (Time 3), and whether the change (if any) was the same for both selection decision groups. Unlike the previous analyses, Time 1 was not included in the current examination as Time 1 was not relevant to the outcome, due to selection decision groups not being created until after the selection procedures were

conducted. Therefore the change in wellbeing from Time 2 to Time 3 was the only change of interest.

The ANOVA analyses demonstrated whether the main effect of Group (between subjects effect) and the main effect of Time (within subject effect) were significant. The main effect for Group indicated whether there was a statistically significant difference on the examined wellbeing measure between the two selection decision groups. The main effect of Time indicated whether the overall change in each of the wellbeing measures from Time 2 to Time 3 was significant. The interactions examined whether change in an applicant's wellbeing from Time 2 to Time 3 was the same for both groups, or whether the change varied according to the selection decision (select/not select) the applicant received.

Table 9 presents the means and standard deviations from the repeated measures ANOVAs conducted comparing applicants' wellbeing scores from Time 2 to Time 3. Table 10 summarises the results of the repeated measures ANOVA analyses.

Table 9

Means and Standard Deviations of Repeated Measures ANOVA (Decision x Time)

		Selected		Not Selected	
Wellbeing Measure	Measurement Time	M	SD	M	SD
Test Taking Self Efficacy	Time 2 (after procedure)	11.00	3.04	10.89	2.37
	Time 3 (after decision)	12.36	2.66	9.59	3.09
Positive Affect	Time 2 (after procedure)	35.30	7.42	34.38	6.95
	Time 3 (after decision)	36.11	7.91	31.33	7.91
Negative Affect	Time 2 (after procedure)	19.09	7.07	19.24	7.19
	Time 3 (after decision)	18.00	6.79	22.05	7.21
Satisfaction With Life	Time 2 (after procedure)	25.05	5.71	25.54	5.44
	Time 3 (after decision)	26.68	4.59	23.80	5.82
General Self Efficacy	Time 2 (after procedure)	31.71	4.72	31.18	3.62
	Time 3 (after decision)	32.13	4.58	28.61	5.48

Table 10

Significance Values from Repeated Measures ANOVA (Decision x Time)

Wellbeing Measure	Effect	*MS*	*df*	*F*	*P*	Partial Eta^2
Test Taking Self Efficacy	Time	.067	1	.02	*Ns*	.00
	Time x Decision	106.13	1	27.69	<.01	.19
	Group	123.57	1	10.33	<.01	.08
Positive Affect	Time	106.20	1	3.19	*Ns*	.02
	Time x Decision	274.50	1	8.25	<.05	.06
	Group	415.92	1	5.74	<.05	.04
Negative Affect	Time	43.84	1	1.66	*Ns*	.00
	Time x Decision	227.84	1	8.65	<.05	.00
	Group	264.31	1	3.59	*Ns*	.03
Satisfaction With Life	Time	.16	1	.01	*Ns*	.00
	Time x Decision	170.12	1	13.09	<.01	.10
	Group	84.70	1	1.86	*Ns*	.02
General Self Efficacy	Time	69.08	1	5.45	<.05	.04
	Time x Decision	132.35	1	10.44	<.05	.08
	Group	245.64	1	8.03	<.01	.06

From Table 10 it can be seen that each wellbeing measure achieved a significant interaction (Time x Decision). This suggests that any change in an applicant's wellbeing across the Time periods was dependent on the selection decision the applicant received. That is, the direction of change in wellbeing (increase or decrease) varied according to the selection decision (selected or not selected). Main effects of Time are yet to be examined, however caution should be used when concluding the true influence Time had on each selection decision group.

General self-efficacy was the only wellbeing measure to receive a significant main effect of Time, in that applicant general self-efficacy scores were seen to change from Time 2 to Time 3. An examination of means however suggests the presence of an interaction as the direction of change in general self-efficacy was not the same for both groups. When combined, average general self-efficacy scores for the selected applicants appeared lower at Time 2 than at Time 3. Conversely when combined, average general self-efficacy scores for not selected applicants appeared higher at Time 2 than at Time 3. In summary, selected applicant's general self-efficacy increased from Time 2 to Time 3 and not selected applicant's general self-efficacy decreased from Time 2 to Time 3.

As suggested by the variation in the change in wellbeing between the two decision groups, an interaction was present. This was confirmed by the ANOVA which produced a significant interaction (Time x Decision) for general self-efficacy. Figure 3 illustrates the change in general self-efficacy from Time 2 (after selection procedure) to Time 3 (after selection decision). Additionally, the graph illustrates how the direction of change varied according the selection decision group indicating an interaction was present.

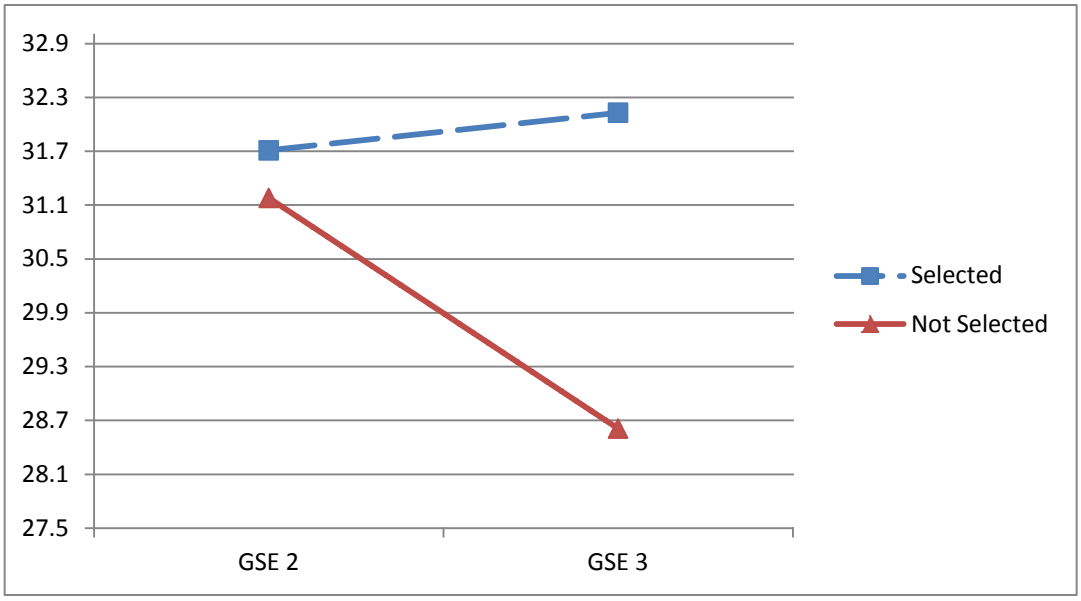

Figure 3. Interaction between time and selection decision group upon general self-efficacy

The interaction was examined in order to determine whether the change in general self-efficacy across Time was significant for both selection decision groups, or whether the change was confined to a particular group. In order to do this, simple main effects analyses were undertaken. Two repeated measures ANOVA were conducted; one for each selection decision group. The ANOVAs were conducted in order to examine the change in general self-efficacy from Time 2 to Time 3. This analysis was conducted separately for the selected group and the not selected group.

The ANOVAs indicated that the change in an applicant's general self-efficacy from Time 2 to Time 3 was only significant for selected applicants. That is, although the main effect suggested that applicants' scores on general self-efficacy changed from Time 2 to Time 3 in both selected and not selected applicants, further analysis of the interaction indicated that these changes were only significant for applicants in the selected group ($F(1, 62) = 0.67$, $p < .05$). In summary, applicants who were selected had

a significant increase in their feelings of general self-efficacy after receiving their selection decision. Conversely there was no significant change in a not selected applicant's general self-efficacy after receiving a selection decision.

Test taking self-efficacy, positive affect, negative affect and satisfaction with life each resulted in no significant main effect of Time, however each of the mentioned wellbeing measures produced a significant interaction (Time x Decision). These interactions suggest that the change in each wellbeing measure from Time 2 to Time 3 was dependent on whether the applicant was selected or not selected. In order to examine the interactions, two sets of repeated measures ANOVA were conducted for each of the wellbeing measures: test taking self-efficacy, positive affect, negative affect and satisfaction with life. The first ANOVA examined the change in wellbeing from Time 2 to Time 3 for the selected applicants, and the second ANOVA examined the change in wellbeing from Time 2 to Time 3 for the not selected applicants.

In summary, the change in each wellbeing measure from Time 2 to Time 3 was examined separately for each decision group. The results indicated the direction of change for each group and whether this change was significant. The interactions are displayed in Figures 4 to 7. These highlight the change in the wellbeing variable from Time 2 to Time 3 and the direction of change for each group.

Results of the ANOVAs indicated that change in applicant's test taking self-efficacy scores from Time 2 to Time 3 was significant for both decision groups. Both the selected applicants (F (1, 62) = 16.08, p <.05), and not selected applicants (F(1, 56) = 11.90, p <.05) test taking self-efficacy scores significantly changed from Time 2 to Time 3. For the selected group, test taking self-efficacy was found to significantly increase

after a selection decision was given (Time 3), whereas test taking self-efficacy significantly decreased in applicants who were not selected.

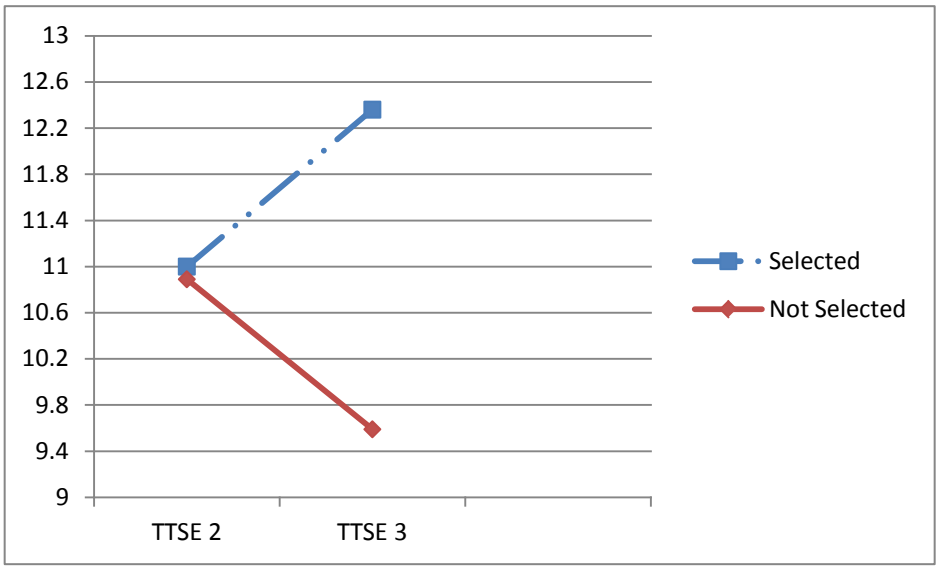

Figure 4. Interaction between time and selection decision group upon test taking self-efficacy

Results of the ANOVAs additionally indicated that change in satisfaction with life scores was significant for both decision groups. It was found that both the selected group ($F(1, 62) = 8.83$, $p < .05$), and the not selected group ($F(1, 56) = 5.12$, $p < .05$) had significant changes in satisfaction with life from Time 2 to Time 3. Satisfaction was found to significantly increase in selected participants and decrease in not selected applicants after they received a selection decision (Time 3).

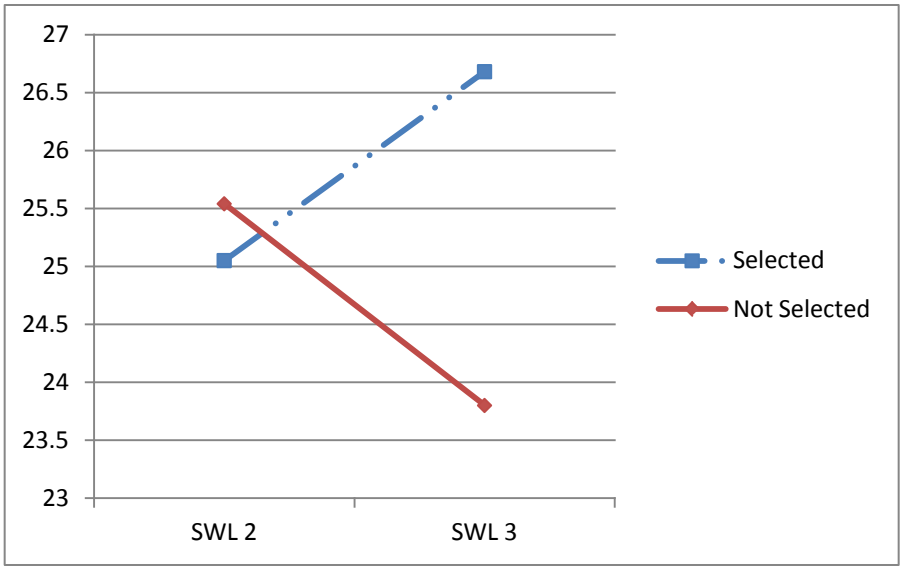

Figure 5. Interaction between time and selection decision group upon satisfaction with life

Turning to positive affect, results of the ANOVAs indicated the change in positive affect from Time 2 to Time 3 was not significant in the selected group ($F(1, 62) = 0.61$, $p > .05$), however was significant in the not selected group ($F(1, 56) = 10.52$, $p < .05$). Positive affect was seen to decrease in not selected applicants after they received a selection decision (Time 3).

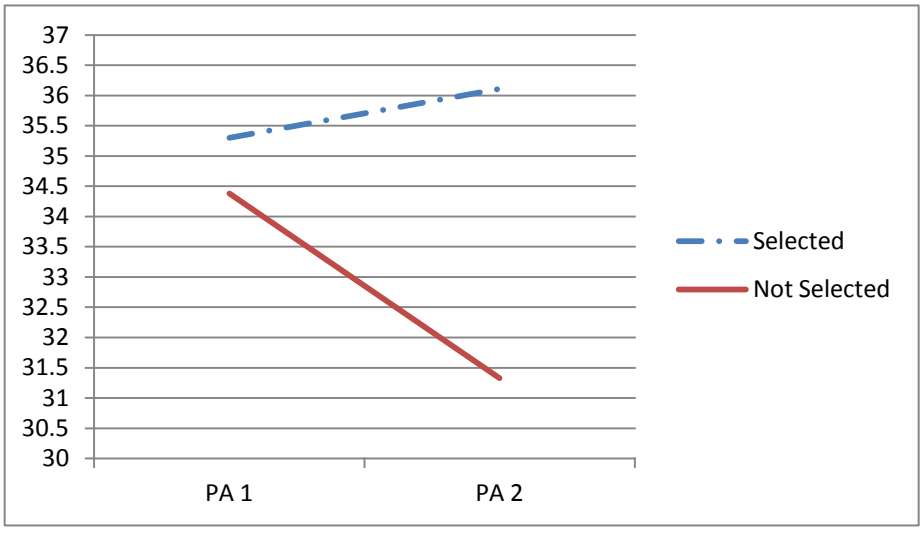

Figure 6. Interaction between time and selection decision group upon positive affect

A similar result occurred for negative affect in that the results of the ANOVAs indicated that the change in negative affect from Time 2 to Time 3 was not significant for the selected group ($F(1, 62) = 1.43$, $p > .05$), however was significant in the not selected group ($F(1, 56) = 8.54$, $p < .05$). Negative affect was seen to increase in the not selected applicants after they received a selection decision (Time 3).

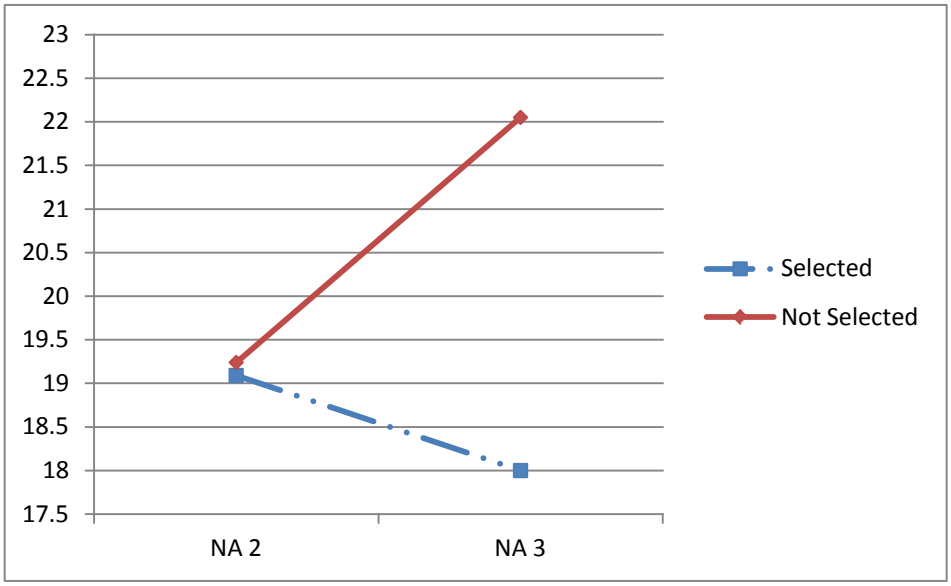

Figure 7. Interaction between time and selection decision group upon negative affect

The above section examined the main effect of time as well as interactions. It was evident however that the ANOVAs also produced main effects for Group. From Table 10 it can be seen that test taking self-efficacy, positive affect and general self-efficacy achieved a significant main effect for Group; in other words, a between subjects effect. This suggests that there was a significant difference between selected and not selected applicant's scores on these three wellbeing measures. One way ANOVAs were used to determine at which Time period the significant differences occurred. Separate ANOVAs were conducted at Time 2 and 3 examining whether there were any

differences in the wellbeing measures between the two decision groups at each of the Time periods.

Test taking self-efficacy significantly differed between selected and not selected applicants at Time 3 (after selection decision) with selected applicants having higher test taking self-efficacy scores than not selected applicants ($F(1, 118) = 10.33$, $p < .05$). The same result was seen with general self-efficacy scores ($F(1, 118) = 8.04$, $p < .05$) with selected applicants having higher general self-efficacy than not selected applicants at Time 3. A one way ANOVA revealed a statistically significant difference between selected and not selected applicants on scores of positive affect at Time 3. Selected applicants had significantly higher scores on positive affect than applicants who were not selected ($F(1, 119) = 12.40$, $p < .05$).

Language Background Effects

Impact of Applicant Language Background on Changes in Wellbeing

Five mixed model ANOVA were conducted to assess the impact of an applicant's language background (English speaking or non-English speaking) on their scores of test taking self-efficacy, satisfaction with life, positive affect, negative affect and general self-efficacy. ANOVAs were used to determine whether there was a change in applicants' wellbeing scores from before the interview (Time 1) to after the applicant had completed a selection procedure (Time 2) to after the applicant received a selection decision (Time 3), and whether the change (if any) was the same for both language background groups.

The ANOVA analyses demonstrated whether the main effect of Group (between subjects effect) and the main effect of Time (within subject effect) were significant. The main effect for Group indicated whether there was a statistically significant difference on the examined wellbeing measure between the two language background groups. The main effect of Time indicated whether the overall change in each of the wellbeing measures from Time 1 to Time 2 to Time 3 was significant. The interactions examined whether change in an applicant's wellbeing from Time 1 to Time 2 and Time 2 to Time 3 was the same for both groups, or whether the change varied according to the applicant's language background.

Table 11 presents the means and standard deviations from the ANOVAs conducted to compare English speaking and non-English speaking background groups' wellbeing scores at Time 1, Time 2 and Time 3. For ease of readability, the results from the ANOVAs are presented in a separate table below. Table 12 summarises the results of the repeated measures ANOVA analyses.

Table 11

Means and Standard Deviations of Repeated Measures ANOVA

(Language Background x Measurement Time)

		ESB		NESB	
Wellbeing Measure	Measurement Time	M	SD	M	SD
Test Taking Self Efficacy	Time 1 (before interview)	9.62	3.22	11.27	2.22
	Time 2 (after procedure)	10.23	3.33	11.41	2.17
	Time 3 (after decision)	10.31	3.72	11.52	2.71
Positive Affect	Time 1 (before interview)	33.32	6.02	35.47	7.09
	Time 2 (after procedure)	34.82	6.87	35.21	7.26
	Time 3 (after decision)	34.13	6.81	33.65	8.36
Negative Affect	Time 1 (before interview)	19.57	7.26	19.13	6.71
	Time 2 (after procedure)	19.59	7.73	18.89	6.71
	Time 3 (after decision)	20.27	7.17	19.69	7.34
Satisfaction With Life	Time 1 (before interview)	24.21	6.01	23.96	6.23
	Time 2 (after procedure)	25.09	5.23	25.41	5.79
	Time 3 (after decision)	26.28	4.34	24.70	5.92
General Self Efficacy	Time 1 (before interview)	31.59	4.63	31.98	4.95
	Time 2 (after procedure)	30.51	4.11	32.06	4.21
	Time 3 (after decision)	30.34	4.76	30.53	5.65

Table 12

Significance Values from Repeated Measures ANOVA

(Language Background x Measurement Time)

Wellbeing Measure	Effect	*MS*	*df*	*F*	*P*	Partial Eta ^{2}
Test Taking Self Efficacy	Time	8.40	1	1.82	*ns*	.01
	Time x Language	2.44	1	.53	*ns*	.00
	Group	155.19	1	9.55	<.01	.07
Positive Affect	Time	39.87	1	1.30	*ns*	.01
	Time x Language	55.79	1	1.82	*ns*	.01
	Group	41.21	1	.41	*ns*	.00
Negative Affect	Time	18.41	1	.73	*ns*	.00
	Time x Language	.51	1	.02	*ns*	.00
	Group	28.22	1	.29	*ns*	.00
Satisfaction with Life	Time	66.28	1	4.71	<.01	.01
	Time x Language	28.06	1	1.99	*ns*	.01
	Group	21.61	1	.31	*ns*	.00
General Self Efficacy	Time	55.32	1	4.07	<.05	.03
	Time x Language	16.05	1	1.18	*ns*	.00
	Group	43.73	1	1.02	*ns*	.01

Satisfaction with life and general self-efficacy were the only two variables to obtain a significant main effect of Time. This result indicated that for both English speaking and non-English speaking background applicants, satisfaction with life and

general self-efficacy scores changed across Time periods and this change was significant.

Table 13 highlights the mean difference for Time 1 to Time 2 and Time 2 to Time 3 for satisfaction with life and general self-efficacy. An examination of the mean differences indicated that change in satisfaction with life from Time 1 (before interview) to Time 2 (after selection procedure) was significant; however the change in satisfaction with life from Time 2 (after selection procedure) to Time 3 (after selection decision) was not significant. Additionally the change in satisfaction with life from Time 1 (before interview) to 3 (after selection decision) was significant.

Turning to general self-efficacy, the change in an applicant's general self-efficacy scores from Time 1 (before interview) to Time 2 (after selection procedure), and Time 2 (after testing) to Time 3 (after selection decision) was not significant. The change in general self-efficacy from Time 1 (before interview) to Time 3 (after selection decision) was however significant.

Table 13

Mean Difference of Satisfaction with Life Scores and General Self-Efficacy Scores Across Time Periods

Wellbeing Measure	Time	Mean Difference	Lower Bound	Upper Bound
Satisfaction with Life	Time 1-2	-1.32*	-2.39	-.25
	Time 2-3	-.02	-1.26	1.23
	Time 1-3	-1.40*	-2.69	-.10
General Self Efficacy	Time 1-2	.50	-.52	1.52
	Time 2-3	.85	-.33	2.03
	Time 1-3	1.35*	.08	2.62

* significant at .05 level

The results indicated that when satisfaction with life scores from both language background groups were combined, average scores at Time 2 appeared to be higher than scores at Time 1. Furthermore average satisfaction with life scores at Time 3 appeared to be higher than scores at Time 1. In summary, satisfaction with life scores significantly increased from Time 1 (before interview) to Time 2 (after selection procedure), but not Time 2 (after selection procedure) to Time 3 (after selection decision) for applicants in both language background groups. There was also an increase in satisfaction with life scores from Time 1 (before interview) to Time 3 (after selection decision) for applicants from both language background groups.

Examining general self-efficacy, the results indicated that when general self-efficacy scores from both language background groups were combined, average scores at Time 1 appeared to be higher than scores at Time 3. In other words, general self-efficacy scores significantly decreased from Time 1 (before interview) to Time 3 (after selection decision) for applicants in both language background groups. No change was seen from Time 1 to Time 2, nor Time 2 to Time 3.

Although test taking self-efficacy did not see a main effect of Time, in Table 12 it can be seen that test taking self-efficacy achieved a significant main effect for Group, or in other words a between subjects effect. This suggests that there was a significant difference between English speaking and non-English speaking background applicants' scores of test taking self-efficacy. One way ANOVAs were used to determine at which Time period the significant differences occurred. Three separate ANOVAs were conducted at Time 1, 2 and 3 examining whether there were any differences in test taking self-efficacy between the two language background groups at each of the Time

periods. The between subjects main effect of language background was significant for test taking self-efficacy scores at Time 2 (F (1, 118) = 9.53, $p < 0.01$) and Time 3 (F (1, 118) = 6.56, $p < 0.05$) but not at Time 1. This indicates that there was a significant difference on test taking self-efficacy scores between English speaking and Non English speaking background applicants at both Time 2 (after selection procedure) and Time 3 (after selection decision) but not at Time 1 (before the interview).

Contrary to expectations, non English speaking background applicants were found to have higher levels of test taking self-efficacy than English speaking background applicants at both Time 2 (after selection procedure) and Time 3 (after selection decision). All other main effects were not significant, indicating that there were no significant differences between English speaking and non-English speaking background applicants on scores of positive or negative affect, or satisfaction with life or general self-efficacy at either time period.

Predicting General Mental Ability Scores

A one-way ANOVA was conducted in order to see whether there was a difference in general mental ability scores between English speaking and non-English speaking background applicants. Scores were divided into scores of verbal ability and scores of numerical ability and the ANOVA was repeated. The means and standard deviations and results obtained from the ANOVA are highlighted in Table 14.

Table 14

Means and Standard Deviations of General Mental Ability Scores as Measured by WPT

N Total = 68	ESB (N = 26)		NESB (N = 42)	
	M	SD	M	SD
WPT Total	37.46	6.37	38.50	4.76
WPT Verbal	21.27	2.50	21.00	2.27
WPT Numerical	12.34	3.85	13.52	2.68

WPT = Wonderlic Personnel Test

Results indicated that there was no significant difference between English speaking background applicants and non-English speaking background applicants' scores of general mental ability total scores (F (1, 67) = 0.59, p >.05); verbal ability scores (F (1, 67) = 0.21, p >.05) nor numerical ability scores (F (1, 67) = 2.22, p >.05). Note there was a trend for non-English speaking background applicants' to have higher numeric ability scores and for English speaking background applicants to have higher verbal ability scores, however, the differences were not significant.

A standard multiple regression was undertaken to determine if years living in an English speaking country; years living in Australia; or English language proficiency predicted scores on general mental ability. Contrary to the hypotheses, none of the three variables predicted general mental ability scores and the overall model was not significant (R^2= 0.01, F(3,67) = 0.22, p>.05). Results are found in table 15.

Table 15

Multiple Regression - Predicting General Mental Ability Scores

Model	Standardised *B*	*T*
Constant		7.05**
Year living in English speaking country	-.01	-.06
Year living in Australia	.08	.38
English language proficiency	.04	.26
R^2		.01
Adjusted R^2		-.04

** significant at .01 level * significant at .05 level

CHAPTER 8

DISCUSSION

This research had several aims. The first was to investigate whether participating in an employment selection process involving testing and a subsequent selection outcome had a significant effect on an applicant's wellbeing. In contrast to previous applicant reactions research which examined organisational outcomes of fairness perceptions, the current research aimed to extend the literature by examining personal outcomes such as changes to one's wellbeing. The second aim was to examine wellbeing across three time periods throughout the selection process. The majority of research on applicant reactions has been cross-sectional. Longitudinal research reduces the possibility of method bias and gives greater confidence to attributions of causality. Finally the study aimed to determine whether language background influenced psychological reactions to an employment selection process. Previous research examining employment selection processes amongst different ethnic and racial groups has focused on racial score differences achieved on cognitive ability and other employment testing techniques. To date, no known research has examined the relationship between an applicant's language background and the psychological reaction to an employment selection process.

The results of the present study demonstrated mixed support for the proposed hypotheses. As expected the results showed that there was a significant change in an applicant's wellbeing as measured by self-efficacy and subjective wellbeing from before commencing a selection process to after receiving a selection decision. The extent of the change was found to depend on the type of selection procedure, as well as the final

selection decision (whether the applicant was selected or rejected). The hypothesis that there would be a difference in wellbeing scores between the selection procedure groups immediately after completing the procedure was only partially supported. Satisfaction with life differed between the interview only group and the testing groups, whereas there was no difference between any other groups on the remaining wellbeing variables.

As expected there were differences *between* English speaking and non-English speaking background applicants on scores of test taking self-efficacy; however it was unexpected that non-English speaking background applicants had the higher scores. Also contrary to expectations, the pattern of change in wellbeing scores was the same for English speaking background and non-English speaking background applicants.

The results of the study are explained in more detail in the following sections. The chapter has been structured in a manner allowing a detailed discussion of selection procedure, selection decision and language background's influence on wellbeing. Results pertaining to initial demographic differences will be discussed first. This is followed by a discussion of results pertaining to selection procedure effects. Selection decision effects will be discussed with regard to the impact being selected or not selected has on an applicant's wellbeing. Finally the effect of an applicant's language background on wellbeing scores will be examined. The chapter concludes with a general discussion of strengths and potential limitations and practical implications of the results.

Group Differences – Initial Demographics

The present study examined the different experience English speaking background applicants and non-English speaking background applicants had with

general written testing, written employment testing and previous selection process experience. It was expected that applicants from a non-English speaking background would have less experience with employment testing. The results of the current study however indicated no difference in experience. This could be explained by the use of a graduate sample. It seems that all students, regardless of their language background, had limited experience with employment testing. This was reflected by a mean of 3 (minimal experience) for both English speaking and non-English speaking background applicants.

As was expected, English language background applicants had been living in Australia on average longer than non-English speaking background applicants. Interestingly, although there was a difference in self-assessed, or other-assessed English language proficiency between the two language backgrounds, this difference was not significant (ESB: *M*= 6.96; NESB: *M*= 6.03). This again could be explained by the sample used. As the applicants were in their final year of university, or had graduated and were job seeking, it can be assumed that in order to complete their degree, students would have needed a certain level of English language proficiency. Additionally, although applicants were classified as being from a non-English speaking background, they may have in fact been born in Australia. For Australian born non- English speaking background applicants, although a foreign language was the dominant language spoken at home, they would have been exposed to English at a young age; therefore would have developed a high level of proficiency throughout their lifespan.

It must be noted that there was a variation in language proficiency scores amongst non-English speaking background applicants as indicated by the standard deviation of 1.03. The range for this group of applicants was 3 to 7, suggesting that for

some applicants certain aspects of the English language were difficult. Effects of language proficiency and implications for applicants will be discussed in later sections of this discussion.

Direct Effects – Impact on Wellbeing

The present study examined the effect that: 1) employment testing type, 2) selection decision outcome, and 3) an applicant's language background had on an applicant's wellbeing. Wellbeing was measured across three time periods: 1) before a selection process, 2) after an interview and employment testing, and 3) after the applicant received a selection decision outcome. Each of these potential influences will be discussed in detail beginning with selection procedure type.

Selection Procedure Effects on Applicant Wellbeing

In the present research applicants were randomly assigned to complete one of four selection scenarios: these were: 1) interview + cognitive ability testing, 2) interview + personality testing, 3) interview + cognitive ability + personality testing, and 4) interview only. The cognitive ability test completed was the Wonderlic Personnel Test, and the personality test was the NEO Personality Inventory Revised. These tests are commonly used in personnel selection procedures (Carless, 2007). Although previous research has examined applicant reactions to employment selection procedures, no published research to date has systematically manipulated the type of interview plus test combination an applicant completes in order to examine the different psychological reactions each type of selection procedure evokes. Hausknecht et al.'s (2004)

comprehensive review of applicant reaction research confirms the importance of this research. Of the variables examined which influence applicant reactions, test combination was not included, nor was wellbeing examined as an outcome.

Research by Rosse et al. (1994) is the only study that used an experimental design to manipulate testing combinations; however testing appropriateness was the variable of interest, rather than applicant psychological reaction. This research was important as it indicated that different testing combinations evoked varying reactions toward the tests. The present research aimed to go beyond reactions and examined the affect varying selection procedures had on an applicant's wellbeing and whether this wellbeing changed over time as a consequence of the selection procedure completed.

Satisfaction with life was the only wellbeing variable to obtain a significant main effect of Time when comparing selection procedure groups. This indicates that satisfaction with life changed throughout the selection process. Negative affect obtained a significant Time x Selection Procedure interaction. This suggests that negative affect changed throughout the selection process and that the change was influenced by the selection procedure completed by the applicants. In summary, it was found that satisfaction with life changed throughout the selection process regardless of the selection procedure the applicant completed, whereas changes in negative affect were influenced by the type of selection procedure. These results will be discussed further in the following section. Additionally, the non-significant results relating to changes in test taking self-efficacy will be discussed, as this was an unexpected result.

Satisfaction with life

The results of the present study suggest that completing employment selection procedures evoke changes in an applicant's wellbeing immediately after completing the procedure. Satisfaction with life increased from before the interview (Time 1) to after the selection procedure (Time 2). This indicated that applicant's positively altered their self-perceptions of satisfaction with life from before they took part in an employment interview to after they had completed some form of employment testing. This trend was also seen in applicants who only completed an employment interview in that an increase in satisfaction with life was found after the applicant had taken part in the procedure. A similar finding was found by Fletcher (1991); self-esteem was found to increase in participants immediately after completing assessment centre activities. Fletcher (1991) suggested that simply participating in such an activity can give one a sense of achievement.

No significant increase in satisfaction was found from after the selection procedure (Time 2) to after the selection decision (Time 3) for all selection procedure groups. Bauer et al. (1998) has suggested that applicants discard information relating to the selection procedure once a selection decision is known. In other words, applicants focused on the components of the selection procedure and their reactions to them until they received the selection decision. Once the decision was known, the direction of the decision (pass/fail) was a stronger influence on one's reactions over the selection procedure.

A significant increase in satisfaction with life was found from before the selection interview (Time 1) to after the selection decision (Time 3). In other words

when dividing participants by selection procedure group and examining each groups change in wellbeing, no immediate change in life satisfaction was found to occur in the period between completing their selection procedure and receiving the selection decision. On the other hand, a change in life satisfaction was found across the entire selection process. That is, life satisfaction was seen to change from before the applicants completed their selection interview, to after they received their selection decision. This change occurred regardless of the selection procedure group the applicant was in. Schmitt et al.'s (1986) study produced a similar result in that applicants in an assessment centre were found to alter their self-perceptions once the assessment centre had been completed, regardless of the specific feedback given, suggesting that, simply receiving a result can alter one's perceptions.

Positive and negative affect

In addition to satisfaction with life, applicants' self-perceptions of negative affect changed when examined across selection procedure groups. Unexpectedly, positive affect was not seen to change over time. Applicants who completed only the interview had an increase in negative affect immediately after completion. That is, applicants in the interview only group reported an increase in negative affect from before they completed the interview (Time 1) to after they completed the interview (Time 2). This was unexpected as it was predicted that the highest levels of negative affect would be in the cognitive ability + personality testing group due to the high cognitive and emotional demands placed on the applicant during these procedures.

In summary, applicants who completed only the interview and no employment testing reported a significant increase in negative affect immediately after completing the interview.

One explanation for the interview only group applicants' increase in negative affect can be found in fairness perception literature, in particular an applicant's perceived opportunity to perform (e.g., Gilliland, 1994; Hausknecht, 2004). Applicants were aware of the opportunity to take part in employment testing. Applicants who were unable to complete the testing phase and were only given the opportunity to demonstrate their skills through an interview potentially felt that they did not have the opportunity to fully demonstrate their capabilities, leading to greater negative emotions and a resultant increase in negative affect.

A possible explanation for the unexpected non-significant change in wellbeing in testing groups may be found in the level of experience applicants had with employment testing. The average experience across all applicants was minimal suggesting that their confidence in their ability to perform during the testing phase may have been low. This suggestion is supported by previous self-efficacy research indicating that one's experience is a predictor of one's confidence (Gist & Mitchell, 1992). Included in Hausknectht et al.'s (2004) reactions model was applicant test experience, and applicant anxiety. Experience was proposed to influence anxiety levels, which in turn influenced applicant self-perceptions. It is possible that applicants' reported higher levels of negative affect before the interview was due to inexperience. On completion of the testing however there may have been a sense of relief that the procedure was over, hence the decrease in negative affect. As applicant's reported on their wellbeing immediately

after the testing process, some negative affect may still have been present, suggesting the change was not statistically large, leading to the non-significant changes.

Test taking self-efficacy

Unexpectedly, test taking self-efficacy was found not to change as a consequence of completing employment testing or an employment interview. Bandura's mastery experience theory may offer an explanation for these results. Bandura (1977) noted that successfully experiencing a given situation will increase a person's self-efficacy. As Time 2 test taking self-efficacy was rated after applicants completed the employment tests, they had no way of determining whether they were successful or not, therefore did not have a frame of reference to alter their test taking self-efficacy levels. There was a trend in the current research for test taking self-efficacy levels to change from Time 1 to Time 2, with an increase in applicants who completed cognitive ability plus personality testing, and a decrease in applicant's who completed only the cognitive ability test, and only the personality test. These results were not significant, however may indicate that even without feedback on one's performance, simply participating in the task can alter a person's perceptions about their capabilities to perform that task successfully. Earlier Schmitt et al. (1986) found that people's perceptions of their abilities were altered as a consequence of undertaking specific assessment centre tasks, without specific feedback.

Selection Procedure Effects on Wellbeing – Between Testing Group Differences

The current research showed a between group difference between the interview + personality testing group and the interview only group at the end of the selection process

(Time 3). Unexpectedly, satisfaction with life was found to significantly differ between these two groups with applicants in the interview only group having the higher scores on satisfaction with life. This finding can be partly explained by previous literature comparing selection procedures. In a study comparing selection procedures on a measure of appropriateness, Rosse et al. (1994) found that applicants who completed an interview plus personality test gave significantly lower ratings of appropriateness compared to applicants who completed only the interview. That is, applicants found the interview a more appropriate measure for selecting applicants than an interview plus a personality test. In the present study, applicants who completed the interview and the personality test may have been dissatisfied that a selection decision was being based on their personality scores.

Changes in Wellbeing as a Consequence of the Selection Decision

Employment selection processes involve high stakes due to the nature of the process as well as the implications associated with the end result. The applicant has to complete a series of hurdles, with no guarantee that they will be successful. Employment plays many roles for an individual, from social interaction to financial security (Bluestein, 2008), therefore an applicant has a strong investment in the end decision of whether they are selected or not. In the present research, approximately a week after the applicant had completed their employment testing or interview, they were notified of the selection decision outcome. Applicants were notified via email of whether they were selected for the job or not. At the beginning of the selection process and again immediately before testing, as well as when they received their selection decision,

applicants were informed that only applicants who performed in the top twenty percent of applicants would be considered for the position. This allowed the applicants to have a point of reference with regard to the perception they held of their own performance. Although applicants were randomly placed into the selected or not selected groups, they were not aware of this until they had completed the final questionnaire so as to not confound the results with the influence of actual performance feedback.

In contrast to the previous sections where results were examined across Time and between groups, the following results will be discussed together, due to the similar explanations associated with between and within group differences. That is, the explanations given for differences in wellbeing across time and between groups will be provided together for each separate wellbeing variable.

Test taking and general self-efficacy

As was expected, the selection decision outcome impacted an applicant's test taking self-efficacy with selected applicants reporting an increase in their test taking self-efficacy after they were notified of the selection decision, and not selected applicants seeing a decrease in test taking self-efficacy. In other words, the test taking self-efficacy of applicants who received a positive outcome increased from Time 2 (after procedure) to Time 3 (after decision), and the test taking self-efficacy of applicants who received a negative outcome decreased. Furthermore, there was a significant difference between selection decision outcome groups on scores of test taking self-efficacy with selected applicants having significantly higher scores than not selected applicants after a decision was known.

This suggests that the selection decision has a significant impact on an applicant's confidence in their ability to perform successfully during selection procedures. It seems that applicants who were notified they were selected would have felt that they performed well on the selection procedures and subsequently raised their test-taking self-perceptions, whereas applicants who were not selected would have perceived their abilities to be weaker and therefore altered their test-taking self-efficacy negatively. These results are consistent with the findings of Maertz et al. (2005); participants were found to have a pre to post-test increase in test taking self-efficacy upon passing a test and a pre to post-test decrease in test taking self-efficacy upon failing a test.

According to Bandura (1977; 1997), self-efficacy is influenced by performance accomplishments or mastery experience. For the current applicants, achieving success in the selection procedure would have strengthened the applicant's confidence in their capabilities to perform well on employment tests, therefore strengthening their test taking self-efficacy. For applicants who were informed that they were not selected, this may have activated thoughts of failure and being unable to adequately master the task at hand, leading to a decreased sense of test taking self-efficacy. Stajkovic and Luthans' (1998) meta-analysis results confirm the positive relationship between performance and self-efficacy.

An additional influence on one's self-efficacy may have been the information provided regarding test performance. Feedback was not specifically examined in the current study and warrants further research, however is worth commenting on in relation to test taking self-efficacy. In the initial questionnaire which applicants completed

before employment procedures it was noted that only the top 20% of applicants would be considered for selection. When receiving the selection decision, applicants were again reminded of this criterion. Research by Schinkel et al. (2004) and Schinkel, Van Dierendonck, Van Vianen and Ryan (2011) found that providing specific feedback, such as a percentile rank, about substandard performance was harmful to an applicant's wellbeing. That is, providing simply a select/reject decision without any relative performance data had less of an influence on an applicant's self-evaluations compared to performance specific feedback.

It is possible in the current study that unsuccessful applicants would have perceived that they were not as competent as the rest of the field in terms of completing employment tests, as they were not in the top 20%, and subsequently decreased their perceptions of test taking self-efficacy. Successful applicants on the other hand may have perceived that their employment testing abilities surpassed the rest of the field resulting in increased perceptions of test taking self-efficacy.

An interesting finding was that although test taking self-efficacy decreased from Time 2 to Time 3 in not selected applicants, general self-efficacy did not decrease. Self-efficacy is not only task specific but can be identified as a more general level of functioning by way of general self-efficacy (Chen, et al., 2001). General self-efficacy is one's belief in their capabilities to undertake novel tasks and cope with adversity in a number of situations. Specific self-efficacy such as test taking self-efficacy is also related to confidence in abilities, but is constrained to a particular task (Bandura, 1997). For applicants who were not selected it is possible that they maintained their levels of general self-efficacy as they did not link the unsuccessful outcome to their overall

abilities, rather to their specific test taking abilities. Chen et al. (2001) suggested that general self-efficacy acts as a buffer against negative life events, therefore for applicants with strong general self-efficacy, a negative reaction would not affect these individuals' overall self-efficacy as much as those with low general self-efficacy.

Positive and negative affect

Applicants' positive and negative affect were affected by the selection decision they received. After receiving a selection decision, positive affect was significantly higher in selected applicants compared to not selected applicants. A significant result for Time was found for not selected applicants; positive affect significantly decreased in not selected applicants and negative affect significantly increased. That is, for applicants who were not selected, negative affect increased from Time 2 (after procedure) to Time 3 (after decision) and positive affect decreased from Time 2 to Time 3. No significant changes in positive and negative affect were found for selected applicants. Fletcher (1991) reported similar findings in a sample who were attending an assessment centre; successful applicants reported lower levels of a depressed mood at work compared to unsuccessful applicants. Given the benefits of being successful in a selection process, it is not surprising that successful applicants reported greater positive emotions than unsuccessful applicants.

In contrast to the current findings, Anderson and Goltsi (2006) found no significant changes in positive and negative affect after receiving a selection decision. The difference in results may be due to time of measurement. The present study measured affect within a week of the applicant receiving a selection decision, whereas

Anderson and Goltsi (2006) measured affect 6 months after a decision was known. It is suggested that the present study captured applicants' immediate reaction to the decision, whereas it is difficult to attribute impact on affect in Anderson and Goltsi's (2006) study due to the considerable time lapse. They noted themselves that as there was no follow up questions regarding employment status, that the lack of change in affect may have been a factor of the applicant being employed during this time and the many factors associated with this (Anderson & Goltsi, 2006).

Satisfaction with life

Satisfaction with life was found to increase in selected applicants and decrease in rejected applicants after receiving a selection decision. That is, satisfaction increased from Time 2 (after procedure) to Time 3 (after decision) for applicants who were selected, whereas satisfaction decreased in applicants who were not selected. Similar results were found by Fletcher (1991) and Schinkel et al. (2004) in that self-evaluations were seen to alter as a result of a selection decision. Fletcher (1991) reported a drop in self-esteem for rejected applicants and Schinkel et al. (2004) found a decrease in self-evaluations for rejected applicants.

The current results suggest that upon receiving a selection decision, an applicant's perceptions of their life satisfaction are altered either positively or negatively, depending on whether they are selected or not selected. It appears that applicants who were selected were happier after they had been selected compared to immediately after they completed the selection procedure. In contrast, applicants who were not selected reported a reduced level of satisfaction with life after they received the

selection decision compared to after they had completed the selection procedure. This suggests that the selection decision plays a prominent role in the change to an applicant's wellbeing during a selection process.

Having the knowledge that one has the ability to perform successfully during a selection process involving interviews and testing may be attributed to increased feeling of satisfaction. A positive employment decision has associated benefits with it such as financial security, social opportunities, and career progression; all which are related to life satisfaction. Lent et al. (2005) suggested that obtaining personal valued goals leads to satisfaction. Being successful in a selection process would be a valued goal for individuals seeking employment, hence an increase in life satisfaction when successful. Conversely being unable to achieve success and therefore obtain employment may result in a decrease in life satisfaction.

Language Background Effects on Wellbeing

An applicant's language background was measured by a series of questions which assessed whether an applicant was of English speaking background or Non-English speaking background. The categorisation was used to examine the effect that an applicant's language background had on their scores of test taking self-efficacy, positive and negative affect, satisfaction with life, and general self-efficacy. Language background was also used to examine changes in these variables over time.

Results indicated than an applicant's wellbeing changed between each time period; however the change was not due to language background. That is, the change which occurred was the same for both English speaking and non-English speaking

background applicants. Satisfaction with life was found to have increased for both language groups from before the selection interview (Time 1) to after the selection procedure (Time 2) and also from Time 1 to after the selection decision was known (Time 3). One explanation of this finding is simply completing an employment selection procedure is a positive experience leading to an increased perception of life satisfaction.

Interestingly, general self-efficacy was seen to decrease for both language background groups from Time 1 to Time 3. A possible explanation for this unexpected result is that in general, applicants may have felt that they should have been able to perform better. Although they were satisfied with their abilities prior to selection, it is possible that participating in a selection process led to doubts about their capacity to perform in a later selection process. It is difficult to come to a clear conclusion of why general self-efficacy decreased when examining language background, as selection decision effects were not included. Further research examining the moderating effects of the selection decision between language background and wellbeing is warranted.

It was expected that wellbeing would change as a factor of language background due to the varying experience each language group was expected to have with employment procedures. Previous research (Ryan et al., 1999) suggested that applicants from non-English speaking countries have less experience with selection processes than English speaking applicants. It was expected that non English speaking background participants would have a stronger emotional reaction to the selection procedures compared to English speaking background applicants. As was seen with the changes in satisfaction with life and general self-efficacy, this trend was not evident.

A possible explanation for the similar score change patterns for both language background groups is that both groups had similar emotional experiences during the second stage of the selection process, as both language background groups had similar prior selection experience. All applicants had on average 'minimal experience' with written employment testing suggesting that the familiarity of the situation for both language background groups may have been similar leading to a reduced range of reactions amongst applicants, and hence similar changes in wellbeing.

Language Background Effects on Wellbeing – Between Group Differences

An unexpected finding of the research was that non-English speaking background applicants had significantly higher scores of test taking self-efficacy after the selection procedure (Time 2) and after the selection decision (Time 3). Although higher at Time 1, the analyses indicated the difference was not significant. A possible explanation for this finding relates to one's test taking strategies. An individual's test taking self-efficacy is built on the experience an individual has with completing tests. This does not have to be specifically employment testing but any written testing. The understanding of task requirements are enhanced by simply being exposed to the task (Bandura 1977).

In order for foreign students to be accepted into the university they must complete a series of International Language Testing System (IELTS) tests in order to measure their level of English language proficiency. English speaking students do not complete the IELTS tests, suggesting that non-English speaking students may be more proficient in test taking compared to English speaking students. Furthermore, non-

English speaking background applicants who find aspects of test taking difficult due to their language abilities have the option to seek guidance on how to enhance their test taking skills such as learning test taking strategies. In association with the University of Cambridge, IELTS offers test-taking practice for non-English speaking individuals. Such courses are offered through Monash University, as well as exam strategies (Monash, 2007).

Test taking strategies refer to a test takers set of skills and knowledge about test taking that enable the individual to improve their test score regardless of the content area being tested (Nguyen, et al., 2003). Applicants who are able to develop test taking strategies will perceive that they are well equipped when entering a testing situation leading to decreased cognitive load. Negative thoughts would subsequently decrease allowing the applicant to maintain high levels of test taking self-efficacy (Nguyen et al., 2003). As well as experience, test taking self-efficacy can develop through verbal persuasion (Bandura, 1997). Thus if non-English speaking background applicants sought help in developing strategies, it is possible that their tutor gave them positive moral support and encouragement which increased their levels of test taking self-efficacy.

In summary, in contrast to English speaking background applicants, non-English speaking background applicants possibly developed greater test taking self-efficacy through practice and encouragement. For non-English speaking applicants who are not from Australia, gaining access to a university takes a great deal of commitment both financially, and academically. By seeking out test taking strategies to overcome their language limitations, non-English speaking background applicants potentially developed superior test taking skills compared to native students. Overall this seemed to allow for a

more positive perception of test taking abilities after completing selection procedures compared to English language background applicants

Predicting General Mental Ability Scores – Language and Experience Effects

The present research examined ability score differences between English speaking and non-English speaking background groups in addition to the factors predicting general mental ability scores. Based on previous research it was expected that English speaking background applicants would score significantly higher on the cognitive ability test compared to the non-English speaking background applicants. The present research however showed no significant difference between language background groups on scores of overall general mental ability, verbal ability or numerical ability.

Arvey et al. (1990) suggested that performance on cognitive ability tests is a product of ability and motivation. For all applicants, completing the test would have been an opportunity to gain experience in testing which they may come across in later employment situations. Therefore it was possible that the motivation level of all applicants was high.

In addition to examining general mental ability score differences between groups, the current study examined predictors of general mental ability scores. It was expected that years living in Australia, years living in an English speaking country, and English language proficiency would predict general mental ability scores. This prediction was based on research that showed English speaking countries use employment testing, including tests of general mental ability more than non-English

speaking countries (Ryan, et al., 1999). In addition it has been shown that more proficient users of the language in which the test is constructed score on average better than applicants who are not as proficient (Helms-Lorenz, et al., 2003). The results of the present study did not identify years in Australia, years in an English speaking country nor English language proficiency as predictors of general mental ability scores. It is possible that as there was not much variation in the educational level, language proficiency, or testing experience of the sample any influence of the number of years they had spent in Australia or an English speaking country had on their performance were overcome.

Although language proficiency and years in an English speaking country or Australia were not significant predictors of general mental ability scores, previous written testing experience and previous employment testing experience were significant predictors. Previous experience with employment testing was found to be the strongest predictor. The results suggest that applicants with previous employment testing experience performed better than applicants without the experience. Applicants with testing experience will have greater test taking strategies and thus may not be influenced by any test related negative affects which reduce one's ability to focus on the task at hand.

Summary

The results of the present research suggest that selection processes involving employment interviews and employment testing in the form of personality and ability testing impact an applicant's wellbeing. This was demonstrated through changes in

applicants' scores of test taking self-efficacy, general self-efficacy, satisfaction with life, positive affect, and negative affect. Unexpectedly, satisfaction with life and negative affect were the only wellbeing variables to be influenced by the type of selection procedure. Satisfaction with life was seen to differ between the interview only group and the interview plus personality group. Negative affect increased in applicants who completed only the employment interview. No change in negative affect was seen for applicants who completed employment testing. Each of the wellbeing variables measured were influenced by the selection decision. Furthermore, an interaction was present indicating that the direction in which an applicant's wellbeing changed was dependent on the outcome of the decision (selected/not selected). The trend was for wellbeing to increase for selected applicants and decrease for not selected applicants. Overall the research highlights the vulnerability of applicants, and the influence a personnel selection process can have on applicants.

Strengths and Limitations

A key strength of the current research is the use of a longitudinal design. By asking the applicants to provide ratings of their wellbeing before the first selection event, immediately after the event and finally after a selection decision was known enabled a systematic investigation of the factors that contributed to change in an applicant's wellbeing.

A second strength of the study was the systematic examination of psychological testing procedures through a simulated selection process. Other than Rosse et al. (1998) no known research has experimentally manipulated the psychological tests the

applicants have undertaken in order to examine whether different psychological effects are produced. By using experimental groups, the present research was able to gain a greater understanding of the impact of specific selection procedures. Additionally, the actual completion of the tests by applicants is a strength compared to previous research which has utilised a written example method. That is, the majority of previous research has relied on Steiner and Gilliland's (1996) method whereby applicants formed opinions of testing material based on an explanation of the test rather than completing it. Completing the actual tests better simulates the genuine experience of applicants.

The first limitation of the present study was that the selection process was not a genuine selection process. Although considerable effort was put in to simulate a typical personnel selection process, as the participants were not applying for an actual job, the emotions felt during the process may have been slightly different if the process was genuine. In addition the same amount of effort exerted in a real life situation may not have occurred in the simulated environment. These factors combined may have contributed to the non-significant changes in test taking self-efficacy and positive and negative affect across the three time periods when examining the selection procedure groups. Although the results produced a change in all measures of wellbeing, these changes did not reach statistical significance which may have been a consequence of the simulated environment.

Another limitation was the restriction in the sample used in that they were all university students. Although a limitation, it must be noted that the students were all due to graduate, or were already job seeking, therefore were a genuine applicant sample. As the sample was university students the range of language proficiency may have been

limited; students are required to have a high level of language ability in order to meet the demands of university assessments. Future research would benefit from studying newly arrived immigrants who have not had the opportunity to integrate, and have not had the opportunity to develop language skills.

A final limitation is the categorisation used for language background. The categorisation may have added to non-significant changes in wellbeing between the two language background groups. Although applicants were categorised as being of non-English speaking background, their level of language proficiency potentially moderated any influence this category had on changes in wellbeing as well as performance on the ability test.

Implications

Language background and test performance

Where previous research examining racial and cultural differences has suggested that cognitive ability testing may be inappropriate for some minority groups, an important finding of the present research suggests that diversity in organisations can be achieved even when using testing methods such as cognitive ability. That is, recruiters can be confident that the use of cognitive ability testing will not result in large score differences and therefore will not be of detriment to quest for diversity. It must be noted however that this result is in relation to differences in language background, rather than racial differences. The results from the present research suggest that applicants who are from a non-English speaking background, but who have been exposed to an Australian education, have an equal chance of performing well during an employment selection

process. In fact it appears that non English speaking background applicants are more confident in their abilities to undertake a testing component of a selection process than English speaking background applicants.

Impact on wellbeing

The research showed that selection procedures and the outcome of a selection decision impacts upon an applicant's wellbeing. This is an important implication for both the organisation and the applicant. For the organisation a reduction in an applicant's wellbeing immediately after a selection process can lead to risk of a negative organisational image. For applicants the reduction, or even increase in wellbeing, has wider reaching consequences. Applicants who have a lasting decrease in wellbeing after a selection process may find it difficult to perform in their current work roles, or if they are unemployed will find it difficult to go through further selection processes, unless interventions are taken to improve the applicant's perceptions of their abilities.

Applicants need to be aware of the potential impact to their wellbeing so that they can prepare themselves if a negative outcome occurs. Previous research has shown that negative affect results in decreased job hunting, decreased career aspirations and decreased motivation (Lucas et al., 2004). A particular aspect of wellbeing which is of particular importance for job seekers is their self-efficacy. Continual setbacks for applicants can result in decreased confidence, leading to negative efficacy spirals. If applicants are aware of these effects, although it difficult for an individual they should work on strategies for maximising their self-efficacy before they enter a selection

process in order to avoid the influence of negative self-efficacy can have on performance.

Applicants may benefit from employment selection processes coaching. Workshops could incorporate methods for increasing self-efficacy, maintaining self-efficacy in high stress situations, as well as providing practical tools for completing employment interviews and employment testing. Eden (1993) found that self-efficacy helped individuals overcome the negative factors associated with unemployment and unsuccessful selection. Individuals who participated in eight behavioural modelling workshops over two and a half weeks increased their levels of general self-efficacy which in turn boosted their job search activities. This was due to general self-efficacy motivating an intensification of effort even in aversive situations.

Conclusion

The current research adds to the existing body of knowledge on applicant reactions. Where previous applicant reactions research has had a strong focus on fairness perceptions, the current research aimed to extend this research by examining psychological reactions in the form of changes to one's wellbeing. The examination of wellbeing rather than perceptions of justice and fairness was a key feature of this research, as only five other known studies to date have specifically focused on wellbeing (Anderson & Goltsi, 2006; Bauer, et al., 1998; Fletcher, 1991; Robertson, et al., 1991; Schinkel, et al., 2011).

The examination of language background was another key addition to the research. Although previous research had examined racial score differences, limited

research had examined score differences based on language background. Research in the Netherlands (de Meijer, et al., 2006) has been a key contributor to information regarding language background and test performance. This research however did not examine whether there was any psychological impact relating to the testing, or whether the psychological reactions differed as a result of one's language background. The present research allowed for an examination of these effects and identified positive implications for non-English speaking background applicants in that performance and wellbeing appears to be influenced little by language background.

The current research has highlighted the importance of studying personal outcomes related to applicant reactions. The potential vulnerability of an applicant's psychological wellbeing is of particular interest with regard to employment selection process participation. The results of the research have key implications for applicants' wellbeing and future selection procedure performance.

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APPENDIX A

Time 1 Demographic Questionnaire

SECTION ONE (DEMOGRAPHIC)

1. Age in Years_____

2. Gender Male ☐ Female ☐

3. Ethnicity

   Born overseas ☐
   If answer yes, which country _____
   How long have you lived in Australia? _____

   Born in Australia with both parents from a Non English Speaking Background country ☐

   Born in Australia with at least one parent born in a Non English Speaking Background country ☐

   Born in Australia with both parents born in an English Speaking Background country ☐

4. Language

   Non English Speaking Background, first language spoken was a Language other than English ☐

   Non English Speaking Background, first language spoken was English ☐

   English Speaking Background, first language spoken was English ☐

   NB: Non English Speaking background relates to individuals who have one or more parents who were born overseas and first spoke a language other than English.

5. Current Employment Status

   Casually Employed ☐
   Employed Full Time ☐
   Job Seeking ☐

6. Highest Educational Attainment

- Undergraduate ☐
- Post graduate
  - Diploma ☐
  - Honours ☐
- Masters ☐
- PHD/Doctorate ☐

7. How experienced are you with employment testing (ability/personality/work samples etc)?

- No experience ☐
- Little experience ☐
- Somewhat experienced ☐
- Experienced ☐
- Very Experienced ☐

8. How experienced are you with any form of written testing?

- No experience ☐
- Little experience ☐
- Somewhat experienced ☐
- Experienced ☐
- Very Experienced ☐

9. How many job offers do you expect to receive?

- None ☐
- One to two ☐
- Two to Five ☐
- More than Five ☐

SECTION TWO

This section requires you to answer questions about your confidence in your abilities in general.
For each of the following statements, please mark the choice that is closest to how true you think it is for you. The questions ask about your opinion. There are no right or wrong answers.

Answers are on a scale from 1 to 5.
(1) = strongly disagree
(2)= disagree
(3)= neutral
(4) = agree
(5)= strongly agree

Please check the box which relates best to you. For example:

	1	2	3	4	5
Question 1. *statement*		X			

QUESTIONS	1	2	3	4	5
I will be able to achieve most of the goals I have set for myself					
When facing difficult tasks, I am certain that I will accomplish them					
In general, I think that I can obtain outcomes that are important to me					
I believe I can succeed at most any endeavour to which I set my mind					
I will be able to successfully overcome many challenges					
I am confident I can perform effectively on many different tasks					
Compared to other people, I can do most tasks well					
Even when things are tough, I can perform quite well					

SECTION THREE

This scale consists of a number of words that describe different feelings and emotions. Read each item and then circle the appropriate answer next to that word. Indicate to what extent you have felt this way during the past week.

The answers are on a 5 point scale
(1)= Very slightly or not at all
(2)= A little
(3)= Moderately
(4)= Quite a lot
(5)= Extremely

Use the following scale to record your answers

	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
1. Interested	1	2	3	4	5
2. Distressed	1	2	3	4	5
3. Excited	1	2	3	4	5
4. Upset	1	2	3	4	5
5. Strong	1	2	3	4	5
6. Guilty	1	2	3	4	5
7. Scared	1	2	3	4	5
8. Hostile	1	2	3	4	5
9. Enthusiastic	1	2	3	4	5
10. Proud	1	2	3	4	5
11. Irritable	1	2	3	4	5
12. Alert	1	2	3	4	5
13. Ashamed	1	2	3	4	5
14. Inspired	1	2	3	4	5
15. Nervous	1	2	3	4	5
16. Determined	1	2	3	4	5
17. Attentive	1	2	3	4	5
18. Jittery	1	2	3	4	5
19. Active	1	2	3	4	5
20. Afraid	1	2	3	4	5

SECTION FOUR

This section requires you to answer questions about your confidence in your ability to complete written tests.
For each of the following statements, please mark the choice that is closest to how true you think it is for you. The questions ask about your opinion. There are no right or wrong answers.

Answers are on a scale from 1 to 5.
(1) = strongly disagree
(2)= disagree
(3)= neutral
(4) = agree
(5)= strongly agree

(Decide which one to put in)

Please check the box which relates best to you. For example:

	1	2	3	4	5
Question 1. *statement*		X			

QUESTIONS	1	2	3	4	5
I am confident in my ability to do well on written tests					
When it comes to taking written tests, I generally do well					
I tend to do better on written tests than most people					

SECTION FIVE

Below are five statements that you may agree or disagree with. Using the 1 - 7 scale below, indicate your agreement with each item by checking the box that corresponds to the number that suits you the best. Please be open and honest in your responding. There is no right or wrong answer.

The following scale is to be used.

(7) Strongly agree
(6) Agree
(5) Slightly agree
(4) Neither agree nor disagree
(3) Slightly disagree
(2) Disagree
(1) Strongly disagree

Please check the box which relates best to you. For example:

	1	2	3	4	5
Question 1. *statement*		X			

QUESTIONS	1	2	3	4	5	6	7
In most ways my life is close to my ideal							
The conditions of my life are excellent							
I am satisfied with my life							
So far I have gotten the important things I want in life							
If I could live my life over, I would change almost nothing							

APPENDIX B

Time 2 Questionnaire

Time 2 Survey

Name:

Now that you have completed the testing phase of the selection process, please complete this survey. Please complete it keeping in mind the tests which you have just completed in terms of whether you opinions of your ability to complete tests have changed, and whether you feel these tests are a good way of distinguishing people for employment.

SECTION ONE

This section requires you to answer questions about your confidence in your abilities in general.
For each of the following statements, please mark the choice that is closest to how true you think it is for you. The questions ask about your opinion. There are no right or wrong answers.

Answers are on a scale from 1 to 5.
(1) = strongly disagree
(2)= disagree
(3)= neutral
(4) = agree
(5)= strongly agree

Please check the box which relates best to you. For example:

	1	2	3	4	5
Question 1. *statement*		X			

QUESTIONS	1	2	3	4	5
I will be able to achieve most of the goals I have set for myself					
When facing difficult tasks, I am certain that I will accomplish them					
In general, I think that I can obtain outcomes that are important to me					
I believe I can succeed at almost any endeavour to which I set my mind					
I will be able to successfully overcome many challenges					
I am confident I can perform effectively on many different tasks					
Compared to other people, I can do most tasks well					
Even when things are tough, I can perform quite well					

SECTION TWO

This scale consists of a number of words that describe different feelings and emotions. Read each item and then circle the appropriate answer next to that word. Indicate to what extent you have felt this way during the past week.

The answers are on a 5 point scale
(1)= Very slightly or not at all
(2)= A little
(3)= Moderately
(4)= Quite a lot
(5)= Extremely
Use the following scale to record your answers

	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
1.Interested	1	2	3	4	5
2.Distressed	1	2	3	4	5
3.Excited	1	2	3	4	5
4.Upset	1	2	3	4	5
5.Strong	1	2	3	4	5
6.Guilty	1	2	3	4	5
7.Scared	1	2	3	4	5
8.Hostile	1	2	3	4	5
9.Enthusiastic	1	2	3	4	5
10.Proud	1	2	3	4	5
11.Irritable	1	2	3	4	5
12.Alert	1	2	3	4	5
13.Ashamed	1	2	3	4	5
14.Inspired	1	2	3	4	5
15.Nervous	1	2	3	4	5
16.Determined	1	2	3	4	5
17.Attentive	1	2	3	4	5
18.Jittery	1	2	3	4	5
19.Active	1	2	3	4	5
20.Afraid	1	2	3	4	5

SECTION THREE

This section requires you to answer questions about your confidence in your ability to complete written tests.
For each of the following statements, please mark the choice that is closest to how true you think it is for you. The questions ask about your opinion. There are no right or wrong answers.

Answers are on a scale from 1 to 5.
(1) = strongly disagree
(2)= disagree
(3)= neutral
(4) = agree
(5)= strongly agree

(Decide which one to put in)

Please check the box which relates best to you. For example:

	1	2	3	4	5
Question 1. *statement*		X			

QUESTIONS	1	2	3	4	5
I am confident in my ability to do well on written tests					
When it comes to taking written tests, I generally do well					
I tend to do better on written tests than most people					

SECTION FOUR

Below are eight statements which refer to the **personality testing** section in this selection procedure. If you completed a personality test as part of this selection procedure, please indicate the extent of your agreement with each of the eight statements, using the 1 - 5 scale below. Indicate your agreement with each item by checking the box that corresponds to the number that suits you the best.

Answers are on a scale from 1 to 5.
(1) = strongly disagree
(2)= disagree
(3)= neutral
(4) = agree
(5)= strongly agree

(Decide which one to put in)

Please check the box which relates best to you. For example:

	1	2	3	4	5
Question 1. *statement*		X			

QUESTIONS	1	2	3	4	5
I could really show my skills and abilities through this test					
This test allowed me to show what my job skills are					
This test gives applicants the opportunity to show what they can really do					
I was able to show what I can do on this test					
It would be clear to anyone that this test is related to the job					
The content of this test was clearly related to the job					
Doing well on this test means a person can do the job well					
A person who scores well on this test will be good at this job					

SECTION FIVE

Below are eight statements which refer to the **cognitive ability testing** section in this selection procedure. If you completed a cognitive ability test as part of this selection procedure, please indicate the extent of your agreement with each of the eight statements, using the 1 - 5 scale below. Indicate your agreement with each item by checking the box that corresponds to the number that suits you the best.

Answers are on a scale from 1 to 5.
(1) = strongly disagree
(2)= disagree
(3)= neutral
(4) = agree
(5)= strongly agree

(Decide which one to put in)

Please check the box which relates best to you. For example:

	1	2	3	4	5
Question 1. *statement*		X			

QUESTIONS	1	2	3	4	5
I could really show my skills and abilities through this test					
This test allowed me to show what my job skills are					
This test gives applicants the opportunity to show what they can really do					
I was able to show what I can do on this test					
It would be clear to anyone that this test is related to the job					
The content of this test was clearly related to the job					
Doing well on this test means a person can do the job well					
A person who scores well on this test will be good at this job					

SECTION SIX

Below are three statements which refer to this selection procedure. Please indicate the extent of your agreement with each of the three statements, using the 1 - 5 scale below. Indicate your agreement with each item by checking the box that corresponds to the number that suits you the best.

Answers are on a scale from 1 to 5.
(1) = strongly disagree
(2)= disagree
(3)= neutral
(4) = agree
(5)= strongly agree

(Decide which one to put in)

Please check the box which relates best to you. For example:

	1	2	3	4	5
Question 1. *statement*		X			

QUESTIONS	1	2	3	4	5
I think that the testing process is a fair way to select people for this job					
I think that the tests themselves were fair					
Overall, the method of testing used was fair					

SECTION SEVEN

Below are five statements that you may agree or disagree with. Using the 1 - 7 scale below, indicate your agreement with each item by checking the box that corresponds to the number that suits you the best. Please be open and honest in your responding. There is no right or wrong answer.

The following scale is to be used.

(7) Strongly agree
(6) Agree
(5) Slightly agree
(4) Neither agree nor disagree
(3) Slightly disagree
(2) Disagree
(1) Strongly disagree

Please check the box which relates best to you. For example:

	1	2	3	4	5
Question 1. *statement*		X			

QUESTIONS	1	2	3	4	5	6	7
In most ways my life is close to my ideal							
The conditions of my life are excellent							
I am satisfied with my life							
So far I have gotten the important things I want in life							
If I could live my life over, I would change almost nothing							

APPENDIX C

Time 3 Questionnaire

Time 3 Survey

Name:

Now that you have received your selection notification, please complete this survey for a final time. Please complete it keeping in mind your reactions to the selection outcome.

SECTION ONE

This section requires you to answer questions about your confidence in your abilities in general.
For each of the following statements, please mark the choice that is closest to how true you think it is for you. The questions ask about your opinion. There are no right or wrong answers.

Answers are on a scale from 1 to 5.
(1) = strongly disagree
(2)= disagree
(3)= neutral
(4) = agree
(5)= strongly agree

Please check the box which relates best to you. For example:

	1	2	3	4	5
Question 1. *statement*		X			

QUESTIONS	1	2	3	4	5
I will be able to achieve most of the goals I have set for myself					
When facing difficult tasks, I am certain that I will accomplish them					
In general, I think that I can obtain outcomes that are important to me					
I believe I can succeed at almost any endeavour to which I set my mind					
I will be able to successfully overcome many challenges					
I am confident I can perform effectively on many different tasks					
Compared to other people, I can do most tasks well					
Even when things are tough, I can perform quite well					

SECTION TWO

This scale consists of a number of words that describe different feelings and emotions. Read each item and then circle the appropriate answer next to that word. Indicate to what extent you have felt this way during the past week.

The answers are on a 5 point scale
(1)= Very slightly or not at all
(2)= A little
(3)= Moderately
(4)= Quite a lot
(5)= Extremely
Use the following scale to record your answers

	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
1.Interested	1	2	3	4	5
2.Distressed	1	2	3	4	5
3.Excited	1	2	3	4	5
4.Upset	1	2	3	4	5
5.Strong	1	2	3	4	5
6.Guilty	1	2	3	4	5
7.Scared	1	2	3	4	5
8.Hostile	1	2	3	4	5
9.Enthusiastic	1	2	3	4	5
10.Proud	1	2	3	4	5
11.Irritable	1	2	3	4	5
12.Alert	1	2	3	4	5
13.Ashamed	1	2	3	4	5
14.Inspired	1	2	3	4	5
15. Nervous	1	2	3	4	5
16. Determined	1	2	3	4	5
17. Attentive	1	2	3	4	5
18. Jittery	1	2	3	4	5
19. Active	1	2	3	4	5
20. Afraid	1	2	3	4	5

SECTION THREE

This section requires you to answer questions about your confidence in your ability to complete written tests.
For each of the following statements, please mark the choice that is closest to how true you think it is for you. The questions ask about your opinion. There are no right or wrong answers.

Answers are on a scale from 1 to 5.
(1) = strongly disagree
(2)= disagree
(3)= neutral
(4) = agree
(5)= strongly agree

(Decide which one to put in)

Please check the box which relates best to you. For example:

	1	2	3	4	5
Question 1. *statement*		X			

QUESTIONS	1	2	3	4	5
I am confident in my ability to do well on written tests					
When it comes to taking written tests, I generally do well					
I tend to do better on written tests than most people					

SECTION FOUR

Below are eight statements which refer to the **personality testing** section in this selection procedure. If you completed a personality test as part of this selection procedure, please indicate the extent of your agreement with each of the eight statements, using the 1 - 5 scale below. Indicate your agreement with each item by checking the box that corresponds to the number that suits you the best.

Answers are on a scale from 1 to 5.
(1) = strongly disagree
(2)= disagree
(3)= neutral
(4) = agree
(5)= strongly agree

(Decide which one to put in)

Please check the box which relates best to you. For example:

	1	2	3	4	5
Question 1. *statement*		X			

QUESTIONS	1	2	3	4	5
I could really show my skills and abilities through this test					
This test allowed me to show what my job skills are					
This test gives applicants the opportunity to show what they can really do					
I was able to show what I can do on this test					
It would be clear to anyone that this test is related to the job					
The content of this test was clearly related to the job					
Doing well on this test means a person can do the job well					
A person who scores well on this test will be good at this job					

SECTION FIVE

Below are eight statements which refer to the **cognitive ability testing** section in this selection procedure. If you completed a cognitive ability test as part of this selection procedure, please indicate the extent of your agreement with each of the eight statements, using the 1 - 5 scale below. Indicate your agreement with each item by checking the box that corresponds to the number that suits you the best.

Answers are on a scale from 1 to 5.
(1) = strongly disagree
(2)= disagree
(3)= neutral
(4) = agree
(5)= strongly agree

(Decide which one to put in)

Please check the box which relates best to you. For example:

	1	2	3	4	5
Question 1. *statement*		X			

QUESTIONS	1	2	3	4	5
I could really show my skills and abilities through this test					
This test allowed me to show what my job skills are					
This test gives applicants the opportunity to show what they can really do					
I was able to show what I can do on this test					
It would be clear to anyone that this test is related to the job					
The content of this test was clearly related to the job					
Doing well on this test means a person can do the job well					
A person who scores well on this test will be good at this job					

SECTION SIX

Below are three statements which refer to this selection procedure. Please indicate the extent of your agreement with each of the three statements, using the 1 - 5 scale below. Indicate your agreement with each item by checking the box that corresponds to the number that suits you the best.

Answers are on a scale from 1 to 5.
(1) = strongly disagree
(2)= disagree
(3)= neutral
(4) = agree
(5)= strongly agree

(Decide which one to put in)

Please check the box which relates best to you. For example:

	1	2	3	4	5
Question 1. *statement*		X			

QUESTIONS	1	2	3	4	5
I think that the testing process is a fair way to select people for this job					
I think that the tests themselves were fair					
Overall, the method of testing used was fair					

SECTION SEVEN

Below are five statements that you may agree or disagree with. Using the 1 - 7 scale below, indicate your agreement with each item by checking the box that corresponds to the number that suits you the best. Please be open and honest in your responding. There is no right or wrong answer.

The following scale is to be used.

(7) Strongly agree
(6) Agree
(5) Slightly agree
(4) Neither agree nor disagree
(3) Slightly disagree
(2) Disagree
(1) Strongly disagree

Please check the box which relates best to you. For example:

	1	2	3	4	5
Question 1. *statement*		X			

QUESTIONS	1	2	3	4	5	6	7
In most ways my life is close to my ideal							
The conditions of my life are excellent							
I am satisfied with my life							
So far I have gotten the important things I want in life							
If I could live my life over, I would change almost nothing							

APPENDIX D

English Language Proficiency Rating Scale

English Language Proficiency Rating Scale

Taken from International English Language Testing System: Research Reports, 1998

Please rate the English language proficiency of this person by giving them a mark from 1-7 using the following scale.

OR
Please rate your English language proficiency using the 7 point rating scale below. Give yourself a mark between 1-7.

7= excellent user	No problems of expression or comprehension. Ability equivalent to native speaker of English.
6= very good user	Very few problems of expression or comprehension. Some minor inaccuracies.
5= good user	Occasional problems of expression or comprehension. Misunderstandings or inappropriate expressions in some situations
4= competent user	Generally effective command of the language but occasional lack of fluency can sometimes hinder communication.
3= modest user	Partial command of the language. Cope(s) with overall meaning most of the time but misunderstanding or lack of fluency can sometimes hinder communication.
2= limited user	A basic functional competence. Frequent problems in comprehension and expression make communication a constant effort.
1= very limited user	Below level of functional competence. General meaning can be understood in simple sentences but there are frequent breakdowns in communication.

APPENDIX E

Recruitment Flyer

ATTENTION GRADUATING STUDENTS AND JOB SEEKERS

Do you want the opportunity to practice common selection methods?

As part of a research project being conducted through the school of psychology, psychiatry and psychological medicine (SPPPM), you have the opportunity to participate in a selection process simulating methods used by today's organisations.

By participating in the research, with the aid of Monash Employment and Career Development, you will have the opportunity to **practice your resume writing skills and interview techniques**. In addition there is the opportunity for some participants to **practice completing psychological tests**.

For more information and to register your interest, log onto the Monash Employment and Career Development website http://careers.monash.edu.au/ and click on the Selection Process Research link. Or contact Brigitta Stevens at [redacted]

APPENDIX F

Explanatory Statement

Explanatory Statement – Upcoming graduates and job seekers

The Psychological Impact of Selection Processes on Domestic and International Applicants

My name is **Brigitta Stevens** and I am conducting a research project towards a **Doctor of Psychology** at Monash University, with **Associate Professor Sally Carless** in the Department of Psychology, and Master of Organisational Psychology student **Amila Bojadzic**. I wish to examine whether participating in a selection process which involves a psychological testing phase has any impact on an applicant's psychological health, as well as their confidence in their capabilities, and their perceptions of the testing process. Furthermore, I am interested in whether an applicant's cultural background and language ability has any bearing on their performance or the potential impact that may be caused.

Who will participate and what is involved?

I am seeking students due to graduate in the following year(s), and students who may already be job seeking, who may have received information via the Careers Fair, through Monash websites or via Monash Employment and Careers staff during their workshops.

Participants will be required to:

- Complete **online or paper and pencil surveys** regarding their well being and sense of confidence in their capabilities, as well as their perceptions of testing, before, during, and after the selection process and again approximately one month after the selection process. Each survey should take no longer than 10 minutes to complete.
- Submit a **resume** to the researcher.
- Complete a simulated one on one **employment interview and complete a sho**rt **English Language Proficiency Questionnaire.** The questionnaire involves you giving a rating of 1-7 of how proficient you think your English language skills are. The rating scale is predetermined. In addition the interviewer will use the same rating scale to give their own rating of your language proficiency. The interviews will be conducted by interviewers trained by Monash Employment and Career Development.
- **Some** Participants will complete a simulated **employment testing phase** in the form of cognitive ability test, personality test, or both.
- As with a real life selection process, applicants will be sent notification of whether their application was successful or not.
- Each phase will take between 30 to 60 minutes to complete and will occur over approximately a week.
- The final stage involves a short 5-10 minute **feedback and debrief session,** where participants will receive feedback about their testing and will be given the opportunity to ask any questions regarding the research. This will take place approximately one week after selection notification.
- Total participation should take no longer than 2 hours.

Participation should involve no more discomfort than that experienced in a real life selection process.
If you require professional assistance, on campus counselling is available at Caulfield by contacting Monash Counselling Services on (03) 9903 2500.

Payment

As part of your participation you will have the opportunity to go in the draw to win a gold class experience or a Flight Centre travel voucher. You will only go in the draw however if you complete all required phases of the research.

Confidentiality

Being in this study is voluntary and you are under no obligation to consent to participation. If you do consent to participate however, it is requested that you intend to complete all phases of the research. You may however withdraw from the research, however this must occur before the testing phase of the selection process, as your information may still be included as part of the combined results if you withdraw after this phase. If you choose to participate in the research, your identity will be anonymous to all individuals other than the student researchers and their supervisor. In addition the interviewer will be aware that you are participating in the research project, however they will have no access to any personal information. Your name is required in order to give you feedback regarding your performance.

Storage of data

Storage of the data collected will adhere to the University regulations and kept on University premises in a locked cupboard/filing cabinet for 5 years. A report of the study may be submitted for publication, but individual participants will not be identifiable in such a report.

Results

If you would like to be informed of the aggregate research finding, please contact **Brigitta Stevens** at [redacted] The findings are accessible for approximately five years and will be sent to you in the form of a summary report of all aggregate results. No participant will be identifiable in the report.

If you would like to contact the **researchers** about any aspect of this study, please contact the Chief Investigator:	If you have a **complaint** concerning the manner in which this research **CF09/0077-2009000008** is being conducted, please contact:
Brigitta Stevens [redacted]	Executive Officer Standing Committee on Ethics in Research Involving Humans (SCERH) Building 3e Room 111 Research Office Monash University VIC 3800 Tel: +61 3 9905 2052 Fax: +61 3 9905 1420 Email: scerh@adm.monash.edu.au

APPENDIX G

Consent Form

Consent Form

Title: *The psychological impact of selection processes on domestic and international students*

NOTE: This consent form will remain with the Monash University researcher for their records

I agree to take part in the Monash University research project specified above. I have had the project explained to me, and I have read the Explanatory Statement, which I keep for my records. I understand that agreeing to take part means that:

List all procedures relevant to your data collection – delete those not applicable

I agree to be interviewed by the researcher (or by a trained interviewer)

NB the interview information will not form part of the collected data, it is only part of the method. ☐ **Yes** ☐ **No**

I agree to complete psychological tests as part of the research method understanding that only the researchers and test developers have access to my results

☐ **Yes** ☐ **No**

I agree to complete questionnaires asking me about my general feeling of wellbeing and my sense of confidence in my ability to perform tasks ☐ **Yes** ☐ **No**

and

I understand that my participation is voluntary, that I can choose not to participate in part or all of the project, and that I can withdraw at any stage of the project before the testing phase of the selection process without being penalised or disadvantaged in any way. However if I choose to withdraw before completing all phases of the research, I will not be able to continue later on. In addition I understand that if I withdraw after the testing phase, my information from previous stages may be analysed in the combined data.

and

I understand that any data that the researcher extracts from the interview, psychological testing and questionnaires for use in reports or published findings will not, under any circumstances, contain names or identifying characteristics.

and

I understand that data from the study will be kept in a secure storage and accessible to the research team. I also understand that the data will be destroyed after a 5 year period unless I consent to it being used in future research.

Participant's name

Signature **Date**

APPENDIX H

Acceptance Emails

Email 1

Hello

Thank you for your interest in my research.

Please read the attached explanatory statement which outlines what is required to participate.

Once you have read the explanatory statement, if you could please complete the attached consent form and send it back to me.

I ask that you also attach your CV and the completed Time 1 survey

Regards

Brigitta

Acceptance Email (testing groups)

I am writing to inform you that your application has been accepted. You are now required to attend a brief employment interview. On completion of the interview you are required to complete an employment test. This will involve completing a psychological inventory, which will be explained on the day of testing. The test should take no more than an hour to complete.

It must be noted that only the top 20% of performers will be successful in the employment testing phase of the selection process, and it will only be these applicants who will be considered for employment in this instance.

If you would like to continue with your application could you please attend a briefing at (time) at (place)

Acceptance Email (interview only)

I am writing to inform you that your application has been accepted. You are now required to attend a brief employment interview. On completion of the interview you may be required to complete an employment test. This will involve completing a psychological inventory, which will be explained on the day of testing. The test should take no more than an hour to complete.

It must be noted that only the top 20% of performers will be successful, and it will only be these applicants who will be considered for employment in this instance.

If you would like to continue with your application could you please attend a briefing at (time) at (place)

APPENDIX I

Interview Schedule

Interview topics for The Psychological Impact of Selection Processes on Domestic and International Applicants

The interview will be run as a standard job interview, therefore there will be no other questions asked other than what would be expected in a real life job interview.

General Topics of Interest

- Tell me about yourself
- Can you talk me through your work experience
- Why did you choose this job
- What can you offer this job
- Tell me of a time when you worked as a team
- What are your strengths
- Are there any things about you which your fellow employees may find difficult.
- Where do you see yourself in 10 years
- Describe a situation in which you were successful
- Why do you think you should be hired
- What major problem have you had to deal with recently and how did you handle it

APPENDIX J

Selection Notification Email

Thank you for your application for..... Based on the criteria of only the top 20% of performers will be successful, we regret to inform you that unfortunately you have not been successful with your application at this time. We wish you success for your future endeavours.

For research purposes if you could please complete and return the attached survey

OR

Thank you for your application for..... Based on the criteria of only the top 20% of performers will be successful, we wish to inform you that you have been successful with your application. If you would like to accept this offer, please contact our Human Resource Department by (date)

For research purposes if you could please complete and return the attached survey