

**An investigation into applicant reactions to online testing:
Perceptions towards feedback provision in occupational
selection**

by

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Thesis submitted to the University of Nottingham
for the degree of Doctor of Philosophy

July 2021

Abstract

A main aim of this doctoral research was to examine job applicant reactions towards online testing, and specifically different forms of feedback provision. As job recruitment is a `bilateral process` with the recruiters aiming to employ a candidate, and from the candidate`s perspective the feedback provision and selection process may indicate the employer`s future behaviour in determining whether they accept a job offer. The research is underpinned by organisational justice theory and by Gilliland`s (1993) organisational justice model. This model considers how elements of procedural and distributive justice interact and examines the effect such fairness reactions have in terms of individual and organisational outcomes.

The research was designed to build on a literature review, followed by a pilot study to test several psychological constructs to explore applicant feelings in a field setting. This preliminary phase then informed the experimental phase. The first experiment compared applicant reactions to paper-and-pencil testing compared to online testing, and to positive and negative feedback. Having established no clear differences in test-takers fairness and justice reactions across mode of test administration on a verbal (i.e. comprehension) ability test, the second experiment then focused on test-reactions towards online testing which are nowadays more widely used in graduate recruitment. Interpersonal, non-interpersonal, and combined forms of feedback were manipulated, alongside three types of feedback messages (passed, reject no explanation, reject with explanation), after participants had undertaken two online tests. Perceived stress was found to increase when rejection was reinforced with an automated report compared to interpersonal feedback, whereas with a positive outcome there was decreased stress

in the report condition. These findings suggest that personal communication is important when there is bad news. These insights paved the way for the field study.

In this field study, candidates who had recently applied for a job position involving some aspect of online testing were invited to participate in a self-report survey. The aim of the study was to investigate feelings of fairness and justice, and to compare outcome favourability (job offer, rejection), and the effect of providing explanations (or no explanations) to candidates within a field setting. Findings revealed the applicants' preference of holistic (overall performance) over mechanical (one aspect of performance) explanations of recruitment decisions, while perceptions of fairness and justice were based on outcome favourability. Furthermore, feedback acceptance fully mediated the effect of outcome favourability (job offer, rejection) and process fairness, clear and open manner, and organisational fulfilment obligations. Pertinently, providing an explanation of the recruitment decision resulted in lower stress irrespective of a positive or negative outcome. This finding suggests that an explanation of recruitment decisions can mitigate the psychological effects of rejection and enhance candidate reactions towards the recruiting organisation.

In summary, this research has made some important contributions to the field of occupational selection by investigating applicant reactions to online testing. It has highlighted the importance of feedback and its beneficial psychological effect on applicants irrespective of decision outcome. This new insight allays fears of feedback having detrimental effects by recruiters, often due to litigation and image concerns.

The research employed experimental and field studies to highlight these issues.

Keywords: applicant reactions, feedback, outcome favourability, online testing, holistic explanation, mechanical explanation

Acknowledgements

I did not realise the enormity of the PhD process when I began it many years ago. During the process I have overcome several obstacles that at times seemed insurmountable to ever reach this stage. Therefore, I am particularly grateful to several individuals who have made this venture possible. Firstly, my parents have always been there encouraging me and offering assurance and love at the bleakest of times. Secondly, I am very grateful to Dr. Barry Cripps who has been very supportive with his external supervision and has guided me through the process and has acted as a friend and mentor during a very turbulent PhD process. Thirdly, I would like to thank Professor Cris Glazebrook for taking me on with her supervision in the write up phase. Finally, I would like to thank everybody who has participated in the research, and to those who have assisted in advertising and recruiting participants, as without their contribution this project would not have been possible.

It is one of my values to fulfil a goal and to never give up, so I am pleased that this pure perseverance and determination prevailed.

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Preface

It is important to firstly contextualise the thesis as this concerns test-taker reactions to online psychometric testing. Graduate job recruitment is a major market in the UK job sector as there were approximately 14 million UK Graduates in 2017 according to the Office for National Statistics (ONS, 2017). Approximately 50 applicants are applying per Graduate job position available (ISE, 2019). There was a 10% increase in graduate job applications in the 2019-2020 period compared to the previous year 2018-2019 (High Fliers Research, 2020). This is an important issue as job recruitment is a bilateral process in which is in the interests of recruiters and applicants alike to create a good impression of one another (Anderson, 2003). Furthermore, these

perceptions formed on part of the job applicant also relate to psychological aspects (e.g., self-esteem, core self-evaluations) and fairness.

Introduction

This thesis concerns the reactions of job seekers/applicants to online psychometric testing in terms of psychological effects and perceptions of fairness. The first administrations of testing were completed via paper-and-pencil questionnaires, and the rise of the whole internet phenomenon has seen paper-and-pencil administration surpassed by online administration.

As online psychometric testing has become more widely practiced by organisations recently particularly for Graduate recruitment (e.g., PfiEFFELMANN, WAGNER & LIBKUMAN, 2010) there is a growing literature (e.g. GIUMETTI & SINAR, 2012; SYLVA & MOL, 2009; CRIPPS, 2017), so this is evidently an important field of research. In terms of mode of test administration, there is more use of computerised tests with 87% of HR practitioners reporting that they use computerised tests or intend to implement this technology (RYAN et al., 2015). These tests are often used for efficiency reasons as usually the candidate completes the assessments unproctored (unsupervised). The most common types of assessments were for ability (81.6%) and personality (84.5%) according to the RYAN et al. (2015) survey. Furthermore, to view perceptions from the job applicant's perspective rather than from the organisation's has been identified as critical (e.g., HÜLSHEGER & ANDERSON, 2009).

This research is underpinned by the organisational justice literature (e.g., GREENBERG, 1990b) and particularly GILLILAND's (1993) organisational justice model, which considers 10 procedural justice rules (e.g. Opportunity to perform, Selection

Information, and Propriety of questions) which are either satisfied or violated in the formation of fairness perceptions. Fairness is all about perceptions and feelings formed by the job applicant before and after the recruitment process. Related to the concept of procedural justice is distributive justice, which in the context of job recruitment, includes three distributive justice rules: equity, equality and needs (Gilliland, 1993). This model also considers how both aspects (procedural and distributive justice) interact and examines the effect such fairness reactions have in terms of individual and organisational outcomes. Indeed, there is a call for more research grounded in organisational justice theories (e.g., Konradt, Warszta & Ellwart, 2013) as these theoretical approaches (e.g., Gilliland, 1993) focus on how applicants feel they have been treated when dealing with organisations. Therefore, the thesis filled this void through examining job applicant justice perceptions when going through a job recruitment process.

The structure and brief overview of each chapter is as follows:

- **Chapter 1: Candidate performance feedback during job recruitment, psychological constructs, and literature.** The thesis begins with a review into use of graduate tests, the role of feedback, a consideration of key constructs to measure in the thesis. Key experimental feedback studies are considered as a basis for the research and at the end of this chapter the current knowledge in this field and knowledge gaps are stated alongside the research aims and objectives.
- **Chapter 2: Organisational Justice Theory: Applications to online testing and recruitment.** This chapter details Organisational Justice Theory as this

provides the theoretical underpinning of the thesis. At the end of this chapter a consideration of how the research will address the literature.

- **Chapter 3: A preliminary field study investigation: Open University Associate Lecturer applicants.** The next chapter concerned the first research study. This was a small-scale study on job applicants applying for Associate Lecturer positions with the Open University. The purpose of this study was to examine applicant reactions towards a recruitment process using scaled items and to base the later research on these. In addition, open-ended questions were included so respondents could elaborate on their feelings to give the subsequent research some grounding.
- **Chapter 4: An experimental investigation: Reactions towards paper-and-pencil vs. online testing and test feedback provision.** This was the first experimental study in which variables were manipulated to mimic a recruitment process involving psychometric testing (paper-and-pencil vs. online). Feedback was manipulated into three types of messages (Pass, Reject no explanation, Reject with explanation).
- **Chapter 5: Experimental study into online testing reactions towards interpersonal and non-interpersonal feedback.** This online testing experimental study entailed participants completed an online ability and personality test involving manipulation of variables (using same feedback groups, and in addition mode of feedback- interpersonal/non-interpersonal/combined feedback agent).

- **Chapter 6: Survey on job applicants' reactions to online recruitment.**

Unlike the previous two experimental studies this study examined feedback provision for applicants who had applied for a job that involved some aspect of online testing. Respondents completed a short self-report survey.

- **Chapter 7: Discussion of the contribution of thesis.** This final chapter discussed the thesis findings and assessed how they relate to theory, practice, and contribute to knowledge. Possible avenues for further investigation and some limitations were discussed.

Findings from thesis fieldwork

- **Pilot Study**

The Pilot Study led from the literature review was a small-scale study into reactions to positive and negative feedback provision in a job recruitment setting. A random sample of Associate Lecturer applicants (N=100) for the Open University were sent self-report questionnaires at two phases of the recruitment process: i) time of applying, ii) after appointments had been made as advised by Associate Lecturer Teaching Services. Thirty-one respondents were included in the analysis (ANOVAs and qualitative analysis). On the scaled item for Work Involvement, unsuccessful applicants had increased work involvement and successful applicants a fall in work involvement over time. The open-ended items revealed feelings were more polarised particularly regarding applicants' outlook

on life as accepted applicants felt more positive and optimistic and conversely rejected applicants felt more negative and pessimistic. As this was a study of actual applicants, this paved the way for subsequent investigation of variables culminating in a larger-scale field study at the end of the thesis based upon organisational justice rules and principles (Gilliland, 1993).

- Study 1- This was the first part of the experimental phase to control and manipulate variables (testing mode- paper-and-pencil vs. online; feedback type- passed, reject with no explanation & reject with detailed explanation). The sample comprised 57 participants who completed all phases (Pre- and Post-feedback questionnaires, undertook a Verbal Ability psychometric test, paper-and-pencil or online) in the experiment. The same scaled items were used as with Pilot Study 1 (e.g., Perceived Stress). There were no significant differences in fairness and procedural justice perceptions across mode of test administration. A significant interaction between Perceived Stress (T1, T2) and Feedback type, a main effect for Feedback type; a main effect on Self-esteem for Testing Group, also Feedback Type; and for Work Involvement across time of measurement (T1, T2) were found on the scaled items. As there were no clear differences in test-taker fairness reactions when comparing testing mode, this led to Study 2 focusing on online testing as these tests are more commonly used in graduate recruitment.
- Study 2 - This experiment followed on from the first experiment and focused on the use of online testing using the same manipulations of Feedback Type and for Mode of feedback into three groups which were randomly assigned (computerised report; e-mail and computerised report; e-mail and telephone

call) so to examine the effect of different degrees of interpersonal and non-interpersonal feedback on respondents' perceptions. The sample comprised 101 participants who completed all phases (Pre- and Post-feedback questionnaires, undertook two psychometric tests (Ability test and Personality Questionnaire online). A number of new scaled items were introduced: Procedural Justice, Core Self-evaluations and Affective Well-being and some items omitted due to not theoretically aligning to the theoretical approach (e.g., Work Involvement) and as Core Self-evaluations encompassed two such scales (Perceived Stress and Self-esteem) within a broader measure. Significant interactions were found for Core Self-evaluations between Mode and Type of feedback; on Perceived Stress: for time of testing x Mode x Type of feedback. The same trend of feedback type affecting test fairness and justice perceptions was consistent with Study 1, so merited further investigation in Study 3, a field study of actual job applicants.

- Study 3- This study followed the Pilot Studies and Experimental phase so to investigate the feelings and perceptions of actual job applicants. Graduates were surveyed with a single questionnaire which was accessed via SurveyMonkey.com asking about a job application that involved online psychometric testing. The sample comprised 225 respondents. Applicants preferred holistic (about their overall performance) to mechanical (about one aspect of their performance) explanations of recruitment decisions, and successful applicants scored higher than unsuccessful applicants on all the measures (clear and open manner, feedback acceptance, process fairness, and organisational fulfilment obligations). Feedback acceptance mediated the effect of outcome favourability (job offer, rejection) and reactions (e.g., clear

and open manner, process fairness). Finally, providing an explanation of the recruitment decision, resulted in lower stress for the candidate, than when no explanation was given, irrespective of decision outcome.

Contribution of thesis

The thesis has made an original contribution to the applicants reactions literature in a number of ways: firstly through considering the effects on job applicant test-taker perceptions both positive (i.e. job offer) and negative feedback (i.e. rejection) alike, whereas other researchers (e.g. Schinkel, van Dierendonck & Anderson, 2004) tend to focus on one aspect in isolation, typically negative feedback probably due to the nature of organisational justice theory which is geared towards this. However, it was important to compare all applicant groups, so this is a main contribution of this research. Similarly, a range of measures including perceived stress, procedural justice, fairness, and self-esteem were utilised and applied to organisational justice theory and behavioural outcomes.

Secondly, the reactions of job applicants towards different modes of feedback have been investigated (e.g. holistic, mechanical) both under experimental and field settings using a mixed method approach that has been called for in this field (e.g. Patterson, 2001). In other words, this addressed the issue of whether applicants respond differently to the procedural aspect of how feedback is conveyed in different ways. Importantly, Study 3 contributed to the literature as it found that applicants prefer to receive holistic, rather than mechanical feedback explanations in job recruitment contexts, an issue that researchers (e.g., Morgeson & Ryan, 2009)

recently highlighted that needed further investigation. Therefore, the thesis addressed the issue of whether applicants respond differently when feedback is conveyed in various ways by recruiters to explain the recruitment process and decision-making.

Thirdly, the thesis examined many variables (e.g., mode of feedback, testing mode, interpersonal or non-interpersonal feedback, explanation, or no explanation of decision) under experimental conditions to ground later research based on actual job applicants in the field study (Study 3). Pertinently feedback acceptance was found to be a mediator for process fairness, so this insight reveals that applicants need to accept the feedback (i.e., credibility) for it to have such an effect. This new knowledge incorporated aspects of feedback process models (e.g., Ilgen et al., 1979) and the Model of Job Selection (Gilliland, 1993) within an online testing context.

Reflection on experiences of writing thesis

Clearly writing a thesis is a physical and psychological challenge that cannot be underestimated. At the beginning of the research, I thought that the research would run smoothly within the initial timetable, but, as I soon learnt, this is a task that is underestimated at your peril as there are many unforeseen hurdles to overcome just to reach this stage of submitting. However, I am pleased to have reached this stage through perseverance and determination after investing much time and resources into this research. It has also become apparent that a flexible and pragmatic approach is often the most fruitful avenue for a doctoral researcher to take. In terms of practical problems, from the outset I had decided to base the research around an organisation for the final field study but after contacting a considerable number of organisations it became apparent that this was not viable, so revisions were made so that applicants in

general could participate in the study without having to do this directly through an organisation but, as a consequence, a substantial period of time was lost trying the initial avenue (e.g. having to re-submit proposal and receiving ethical clearance). There were less significant but similar time issues negotiating with a Human Resource Department at the Open University for the Pilot Study as the questionnaires were distributed through them to Open University Associate Lecturer applicants.

Finally, I feel the thesis process has improved my research and decision-making skills as an independent researcher and hope that the thesis itself demonstrates some of these skills.

Chapter 1: Candidate performance feedback during job recruitment, psychological constructs, and literature

1.1 Introduction

The thesis covers the complex field of recruitment psychology, with a focus on Graduate job recruitment processes. In this introductory chapter the context of the thesis is set out explaining Graduate recruitment processes, the selection of psychological measures in the research, and rationale for the use of psychometric testing. The general literature into the importance of confidential feedback of both test results and selection results is explored. Finally, the research aims, and objectives are clearly put forward.

1.2 Graduate recruitment statistics

Graduate recruitment is a major market in the UK job sector as 764,437 Graduate job applications were received by UK employers in the first half of 2014 according to the Association of Graduate Recruiters (AGR, 2014a). There was a 10% increase in graduate job applications in the 2019-2020 period compared to the previous year 2018-2019 (High Fliers Research, 2020). A Graduate is quite simply an individual who has completed a University Degree. There were approximately 14 million UK Graduates in 2017 according to the Office for National Statistics (ONS, 2017).

Approximately 50 applicants are applying per Graduate job position available (ISE, 2019). School leavers also enter the job market as well as apprentices and experienced workers. Apprenticeship, internship, and work placement schemes are in place and are becoming more widely used in these sectors as a route into employment whereby individuals gain the requisite work experience that recruiters are now requiring in the

competitive job market (High Fliers Research, 2019). However, these schemes are outside the scope of this work as the thesis focuses on graduate job recruitment.

On average it takes approximately 11 weeks for an organisation to complete each Graduate recruitment cycle from the time of the candidate`s job application to receiving a job offer, although in the public sector it takes longer on average 15.5 weeks (AGR, 2015).

There is also a preparation period at the start of the recruitment cycle as a vacancy must be advertised by the organisation, and role requirements must be identified and stated in job advertisements. Overall, there are three main recruitment cycle phases (preparation, selection, and appointment). The selection phase starts when job applications are received, and this culminates in job offers or rejections being made. In the appointment phase, the successful applicant(s) agree employment conditions with the organisation. Online recruitment methods are used by most Graduate recruiters as evidenced by 95.1% of the Association of Graduate Recruiter`s (AGR) member companies surveyed (AGR, 2015). On average each Graduate recruited costs an organisation £2,189. In the Legal sector the cost per hire is £8,908 (ISE, 2018) more than four times the average. Nowadays more streamlined processes such as one day assessments and prompt feedback are offered by companies so this recruitment cycle timescale can be shorter (Howell, 2016).

In terms of whole selection protocol used during Graduate recruitment, psychometric tests are used by more than three-quarters of HR recruitment professionals with 78% acknowledging these as powerful selection tools (HR Magazine, 2018). As 28% of

UK students graduated receiving 1st Class Honours Degrees in 2017-2018 and 2018-2019, double the figure (14%) from the previous decade in 2009-2010 (HESA, 2020) there has been a shift towards strengths-only recruitment selection processes to identify the best candidates (ISE, 2019; Gentle, 2018). Thus, in the 2017-2018 period 17% of the Institute of Student Employers (ISE) recruiter members focused on potential and performance rather than educational background and qualifications (Gentle, 2018; HR Magazine, 2018). Psychometric tests enable the candidate`s potential skills and talents to be demonstrated and form part of the most common selection method Assessment Centres (ACs), where various exercises (e.g., group exercise, interview, communication exercise, and role-play) are used for selecting job candidates (ISE, 2019) in the final selection phase. The 2019 ISE survey found that 94% of the graduate recruiters surveyed use ACs (ISE, 2019). Traditional methods are still used by recruiters including face-to-face interviews final selection-phase interviews (57.0%) and telephone interviews (30.0%) according to ISE recruiters who were surveyed (ISE, 2019). The most used psychometric tests are numeric reasoning tests (55.0%) and verbal reasoning tests (48.0%), followed by situational judgement testing (38.0%), personality/motivation instruments (18.0%) according to the 2018 ISE figures (ISE, 2018). Most employers use two psychometric tests for the recruitment process (ISE, 2019) or Assessment Centres using various exercises (ISE, 2018).

Ryan and colleagues (2015) surveyed 1,197 Human Resources (HR) managerial level professionals internationally from countries including the USA, China, Belgium and the UK regarding their company`s policies and testing practices. The sampling strategy was to target HR executives/managers/directors rather than lower-level HR

employees or HR consultants at organisations. Various methods were employed to obtain the desired sample. Firstly, professional associations and selection-related groups were contacted in all the countries selected by the researchers. An e-mail survey announcement was made on their websites, and LinkedIn groups of HR professionals for each selected country were contacted and notified. The researchers also obtained HR executives/managers/directors e-mail addresses from an unnamed test publisher and contacted these professionals directly regarding the study. Finally, collaborators in countries that had links with professional associations were contacted to assist with distributing the study link. The survey revealed the three most important reasons rated by HR professionals for utilising tests in job recruitment: fairness (67.9%), validity/effectiveness (82.9%) and perceived value (61.7%). The three least important reasons for opting to use tests were: improving the company`s image (24.8%), legal/political reasons (21.9%), and reducing time commitments of job applicants (17.9%).

Regarding the usage of recruitment tests by companies at various recruitment phases 20.9% use these during the initial sifting phase, 50.7% during the middle-phase(s), and 23.3% towards the end of the recruitment cycle. The survey also revealed that tests were used alongside other selection tools in 98% of cases, and ability (81.6%) and personality (84.5%) were the most common assessment tools. Regarding test administration modes, there is more use of computerised tests or plans to implement these (87%), and 14% of HR professionals reported using both paper-and-pencil and computerised tests (Ryan et al., 2015).

A criticism of the web-based survey is that response rates were not measured. As no overall professional bodies membership numbers were obtained, nor the frequency of the survey web pages viewings recorded the researchers did not know the participation rates. Furthermore, this study was not peer-reviewed but appeared in a book chapter and the sampling method is poorly described. A representative sample was not obtained and there was the potential of a sampling bias as non-testing organisations may be less inclined to reply due to the nature of the survey. Overall, though the survey reveals insight into international testing practices.

1.3 Volume and bespoke testing

As there are many candidates for Graduate recruiters to process it is important to distinguish between volume testing where psychometric instruments are used on high numbers of candidates, and bespoke testing that entails tailoring tests towards the organisation's needs. Typically, volume testing utilises online psychometric tests where applicants complete some form of assessment online in the initial phases of job recruitment and candidates are screened and sifted for the next recruitment phase. Organisations seek efficient and reliable volume tests that are often automated to reduce costs and to manage high volumes of candidate applications to assess these applications. Bespoke tests are used when organisations are looking for characteristics in job candidates that may be unique to their organisation. Test publishers implement these specific requirements and bespoke tests can also be used on high numbers of applicant pools, for example as used by UK organisations *JD Wetherspoon* and *Next* (Criterion Partnership, 2016).

In terms of the history of online testing, from 1995 the internet became widely used at home and in the workplace following the introduction of the worldwide web, by

which point computers became more sophisticated as a medium for use of online tests (Bartram, 2006; Kashi & Zheng, 2013).

Table 1.1: Internet recruiter and applicant advantages of online recruitment

Internet recruiter advantages	Applicant advantages
Larger applicant numbers	Better feedback and advice on career any company choice
Job profiling tools, competency frameworks	Good source of information about job availability and organisations
Quicker hiring (usually 2 weeks)	
Reduced costs per recruitment (time, travel & money)	
Standardised forms, tests, inventories to minimise social desirability	Wider access to jobs and employers
E-Mail invitations sent quicker to candidates	Quicker feedback and opportunity to track down own progress
Higher validity with early sift making selection more cost effective	More convenient

Sources: Bartram (2006), Konradt et al. (2013)

There has been an upturn in the use of online job selection and recruitment by organisations as technology has advanced and this technology has become more accessible (Bartram, 2000; Lievens & Harris, 2003; Pfeiffelmann, Wagner & Libkuman, 2010; HR Magazine, 2020). These advantages for internet recruiters and applicants as suggested by Bartram (2006) and Konradt et al. (2013) are summarised in Table 1.1.

However, difficulties with these new technologies particularly for recruiters (Jones & Dages, 2003; Sylva & Mol, 1999) include having too many resumes and applicants, online access issues and problems tracking candidates (Jones & Dages, 2003; Starke, 1996; Sylva & Mol, 1999). Research confirms these problems as the Internal Revenue

Service (IRS) Employment Review (2005) in the USA reported that 74% of companies were receiving job applications from unsuitable applicants from vacancies advertised online. Similarly, it has been reported that graduates do not possess the skills and attributes such as work attitudes required by employers within the UK (Branine, 2008; Confederation of British Industry, 2017), and internationally in developing countries such as Nigeria (Okolie, Nwosu & Mlanga, 2019).

However, recent survey findings reveal that more than half of the Times Top 100 UK Graduate Recruiters believe that the quality of job applicants in the 2019-2020 recruitment period has improved (40%), or are equivalent (53%), with only 7% reporting a small decrease in applicant quality compared to those received in 2018-2019 a year earlier (High Fliers Research, 2020). Researchers find that new recruitment methods (e.g., gaming devices, mobile phone applications) are rapidly evolving at a faster pace than research findings (Garcia-Izquierdo, Aguinis & Ramos-Villagrasa, 2010; Lievens & Harris, 2003) in this field. Considering this difficulty, PfiEFFELMANN et al. (2010) called for the use of more field studies and actual company web sites as opposed to job scenario studies.

In view of these problems Applicant Tracking Systems (ATS) are used whereby job applicants apply online and recruiters keep track of the applicants' progress. An ATS operates based on volume testing with high numbers of job candidates. These online systems enable large numbers of applications to be handled, they are cost effective, and empower the organisation to streamline the applicants, and track their progress (HR Magazine, 2020; Kumar & Pandya, 2012). Furthermore, with the sole usage of smartphone technology by 20% of Millennials (born 1982-1995) in 2016 and

projected wider usage by candidates, companies are developing integrated ATS to Human Resource (HR) systems to enable these candidates to accept a job offer with more user-friendly technology (HR Magazine, 2018). One such example is *Instant Apply* which enables candidates to apply for a job with two clicks, and this technology was created by the company *Debut* (Gentle, 2018). These emerging recruiting technologies were identified over a decade ago in The Society for Human Resource Management Publication *Workplace Trends* for 2007-2008. The authors who focused on online job recruitment predicted more use of technology, assessments, and e-recruiting tools (Kumar & Pandya, 2012; HR Magazine, 2008). A consideration to bear in mind are the finances, practicalities, and resources available for an organisation to utilise such recruiting tools. It would appear more feasible for larger organisations who recruit volume numbers of recruiters to use such technologies whereas smaller and medium smaller organisations (SMEs) are less likely to have the resources, finances, and infrastructure available.

1.4 Fairness, `The Digital Divide` and computer/test-taking anxiety

Associated with these technological advances particularly in the late 1990s was the issue of fairness and `The Digital Divide`. This debate concerned those with and without access to computer technology as it has disadvantaged those without access (Keller, 1996), or less familiar to computer technology (HR Magazine, 2008; Kumar & Pandya, 2012). The digital divide appeared to be geographical as business developments in technology are predominantly in North America, Europe, and the Asia-Pacific regions (Bartram, 2006; Scott & Mead, 2011). Older people and women were other disadvantaged groups, although nowadays this is less of an issue as most households have computer access (Selden & Orenstein, 2011) and mobile phone

devices are more widely used worldwide (Nielsen, 2008; Arthur et al., 2014; Cripps, 2017; Gentle, 2018). Research by Arthur et al. (2014) on job applicants (N = 3,575,207) confirms these trends as mobile devices during job selection were more widely used by women, African Americans and Hispanics so the more widespread use and ownership of mobile devices for assessment are thought to now mitigate this `digital divide.` Another issue pertaining to this debate is computer/test-taking anxiety.

Chau, Chen, and Wong (1999) defined computer anxiety as the apprehension felt by individuals towards computers. These researchers conducted a meta-analysis and the main findings included: that women suffered more computer anxiety than men, and computer anxiety heightened with a lack of experience whereas with more experience anxiety lowered. A conclusion was those demographical variables such as gender may affect the test-taking motivation-examinee reactions relationship. As this research was conducted over 20 years ago it is important to relate test anxiety to modern work practices and test experiences.

King and colleagues (2015) measured test anxiety towards modern technologies (e.g., smartphones, tablet devices) for testing by using four items from Barbeite and Weiss (2004) and adapted these items so to become applicable to mobile technology use. King et al.'s findings concurred with Chan et al. that degree of familiarity with a particular mode of technology affected test-takers' anxiety. The thesis addresses computer test-taking anxiety using a control item in the pre-testing questionnaires to measure the extent of prior computer anxiety in the research sample.

Harris (2006) made various suggestions for maintaining positive test-taker reactions to internet-testing based on a number of studies (e.g. Bringsjord, 2001; Czaja & Sharit, 1998; Fredericks, Ehrhart & O'Connell, 2003) and associated theory: explain the purpose of the testing program, explain about data access and data protection rights, give test-takers the opportunity to practice the tests and give them test-taking advice, have a human present, and use a certification program. This relates to several procedural justice rules (e.g., access to information, openness, chance to perform on the test, information known about the test process) (Bauer et al., 2001) that are discussed in further detail in Chapter 2.

In summary, this section has provided a background of graduate job selection test usage. As part of a selection process candidates receive feedback about their job application linking with the next section which considers the role of feedback.

1.5 What is feedback?

Feedback: “Actions taken by (an) external agent(s) to provide information regarding some aspect(s) of one`s task performance” (Kluger & DeNisi, 1996, p.255).

“A response to an Action or Situation” (Roebuck, 1996, p. 623).

Knowledge of results – regarding skill of performance.

Roebucks’ (1996) definition implies that feedback has two major functions, firstly a response to the motivational aspect (the action), and secondly, a response to the situation (or information). On the motivational side (i.e. the action) this means that feedback controls an individual`s behaviour by either encouraging or discouraging it.

In terms of a response to the individual's situation this is the information aspect of feedback (Schinkel, van Dierendonck & Anderson, 2004; Van Oudenhoven, 1999). This definition is applicable to job recruitment as in this context feedback either encourages or discourages certain job application behaviour. For example, feedback regarding suboptimal test performance would suggest that the candidate needs further practice in these skills (i.e., a response to an action).

A more comprehensive definition of a feedback intervention is offered by Kluger and DeNisi (1996, p.255) "*actions taken by (an) external agent(s) to provide information regarding some aspect(s) of one's task performance.*" This implies that an agent such as a recruiter delivers information back to the candidate regarding their performance on the task. A feedback agent can be a person (interpersonal) or some form of technology (non-interpersonal). Dineen, Noe, and Wang (2004) distinguished between a human vs. automated feedback agent(s). This new procedural justice rule specific to online testing was introduced by Dineen et al. (2004) to add to the existing ten procedural justice rules initially proposed by Gilliland (1993). Chapter 2 further examines organisational justice theory, the procedural justice rules and their applicability to feedback.

More specifically feedback has been referred to as knowledge of performance or knowledge of results. An example of knowledge of results would be informing the candidate of his or her test score. In other words, factual information is provided about performance. There is also a distinction within the thesis between feedback about a job application (acceptance/rejection) and the candidate's feedback regarding the selection procedure (e.g., fair/unfair). The thesis examines these two components.

Feedback can be objective, subjective, and numerical amongst other modes. Objective feedback is information that is not open to different interpretation such as “Unfortunately, your job application was unsuccessful. We scored our candidates against various criteria for the job role and the chosen candidate met all of these criteria.” Subjective feedback is when an opinion is expressed that is open to different interpretation such as, “Unfortunately, you have not been offered the job as we felt you were not confident in your answers.” Numerical feedback is when some form of numerical information such as a test score is disclosed, “Unfortunately your test score of 68% was just below the cut-off point for shortlisting.”

An international survey of HR professionals by Ryan et al. (2015) revealed that most companies 51.3% (N = 745) provided test results feedback to their job candidates, whereas a minority 8.7% (N = 59) did not provide candidate test feedback. Regarding the extent of feedback provision, 50.7% of the HR professionals stated that their organisation provides information to each candidate disclosing their test score, and in nearly half of cases (45.9%) stated whether they have passed or failed the test, and in most cases (N = 676) feedback explained how to interpret a test score. The least common feedback practices were informing candidates how they performed in comparison to other candidates (23.7%) or disclosing some other form of normative data (33.1%). The 59 respondents who indicated their company do not provide candidate feedback were asked for reasons why and financial costs were only reported in 5.9% of cases. Time constraints (20.3%), little use to the company (18.6%) and worries about possible litigation (18.6%) were the main reasons stated by HR professionals.

In assessing these reasons stated by HR professionals practical and efficiency considerations determine whether recruiters decide to provide test feedback; so, the decision does not appear to be merely financial. A criticism of this survey is that mainly private sector representatives were approached. Ryan et al. focused on test feedback provision so may not be representative of candidate feedback practices in organisations using alternative job selection tools.

In collaboration with High Fliers Research (an independent research body), the professional services firm KPMG conducted a survey of over 400 recent Graduates from that summer (Howell, 2016). A common complaint by 55% of Graduate job applicants was the lack of feedback from unsuccessful job applications, with delayed and poor communication from the recruiters (43%) and time delays awaiting feedback (34%) from their job interviews (Howell, 2016) as other common issues.

In view of these findings KPMG created a streamlined recruitment process known as Launch Pad. Using this innovative approach, the first interview, Assessment Centre (AC) and final interview phases are all conducted on the same day. Furthermore, Launch Pad enables KPMG to inform all candidates, both successful and unsuccessful whether they have been successful with the job application within two working days. The option of receiving verbal feedback is also offered to candidates when they wish to receive this (Howell, 2016). The optimising of speedier hiring processes and feedback to improve the candidate experience is encouraging although care is needed in maintaining rigor and quality in these practices.

It has been argued that the effectiveness of feedback can vary depending to the mode of feedback and how it is delivered (Hattie & Timperley, 2007). This links to the next sub-section which discusses different types of feedback.

1.5.1 Types of feedback (mediums)

There are various mediums in which feedback can be communicated to a job candidate including written (e.g., a letter), face-to-face, by telephone, via technology such as an e-mail, written report or a text message. Feedback can be both positive and negative. Positive feedback is when information is conveyed about good performance. In the context of job recruitment, one form of positive feedback is when the organisation makes a job offer to the candidate. Positive feedback can also be conveyed to unsuccessful applicants by for example commenting that they performed well during a job interview. Conversely, negative feedback occurs when information is conveyed about some negative aspect of performance. Within the context of job recruitment, this could entail some form of communication from the recruiters to the unsuccessful candidate of a reason for the rejection (e.g., lack of experience).

However, in practical terms organisations may be reluctant to provide any additional feedback that could be challenged legally something that this review will later re-visit. Other considerations are the feedback content and the individual's reactions to it each of which has two major elements:

- The nature of the feedback could be objective (e.g., the candidate's test results) which is factual, or subjective (reflection on interview performance).
- Psychological impact of the feedback – for example, the candidate could feel motivated to improve communication skills or upset about low test score.

Within the context of testing for job recruitment, Cook and Cripps (2005) argue that the organisation can only be responsible for feedback pertaining to the candidate's test results, and not for the psychological impact of the rejection (e.g., more stress, loss of self-esteem). However, the counterargument would be that enough care should be taken by organisations from the outset to avoid any such harmful psychological effects (e.g. Derous et al., 2003).

1.5.2 Why is the role of feedback important in job selection processes?

A quote which captures the importance on the part of job recruiters in conveying feedback to applicants is "*Giving feedback carries with it a responsibility*" (Ilgen & Davis, 2000, p. 562). This statement implies that it is crucial that feedback is conveyed appropriately and sensitively. Personal experience and the literature have noticed that human resource practitioners are often reluctant and/or uncertain about how to convey negative feedback to unsuccessful applicants (Schinkel, van Dierendonck & Anderson, 2004; Thominet, 2020).

Feedback is important in job selection as it increases the sense of fairness and may increase a successful candidate's job performance when (s)he later becomes an employee (Konradt, Garbers, Böge, Erdogan & Bauer, 2015). Konradt et al. (2015) conducted a 6-wave longitudinal study (T1: pre-test, T2:post-test, T3:pre-feedback, T4:post-feedback pre-hire, T5:post-hire & T6:follow-up) over a three year period into job apprenticeship applicants (N = 182) at a German industrial organisation. Measures were taken for procedural fairness expectations, procedural justice perceptions, acceptance of job offer, and job performance (obtained from the company's records), formal characteristics, explanation, and interpersonal treatment (based on Gilliland's

(1993) 10 procedural justice rules). At T4 (post-feedback pre-hire) data was collected for successful applicants (N = 47) and by this point 40 applicants accepted the job offer, and 7 applicants declined the job offer. After 18 months perceived post-test fairness (T2) and pre-feedback fairness (T3) were related to job performance and job offer acceptance. However, after 36 months these fairness perceptions diminished as these were only related to job offer acceptance by this point in time.

In appraising the Konradt et al. study, only 29 of the initial sample completed the study due to the nature of this lengthy selection process. Data was unavailable for eleven of the employed apprentices at T5 and T6 as 5 apprentices had been employed on short-term contracts, and 6 apprentices joined a vocational training program. Apprentices rather than entry-level job applicants were studied so this needs to be considered when generalising to other applicant groups such as graduate hires.

Performance feedback may also aid applicants with future job searches. Areas for improvement may be identified such as test performance which enables candidates to practice and develop their skills. Indeed, research suggests that practising tests and receiving test feedback aids future re-test performance (e.g., Campion, Campion & Campion, 2019) as well as encouraging or deterring the candidate from applying for a job using those selection tests. Without this insight candidates may be unaware of the reasons why their application was unsuccessful so may continue failing in job applications. However, research suggests that providing feedback to candidates can have detrimental psychological effects such as on core self-evaluations and affective well-being (e.g., Schinkel, van Dierendonck & Anderson, 2004). In providing feedback recruiters should aim to mitigate the psychological impact of rejection on

the unsuccessful candidate (Celani, Deutsch-Salamon & Singh, 2008). This can be achieved by providing candidates with objective feedback based on factual information.

Feedback also demonstrates that the organisation has invested time to contact the candidate. Konradt et al. (2015) concur that a candidate's treatment during selection indicates or signals their likely treatment as a future employee. This entails those applicants consider their initial treatment when deciding whether to accept a job offer and this notion of signalling theory is further supported by practitioner research from the Chartered Institute of Personnel and Development (CIPD, 2015).

Truxillo, Bauer, and McCarthy (2015) propose that in small to medium-sized enterprises (SMEs) with fewer than 200 employee's applicant reactions may have stronger effects than in larger organisations. The reasoning behind this argument is that in SMEs there are fewer job appointments, less likelihood of dedicated personnel departments, and less use of volume testing (Cardon & Stevens, 2004; Mayson & Barrett, 2006) compared to larger organisations. Further, applicants' co-workers or supervisors are more likely to be involved during the SME's job selection process whereas in larger organisations applicants may never see the selectors again (Truxillo et al., 2015). These factors have a bearing on the candidate's fairness perceptions of the selection process. Therefore, it seems that SMEs need to take special care with the treatment of potential recruits due to the organisational staff dynamics.

In an ideal world all companies would provide feedback, but an SME may be limited in staff size and money available to contact all applicants. Therefore, there is a

dilemma for recruiters in terms of available resources, organisational size, and structure and applicant requirements.

Overall, it appears that some trade-off is needed in terms of organisational reputation, resources available and improving the candidate experience when providing feedback.

The solution appears to be the use of timely and inexpensive ways of feedback provision. For example, sending a standardised e-mail to each applicant and at the early stages of selection acknowledging a job application via an automated e-mail appears to create more favourable candidate impressions (Walker et al., 2013).

Having considered why feedback is important the next section considers factors influencing feedback effectiveness during job selection.

1.6 Factors influencing the effectiveness of feedback during job recruitment

1.6.1 Timeliness of feedback

There has been a call in the literature (e.g., Becker, Connolly & Slaughter, 2010; Breugh & Starcke, 2000; Rynes & Cable, 2003) for more research concerning recruitment cycle times and time-related processes. Chapman and colleagues (2005) conducted a meta-analysis of applicant attraction to organisations research and one aspect covered timeliness of feedback. These researchers found a positive relationship between employer response and job applicant attraction. Notably none of the studies from Chapman et al.'s meta-analysis investigated timeliness of job offers and subsequent candidate acceptance behaviours.

In view of this shortcoming Becker, Connolly, and Slaughter (2010) examined job offer acceptance statistics for applicants at a *Fortune* 500 engineering technology

organisation based in the USA. The researchers analysed archival data from the period 2004-2006 for student entry-level (N = 906) and experienced (N = 2,106) job applicants. As expected, candidates who received early job offers by companies were more likely to accept job offers; whereas candidates who had to wait longer for an offer during the job recruitment cycle were more likely to decline delayed job offers. However, only successful job applicants were studied. Perhaps less successful applicants who apply to various companies are more inclined to accept delayed job offers so timing issues may differ between these applicant groups.

Another study limitation is the use of secondary data from the organisation, so Becker et al. were unable to directly test variables including alternative job offers, fairness and justice perceptions. Becker et al.'s study highlights that when a job offer is given in a timely manner it is more likely to be accepted. However, notably the timeliness of feedback to unsuccessful candidates was not investigated. These findings have practical applications as organisations benefit from making early job offers as delays result in longer vacancy times and applicants turning down more job offers as confirmed by research (Moynihan, Roehling, LePine & Boswell, 2003; Rynes, Bretz & Gerhart, 1991). Furthermore, delays may result in negative perceptions of the organisation being formed (Chapman & Webster, 2006; Gilliland, 1995; Cortini, Galanti, & Barattucci, 2019).

1.6.2 Detail and accuracy of feedback

Candidate perceptions of their treatment by the organisation appear to be influenced by the detail and accuracy of the feedback (Anseel & Lievens, 2009; Schinkel, van Dierendonck & Anderson, 2004; Truxillo, Bauer & McCarthy, 2015). For example,

providing test scores during test feedback sessions makes the job more attractive to candidates (van Vianen, Taris, Scholten & Schinkel, 2004). The explanation of a selection procedure and decision-making process is likely to improve candidate fairness perceptions (Rolland & Steiner, 2007; Truxillo, Bauer & McCarthy, 2015). However, it could be argued that too much feedback provision could have a detrimental effect on candidate perceptions, so a balance is needed.

A job applicant has a minimum expectation of receiving notification of the outcome (offer/rejection) (Schreurs, Derous, Proost, Notelaers & De Witte, 2008; Truxillo, Bauer & McCarthy, 2015; Cortini et al., 2019; Thominet, 2020). Professional bodies including the British Psychological Society (BPS) and the Society for Industrial and Organisational Psychology (SIOP, 2003) stipulate that test feedback should be provided. In the UK psychometric test administrators should be trained and qualified in Test User Ability (formerly known as Level A) and Personality (formerly known as Level B) in Occupational Testing with the BPS. Feedback should remain truthful and accurate using factual information such as test scores. It is good practice for organisations to employ trained staff or recruit external assessors to administer and provide candidate test feedback to meet professional test feedback standards (CIPD, 2015; Cook & Cripps, 2005; Cripps, 2017). Nowadays with more usage of online and mobile testing there is the danger of test feedback practices being undercut to save on financial costs and resources.

1.6.3 Test-candidates` feedback acceptance

Another factor influencing the effectiveness of feedback is whether candidates accept the feedback that they receive. The literature suggests that feedback acceptance may

mediate test feedback and test-taker attitudes, which Anseel and Lievens (2009) investigated over two studies. In Study 1, Belgian Postgraduate students (N = 125) completed a computerised personality questionnaire for a simulated job application exercise, and two weeks later were randomly sent `pass` or `reject` feedback on their personality profile by e-mail. They were sent a questionnaire to rate how accurate they felt the feedback was, which was a proxy for feedback acceptance, and their attitudes towards the organisation (organisational attraction, whether they would recommend the organisation).

In Study 2, job preparation trainees (N = 252) completed a computerised in-basket exercise which is when a job-related task is performed to assess the candidate`s abilities in that role. Candidates were then sent actual feedback about their skills, and a follow-up questionnaire to measure feedback acceptance. In Study 1, the selection outcome (shortlisted/not shortlisted for an interview) was found to be related to the candidate`s evaluations of the organisation if they believed the personality test feedback to be accurate, which was the mediator. Similarly, in Study 2, when examining the effect of informational feedback on future test performance the researchers found a partial mediation effect from the perceived accuracy of the feedback. This study found when feedback was favourable participants had higher feedback acceptance and subsequently enhanced their performance on the follow-up in-basket test.

Anseel and Lievens (2009) found in both studies that perceptions of feedback acceptance had a partially mediating effect between outcome feedback and test-taker attitudes towards the company (Study 1), and their test performance (Study 2). The

implications of these findings are that feedback must be conveyed in such a way to be accepted by candidates. By informative feedback becoming acceptable the candidate is more likely to hold more positive attitudes towards the organisation and his/her performance. At a practical level, recruiters need to consider ways to convey feedback so to appear credible (Anseel & Lievens, 2009).

Theoretically, Anseel and Lievens's studies built on feedback process models and previous research by suggesting that feedback acceptance is a mediator behind the effects of explanations in job recruitment, and the applicant's attitudes towards the recruiting organisation. However, students participated in both studies, and they were not actually applying for a job which raises validity issues when generalising to job applicants, and no measures for procedural justice were taken. This is an important omission as process models concern the procedures involved with testing and feedback provision. It also remains unclear whether feedback acceptance is a mediator within the context of a field setting (i.e., job application process). Anseel and Lievens (2009) suggest that subsequent research should explore how feedback acceptance relates to procedural justice and theory, so Study 3 fills this void by studying actual job applicants.

1.6.4. Communication used (e.g., telephone, face-to-face)

There is uncertainty about which feedback communication is preferred by candidates. In the 1990s test-takers tended to be more accepting of computer-generated reports, albeit with general and stereotypical feedback statements (Jackson, 1996). Current research compares reactions to computer-based assessments and mobile technology devices. Initial studies suggest that computer-reports are still regarded to be more

authoritative and trustworthy than feedback via mobile devices (Gutierrez & Meyer, 2013). However, this may be due to people's unfamiliarity with these new testing technologies something which may dissipate as these become more widely used.

Researchers have found in recruitment contexts that applicants consider face-to-face communication to be fairer than by technological means (Bauer et al., 2004; Chapman, Uggerslev & Webster, 2003). Tests and feedback are now being administered via mobile technologies, so the aspect of feedback preferences needs further exploration (King, Ryan, Kantrowitz, Grelle & Dainis, 2015; Smelzer, 2013). Candidate reactions towards feedback from an interpersonal and a non-interpersonal source are addressed in the thesis both within an experimental and field context.

This section considered feedback types, reasons why feedback is important and factors influencing the effectiveness of feedback (e.g., communication, timeliness).

This leads onto the next section which considers job applicants' reactions to feedback.

1.7 Responding to feedback

Acceptance and rejection are an inevitable part of selection for jobs, courses, promotions at some stage in people's career. Searle (2003) argues that there is a paucity of research regarding what happens to rejected applicants and the psychological consequences of rejection; and Martin, Bassey and Biggs (2005) concur with this view.

In order to improve and refine recruitment processes it is important to obtain feedback from job applicants. AGR surveys show that more recruiters are obtaining applicant feedback concerning the recruitment process with an 72.8% uptake in 2015 increasing to 91% in 2016 (AGR, 2015, 2016). It appears that the use of social media is a

contributing factor as organisations are aware of candidates using social forums to express their views about organisations. However, in the 2015 survey candidate feedback was mainly from successful applicants (65.5%), so the 2015 survey findings do not provide an overall picture of the candidate experience as there are also unsuccessful candidates to consider. The 2015 AGR survey showed that 51.4% of graduate recruiters are also seeking feedback from the Assessors who were used to help recruit job candidates (AGR, 2015) which holds promise as there are many stakeholders' opinions involved when considering job recruitment processes.

Certain job sectors are more inclined to monitor job candidate feedback according to AGR employers surveyed. These findings show that 100% of accountancy or professional service firms monitor candidate feedback, the public sector 84.6% and Information Technology/communications companies taking up candidate feedback in 83.3% of cases (AGR 2015). In contrast, in the retail sector only 58.3% of AGR companies monitored candidate feedback (AGR 2015) which is surprising bearing in mind that this job sector promotes the importance of creating a good customer image.

The CIPD recommend that feedback should be obtained from both successful and unsuccessful candidates about their experience of the recruitment process (CIPD, 2015). They recommend obtaining candidate feedback in the following areas: overall impression of the organisation during job recruitment, the candidate's expectations in relation to what form of assessment was made, and perceived fairness and usefulness of these assessments (CIPD, 2015). The next section discusses the literature review strategy and a summary of findings.

1.8 Literature review strategy and summary of review

In terms of the literature review strategy, the thesis key terms were manually entered into the NUSearch an online discovery tool designed by the University of Nottingham on 1 April 2020 to search for information electronically. Search terms including `graduate online testing, ` test feedback provision, ` and `applicant reactions to feedback` were entered. To narrow down the results filters were applied such as to sort the information by the newest date. Furthermore, a meta-search library e-journal database was consulted using the following databases within the category of Occupational Psychology: Web of Science, Zetoc, Web of Knowledge, Science Direct, Sociological Abstracts, and PsycINFO. Database search- Following the initial search relevant articles were narrowed down and leading journals including the *International Journal of Selection & Assessment*, *The Journal of Applied Psychology*, *Personnel Review* just to name a few were consulted for relevant articles. Throughout the research journals were regularly consulted and the literature review was updated in view of emerging trends in the literature.

Key recruiter considerations have emerged after reviewing the organisational justice and selection literature: firstly, the employer needs to create a good impression, leading to better recruitment practices and applicant retention (Borman, Hanson, & Hedge, 1997; Holbeche, 2013; Hülshager & Anderson, 2009); secondly, in cases of unfair selection practices, litigation and bad publicity could be a direct consequence (Anderson, 2011a; Anderson, Salgado & Hülshager, 2010; Anseel, 2011; Geenen et al., 2012; Management Team 500, 2008); thirdly, a negative reaction may cause stress and a loss of confidence in the unsuccessful applicant (Anderson & Goltsi, 2006; Bauer, Truxillo, Sanchez, Craig, Ferrera, & Campion, 2001; Chan & Scmitt, 2004).

In considering the perceived fairness of selection systems, there are other negative consequences for organisations: applicants viewing the organisation negatively, with the knock-on effect of these applicants discouraging others from applying, reducing chances of re-applying for future posts or accepting subsequent job offers (Geenen et al., 2012; Hausknecht, Day, & Thomas, 2004; Cortini et al., 2019).

On the other hand, making the organisation appear attractive during selection increases the likelihood of a successful candidate accepting a job offer and recommending the organisation to others (Brender-Ilan & Sheaffer, 2015; Hausknecht et al., 2004) so fairness perceptions are critical in terms of how applicants regard the organisation. Researchers (e.g., Konradt, Warszta, & Ellwart, 2013; Schinkel, van Dierendonck, van Vianen, & Ryan, 2011) call for further research routed in organisational justice theories, concerning applicant feelings about their treatment by organisations, such as Gilliland's (1994) study. In line with these observations the thesis considers fairness and justice perceptions.

There are also practical considerations to bear in mind for organisations considering providing candidate feedback. Organisations must bear in mind the viability of providing candidate feedback, the financial costs, management time, resources available, size of organisation (large/medium/small), and application stage (shortlisting, final interview). Therefore, it is not as straightforward as it first appears in making a definitive recommendation as to whether recruiters should provide candidate feedback (Cripps, 2017).

This section considered the importance of organisations sensitively conveying feedback to applicants, with emerging themes of bilateral processes and practicalities of feedback provision. Job selection test taking statistics, key definitions, literature into feedback, have so far been considered. The next section considers the psychological measures (e.g., Perceived Stress, Self-esteem) selected in the thesis within the context of job applicants' reactions to selection feedback, and associated theory.

1.9 Rationale for selection of measures and underpinning theoretical perspectives

It is now important to consider various psychological constructs and associated theory and research in relation to responding to feedback in deciding which measures to utilise in the thesis.

1.9.1 Self-esteem

According to Coopersmith (1981, p.5), self-esteem is an *“evaluation that the individual makes and maintains with regard to himself; it expresses an attitude of approval or disapproval and indicates the extent to which an individual believes himself to be capable, significant, successful and worthy.”* This definition suggests that self-esteem is concerned with how an individual assesses their worth and value. Furthermore, self-esteem is a subjective judgement of one's worth formed to some degree by social aspects including the opinions of others, approval, or attitudes (De Cremer & Sedikides, 2005).

In terms of job applicants, lower self-esteem is a possible negative outcome to the job recruitment/selection process. As people with lower self-esteem may be less inclined to be successful with job applications longitudinal or multi-phase studies are needed

to examine this aspect. Researchers often take a baseline measure in order to measure initial self-esteem (T1) and then compare it during subsequent study phase(s) an approach which will be employed in the thesis. However, self-esteem is thought to be a stable construct (Blackhart et al., 2009). For example, Blackhart and colleagues' meta-analysis found the self-esteem of rejected individuals was no lower than their controls although continued exposures to rejection are likely to lower self-esteem. Interestingly acceptance raised people's self-esteem suggesting that perhaps there is a defence mechanism to rejection. It should be noted though that the meta-analysis studies did not involve job applicants but included rejection situations (e.g., rejection from partners) so maybe reactions differ to negative feedback in job selection. However, in a job applicant context, Torrey et al. (2000) found little change in job applicants' self-esteem when conducting a longitudinal study over an 18-month period which examined employment status (employed/unemployed).

Theories have been applied to examine the relationship between self-esteem and negative feedback received by unsuccessful applicants. For instance, the *Self-consistency theory* (Shrauger, 1975) concerns how an individual holds a constant theory about oneself, so feedback confirms the individual's self-image. Individuals with low self-esteem are more inclined to accept negative feedback and react more strongly to failure (Brown & Dutton, 1995; Kernis, Brockner & Frankel, 1989; McDowall, Harris & McGrath, 2009) than those with higher self-esteem.

The Self-consistency theory has applications to feedback acceptance in a work context and according to Korman (1970, p.32): "*individuals will be motivated to perform on a task or a job in a manner which is consistent with the self-image with which they approach the task or situation.*" When applied to job applicants' responses

to feedback, candidates with lower self-esteem are more inclined to accept a job rejection and take it personally, and conversely those with higher self-esteem would have a higher opinion of their performance so to maintain their self-image.

In support of the Self-consistency theory, Brockner and colleagues (1998) found that participants with high levels of self-esteem were more influenced than their counterparts with lower self-esteem in terms of perceived availability of opportunities to voice their opinions. In this experiment, voice vs. no voice over the procedure was manipulated, as well as beliefs about their capability to provide a meaningful input (higher vs. lower). In contrast, an investigation by Vermunt, van Knippenberg, van Knippenberg and Blauuw (2001) into Dutch prisoners (total sample N = 222: in prisons N = 106, in local police stations N = 116) as outcome fairness was more likely to be related to procedural concerns in individuals with lower self-esteem. In higher self-esteem individuals, fairness was related to outcome considerations. Measures were taken during a one-hour interview with the prisoners for the Dutch version of the Self-Esteem Scale (SSES), outcome fairness, and procedural considerations regarding how the prisoners were treated by the custodial officers. These conflicting findings could be due to different study contexts as prisoners were studied by Vermunt et al. in a real-life situation, whereas Brockner et al. conducted an experimental study on students so procedural and outcome considerations may depend on the situation.

As noted by Van den Bos (2001) these discrepancies may be due to different operationalisations of terms used by the researchers in respect of uncertainty and fairness. Van den Bos (2001) investigated the role of uncertainty on reactions towards perceived procedural fairness over a series of three experiments. The research found

that by asking participants questions that triggered feelings and thoughts about being uncertain (compared to those who were not in the uncertainty condition) resulted in stronger reactions on perceived procedural fairness in terms of reactions towards their perceived treatment. Self-report measures were obtained using the Positive and Negative Effect Schedule (PANAS; Watson, Clark & Tellegen, 1988). Overall, there are mixed findings from these studies in relation to the Self-consistency theory.

Alternatively, according to the *Self-affirmation theory* (Steele, 1988), individuals tend to look at themselves in a positive light so disregard information that may lower their self-esteem. Research evidence brings this notion into question. Robertson and Smith (1989) found that when a rejected job applicant receives feedback this enables them to be more realistic in terms of their self-image and to be more realistic in career goal setting; and furthermore, the disclosure of negative information such as test scores may damage the individual's self-esteem (Iles & Robertson, 1997; Schinkel et al., 2004). Another difficulty is that the theory overlooks that people may value hearing about their weaknesses (not just strengths) to improve for future job applications.

Both the self-affirmation and self-consistency theories do not consider that an individual's self-esteem is likely to differ after receiving negative feedback due to their personality (Bono & Colbert, 2005; Honkaniemi, Feldt, Metsäpelto & Tolvanen, 2013). The study findings in the thesis will be considered in relation to these self-affirmation and self-consistency principals when assessing self-esteem in test-takers reactions to feedback.

The Rosenberg Self-Esteem Inventory (1965) has been selected as a measure of self-esteem as this is widely used in research (Blascovich & Tamaka, 1991; Demo, 1985). Unlike alternative measures such as the Coopersmith Self-esteem Inventory (1967, 1981) there are fewer items, and the scale is more applicable to adults and working contexts, and it is a global measure (rather than a trait approach) of self-esteem.

1.9.2 Stress

The term 'stress' comes from the Latin word *stringere* and this translates as "to draw tight" (Arnold, Silvester, Patterson, Robertson, Cooper & Burnes, 2005, p.389). Later definitions of stress were based on evolutionary ideas including the 'fight or flight' response, an explanation of how humans and animals respond to a threatening situation (Cannon, 1929; Darwin, 1859). According to this flight or fight principle, people or animals can decide to stay and fight (fight response), or alternatively try and escape (the flight response) from the threatening situation (Arnold et al., 2005).

Wrzus and Roberts (2016) argue that life events can trigger changes in people's psychological reactions within a short-term period (i.e., weeks). A candidate going through a job selection process could be considered such a life event particularly when their livelihood depends on successful appointment.

The individual differences approach to stress considers how individuals respond differently to stress, and one such framework, the *transactional model of stress*, will be considered. According to this individualistic approach to stress, Lazarus and Folkman (1984) proposed in this model that stress is, as they put it, 'in the eye of the beholder,' in other words an event is self-appraised in terms of how the individual feels how stressful the situation is and how they can cope with it (Coolican, 2007).

Another tenet is that an individual appraises a situation in two ways as stressful or not: firstly, whether the meaning of the event is perceived as threatening, benign, harmful, and challenging; and, secondly, how able the individual feels to cope with the situation and whether (s)he has the resources to meet the event's demands. The transactional model of stress addresses individual differences, but there can be some overlap between primary and secondary appraisals. Golden-Kreutz, Browne, Frierson and Andersen (2004) factor analysed the PSS-10 and found a two-factor solution of positive "perceived coping" and negative items "perceived distress" and formed a modified version of Lazarus's transactional model of stress in order to address the debate about whether there is a unitary factor or two-factors underlying stress.

The idiographic approach to stress will be utilised in the thesis using the Perceived Stress Scale (PSS-10) (Cohen, Kamarck & Mermelstein, 1983) in self-report questionnaires. These items ask respondents to indicate the degree of perceived stress experienced during the recruitment process, involving the individual doing a cognitive self-appraisal of a situation which is a two-fold: firstly, whether it was perceived to be threatening or demanding, and secondly, whether it was taxing for resources (Lesage, Berjot & Deschamps, 2012).

In a research study, Lesage and colleagues (2012) investigated 501 professional French workers and asked them to complete the PSS to assess the scale's appropriateness. The PSS-10 has been found to be most appropriate for measuring perceived stress in occupational contexts over the PSS-4 and PSS-14 versions due to its superior psychometric properties (Lee, 2012; Lesage et al., 2012; Smith, Rosenberg & Haight, 2014). However, two major issues concern the PSS-10 scale

item structure, and potential gender differences influencing PSS-10 scores which has attracted research interest (Golden-Kreutz, Browne, Frierson, 2004; Andersson; Johnsson; Burgland & Ojehagen, 2009; Reis, Hino, & Anez, 2010).

Al-Dubai and colleagues (2014) factor analysed a Malay version of the PSS-10 in two occupational settings: medical residents (N = 191) and railway workers (N 513).

These researchers investigated two factors “perceived distress” which included the six negatively worded statements (e.g., felt stressed, unable to control aspects), and “perceived coping” which included the four positively worded statements (e.g. able to handle personal issues). In assessing the two-factor structure of the PSS-10 both factors accounted for 59.2% of the variance in the medical residents (white collar workers), and 64.8% in the railway workers (blue collar workers) groups. The factor loadings exceeded 0.59 in both of groups, and the internal reliability (Cronbach`s alpha co-efficient) was 0.71 in the railway workers and 0.70 in the medical resident groups. However, as acknowledged by the researchers concurrent and predictive validity was not assessed but just a single measure was taken of the PSS-10 in the occupational groups.

Considering the scale`s theoretical underpinning and supporting research findings the PSS-10 is an appropriate measure for the thesis as this enables the individual to respond regarding how they perceive their own stress, rather than from another person`s perspective. In respect of job applicants, as feedback may be a mediator for the level of stress, stress may lessen in successful applicants and increase in unsuccessful applicants the PSS-10 is a suitable stress measure. The scope of the

thesis is in examining emotional responses to feedback, so a measure of perceived stress enables the candidate to report their own emotions.

1.9.3 Work Motivation

Another psychological factor to consider for job applicants is work motivation. Warr, Cook and Wall (1979) use the term *intrinsic job motivation* which they define as, “*the degree to which a person wants to work well in his or her job in order to achieve intrinsic satisfaction*” (Warr et al. (1979, p.133). The term ‘intrinsic’ places the emphasis on motivation in terms of an individual’s personal achievement. Intrinsic job motivation relates to actual in-job performance rather than motivation to apply for the job in the first place. However, both contexts may be related as applicants are aspiring for the job and intend to perform well in the same way that a job holder wants to perform well and attain work satisfaction. There may be other motivators such as applicants applying for jobs to support their families financially.

This brings in the aspect of *extrinsic motivation* which, unlike intrinsic motivation, refers to the individual being motivated by rewards external or separate to the task. One such example would be pay (Leonard, Beauvais & Scholl, 1999; Cojuharenco, Patient & Bashshur, 2011). Another key consideration is why job applicants are motivated towards finding work, not merely what makes people happy in work. As a job is often used as a status symbol (Sumanth & Cable, 2011), through being rejected applicants may feel devalued which could lower their self-esteem (O’Brien, 1989). Another concept, work involvement concerns the extent that an individual desire to become involved in work (Warr et al., 1979) so this is relevant to job applicants who in applying for a job position aspire to become employed. The thesis will be measuring work involvement as this applies to feelings of test takers using items from

the Work and Life Attitudes Survey (Warr, Cook & Wall, 1979). This instrument is used in research worldwide (Ryan, 2011; Toode, Routasalo & Suominen, 2011) as a work motivation measure in professions including nursing (Toode, 2015) so is relevant to job applicants' work motivation. These motivation measures link to feedback as people are motivated by performance feedback.

1.9.4 Core Self-evaluations and Affective Well-being

Core Self-evaluations (CSE) is a broad personality trait that was introduced by Judge, Locke, and Durham (1997). CSEs have also been called a "*positive self-concept*" (Judge & Bono, 2001, p.80). This broad CSE trait includes four specific traits: stress, self-esteem, emotional stability (or low neuroticism), and locus of control. Judge and Bono (2001, p.80), defined CSEs as "*Bottom line evaluations that individuals hold about themselves.*" so concerns an individual's self-assessment of his/her own perceived worth.

Researchers often question introducing a new concept measuring individual traits, but according to Judge (2009) the aggregation of personality measures increases the predictive validity of personality variables (Buss, 1989), and as a broader measure CSE may be more efficient at predicting outcomes than an individual measure such as self-esteem. A further strength of CSE is that the measure is an integration of existing concepts rather than introducing a new concept *per se* (Judge, 2009). Judge provides the example of the intelligence literature where an integrative measure has been successfully used for a common core. As there are advantages of measuring self-concepts (e.g., self-esteem) individually, and more broadly (e.g., CSE), the research will initially take individual measures, and then introduce CSE to determine which measures are more appropriate for applicant reactions research. Judge et al.'s (2002)

Core Self-Evaluations Questionnaire has been selected as this measure has been found to have stronger effects than individual measures in research contexts (Judge, 2009).

Theoretical links between CSE traits and work performance have been established. For instance, Millward (2005) argues that self-consistency theory relates to CSEs as individuals are motivated to behave according to how they see themselves (i.e. their self-image) so if they view themselves in a good light the individual will aim to preserve this (e.g. Brief, 1988).

These principals relate to Cooley's (1902) Self-looking glass concept which is the notion that how others treat an individual forms a mirror of his/her self-perception, another attribution concept; and conversely those with a negative outlook are more prone to show 'motivational deficits' (Millward, 2005, p.202). Furthermore, according to Korman's (1970) self-consistency hypothesis (See 1.5.1 - Self-esteem section) high core self-evaluation individuals will find negative feedback more motivating as they try to bring other people's views in line with their self-perceptions (Bono & Colbert, 2005). Findings support this hypothesis as motivation can be increased in people with high self-esteem through receiving negative feedback (McFarlin, Baumeister & Bloscovich, 1984; Shrauger & Sorman, 1977) to ensure that feelings of cognitive balance (consistency) are maximised. The finding that people with high self-esteem persist longer on unsolvable or unsuccessful tasks suggests they will continue applying for more jobs that they are unsuited for despite rejection. The implication of this observation is that having high self-esteem is not always an advantage.

In common with CSEs, Affective Well-being concerns how an individual feel (e.g., happy, anxious) about oneself, so this is another self-concept. Research has found that well-being relates to other aspects in life including health, more self-confidence and career success, work status alters well-being (e.g., Diener & Ryan, 2009; Yarker et al., 2008), and whether basic needs such as competence and independence can be achieved by the individual (Reis, Sheldon, Gable, Roscoe & Ryan, 2000). Schinkel, van Vienen and van Dierendonck (2013) suggest that a job recruitment outcome (job offer/rejection) is likely to bring about changes in the candidate's well-being. These researchers call for more research into the effect of a recruitment decision on successful and unsuccessful applicants alike, particularly when the decision or procedure is perceived to be unfair. Therefore, the thesis considers test-taker's procedural justice and fairness perceptions experimentally and within a field setting.

Warr (1990) developed the Affective Well-being scale to measure this construct which will be included in the thesis fieldwork due to its high psychometric properties (e.g., Schinkel, van Dierendonck & Anderson, 2004). Experiments have investigated the effect of feedback provision on CSEs and Affective Well-being. CSEs and affective well-being have been found to diminish following receipt of performance feedback (e.g., Fletcher, 1991; Ilgen & Davis, 2000; Ployhart, Ryan & Bennett, 1999; Schinkel, van Dierendonck & Anderson, 2004) suggesting feedback provision may have a detrimental effect on the applicant.

However, this feedback and reactions relationship may be more complex than it first appears. Dodgson and Wood (1998) conducted two experiments in which feedback was randomised as either positive, negative or no feedback. After receiving negative

feedback, those with high self-esteem paid more attention to their strengths than weaknesses, whereas participants with lower self-esteem focused more on their weaknesses. These findings suggest that it is the disposition of the individual that influences the test-taker's reaction to the negative feedback. Supporting findings are from a longitudinal study by Bono and Colbert (2005) which investigated the role of CSEs after receiving multi-source feedback as the individual's personality was the key factor in motivating an individual to improve post-feedback.

This section detailed the psychological measures (e.g., perceived stress, self-esteem, affective well-being) that have been selected for inclusion in the fieldwork as these have proved applicable to job applicants and are supported by research evidence. Further study has been called for into the influence of performance feedback on such applicant personal outcomes (e.g., Chan & Schmitt, 2004; Schinkel et al., 2011). The next section examines different test types and contexts.

1.10 Test types and contexts

Ability and personality measures

Ability tests measure a person's abilities in a skill for example numerical, verbal, clerical and are believed to be high on predictive validity for future job performance.

In contrast, personality measures measure certain individual characteristics.

Personality questionnaires are used by recruiters to identify a certain personality profile for their desired candidate. These questionnaires are underpinned by a trait approach for identifying personality characteristics. The five-factor model of personality (Openness to experience, Conscientiousness, Agreeableness, Emotional stability, and Extraversion) is a general framework adopted for personality measures

often used for selection purposes (e.g., Hurtz & Donovan, 2000). Validity studies (e.g., Barrick & Mount, 1991) show that conscientiousness, and to some extent emotional stability and agreeableness (e.g., Hurtz & Donovan, 2000) are good predictors in terms of future work performance.

There are specific personality inventories for use in occupational contexts including the Occupational Personality Questionnaire 32 (OPQ32) developed by the test publishers Saville and Holdsworth Limited which is underpinned by the five-factor model. Although the focus of the thesis is not on personality types but rather on candidate reactions to the selection/recruitment process, personality is an important consideration as individuals make sense of job application outcomes. Therefore, in considering applicant reactions it is worthwhile considering whether individual differences may be an underlying factor. The OPQ32 instrument is used in Study 2 as a personality measure although the study focus is on candidate reactions to feedback and not personality types.

Test mode comparisons: paper-and-pencil and computer-based/internet testing

Each form of test administration has its advantages and drawbacks. Open mode computerised test administration is timesaving, no test administrator has to be present so has been used more frequently in recent times, whereas paper-and-pencil testing takes longer, test takers and administrators have to be present at a supervised testing session, and paper-and-pencil materials have to be duplicated and items hand scored. It appears that computerised testing makes people feel more comfortable answering questions. For example, Klinger, Johnson, and Williams (1976) found that people are

happy to answer questions to a computer instead of a person, particularly in clinical settings.

Another advantage of computerised testing is that questions can be tailored in terms of difficulty and question types based on the respondent's previous answer(s), based on Item Response Theory (IRT). The term ITR refers (also known as latent trait theory) to a technique of developing tests which identify the item difficulty level and the test-taker's ability level based on their responses to items. This enables people across a whole spectrum of abilities to be tested (Burke, 2017; Searle, 2003).

Computer adaptive testing (CAT) also works upon the same principle as IRT. CAT is useful in ability testing as when there is a score above a particular cut-off point, the computer chooses the next item to maximise information towards reaching a decision, and to stop when the specified probability level of acceptance or rejection is reached (Jackson, 1996; Rust & Golombok, 2000). Ryan et al. (2015) report that approximately 35% of international HR professionals (N = 666) surveyed use some form of adaptive computer testing or randomised selection of test items for job selection. Adaptive testing has been found to be more successful than classical techniques for: criteria-referenced (Haladyna & Roid, 1983) and norm-referenced tests (Hambleton & Swaminathan, 1985).

Equivalence of testing modes is a concern for test-publishers and recruiters to be certain whether paper-and-pencil and online tests are measuring the same thing (i.e. ability, personality). Test publishers conduct validation studies to ensure there is equivalence between equivalent testing modes. Research findings suggest that testing modes are equivalent. For example, Mead and Coussons-Read (2002) administered

the 16PF Questionnaire (a personality inventory) using a within-subjects design. In the first testing phase, all participants completed a paper-and-pencil version of the 16PF, and then two weeks later (second phase) completed an internet version of the 16PF. There were cross-mode correlations ranging from 0.74 - 0.93 with a mean of 0.85. However, correlation is not the same as equivalence. Another study limitation as conceded by Lievens and Harris (2003) was the use of a student sample which raises validity issues when generalising to job applicants.

The methodology could have been improved by randomising the order of presentation of the study conditions. For example, counterbalancing could have been employed so one half of participants completed a paper-and-pencil test first and then an internet test, and the other half an internet test first followed by a paper-and-pencil test. Other literature has found computerised and paper-and-pencil test versions to be psychometrically equivalent (Arthur et al., 2010; Noyes & Garland, 2008; Potosky & Bobko, 2004).

Test taker preferences and reactions

Online vs. mobile testing

King et al. (2015) found that candidates scored higher on opportunity to perform and ease of test use ratings towards personal computers (PCs) than when testing using some form of mobile device. In this investigation a within-subjects design was used in which participants (university students, N = 253) completed assessments for customer service orientation, supervisory situational judgement, and for cognitive ability, in both a mobile device and PC administration. There was a three-week interval between each testing phase. The order of conditions was counterbalanced so that one half of

participants started with the PC and then mobile administration, and the other half of participants started with the mobile device followed by the PC.

However, the study did not establish the reasons why test takers preferred PC testing. The authors speculate this may be due to unfamiliarity with new technology as mobile devices require different motor skills than computer skills. For example, Schroeders and Wilhelm (2010) mention that on a mobile device screen scrolling using fingers is needed unlike with notebooks and paper-and-pencil tests. There is also the issue of smaller screen sizes with mobile devices and testing venue was not controlled for in the study. Another limitation of King et al.'s study is that non-applicants were studied so feelings of opportunity to perform and anxiety levels may not be comparable to an actual job selection context.

1.11 Supervised vs. unsupervised (proctored vs. unproctored) testing

Another key issue relating to online testing is whether test-takers are supervised (proctored) or unsupervised (unproctored). Supervised testing is when a test-taker completes a test with a human test administrator present. In contrast, unsupervised testing is when the candidate completes a test with no direct supervision from a test administrator (Burke, 2017; Ployhart, Weekley, Holtz & Kemp, 2003). Supervised or unsupervised testing applies to both paper-and-pencil and computer-based/internet versions of tests.

Paper-and-pencil tests are usually proctored in which test-takers attend a testing session with a test administrator present, where test-takers sit separately under

examination conditions in which materials including test papers, answer sheets, a pencil and eraser are distributed and usually tests particularly ability tests are timed.

Research shows that online unproctored tests are becoming more widely used for selection purposes (e.g., Ryan et al., 2015). The International Testing Commission guidelines for Computer-based and Internet-based testing (ITC, 2006) identify four modes of test supervision (See Table 1.2).

Table 1.2: The International Testing Commission (ITC, 2006) guidelines for the four testing modes for Computer-based and Internet-based testing

<p>Open mode</p> <p>This is when there is no direct human supervision of the assessment session, and the test-taker is not identified (i.e., no internet registration required).</p>
<p>Controlled mode</p> <p>No human supervision of the testing session, and the tests are only made available to known test-takers. For internet tests usually the test-taker obtains a username and password log in that can only be used once for the assessment.</p>
<p>Supervised (Proctored) mode</p> <p>This involves direct human supervision. The administrator logs on the test-taker and confirms that the test has been properly administered and completed.</p>
<p>Managed mode</p> <p>There is high level of human supervision and control in this testing mode. Usually, dedicated CBT testing centres are used where the test-taker attends, and these are staffed and managed by qualified test administrators.</p>

Source: ITC Testing Guidelines (2006)

In the context of unsupervised testing there is the possibility of cheating. More organisations are employing unproctored testing for convenience, cost effectiveness and efficiency reasons (Burke, 2017; Huff, Cline & Guynes, 2012; Ryan et al., 2015). Ryan et al. (2015) concurs with Drasgow et al.'s (2009) earlier view that there is a misconception that paper-and-pencil tests are always proctored. They surveyed HR professionals and found that 49.4% of background data, 40.2% of personality assessments and 20.3% of cognitive ability paper-and-pencil selection tests were unproctored for job selection. However, they found that unproctored testing is more common in computer testing.

Certain test types are more likely to be unproctored including personality and background data assessments. In contrast, with ability tests more proctoring is needed as these tests are more prone to candidate cheating (Arthur & Glaze, 2011). Cheating can include someone else completing the test on the candidate's behalf, deliberately ending the test session so the test can be re-taken, and the candidate using unauthorised reference material to answer the test items. Arthur, Glaze, Villado and Taylor (2009) examined unproctored internet-based testing (UIT) for high-stakes (job recruitment) contexts. These researchers found the use of timed test conditions appeared to minimise the possibility of cheating during unsupervised testing. Similar performances were found when comparing cognitive and personality test performance between high-stakes and low-stakes (job incumbents tested) contexts.

Warnings are also made by companies to deter candidates from cheating with 40% of HR professionals using this approach (Ryan et al., 2015) as recommended by Hough (1998). For example, candidates can be forewarned that security cameras will be

installed in the testing centre to reduce candidate cheating and used as evidence when such malpractice is suspected (Taylor, 2019). Recruiters can also use verification testing where candidates are later invited to complete an equivalent test under supervised conditions to control for possible cheating as suggested by the ITC guidelines (ITC, 2006). However, verification testing is not widely used with only 20% of graduate recruiters applying this practice (Ryan et al., 2015). Ryan et al. attribute these findings as being due to personality testing being more widely used during graduate selection which unlike ability testing does not require supervision. However, it seems more feasible that recruiters avoid verification testing to reduce selection costs.

Research has examined whether candidates perform differently under proctored and unproctored testing. Sawnehey and Cigularov (2014) conducted an experiment in which participants (N = 401, Undergraduates) completed a 50-item personality set to measure the Big Five measures (Goldberg, 1992) and were randomly assigned to one of three supervised conditions: paper-and-pencil proctored, computer-based proctored, and computer-based unproctored. The personality measures were found to be equivalent, so the type of media and supervision had minimal effect on test-takers responses. The findings support the literature that selection costs can be minimised by recruiters using unproctored personality tests via volume testing (Tippins et al., 2006). However, the study focused on proctored personality testing and not ability testing. The ITC Guidelines are now 14 years old and despite calls for an updated version (e.g., Brown, 2019) these still have not been updated to consider new mediums of testing and feedback devices such as gaming and mobile apps.

Oswald, Carr and Schmidt (2001) conducted a 2 x 2 between-subjects factorial design study, with manipulations for supervision (supervised/unsupervised) and test medium (paper-and-pencil/computer) for two ability tests: the verbal analogies and mathematical reasoning components of the Air Force Qualifying Test (AFQT), and, personality using 100 selection items from the International Personality Pool, to reflect the Big Five personality measures. In the second phase of the experiment, measures were taken to assess test-takers' reactions towards the testing phase including perceived difficulty, anxiety, test-taking motivation and perceived anonymity. A confirmatory factor analysis compared the equivalence of the tests across the four administration conditions. Measurement equivalence was established on the personality test only for proctored administration, whereas on the ability tests there was equivalence for both modes of test administration, and proctored contexts.

On the perceived anonymity measure, a significant interaction effect was found between test medium and supervision ($p = 0.014$). Group mean differences were found to be statistically significant ($p = 0.033$), as in the web/unsupervised condition ($p = 0.033$) there were greater feelings of anonymity ($M = 7.42$) than in the web/supervised condition ($M = 6.91$). In contrast, participants recorded higher perceived anonymity scores in the paper-and-pencil supervised condition ($M = 7.50$) than the paper-and-pencil unsupervised condition ($M = 6.88$). Oswald et al. (2001) account for these differences in perceived anonymity as participants were tested in a large group and test papers were collected in a large pile like exam conditions with which undergraduates are familiar, whereas in the unsupervised paper-and-pencil condition participants had to return their test papers individually. The study was conducted in an artificial setting (a laboratory) so it was a low-stakes research setting

whereas actual job applicants would have more at stake. Oswald et al. focused on measurement equivalence between computerised and paper-and-pencil testing, but they did not directly manipulate test feedback. The thesis fills this void by comparing supervised and unsupervised test-takers' psychological reactions and fairness perceptions towards feedback.

This section identified the contexts that tests are used in. Having identified these contextual issues, the next section identifies key experimental studies in the field that have examined how feedback provision influences test-taker`s reactions to feedback.

1.12 Experimental studies into psychometric test feedback

Research in the applicants' reactions field investigates how test takers react towards feedback. Researchers have manipulated feedback to role-play job applicants using experimental designs to test candidate reactions and feelings by varying degrees of feedback and communication about their psychometric test performance. Key studies conducted and the methodologies employed will be considered in this section to assess how these studies address the thesis research and aims. The first study to be considered is the experiment by Schinkel, van Dierendonck and Anderson (2004).

Schinkel et al. (2004) conducted an experiment examining the role of feedback in terms of minimising the psychological impact of being rejected for jobs. The sample comprised 119 students at a Dutch university (mean age 21 years, 78% were female). Participants completed two General Mental Ability (GMA) tests (the Conclusions III, and the Numerical Series) at a computer station and were told a score within the top 20% of best performers was required to be invited for a selection interview.

Participants filled out a pre-testing questionnaire (T1) where measures were taken for core self-evaluations and affective well-being. Upon completion of the tests, participants received a bogus rejection message on the computer screen, believed to be based on their actual test scores. Participants were randomly assigned to two main feedback conditions: in the no performance feedback condition participants received a mere rejection message (score did not meet the top 20%, N = 39). In the performance feedback condition participants received a rejection message either stating that their performance fell below the 70th and 80th percentile (N = 38) to emphasise they were just below the standard, or between the 30th and 50th percentile so well below the standard (N = 42). The performance feedback sub-groups were combined for the analysis (N = 80). After receiving feedback participants completed a post-feedback questionnaire (T2) again measuring core self-evaluations and affective well-being. Procedural fairness and distributive fairness measures were only taken at T2.

Schinkel et al. (2004) claimed that core self-evaluations and affective well-being of rejected applicants receiving test performance feedback significantly decreased in contrast to their counterparts that received a mere rejection message. They decided to conduct an ANCOVA using core self-evaluations and affective well-being scores as dependent variables. However, on closer inspection of the mean scores on the core self-evaluations measure in the performance feedback condition there was only a decrease in the effect sizes of .06 between T1-T2 (Mt1 = 3.64, Mt2 = 3.58). Similarly, on the affective well-being measure there was only a difference of .16 decrease in effect sizes between T1-T2 when comparing the performance feedback (Mt1 = 3.70, Mt2 = 3.33) and no performance feedback (Mt1 = 4.01, Mt2 = 3.80) conditions.

Another study finding was that procedural fairness perceptions interacted with feedback on participants' core self-evaluations. Furthermore, distributive fairness perceptions interacted with feedback on affective well-being. Schinkel et al. also claimed there to be a marginally significant 3-way interaction between performance feedback x procedural fairness x distributive fairness when statistical significance had not been reached ($p = .066$) at the 5% level.

It is questionable why the performance feedback groups were combined for the analysis as there was the opportunity to compare candidate reactions in three feedback groups (uncertain how they performed, nearly met the standard, well below the standard) used in the study. There would have been fairly equal group sizes so in the absence of this analysis it is unknown whether feedback explanations emphasising varying extents of under-performance affected test-takers' core self-evaluations, affective well-being, procedural and distributive fairness. Schinkel et al. (2004) challenged the view that performance feedback following a negative selection decision is always desirable. Given the small effect sizes and that actually misinformation was provided the validity of these conclusions can be questioned.

A later investigation by Schinkel, van Dierendonck, van Vienen and Ryan (2011) investigated the possible influence of three factors affecting applicant reactions: perceived fairness of selection outcome, the individuals' attribution styles, and, the performance feedback with the rejection message. The first study ($N = 81$ Dutch university undergraduates) examined the effect of attributional style and distributive fairness on the participant's post-rejection affective well-being, and the second study ($N = 244$ Midwestern US university students) also examined the influence of

performance feedback with a focus on applicant well-being and organisational perceptions. Two GMA tests were administered in a computer lab (study 1), and in a web-based condition (study 2) and participants received a negative selection decision on the computer screen after completing the tests. In Study 1, all participants received non-specific feedback that their test scores did not meet the top 20% norm so they would not be invited for a selection interview. In Study 2, one group of participants received this non-specific rejection feedback, but another group (specific feedback) were told that their test performance score fell between the 50th and 70th percentile.

Schinkel et al. (2011) found in Study 1 that there was an interaction effect between distributive justice and attributional style (locus- optimistic/less optimistic). When there were low distributive fairness perceptions (measured at T2) there were larger differences between candidates with a more optimistic attributional style scored higher on well-being than those with a less optimistic attributional style.

A similar effect was noted in Study 2 in the non-specific feedback group, and in the specific feedback group distributive fairness was found to positively influence post-feedback well-being. Schinkel et al. (2011) concluded that detailed feedback should be provided by recruiters with care under professional standards. Unlike the earlier Schinkel et al. (2004) study, feedback was not found to be as damaging and avoidable by recruiters. The 2011 study performance feedback condition unlike the 2004 study did not emphasise suboptimal test scores (between the 30th - 50th percentile) feedback which is harder for a candidate to ignore which may explain this difference.

Another study concerning test-taker reactions to feedback was carried out by Wiechmann and Ryan (2003). The authors employed a 2 (mode of presentation: paper-and-pencil, computerised) x 2 (technical level of job: high/low technical job) x 2 (selection decision: accepted/rejected) experimental design. The sample comprised 212 US University students, and 50 of these participants took part in a pilot study to develop the technology level of the job manipulation. Participants completed an in-basket exercise either in a paper-and-pencil or a computerised equivalent, and the exercise was scored based on actual performance using norms, so feedback indicated whether they were accepted or rejected. Although test-takers post-test perceptions of process fairness and liking did not significantly differ across mode of administration, computer anxiety and computer experience were key factors in performing successfully. There were however significant relationships between post-feedback reactions (process fairness, outcome fairness, face validity, perceived predictive validity, liking, test ease) and test-takers' intentions when comparing successful and unsuccessful test-takers. Unlike Schinkel et al. (2004), psychological self-measures (e.g. affective well-being) were not taken but fairness and justice were examined.

However, caution is needed when generalising experimental findings in a low-stakes context to job applicants which is a high-stakes context. In the Wiechmann and Ryan study, two notable aims of the thesis research were evident. Firstly, the mode of test administration was compared (paper-and-pencil/online) and feedback was conveyed (accepted/rejected) to compare how applicants reacted across these conditions. Secondly, it compared test-taker perceptions between an online and paper-and-pencil assessment. In common with Schinkel et al.'s studies (2004, 2011) the thesis

investigates the provision of negative feedback with, and, without an explanation, alongside the new addition of a positive outcome.

Overall, experiments enable researchers to test various variables and manipulate feedback in ways that would not be possible in job settings for legal and ethical reasons. However, experiments lack ecological validity and candidates are in low-stakes settings, so a triangulation of field studies and experiments (e.g., Hammersley, 1996) are needed to have a fuller picture when investigating applicant reactions.

1.13 The current research

This chapter examined the provision and reactions to feedback, psychological measures in the research, reviewed the literature into graduate selection testing, and key experimental studies in the field shaping the research. Further insight is needed (Martin et al., 2005; Schinkel et al., 2013) into effective feedback, which is critical for both employers and applicants alike as this is a `bilateral decision-making process` (Anderson et al., 2001; Hülshager & Anderson, 2009), and encompasses issues of fairness (Gilliland, 1993), and justice from a theoretical standpoint.

A notable void in the literature is an examination of both *positive* and *negative feedback* to successful and unsuccessful applicants alike, and the psychological effect of the feedback explanation and mode. What psychological reactions such as self-esteem, stress and CSEs are affected in unsuccessful applicants has generally been neglected (Chan & Schmitt, 2004). Comparing responses to different feedback (no explanation, and explanation) to applicants (successful and unsuccessful) is a useful avenue to explore (Schinkel et al., 2011). The present literature consensus is that

feedback provision shapes applicant perceptions, so this insight would fill a void in the literature. This leads onto the final section which details what is known and not known from this literature review and how the research aims will address these issues.

1.14 What is known and not known from the literature, and research aims

What is known:

1. Online Graduate job recruitment methods are used by 95.1% of UK Graduate recruiters surveyed (AGR, 2015) including online testing. Test technology is fast evolving with mobile testing apps the latest development.
2. Tests are used by organisations at various recruitment phases: 20.9% initial sifting, 50.7% during the middle-phase(s), and 23.3% towards the end of the recruitment cycle (Ryan et al., 2015). Strengths-only recruitment selection processes including psychometric tests are now used to identify the best candidates (ISE, 2019).
3. Feedback can be in various forms (written, spoken, using technology etc.) The effectiveness of feedback is influenced by timeliness, detail, and accuracy, means of communication, and whether candidates accept the feedback.
4. It is in the recruiter's interest to create a good impression which encompasses the notion of corporate social responsibility, to increase the likelihood of applicants accepting job offers so it is a `bilateral process` (Anderson, 2003).
5. Experiments manipulate feedback to test reactions in view of legal and ethical problems during job recruitment, whereas field studies examine job applicants. There needs to be some trade-off between control and ecological validity.

6. Self-measures are used to measure emotional reactions either individually (e.g., stress, self-esteem) or as a broader measure (e.g., Core Self-evaluations).
7. Applicant reactions to selection decisions appear to depend on personality types with certain people responding stronger to rejection than others.
8. Fairness perceptions also influence candidate reactions.

What is not known:

1. Whether or not a candidate's feedback acceptance is a possible mediator in real-world selection contexts (Anseel & Lievens, 2009).
2. The impact of positive and negative feedback messages on candidates' psychological (e.g., perceived stress) and fairness reactions. Self-esteem may moderate responses to positive and negative feedback messages.
3. It is unclear how much feedback and in what format is most effective for recruiters to provide to candidates to mitigate any detrimental effects.
4. Using online tests, it is unclear about candidate reactions towards interpersonal and non-interpersonal feedback agents (Dineen et al., 2004).
5. It is unclear whether test-takers perceptions differ between paper-and-pencil and online administered tests, and a positive or negative test outcome.
6. There is a call from Anseel and Lievens (2009) for the link between feedback acceptance and procedural justice to be further examined in field settings.
7. It is inconclusive whether self-report measures for applicant reactions are more effectively measured separately, or within a broader measure (e.g., CSE).

8. The influence of personality in shaping applicant reactions is unclear.

Four research aims will be considered in the research, with a focus on test-taker reactions, and the studies that addressed each aim are indicated in brackets:

1. The research examines how applicant reactions (e.g., perceived stress, self-esteem, fairness, procedural justice) are affected by manipulating the type of feedback provided from psychometric test performance (Experiments 1 and 2).
2. The issue of the mode of feedback is examined in terms of whether applicants respond differently to feedback from an interpersonal or non-interpersonal source (Experiment 2 and Study 3).
3. The research investigates whether the source of feedback (e-mail, letter) was interacted with the outcome favourability (acceptance/rejection) of the application (Experiment 2 and Study 3).
4. This project examines whether applicant perceptions of feedback differ depending on whether an Internet test or paper-and-pencil test is used (Experiment 1).

Having introduced the graduate testing research area, the role of feedback, and identified key constructs and applicant reactions literature, the next stage is to anchor the thesis theoretically. Organisational justice theory (e.g., Gilliland, 1993) was earlier identified as a key theoretical framework in the applicant reactions field, so the next chapter considers its applications to online test-taker reactions with a consideration of relevant literature.

Chapter 2: Organisational Justice Theory: Applications to online testing and recruitment

2.1 Introduction

Having reviewed the use of online testing for graduate recruitment, the applicant reactions literature, and considered the role of feedback, experimental studies, and selected self-report psychological measures (e.g., self-esteem, perceived stress) for the research, this chapter focuses on organisational justice theory. The organisational justice theory approach is regarded to be dominant in the applicants' reactions literature as it incorporates aspects of both procedural and distributive justice from the perspective of the test-taker. This theoretical chapter builds onto the literature review presented in Chapter 1 by considering and adding relevant theory alongside literature regarding candidate reactions towards feedback provision.

2.2 Organisational Justice Theory

The organisational justice perspective in its earliest form concentrated on fairness perceptions towards decision outcomes. The concepts of procedural and distributional fairness are the two main determinants of fairness according to organisational justice theory, so it is important to explain and define each of these concepts in turn. The first determinant, Procedural fairness, is concerned with decision-making and the application process procedures. Therefore, in relation to the context of job applications this would concern the fairness of the job selection/recruitment process. Distributive fairness on the other hand concerns outcomes and how fair these are deemed to be. This judgement tends to be based on a comparison of what outcomes the individual expected to receive or alternatively of what other people received (van den Bos, Lind, Vermunt & Wilke, 1997). In the context of a job selection/recruitment

process, the outcome would be whether the candidate expected to get the job and how other applicants fared.

The concept of distributional justice is rooted in balance theories from the 1950s and 1960s (e.g., Adams, 1965; Festinger, 1957; Heider, 1958). Balance theories concern how individuals desire to maintain a balance between their thoughts and behaviours. The theory is conceptualised in terms of the person (P), other (O) and stimulus/event (X). Further, Adams' (1965) equity theory forms the basis behind a significant amount of the research into distributional justice (Greenberg, 1987). According to equity theory, the individual evaluates in terms of perceived inputs to outputs leading to a theoretical ratio. The individual in whatever circumstance and context says to themselves "I am putting more into this than I am getting out of it"; Applied to selection the individual should perceive the equity ratio to be fair, "My ability, skills and experience match those required in the job, say at least 50/50." Alternatively, the candidate may say "I am taking this test therefore I should get something out of it?" Thus, the equity ratio turns into a balance formed by comparing the job applicants' skills, experiences and abilities, and desired qualities to fulfil the job vacancy. The ratio is also based upon the selection decision (i.e., job offer/rejection) in determining the applicant's perception of distributive justice (Bernerth, Feild, Giles & Cole, 2006).

In terms of the selection and distributive justice literature, there has been a paradigm shift from the original view that perceptions of fairness are formed primarily because of the selection decision, and towards the modern view that several factors constitute fairness perceptions. One such factor is the procedures used by companies during their job selection process (e.g., Thibaut & Walker, 1975). There is consensus in the

current literature that job applicants form procedural justice perceptions (e.g., Jacksch & Klehe, 2016; Konradt et al., 2013; Neissen, Meijer & Tendeiro, 2017). Procedural influences were first researched by Thibaut and Walker (1975). According to Bernerth et al. (2006), this procedural justice element enabled the organisational justice approach to evolve from a merely a distributive outlook (i.e., concerning outcomes) to a comprehensive approach; as various aspects were explored including organisational fairness during selection and how job applicants react to decisions such as a job offer (Smither, Reilly, Millsap, Pearlman & Stoffey, 1993).

As knowledge and research into organisational justice theory and selection developed, the need for a justice model of applicant reactions became apparent, so Gilliland's Justice Model of Applicant Reactions was developed in 1993 and will now be discussed.

2.3 Gilliland's (1993) Justice Model of Applicant Reactions

Gilliland (1993) proposed the justice model of applicant reactions. It is an important theoretical framework as this was the first model of procedural justice for employment testing, underpinned by organisational justice theory (Greenberg, 1990). This model is based around ten justice rules which will bring about positive or negative test-taker reactions depending on whether the rules are satisfied or violated. According to Gilliland, issues relating to fairness are based around interpersonal treatment and formal aspects of the selection process.

2.3.1 Procedural Justice Rules

According to Gilliland's (1993) Justice Model, these ten procedural justice rule perceptions (process fairness) of selection procedures are categorised into three main categories: formal characteristics (e.g., reconsideration opportunity, consistency, job relatedness), explanations (e.g., selection information, feedback) and finally interpersonal treatment (e.g., propriety of questioning).

- | | |
|---|-------------------------------------|
| 1. Job-relatedness | Formal aspects of procedures |
| 2. Opportunity to perform | |
| 3. Reconsideration Opportunity | |
| 4. Consistency of administration | |
| 5. Performance feedback | Explanations used |
| 6. Selection information | |
| 7. Honesty | |
| 8. Interpersonal effectiveness of administrator | Interpersonal treatment |
| 9. Two-way communication | |
| 10. Propriety of questions | |

Table 2.1 presents and defines Gilliland's (1993) procedural justice rules and the supporting literature.

Table 2.1: Gilliland's (1993) Procedural justice rules and selection applications

Procedural Justice Rule	Definition	Supporting literature
Job relatedness	The measurement of constructs relevant to the job	Ford et al. (2009) Giumetti & Sinar (2012) Jelley & McCarthy (2013) Niessen et al. (2017) Zibarras & Patterson (2015)
Opportunity to perform	Opportunity to display knowledge, skills, and abilities (KSAs)	Brünn (2010) Dineen et al. (2004) Giumetti & Sinar (2012) Karim et al. (2014) Konradt et al. (2013) Schleicher et al. (2006)
Consistency of administration	Standardisation of administrative procedures across individuals and techniques	Deros et al. (2003) Dineen et al. (2004) Madigan & Macan (2005) Jelley & McCarthy (2013)
Reconsideration Opportunity	Opportunity to challenge/modify the decision-making process	Deros et al. (2003) Konradt et al. (2013) Murphy et al. (1990) Hausknecht et al. (2006)
Performance feedback	The provision of timely and informative feedback regarding selection performance and the outcome	Becker et al. (2010) Cortini et al. (2019) Schreurs et al. (2008) Thominet (2020) Truxillo et al. (2002, 2015)
Selection information	The adequacy of information provided to applicants regarding the selection process	Brünn (2010) Deros et al. (2003) Duffy et al. (2013) Jacksch & Klehe (2016) Teoh et al. (2013)
Honesty	Providing truthful and honest information when communicating with candidates	Bauer et al. (2004) Deros et al. (2003) Duffy et al. (2013) Konradt et al. (2013) Jacksch & Klehe (2016)
Interpersonal effectiveness of administrator	Degree to which candidates are treated with warmth and respect	Bauer et al. (2004) Lievens & Harris (2003) Bauer et al. (2001) Konradt et al. (2013)
Two-way communication	Extent that conversation flows in normal pattern and applicants have the chance to ask questions	Bauer et al. (2004) Jacksch & Klehe (2016) Lievens & Harris (2003) Waung & Brice (2007)
Propriety of questions	Appropriateness of the questions asked	Brünn (2010) Deros et al. (2003) Gilliland (1995) Konradt et al. (2013)

Sources: Landy & Conte (2007), Konradt, Warszta & Ellwart (2013), Jacksch & Klehe (2016)

In relation to applicant evaluations in terms of reactions and behaviours pre- and post-hiring, these are through job acceptance, recommendation intentions and job satisfaction. A criticism of Gilliland's initial model was that it was difficult to test the model and the procedural justice rules empirically. According to McCarthy and colleagues (2017) there was a dearth of empirical studies of the model until the year 2001 as the measurement of fairness was inconsistent, methodologies were not sufficiently thorough, and the concept of fairness was unidimensional. Bauer et al. (2001) then developed an instrument known as the Selection Procedural Justice Scale (SPJS). The SPJS enables the procedural justice rules to be tested in terms of their antecedents and outcomes, so research grew from this development.

Another quantitative measure, the Social Process Questionnaire on Selection (SPQS; Derous, Born & De Witte, 2004) provided another means of measuring and testing the procedural justice rules (See section 2.3.2 Social Process Model (Derous, De Witte & Stroobants, 2003) for further discussion). There is empirical support for these procedural justice rules and linkages (e.g., Hausknecht et al., 2004; Truxillo, Steiner & Gilliland, 2004; Konradt, Warszta & Ellwart, 2013). The most supported procedural justice rules related to fairness are job relevance (relatedness), feedback explanations, and providing explanations. The next sub-section considers selected procedural justice rules and relevant literature in further detail, starting with job relatedness.

2.3.1.1 Job Relatedness

The procedural justice rule of job relatedness (relevance) within the context of job selection concerns whether the candidate perceives the selection assessment to be

appropriate or relevant for measuring their ability for the skills, abilities and tasks needed for that role. Chan and colleagues (1998) integrated organisational justice theory with self-serving biases. In Chan et al.'s study storm trooper applicants were examined using video and reading assessments, so the study focus was to examine their reactions to this selection procedure. The perceived job relevance of the assessment exercises influenced candidates' perceived fairness. Furthermore, actual test performance influenced perceived fairness and job relevance perceptions.

Schmitt, Oswald, Kim, Gillespie, and Ramsay (2004) in a follow-up study examined the perceived and actual test performance relationship. These researchers obtained reaction measures to the American College Test (ACT) and Scholastic Admission (SAT), situational judgement measures, and biodata in first-year University students (N = 644). Participants already knew their ACT and SAT scores which had been used previously for university admission. Concurring with Chan et al. they found self-serving biases alongside organisational justice expectations may cause such candidate reactions. These reactions were relevance and fairness which were directly influenced by performance. However, as conceded by Schmitt et al. the study was not based on an actual selection process as students had already been accepted onto the course. The study only examined the procedural justice rule of "relevance", but there may be other pertinent procedural factors such as the interpersonal communication used.

Zibarras and Patterson (2015) tested the rule of job relatedness by studying General Practitioner (GP) job applicants for the National Health Service (NHS) in the UK. They collected two study samples (Sample 1: N = 156, Sample 2: N = 212) and self-report questionnaire measures were taken for job relatedness, self-efficacy at two

phases. In Sample 1 a post-testing (T1) measure was taken during the shortlisting phase (second phase of recruitment) which involved a Job Knowledge Test and a Situational Judgement Test. In Sample 2, the T1 measure was taken after testing at the Assessment Centre (final phase of recruitment). In both samples' measures were taken at T2 (post-outcome) feedback (pass/fail). Fairness perceptions were measured post-feedback (T2) using Gilliland's (1994) fairness scale. These researchers found that job relatedness was more important to job applicants at the early shortlisting stages of job selection, whereas later during the Assessment Centre stage, the outcome (pass/fail) became more salient in shaping fairness perceptions. In terms of practical applications, these findings suggest that recruiters should aim to make selection procedures appear more relevant to job candidates from the outset. Another finding was that self-efficacy is a possible predictor of candidate fairness perceptions.

A major strength of the study was that candidates for high stakes GP positions were studied so there is more external validity, and such field studies are lacking (e.g., Schinkel, Vianen & Dierendonck, 2013) in the field. However, the study only focused on a selection process for GPs. The authors justified this approach on the basis that such selection methods (e.g., initial electronic sifting phase, Situational Judgement Test, Assessment Centre) are commonly used methods in selection processes (Zibarras & Woods, 2010) for other professions.

It has been found that candidate perceptions of test fairness can be enhanced by vetting test items to make them more specific to the job role. In other words, this means developing bespoke tests for the organisation's needs. Chapter 1 discussed the use of bespoke testing (See 1.2 Graduate Recruitment statistics – Volume and

bespoke testing). For example, Jelley and McCarthy (2013) investigated the use of vetting for test items use for promotion examination tests for police officers in Canada. Experts in the field (senior police officers, promotional committee members, instructors) were consulted in developing the test items so that these covered various aspects of policing. Candidates (N = 734) for police sergeants had enhanced face validity and predictive validity perceptions of the recruitment process between 2005 and 2006 following the implementation of the vetted test items. In considering the study context, the candidates were internal police officers, so were not applying for an entry-level position. Perhaps external applicants applying for junior policing positions and who were unfamiliar with the policing working culture may have reacted differently in terms of fairness perceptions.

Giumetti and Sinar (2012) in a separate study compared external and internal job candidates. Self-report measures were obtained including advanced information provided, adequacy of information, job relatedness, opportunity to perform, procedural justice and fairness towards an online selection test. These researchers found that justice-based perceptions were related to intention-based outcomes, as internal candidates had lower perceptions of the adequacy of the information relating to the test than external candidates, but higher intentions to recommend the organisation to others. In terms of procedural justice, internal candidates held more positive perceptions of job relatedness, procedural justice, and opportunity to perform. Perhaps as internal employees have prior exposure to the organisation these job candidates may recognise more that the selection process has relevance to the job position. The studies in the thesis will not focus on promotion contexts for these reasons as contexts are different for internal and external candidates.

2.3.1.2 Selection information and Honesty

Contrary to the assumed view that being open about selection processes improves candidate fairness perceptions, it has been found that being transparent to job applicants does not always have desirable effects. For example, Jacksch and Klehe (2016) focused on gender stereotypes and manipulated varying degrees of transparency. In Study 1, graduates (postgraduate students and post-university leavers, $N = 122$) took part in a video-based scenario and assumed the role of a customer representative in a hospital emergency room. A 2 (gender: male/female) x 3 (transparency condition: control/transparency on gender stereotyped leadership/transparency on the gender-neutral performance-dimension planning) between-subject design was employed. The disclosure that the simulation was aimed to assess their leadership abilities had a detrimental effect on women's performance (gender stereotyped leadership condition) compared to women who were not told this information. Jacksch and Klehe (2016) account for these findings as being because of a stereotypical threat, so women performed according to the stereotype conveyed by this information which lowers their performance and distracts them from the task in hand. In contrast, when both genders were told the purpose of the stimulation was assess their planning skills there were no such detrimental effects.

Study 2 was aimed to extend these findings using an assessment centre style group discussion exercise ($N = 79$). The manipulation this time had a control group and a gender stereotyped dimension leadership group and again compared gender. A measure was also taken for stigma conscientiousness which concerned the extent that gender stereotypes affected the individual. In common with Study 1 those in the threatened group (i.e. women) performed worse. However, the 3-way interaction

effect between gender, transparency condition, and stigma conscientiousness had not attained statistical significance ($p = 0.08$) contrary to the authors' claim. The researchers argued these findings may have implications for selection processes for jobs where one gender predominates (e.g., engineering which is male dominated).

Supporting findings came from a study by Koenig and Eagly (2005) which found that men can also suffer from stereotypical threat when tested on social sensitivity (ability to interpret others behaviour from nonverbal cues). It should be noted that both investigations were not conducted on job applicants but rather on student participants under experimental conditions. Therefore, Jacksch and Klehe's (2016) conclusion that in female dominated professions transparency during selection can also have the same detrimental effects on male candidates can be questioned without further study. The disclosure of such stereotypical information to job candidates would also be avoided by recruiters in case of possible litigation and other negative reactions so the practical applications of these findings are questionable. These findings highlight the possible dangers of disclosing stereotypical or inappropriate information to job candidates.

Employers are increasingly using social networking websites such as Facebook and Twitter to find out information about candidates such as *faux pas* postings (Karl, Peluchette, & Schlaegel, 2010). This is when the candidate provides personal information on these sites that may damage their chances of getting employment (Careerbuilder.com, 2012; Roulin, 2014). For example, the candidate may write about their political interests, and sexual orientation, and post unsuitable photographs, which the recruiters find inappropriate. However, professional social network sites such as LinkedIn provide a platform for the candidate to portray themselves and

reveal additional information in a positive light to improve their employment prospects, which traditional recruitment methods such as a Curriculum Vitae (CV) or application form do not enable (Roulin, 2014; Woods, Ahmed, Nikolaou, Costa & Anderson, 2020). Ethical issues such as invasion of privacy apply when candidates are unaware of companies accessing their personal information (Woods et al., 2020).

Madera (2012) studied hospitality students at a job fair for hospitality positions. Many of these students were already employed (N = 171, 54.7 % part-time, 23.3 % full-time) in the hospitality sector. A 2 (social networking tool use for selection: used/not used) x 2 (purpose of use: entry level selection/promotion) between-subjects experiment. The study found that candidates in the hospitality industry rated selection processes as less fair and were less inclined to pursue a job offer when organisations use social networking sites as a selection tool. Another finding of the Madera study was that selection process fairness was a mediator between job pursuit intentions and the use of social media websites as a selection tool. This insight suggests that in view of technological developments the use of social media is a key theme for recruiters and candidates. Another implication of these findings is that whether the selection process is deemed to be fair is a determining factor of these perceptions.

2.3.1.3 Performance feedback

Another consideration is how a recruitment decision is communicated to the job applicant. Experimental manipulations have been conducted to explore ways of providing feedback. For example, Waung and Brice (2007) examined applicants' reactions to receiving or failing to receive rejection/acceptance letters using a field study and lab experiment. In Study 1 (lab experiment), organisational fulfilment

obligations were predicted by status (rejection/acceptance) and notification (no notification; notification only; notification and explanation). Waung and Brice (2007) found that applicants who were rejected without notification had the lowest level of organisational fulfilment obligations. In Study 2 (Field study), applicants who were rejected with no communication tended to believe that the organisation had failed to fulfil its obligations. They also held more negative intentions towards the organisation than those who received a rejection communication (e.g., e-mail, phone call, letter).

Bies and Shapiro (1988) also found when a negative decision is explained that the individual responds more positively than when no explanation is provided. The aspect of whether to use an explanation in the feedback of a negative decision was investigated throughout the studies in the thesis. Furthermore, organisational fulfilment obligations are included as an item in the field study (Study 3) questionnaire. It appears that the provision of explanations has positive effects on candidates irrespective of whether they were successful or not with their job application (Truxillo et al., 2009).

In a field study setting, Schreurs et al. (2008) investigated military service applicants' expectations towards a forthcoming selection procedure. They developed the Applicant Expectation Scale (AES) which was intended to measure job applicants' expectations of a selection process. In the final phase of sampling (Sample 3), applicants (N = 74) completed the AES at two phases: at the military recruiting station (T1), and a second measure was taken two weeks later after the selection at the military centre (T2). One of the measures included feedback and this was found to be significantly related to positive organisation reaction behaviours including job pursuit intentions. Feedback acceptance has been identified as a mediator between outcome

feedback and attitudes towards the recruiting organisation (e.g., Anseel & Lievens, 2009) which Study 3 of the thesis investigated.

However, concerns are raised regarding common method variance (procedural justice and outcome measures from self-report questionnaires) when considering the actual size of such relationships (Macan, Avedon, Pease & Smith, 1994), although Giumetti and Sinar (2012) identified that these relationships also occur longitudinally (e.g., Bauer, Maertz, Dolen & Campion, 1998; Truxillo, Bauer, Campion & Paronto, 2002) to allay such fears. These procedural justice rules have applications to recruiters and job applicants alike which links with the next section which considers the Social Process Model (SPM) on selection.

2.3.2 Social Process Model (Deros, De Witte & Stroobants, 2003)

Having considered literature into the effects of feedback provision in Chapter 1, an emerging issue is how job applicant perceptions are shaped and how organisations can communicate to improve this image. A model that considers this social process, belonging to the negotiation perspective (Deros, De Witte & Stroobants, 2003), is the Social Process Model on selection (SPM) (Deros & De Witte, 2001).

At the time of the development of the Social Process Model there was a paucity of research examining how recruiters feel job applicants react (Anderson, 2003). Deros et al. (2003) were only aware of one such study which investigated feelings of potential applicants and co-workers towards job interview questions (Connerley, Mael & Morath, 1999) which addressed the process element of a selection encounter.

Another SPM concept is that both selectors and applicants form the selection process, so selection is a negotiation. Both parties have an important role to play in selection as the selectors decide about how to implement the process, and equally job applicants contribute to expressing their views about the process (Derous et al., 2003). Thus, the SPM model was developed to test empirically job selection from the selectors' viewpoint. The SPM considers applicants' expectations and valuing of procedural and product characteristics of the selection encounter (Derous & De Witte, 2001).

An important consideration for employers is to ensure that applicants are treated professionally and in a polite manner throughout the selection/recruitment process. Derous et al. (2003) argue it is essential to create a trusting relationship between applicants and assessors, and procedures should be standardised and objective to ensure all applicants are treated fairly and have the same chance of being selected. This model considers applicants' expectations and valuing of procedural and product characteristics of the selection encounter (Derous & De Witte, 2001).

Derous et al. (2003) conducted expert analysis, as a preliminary step in the development of their questionnaire. Experts (i.e., managers and selectors) were consulted to evaluate aspects of selection. These characteristics were generated based on these researchers' literature review (Derous & De Witte, 2001) into the field and through interviewing job applicants, 69 items were generated to cover all eight of these characteristics. The job applicants' potential expectations and how these procedural and process aspects of the selection encounter were valued were expressed in each item. In the next phase of development (expert analysis) 30 recruitment and selection experts with at least 5 years' experience in this domain were asked to sort

the 69 items presented on separate cards (Q-sort technique) into piles of items they regarded as having similar meanings. Furthermore, experts were also asked to label each pile (Q-sort) in terms of the common meaning for all items belonging to that pile. Collaborative evidence on six clusters was found, so the SPS model was amended considering this feedback (see Table 2.2).

Table 2.2: Final Social Process Model

Social process characteristics of selection - Job applicants' value/expect:	Description
1. Provision of general information on job opening.	Applicants receive information regarding task requirements, work conditions, career opportunities, organisational goals, structure, culture and selection procedure.
2. Active participation of applicants in selection program (including assertiveness of candidates).	Applicants free to exert control over own behaviour & decisions. Exert control over others' behaviour and decisions, directly or indirectly. Control obtained by candidates' assertiveness or giving applicants an opportunity to exert control over selection program.
3. Creation of transparency of testing: (a) Practical organisation (b) Content of selection	Applicants receive insight into selection: Informed on practical aspects of selection program. Information provided to applicants regarding selection procedure and several test-technical facets (e.g., measurement).
4. Provision of feedback	Applicants receive information on their assessment performance.
5. Guarantee of objectivity in selection-professional approach & equal treatment	Equal opportunities guaranteed for all applicants by creating objective, standardised procedures & ensuring the competent approach of selectors.
6. Assurance of humane treatment and respect for privacy	Selectors treat applicants with warmth, respect and empathy and try to create optimal test conditions. Intrusive questions only asked if job relevant. Selectors treat all information collected about applicants confidentially.
Extra item (suggested by experts)	Provide timely feedback to applicants about test performances.

(Adapted from Derous et al., 2003)

The six social process characteristics of selection identified were provision of general information on job opening, active participation of applicants in selection program, creation of transparency of testing, provision of feedback, guarantee of objectivity in selection, and assurance of humane treatment and respect for privacy.

An additional item was included, the provision of timely feedback about test performance. This item was generated based on the feedback received by the experts. As earlier detailed in Chapter 1, studies indicate that timely feedback improves applicant perceptions (Carless & Heatherington, 2011; Truxillo, Bauer, Campion & Paronto, 2002). In the case of the development of the SPM, recruiters recognised the need to inform applicants promptly regarding their assessment performances. This demonstrated that these selectors recognised the importance of treating applicants in a courteous and timely manner, in considering their feelings, adding weight to the theoretical approaches including Gilliland's (1993) model. Deros, Born and de Witte (2004) subsequently created the Social Process Questionnaire on Selection (SPQS) based on the SPM model.

However, it is questionable whether all recruiters treat applicants in the manner suggested by the SPM. For instance, recruiters do not always provide feedback for both successful and unsuccessful applicants, so in such cases there is no equality between selectors and recruiters (Jacksch & Klehe, 2016). This lack of feedback provision may be due to limited company time and resources or for efficiency reasons (e.g., Ryan et al., 2015). The SPM is more concerned with the process of selection than outcomes (i.e., distributive justice) but provides a valuable framework in the context of selection as it details important considerations for recruiters in the

treatment of both accepted and rejected applicants. There is validity for the SPM as recruiters who make the selection decisions were consulted in its development.

Another strength of the SPM model as identified by Thielsch, Traümer and Pytlik (2012) is that through using the SPQS as a measure, justice dimensions can be ranked and prioritised in terms of fairness. This enables recruiters to prioritise costs, improve the selection process and to make it more efficient. These recruiter efficiency priorities are supported by the literature discussed in Chapter 1 (e.g., Ryan et al., 2015) concerning current job recruiter practices. Furthermore, the SPM model includes theoretical aspects relating to Gilliland's (1993) organisational justice rules (e.g., feedback on test results, two-way communication, timely feedback). Notably two of these items concern the provision of feedback to candidates.

Having focused on procedural justice in this section the other main aspect of organisational justice theory, distributive justice rules will be considered next. In terms of job selection/recruitment, procedural justice concerns whether there has been impartiality within the HR's selection procedure and a fair outcome (distributive justice) according to Brendan-Ilan and Sheaffer (2015). Attempts have been made to study the link between procedural and distributive justice (e.g., Bernerth, 2005; Snyder & Shahani-Denning, 2012) as it is a concern for HR professionals to demonstrate that a fair and correct selection procedure and outcome has been followed. For example, Snyder and Shahani-Denning (2012) found that outcome favourability (job offer or rejection) was highly correlated with process favourability perceptions.

2.4.1 Distributive Justice Rules

Another aspect of organisational justice theory is distributive justice also known as outcome fairness. Perceptions regarding distributive justice arise due to equality, equity, and the need for outcomes. Three distributive justice rules were adopted in Gilliland's model:

1. Equity

According to this rule, individuals should receive rewards in line with how much input they put into a situation, when compared with a relevant comparison.

2. Equality

The equality distributive justice rule states that everyone should have an equal chance of reaching the same outcome, irrespective of personal differences (e.g. knowledge), therefore for job recruitment, Gilliland suggests this implies random hiring.

3. Needs

Finally, according to the needs distributive justice rule, rewards should be distributed in accordance with individual needs, and be perceived as fair. In respect to job recruitment, this may include the recruiters making necessary provisions for applicants with disabilities (Arvey & Sackett, 1993). Importantly, in relation to special needs the recruitment decision must be perceived to be fair, by positively and negatively affected job candidates alike (Gilliland, 1993). Overall, a job applicant evaluates the fairness of the selection outcome on the extent that these distributive rules are satisfied (Hülshager & Anderson, 2009).

In the context of job application processes, the outcome would concern whether the applicant is offered the job or rejected (also known as outcome favourability). Anseel and Lievens (2009) suggest that applying the equity rule to selection (i.e. the notion that individuals should receive rewards in terms with the effort they put into it) is fair as this ensures that the most qualified applicant is offered the job. It could also be argued on this basis that the greater the work put in by the candidate during the selection process there is the increased likelihood of the candidate being rewarded with a job offer. However, this seems rather simplistic as selection procedures vary and recruiters are often looking for other qualities besides qualifications and effort.

The model proposes that such perceptions of procedural and distributive justice affect the applicant's reactions and behaviour during the selection process and after the hiring has occurred. Geenen and colleagues (2013) argue that when job applicants expect the recruiters to treat them with respect and in an approachable manner, in return the applicant makes more of an effort with the selection test. However, it can be argued that the applicant performs well for their own personal gains such as securing employment.

Furthermore, Gilliland (1993) argued that satisfying procedural and distributive justice rules, results in positive perceptions of fairness; and conversely violating these rules leads to negative perceptions from the applicant's perspective. According to Ployhart and Ryan (1998), fairness perceptions have consequences both during and after the selection process regarding job acceptance, applicant self-efficacy and possible litigation.

In the thesis, outcome favourability and fairness perceptions will be examined on both research participants experimentally (Experiments 1 and 2) and on job applicants within a field setting (Pilot Study and Study 3) alike, to test the equity rule, with the focus on Gilliland's (1993) procedural justice rules.

Having focused on procedural and distributive justice it is important to acknowledge a third type of justice known as interactional justice which focuses on the fairness that an individual receives during the procedures being carried out. Greenberg (1993) subdivided interactional justice into *informational justice*, concerning the fairness of interpersonal treatment during the procedures used and the enactment of the outcomes, and *interpersonal justice* concerning the fairness of the explanations and of information provided. Colquitt (2001) argued for a four-factor model of justice with these two new justice elements included to address wider aspects of procedural justice. For example, Rynes (1993) argue that how job applicants are treated interpersonally has importance during various phases of the job selection process. However, the focus of the thesis is on procedural justice which addresses these interactional justice elements within two categories (Explanations used, Interpersonal Treatment) covering six of the procedural justice rules (See 2.3.1 Procedural Justice Rules).

In summary, this section focused on the justice model of applicant reactions, which is regarded as the most dominant theoretical framework in studying applicant reactions (Ryan & Ployhart, 2000; Schmitt et al., 2004). Gilliland's (1993) model has been well supported and researched (e.g., Bauer, Maertz, Dolen & Campion, 1998; Gilliland, 1994; Gilliland, 2008, Schinkel, van Vianen, & van Dierdonck, 2013). There has been

empirical support for the model's propositions showing that fairness of selection is related to `soft` outcomes which relate to personal feelings (Chapman, Uggeslev, Carroll, Piasentin & Jones, 2005; Truxillo, Steiner & Gilliland, 2004). Anseel and Lievens (2009) cite the examples of test taking motivation and satisfaction. However, the effects on hard outcomes such as job performance and legal challenges have been less researched and the findings are less clear-cut (e.g., Ryan & Ployhart, 2000; Truxillo et al., 2004). It should also be noted that the model was created nearly 30 years ago in 1993 when online recruitment practices were not so widespread.

The next section considers how the organisational justice model has evolved alongside the emergence of online testing. The review of the theory and literature so far has evidenced that the procedural justice rules of job relatedness, selection information, feedback, transparency are well supported. Quantitative measures such as the Social Process Questionnaire on Selection (SPQS) have enabled research to become more rigorous over the years to test the rules empirically and seeking the views of recruiters which has added validity to the research.

2.4.2 Organisational justice theory applied to internet testing

As internet testing for graduate job selection/recruitment has become more widely used there are still unknown aspects relating to organisational justice theory that have only been investigated in a limited number of studies (e.g., Anderson, 2003; Jacksch & Klehe, 2016; Konradt, Warszta & Ellwart, 2013; Selden & Orenstein, 2011; Sylva & Mol, 2009). According to Harris (2006), and Konradt, Warszta and Ellwart (2013), aspects of Gilliland's (1993) model particularly procedural justice rules relate to

internet testing (rather than distributive justice). Konradt et al. (2013) examined Gilliland's (1993) model within a web-based context using a hierarchical model.

These researchers tested 11 procedural justice rules (job relatedness was further divided into content and predictive validity) known as formative indicators and how these related to the second-order justice factors (formal characteristics, explanation, and interpersonal treatment). A sample of 354 German applicants (30.5 % response rate) for a commercial apprenticeship completed a survey into evaluating the web-based selection procedures to measure these aspects. Konradt et al. found that in this study, web-based selection formal characteristics (e.g., opportunity to perform, reconsideration opportunities) and interpersonal treatment (but not explanation) were related to process fairness perceptions. In view of this finding about feedback provision, perhaps feedback explanations of selection decisions to job candidates could be improved. In terms of procedural justice rules, most notable were opportunity to perform, treatment of applicants, reconsideration opportunity, and propriety of questions. Process fairness was positively related to job applicants' reactions, which fully mediated how applicant reactions and justice factors related.

These linkages to procedural justice rules are consistent with previous research (Brünn, 2010, Dineen et al., 2004; Lievens & Harris, 2003). Konradt et al. concluded that the research made a significant contribution towards understanding applicant justice perceptions in web-based selection, an aspect which this thesis will also examine. Many theoretical contributions were made to the procedural justice rules: firstly, on opportunity to perform, Konradt et al. suggest web-based selection procedures should be automated whilst at the same time standardised, regarding data

entry formats. On the rule of reconsideration opportunity, it is suggested that organisations should make provisions for candidates to access their application details prior to and after submission, and the web-technology is easily navigable. Due to the predominance of technological (e.g., automated messages) as opposed to interpersonal contact, recruiters can make more interpersonal contact such as by sending e-mails from a named individual who is contactable (Konradt et al., 2013).

Regarding propriety of questions, care should be taken in avoiding asking any sensitive questions (e.g., sexual orientation, religion, politics) concerning the applicant's privacy not directly relevant to the job position, and only when integral to the research. Konradt et al. also emphasise that the purpose behind questions should be clearly stated. Jacksch and Klehe (2016) concur that there needs to be greater transparency and two-way communication between recruiters and applicants during recruitment processes. However, it should be noted that Konradt et al.'s study was conducted on a German sample so maybe there are different reactions depending on applicant nationality and the thesis examines UK applicants' reactions, so this is a consideration. The applicants in Konradt et al.'s study was young at school leaving age (mean 18.4 years) applying for business positions so other age groups and job applicant sectors were not considered.

Lievens and Harris (2003) in an earlier study applied Gilliland's ten procedural justice rules so to understand internet test-taker reactions. They noted that in relation to the social higher-order factor, the use of an internet-based test may change its meaning. To elaborate on this point, they suggested that a lack of a 'live' test administrator may be viewed by test-takers in two ways: as something positive as a computer is regarded

as more impartial, or, on the other hand, negatively due to the lack of two-way communication (computers cannot talk, despite the interactive elements). Harris (2006) believes that having a `live` test administrator gives the `human` and personable touch that most people value although there could be instances where the test administrator may be perceived to be rude or unpleasant. This links to the issue of test-taker preferences towards supervised (proctored) and unsupervised (unproctored) testing that was debated in Chapter 1 (See 1.12 – Supervised vs. unsupervised (proctored vs. unproctored) testing). Nowadays with the greater the use of unproctored testing during selection there tends to be less interpersonal contact.

In summary, this section detailed Gilliland's model, and although not intended to apply to online recruitment, the model and organisational justice theory has become applicable in modern times in explaining candidate procedural and distributive fairness perceptions. There is empirical support for Gilliland's model showing its flexible and sound theoretical basis. Gilliland's model has been criticised though for only applying to job recruitment, and for overlooking promotion contexts (Ryan & Ployhart, 2000), and candidates' personality (Honkaniemi et al., 2013). The thesis will not focus on the promotion context though as the dynamics are different as employees are familiar with the organisational climate and selection practices of their organisation, unlike external job candidates who are unfamiliar with these company practices. The next step is to consider another theoretical approach, fairness theory.

2.5 Fairness theory (Folger & Cropanzano, 2001)

Fairness theory is a similar approach to organisational justice theory, however fairness theory (e.g., Folger & Cropanzano, 2001) is unique in focusing on assessing

responsibility for decision making and whether the decision maker had different options available and is also relevant to contexts where there are discreet events (Colquitt, Scott, Judge & Shaw, 2006). This approach also has value through leading research into the provision of explanations to job applicants who receive negative outcomes, such as failing a test or a job rejection (Gilliland, Groth, Baker, Dew, Polly & Langdon, 2001; LaHuis, MacLane & Schlessman, 2007). According to fairness theory, individuals develop `counterfactuals` to account for negative events, such as a job application rejection. There are three types of counterfactuals:

1. *Would* counterfactuals - activated by a negative outcome, focus on different outcome which is positive (e.g., job offer).
2. *Should* counterfactuals - activated to decide whether the company selecting for the job acted appropriately (e.g., using correct methods).
3. *Could* counterfactuals - these counterfactuals are activated to evaluate whether the employer was forced into this choice or had an alternative option(s).

A study conducted by LaHuis, MacLane and Schlessman (2007) adopted a fairness theory approach (although not directly testing the theory) to investigate whether job applicants' perceptions were linked to intentions to reapply or not for a position. The sample comprised 542 applicants for a US federal position. The researchers predicted that those rejected would form `Would` counterfactuals based on how they perceived they had performed and `Should` counterfactuals based on job relatedness and opportunity to perform procedural justice rules (Gilliland, 1993); `Could` counterfactuals were not investigated as all applicants were already government

employees and so had an awareness of the merit system used for selecting candidates based on rankings.

LaHuis et al. (2007) found that 9% of those initially rejected reapplied for the same position the next year, but none reapplied two years later. In terms of hypothesised interactions, they found a significant interaction between opportunity to perform and perceived performance, but not for job relatedness-perceived performance.

Furthermore, in terms of the procedural justice rule of opportunity to perform, this had a stronger effect when this was higher. LaHuis et al. (2007) claimed these findings were consistent with fairness theory as poorly performing applicants were least likely to apply due to diminished job offer prospects; and conversely those that had perceived that they had performed well would be more likely to apply.

Another study relating to fairness theory involved the manipulation of the wording in rejection letters. Gilliland, Groth, Baker, Dew, Polly, and Langdon (2001) employed 4 conditions across 3 separate studies to test Would, Should and Could explanations in the following rejection letters (actual wording from Gilliland et al., 2001):

- Standard Rejection Explanation (Would)

Dear Applicant,

Thank you for your interest in the ... position at ... company. I am sorry to inform you that we will be unable to pursue your application at this time. We wish you success in your future plans.

Sincerely yours,...

- Letter 1- Better Qualified Applicant (Would Reducing explanation)

We received over 250 applications in response to our announcement and were very impressed by the extraordinary quality of the applicants. We interviewed a number of excellent candidates including yourself, for the Senior Marketing Manager position... our top candidates had at least 15 years of experience in the sales and marketing field... they brought senior management and industry-related experience to the position.

- Letter 2- Hiring Freeze (Could Reducing explanation)

Unfortunately, in the end, we were unable to complete our hiring process. Here is how the process unfolded. We proceeded to the point of including a couple of candidates including you, but were unable to extend an offer. Rising short-term interest rates and reluctant customer spending led to sharp decreases in sales. The financial solution resulted in a freeze of hiring in our department.

- Letter 3- Reputation of the Process (Should Reducing explanation)

Over the years, we have received many questions about our application and interview process... developed by the research firm of Johnson, Myers and Associates... used by a number of Fortune 100 companies. The tests you completed are designed to provide an unbiased assessment of management ability and marketing personality... The interview questions were structured and job related and have been found to predict job performance. They also ensure that all candidates are treated consistently and appropriately. Overall, this selection process has been proven to be highly effective in identifying successful candidates.

(Modified from Gilliland et al., 2001)

Gilliland et al. (2001) found that `applicants` who received a standard rejection letter to say there was a better qualified applicant (Letter 1- Would Reducing explanation) or a hiring freeze (Letter 2- Could Reducing explanation) had more positive perceptions of the process, and when given the explanation that the rejection was due to a hiring freeze were most likely to reapply. Furthermore, these nonstandard rejection letters came across more positively, and the researchers concluded that perceptions are improved by providing two explanations in rejection letters.

In assessing these findings, Landy and Conte (2007) argue that rejection letters should contain a plausible reason(s), as according to Gilliland et al. the wording of such letters can heighten feelings of justice. In terms of organisational justice theory, the letters concerning the better qualified applicant (so merit definition served) and a hiring freeze (nobody got the job, so no outcome to feel unhappy about) create the impression for candidates that distributive justice is being served. These findings conflict with research that suggests the provision of performance-feedback has negative effects on candidates' general well-being (e.g., Diener & Ryan, 2009) although justice perceptions and psychological reactions are two separate elements.

Perhaps these conflicting findings can be reconciled as fairness perceptions depend on whether recipients accept the explanation (Anseel & Lievens, 2009), so the thesis will examine this issue further through manipulating the wording of feedback messages (positive and negative) in the experimental studies; and will extend on fairness theory as positive outcomes will also be examined. This links to the earlier discussion regarding positive and negative feedback in Chapter 1 (See 1.5.1 Types of feedback). Related to the concept of counterfactuals, fairness theory divides explanations into

two further types, justifications, and excuses. Justifications show that the decision is ethical and appropriate (Truxillo et al., 2009); this counteracts against `should` counterfactuals; whereas excuses reveal a mitigating or external cause which influenced the decision, which counteracts `could` counterfactuals (Shaw et al., 2003).

In reviewing the existing literature, Truxillo et al. (2009) found that many research studies adopted structure fairness explanations using either an excuse or a justification. It is notable that this fairness approach is most applicable to negative outcomes such as a job rejection or failing a test, as the counterfactual is not produced in situations where there is no apparent reason to blame others (Folger & Cropanzano, 2001; Truxillo et al., 2009). This accounts for why some researchers (e.g., Gilliland et al., 2001) in this field have used fairness theory focusing only on negative outcomes. Considering this problem of fairness theory overlooking positive or successful outcomes, this thesis will examine the effects of both positive and negative outcomes.

Therefore, fairness theory compliments organisational justice theory, as it explains the effects of explanation types on candidate perceptions of procedural and distributive fairness in online testing. Having considered organisational justice and fairness theory, the next section focuses on online job applicant satisfaction (Sylva & Mol, 2009) from the job applicant's perspective. This approach places an emphasis on online testing and responding to feedback which is the focus of the thesis.

2.6 Job applicant satisfaction towards online selection

As online selection has become more widely used by recruiters' research has addressed how job applicants respond to online application systems. Sylva and Mol

(2009) explored applicant perceptions of an online job application system and identified key variables as affecting job applicants' satisfaction. This approach was based on aspects related to the online application system: perceived efficiency, user-friendliness, information provision, fairness perceptions and internet selection image. The factors accounted for applicant demographics: age, gender, ethnic minority status, prior experience, internet familiarity, country, and applicant source. These factors were created through studying 1360 online applicants for a multinational financial organisation; 441 internal and 919 external applicants that applied online via a Dutch, British or Belgian career site of this organisation. During a two-month period, applications were made for vacancies in these three countries, and reaction measures were incorporated into the website design. However, these responses were anonymous and voluntary. The UK applicants (N = 35) were later removed from the analysis.

In the study, applicants filled in an online application form and a research questionnaire that appeared via a pop-up/e-mail link in the job application acknowledgement message. The research questionnaire comprised 38 items on a 7-point Likert scale and items covered demographics, the online application process and system, and fairness. Sylva and Mol (2009) found there were generally favourable reactions towards the web-based procedures used by the organisation. In terms of determinants of applicant satisfaction, the order of importance was as follows: efficiency, user-friendliness, process fairness and internet selection image. External job candidates in Belgium (compared to Holland) and those who were internet savvy (vs. less internet savvy) felt more positive about the online recruitment procedures.

However, the sample was restricted as respondents from neighbouring Benelux European countries were studied, so maybe those from the UK and other countries and cultures may have reacted differently to web-based selection procedures. The research did not address how process satisfaction is related to applicant reactions in web-based selection/recruitment settings as noted by Konradt, Warszta and Ellwart (2013). It is notable that applicants who were more familiar with using the internet held more positive reactions towards internet recruitment which links with ideas about the `Digital Divide` which were discussed in Chapter 1 (See 1.4 - Fairness, `The Digital Divide` and computer/test-taking anxiety). These findings suggest that perhaps older candidates and those less familiar with the internet may hold more negative procedural fairness perceptions.

Convergent with Sylva and Mol's findings, other researchers (e.g., Teoh, Tan & Chong, 2013; Thielsch et al., 2012) report more positive candidate experiences with e-recruitment than traditional methods. Teoh, Tan and Chong (2013) surveyed 250 Malaysian students regarding internet recruitment, and they identified user friendliness, information provision, and website usability to be the three main factors influencing the students' perceptions towards internet recruitment. Therefore, this research supports Sylva and Mol's (2009) predictors of job applicant satisfaction with internet applications and adds weight to their claim that recruiters need to design websites that create desirable impressions (e.g., the website is easily navigable, job information is displayed) for potential job candidates. Furthermore, as the sample was from an Eastern culture these commonalities in findings suggest common global predictors of job applicant satisfaction. However, younger participants who are likely

to be more internet literate and non-applicants were investigated which is a consideration when generalising these findings to all job applicant groups.

A study by Grobler, Joubert and Lesuthu (2014) examined job seeker perceptions towards the PNet e-recruitment website in South Africa. The investigation was conducted in view of the paucity of research into applicant reactions to recruitment websites. PNet is a general-purpose national job board where employers post job adverts, candidates post Curriculum Vitae (CVs) and employers can view these, and applicants can search for job vacancies. The sample consisted of a cross-section of 717 South African job applicants covering different age groups (18-24, 25-30, 31-35, over 35's) who use the PNet site for job searches, and they were asked to complete an online structured self-report questionnaire on the PNet website. Overall, applicants held positive attitudes towards the PNet website, although applicants with higher qualifications such as Degrees held fewer positive perceptions. Furthermore, males held more positive perceptions (e.g., usability, timeliness of information) than females. These findings suggest that selection sites need to be tailored towards the specific needs of an applicant group so to enhance procedural justice perceptions.

A study by Brünn (2010) applied aspects of Gilliland's model to applicant reactions towards a web-based cognitive ability test and a work sample test. It was found that propriety of questions, opportunity to perform, selection information and a new rule, ease of faking, predicted process fairness. The opportunity to perform rule, appears to be pertinent to web-based selection (Brünn, 2010, Dineen, Noe & Wang, 2004), as well as traditional selection/recruitment contexts (Schleicher, Venkataramani, Morgeson & Campion, 2006). This opportunity to perform rule may play importance

to web-based selection as there is less face-to-face interaction between the candidate and recruiter so they need to demonstrate their job credentials using this technology more so than with traditional recruitment methods. However, due to the small sample size the robustness and generalisability of these findings can be questioned.

A field study was also conducted by Dineen et al. (2004) the only known prior study focusing on web-based selection and procedural justice. The sample composed of 76 university business students (mean age 23.8 years) using a field-experimental policy capturing design. Dineen et al. employed this methodology so to have greater control over the study variables something that has been called for in the applicants' reactions field. Participants were asked to read and respond to various scenarios which were manipulating five between-subject variables (decision making agent: human vs. automated, ability to provide additional personal information, consistency, ability to appeal against a decision, and timeliness of feedback). Survey measures were taken in two phases. In phase one, self-report survey measures were taken for demographic details, comfort using the internet, and there was a measure of conscientiousness.

Following an eight-week interval, phase two involved measuring prior job applicant experience which formed the policy-capturing part of the survey. The researchers examined how the following procedural justice rules affected fairness perceptions of web-based selection: consistency, opportunity to perform, reconsideration opportunity, and timeliness of feedback. Dineen et al. introduced another fairness predictor, human vs. automated agent of feedback (Konradt et al., 2013) in web-based selection. In assessing web-based applicants' perceptions towards these procedural justice rules, Dineen et al. noted that ability of the organisation to reveal additional

information, and, consistency (of procedures), and ability to appeal against a decision were strongest predictors of procedural fairness, and the other three factors considered also scored highly as predictors of procedural fairness. Furthermore, human decision agents were regarded as procedurally fairer than an automated decision agent during job screening. However, the small sample size (N = 76) and small differences in effect sizes should be considered when evaluating the study. For example, the fairest scenario involving a human agent had a mean fairness rating of 4.30 compared to 3.99 for an automated system. Overall, these study findings consistently support Sylva and Mol's (2009) variables of job applicant satisfaction for web-based selection within a procedural justice theoretical framework. Table 2.3 displays procedural justice rules and considerations that have emerged upon the reviewing theory and the literature.

Table 2.3: Procedural justice rules and factors applied to online selection

<u>Rule</u>	<u>Online selection testing factors to consider</u>
Job Relatedness	selection methods should be job related
Opportunity to perform	internet skills of applicant, ease of site use
Consistency of procedures	standardised testing, proctored vs. unproctored
Propriety of questions	appropriate questions vs. socially sensitive
Selection information/	appropriate information provided, problems
Honesty	with social networking sites, stereotypes
Feedback	interpersonal vs. impersonal feedback agent mode of feedback, timeliness
Consistency of procedures	whether applicants can access their application details, navigability, and ease of website use
Ability to appeal against a decision	opportunity vs. no opportunity to challenge
Two-way communication	automated vs. human test administrator

This research into factors influencing online job applicant satisfaction has applications to the thesis as a field study will address fairness and justice perceptions of online job applicants. Dineen`s additional procedural justice rule (human vs. automated feedback agent) applied to online testing is pertinent in comparing candidate reactions towards interpersonal and non-interpersonal feedback.

2.7 Conclusion and further directions

This second literature chapter examined organisational justice theory and its applications to online testing, recruitment, and associated applicant reactions literature. Therefore, Chapter 2 built upon the literature into the use of online testing and responding to feedback presented in Chapter 1. The organisational justice approach is the most suitable for the thesis as this incorporates aspects of candidate fairness and justice perceptions, and this theory has been modified and empirically proven (e.g., Schinkel et al., 2011; Konradt et al., 2013) with modern applications to online testing. Fairness aspects of online testing will also be incorporated into the research. A new procedural justice rule: interpersonal vs. non-interpersonal feedback agent (Dineen et al., 2004) applicable to online testing was identified in this chapter so candidates` fairness and justice perceptions both during the Experimental and Field study phases shall be examined. It appears that test-takers form expectations of their perceived performance relative to their actual performance, and candidate reactions are not solely determined by outcome favourability which will be examined further. Furthermore, feedback provision shapes applicant reactions.

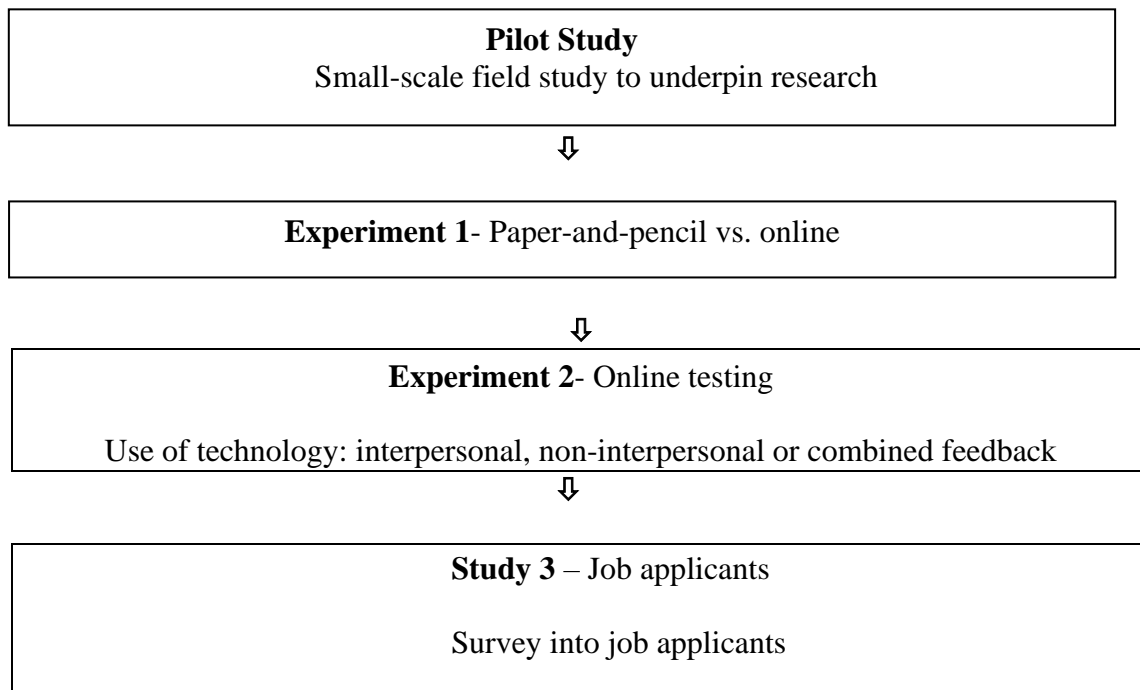
Having considered the background literature, research into online testing, and theory to identify pertinent issues to explore, the next phase of the thesis is to examine candidate reactions to feedback in research settings. This research phase begins with the Pilot Study as presented in Chapter 3, an investigation into job applicant responses to feedback within a field setting. The later phases of the research are the Experimental Phase (Experiments 1 and 2 – presented in Chapters 4 and 5), and then culminating with Study 3 (Chapter 6), a survey of actual job applicants. The thesis research phases are detailed in Figure 2.1. This combined methodology of qualitative and quantitative analysis is also known as Triangulation (Bryman, 2004; Hammersley, 1996; Morgan, 1998). In terms of Triangulation methods, the research approach utilised in the thesis is most closely aligned to Morgan's (1998) distinction between a priority and sequence decision in the research process.

Clearly the research priority of the thesis is in utilising predominantly quantitative methods although initially there is an element of qualitative content analysis as the Pilot Study utilises open-ended prose questionnaire items so to obtain meaning from the responses to give the research a theoretical underpinning. However, according to Bryman (2004) triangulation and combined methods have been criticised on the grounds that by incorporating qualitative and quantitative methods this weakens the epistemological research position associated with single methods. Furthermore, there are consequential ontological impairments by attempting to bridge the two methods (Bryman, 2004). Contrarily, according to researchers such as Bryman (2004) qualitative and quantitative elements are self-complementary as this strengthens the research. Hammersley (1996) argues that by utilising two research strategies various aspects of an investigation can be dovetailed. Ultimately the success of any

methodological stance adopted by the researcher(s) whether utilising single or multiple methods, depends on the quality of the research (Bryman, 2004).

In the thesis four separate studies were conducted and the investigations progressed in the following chronological order (Pilot Study, Experiment 1, Experiment 2 & Study 3) as detailed in Figure 2.1. This chosen sequential methodological approach decision (e.g. Morgan, 1998) enabled the findings from each phase of the studies to inform the subsequent research phase as alluded to be the conceptual diagram with the arrows.

Figure 2.1: Phases of Research Model



Chapter 3: A preliminary field study investigation - Open University Associate Lecturer applicants

3.1 Introduction

Having established the relevance of earlier detailed literature and theoretical underpinning of the thesis, this chapter moves onto the research phase of the thesis. This research phase begins with a preliminary study investigation into Open University Associate Lecturer applicant reactions to a recruitment process. The study context within the recruitment cycle is job applicants' reactions to the provision of performance feedback (or no feedback) after submitting a job application form (shortlisting phase) or having proceeded further in the recruitment process to the interview phase (final phase) to the job hire decision. There was no aspect of online testing involved as the Open University did not employ this recruitment method for Associate Lecturer applicants in 2005.

As a brief overview of terms, an Associate Lecturer (AL) is a term used by the Open University (OU) for a member of staff who is employed to teach students for OU courses. There are currently 7900 Associate Lecturers employed by the OU. The main roles of an AL include holding tutorials (face-to-face/online/telephone), marking assignments, helping students understand course materials, and preparing students for the end of module examination or assessment. The AL application procedure follows this sequence: firstly, an AL applicant completes an application form for each module they wish to teach by a specified deadline. This is followed by an acknowledgement e-mail sent by Human Resources to every candidate. The next phase is shortlisting which takes place shortly after applications close. As part of the selection process only those shortlisted for an interview are contacted (those unsuccessful are not

contacted again), and then there is a face-to-face interview for shortlisted candidates with two members of OU staff. Finally, candidates are then informed if they have been appointed or unsuccessful following interview (see Appendix 5- AL selection procedure and an example application form). The applicant pool in the current study was 6000 AL applicants in the period October to November 2005 from which 100 applicants selected using a stratified sample to represent various OU geographical regions and academic faculties (See 3.4.2 Participants).

The pilot study served two purposes, firstly, to test out psychological measures within the context of a traditional form of recruitment when considering applicant reactions to feedback; Secondly, to obtain open-ended responses to provide insight into applicant feelings towards a job recruitment process. These two outcomes will be helpful before embarking on other research approaches (i.e. experiments) into test-taker reactions.

Due to the lack of field studies into applicant reactions to feedback, that is knowledge of results of a job application, this pilot study aimed to contribute to this knowledge by examining the feelings of unsuccessful and successful Associate Lecturer job applicants using self-report questionnaires. Field studies take place in a natural setting so there is less control over variables but greater ecological validity. Within the context of job selection, a field study enables an actual job selection process to be studied. However, unlike experiments there is no manipulation of variables under investigation. Field studies enable us to examine how applicants respond to decision feedback in a real-life selection context. An example of a field study into job applicants is the earlier mentioned investigation by Brown et al. (2006).

Fairness explanations have been found to have stronger effects in field settings than under experimental conditions as evidenced by Truxillo and colleagues' (2009) meta-analysis. In this meta-analysis the effects of providing explanations were examined across hypothetical studies and field studies (26 studies, total N = 3481). The findings showed that mean effect sizes varied significantly by study context and fairness perceptions were higher in actual job hiring situations ($M = .26$) compared to scenario and simulations ($M = .08$). Furthermore, effect sizes also varied significantly by sample type (job applicant/student), as the effect of explanations on fairness perceptions in non-student samples including job applicants ($M = .24$) were significantly higher than in student participants ($M = .05$).

Another conclusion was that providing explanations of decisions help to increase applicant fairness perceptions. However, only five field studies were included in the meta-analysis and the effect sizes were also relatively small when interpreting these findings. Another consideration is that only quantitative data can be compared using the meta-analysis technique. Useful insight about applicant behaviour from qualitative research such as from transcribed proeses is often overlooked when relying on meta-analyses to identify emergent themes and trends. Truxillo et al. recommend that future research should examine the effects of explanations on positive vs. negative outcomes which the pilot study sets out to achieve.

Field studies enable actual job applicant behaviour to be examined more fully unlike experimental participants. A major flaw of earlier studies in the applicants' reactions literature was only taking single measures at post-outcome (e.g., Smither, Reilly,

Milsap, Pearlman & Stoffey, 1993). In the absence of a baseline measure it is uncertain whether the selection outcome or some other factor affected candidates.

Therefore, the pilot study self-report measures are taken at two phases: at T1 as a baseline measure prior to the selection process, and at T2 as a post-outcome measure of the effects of feedback on the psychological measures (perceived stress, self-esteem, work involvement, and intrinsic work motivation). This two-phase approach is employed elsewhere in the literature (e.g., Bauer et al., 1998; Chan et al., 1997; Truxillo, Bauer & McCarthy, 2015) and the selection outcome (job offer/rejection) is recommended as a study variable (Truxillo, Bauer & McCarthy, 2015). The study aims will now be presented.

3.2 Aims

This pilot study addressed two aims of the thesis:

1. Examine whether job applicants react differently to a positive outcome (job offer) than a negative outcome (unsuccessful) on each psychological construct (Perceived Stress, Self-esteem, and Work Involvement).
2. Examine whether applicant perceptions (e.g., outlook on life) on open-ended questions differed between successful and unsuccessful applicants.

3.3 Background

It is important firstly to contextualise the Pilot Study within the applicant reactions and practitioner literature. Traditional recruitment methods are still used by recruiters including final face-to-face interviews (79.0%) and telephone interviews (41.0%) in line with the Open University Associate Lecturer recruitment methods (ISE, 2017).

As detailed in Chapter 1 (See 1.5.2 Why is the role of feedback important in job selection processes?), a longitudinal study by Konradt and colleagues (2015) was conducted over three years into German job apprenticeship applicants (N = 182). Measures were taken for procedural fairness expectations and perceptions, acceptance of a job offer, job performance (based on the company's records), formal characteristics, explanation, and interpersonal treatment (based on Gilliland's procedural justice rules) over six phases. From T4 (post-feedback pre-hire) onwards data was only collected for successful applicants (N = 47) of whom 40 applicants had accepted the job offer. After 18 months perceived post-test fairness (T2) and pre-feedback fairness (T3) were related to job performance and job offer acceptance. However, after 36 months these fairness perceptions diminished as these were only related to job offer acceptance by this point in time.

A major drawback of the study was participant attrition as only 29 of the 40 successful candidates completed the study which is a common issue with multi-phase studies. There was no data for eleven of the employed apprentices at T5 (post-hire) and T6 (follow-up at 36 months) as 5 apprentices were on short-term contracts, and 6 apprentices joined a vocational training program. Apprentices rather than job applicants were studied by Konradt et al. so the current study focuses on job applicants. Rather than taking measures over 6 phases, the current pilot study takes two measures at baseline (T1) and post-outcome (T2) measures to avoid participant attrition. Another difference is that open-ended items are included to address aspects of fairness and procedural justice perceptions. Further, both successful and unsuccessful job candidates are surveyed throughout the study. The Discussion section will compare aspects of the current study to those of Konradt et al.

Related to the findings about disclosure of feedback, it seems that positive application outcomes heighten applicants' impressions of the organisation compared to at the time of applying; Bauer, Maertz, Dolan and Campion (1998) found this to be the case with applicants (N = 144) passing tests for entry-level positions for a large public accounting company in the USA. Self-report questionnaire measures including candidate impressions of the organisation (e.g., organisational attractiveness, job acceptance intentions) and fairness were taken at three phases: pre-testing (T1), after testing pre-feedback (T2), and post-feedback (T3). It seems that a successful job application increases the applicant's test-taking self-efficacy and impressions towards the organisation. These study findings lead onto the theoretical background and study hypotheses H1 – H3 which are presented next.

3.4 Theoretical background and hypotheses

The first hypothesis concerns perceived stress which has implications for job applicants in terms of application outcome (e.g., Borman, Hanson & Hedge, 1997) as a successful applicant can feel more confident and less stressed, and conversely when unsuccessful, feel less confident and more stressed (Diener & Ryan, 2009). As discussed in Chapter One (See 1.9.2 Stress) the *transactional model of stress* (Lazarus & Folkman, 1984) states that an event is self-appraised in terms of how the individual feels how stressful the situation is and how they can cope with it (Coolican, 2007). An individual appraises a situation as firstly, whether the meaning of the event is perceived as threatening, benign, harmful, and challenging; and, secondly, how able the individual feels to cope with the situation and whether (s)he has the resources to meet the event's demands. The transactional model of stress addresses individual

differences, but there can be some overlap between primary and secondary appraisals. Stress is the balance between perceived demands and perceived resources.

In considering associated literature, Berlowitz and colleagues (2020) examined the effect of two evidence-based interventions (yoga, physical therapy) and a control (back pain education) for treating chronic back pain on perceived stress in adults (N = 248). Participants were randomly assigned to one of the three intervention conditions over a 12-week period. Changes were compared in PSS-10 scores recorded at baseline (T1), 12-weeks post-intervention (T2), and 52-weeks follow up (T3). Pre-intervention (baseline) PSS-10 levels were also considered and participants with PSS-10 scores of ≥ 17 were regarded as elevated. PSS-10 scores declined in both the yoga (-2.6) and physical therapy (-2.4) intervention groups after 12-weeks compared to the education group. Participants identified as having elevated pre-intervention PSS-10 levels had a greater reduction (-3.4) and (-3.2) in the yoga and physical therapy intervention groups, respectively. At 52-weeks this effect in falls in PSS-10 scores had weakened after the interventions had finished. The study findings indicate that perceived stress is malleable so can be affected by short-term events. The individual's developed strategies and had resources from the yoga and physical therapy interventions for coping with chronic back pain during the 12-week intervention period.

Wrzus and Roberts (2016) concur that life events can trigger changes in psychological reactions within weeks, so experiencing a job application process is one such life event which can be perceived by the applicant resulting in positive or negative scores on the scales. On this theoretical basis it was expected that successful Associate Lecturer (AL) applicants would record lower perceived stress scores post-outcome,

and conversely unsuccessful applicants higher stress scores post-outcome compared to baseline scores.

Hypothesis 1: There will be a significant interaction between outcome of application (Successful/unsuccessful) and change in PSS-10 scores between Time 1 and Time 2. Stress will increase in successful applicants and decrease in unsuccessful applicants.

The second hypothesis concerns self-esteem. Theories have been applied to examine the relationship between self-esteem and negative feedback received by unsuccessful applicants. For instance, the *Self-consistency theory* (Shrauger, 1975) concerns how an individual holds a constant theory about oneself, so feedback confirms the individual's self-image. Individuals with low self-esteem are more inclined to accept negative feedback and react more strongly to failure (Brown & Dutton, 1995; Kernis, Brockner & Frankel, 1989; McDowall, Harris & McGrath, 2009) than those with higher self-esteem.

When applied to job applicants' responses to feedback and linking with coping strategies to deal with stress in rejection, candidates with lower self-esteem are more inclined to implement ineffectual emotion-focused strategies. A research study by Eisenbarth (2012) investigated the relationship between self-esteem (a possible moderator), perceived stress and coping in depression symptoms in students. The author suggested that the symptoms of depression can be alleviated by improving coping skills to change the individual's perception of stress which in turn may improve the individual's self-esteem.

The literature suggests that informing an individual of their success in some event heightens feelings of self-esteem whereas rejection lowers self-esteem (e.g. De Cremer & Sedikides, 2005). As self-esteem is formed by the recipient subjectively, these feelings of worth are influenced by the approval or disapproval of others, so in this context recruiters are determining the candidate's suitability (or unsuitability) for a job, so successful applicants may feel more valued and conversely unsuccessful applicants may feel undervalued (Bauer et al., 2001). This reasoning seems logical though as presumably positive news would heighten an individual's self-esteem.

Orth and Luciano (2015) conducted longitudinal research in which respondents completed self-report questionnaires and obtained measures including the Rosenberg Self-esteem Scale (RSES; Rosenberg, 1965), Narcissism and stressful life events. The study findings were that stressful life events including rejection and work problems resulted in decreased self-esteem. It has been argued that self-esteem is more malleable so more prone to change and can be triggered by life events than abilities and traits (Wrzus & Roberts, 2016). In the context of applying for a job, on this basis receiving job offer would heighten a candidate's self-esteem and conversely a rejection would lower self-esteem. Thus, it was hypothesised that self-esteem scores would increase in successful Associate Lecturer applicants and decrease in unsuccessful applicants after knowing their job application outcome.

Hypothesis 2: There will be a significant interaction between job application outcome (successful/unsuccessful) and change in Self-esteem scores between Time 1 and Time 2. Self-esteem scores will increase in successful applicants and decrease in unsuccessful applicants.

The final hypothesis concerns the construct of work involvement. Work involvement reflects attitudes to the importance of work in general in the context of job applicants

concerns intentions to become involved in work rather than specifically holding a current job. Research indicates that applicants who are more proactive in frequently applying for job vacancies tend to be more successful obtaining job offers (e.g., Brown, Cober, Kane, Levy & Shallop, 2006; Okay-Somerville & Scholarios, 2015).

Brown and colleagues (2006) conducted a field study investigating proactive job search behaviour and job outcomes for university leavers from an unnamed Midwestern US institution embarking on the university-to-work transition (N = 180). Self-report measures were obtained for: proactive personality, conscientiousness, self-esteem, job search self-efficacy, job search behaviour and job search effort at T1 pre-Graduation (3-4 months before graduation), and T2 post-Graduation (2 months after graduating). However, the study sample was restricted to younger graduates, so it is questionable whether these findings regarding work involvement can be generalised to all age groups and more experienced job hires. The implications of these findings are that attitudes towards the importance of work such as work involvement may be higher in successful job candidates at pre-selection. The current study can verify this by obtaining work involvement baseline scores and comparing these at post-outcome.

In considering theory Wanberg, Watt and Rumsey (1996) investigated job seeking behaviour in workers who had recently been made redundant over a three-month period using self-report questionnaires (T1- 2 months after redundancy, and, T2- 5 months after a redundancy). Wanberg et al. developed a model of job seeking and reemployment and variables included work commitment, job seeking self-efficacy and economic hardship. An interaction effect was found between age and job seeking frequency as younger applicants (aged less than 40 years) tended to be more

successful when regularly applying for jobs than their older counterparts (aged 40+ years). However, it is unclear how frequently candidates were rejected and what effect continued rejection had on their work involvement intentions as this could be detrimental on a candidate.

Wanberg et al.'s (1996) model was subsequently tested on older job applicants who were seeking bridge employment in a study by Adams and Rau (2004). These researchers incorporated situational factors to consider such as those identified from a meta-analysis into job search and employment factors (Kanfer, Wanberg & Kantrowitz, 2001) such as poor health, financial constraints, and motivations. In terms of motivations the literature indicates these are commitment to paid work in general (Blood, 1969) and unemployment negativity which concerns being upset, negative and depressed the unemployed individual feels (Adams & Rau, 2004). Notably these researchers found that individuals who experienced retirement more negatively were more engaged in job seeking, as well as those with greater social support. On this basis, work involvement scores will initially be higher in successful applicants (baseline) but then fall once offered a job, whereas work involvement will increase in unsuccessful applicants' post-outcome after experiencing the negative decision outcome. Thus, it was hypothesised that unsuccessful AL applicants would have increased work involvement scores over time from applying (T1) to post-outcome (T2) whereas successful applicants would have decreased work involvement scores.

Hypothesis 3: There will be a significant interaction between outcome of application (Successful/unsuccessful) and change in work involvement scores between Time 1 and Time 2. Work involvement will increase in unsuccessful applicants and decrease in successful applicants.

3.5 Methodology

3.5.1 Design

A 2 (self-report questionnaires: time of applying: `Questionnaire 1`, and post-outcome: `Questionnaire 2`) x 2 (outcome: offered job/unsuccessful) repeated-measures design was employed. The questionnaires measured perceived stress, self-esteem, and work involvement at T1) time of applying, and T2) after recruitment process, and open-ended items were included for applicants to elaborate on their responses. The dependent variables were scores on the scales for Perceived stress, Self-esteem, and Work Involvement. Two separate Outcome measures were collected at T2 for Application outcome (Offered job/Unsuccessful), and Type of feedback received (Verbal, Written, No feedback).

3.4.2 Participants

Participants were obtained using a stratified sample of 100 applicants for Associate Lecturer posts with the Open University drawn from 6000 job applicants during the period October to November 2005. A cross-section of applicants from all ten faculties (e.g. Arts, Sciences) and the 13 geographical regions (e.g. West Midlands, North East) were selected in the sample as agreed with Human Resources (See 3.7.2 - Table 3.2 for participant demographic details). Associate Lecturer (AL) and Teaching services selected the sample and sent the researcher an Excel Spreadsheet detailing the sample composition.

3.5.3 Materials

3.5.3.1 Pre- and Post-outcome measures

`Questionnaire 1` measuring perceived stress, self-esteem, work involvement, and intrinsic job motivation was presented to all applicants at the time of applying (T1) for

an Associate Lecturer position with the Open University, and a similar questionnaire 'Questionnaire 2' post-outcome (T2) which included the following outcome measures: job outcome (offered job/unsuccessful), whether feedback was requested (yes/no) and type of feedback provided (verbal/written/ verbal & written) were obtained at T2 (See Appendix 2). There was a time difference of six weeks between T1 and T2 as this was the duration of the job recruitment cycle. This section details the main scales.

The Perceived Stress Scale (PSS-10) (Cohen, Kamarck & Mermelstein, 1983; Cohen & Williamson, 1988) comprised 10 items on a Likert scale measuring perceived stress of 1-5 about personal events from the past week. The PSS-10 was selected over other versions, the PSS-4 and PSS-14 due to its superior psychometric properties such as higher reliability in research contexts (Lee, 2012; Klein et al., 2016; Wu & Amtmann, 2013). The PSS-10 scale measures how an individual perceives features of their life which are uncontrollable, overloading, and unpredictable (Cohen & Williamson, 1988) and was developed with the theoretical underpinning of the transactional model of stress (Lazarus & Folkman, 1994).

The PSS-10 instrument contains six negative worded items (been upset, unable to control, nervous and stressed, could not cope, been angered and could not overcome) on perceived helplessness; and four positively worded items (felt confident, things going your way, control irritations and on top of things) on perceived self-efficacy (e.g., Taylor, 2015; Roberti, Harrington & Storch, 2006). An example item is "In the last week, how often have you felt nervous or "stressed?" The PSS compared baseline stress scores at the time of applying (T1), with, post-application (T2) stress scores. A reliability analysis on all PSS items confirmed very high internal consistency, (T1 $\alpha =$

0.92, $T2 \alpha = 0.93$), well exceeding the generally accepted threshold of above .70 (Brace, Kemp & Snelgar, 2012; Field, 2013), also exceeding the 0.80 threshold for ability tests (Kline, 1999). The internal consistency of the PSS-10 reported in other studies generally ranges from .78 to .91 (Klein et al., 2016; Lee, 2012; Shields et al., 2016) so this is not too dissimilar.

Responses ranged from 1 (Never) to 5 (Very Often) with a high score indicating high stress levels. Questions 4, 5, 7 and 8 were positive statements, so response numbers were reversed (e.g., 1 = 5, 2 = 4, 4 = 2, 5 = 1) to ensure consistency with response patterns. A score of 3 remained the same as the middle value, and an overall score for Perceived Stress ranged from 10-50 with upper scores showing high stress. There was a norm value of 13.71 on the PSS scale for graduate adults in the USA in 2006 at the time of the pilot study (Cohen & Janicki-Deverts, 2012) consistent with an earlier norm value of 13.02 (Cohen & Williamson, 1988).

Berlowitz and colleagues (2020) examined the effect of two evidence-based interventions (yoga, physical therapy) and a control (back pain education) for treating chronic back pain on perceived stress in adults ($N = 248$). Participants were randomly assigned to one of the three intervention conditions over a 12-week period. Changes were compared in PSS-10 scores obtained at baseline (T1), 12-weeks after intervention (T2), and 52-weeks follow up (T3). Pre-intervention (at baseline) PSS-10 levels were also considered and participants with PSS-10 scores of ≥ 17 were regarded as elevated. PSS-10 scores declined in both the yoga (-2.6) and physical therapy (-2.4) intervention groups after 12-weeks compared to the education group. Pertinently in participants identified as having elevated pre-intervention PSS-10 levels there was a

greater reduction (-3.4) and (-3.2) in both intervention groups, respectively. At 52-weeks this effect had weakened after the interventions had finished. These findings indicate that PSS-10 scores are sensitive to change.

Over longer periods PSS-10 stress scores have declined in Cancer patients (N = 111) from initial surgery (T1), after 12 months (T2) and 24 months post-surgery (T3) (Golden-Kreutz, Browne, Frierson & Andersen, 2004). These researchers factor analysed the PSS-10 and found a two-factor model of stress and counter-stress to be compatible with Folkman's (1997) later revision of the transactional model of stress which incorporated positive aspects of a stress response. However, it can be argued that respondents answer positive and negative items differently on the PSS-10 so perceived stress is one factor. Two-phase measures of the PSS-10 can be justified at baseline (T1) and post-outcome (T2) in the current study so to ascertain baseline perceived stress scores as a comparison with any change post-outcome, a similar approach to longitudinal studies in the literature (e.g., Berlowitz et al., 2020).

In terms of construct validity, perceived stress scores have been negatively correlated with depression and anxiety both at .59 (Klein et al., 2016) and these findings have been supported cross-culturally (Lee, 2012).

The Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965) comprised ten items measuring global self-worth. The RSES is a widely used self-esteem measure in research (Blascovich & Tamaka, 1991; Demo, 1985; Orth & Luciano, 2015.) The advantage of this instrument over alternative measures such as the Coopersmith Self-esteem Inventory (1967, 1981) is that there are fewer items (as opposed to 50), the

scale is more applicable to adults and working contexts and is a global measure of self-esteem. Recently researchers have identified two sub-scales of the RSES, self-competence (SC) and self-liking (SL) (Sinclair, Blais, Gansler, Sandberg, Bistis & LoCicero, 2010). SC concerns how the individual regards their instrumental value such as feelings of confidence and efficacy; and SL concerns how someone assesses their intrinsic value such as belonging and contributing to a group (Sinclair et al., 2010; Schmitt & Allik, 2005). There are five RSES items covering each sub-scale according to researchers (e.g., Sinclair et al., 2010).

Ten items were used in this study using the existing format of this instrument, and as an example item “I feel that I’m a person of worth, at least on an equal plane with others”. This scale has reported internal consistency reliability of between .75 and .76 (Blascovich & Tamaka, 1991) and construct validity. As examples of evidence for construct validity self-esteem scores have been positively correlated with happiness (Cheng & Furnham, 2003), and negatively correlated with depression and anxiety (Blumfitt & Sheeran, 1999). The scale reliabilities for the present study were T1 $\alpha = 0.78$, T2 $\alpha = 0.81$. The RSES was originally developed using norms of over 5000 New York adolescents. Research has found that the RSES is equally applicable to adult age groups (Whiteside-Mansell & Corwyn, 2003) with a mean norm value of 22.62 for adults (Sinclair et al., 2010). Self-esteem responses ranged between 1 (Strongly Disagree) to 5 (Strongly Agree), with a high score representing high self-esteem levels. Questions 12, 15, 16, 18 and 19 were negative statements, such as “I feel I do not have much to be proud of” so response numbers were reversed. Item scores were aggregated for an overall score of Self-esteem ranging from 10-50 with higher scores representing higher self-esteem.

The construct of Work Involvement is a measure from the Work and Life Attitudes Survey (Warr, Cook & Wall, 1979) a well validated scale (e.g. Toode, Routasalo, Helminen & Suominen, 2014; Toode, 2015). Work involvement is defined by Warr et al. (1979) in terms of how much an individual desires to become involved in work so this notion of work involvement is applicable to job applicants who are aspiring to become employed. The use of the work involvement can be justified as an applicant response as the desire to become involved in work does not require an individual to hold a specific job (e.g., Blood, 1969). Furthermore, this more general approach enables this measure to be used as a response rather than an antecedent or an individual difference variable.

A 7-point Likert scale was used to measure Work Involvement, using six items for each sub-scale. An example item for work involvement is “If unemployment benefit was high, I would still prefer to work.”

Work Involvement item scores ranged from 1 (Strongly Disagree) to 7 (Strongly Agree) with a high score representing high work involvement. A total score ranged from 7-42 for the measure with upper scores showing high work involvement. Internal consistency was high for Work Involvement, Cronbach’s $\alpha = .88$ (T1 $\alpha = 0.87$, T2 $\alpha = 0.75$).

3.5.3.2 Open-ended items

A basic form of qualitative analysis using open-ended items in the self-report questionnaires was conducted so to obtain some categories about applicant feelings to ground the subsequent research. The rationale behind the basic qualitative analysis

was so to obtain responses from job applicants in which they explained their feelings about the job application, something which cannot be conveyed by merely relying upon scaled items. Content analysis enables researchers to conduct a qualitative analysis whilst at the same time to quantify data (Gbrich, 2007; Vaismoradi, Turunen & Bondas, 2013). This took the form of a content analysis involving the following phases as suggested by Elo and Kyngäs (2008):

1. Preparation- the researcher reads the questionnaire responses several times, so to become familiar with the responses and to identify emerging themes.
2. Organising- responses to each open-ended question are summarised in which pertinent themes are compared and subsequently coded into various categories. The number of items per category are counted so to be quantified and compared for the content analysis.
3. Reporting- the process of the analysis and results is reported.

Ideally in research there should checks for inter-rater reliability by independent researchers to ensure that the same categories are being measured. In qualitative research researchers refer to the trustworthiness of the data. A common statistical technique is a Cohen's Kappa to measure inter-rater agreement or alternatively researchers may report percentage agreement. However, as the study was conducted by one researcher and followed a prescribed proforma for coding based on the content of the responses and was only intended as a preliminary study of the categories the lack of reliability check is not considered a serious study limitation.

The following open-ended questions were included to enable respondents to explain their feelings, to mention any recent events that may have influenced applicant's

feelings, whether they had a long-term approach, and whether applicants preferred to finish tasks to produce quantitative data (See Appendix 1). The items were developed by including aspects of self-esteem, perceived stress, motivation the aspects that were also measured by the scaled items, and in addition work approach and life events. These responses were then categorised after looking through the various responses from all questionnaires.

Time of applying (T1)

“Briefly state how you feel in relation to the job you are applying for (e.g. degree of optimism about success of application, feelings about being a potential Associate Lecturer).”

“Have you been upset or pleased by a recent event? If so, please explain.”

“Do you tend to have an optimistic, pessimistic or a balanced outlook on life?”

“Do you tend to set yourself long-term goals? Please provide an example in support of your response.”

“Generally, do you tend to enjoy finishing tasks or prefer doing different tasks without completing them? Please provide an example to support your response.”

Post-recruitment outcome (T2)

Open-ended questions were also included in the post-outcome questionnaire concerning application outcome and feedback provided, so to ascertain to what extent the outcome favourability had affected applicants (See Appendix 1):

“Briefly state how you feel in relation to the AL job that you recently applied for (e.g. pleased, disappointed etc.)”

“Have you been upset or pleased by a recent event (in the last month)? If so, please explain.”

“Has the outcome of the AL application affected your general outlook on life (e.g. optimism, pessimism etc.)? Please explain your answer.”

“Do you tend to set yourself long-term goals? For instance, perhaps it is your ambition to have a lecturing career. Please provide an example in support of your response.”

“Generally, do you tend to enjoy finishing tasks (at home or work) or prefer doing different tasks without completing them? Please provide an example to support your response.”

3.5.3.3. Demographics

Demographic items were included at the beginning of both questionnaires: participants’ reference number (assigned by AL and Teaching Services), gender, and age group. Gender (Male, Female) and Age (7 groups: 16-21, 22-25, 26-31, 32-41, 42-51, 52-60, 61+) were categorised and this data was entered onto a SPSS database.

3.5.4 Procedure

Prior to commencing the study, the researcher sent draft questionnaire materials, a research proposal and applied for ethical approval with the Open University and then met with AL and Teaching Services to discuss the proposed study. The questionnaires had been piloted on five volunteers beforehand to ensure that respondents understood the items and to check that the scale items were being answered accordingly as a validity check. After reading the materials and holding a meeting AL and Teaching Services agreed for the study to proceed later in 2005. Due to confidentiality issues, it was agreed that the Open University would send the questionnaires directly to the job applicants with a covering letter to explain the research (See Appendix 7).

Participants were assigned a study number and the researcher provided stamped address envelopes (SAEs) and printed hard copies of questionnaires so these could be distributed to each participant. AL and Teaching Services provided the researcher with an Excel spreadsheet with the corresponding participant numbers and brief details about the positions that had been applied for, faculty, region(s), and the job application outcome.

Shortly after applying for an Associate Lecturer position at the Open University, a stratified sample of 100 applicants were sent Questionnaire 1 (T1) by post accompanied with a covering letter (see Appendix) explaining the nature of the study and pointing out that AL and Teaching Services had not passed on any personal details to a third party. The letter also explained that the individual had been assigned a participant number as indicated on the questionnaire to protect their anonymity, and that personal details remained confidential, under the Data Protection Act (1998). The

letter explained that a stamped addressed envelope (SAE) was enclosed to return the questionnaire to the researcher if (s)he consented to participate in the research study by a stated deadline. As an incentive to complete the study, respondents were told there would be a prize draw for completing the research, with one participant's name drawn out of a hat for a book token.

All applicants who returned Questionnaire 1 (T1) were sent a second questionnaire (T2) one month after the start date of the teaching course that applicants had applied for, by which stage the recruitment process had been completed. Applicants were provided with a contact person's details from AL and Teaching Services, in case they required additional information about the study from a third party. After returning T2, participants were sent a debrief letter explaining the nature of the research and had the opportunity to withdraw their data from the study and to ask any questions. Hard copies of completed questionnaires were stored in a secure filing cabinet, and electronic data was password-protected by the researcher to adhere to the Data Protection Act.

3.6 Analysis

For each scale (Perceived Stress, Self-esteem, Intrinsic Job Motivation, and Work Involvement) item scores were added up at both stages of the study as described in the Materials section and a total score was assigned for each construct. These scores for each participant were then entered onto a statistical database (SPSS version 22.0) for further analysis. Repeated 2 x 2 ANOVAs were conducted on the scaled items for Perceived Stress, Self-esteem, Intrinsic Job Motivation, and Work Involvement, so to test the hypotheses. The selection of Repeated ANOVAs albeit on a small sample size is justified as this statistical technique unlike alternative tests such as t-tests enables

the effects of different variables to be compared simultaneously (Field, 2013; Howell, 2002). Furthermore, repeated-measures ANOVAs look for interactions and reduce the likelihood of a Type I error occurring (rejecting a null hypothesis when it is true). The data met the Repeated ANOVA assumptions: interval data, the data is normally distributed, sphericity (the relationship between conditions is similar), homogeneity of variance (the comparison samples come from populations with the same variance) (Brace, Kemp & Snelgar, 2012). There are dangers associated with conducting repeated-measures analysis including sequence effects and carry-over (or practice) effects (Howell, 2002).

Open-ended question responses were categorised using a content analysis approach as recommended by Elo and Kyngäs (2008). The content analysis approach involves coding and categorising textual data so to identify trends in the words being analysed, to examine how they relate with one another and how regularly words occur (Gbrich, 2007; Vaismoradi, Turunen & Bondas, 2013) in the text. The aim of content analysis is thus to break down text into smaller units so to answer some broader questions at a descriptive level. In the context of applicant reactions research such a question could concern how the job application process experienced made the candidate feel.

Furthermore, this descriptive approach enables coded data to be subsequently quantified (Elo and Kyngäs, 2008; Gbrich, 2007). The content analysis methodology is descriptive in that data is coded and researchers interpret the data from the codes that they created (Vaismoradi et al., 2013). In terms of its philosophical underpinning content analysis is argued to be underpinned by the “factist” (Vaismoradi et al., 2013, p.400) approach which concerns identifying beliefs and feelings of the respondents.

Therefore, content analysis was chosen for the analysis of open-ended items so to have meaningful insight into job applicants' feelings which would not be conveyed using solely quantitative scaled measures.

To begin the content analysis, all the questionnaire responses were read several times by the researcher, so to become familiar with the responses and to identify emerging categories. At the next phase responses to each open-ended question were summarised and coded into various categories. For example, on the item about how applicants felt about the outcome, if the response mentioned feeling indifferent, this was recorded as unaffected, if more positive, the response was categorised as pleased; if the response mentioned something about feeling disappointed, then it was recorded as disappointed.

The three main categories from the content analysis were: feelings about job application, outlook on life, and important life events (See Table 3.5). These categories were described using sub-categories (except for important life events that belonged to one main theme), descriptors, and a quotation from each category so to highlight it (See 3.9 Open-ended questions). The number of items per category were counted and compared for the analysis. These items and categories were for preliminary investigative purposes so to obtain general feelings of applicants from a field setting to guide the later fieldwork (experiments, final field study) within the organisational justice theory context. As a means of checking for validity Human Resource professionals from the Open University were asked to review and comment on the questionnaire items. As ethics is important in psychological research the next section details how the main ethical issues were addressed in the pilot study.

3.7 Ethics

The very nature of research involving human participants has ethical implications. Professional bodies including the British Psychological Society (BPS, 2009) and the American Psychological Association (APA, 2012) have drawn up ethical guidelines for researchers and students to adhere to in conducting psychological research. The pilot study received ethical approval from the Open University Ethics Committee in May 2005 after a research proposal and sample study materials were provided by the researcher. A later meeting was held in July 2015 between Associate Lecturer (AL) Teaching Services and the researcher to discuss the study logistics and draft materials (e.g. sample questionnaires, covering letters, debriefing sheet) were disclosed prior to obtaining final agreement from the OU for the study to proceed. This section details pertinent ethical issues that applied to the pilot study starting with informed consent.

3.7.1 Informed Consent

As detailed in the opening of this ethics section verbal and written consent was sought from the Open University to allow their HR department to identify job applicants to be sent information about the study. Covering letters that were jointly written by the researcher and the OU were distributed by Associate Lecturer (AL) Teaching Services to all job applicants explaining the nature of the study. The covering letter also explained that their job application would be unaffected by their study participation decision. The covering letter did not go into detail about what was being investigated to avoid a response bias in the questionnaires but merely mentioned by returning the questionnaires to the researcher they were agreeing to participate in the study.

3.7.2 Confidentiality

An important aspect to consider is legal implications governing research in the UK in the form of the Data Protection Act (1998). According to this legislation, information relating to individuals should not be divulged to third parties without the individual's consent. This has implications for employers, public bodies and, in this context, for research purposes. Furthermore, the BPS guideline prohibits the identification of participants in psychological research. The OU (AL and Teaching Services) were told prior to the study that information obtained would remain strictly confidential. The same information was provided to participants. The OU did not provide contact details for any of the applicants who had agreed to participate in the study. Instead, participants were allocated a study number to protect their anonymity. In addition, only the OU had access to this information, and it was not passed onto third parties.

Applicants were assured that no personal details would be disclosed to the researcher, but they would be assigned a number for the purposes of contacting them in this study. Participants were given information prior to the study and was later debriefed explaining that their details were strictly confidential and that they had the right to have their details pertaining to the study destroyed. In line with the Data Protection Act (1998), all personal data was stored in a filing cabinet and electronic data was password-protected so only the researcher had access to this data, and no information was divulged to third parties.

3.7.3 Right to withdraw from investigation

Participants are entitled to withdraw at any stage of an investigation and should be made aware of this right by the researcher, as stated in the BPS ethical guidelines (2009). Furthermore, participants can withdraw retrospectively any consent given, in

which case any data or recordings must be destroyed. This guideline was addressed by explaining on the covering letter and debrief to participants that they could withdraw at any stage of the research. The debrief form stated that any data can be destroyed and not included in the report if the participant wished. One participant asked for their data to be destroyed so their corresponding questionnaire responses and data were destroyed.

3.7.4 Debriefing

The BPS ethical guidelines (2009) state that the investigator should tell the participants that are aware of taking part in the investigation, about the nature of the research following the completion of the investigation. In addition (s)he should discuss with participants their experiences during the research and monitor any unexpected behaviours or misconceptions. It is also important that the necessary briefing is given when negative effects occur, by actively intervening. A debriefing sheet was sent to all participants explaining the true nature of the study and to assure them that the research had no bearing on the selection process for the job. Participants also had the opportunity to contact the researcher if they were unhappy about any issue or wanted to ask any questions. If satisfied with the debriefing, participants retained the debriefing form for their record.

The power relationship between the researcher, an agent of the Open University (OU) and the job applicant as a study participant was an important consideration. This is because the researcher should not abuse this power over applicants that were applying for Associate Lecturer jobs at the OU. This was addressed by assuring applicants in the debriefing letter that their participation had no impact on the outcome of their job

application and providing contact details for the OU Human Resources department in case they wish to discuss the matter further. Having detailed the handling of ethical concerns of the pilot study, the next section presents the study results.

3.8 Results

3.8.1 Response rate analysis

Of the 100 participants who were sent the T1 (pre-selection) questionnaire, 45/100 (45%) returned questionnaires. At T2 (post-decision) 36 (36%) returned follow-up questionnaires. Less than a third (31/100) returned both questionnaires. As most respondents (N = 69) did not return Questionnaire 2 (T2) an analysis was undertaken to assess if non-completers of the study differed in terms of job application success (outcome favourability). AL Teaching services provided data regarding the outcome status of all applicants in this study: 18 applicants were appointed as Associate Lecturers, 8 applicants were shortlisted but unsuccessful at Interview, and the remaining 74 applicants were rejected at the application sifting stage. Table 3.1 displays the completion rates of the study by application outcome.

Table 3.1: Completion of study by application outcome

Application outcome	<u>Completed study</u>		<u>Failed to complete T1 & T2</u>		Total
	N =31		N =69		
Total					
Appointed	12	66.7%	6	33.3%	18
Shortlisted, not appointed	3	37.5%	5	62.5%	8
Not shortlisted	16	21.6%	58	78.4%	74
Total	31		69		100

Interestingly 66.7% of the successful applicants completed the study, compared to 37.5% of those shortlisted but unsuccessful at Interview, and 21.6% of those not shortlisted. A Chi-Square analysis compared participants' study completion rates across application outcome, showing a relationship between outcome favourability and completion/non-completion of the study ($\chi^2(2,100) = 6.964, p = 0.031$) further supporting these differences in response rates between application outcomes.

A breakdown of the completion of each phase of the study is displayed in Figure 3.1.

Figure 3.1: Phases of study completed by applicants

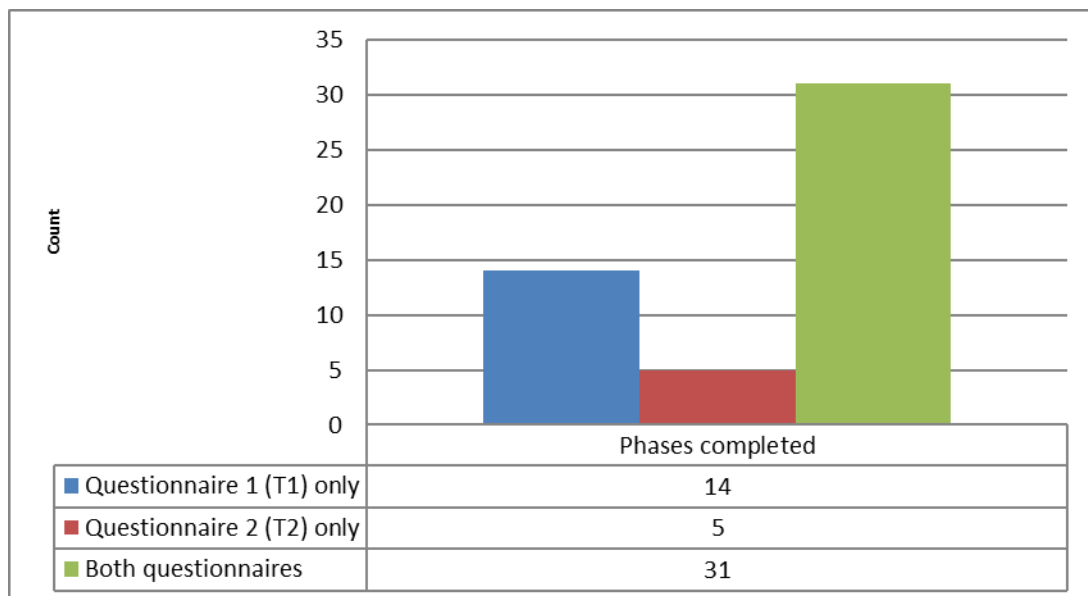


Figure 3.1 shows that 31 participants completed both questionnaires (T1 & T2), 14 participants returned only Questionnaire 1 (T1), and 5 participants only returned Questionnaire 2 (T2). However, only responses from the completers were analysed so that pre- and post-application outcome measures could be compared.

The final sample comprised 31 UK-based applicants (16 males, 14 females, one respondent did not state gender, mode age group 42-51) for Associate Lecturer posts

with the Open University. The rest of the analysis concerns the outcome measures obtained at T2 from the 31 respondents who completed both time points.

3.8.2 Outcome measures

An outcome measure was taken for job application outcome, and Figure 3.2 displays how respondents fared in the Associate Lecturer recruitment process.

Figure 3.2: Job application outcome

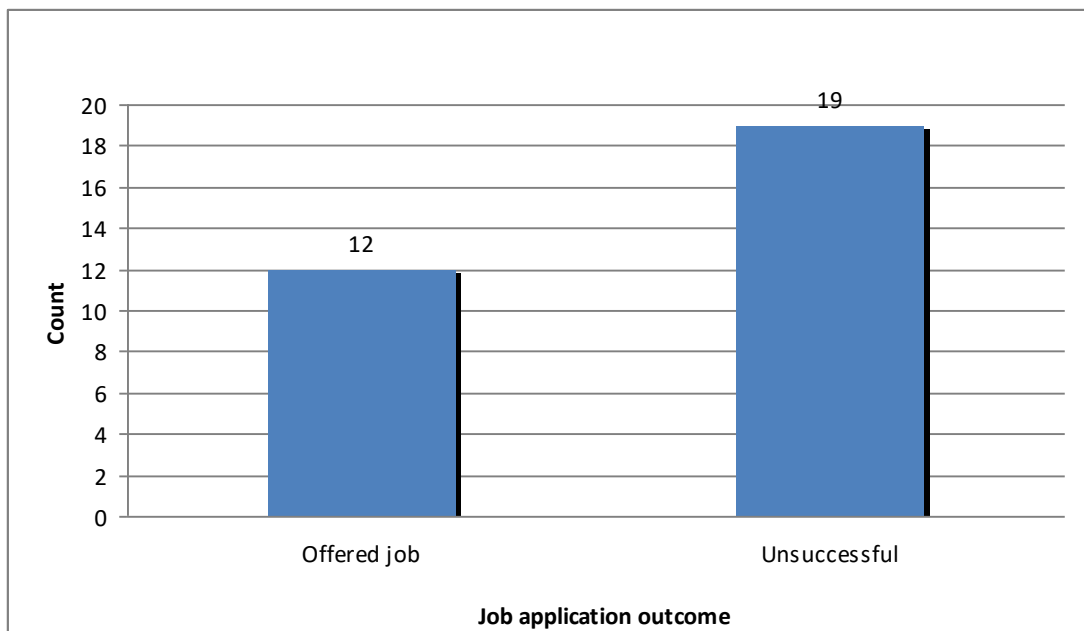


Figure 3.2 shows from the 31 applicants that completed the study, 19 were unsuccessful and 12 were offered an AL post. Therefore, the applicants were divided into these two groups for the subsequent analysis using this outcome measure.

Table 3.2 displays the applicant demographics by gender, age, region and faculty across job outcome. The data shows that each region was represented with the largest composition of applicants for AL posts in the East of England region (N = 6). In comparing faculties there were differences in success rates of job applications as all

applicants for the social sciences (N = 5), science (N = 3) and widening participation (N = 4) were unsuccessful; whereas in the business school (N = 2), technology (N = 2) and languages (N = 1) all applicants were successful, and in education four out of the six candidates were successful. The two largest age groups were 42-51 (35.4 %) and 52-60 (25.8 %) so it was a relatively older pool of job applicants.

Table 3.2: Participant demographics

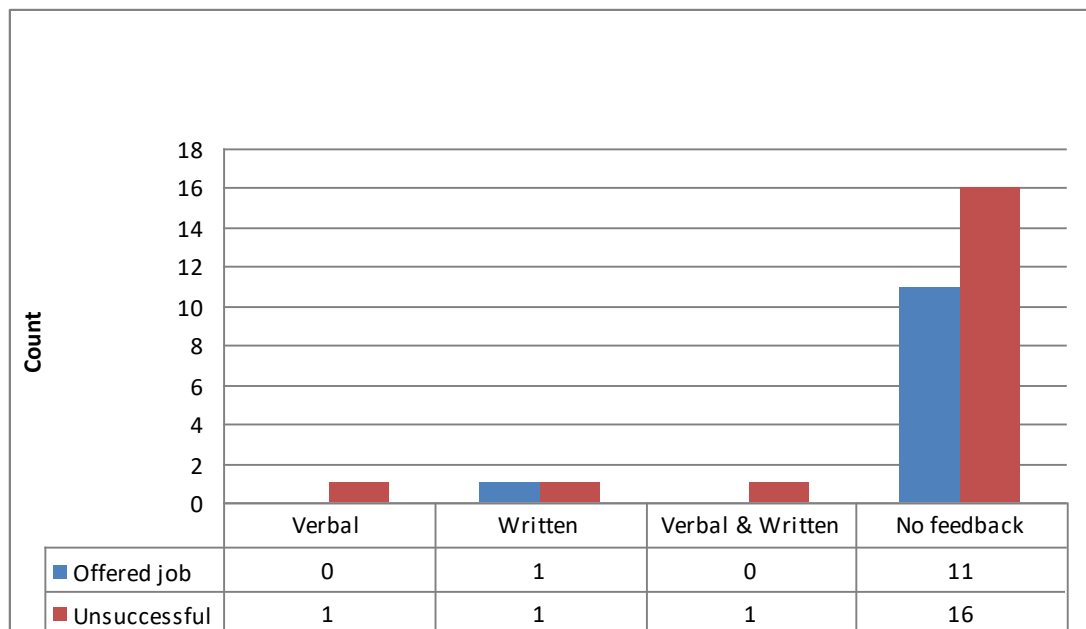
	Offered job	Unsuccessful	Total
Gender Male	6 (19.4 %)	10 (32.3 %)	16 (51.6 %)
Female	6 (19.4 %)	8 (25.8%)	14 (45.2 %)
Not stated	0 (0 %)	1 (3.2 %)	1 (3.2 %)
Age 22-25	1 (3.2 %)	2 (6.5 %)	3 (9.7 %)
26-31	0 (0 %)	3 (9.7 %)	3 (9.7 %)
32-41	2 (6.5 %)	2 (6.5 %)	4 (12.9 %)
42-51	5 (16.1 %)	6 (19.3 %)	11 (35.4 %)
52-60	4 (12.9 %)	4 (12.9 %)	8 (25.8 %)
61+	0 (0 %)	1 (3.2 %)	1 (3.2 %)
Not stated	0 (0 %)	1 (3.2 %)	1 (3.2 %)

Region London	1 (3.2 %)	0 (0 %)	1 (3.2 %)
South	2 (6.5 %)	2 (6.5 %)	4 (12.9 %)
South West	0 (0 %)	1 (3.2 %)	1 (3.2 %)
West Midlands	1 (3.2 %)	0 (0 %)	1 (3.2 %)
East of England	2 (6.5 %)	4 (12.9 %)	6 (19.3 %)
Yorkshire	1 (3.2 %)	0 (0 %)	1 (3.2 %)
North West	1 (3.2 %)	3 (9.7 %)	4 (12.9 %)
Wales	0 (0 %)	2 (6.5 %)	2 (6.5 %)
Scotland	0 (0 %)	1 (3.2 %)	1 (3.2 %)
South East	2 (6.5 %)	1 (3.2 %)	3 (9.7 %)
Two regions	1 (3.2 %)	2 (6.5 %)	3 (9.7 %)
Three regions	1 (3.2 %)	3 (9.7 %)	4 (12.9 %)
Faculty Arts	1 (3.2 %)	2 (6.5 %)	3 (9.7 %)
Business School	2 (6.5 %)	0 (0%)	2 (6.5 %)
Social Sciences	0 (0 %)	5 (16.1 %)	5 (16.1 %)
Education	4 (12.9 %)	2 (6.5 %)	6 (19.4 %)
Languages	1 (3.2 %)	0 (0 %)	1 (3.2 %)
Maths	1 (3.2 %)	2 (6.5 %)	3 (9.7 %)
Science	0 (0 %)	3 (9.7 %)	3 (9.7 %)
Technology	2 (6.5 %)	0 (0 %)	2 (6.5 %)
Law	1 (3.2 %)	1 (3.2 %)	2 (6.5 %)
WideningParticipation	0 (0 %)	4 (12.9 %)	4 (12.9 %)
Total N =31			

3.8.3 Type of feedback received

Having ascertained whether applicants had been successful with their job application, another outcome measure asked whether feedback beyond whether or not they had been offered the job had been provided by the Open University and in what form (verbal, written, verbal and written, no feedback). The data related to feedback provision is displayed in Figure 3.3.

Figure 3.3: Type of feedback received about job application



According to Figure 3.3, most applicants (27) did not receive any feedback after knowing the outcome of their application comprising successful (11) and unsuccessful (16) applicants. Two applicants received written feedback (one successful and one unsuccessful), one verbal feedback, and one received verbal and written feedback. Overall, this shows that only a small minority received any feedback beyond whether they were offered a job which limits any quantitative analysis (e.g., ANOVA) of this outcome measure due to the disparity between provision of feedback and lack of differentiation across job application outcome. Therefore, no further quantitative

analysis could be performed on this outcome measure. The next section focuses on the analysis of the scaled items for the psychological constructs.

3.9 Scaled Measures

In this section, the psychological constructs measured are presented. The measures were analysed through comparing applicants' scores at two distinct phases of the Associate Lecturer recruitment process: i) time of applying (T1), ii) after recruitment had finished (T2).

For each of these scales, a Repeated 2x2 ANOVA was performed to compare pre-test and post-test scores between Stage of application process (T1, T2) and Application outcome (Offered job, Unsuccessful).

The results of these analyses from each scale are presented separately in the following order: Perceived Stress, Self-esteem, and Work Involvement.

Table 3.3 displays the descriptive statistics and correlation coefficients for the scaled measures. These findings show that there were significant negative correlations between self-esteem and perceived stress.

Table 3.3 Descriptive statistics and correlation coefficients between psychological measures and time of measurement (T1, T2)

Measure	M	SD	1	2	3	4	5	6
1. Perceived Stress T1	22.71	8.17	(.92)					
2. Perceived Stress T2	23.97	7.98	.69**	(.93)				
3. Self-esteem T1	41.19	7.17	-.71**	-.41**	(.78)			
4. Self-esteem T2	41.65	7.10	-.77**	-.62**	.87**	(.81)		
5. Work Involvement T1	31.23	7.78	.29	.10	-.17	-.25	(.87)	
6. Work Involvement T2	30.42	7.59	.28	.35	-.06	-.23	.73**	(.75)

N = 31 *p<0.005 **p<0.001. Cronbach's alphas are displayed in parentheses along the diagonal.

3.9.1 Perceived Stress

The first scale to be examined was Perceived Stress to test Hypothesis 1. Table 3.4 displays the Mean and Standard Deviation (SD) perceived stress scores across time of measurement (applying, after recruitment) and application outcome (offered job, unsuccessful).

Table 3.4 – Comparison of Perceived Stress score Means and SDs by time of measurement and application outcome

Outcome	t1 (applying)		t2 (after recruitment)	
	Mean	SD	Mean	SD
Offered job (N = 12)	23.08	8.22	22.50	7.56
Unsuccessful (N = 19)	22.47	8.36	25.05	8.24

In the Repeated 2 x 2 ANOVA results for Perceived stress scores, with change in stress scores as the dependent variable, with time of testing (T1, T2) as the within-subjects factor and job status (offered job/unsuccessful) as the independent group factor the main effect of time of testing was not significant ($F(1,29) = 0.574, p = 0.455$), the time of testing by outcome interaction was not significant ($F(1,29) = 2.193, p = 0.149$) and likewise the main effect of outcome was not significant ($F(1,29) = 0.156, p = 0.696$).

Upon closer examination of the mean scores between successful and unsuccessful applicants there were differences between both groups as successful applicants' scores remained constant at both times of measurement, whereas their unsuccessful counterparts had an increase in perceived stress scores between pre- (t1 M = 22.47) and post-feedback (t2 M = 25.05) albeit non-significant.

Overall, Hypothesis 1 was not supported on the scale of Perceived Stress when comparing outcome favourability (job offer, rejection) of the recruitment decision.

3.9.2 *Self-esteem*

The next scale to be examined was Self-esteem and this tested Hypotheses 3 and 4.

Table 3.5 displays the Mean and Standard Deviation (SD) self-esteem scores across time of measurement and application outcome.

Table 3.5 – Comparison of Self-esteem score Means and SDs by time of measurement and application outcome

Outcome	t1 (applying)		t2 (after recruitment)	
	Mean	SD	Mean	SD
Offered job (N = 12)	41.50	5.54	41.33	5.18
Unsuccessful (N = 19)	41.00	8.18	41.84	8.21

As with the Perceived Stress analysis, a Repeated ANOVA was performed on the scale of Self-esteem. The main effect of time of testing was not significant ($F(1,29) = 0.244, p = 0.625$), the time by outcome interaction was not significant ($F(1,29) = 0.545, p = 0.466$) and likewise the main effect of outcome was not significant ($F(1,29) = 0.001, p = 0.999$). Thus Hypothesis 2 was not supported, as outcome favourability was not found to affect applicants' self-esteem across time of measurement.

3.9.3 *Work Involvement*

The next scale to be measured was work involvement to test Hypothesis 3. Table 3.6 displays the Mean and SD scores across time of measurement and application outcome.

Table 3.6 – Comparison of Work involvement score Means and SDs by time of measurement and application outcome

Outcome	t1 (applying)		t2 (after recruitment)	
	Mean	SD	Mean	SD
Offered job (N = 12)	32.92	4.78	29.42	4.94
Unsuccessful (N = 19)	30.16	9.16	31.05	8.94

The ANOVA results for this scale showed the main effects of time of testing ($F(1,29) = 1.794, p = 0.191$), and, outcome to be not significant ($F(1,29) = 0.044, p = 0.836$). However there was a significant interaction between time of measurement and outcome ($F(1,29) = 5.106, p = 0.032$) as displayed in Figure 3.4.

Figure 3.4: Interaction plot for Work involvement scores between time of measurement (T1, T2) and application outcome



Figure 3.4 highlights that work involvement mean scores decreased across time of measurement from 32.92 (time of applying – T1) to 29.42 (completion of recruitment process – T2) for successful applicants, whereas for unsuccessful applicants work

involvement scores increased between T1 (M = 30.16), T2 (M = 31.05). This pattern of results was expected as it was hypothesised that unsuccessful applicants would feel more work involvement and successful applicants less work involvement after the job application outcome. Therefore, Hypothesis 3 is supported on the Work Involvement scale.

3.10 Open-ended questions

The earlier analyses were concerned with the scaled items on the questionnaires. This section of the analysis was concerned with responses to the open-ended questions of the questionnaires. The responses provided by applicants were classified into categories using content analysis, and these are displayed in Table 3.7.

Table 3.7 – Content analysis coding template

Main category	Subcategory	Description
Feelings about job applications	Feelings about job applications in general	Optimistic- good chance of getting a job offer.
		Excited- feels excited about job prospects.
		Hopeful- hoping their application goes well.
		Unsure- not certain about their chances of job offer.
		Apprehensive- worried or anxious about job prospects.
		Difficult- to secure job offer.
	Pessimistic- unlikely to be successful.	
	Feelings about AL job application process	Unsurprised- as expected did not get a job offer.

		<p>Disappointed about- Includes how treated and failed to meet own personal expectations.</p>
Outlook on life	Outlook on life at time of job application	<p>Pleased- feeling happy Optimistic- good chance of getting a job offer.</p> <p>Balanced- level-headed outlook.</p> <p>Realistic- take into account likelihood of getting job.</p> <p>Pessimistic- unlikely they will get a job offer.</p>
	Outlook on life after job application outcome	<p>More optimistic- feel more positive on chances in life.</p> <p>More confident- feeling more self-assured.</p> <p>Unaffected- outlook on life unaffected by application.</p> <p>Puzzled/disillusioned</p> <p>Less confident</p> <p>More pessimistic- about prospects.</p>
Important life events		<p>Study success</p> <p>Birth in family</p> <p>Work success</p> <p>No recent events</p> <p>Relationship problems</p> <p>Work problems</p> <p>Family illness/death</p>

In relation to the category of feelings about job applications, the content analysis was divided into feelings about job applications in general measured at T1, and feelings towards the AL application process measured at T2. A range of feelings were expressed by applicants in the open-ended responses from positive thoughts such as optimism and feeling happy in obtaining a job, and at the other extreme pessimism and disappointment. To illustrate this content analysis, an example quote from a successful applicant feeling pleased at T2 was as follows: “I’m pleased to have been found “appointable” and hope that the student subscriptions enable a course for me to teach in the near future” (Female, age group 42-51, Successful).

The second main category was outlook on life, and this theme was sub-divided into outlook on life at time of job application (T1), and outlook on life after job application outcome (T2). The theme concerned whether people took an optimistic, balanced, or pessimistic outlook on life including other thoughts, and examined responses prior to, and after the recruitment outcome incorporated responses after the recruitment outcome. An example quote taken at T1 of an optimistic candidate was as follows: “Yes, always endeavour to look on the positive side of things – feel adversity brings about positive changes” (Female, age group 32-41).

Finally, the content analysis included important life events into one category.

Important life events were included as major life events are likely to trigger psychological responses (Orth & Luciano, 2015; Wrzus & Roberts, 2016) aspects that the scaled items would not cover. For example, a death in the family or relationship problems are considered major stressors. In other words, this category was included for consideration when comparing any changes in scores from T1 (baseline) to T2

particularly with respect of perceived stress and self-esteem. Responses were obtained at T1 and T2 and open-ended responses were categorised into various themes including study success, birth in family, work problems, and illness or death in family. To illustrate this category one respondent mentioned the death of his daughter “First anniversary of my teenage daughter’s death” (Male, age group 52-60, T2).

3.10.1 Time of applying (T1)

3.10.1.1 Feelings about job application in general

Figure 3.5: Feelings about job application

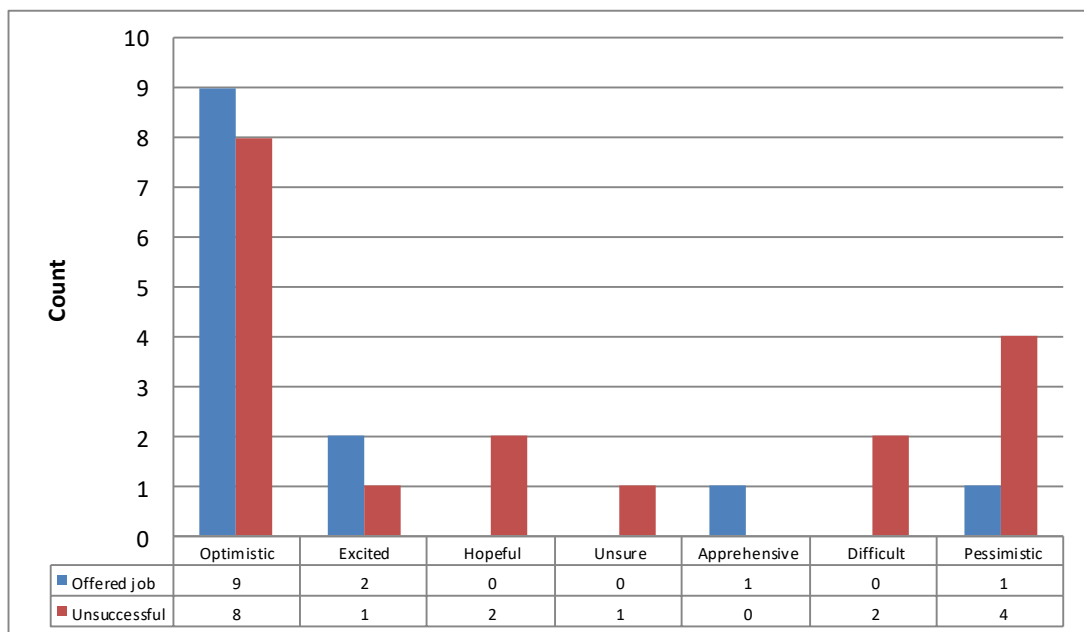


Figure 3.5 highlights that applicants held a range of feelings about their applications at the time of applying. In terms of optimism, applicants were fairly divided as 9 applicants who later became successful and 8 unsuccessful counterparts felt optimistic about their job application prospects. At the other extreme, 5 unsuccessful applicants felt pessimistic from the outset whereas only one of the successful applicants was pessimistic, although two felt it would be difficult to be appointed as an Associate

Lecturer (AL). At the other extreme, two of the unsuccessful applicants were hopeful at the time of applying so this open-ended question revealed mixed findings.

3.10.1.2 Outlook on life at time of job application

Figure 3.6: Outlook on life at time of job application

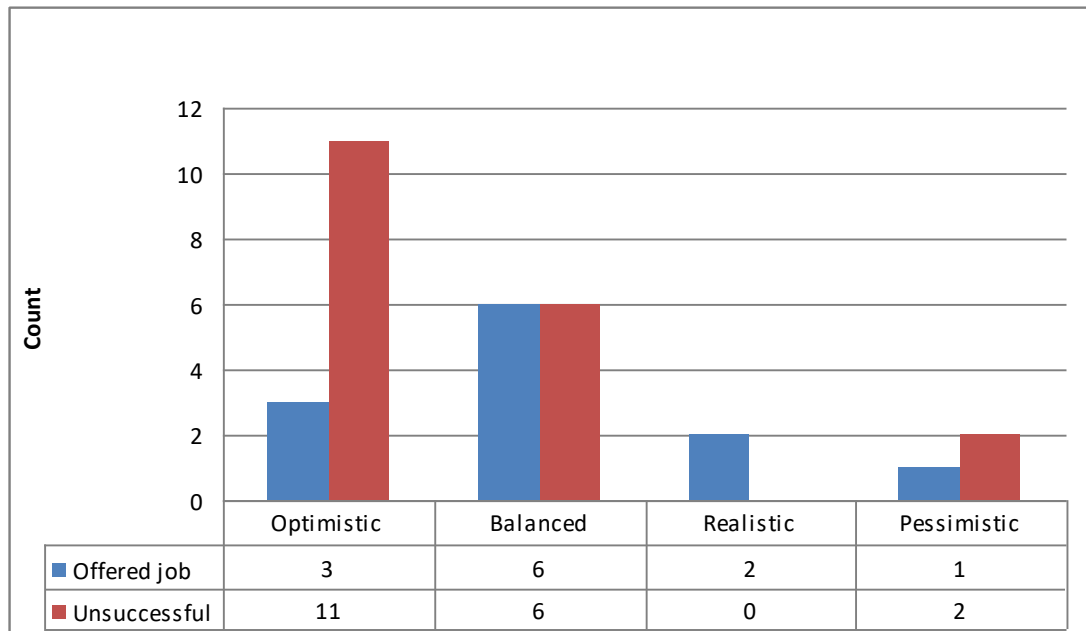


Figure 3.6 indicates that a sizeable number of applicants (11) that later became unsuccessful, tended to be optimistic compared to only three of their successful counterparts from the outset, both groups were equally divided in terms of having a balanced outlook on life (6 successful and 6 unsuccessful applicants). It was also shown that two successful applicants adopted a realistic outlook when applying for the job, and three applicants had a pessimistic outlook (1 successful and 2 unsuccessful).

3.10.2 Post-outcome (T2)

3.10.2.1 Feelings about AL job application process

Figure 3.7: Feelings about AL job application process

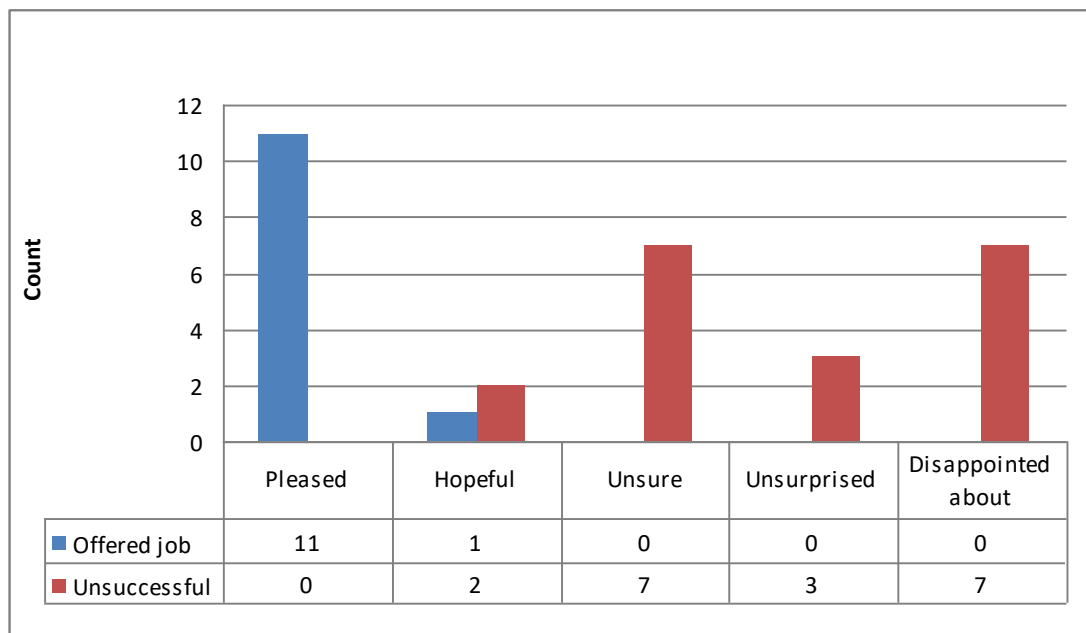
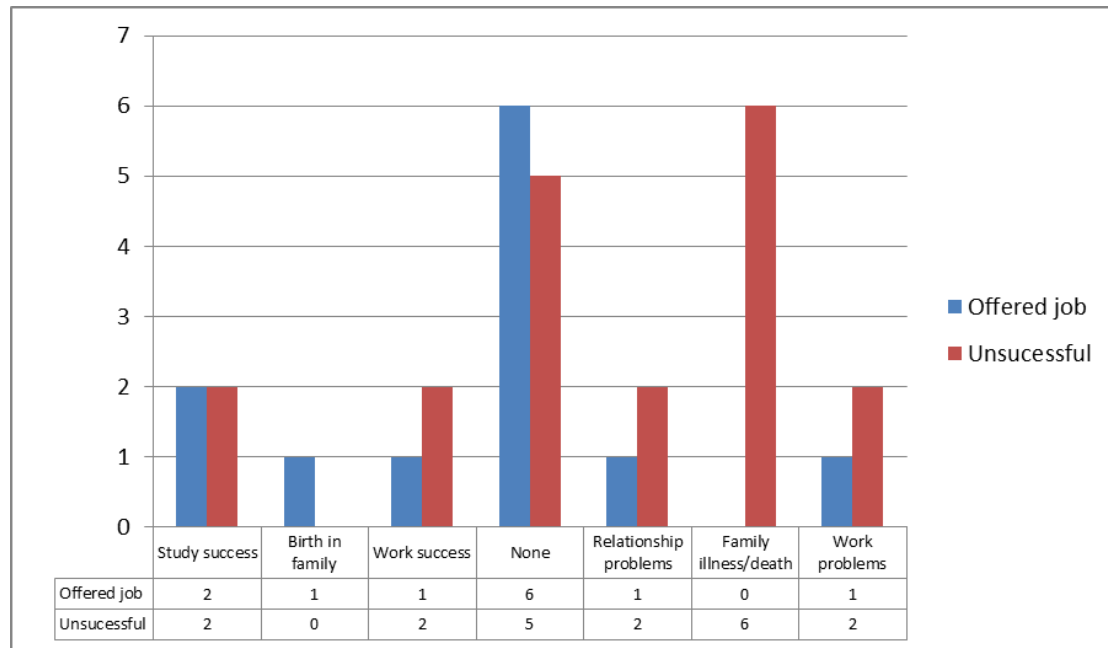


Figure 3.7 demonstrates clear differences between successful and unsuccessful applicants upon examination of positive and negative categories for this item. At one extreme, all the successful applicants reported being pleased (11 applicants) or hopeful (1 applicant). On the other hand, most of the unsuccessful applicants expressed disappointment about their treatment and/or about their own failures (by 7 applicants) and feelings of being unsurprised (3 applicants). In the middle of the continuum, all applicants that were unsure about how the application process had affected those (7 applicants) were unsuccessful. It appears that feelings about applications were very much related to whether an applicant had been offered an AL job or not.

3.10.2.2 Important life events

Figure 3.8: Recent events in past month



According to Figure 3.8, many applicants (11) had not experienced a life event during the past month after hearing the application outcome that had either pleased or upset them. However, it was indicated that of the unsuccessful applicants a number reported a family illness or death in the family (6 applicants), relationship issues or worries with their work or studies, so a consideration that may have influenced the scaled measurements (e.g., perceived stress). This was less prominent when considering positive recent events for successful applicants (recent course, birth in family, work getting better and excited about further study) as only four applicants reported these.

3.10.2.3 Outlook on life after job application outcome

Figure 3.9: Outlook on life after job application outcome

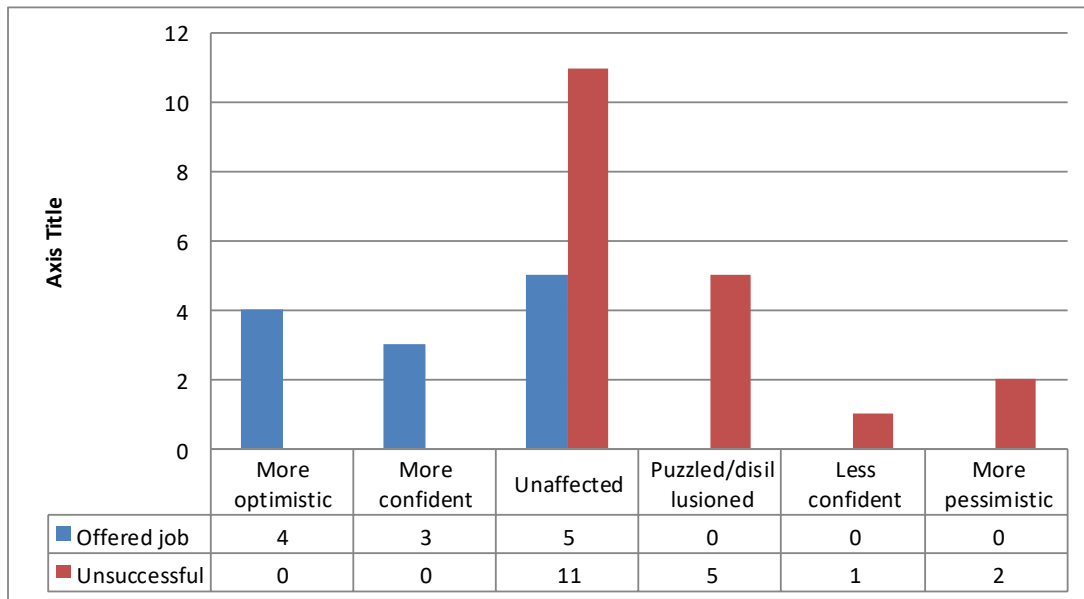


Figure 3.9 highlights that application outcome appeared to influence the applicants' outlook on life in accordance with the expected trends that were hypothesised. For unsuccessful applicants, 2 felt more pessimistic, 1 felt less confident and 5 were puzzled or disillusioned by the recruitment decision. In contrast, of the successful applicants 4 felt more optimistic and 3 had improved confidence. However, 16 applicants (11 unsuccessful and 5 offered the job) so more than half of the respondents were unaffected in terms of their outlook on life following hearing the application outcome. Overall, this item reveals mixed findings in relation to how applicants responded when considering outcome favourability.

3.11 Discussion

The main purpose of this pilot study was to test out the sensitivity to change of selected psychological measures (perceived stress, self-esteem, and work involvement) in the self-report questionnaires within the context of a traditional form

of recruitment for Open University Associate Lecturer positions so to consider applicant reactions to feedback. Another purpose of this research was to apply two thesis aims: firstly, to examine whether job applicants react differently to a positive outcome (job offer) than a negative outcome (unsuccessful) on each psychological construct (Perceived Stress, Self-esteem, and Work Involvement) and secondly, whether applicant perceptions (e.g., outlook on life) on the open-ended questions differed between successful and unsuccessful applicants within a real-life job recruitment process. To provide some research context the Pilot Study was conducted between November 2005 – January 2006 at a time when traditional recruitment cycles included the application form and interview selection methods were still widely practised by recruiters. Online tests were beginning to become more widely practised for recruitment particularly by large graduate recruiter organisations, but the Open University was not using this recruitment method for Associate Lecturer applicants at the time.

In relation to the hypotheses, there was no support for Hypothesis 1 as there were no significant differences between successful and unsuccessful applicants for perceived stress between times of measurement. However, there was a small non-significant increase in mean perceived stress scores in unsuccessful candidates between T1 and T2 as expected so perhaps the sample size was not large enough to reach statistical significance. In other words, there may have been a significant difference between successful and unsuccessful candidates for perceived stress had more candidates participated. Notably only a minority of candidates ($N = 4$) received any direct feedback from the Open University beyond the outcome. However, in receiving a job offer in the case of the successful candidates this can be argued to be a powerful form

of feedback. Perceived stress scores ranged from 11-42 at T2 which is very similar to the baseline range (11-41) obtained at T1.

Upon examining the highest unsuccessful candidate's T2 perceived stress score of 42 this had only increased from 41 at baseline suggesting that the unsuccessful job outcome had little psychological impact, so there is a ceiling effect. Typical PSS-10 score norms for Degree-educated adults equate to 23.71 (Cohen & Janicki-Deverts, 2012) as in this study the score range was 1-5 per item on the PSS-10 scale whereas other researchers have used scores ranges from 0-4. Sinclair et al. (2010) recommend converting scale scores in these situations by subtracting 10 from the overall score. These scores presented in the current study are typical of the norm group (t1 M = 22.71, t2 M = 23.97).

Hypothesis 2 examined the effect of application outcome (offered job/ unsuccessful) on self-esteem and predicted that successful applicants would have increased self-esteem scores post-feedback and conversely their unsuccessful counterparts would have decreased self-esteem scores. However, the hypothesis was not supported as there were no significant main effects or interaction effects for this scale. One possible explanation for these findings is that unsuccessful Associate Lecturer applicants may have as a defence mechanism disregarded anything negative so not to damage their self-esteem as advocated by proponents of the self-affirmation theory (Steele, 1988). However, in view of the lack of feedback provision by the Open University it is questionable whether the job outcome had much impact on candidates' self-esteem as evidenced by similar score ranges at baseline (19-50) and at T2 (17-

50). It is reported though that self-esteem is a stable state which may account for little variation between self-esteem and work status (Torrey et al., 2000).

Torrey and colleagues (2000) conducted a longitudinal study over an 18-month period at 6-month intervals (baseline, 6 months, 12 months, 18 months) examining work status (in employment/unemployed) on severely mentally ill patients and found little change in their self-esteem. This research evidence confirms the pilot study findings that candidates' self-esteem was unaffected in this case on healthy adults irrespective of application outcome. Meta-analyses have also found self-esteem to be a relatively stable construct (e.g., Blackhart et al., 2009). However, the meta-analysis did find that continued exposure to rejection is likely to result in lower self-esteem. The implications of these findings are that due to the stable nature of self-esteem perhaps a one-off job selection outcome does not have any marked effect on self-esteem.

Hypothesis 3 predicted a significant interaction effect between application outcome and change in work involvement scores over time. Specifically, the predicted effect was lower work involvement in successful applicants and higher work involvement for unsuccessful applicants between T1-T2. The hypothesis was supposed as there was a significant interaction effect for work involvement between time of measurement and application outcome. Unsuccessful applicants had increased work involvement following rejection and conversely successful applicants lower work involvement. This finding suggests that the importance of work was raised in successful applicants at the time of applying so they put more effort into a successful decision outcome and once offered the job this drive fell. Conversely, the

unsuccessful group of job applicants appeared to be more inclined to proactively pursue other job opportunities.

These findings concur with the results of the earlier detailed study by Adams and Rau (2004) that tested the Wanberg et al. (1996) model of job seeking behaviour. The unsuccessful applicant's need for income, and, motivationally the desire to become involved in work explains these findings, as these situational factors are less pertinent to those in employment. Wanberg et al. (1996) also found that more proactive job search behaviour resulted in successful job applications following a period of unemployment. Although the sample in the current OU study were not unemployed, a similar trend was found to the Wanberg et al. study in terms of greater work involvement behaviour in unsuccessful applicants.

The open-ended responses addressed one research aim through comparing reactions of successful and unsuccessful AL applicants and unlike most of the scaled items these suggested clear differences in perceptions. For instance, in terms of their general outlook on life a sizable number of unsuccessful applicants expressed feelings of disappointment, being more pessimistic, puzzlement and disillusionment. Responses also mentioned feelings of disappointment about how the applicants had been treated, which links with fairness and procedural justice of the recruitment process.

In contrast, successful applicants expressed positive feelings including greater optimism and feeling valued in general life which showed there were clear differences in psychological reactions between successful and unsuccessful applicants which were not captured by the scaled items. There may have been the possibility of inadvertently

using leading questions as the intention was to encourage candidates to elaborate in terms of positive or negative feelings rather to merely provide yes or no answers. For example, when asking about how the job application had affected the applicant's general outlook on life examples included optimism and pessimism which may have resulted in candidates responding in these terms so perhaps the validity of the responses could be questioned.

In revisiting the Konradt et al. (2015) study earlier presented (See 3.2 Background and hypotheses), the open-ended item findings concurred with Konradt et al. in that fairness perceptions were pertinent at post-hire. Although scaled quantitative fairness scale measures as used in the Konradt study were not utilised, the open-ended items enabled candidates to elaborate on their feelings in terms of fairness and procedural justice for use in the development of items for further study. The OU study also followed unsuccessful job applicants (N = 19) throughout the investigation, whereas Konradt et al.'s study only followed successful German apprentices' post-hire. Konradt et al. focused on job performance over a longer period (36 months) whereas the current study only investigated job applicants over a 6-week period using baseline (T1) and post-outcome (T2) measures. Therefore, it is inconclusive whether fairness perceptions would become less pertinent over time following the selection process in the same way.

It would appear advisable for the Open University to provide more feedback in future to candidates considering these findings from the open-ended items. These findings offer the research some grounding so the next stage will focus on the use of psychometric testing using these scales by comparing differences in perceptions

towards feedback provision between paper-and-pencil and online testing and will also examine fairness and procedural justice. Procedural justice concerns the procedures used by the recruiters, so it appears that by being more transparent and insightful about how the recruitment process took place and providing performance feedback that candidates regard the process as fairer (e.g., Jacksch & Klehe, 2016). Research also needs to keep up to date with online testing and emerging technologies (e.g., mobile applications) in the field.

3.12 Strengths and limitations of study

A major strength of the pilot study was that it investigated real-life job applicants' reactions to feedback (outcome) using a field study something that has been called for in the literature (e.g., Truxillo et al., 2009). Therefore, such a study has more ecological validity than experimental or correlational study designs where researchers try to replicate a job setting artificially. The experimental approach by contrast cannot truly replicate a candidate's feelings and consequences of going through an actual job application (i.e., mundane realism) so employing a field study approach is a major study strength. A further strength of the pilot study was that applicants reported their own feelings using valid and reliable self-report questionnaires using baseline and post-outcome measures and was conducted within a field study context to compare how applicants were affected by the job outcome decision.

A limitation of the study was that the sample size comprised 31 applicants. Successful applicants were also overrepresented in the sample at T2 which may represent those unsuccessful candidates may be less motivated to participate in such research.

Participants who were more stressed and with lower self-esteem may have been less

inclined to participate. Although 100 applicants were contacted there was a high attrition rate (69%). The low number of respondents may not reflect the larger population of 6000 applicants for Open University positions applying at the time.

Furthermore, this was a snap-shot sample from a chosen period in late 2005.

However, a stratified sampling technique was utilised so to have a cross-section of participants for each faculty, region, and males and females were evenly represented. Recruitment was taking place in different OU geographical regions and faculties, so there may have been differences in the recruitment systems in place. The data indicated that perhaps Associate Lecturer applicants were more in demand during this recruitment cycle in faculties including the business school, technology, languages and education, than in the social sciences (N = 5), science (N = 3) and widening participation (N = 4) where candidates were unsuccessful. Due to the small sample size further study is required in job recruitment cycles with larger sample sizes to make more definitive conclusions and to establish the reliability of the findings. Study 3 sets out to accomplish this goal within an online testing context. In terms of the pilot study's validity, self-report psychological scales (e.g., self-esteem, perceived stress) were used to record job applicant feelings over time (T1, T2) as intended.

Secondly, an associated criticism is that these positions were not for full time employment so this may have affected reactions as many applicants already had other jobs or were studying, whereas applying for full time position may have had more marked effects on applicants psychologically. This means that the validity of the job applicant sample needs to be taken into consideration. In other words, there would be more at stake for the candidates with more direct consequences for a permanent job so

perhaps applicants would respond differently in this context. The sample was psychologically healthy when examining baseline measures (at T1) on each scale measured: perceived stress ($M = 22.71$), self-esteem ($M = 41.19$), and work involvement ($M = 31.23$). Therefore, the sample were generally low in stress, high in self-esteem and well-motivated so perhaps the AL recruitment process may have had less of an effect than on other applicant samples. However, it could be argued that individuals who are more stressed and lower in self-esteem may be less inclined to participate in such research. Alternatively, a response bias may account for participants recording similar scores on the T1 and T2 scaled items as they were still familiar with the items asked at baseline (T1) so responded similarly to the post-outcome questionnaire sent weeks later at T2.

Most of the applicants were older (mode age group 42-51) than typical entry-level graduates that are entering the job market for the first time in their early 20s such as university-to-work transition applicants as studied in the Brown et al. (2016) field study. These participant demographics could be another underlying factor behind the stability of the psychological measurements between T1-T2 in the OU study. For example, being more experienced in work may have meant participants were more psychologically healthy by having lower perceived stress and higher self-esteem. There is literature suggesting that self-esteem increases in older age groups (Sinclair et al., 2010; Meier, Orth, Denissen & Kuhnel, 2011).

Unfortunately, the OU practice of not providing feedback to candidates who were rejected during the shortlisting phase prior to interview limited the number of candidates who received any feedback. Therefore, it is inconclusive how applicants

may have responded on the scaled items had more negative feedback explanations been provided and in what form (e.g., face-to-face, letter, telephone call). However, notably the Open University sent an acknowledgement e-mail at the time of application to each candidate explaining that only those shortlisted for interview would be contacted again. In terms of practical applications this demonstrates one way of effectively communicating to candidates to mitigate any negative candidate reactions by forewarning candidates about the selection procedure.

Walker and colleagues (2013) concur that the use of such inexpensive means of communication by recruiters may help minimise any negative candidate effects. It may also further mitigate negative candidate reactions by providing brief feedback in an e-mail to the effect of thanking them for applying but unfortunately, they had been unsuccessful. Walker, Helmuth, Feild and Bauer (2014) in a follow-up investigation examined how feedback can be conveyed to applicants (N = 228) interpersonally in a sensitive manner. They recommended that at a practical level, organisations should send a written message acknowledging a job application using the candidate's name (e.g., Dear John), briefly explaining the selection process, how long the cycle takes, and providing a named contact from the organisation. Similarly, other researchers (Thominet, 2020; Cortini et al., 2019) recommend the practice of providing personalised feedback to enhance candidates' perceptions of the organisation.

The lack of feedback provision in the OU study does reveal though how applicants respond when limited feedback is provided to job candidates. The scaled items suggested the rejection and lack of notification of the job decision had no negative effect on unsuccessful candidates. Contrary to some of the literature the lack of

feedback did not damage the candidates psychologically (e.g., Celani, Deutsch-Salamon & Singh, 2008) as these proponents argue that effective feedback mitigates any negative psychological effects. This insight is useful in comparing candidate reactions towards detailed performance feedback.

There were also practical constraints as the questionnaires were distributed by post via AL and Teaching Services to the candidates and not directly from the researcher. Consequently, there were natural delays in candidates completing the questionnaires waiting for these to arrive and be returned by post, and perhaps questionnaires went astray in the post. Due to not having a more direct method of participants receiving and completing the questionnaires this may have led to participant attrition. For example, as participants were required to post the questionnaires back to the researcher at T1 and T2 this may have led to attrition.

However, due to practical and ethical constraints (time, resources involved on the part of the OU, maintaining participant confidentiality) in obtaining agreement with the OU this was the agreed protocol for the study. Perhaps a more direct approach such as using an online survey collection tool may have yielded a higher sample size and obtained responses at more precise time periods of the recruitment cycle.

Another limitation was that there was a lack of control over study variables by employing a field study design. One such example was the lack of feedback provision to job applicants by the Open University. Had an experimental approach been used feedback could have been provided in different detail and modes of communication to compare reactions to these different variables. There must be some trade-off between

control and ecological validity when conducting applicant reactions research methodologies so by employing the field study this was the drawback, so it appears that triangulation of approaches is the most effective approach which is referred to as 'pragmatic science' by Anderson, Herriot and Hodgkinson (2001). According to this notion research must be both high in methodological rigour and in practicality; and they argue that research in this field is lacking with the aim of being a pragmatic science. Parker, Wall and Cordery (2001) concur with this view and call for more innovative research. Therefore, the thesis sets out to take such a pragmatic approach by balancing practitioner and researcher objectives alike.

3.13 Contribution of study and next steps

The pilot study made an original contribution by studying job applicants going through a recruitment process and surveying psychological reactions for perceived stress, self-esteem, and work involvement, measures that are often neglected in the literature (e.g. Schinkel et al., 2011). Furthermore, a content analysis approach was employed including open-ended questions to consider the feelings of applicants so provided qualitative data to provide the subsequent research a theoretical underpinning. As scaled measures (e.g., PSS-10) merely score responses on a Likert scale, the open-ended questions enabled reasons and circumstances behind these reactions to be explored further. Candidate feelings of fairness and procedural justice emerged from the qualitative data so are integrated to the next stage of the thesis into candidate reactions to feedback using psychometric testing for job recruitment. In the applicant reactions' field there is a paucity of field studies obtaining quantitative and qualitative data, so the study contributed to this knowledge.

Another contribution of the pilot study was the finding that work involvement increases in unsuccessful job applicants and decreases in successful job applicant's post-decision. The implications of these findings are that the organisation should try and provide a positive experience for the unsuccessful candidate in conveying effective feedback, so they will continue pursuing their desire to find work and it is also in the organisation's interests to maintain a positive image (Cortini et al., 2019).

The current study was intended to test out various psychological measures within a job recruitment context at two distinct time intervals: time of recruitment (T1) as a baseline measure, and after job appointments had been made (T2). Perhaps a study geared towards online recruitment testing would have been more desirable but in 2005 this field study seemed a sensible starting point for the thesis as it examined both successful and unsuccessful candidate responses to feedback.

It now needs to be considered what has been learnt from this study and how the next study can build upon this. The pilot study enabled applicant reactions to a traditional recruitment process (e.g., application forms, interview) to be investigated. Although only one significant interaction effect was found on the scales to test the hypotheses, responses to the open-ended items revealed that applicant feedback perceptions were more polarised between successful and unsuccessful job applicants. Therefore, this suggests that the scales used are worth testing and applying in other contexts (i.e. research and practical) so these will be retained for the first experimental study.

The qualitative material from the Pilot Study enabled the thesis to progress by focusing on candidate reactions towards feedback provision on a more modern job recruitment method psychometric testing firstly under experimental manipulation

(Chapters 4 and 5), and then culminating within a field setting (Chapter 6) using self-report scaled measures. These qualitative findings pave the way for two thesis Aims to be explored further in Chapter 4: firstly, how applicant reactions (e.g., perceived stress, self-esteem, test fairness, procedural justice) are affected by manipulating the type of feedback provided from psychometric test performance, and secondly, whether applicant perceptions of feedback differ depending on whether an Internet test or paper-and-pencil test is used.

The pilot study phase enabled a job recruitment process to be investigated testing constructs for later use in the experimental phase of the research. The next step is to manipulate various factors (e.g., type of feedback) pertaining to feedback provision in these experimental studies under controlled conditions and to later use this framework to research actual job applicants (Study 3) in a job recruitment context. Experiment 1 presented in Chapter 4 explores applicant perceptions to a job scenario recruitment process through comparing perceptions towards paper-and-pencil and online administered tests and manipulating test feedback. Additional items will be included in the next study to examine fairness and procedural justice, building upon aspects that emerged from applicants' responses to the open-ended items, as this has a theoretical basis within organisational justice theory (Gilliland, 1993). Therefore, the qualitative material obtained from the pilot study aids the thesis in progressing theoretically and informs the subsequent empirical chapters.

Chapter 4: An experimental investigation: Reactions towards paper-and-pencil vs. online testing and test feedback provision

4.1 Background to experimental phase of thesis

As detailed in Chapter 3, the Pilot Study examined psychological reactions of Open University Associate Lecturer job applicants (successful and unsuccessful) undertaking a traditional recruitment process cycle (application forms, shortlisting, interviews). The findings showed emerging candidate perceptions of fairness and justice from the open-ended item responses both aspects of organisational justice theory. For example, five unsuccessful applicants stated that they felt puzzled or disillusioned since the application process. Another finding was that on the work involvement scale measured at post-feedback (T2), unsuccessful job applicants were found to be more motivated to find work than their successful counterparts. These findings link with candidate reactions towards positive and negative feedback provision. Positive and negative feedback could not be manipulated in the pilot study for legal and ethical reasons as participants were actual job candidates. This current experiment therefore sets out to achieve these goals.

The next research phase, builds upon the preliminary phase findings and the literature by investigating reactions towards psychometric tests, nowadays widely used in graduate selection/recruitment (ISE, 2019; High Fliers Research, 2020). Online recruitment methods and specifically psychometric testing was becoming more widely used for job selection as used by 65% of test users, with 78% of the recruiters surveyed using equivalent paper-and-pencil tests at around the time of this experiment (Murphy, 2009). Furthermore, 71% of the employers surveyed were administering

online selection tests using the controlled mode (unsupervised, where test-takers have to register and undertake the test with a username and password) as a means of security to ensure the candidate was taking the test (See Chapter 1- Table 1.2 for computer/internet-based testing modes). In considering context of test use, candidate reactions to test feedback within a research context are examined in this experiment. A comparison of experimental and field study approaches will now be considered.

Experimental vs. field study designs

The experimental study design is commonly used by researchers in the applicant reactions field and typically applicant reactions are treated as the dependent variables and regarded as theoretically caused by independent variables (Chan & Schmitt, 2004). An issue in research design is whether to conduct controlled experiments versus field studies which have more ecological validity but less control. The notion of `Pragmatic science` is introduced by Anderson, Herriot, and Hodgkinson (2001), the notion that research has to be both high in methodological rigour and in practicality, which they argue research in the applicants' reactions field lacks. Parker, Wall and Cordery (2001) concur with this view and call for more innovative research.

According to Patterson (2001), there appears to be an over-reliance on correlational design methods when researchers examine applicant reactions with a focus on antecedents and consequences, so there is the danger of overlooking another underlying factor behind this applicant reaction. Similarly, many investigations have only taken single post-feedback measures as noted by Ryan, Bauer, McCarthy, Anderson, and Ahmed (2016). This problem can be addressed by using two-phase designs usually experimentally in which measures are taken pre-test/pre-feedback, and then again post-test/post feedback (e.g. Chan et al., 1997). This cause-effect

approach is deemed appropriate in the applicant reactions field according to Ryan et al. (2016) as the objective is to establish whether candidate reactions altered during the job recruitment process. Importantly any pre-existing perceptions held by candidates must be ruled out by obtaining baseline and control measures. Chan and Schmitt (2004) argue that only studies with such rigour can obtain strong causal inferences.

Field studies in contrast usually take place in a natural setting so there is less control over study variables but greater ecological validity. The advantage of field studies is greater realism of applicants experiencing a job selection process and experiencing emotions (Ryan et al., 2016). The Pilot Study adopted this field study approach; but the disadvantage was those different types of feedback messages and job hire outcomes (offered job/rejected) could not be manipulated to compare their psychological effects on applicants. Only a minority of candidates received any performance feedback from the recruiters (N = 4) other than whether they had been offered the job or not, which highlights the researcher's potential lack of control in field studies.

In view of these observations the experimental studies in the thesis retain measures at: i) pre-testing (baseline), and ii) post-feedback for selected scaled items such as perceived stress, and self-esteem. This approach enables the researcher to ascertain whether the outcome or feedback manipulation had any effect on pre- and post-measures between successful and unsuccessful candidates. The advantage of employing experimental approaches in the applicant reactions field is the control of variables to enable manipulation to take place, which would not be possible in a field study (Ryan et al., 2016). Control measures must be tested from the outset to

minimise the effects of potential extraneous variables which in this study included: computer/internet test taking anxiety, regularity of computer use, computer/internet test taking experience and test fairness. The controls are measured at pre-testing (T1) to ensure there are no extraneous participant variables such as candidates having no internet experience and test-taking experience. The next section considers experimental research in the field.

4.2 Experiments in the field and study background

As earlier mentioned in Chapter 1, there has been a debate about the equivalence of paper-and-pencil and online administered tests (e.g., Rust & Golombok, 2000; Noyes & Garland, 2008) and conflicting evidence (Lievens & Harris, 2003; Ployhart et al., 2003; Reynolds et al., 2000) on this debate. More pertinent to the thesis is the issue of test-takers' reactions towards positive and negative feedback messages within these testing contexts, and experimental studies by Wiechmann and Ryan (2003), Schinkel et al. (2004, 2011) investigated these aspects as summarised below.

Wiechmann and Ryan (2003) compared mode of test presentation (paper-and-pencil vs. online) of an in-basket assessment (a simulation of management jobs where organising, prioritising, decision-making and required actions are made by the candidate using sources of information such as letters and e-mails). They noted the following findings: Post-test perceptions of process fairness and liking did not significantly differ between test administration modes; but computer anxiety and experience were critical factors in successful performance. However, there were significant differences across outcome favourability (selected/rejected) in terms of test-takers' post-feedback reactions (process fairness, outcome fairness, face validity, perceived predictive validity, liking, test ease) and recommendation intentions. Actual

test feedback (selected/rejected) rather than false feedback was provided. However, the authors did not specify how feedback was conveyed (e.g., in writing, verbally) to participants, nor the level of feedback details (e.g., whether test scores were provided). This lack of detail concerning the feedback conditions creates difficulties in replicating the study and in assessing the impact of the positive and negative feedback on the candidates. The technical characteristics of the fictional job applied for were also manipulated (high/low).

In the Schinkel et al. (2004, 2011) experiments, the psychological effects of providing non-specific and specific rejection messages were compared. Schinkel et al. (2004) found that when participants received a performance feedback rejection message this had a detrimental effect on them psychologically, whereas a rejection message without any explanation was less damaging. Schinkel et al. (2011) examined procedural justice perceptions and affective well-being as psychological measures, again using specific and non-specific feedback. In terms of mode of test administration, both studies tests were completed on a computer, and the first study was proctored (supervised) in a computer lab, whereas study 2 was unproctored (unsupervised) in the web condition.

The Schinkel et al. (2004, 2011) experiments only focused on affective well-being and core self-evaluations, so the current study examined the effects on other psychological measures: perceived stress, self-esteem, and work involvement. In addition, fairness and procedural justice is measured both aspects of organisational justice theory, addressing a called for research avenue (Schinkel et al., 2011). As these researchers only focused on the effects of negative outcomes, this experiment

investigated further by including a positive outcome message alongside the rejection messages to investigate test-takers' reactions. The current experiment manipulated the feedback message variables of 'passed', 'reject no explanation,' and 'reject with explanation,' under controlled conditions. The purpose of this first experiment was two-fold: firstly, to examine any differences in test-taker fairness perceptions between paper-and-pencil and online administered tests, and secondly, to examine the effect of providing, or not providing a feedback explanation, on test-taker psychological reactions. The study aims will now be presented.

4.3 Aims

Having carefully considered the literature, Experiment 1 addressed two research aims:

1. Compare whether test-taker fairness and justice perceptions differed between mode of test administration (paper-and-pencil vs. online).
2. Examine test-taker psychological reactions (e.g., stress, self-esteem) to the feedback manipulation (pass/reject with explanation/reject without an explanation) concerning their psychometric test performance.

4.4 Theoretical background and hypotheses

A selection decision outcome (also known as outcome favourability) appears to have a major effect on fairness perceptions (Bauer et al., 1998; Ployhart & Ryan, 1997; Zibarras & Patterson, 2015), as selected applicants hold more positive perceptions compared to rejected applicants. From a theoretical perspective distributive justice is an aspect of organisational justice theory (e.g., Gilliland, 1993) which concerns the decision outcome. As further detailed in Chapter 1, research support comes from

studies which confirm that recipients of feedback are more accepting of favourable (positive) feedback than unfavourable (negative) feedback (e.g., Anseel & Lievens, 2006; Brett & Atwater, 2001; Tonidandel, Quiñones & Adams, 2002). Wiechmann and Ryan (2003) also found that in-basket test success or failure had a bearing on test-taker's perceptions of process fairness and outcome fairness. Theoretically these findings can also be considered in terms of 'self-serving' biases as test-takers who have a positive outcome regard the testing procedures and outcome as fair, whereas unsuccessful test-takers regard the procedures and outcome as unfair so to protect their self-image (Wiechmann & Ryan, 2003; Ployhart & Ryan, 1997). Therefore, it was hypothesised that participants informed they had passed the test would regard the test as fairer and score higher on procedural justice than those rejected.

Hypothesis 1: Participants who receive feedback of a pass for the psychometric test will score more highly than those who receive feedback of a fail on the test-fairness and procedural justice measures.

The second hypothesis concerns test fairness and procedural justice perceptions when comparing mode of test administration: paper-and-pencil and online. The literature suggests there is a tendency for online psychometric tests to be perceived as equally fair (Darum, 1994; Oostrom et al., 2012) or fairer (Potosky & Bobko, 2004; Schmidt et al., 1978) than paper-and-pencil equivalent tests. A preference to online tests has been attributed to these being objective, accurate and unbiased compared to more traditional selection methods such as paper-and-paper tests according to Wiechmann and Ryan (2003). Theoretically these principals link with Gilliland's (1993) procedural justice rules which determine the formation of test-takers' fairness perceptions. Another factor to consider is whether the tests are proctored (supervised)

or unproctored (unsupervised) within the testing context. As detailed in Chapter 1 (See 1.12 Supervised vs. unsupervised (proctored vs. unproctored) testing), Oswald, Carr and Schmidt (2001) found that online test-takers felt more perceived anonymity when completing unproctored (unsupervised) tests than proctored (supervised) tests. This test-taker preference towards computer tests has also been found when comparing reactions to modern test technologies such as mobile phone devices (King et al., 2015). Thus, it was hypothesised that participants who completed an online test would regard the test as fairer and score higher on procedural justice than paper-and-pencil test-takers.

Hypothesis 2: Online test-takers will rate the psychometric test as fairer and score higher on procedural justice than paper-and-pencil test-takers.

Related to fairness and procedural justice reactions, decision outcome also has a major effect on psychological reactions as selected applicants have been found to react more positively on measures such as higher self-esteem (Ployhart & Ryan, 1997; Truxillo, Bauer & Sanchez, 2001) compared to rejected applicants (Dodgson & Wood, 1998). Distributive justice within this context concerns a successful selection decision outcome. In view of this positive psychological effect, it was predicted that participants informed they had passed the psychometric test would score higher over time on self-esteem, and, work involvement, and lower perceived stress.

Conversely, when applicants react negatively to a recruitment decision this can have a knock-on effect in terms of a loss of confidence and more stress (e.g., Borman, Hanson & Hedge, 1997), and lower self-esteem (Iles & Robertson, 1997; Truxillo et

al., 2001). Schinkel et al. (2004) conducted an experiment in which negative feedback explanations were conveyed to varying degrees and found that providing more detail about suboptimal test performance (i.e., test scores were between the 30th – 50th percentile) had detrimental effects on test-takers' core self-evaluations and affective well-being. The construct of core self-evaluations incorporates the sub-measures of stress and self-esteem which are utilised in this experiment. Detailed feedback has been found to lower a candidate's self-esteem (Iles & Robertson, 1997). Distributive Justice in context would refer to an unsuccessful outcome. Thus, an interaction effect was hypothesised between feedback group and psychological reactions over time. Namely rejected participants would score lower on self-esteem, and, work involvement, and, higher on perceived stress scores over time with a greater effect when rejected with detailed feedback, than those informed they had passed.

Hypothesis 3: There will be a significant interaction between feedback group and change in self-esteem, work involvement, and perceived stress over time (T1-T2). The group receiving detailed feedback of test failure will score lower self-esteem, higher perceived stress and lower work involvement compared to feedback of test failure with no feedback. The group receiving feedback that they have passed the test will score higher on self-esteem, work involvement, and lower perceived stress over time compared to the two rejected groups.

Leading on from the previous hypothesis comparing the psychological effects of test outcome feedback provision, is the combined effect of mode of test administration. Theoretically, Ilgen, Fisher and Taylor (1979) developed the feedback process model. According to the feedback process model three key factors influence feedback

acceptance: the kind of feedback message, the recipient, and the source. Firstly, the `message` concerns whether the feedback is positive or negative, or “sign of feedback” (Ilgen et al., 1979, p.357) which is critical in shaping feedback acceptance as there is consensus that positive feedback is accepted more than negative feedback. Secondly, the `source` is the means or agent by which the feedback is conveyed to the recipient, for example from a Human Resources (HR) staff member. A determining factor regarding acceptance of the source is its credibility. The more credible the feedback source is deemed to be the more likely the recipient will accept the feedback. The consistency of the message also affects its perceived credibility, so applied to selection contexts the test-taker expects to be treated similarly to the previous test-takers in terms of positive or negative feedback provision. Finally, the `recipient` is the person who receives the feedback. Pertinently for test-takers to react in such a way they must accept the feedback, otherwise the feedback does not have such an effect.

Based on the feedback process model and findings from the existing literature on feedback provision (Ellis, Mendel & Nir, 2006; Schinkel et al., 2004), an interaction effect was hypothesised between mode of test administration (online/paper-and-pencil) and feedback type (passed, reject no explanation & reject with explanation). Specifically, method of test administration will only have an impact on psychological outcomes over time (T1-T2) if the assessment is taken online as this format is regarded as more trustworthy. It was predicted that there would be a significant fall in self-esteem and work involvement and a rise in perceived stress with feedback of test failure in the online condition but not in the paper-and-pencil condition.

Hypothesis 4: Method of test administration will only have an impact on change in outcomes if assessment is taken online as this modality is considered more trustworthy. There will be a significant fall in self-esteem and work involvement and rise in perceived stress with feedback of test failure in the online condition but not in the paper-and-pencil condition.

Hypothesis 5 concerned the three-way interaction between time of measurement (T1 = pre-testing, T2 = post-feedback) x mode of administration (paper-and-pencil/online) x feedback type (passed/reject no feedback/reject with detailed feedback) on each psychological measure (perceived stress, self-esteem, and work involvement). Literature suggests a tendency for test-takers to perceive computers as more objective, accurate, and less likely to have biases unlike traditional methods (Bauer et al., 2004; Chapman, Uggerslev & Webster, 2003; Gutierrez & Meyers, 2013), as feedback from an online test is seen as more credible than from a paper-and-pencil equivalent. On this basis, test-takers are more sensitive to feedback from an online test as this comes across as more acceptable. This idea links with the notion of feedback acceptance (Anseel & Lievens, 2009) and as online tests are regarded as more acceptable and credible (Ilgen et al., 1979 - feedback process model) than paper-and-pencil tests this will have an effect on test-taker's psychological reactions (e.g., perceived stress, self-esteem). Thus, a greater fall in self-esteem and work involvement scores and a rise in perceived stress over time (T1-T2) with feedback of test failure was hypothesised in the online condition compared to the paper-and-pencil condition. When informed of test success there would be a greater rise over time in self-esteem and work involvement scores and a greater fall in perceived stress scores in the online condition.

Hypothesis 5: There will be a significant interaction between feedback group, mode of test administration and change in self-esteem, work involvement, and perceived stress over time (T1-T2). There will be a greater fall in self-esteem and work involvement and rise in perceived stress with feedback of test failure in the online condition compared to the paper-and-pencil condition. When informed of test success there will be there will be a greater rise in self-esteem and work involvement and a fall in perceived stress scores in the online condition.

4.5 Methodology

4.5.1 Design

A 2x2x3, mixed pre-post design was employed with participants allocated to mode of test administration (pencil-and-paper/online) and feedback condition (passed/reject no explanation/reject with explanation). Participant completed self-report measures at 2 time points: before completing a psychometric test (T1), and, after receiving test feedback (T2). Table 4.1 displays the manipulations used across groups and participant numbers.

Table 4.1: Research design manipulations and numbers per group (paper-and-pencil vs. online) and feedback type

Manipulation	Passed	Reject, no explanation	Reject, with explanation
Paper-and-pencil (Supervised)	N = 10	N = 10	N = 8
Online (Unsupervised)	N = 10	N = 9	N = 10

Sample size calculation

In terms of obtaining an adequate sample size, an *a priori* power analysis was performed using the software G*Power3 (Erdfelder, Faul & Buchner, 1996). A required sample size of 60 participants was calculated to achieve statistical power of .80 (1 – Beta), the generally accepted threshold (Cohen, 1998; Faul, Erdfelder, Lang & Buchner, 2007) to avoid the possibility of a Type II error which is when the null hypothesis is retained in error, when a significant effect has occurred. Therefore, a certain sample size needs to be obtained to increase the power of the statistical tests for these manipulations.

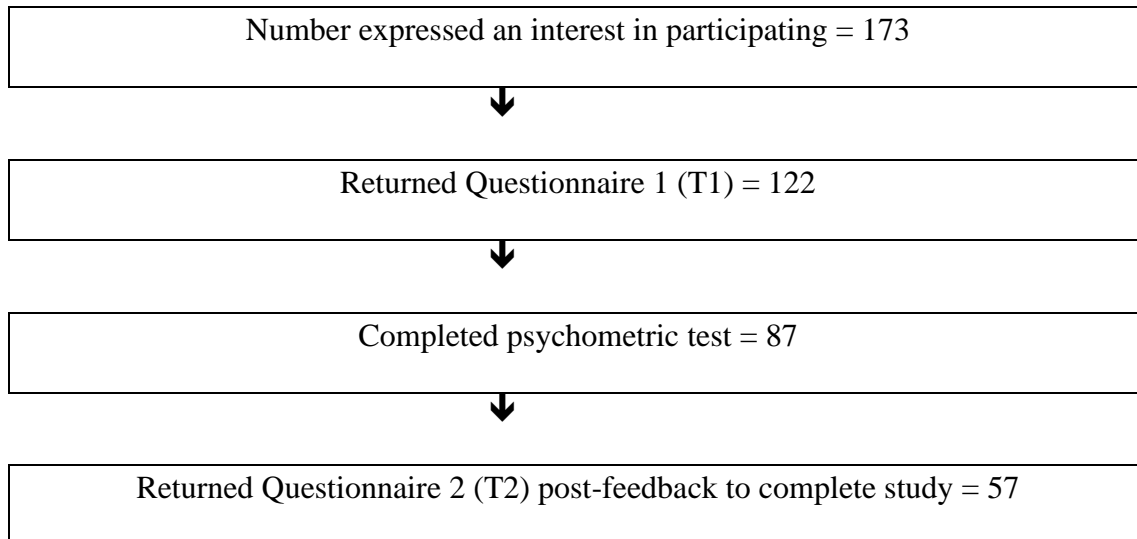
Although the sample size fell just below this requirement with 57 participants completing the study due to practical issues (e.g., participants not turning up for paper-and-pencil testing sessions, non-completion of questionnaires, large dropouts of participants at various stages of the study) a *post hoc* power analysis on G*Power3 was performed and the sample size just achieved .80 statistical power. The dependent variables were scores on the scales for perceived stress, self-esteem, and work involvement.

4.5.2 Participants

The sample comprised 57 postgraduates (N = 30 taught & N = 21 research)/final year undergraduate students (N = 6) (18 males, 39 females, mean age 26.79, S.D. 6.0) from various Academic Schools at the University of Nottingham. There were initially 173 participants but there were dropouts at various study phases as detailed in Figure 4.1. Participants were selected based on who expressed an interest from study advertisements (e-mails, leaflets, and posters) circulated around the University to take part in the study. The inclusion criteria were that participants were graduates or

nearing graduation so at an appropriate level for graduate-level recruitment tests. The advertisement mentioned this study would offer participants an opportunity to undertake a graduate-level psychometric test and to receive test feedback.

Figure 4.1 Phases of study completed



4.5.3 Materials

Pre- and Post-test scaled measures

A self-report questionnaire (See Appendix 2) was completed by each participant to measure the psychological constructs of self-esteem, perceived stress, and work involvement, before taking the psychometric test (T1), and again at post-feedback (T2) using the same items as in the Pilot Study. Detailed descriptions of these items are presented in Chapter 3 (See 3.4.3 Materials). There was a slight amendment in the wording of the post-feedback measures for perceived stress as each item began with “since taking the test...” rather than “in the past month...” to make the items more applicable to psychometric testing (See Appendix 2). Self-esteem was measured on a 7-point Likert scale. The reliabilities for these scales were as follows: perceived stress

T1 $\alpha = .85$, T2 $\alpha = .89$, self-esteem T1 $\alpha = 0.78$, T2 $\alpha = 0.79$, and work involvement T1 $\alpha = .70$, T2 $\alpha = .70$.

In the pre-testing questionnaire (T1) control items were taken, and in the post-feedback questionnaire (T2), a scale for procedural justice was added, as well as outcome measures for: fairness of psychometric testing (fair/neutral or undecided/unfair), test outcome (passed/failed), and an item asking how detailed the candidate considered their test feedback to be (detailed/sufficient/insufficient).

Participant demographic details were obtained at T1 and T2 for Gender (male/female), Age, Academic school at the University of Nottingham (e.g., Business, Law) and Course type (Taught Postgraduate, Research Postgraduate, or, Final Year Undergraduate). These additional scales are detailed in this section.

4.5.3.1 Controls (T1)

Four control questions were included in the pre-testing questionnaire (T1): computer/internet test taking anxiety, regularity of computer use, computer/internet test taking experience and test fairness. A single item was used on a Likert scale for each control. Computer/internet test taking anxiety was measured on a 5-point Likert scale ranging from 1 (Very worried) to 5 (No, not worried). Regularity of computer use was measured using a 7-point Likert scale ranging from 1 (occasional use- less than once a month) to 7 (regular use- more than 5 hours a day) of the computer/internet.

4.5.3.2 Measuring psychometric test experience and test fairness (T1)

Computer/internet test taking experience was measured by respondents indicating types of tests taken in response to the following item: "Have you had any experience

of taking Psychometric Tests? If so, please tick the appropriate box(es)” (Yes, Paper-and-pencil, Online, No). There was an item for test fairness as follows: “Psychometric Tests are fair for recruiting applicants for a Graduate Job”. Respondents replied on a scale of 1 (Strongly Agree) to 5 (Strongly Disagree) on this item.

4.5.3.3 Measuring Procedural Justice and Test Fairness (T2)

Procedural Justice was measured post-feedback (T2) using items from Thibaut and Walker (1975), and Leventhal (1980). This scale comprised 7 items on a 5-point Likert Scale from 1 (Strongly Disagree) to 5 (Strongly Agree) and concerns the respondents’ perceived fairness of the process. The Procedural Justice scale is justified as a measure as this concerns procedural aspects that the test-taker encounters during a testing process and the extent to which these expectations have been upheld. Theoretically this measure and construct links with Gilliland’s (1993) Procedural Justice rules which must be met (or violated).

In terms of overall score out of 35, a low score (7-14) indicated that the respondent felt the procedure had been unfair, whereas a high score (28-35) indicated that the procedure was fair. This instrument has a validity of .81 (Kline, 1999). Items included “Have these testing procedures upheld ethical and moral standards?” and “Have you been able to express your views and feelings during the testing procedure?” The internal consistency of this scale was very high, Cronbach’s $\alpha = .92$.

A single-item fairness measure was taken on a 3-point Likert Scale from 1 (Fair) to 3 (Unfair) for test fairness, “How fair was the Psychometric Testing you did in this study for your ideal job?” Test fairness was measured as this relates to test-takers perceptions of fairness of the testing which is separate from procedural elements of

the testing process measured by procedural justice.

4.5.3.4 Psychometric instruments used in study

For those in the paper-and-pencil group, a paper version of the Verbal Critical Reasoning Test (VMG5), a Graduate psychometric test from the test publisher SHL was administered under proctored (supervised) testing conditions. This instrument is used to test comprehension skills and is aimed at Graduate-level applicants. The test involved reading a series of passages and answering questions on a multiple-choice format under timed conditions (18 minutes to answer 32 questions).

An internet equivalent version of this test was completed online (Verbal ASO -Ability Series Online) by the Internet testing group (15 minutes to answer 30 questions) unproctored (unsupervised) in the controlled mode (See Table 1.2 for full classification system- 1.12 Supervised vs. unsupervised (proctored vs. unproctored) testing.) Test norms from the publisher were used to ascertain the equivalence of the paper-and-pencil and internet test version. This data confirmed that both test formats had a similar level of difficulty for the target group of Graduates. This test has reported high reliability and validity (SHL, 2008) and extensive background research and preliminary testing were conducted by the test publishers in developing this tool.

4.5.4 Procedure

Advertisements were circulated at the University of Nottingham via e-mail mailing lists to various academic schools, leaflets and posters inviting participants to take part in a study involving psychometric testing for Graduate jobs. The study was also advertised by a member of staff from the University of Nottingham Careers service who booked rooms for paper-and-pencil testing sessions to take place at the

University. A study information sheet was distributed which mentioned the study provided an opportunity to practice a Graduate psychometric test for the participant's ideal job and to receive test feedback (See Appendix 3). As a further incentive to participate, participants' names were entered into a prize draw for book tokens.

All prospective participants who had e-mailed the researcher expressing an interest in participating in the study were asked to complete a short questionnaire (T1). T1 was sent with a participant number displayed via an e-mail attachment (in an MS Word document) for the participant to return the completed questionnaire to the researcher via e-mail (See Appendix 3). Self-report scaled measures were taken for perceived stress, self-esteem, and work involvement. There were controls at T1 for computer/internet test taking anxiety, regularity of computer use, computer/internet test taking experience and test fairness. In the questionnaire introduction section, participants were asked to think in terms of applying for their stated ideal job, and that they would be tested and receive test feedback. Participants were randomly allocated to one of two testing groups (paper-and-pencil/online) to complete a verbal (comprehension) psychometric test after T1 had been returned as detailed below.

Paper-and-pencil condition

The paper-and-pencil test was supervised by the researcher a qualified test user and various testing dates were offered for participants to attend the testing session at the University of Nottingham. In cases where participants failed to attend the session, they were offered an alternative testing session. The Verbal Critical Reasoning Test (VMG5) paper-and-pencil test was conducted under timed conditions (18 minutes to answer 32 items), and participants sat separately at individual tables in a classroom facing the front of the room. They were provided with a test booklet, an answer sheet,

a pencil, and eraser. Prior to the timed testing session commencing, participants practiced four items from the VMG5 booklet by reading various passages and answering questions on the material, and the researcher checked they had understood the test procedure and answered the questions correctly.

The start and end time were marked on a whiteboard at the front of the room with a clock also displayed and the session was timed by the researcher using a stopwatch. A multiple-choice response question format was utilised, and participants circled each response in pencil on the answer sheet as either A, B or C. After the time had elapsed, participants were asked to stop writing and test papers and answer sheets were collected by the researcher. Participants were told they would receive test feedback a week later and then there would be a follow-up questionnaire to complete.

Internet condition

In the internet group, participants were e-mailed their log in details with a username and password by the researcher that linked them to an SHL test site. After clicking the link to the SHL site participants were then required to enter their log in details and also register their details (name, e-mail address, basic demographic details) on the SHL site (this was a controlled testing mode) and were given options for the language they wished to answer the test as there were translated test versions. Following registration participants completed the Verbal Ability Series Online (ASO) test remotely unsupervised under timed conditions on a computer at a time convenient to them. The online test was an equivalent version of the paper-and-pencil verbal test. The test was timed with a screen displaying the time allocated and number of items answered and at the beginning there were some practice items so participants could familiarise themselves with the test (15 minutes to answer 30 items).

After each participant had completed the online test, the researcher received an automated e-mail from the SHL site to indicate that a participant had completed the online test. There was an administration site where the researcher could monitor the progress of the test takers. In cases where participants experienced difficulties logging on or completing the test, the researcher sent them an alternative log in. Reminders were also sent by e-mail to participants who had not completed the test.

Feedback (all participants)

A week later, feedback from the psychometric tests was sent via e-mail by the researcher to all participants. However, the feedback was manipulated (ethically cleared) and bore no relation to the psychometric test performance. Three messages were sent at random for both testing groups. One message informed the applicant that (s)he had met the standard required to pass the psychometric test.

“Thank you for completing the recent psychometric test. I am pleased to inform you that you have passed the test to the standard required for your ideal job. Your test score was higher than average compared to other applicants.”

A second message merely informed the applicant that their application has been unsuccessful.

“Thank you for completing the psychometric test for your ideal job. Unfortunately, your application has been unsuccessful on this occasion as your test score was not at the required level for this job.”

A third message informed the applicant that their psychometric test score fell below a percentage of the other applicants, so the application was unsuccessful:

“Thank you for completing the psychometric test for your ideal job. Unfortunately, you have not been short-listed for the next stage of recruitment as your test score fell below the top 20% of test scores compared to other applicants. For this job it is important that applicants achieve a high-test score on this psychometric test. Therefore, you were deemed unsuitable for this job on this occasion.”

Finally, participants were sent a self-report post-feedback questionnaire (T2) with their corresponding participant number displayed by the researcher via an e-mail attachment. The same scaled measures as in T1 were measured: self-esteem, perceived stress, and work involvement. Procedural Justice was a new scaled measure, and items included test fairness, test outcome, and how detailed the candidate regarded the feedback (See Appendix 3; 4.5.3 Materials).

Participants returned T2 by e-mail to the researcher after receiving the spurious feedback message. Reminders were sent to participants that had not completed the questionnaire. After completing T2, participants were e-mailed a debriefing sheet by the researcher explaining that deception was used for the purpose of the study and the nature of study was explained. Participants were then sent their actual feedback on their test performance by the researcher. In the case of the paper-and-pencil group, participants were told their test score and were offered the opportunity to receive feedback verbally. In the group who undertook the online test, participants were e-mailed personalised copies of their automated SHL Report for the Verbal Ability Series Online (ASO) test, containing their test scores and percentiles. Ethical concerns

are presented in the next section detailing how issues including deception and distress were addressed.

4.6. Ethical concerns

According to the British Psychological Society (BPS) ethical guidelines (BPS, 2009), it is unacceptable to intentionally withhold information or mislead participants if they are likely to object to this or feel uncomfortable when debriefed. The experiment involved the manipulation of feedback bearing no relation to actual performance using a job recruitment scenario design. As it would be unethical to falsify feedback and a job hire outcome in a real-life job recruitment process, experimental studies enable study variables to be isolated to examine any possible effects.

Related to Deception, is the ethical issue of Distress. Due to the potentially invasive nature of self-report questionnaires measuring psychological constructs (e.g., perceived stress, self-esteem) it was important not to distress participants. The BPS ethical guidelines state that participants should suffer no physical or mental harm, and this should be no different to that experienced in everyday life. Information pertaining to suboptimal test performance (i.e., Reject with explanation condition) may have been sensitive for certain individuals. It was important to tell participants they could withdraw if feeling uncomfortable during the study.

During the debriefing, it was essential to assure participants deceived from the experimental feedback, that the research was not aimed at assessing their abilities and their job suitability. If a participant was still distressed following the study, (s)he had the opportunity to discuss the study with the researcher for clarification and

reassurance. No feedback was relayed suggesting that any participants had found the questions sensitive or distressing. The debriefing sheet informed participants that feedback had been manipulated and bore no relation to their performance and job credentials.

Participants had the right to withdraw their data and were assured that their study data was strictly confidential and anonymous, and following the debriefing, participants were then sent their actual test feedback (reports, test scores). In accordance with the Data Protection Act (1998), and confidentiality principles, participant data was stored securely in a filing cabinet only accessible to the researcher, and all electronic data was password-protected.

Providing misleading test feedback had ethical implications as participants were deceived, which may have been caused distress, especially for those told they were unsuitable for a job based on their test performance (reject with explanation group). However, participants were debriefed immediately after returning the post-feedback questionnaire to minimise the time deceived, and to minimise any distress, and similar studies in the literature (e.g., Schinkel et al., 2004, 2011) have deceived and debriefed participants in this way. The University Ethics Committee cleared this procedure in advance of the study.

This aspect of deception can be justified on the grounds that participants would have responded differently (i.e., response bias) to the questionnaire items which would in turn have made it impossible to mimic a recruitment process. Furthermore, this approach has widely been practiced in the literature (e.g., Schinkel et al., 2004; Wiechmann & Ryan, 2003). In balance, by informing participants from the outset that

they were not applying for a job and fully debriefing them afterwards this BPS guideline was met, although it could be argued that participants would respond differently knowing they were not applying for a job.

Participants were assigned a participant number to address participant confidentiality. The researcher retained details about their name and e-mail address only for the purposes of matching up and contacting participants during the study. In line with the Data Protection Act (1998), all personal data was stored in a filing cabinet and electronic data was password-protected so only the researcher had access to this data, and no information was divulged to third parties. In terms of written consent, participants were sent a covering letter which briefly outlined the purpose of the study. The covering letters did not go into much detail about what was being investigated to avoid a response bias in the questionnaires.

4.7 Analysis

Control items (computer/internet test taking anxiety, regularity of computer use, computer/internet test taking experience and test fairness) were firstly analysed. This was to ensure that the sample had similar previous experience of online testing for job recruitment. A One-Way ANOVA was then conducted to compare testing groups (paper-and-pencil, online) to ensure participants had similar scores in terms of these control measures.

For each psychological measure (Perceived Stress, Self-esteem and Work Involvement) mixed 2 (T1 = pre-testing, T2 = post-feedback) x2 (mode of test administration: paper-and-pencil/online) x3 (feedback type: passed/reject with explanation/ reject no explanation) ANOVAs were performed to test Hypotheses 3-5. Procedural justice was only measured post-feedback so a 2x3 Univariate ANOVA

was performed on this scale. Test fairness was measured at T1 as a control item, and a separate test fairness measure was taken at T2 (1 = Fair – 3 = Unfair).

The Analysis of Variance (ANOVA) is a commonly used statistical technique in psychological research. The advantage of this approach over alternative techniques including t-tests is that an ANOVA can deal with a number of sample means as opposed to merely one (Howell, 2002). Another advantage of the ANOVA is that it enables researchers to explore the effects of two or more independent variables at the same time, rather than the sole effects of each variable, and interaction effects between these variables can be explored (Field, 2013; Howell, 2002).

Researchers need to satisfy four assumptions with the data sample to conduct an ANOVA:

1. Firstly, the homogeneity of variance assumption must be met, in other words there needs to be the same variance in each of the sample populations.
2. Secondly, there should be a normal distribution of scores for each condition (Howell, 2002) which is visually represented with a bell-shaped data distribution curve.
3. Thirdly, the observations need to be independent so to assign participants to separate groups so to ensure that this ANOVA assumption is met.
4. Interval or ratio data.

According to Howell (2002) researchers must avoid using ANOVAs in data samples where there are instances of heterogeneity of variance and unequal sample sizes. As a test for heterogeneity of variance, Levene's tests are commonly used in statistical packages such as SPSS. The Levene's test is a form of a t-test to examine the

deviations of the observations away from the sample median or mean (Howell, 2002). According to Wilcox (1987b) a Levene’s test is a conservative test of the homogeneity of variance. In each of the experimental studies Levene’s tests were employed on the data prior to the main data analysis to ensure that the homogeneity of variance ANOVA assumption had been met.

ANOVAs can be used in various forms (single sample, repeated measures) depending on the number of the within and between subject-variables. In research studies where there are combinations of within and between-subject variables then Mixed ANOVAs are used as in this experiment.

4.8 Results

Table 4.2 displays the participant demographics.

Table 4.2: Participant demographics

	Paper-and-pencil	Online	Total
Gender Male	8 (14.0 %)	10 (17.5 %)	18 (31.6 %)
Female	20 (35.1 %)	19 (33.3 %)	39 (68.4 %)
Total	28 (49.1 %)	29 (50.9 %)	57 (100 %)
Age Mean 26.79			
S.D. 6.00			
Course			
Taught Postgraduate	17 (29.8 %)	13 (22.8 %)	30 (52.6 %)
Research Postgraduate	7 (12.3 %)	14 (24.6 %)	21 (36.8 %)
Final Year Undergraduate	4 (7.0 %)	2 (3.5 %)	6 (10.5 %)
Total	28 (49.1 %)	29 (50.9 %)	57 (100 %)

Faculty			
Arts	2 (3.5 %)	1 (1.75 %)	3 (5.3 %)
Engineering	3 (5.3 %)	2 (3.5 %)	5 (8.8 %)
Medicine/Health Sciences	8 (14.0 %)	10 (17.5 %)	18 (31.6 %)
Science	6 (10.5 %)	8 (14.0 %)	14 (24.6 %)
Social Sciences	9 (15.8 %)	8 (14.0 %)	17 (29.8 %)
Total N = 57			

4.8.1 Response rate analysis

Over one-third of participants (34.5 %, N = 30) did not complete Questionnaire 2 (T2)

so a response analysis was undertaken to assess if completers (65.5 %, N = 57) and

non-completers of the study differed regarding testing mode and feedback received.

4.8.1.1 Testing Group response rates

The completion rate across testing groups is displayed in Table 4.3.

Table 4.3: Completion of study by Testing Group

Testing Group	<u>Completed study</u>		<u>T2 not returned</u>	
	N	Percentage	N	Percentage
Paper-and-pencil	28	68.3	13	31.7
Online	29	63.0	17	37.0
Total	57	65.5	30	34.5

A Chi-Square analysis was performed to compare participants' completion rates between testing groups (paper-and-pencil and online). This showed there was no relationship between testing group and whether participants completed the study ($\chi^2(1, 87) = 0.26, p = 0.607$).

4.8.1.2 Feedback Type response rates

The next part of the completion rate analysis focuses on comparing response rates according to feedback type as displayed in Table 4.4.

Table 4.4: Completion of study by Feedback Type

Feedback Type	<u>Completed study</u>		<u>T2 not returned</u>	
	N	Percentage	N	Percentage
Passed	20	80.0	5	20.0
Reject, no explanation	19	67.9	9	32.1
Reject, with explanation	18	52.9	16	47.1
<u>Total</u>	<u>57</u>	<u>65.5</u>	<u>30</u>	<u>34.5</u>

The study completion figures were as follows: Passed condition 80% completion rate (20 completed, 5 did not return T2); Reject with no feedback condition 67.9% (19 completed, 9 did not return T2); and falling to 52.9% (18 completed, 16 did not return T2) in the Reject with explanation group.

These findings suggest that test feedback may have affected participants' willingness to continue to engage with the study by returning questionnaires, as those who received positive feedback were more inclined to reply to the questionnaires. As

feedback became negative, and detailed, participants were less inclined to reply suggesting a behavioural reaction to the negative feedback although this just failed to reach statistical significance ($\chi^2(2,87) = 4.77, p = 0.092$)

The main analysis will now focus on the 57 participants who completed the study.

4.8.2 Control measures and preliminary checks

Four control questions were measured at T1: computer/internet test taking anxiety, regularity of computer use, computer/internet test taking experience and test fairness.

Table 4.5 displays the mean scores for each control across testing group.

Table 4.5: Control measures Means and SDs pre-testing by Testing Group

Testing Group	<u>Paper-and-pencil</u>		<u>Online</u>	
	Mean	SD	Mean	SD
Control				
Test taking experience	4.00	1.28	3.83	1.47
Regularity of computer use	6.36	0.49	6.62	0.56
Computer/Internet test anxiety	3.79	1.38	4.28	1.10
Test Fairness for Graduate Jobs	3.11	0.96	3.03	0.82

A One-Way ANOVA analysis was conducted to compare testing groups (paper-and-pencil, online) for each control question. There were no significant differences on each control: test taking experience ($F(1,55) = 0.224, p = 0.638$), regularity of computer use ($F(1,55) = 3.567, p = 0.064$), computer/internet use anxiety ($F(1,55) = 2.227, p = 0.141$) and test fairness for Graduate jobs ($F(1,55) = 0.095, p = 0.759$). As

no clear differences were found in both groups for these controls, this confirmed that the groups were similar on these variables so they would not confound or bias the results. As a preliminary check for the homogeneity of variance on the data to ensure all variances between testing groups were equal Levene's tests conducted for each scaled measure (e.g., perceived stress, self-esteem). The results on each scaled measure were non-significant so the homogeneity of variance assumption had been met.

4.8.3 Fairness and Procedural justice

The first analysis concerns the issue of fairness to test Hypotheses 1 and 2. The ANOVA and descriptive statistics indicated that test fairness scores were close between testing groups (paper-and-pencil and online) at pre-testing. After feedback had been received, a test fairness measure ranging from 1 (Fair) to 3 (Unfair) was included in the post-feedback questionnaire (T2) regarding the fairness of the test for the participant's ideal job. Table 4.6 displays the fairness of test Mean and Standard Deviation (SDs) across testing groups and feedback type at T2 with lower scores indicating greater perceived fairness.

Table 4.6: Test Fairness Means and SDs - Testing Group and Feedback Type: T2

Testing Group

	Mean	SD
Paper-and-pencil	1.86	0.76
Online	1.76	0.64

Feedback Type

	Mean	SD
Passed	1.50	0.61
Reject, no explanation	2.00	0.75
Reject, with explanation	1.94	0.64

A one-way ANOVA with type of test (paper-and-pencil/online) as the independent variable and test fairness at follow-up as the dependent variable showed that the effect of test group was non-significant ($F(1,55) = 0.284$, $p = 0.596$). Therefore, Hypothesis 2 is not supported.

To test Hypothesis 1, test fairness scores were compared across feedback type. A one-way ANOVA revealed a statistically significant effect of feedback type ($F(2,54) = 3.307$, $p = 0.044$). Tukey post-hoc analyses showed that the mean difference in test fairness scores was nearing significance between the Passed and Reject no explanation feedback groups ($p = 0.058$). The means for the groups were as follows: Passed ($M = 1.50$), Reject, no explanation ($M = 2.00$), and Reject with explanation ($M = 1.94$). A lower score in the Passed group showed that these participants felt the test was fairer than Rejected participants at T2. Therefore, Hypothesis 1 is supported as participants informed they had passed felt the test was fairer than those rejected.

Procedural Justice – A confirmatory factor analysis (CFA) was conducted using the Analysis of Moment Structure (AMOS) v. 24 statistical package (Arbuckle, 2016) on the seven Procedural Justice items. The estimation method chosen was the maximum likelihood estimate as the data were normally distributed. According to reported conventions the normality assessment usually rejects when the ratio of skewness is $> \pm 1$ and/or kurtosis is $> \pm 2$ (Ahmed, 2010; Nunally & Bernstein, 1994). The 7 items` distribution in this study was accepted as none departed from this normality. The hypothesised one-factor procedural justice model was fit to the data of the full sample (N = 57) with an acceptable fit $\chi^2(14) = 36.716$, $p = 0.527$, CFI = 0.831, RMSEA = 0.17. No post-hoc modifications were conducted due to the acceptable fit of the data to the model. Table 4.7 displays the standardised residual covariances for the procedural justice scale items, and the theoretical model is presented in Figure 4.2

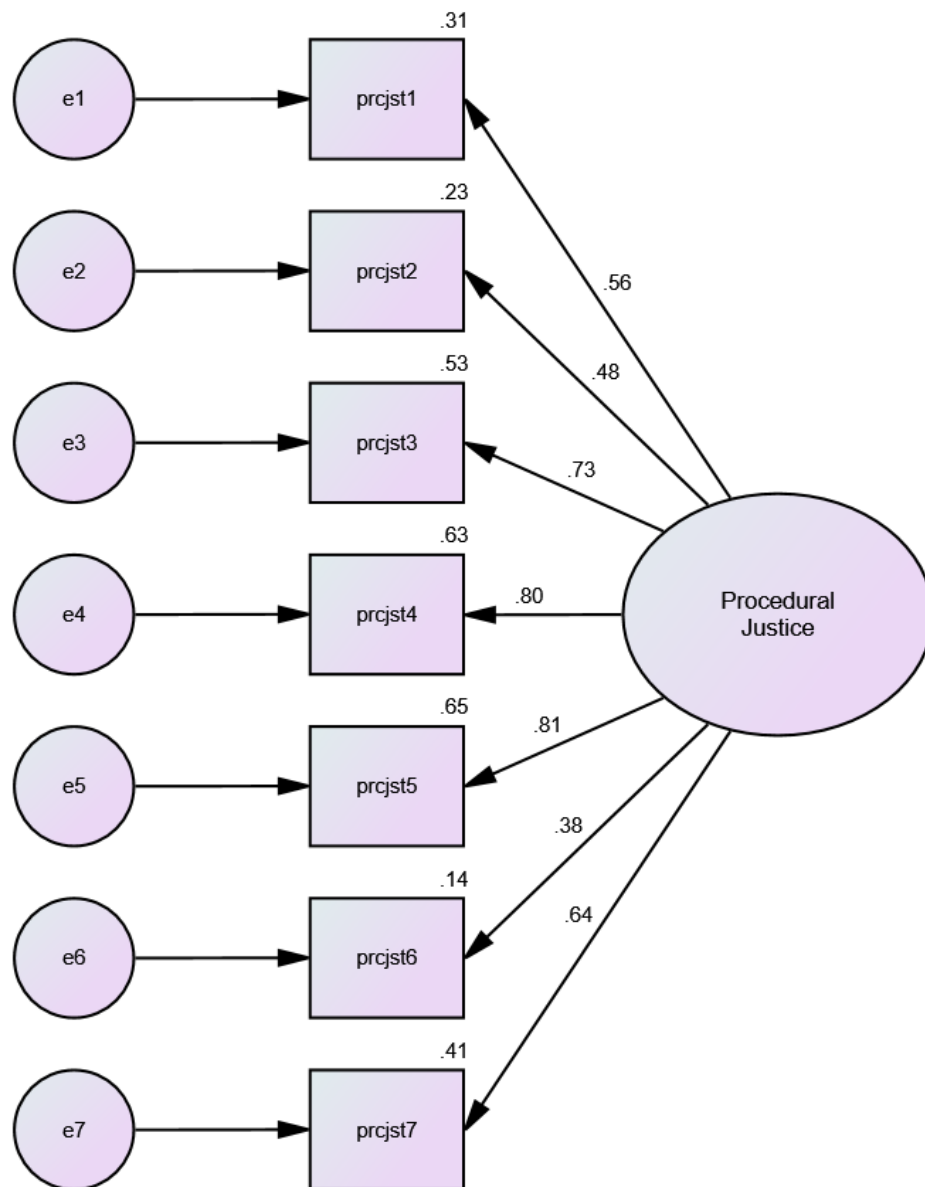
Table 4.7: Standardised Residual Covariances for Procedural Justice items

Observed variable	prcjst1	prcjst2	prcjst3	prcjst4	prcjst5	prcjst6	prcjst7
prcjst1	—						
prcjst2	1.33	—					
prcjst3	.15	.63	—				
Prcjst4	-.05	-.59	.21	—			
prcjst5	-.64	-.19	-.23	.23	—		
prcjst6	2.76	.44	-1.16	-.35	-.20	—	
prcjst7	-.54	-.45	.04	-.33	.49	.51	—

As displayed in Figure 4.2 the latent variable (factor) of procedural justice is represented in a circle, and the observed indicators (items) are represented in rectangles, and the measurement errors within ellipses using the AMOS analytical approach (Arbuckle, 2016). The structural model is shown using one unified construct of Procedural Justice. Single-headed arrows from the latent constructs to the boxes represent regression paths with the coefficients representing the factor loadings.

The measurement error associated with the observed variables is shown by single-headed arrows which point from ellipses to rectangles (Arbuckle, 2016).

Figure 4:2 Standardised estimates for the 7-item one-factor structure of Procedural Justice



Procedural Justice was also assessed at T2 to test Hypotheses 1 and 2. Table 4.8 displays the procedural justice Mean and Standard Deviation (SDs) across testing groups and feedback type.

Table 4.8: Procedural justice of testing process, Means and SDs by Testing Group and Feedback Type

Feedback Type	Paper-and-pencil		Online	
	Mean	SD	Mean	SD
Passed	23.50	5.02	21.80	3.88
Reject, no explanation	19.50	6.45	19.67	4.42
Reject, with explanation	20.75	5.50	18.80	4.66

The main effects of Testing group ($F(1,51) = 0.748, p = 0.391$), and, Feedback type ($F(2,51) = 2.253, p = 0.115$) were non-significant. There was no significant interaction between Test Group and Feedback Type ($F(2,51) = 0.247, p = 0.782$).

On closer examination of the mean scores, participants who passed ($M = 22.65$), had a higher procedural justice score than those rejected with an explanation ($M = 19.78$), and those rejected with no explanation ($M = 19.58$). However, Hypothesis 1 was not supported on the procedural justice measure.

In comparing procedural justice scores between testing groups, test-takers who undertook a paper-and-pencil test ($M = 21.25$) scored the testing procedure as higher than online test-takers ($M = 20.09$) on procedural justice, slightly in the opposite direction than predicted so Hypothesis 2 was not supported.

4.8.4 Repeated Measures scale items

After testing Hypotheses 1 and 2 in terms of fairness and procedural justice, hypotheses 3-5 were tested in relation to interaction effects for Mode and Type of feedback on different psychological scales. For each of these scales, a Mixed ANOVA was performed to compare pre-test and post-test scores between Testing Group (Paper-and-pencil, Online) and Feedback Type (Passed, Reject no explanation, and Reject with explanation).

Table 4.9 displays the descriptive statistics and correlation coefficients for the scaled measures. There was a negative association between self-esteem and perceived stress. On the other hand, there were positive associations between work involvement (T1) and self-esteem, work involvement (T2) and procedural justice, and for perceived stress T1 and T2.

The results of the analysis from each scale will be presented separately in the following order: Perceived Stress, Self-esteem, and Work involvement.

Table 4.9 Descriptive statistics and correlation coefficients between psychological measures and time of measurement (T1, T2)

Measure	M	SD	1	2	3	4	5	6	7
1. Perceived Stress T1	27.20	6.73	(.85)						
2. Perceived Stress T2	25.98	7.12	.77**	(.89)					
3. Self-esteem T1	53.12	9.49	-.58**	-.54**	(.78)				
4. Self-esteem T2	54.12	10.43	-.40**	-.46**	.70**	(.79)			
5. Procedural Justice T2	20.68	5.09	.11	-.02	-.06	-.01	(.81)		
6. Work Involvement T1	33.44	6.16	-.21	-.23	.37**	.38**	.21	(.70)	
7. Work Involvement T2	34.18	6.00	-.10	-.18	.22	.25	.38**	.84**	(.70)

N = 57 *p<0.005 **p<0.001. Cronbach's alphas are displayed in parentheses along the diagonal.

4.8.4.1 Perceived Stress

A confirmatory factor analysis (CFA) was conducted on the Perceived Stress scale item structure using the Analysis of Moment Structure (AMOS) v. 24 (Arbuckle, 2016). The estimation method chosen was the maximum likelihood estimate as the data were normally distributed. The 10 items` distribution in this study was accepted as none departed from normality for skewness and kurtosis. The hypothesised one-factor model was fit to the data of the full sample (N = 57). This model fit the data well $\chi^2(35) = 68.579$, $p = 0.071$, CFI = 0.814, RMSEA = 0.09. No post-hoc modifications were conducted due to the good fit of the data to the model.

Table 4.10 displays the standardised residual covariances for the perceived stress scale items, and the theoretical model is presented in Figure 4.3.

Table 4.10: Standardised Residual Covariances for Perceived Stress items

Observed variable	Stress1	Stress2	Stress3	Stress4	Stress5	Stress6	Stress7	Stress8	Stress9	Stress10
Stress1	—									
Stress2	-.80	—								
Stress3	.01	.12	—							
Stress4	-.49	.13	-.49	—						
Stress5	.12	-.04	.11	.41	—					
Stress6	-.27	.36	.78	-.03	-1.73	—				
Stress7	1.06	-.66	.20	.57	1.02	-1.37	—			
Stress8	-.75	-.58	.26	1.23	1.04	.23	.51	—		
Stress9	2.45	-.24	-.28	-1.37	.18	-.17	1.75	-.23	—	
Stress10	-.22	.41	-.85	-.52	.50	.15	-.51	-.21	.82	—

Figure 4.3: Standardised estimates for the 10-item one-factor structure of Perceived Stress

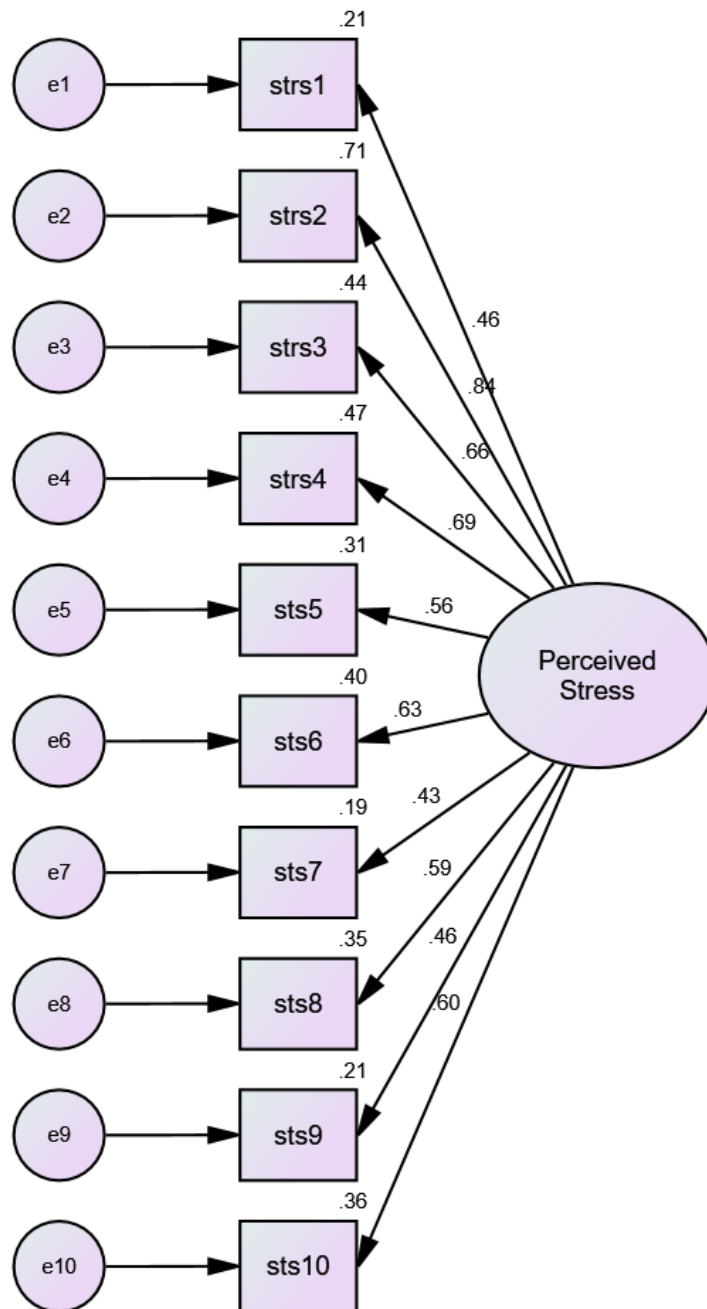


Table 4.11 displays the Mean and Standard Deviation (SD) scores for perceived stress across time of testing, Feedback Type and Mode of testing.

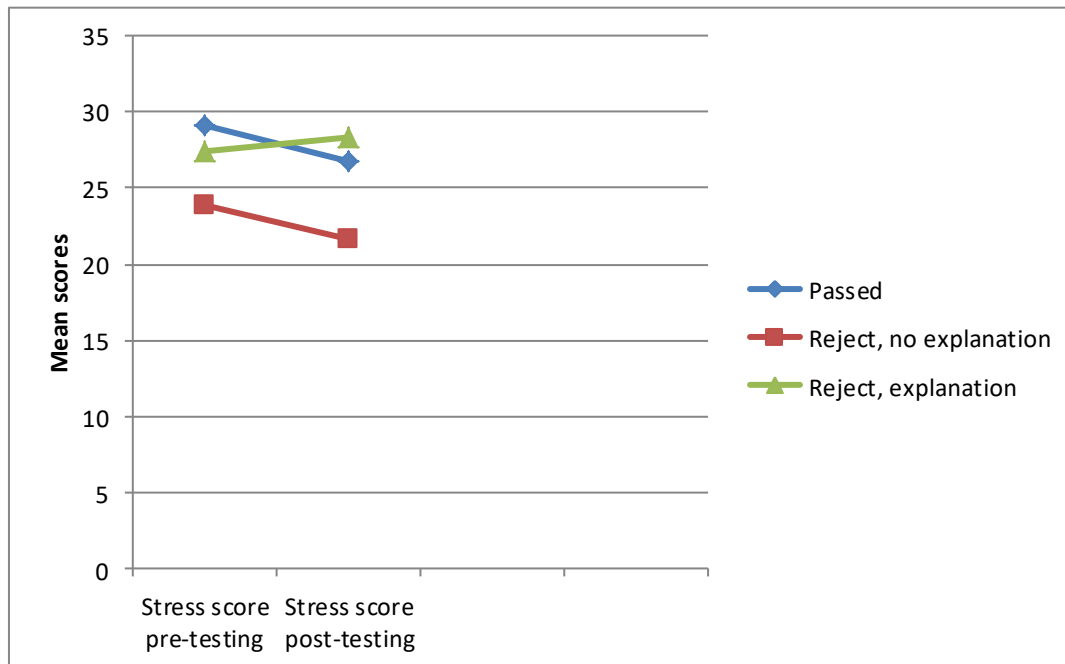
Table 4.11: Comparison of Perceived Stress score Means and SDs by Testing Group and Feedback Type

Feedback Type	<u>Paper-and-pencil</u>		<u>Online</u>	
	Mean	SD	Mean	SD
Passed				
t1	27.70	4.72	30.60	6.38
t2	26.30	6.00	27.30	5.48
Reject, no explanation				
t1	26.50	8.77	24.11	6.81
t2	25.20	7.71	20.56	6.46
Reject, with explanation				
t1	27.38	4.96	27.20	7.64
t2	29.00	8.60	27.60	7.21

In the ANOVA results for Perceived Stress scores, the within subjects main effect of time of measurement was significant ($F(1,51) = 4.285, p = 0.044$), there was no significant interaction between change in Perceived Stress level and Test Group ($F(1,51) = 2.187, p = 0.145$). There was a significant interaction between Time of measurement and Feedback type ($F(2,51) = 3.393, p = 0.041$).

Figure 4.4 displays the interaction plot between Time of measurement and Feedback Type.

Figure 4.4: Interaction plot for perceived stress between Time of measurement (T1, T2) and Feedback Type



The interaction plot shows that perceived scores decreased between T1 and T2 in participants told they had passed, and when rejected without an explanation. In contrast, those rejected with an explanation had increased perceived stress scores over time. As predicted the detailed rejection message had a detrimental effect on test-takers' stress scores (compared to successful and rejected test-takers receiving no explanation) supporting Hypothesis 3.

However, the three-way interaction between change in Perceived Stress level, Test Group and Test Feedback was not significant ($F(2,51) = 0.060, p = 0.942$). There were no significant main effects for Test Group ($F(1,51) = 0.209, p = 0.649$), and, Feedback Type ($F(2,51) = 2.189, p = 0.122$), nor a significant interaction effect between Test Group and Feedback Type ($F(2,51) = 0.873, p = 0.424$). Thus, hypotheses 4-5 were not supported on Perceived Stress.

4.8.4.2 Self-esteem

Table 4.12 displays the Mean and Standard Deviation (SD) scores for self-esteem across time of testing, Feedback Type, and Mode of testing.

Table 4.12: Comparison of Self-esteem Mean scores and SDs by Testing Group and Feedback Type

Feedback Type	<u>Paper-and-pencil</u>		<u>Online</u>	
	Mean	SD	Mean	SD
Passed				
t1	50.50	7.46	51.10	12.60
t2	51.30	14.28	53.30	9.15
Reject, no explanation				
t1	52.80	7.18	60.78	6.40
t2	53.80	8.03	63.56	5.23
Reject, with explanation				
t1	50.50	10.74	53.30	9.56
t2	50.13	10.72	52.80	9.67

The ANOVA results for time of measurement was non-significant ($F(1,51) = 0.838, p = 0.364$) so there was significant change in self-esteem over time. There were no significant interactions between Time of measurement by Test Group ($F(1,51) = 2.224, p = 0.638$); and between Time of measurement and Feedback ($F(2,51) = 0.433, p = 0.651$). The three-way interaction (Time of measurement x Test Group x Test Feedback) was also non-significant ($F(2,51) = 0.071, p = 0.932$).

The main effect of testing group on self-esteem scores was near to reaching statistical significance ($F(1,51) = 3.448, p = 0.069$). This shows there was a difference overall as the online group had higher scores at Time 1 and Time 2.

The main effect for the Type of Feedback on self-esteem scores was approaching significance ($F(2,51) = 3.115, p = 0.053$). Tukey HSD post-hoc analyses showed that the mean difference in self-esteem scores between the Passed and Reject with no explanation feedback groups was nearing significance ($p = 0.09$). There was no significant interaction between Test Group and Feedback Type on self-esteem scores ($F(2,51) = 1.018, p = 0.368$).

Hypothesis 3 was supported as self-esteem scores increased between T1 - T2 for participants who Passed. Participants rejected with an explanation had decreased self-esteem scores over time as predicted, whereas those rejected without any explanation had increased self-esteem scores over time.

4.8.4.3 Work Involvement

A confirmatory factor analysis (CFA) was conducted on the Work Involvement scale item structure using AMOS v. 24 (Arbuckle, 2016). The estimation method chosen was the maximum likelihood estimate as the data were normally distributed. The 6 items` distribution in this study was accepted as none departed from normality for skewness and kurtosis. The hypothesised one-factor model was fit to the data of the full sample ($N = 57$). This model fit the data well $\chi^2(9) = 10.492, p = 0.312, CFI = 0.964, RMSEA = 0.05$. No post-hoc modifications were conducted due to the good fit

of the data to the model (See Appendix 6 for the standardised residual covariances matrix, and the theoretical model).

Table 4.13 displays the Mean and Standard Deviation (SD) scores for work involvement across time of testing, Feedback Type, and Mode of testing.

Table 4.13: Comparison of Work Involvement Mean scores and SDs by Testing Group and Feedback Type

Feedback Type	Paper-and-pencil		Online	
	Mean	SD	Mean	SD
Passed				
t1	34.00	5.66	34.70	6.11
t2	37.20	4.89	33.60	5.93
Reject, no explanation				
t1	33.90	6.69	35.00	5.03
t2	33.70	6.33	36.22	3.80
Reject, with explanation				
t1	30.63	8.91	32.00	4.83
t2	31.88	9.23	32.20	4.69

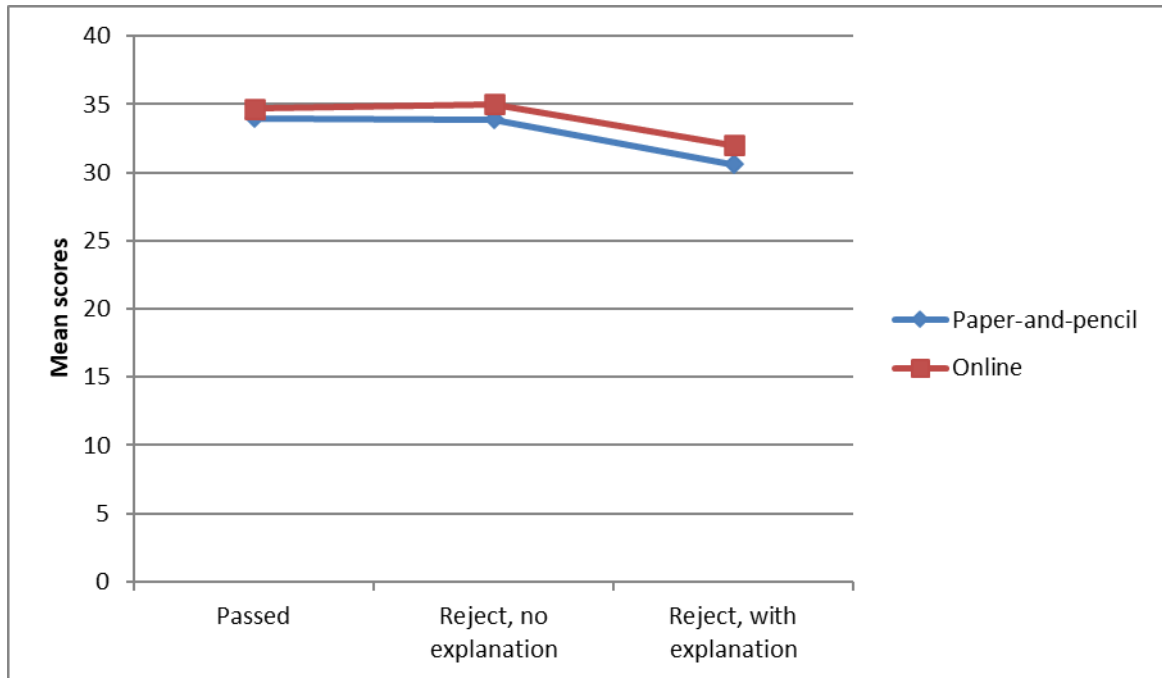
The main effect of time of testing was non-significant ($F(1,51) = 3.077, p = 0.085$).

The interaction effects were not significant for time of testing by Test Group ($F(1,51) = 2.271, p = 0.138$), and, time of testing score by Feedback Type ($F(2,51) = 0.135, p = 0.874$). The three-way interaction between Time of testing, Test Group, and, Test

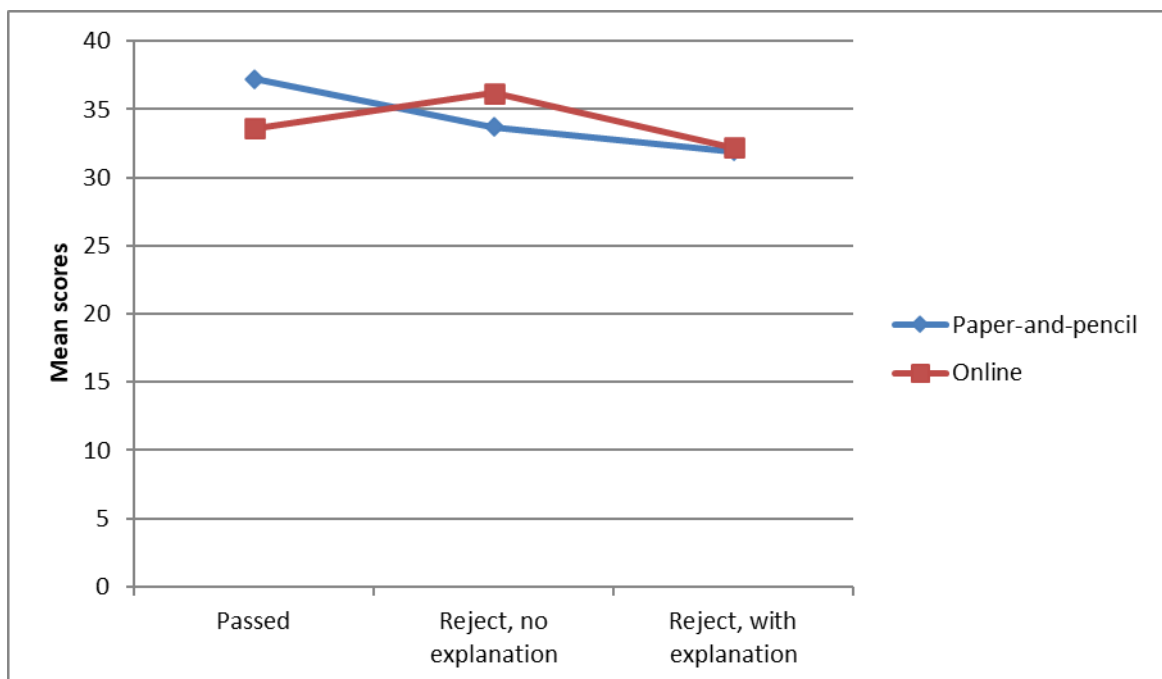
Feedback was significant ($F(2,51) = 3.759, p = 0.030$). Figure 4.5 displays the three-way interaction effect.

Figure 4.5: Interaction plots comparing Work Involvement scores between time of measurement (T1, T2), mode and type of feedback

T1: Pre-testing



T2: Post-feedback



As shown by the interaction plots displayed in Figure 4.3 when comparing the Passed condition, paper-and-pencil test takers scored higher on work involvement scores between T1-T2 (t1 M = 34.00, t2 M = 37.20), whereas their counterparts that undertook an online test had slightly lower work involvement scores over time (t1 M = 34.70, t2 M = 33.60). In both modes of test administration post-feedback scores increased in participants that were in the Reject with an explanation condition.

Another difference was that in the paper-and-pencil condition mean scores were highest at T2 in the Passed group than the Reject groups as predicted; whereas in the online condition work involvement scores were highest at T2 in the Reject with no explanation group. Work involvement scores increased over time in the online reject with no explanation group (t1 M = 35.00, t2 M = 36.22), so participants scored higher at T2 than those in the online Passed (t2 M = 33.60) and Reject with an explanation (t2 M = 32.20) group. These findings support hypothesis 5.

The main effects of Test Group ($F(1,51) = 0.067, p = 0.797$) and Feedback type ($F(2,51) = 1.721, p = 0.189$) and the interaction between Test Group and Feedback ($F(2,51) = 0.397, p = 0.675$) were all non-significant. Therefore, hypotheses 2-5 were not supported on the work involvement scale.

4.9 Discussion

This job-recruitment scenario experiment tested the effect of manipulating different types of feedback to ability test-takers using various psychological constructs (e.g., perceived stress, self-esteem). The purposes of this experiment were two-fold:

- to examine if there were any differences in fairness perceptions between testing modes (paper-and-pencil vs. online), and

- to examine the psychological effect of providing, or not providing an explanation in feedback.

Hypothesis 1 was the prediction that participants who were told they had passed the test would regard the outcome as fairer and score higher on Procedural Justice than those rejected. The hypothesis was supported for fairness as participants in the Pass condition felt the testing had been fairer, than those sent a rejection message.

Furthermore, a detailed rejection message was regarded as fairer than a mere rejection message. However, there were non-significant differences for procedural justice and feedback message. In terms of relating these findings to the literature, Bauer et al. (1998) found that applicants passing tests for clerical positions rated test fairness higher compared to their baseline reactions at the time of applying for the job.

Furthermore, Ryan and Chan (1999), and Schinkel, van Vienen and van Dierendonck (2013) found that passing or failing a test affects post-feedback perceptions of fairness which these results indicate. From a theoretical perspective, Distributional Justice concerns outcomes so as predicted when successful test-takers felt the testing process had been fairer unlike their unsuccessful counterparts.

Regarding procedural justice and fairness, Wiechmann and Ryan (2003) concurred with the current study as outcome fairness also measured at post-feedback (T2) was determined by the test-taker's success or failure. Notably there are differences in the study measures as procedural justice was measured in the current study whereas Wiechmann and Ryan measured process fairness which may explain these discrepancies. Another difference was that in the Wiechmann and Ryan study reactions to actual feedback was measured, whereas in the current experiment false feedback was conveyed. Similarities between investigations were that students

participated, and there were equivalent paper-and-pencil and online administrations of the assessment exercise. An in-basket exercise was the mode of assessment in the Wiechmann and Ryan study whereas participants completed an ability test in the current experiment so there was a difference in texting context.

In terms of detailed rejection explanation messages being perceived as fairer, research confirms that explaining a selection procedure heightens these perceptions (Rolland & Steiner, 2007; Truxillo, Bauer & McCarthy, 2015). These findings are consistent with the view that the recruiter's objective of feedback provision is to mitigate any negative effects (Celani, Deutsch-Salamon & Singh, 2008; Thominet, 2020) in this case on fairness and procedural justice perceptions. From a theoretical perspective Gilliland's (1993) procedural justice rules of performance feedback, and selection information are satisfied by the information provision in the rejection feedback explanation messages.

Hypothesis 2 was the prediction that online test-takers would regard the test process as fairer than those who completed an equivalent paper-and-pencil test version was not supported. However, the mean scores showed a small but non-significant fairness preference towards online tests. This finding concurs with Wiechmann and Ryan's (2003) study which also found that post-test reactions did not significantly differ between paper-and-pencil and online administered assessments. Perhaps as online tests are no longer such a novelty this may also explain the lack of differentiation in fairness perceptions between mode of test administration.

On the procedural justice measure, test-takers in the paper-and-pencil group scored slightly higher than the online group which is in the opposite direction than predicted.

It should be noted that procedural justice concerns the processes involved in the decision making which is distinct from fairness perceptions. Perhaps test-takers who attended a paper-and-pencil testing session with a human test administrator present felt that the test procedure had been followed more so than those who were tested unproctored online. As online tests were administered unsupervised (controlled mode) then perhaps test-takers could not perceive that test procedures had been so strictly followed as the paper-and-pencil tests were administered in an authoritative environment. These findings differ to Wiechmann and Ryan (2003) who found no significant differences in test-takers' process fairness and liking perceptions between paper-and-pencil and computerised test administrations. The tests used differ as Wiechmann and Ryan study compared administration modes for an in-basket exercise whereas the current study compared ability test-taker reactions. As acknowledged by the authors, as test-takers are less familiar taking in-basket exercises than ability tests, the mode of test administration (paper-and-pencil vs. online) may have held less significance in shaping their fairness and liking perceptions. The mean procedural justice score was 20.68 (S.D. = 5.09) out of a possible 35 in current sample which was just below the scale midpoint of 21. Overall, there is partial support for Hypothesis 2.

Hypothesis 3 hypothesised an interaction effect between feedback group and psychological reactions over time. As expected, participants in the Passed group had lower perceived stress scores at T2, which is supported by a significant interaction between test feedback and stress scores. Participants in the Reject with an explanation group had higher stress scores after receiving test feedback, whereas those rejected without an explanation had lower stress scores at T2. Similarly, on the measure for Self-esteem, there was a significant main effect for Feedback Type. Self-esteem

scores increased between T1-T2 for those who Passed and decreased in those rejected with an explanation. Participants who were rejected with no explanation had increased self-esteem scores over time when not told that their scores were low.

These findings are consistent with research which has shown that receiving a rejection message with an explanation has a detrimental effect on test-takers psychologically, in this case on stress and self-esteem, as the same effect had earlier been found on the measures of core self-evaluations and affective well-being (e.g., Schinkel et al., 2004). Therefore, the provision of a negative explanation appeared to reinforce the rejection which makes it harder for candidates to deflect attention away from failure by making an external attribution (Schinkel et al., 2011). For example, self-serving biases are used to protect the unsuccessful candidate's self-image to blame the outcome on some external factor. However, it is harder for rejected candidates provided with such detailed feedback to associate their failure to be due to some external factor other than their own failings. Indeed, research shows that negative feedback in job-scenario studies can have detrimental effects on participants' personal outcomes such as stress (e.g., Fletcher, 1991; Ployhart et al., 1999).

In examining the measure baseline scores taken at T1, the mean was 27.20 for perceived stress which is typical for a degree-educated adult norm group (e.g. Cohen & Janicki-Deverts, 2012). The sample had higher self-esteem ($M = 53.12$ equates to 33.12 due to using a 7-point scale rather than a 5-point scale) compared to the adult norm group 22.62 (Sinclair et al., 2010).

Unlike similar experiments in the applicant reactions field (e.g., Schinkel et al., 2004), the effect of positive feedback was also examined. Notably participants who passed had lower stress scores at T2, so outcome favourability affected test-taker reactions on the perceived stress scale, and to a lesser extent on self-esteem. This finding that explaining negative and positive feedback affects candidates psychologically, relates to the Self-consistency theory (Shrauger, 1975), which states that feedback confirms an individual's self-image. Individuals with low self-esteem (can include stress) are more inclined to accept negative feedback than those with higher self-esteem. In terms of successful outcomes (i.e. the Passed group), positive feedback has been found to improve people's psychological outlook on life as indicated on such measures (Schinkel, van Vienen & van Dierendonck, 2013). However, there was no support for the hypothesis on the Work Involvement scale so test-takers' motivation to work was unaffected after receiving positive or negative performance feedback. The means at baseline for work involvement were 33.44 out of a possible 42 which shows the sample were well motivated individuals which may explain the lack of differentiation post-feedback.

Hypothesis 4 was the prediction that method of test administration would only have an impact on psychological outcomes over time (T1-T2) if a test were taken online as this format is regarded as more trustworthy. A significant fall in self-esteem and work involvement and a rise in perceived stress in the online condition unlike the paper-and-pencil condition was predicted. There was no support for this hypothesis on the scale of Perceived Stress; however, there was a significant main effect for testing group for Self-esteem, as shown by lower Self-esteem scores in the paper-and-pencil group than the online testing group at T2. In relating these findings to the existing

literature, Wiechmann and Ryan (2003) similarly found that test-takers' post-test perceptions did not significantly differ because of the mode of test administration, and this study went further by examining psychological reactions rather than attributions. It may be that there are other moderating factors (e.g., personality, attribution type) besides mode of test administration, and outcome favourability (e.g., Hausknecht et al., 2004), that were not accounted for in this investigation which could be examined.

Hypothesis 5 examined the three-way interaction between time of measurement (T1, T2) testing group and feedback type on each psychological measure. A significant three-way interaction was found for work involvement. Participants who were told they had passed had increased work involvement scores over time (T1 -T2) in the paper-and-pencil group, whereas in the online group their successful counterparts scored lower on work involvement over time.

In both modes of test administration when a rejection message was sent with an explanation, work involvement scores increased at T2. Notably in the online condition, participants who were rejected without an explanation had increased work involvement scores over time, and higher T2 scores than the other feedback groups. Contrary to the assumption that an unsuccessful outcome can make candidates feel less motivated, the rejection made candidates more motivated towards becoming involved in work. Indeed, research indicates that negative outcomes such as job redundancy increases proactive job search behaviours (Wanberg, Watt & Rumsey, 1996). These experimental findings concur with the Pilot field study that unsuccessful job applicants had higher work involvement at T2 compared to baseline. Therefore, these findings across research contexts indicate that by being rejected candidates have more of a desire to be become involved in work than their successful counterparts.

Overall, these findings suggest that a combination of testing mode and the way feedback is conveyed affects candidates' work motivation. However, hypothesis 5 was not supported on the other scaled measures.

4.10 Strengths and limitations of the study

The main strength of this study was that feedback provision was manipulated to varying degrees both positive and negative to explore test-taker reactions. An experimental approach enabled these variables to be compared something that cannot be tested in a field setting for ethical and legal reasons. Study conditions were randomised for mode of test administration and feedback type assigned for the participants which is strength. Test administrations were also compared between paper-and-pencil and online to compare applicant reactions. Furthermore, a factor analysis was conducted on all the scaled measures to assess the underlying factor structure. A confirmatory factor analysis (CFA) was also conducted on the Procedural Justice due to the theoretical links with organisational justice theory and a theoretical model was constructed. The implications of these results are that procedural justice was established as a single construct distinct from fairness. Furthermore, perceived stress was found to be a single construct as there has been debate as to whether there are one two factors underlying the factor structure.

In considering the study context, the experiment was conducted in the years 2007-2008. At the time of the study, equivalence of paper-and-pencil and online testing was a major issue both in the research literature (e.g., Noyes & Garland, 2008) and for practitioners. Online recruitment including testing was becoming more widely used

for job selection by 78% of organisations as reported by the Internal Revenue Service (IRS) (Murphy, 2009).

A sizeable proportion of the participants (34.5 %, N = 30) in this experiment did not complete the study, notably most who received rejection messages, so it can be questioned why this attrition occurred. Perhaps the non-completers intentionally decided not to complete the post-feedback questionnaire due to the negative impact of rejection. Technical computer problems may have also led to attrition as a minority of candidates reported problems accessing and completing the online tests. The researcher provided guidance by e-mail when such problems occurred although as the tests were completed remotely then the researcher was unable to oversee the online testing in person so participants may have withdrawn due to technical difficulties. MacRae (2016) cited computer problems as a common reason for lower test completion rates from a practitioner's perspective.

In considering theoretical explanations of a test-taker's decision not to complete the post-feedback questionnaire (T2) after receiving negative feedback, this behaviour can be accounted for by the Self-affirmation Theory (Steele, 1998). In other words, individuals may have protected their self-image by ignoring negative feedback which could potentially lower their self-esteem so to maintain a positive self-image. This type of withdrawal behaviour when receiving negative feedback has been also found in job applicants (van Vienen, Taris, Scholten & Schinkel, 2004). These findings appear to support self-affirmation theory as discussed in Chapter 1 (See 1.10.1 Self-esteem). The concept of withdrawing as a defence mechanism relates to attributions such as self-serving biases. Potentially there are validity issues with the experiment as

it only yielded results from participants who completed the study, and not from those who decided to withdraw. Follow-up research would be required to ascertain the reasons why participants withdrew, and few studies have examined this aspect (Ployhart et al., 2002; Ryan, Sacco, McFarland & Kriska, 2000).

Upon examination of the mean scores at baseline (T1) for participants who did not return T2 at post-feedback, their mean scores were slightly higher on perceived stress ($M = 28.00$) than those who completed the study ($M = 27.30$). Non-completers recorded lower scores at T1 on core self-evaluations ($M = 50.20$) than those who completed the study ($M = 53.12$). Overall, non-completers were more stressed and had lesser feelings of self-worth at the start of the study than people who completed the study which the overall findings did not capture. However, another consideration is that there was greater variance in the non-completers core self-evaluation scores (S.D. 11.10) than the completers (S.D. 6.94) so these baseline trends would not apply to everyone.

In view of recent technological advances, the study could have been conducted differently such as comparing computer vs. mobile app test-taker reactions. A more direct approach such as a specialised online questionnaire distribution and collection programme such as Survey Monkey rather than the researcher and participants sending each other questionnaires via e-mail attachments may have proved more efficient. Possibly questionnaires could be programmed into the computer test site to be completed at one sitting before the psychometric test. However, negotiating with an external organisation causes practical problems due to the increased workload on the part of the test publishers so would be less likely to obtain study agreement. To

lessen the demand on participants attending sessions and the multiple study phases perhaps a combined computer-programmed test and immediate feedback site could have been utilised such as that employed by Schinkel et al. (2004). A proctored (supervised) computer test would also have enabled a direct comparison to be made with proctored paper-and-pencil test administrations.

There was also a gender imbalance with 39 females as opposed to 18 males completing the study, although initially both genders were equally represented, but participants dropped out of the study at various phases which is a problem when using volunteer participants on multi-stage studies. The sample size of 57 was relatively small although power of .80 was just acceptable for the number of manipulations involved as calculated *post hoc* by G*Power3 (Erdfelder, Faul & Buchner, 1996). The participants were generally young (mean age 26.79) which represents a similar age group to who are being tested for graduate entry-level job selection so increases the study validity. Various academic disciplines were represented in the sample as all schools at the University of Nottingham were contacted and the study was also advertised centrally through the Careers Service and an online advert. However, there may be age differences that this sample did not capture such as fairness perceptions towards online testing differing between younger and older test-takers in view of ideas about the so called 'The Digital Divide.' For example, older adults may be more unfamiliar with computers and testing so may react differently to feedback.

In the analysis of the scaled measures mixed ANOVAs were employed. This approach enabled many variables and interactions to be examined on the data that other statistical tests such as t-tests could not analyse simultaneously. The ANOVA

parameters were also met as detailed in the Analysis section (See 4:6 Analysis). However, the disadvantage with a mixed ANOVA is that between- and within-subject measures are included so that there is more likelihood of a Type I error occurring, than other analyses such as repeated measures ANOVAs. In the case of potential Type II errors (not rejecting the null hypothesis when there is a significant result) a power analysis as earlier detailed indicated that the sample size and the number of conditions were sufficient for this analysis. Measures were taken at two phases for perceived stress, self-esteem, and work involvement so there is a potential response bias to consider on the scaled items with respondents recording similar scores at T1 and T2.

In considering the recruitment strategy, participants were sent the questionnaires as soon as they expressed an interest in the study and were tested as they became available at various points of the academic year. Due to nature of sample including many Postgraduate students enrolled full-time on a one-year course such as a Taught Master's, there was a limited period to retain the sample (2007/2008), and holiday periods also limited participation. Therefore, specific time periods were targeted to advertise the study and recruit participants such as the autumn term (September-December) and from late January-May to avoid any examination or holiday periods as one group were required to attend paper-and-pencil testing sessions in person.

Another recruitment drive was made in the following academic year (2008/2009) as many participants were uncontactable (e.g., their e-mail addresses no longer worked) having left the University. Participants were also asked to imagine they were being tested for their ideal job to increase the study validity.

4.11 Contribution of this study and the next steps

This experimental study made an original contribution to the applicant reactions field by comparing test-taker reactions to paper-and-pencil and online ability test

administrations with three feedback manipulations (passed, reject with explanation, reject no explanation). Furthermore, within an organisational justice theory framework self-report measures of procedural justice and test fairness were utilised. When examining rejection messages, providing an explanation of the decision mitigated unfavourable test fairness and procedural justice evaluations compared to the no explanation condition. A factor analysis was conducted on all the scaled measures, and a confirmatory factor analysis (CFA) on the procedural justice scale established that this is a single construct distinct from fairness when considering organisational justice theory.

Another contribution was utilising alternative psychological self-measures to other experiments (e.g., Schinkel et al., 2011; Wiechmann & Ryan, 2003) in the field: perceived stress, self-esteem, and work involvement to examine the psychological effect on test-takers by varying test feedback. Perceived stress was found to increase when negative feedback was reinforced (their test scores fell below the top 20% of the candidates). Conversely, perceived stress scores fell when no reason was provided in the rejection message and in this feedback group self-esteem scores increased. The implications of these findings are that recruiters need to be mindful of the feedback message being conveyed as reinforcing a candidate's deficiencies in feedback can have detrimental effects on candidates psychologically, whereas a succinct rejection message can have the desired positive effects. On the work involvement measure, rejection increased work involvement scores whereas successful applicants scores fell. The implication of these findings is that work involvement is more pertinent to unsuccessful candidates as once someone has been successful this desire to become involved in work declines. Two key issues need further consideration in the research.

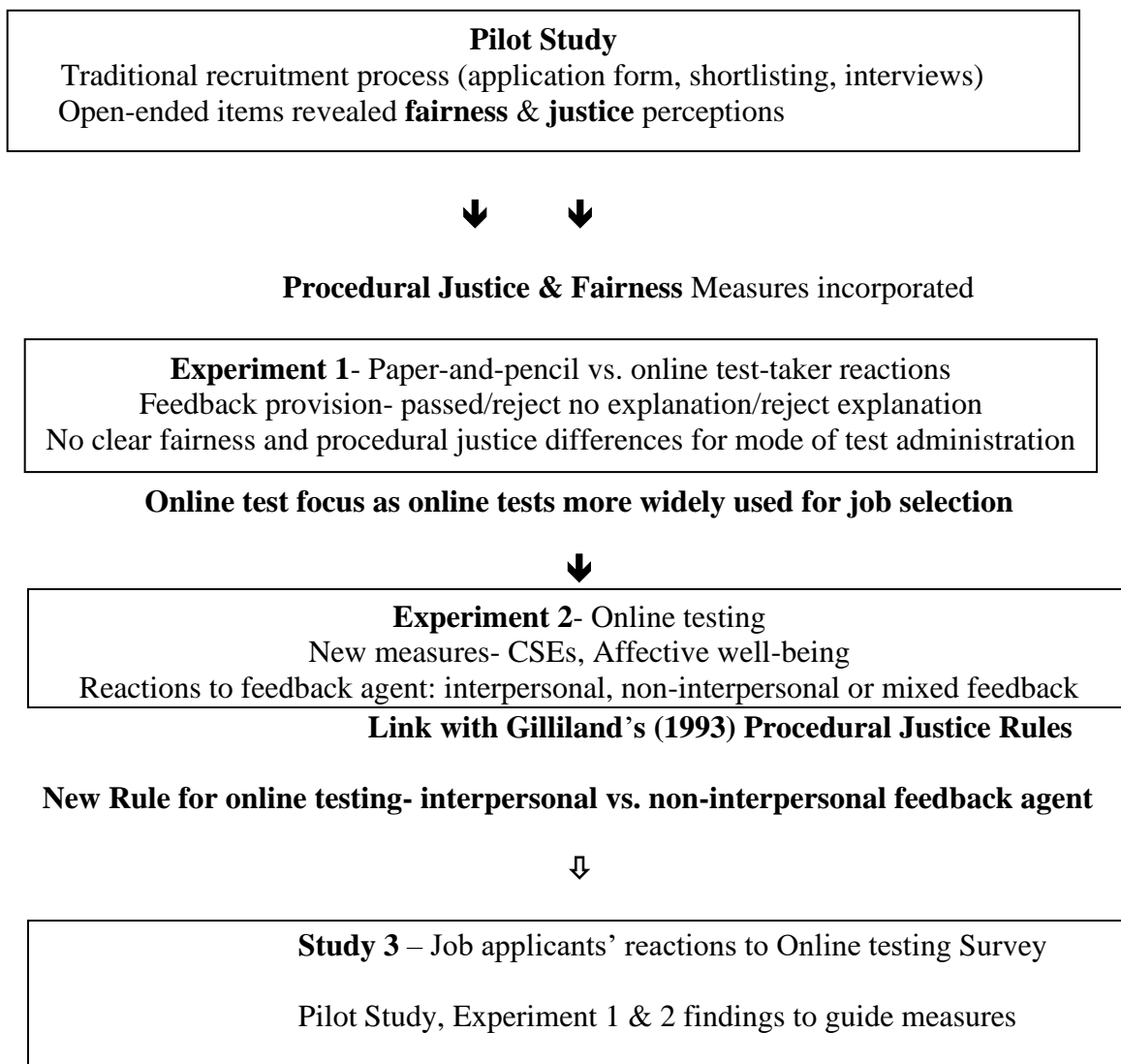
The first issue is the selection of scales. It has been suggested that separate personal reactions measures such as self-esteem and stress do not always show strong relationships with outcome favourability (Gilliland, 1994; Truxillo et al., 2001). Perhaps a broader measure, Core self-evaluations (CSEs) a relatively new measure used in similar experiments (e.g., Schinkel et al., 2004) may better capture the psychological effects on test-takers as it incorporates stress and self-esteem (Judge, 2009) and is more widely applicable to experimental and work contexts. As role-playing candidate personal reactions have been found to change under feedback manipulation in artificial contexts (e.g., Ployhart et al., 1999; Schinkel et al., 2004) then such scales may better capture these psychological effects (Schinkel, van Vienen & van Dierendonck, 2013). The work involvement scale will be removed from the questionnaire items as Warr et al. (1979) intended this concept item to be used for exploratory purposes rather than as a fixed scale. The thesis focuses rather on psychological, fairness, and procedural justice reactions towards feedback.

Secondly, this experiment found no clear differences in test-taker fairness and procedural justice perceptions when comparing mode of test administration for an ability test, between an online and the equivalent paper-and-pencil test version. Oswald et al. (2001) compared perceptions towards supervised/unsupervised tests for online and paper-and-paper tests using a 2x2 between-subjects design, also using an online unsupervised group. Greater feelings of anonymity were reported by test-takers although Oswald et al. measured reactions to personality instruments and an ability test, whereas this study examined reactions towards an ability test. The current study extended these findings to test-takers' fairness and procedural justice perceptions,

which also link to organisational justice theory, were similar in both test administration groups.

In summary, the aims of the experiment were to compare test-taker fairness and procedural justice perceptions and, psychological reactions to paper-and-pencil and online administered tests. Having established no clear test-taker differences in fairness and procedural justice reactions towards mode of test administration, the next stage of the experimental phase of the thesis (Chapter 5) is to focus on online testing as this mode of testing is more commonly used nowadays in job selection. Figure 4.4 shows the progression of the research process.

Figure 4.4: Progression of Research Model



The subsequent experiment addresses two other research aims by examining test-takers' reactions towards feedback from interpersonal and non-interpersonal/automated feedback agents (Dineen, Noe & Wang, 2004) and linking this to organisational justice theory. Firstly, the issue of the mode of feedback is examined in terms of whether applicants respond differently to feedback from an interpersonal or non-interpersonal source, and secondly, whether the source of feedback (e-mail, letter) interacted with the outcome favourability (acceptance/rejection) of the application. In common with the current study another research aim is to investigate how applicant reactions (e.g., perceived stress, self-esteem, fairness, and procedural justice) are affected by manipulating the type of feedback provided from psychometric test performance. The findings from these two experiments and the Pilot Study will subsequently guide the job applicants' field study (Chapter 6).

Chapter 5: Experimental study into online testing reactions towards interpersonal and non-interpersonal feedback

5.1 Introduction

The objective of the first experimental study presented in Chapter 4 was to establish whether mode of test administration (paper-and-pencil vs. online) affected test-taker fairness perceptions and psychological reactions in view of mixed findings in the literature. As no clear differences in test-taker reactions were found towards mode of test administration, the focus of the thesis shifted towards test-takers' perceptions of online testing. Further, as online tests are now more widely used internationally during job recruitment (See 1.2 Graduate recruitment statistics) with an 87% uptake (including those intending to implement this) by recruiters, it appears that paper-and-pencil tests have been superseded (Ryan et al., 2015). This recruitment trend is further evidenced by a minority of organisations (14 %) using both paper-and-pencil and computerised tests (Ryan et al., 2015). Online tests tend to be used during the intermediate phases of a recruitment cycle and are usually administered unsupervised (unproctored) for the candidate to complete remotely at their convenience.

The purpose of this second experiment was to compare reactions to three types of feedback messages in common with the previous study, and to examine how test-taker reactions were affected by the usage of interpersonal vs. automated feedback. Two scales were omitted (self-esteem, and work involvement) from the self-report questionnaires and replaced with Core self-evaluations and Affective well-being.

5.2 Background

In this second experiment, the focus moved towards online testing. Saville and Holdsworth Limited (SHL) requested that a personality instrument was used alongside an ability test as part of their project in developing a new version of the

OPQ32 questionnaire designed for occupational settings. As many Graduate employers employ at least two psychometric tests during the job recruitment process (ISE, 2019) the study reflects common recruitment practices.

Within the context of feedback, two aspects of feedback need to be considered, firstly feedback of the analysis of test results, and secondly feedback of the selection decision. Personality inventories measure responses to questionnaire items according to how the respondent assesses their typical behaviour or feelings to be at the time of completion. This is classified as 'typical performance', although it is not strictly correct to use the term performance as one does not *perform* one's personality. On the other hand, ability tests do measure performance. For example, in a test of numerical ability correct responses are recorded on a scale such as 1-100, with 100 being the maximum score obtainable.

Personality measures and ability measures are measuring different aspects of a person. Ability measures require a correct response to an item, these are totalled, and the respondent is given a score in terms of a scale, such as 1-10 or a percentile, a level at which the person has scored. Interpretation of scores in an ability test, reference to a norm table is made so that respondents' scores can be compared with others. This process therefore follows a normative approach, as scores are compared to a norm reference group.

Personality inventories do not require a correct or incorrect answer to an item. During test administration, there is usually no time limit with the responses to a personality inventory whereas with ability tests these are usually timed and are more likely to be

proctored (supervised) to prevent cheating (See 1.12 Supervised vs. unsupervised (proctored vs. unproctored) testing). Statement items in a personality questionnaire are presented and the test-taker responds usually on a Likert scale in terms of agreement, for example “I always finish tasks” ranging from 1 (Strongly Agree) to 5 (Strongly Disagree). An alternative method with personality questionnaires is the use of forced-choice adjectives or statements to a question and the respondent ranks these in order of how each item is like the test-taker. This forced-type approach is termed ipsative. Ipsative scoring systems identify the respondent in such a way that scores cannot be compared with others but are purely self-referential to be used for development purposes and identification of possible Management styles, they should not be used in selection (Cripps, 2017).

In terms of ability test feedback, scores, and percentiles (how the score relates to the norm groups, e.g. top 20 % of population) are provided although in recruitment contexts this practice is not always carried out. As detailed in Chapter 1 (See 1.5 What is feedback?), just over half of recruiters (51.3 %) surveyed provide test score feedback to their candidates (Ryan et al., 2015). With personality inventories, a personality profile is generated showing how the individual measures on various traits (e.g., extraversion or introversion) or fitted into a type of descriptor. Recruiters use these profiles to match up the person characteristics that they are seeking in a prospective employee for a role (e.g., outgoing, reliable). Nowadays there are computer programmes that compile reports but traditionally test users produced reports detailing the candidate’s personality profile. Ability tests are often used as a predictor measure of future job performance.

There is evidence that personality affects applicant reactions differently (Honkaniemi, Feldt, Metsäpelto & Tolvanen, 2013). Individuals with low self-esteem are more inclined to accept negative feedback than those with higher self-esteem (Brown & Dutton, 1995; Kernis, Brockner & Frankel, 1989; McDowall, Harris & McGrath, 2009) and have stronger reactions to failure. However, the scope of the thesis is in examining test-taker reactions to feedback provision (positive and negative) following assessments including a personality questionnaire, so not people's personality types.

Two online tests were administered in this experiment: a verbal critical reasoning test from the SHL Critical Reasoning Test Battery, and the Occupational Personality Questionnaire 32 (OPQ32) a personality questionnaire designed for occupational settings (see 5.5.2.2 - Psychometric instruments used in study).

The use of technology (i.e., an online written report) in conveying feedback to job applicants has also been examined in the literature. For example, Bauer et al. (2004) examined three screening methods used by recruiters: non-interpersonal and technological feedback (interactive voice response (IVR) screenings), interpersonal feedback (face-to-face interviews), and elements of both technological and impersonal feedback (telephone interviews). In terms of organisational justice theory these researchers found that IVR was rated lower for openness, interpersonal treatment and two-way communication; whereas there were no such differences when comparing perceptions towards these screening methods across the other seven procedural justice rules (See 1.6.4 Communication used (e.g., telephone vs. face-to-face; 2.6 Job applicant satisfaction towards online selection). Related to procedural justice, Dineen, Noe, and Wang (2004) introduced a new fairness predictor: human vs. automated

agent of feedback as discussed in Chapter 2 (See 2.6 Job applicant satisfaction towards online selection). In view of these findings, the current study set out to examine the effect of interpersonal, non-interpersonal, and combined feedback on test-takers in terms of fairness, justice and examined psychological reactions (Core Self-evaluations, Affective well-being, and Perceived Stress).

Experimental work including Schinkel et al. (2004, 2011) is relevant to this second experiment as these researchers also manipulated negative feedback in two conditions (Reject no explanation, Reject with explanation). This study extends the work by including a positive feedback condition (Passed) as in Experiment 1. A new manipulation is the feedback agent utilised in communicating this feedback: interpersonal/non-interpersonal/combined (e-mail & telephone call/computerised-report/e-mail & computerised-report). The study aims will now be presented.

5.3 Aims

In view of literature (Chapters 1 and 2), and previous study findings several areas need to be addressed, so three aims for Experiment 2 were identified:

1. Examine whether applicants react more favourably (e.g., process fairness, core self-evaluations) towards test feedback from a person or a computer.
2. Investigate whether test-takers in receipt of negative feedback are more affected psychologically than those who receive positive feedback.
3. Examine whether there are differences in test-taker reactions depending on type of feedback (passed/reject no explanation/reject with explanation).

5.4 Hypotheses and theoretical background

The first hypothesis concerned the effect of decision outcome whether positive or negative (outcome favourability) as this has a major effect on fairness perceptions (e.g. Anseel & Lievens, 2006; Brett & Atwater, 2001; Tonidandel, Quinoñes & Adams, 2002), as selected applicants hold more positive perceptions compared to rejected applicants. As detailed in Chapter 4 (Hypothesis 1) distributive justice concerns outcomes (See 4.4 Theoretical background and hypotheses) so in this context applies to a selection decision. Self-serving biases can explain how test-takers react in terms of their success or failure. Successful applicants regard the process and decision outcome as fair; whereas their unsuccessful counterparts regard the process and selection decision as unfair to protect their self-image (Wiechmann & Ryan, 2003; Ployhart & Ryan, 1997). Having found these trends in the previous experiment it was hypothesised that participants informed of passing the psychometric tests would rate the test process as fairer and score higher on Procedural Justice than those receiving feedback of test failure.

Hypothesis 1: Participants receiving feedback of passing the psychometric tests will score higher than those receiving feedback of test failure on the test fairness and procedural justice measures.

The second hypothesis concerned test-takers' psychological reactions to feedback. Research suggests with negative outcomes a test-takers' Core self-evaluation (CSEs) and affective well-being are damaged by detailed feedback provision, whereas these self-perceptions remain more positive without a feedback explanation (Schinkel et al., 2004). The rationale behind this trend is that negative feedback is harder for the

individual to ignore using defence mechanisms such as a self-serving bias when it is reinforced with a detailed feedback explanation (Schinkel et al., 2004). Similarly, negative feedback has been found to increase stress (Borman et al., 1997) and damage self-esteem (Iles & Robertson, 1997). Research also indicates that self-evaluations decrease when negative feedback is provided (Ilgen & Davis, 2000; Schinkel et al., 2004). As Schinkel et al. (2013) suggest recruitment outcomes (job offer/rejection) bring about changes in the candidate's well-being, so presumably on this basis receiving positive or negative test feedback has the same effect. Thus, an interaction effect was hypothesised between feedback group and psychological reactions over time. Namely rejected participants would score lower on CSE, and, Affective well-being, and, higher on perceived stress scores over time with a greater effect when rejected with detailed feedback, than those informed they had passed.

Hypothesis 2: There will be a significant interaction between feedback type and changes in psychological outcomes over time. The group receiving detailed feedback of test failure will score lower on CSE and Affective well-being, and higher perceived stress compared to feedback of test failure with no feedback. The group receiving feedback that they have passed the tests will score higher on CSE and Affective well-being, and lower perceived stress over time compared to the two rejected groups.

The use of technology and interpersonal (human-machine) interaction when conveying job recruitment decisions appears to affect test-taker reactions. Test feedback can be provided to candidates in a computerised version such as an automated report (non-interpersonal), in a traditional way from another person by telephone or letter (interpersonal) or via a combination of interpersonal and non-

interpersonal elements (combined). Related to this idea is the notion of the feedback agent, the person or technology who provides the feedback. Dineen et al., (2004) made the distinction between a human (or interpersonal) vs. automated (or non-interpersonal) feedback agent as an additional procedural justice rule for web-based selection.

As detailed in Chapter 4 (See 4.4 Theoretical background and hypotheses – Hypothesis 5) according to the feedback process model (Ilgen, Fisher & Taylor, 1979) three key factors influence feedback acceptance: the kind of feedback message (positive/negative), the source, and the recipient. In this context two key aspects are the `source` the means or agent by which the feedback is conveyed to the recipient, whether from a person (interpersonal) or via some technological means (non-interpersonal), and the `recipient` the person who receives the feedback. Thus, the more credible the feedback agent is regarded by the recipient the more likely (s)he will accept the feedback.

In view of this theoretical background and research findings it was hypothesised that in the same way to fairness perceptions there would be differences in test-takers' psychological reactions (CSEs, Affective well-being, Perceived Stress) at T2 towards interpersonal and non-interpersonal feedback agents. As there is a gap in the literature concerning psychological reactions to feedback agents this is an original contribution. Specifically test-takers who received feedback from an interpersonal feedback agent (e-mail & telephone) would score lower on Perceived Stress, and higher on CSEs and Affective well-being with the opposite effect for test-takers receiving feedback from an non-interpersonal (report) or combined (e-mail & report) feedback agent.

Hypothesis 3: Mode of test feedback will only have an impact on change in outcomes over time if from an interpersonal feedback agent as this modality is considered more trustworthy. There will be a significant rise in CSEs and Affective well-being and fall in perceived stress scores in the interpersonal feedback agent condition (e-mail and telephone) but not in the non-interpersonal (computerised report) or combined (e-mail and report) feedback agent conditions.

Leading on from the previous hypothesis the combined interaction effect of the feedback agent (interpersonal/non-interpersonal/combined), and the selection outcome feedback message (passed/reject no explanation/reject with explanation) on test-takers' fairness and procedural justice reactions was examined. The literature suggests that test-takers consider computerised administered tests as fairer (e.g., Schmidt et al., 1978), they are more accepting towards computerised explanations in recruitment decisions (Kluger & Rothstein, 1993; Ployhart & Ryan, 1997); and successful candidates hold more positive perceptions than unsuccessful candidates (e.g., Brett & Atwater, 2001; Tonidandel, Quinones & Adams, 2002).

In terms of applying Ilgen et al.'s (1979) feedback process model the components of type of feedback or outcome favourability, and source of feedback (i.e., the feedback agent) and both involved in forming the recipient's fairness and procedural justice perceptions of the selection process and feedback communicated. Dineen, Noe and Wang (2004) introduced a new fairness predictor: human vs. automated agent as a 11th Procedural Justice rule applied to online selection. Interpersonal decision agents were regarded as procedurally fairer than an automated decision agent during the job screening. Supporting research also found that test-takers' perceived face-to-face

communication to be fairer than technological communication (Bauer et al., 2004; Chapman et al., 2003). However, other research found no such differences (Ötting & Maier., 2018). The current study goes further by examining three components of feedback agents: interpersonal, non-interpersonal and combined feedback. The combined feedback aspect is equally as important as this includes aspects of both interpersonal and non-interpersonal feedback. Thus, it was hypothesised that test-takers' receiving interpersonal positive feedback would rate the process as fairer and score higher on procedural justice than those receiving negative non-interpersonal feedback.

Hypothesis 4: Test-takers who receive interpersonal positive feedback (e-mail and telephone, passed) will rate the process as fairer and score higher on procedural justice than those receiving negative non-interpersonal feedback (computerised-report, reject with explanation).

Hypothesis 5 examined the three-way interaction between time of measurement (T1, T2) x mode of feedback (interpersonal/non-interpersonal/combined) x feedback type (passed/reject no explanation/reject with explanation) on each psychological measure (perceived stress, core self-evaluations, affective well-being). Considering theoretical approaches (feedback process model, interpersonal vs. non-interpersonal feedback agent, Dineen et al., 2004), it was hypothesised that test-takers informed they had passed using interpersonal feedback (e-mail & telephone) would score higher than those rejected with an explanation using non-interpersonal feedback (computerised-report) on core self-evaluations and affective well-being, and lower on perceived stress between T1-T2, with scores moving in the opposite direction for test failure.

Hypothesis 5: There will be a significant interaction between feedback group, mode of test administration and change in psychological outcomes over time (T1-T2).

Participants receiving interpersonal feedback of a pass will have a greater increase in CSEs etc over time compared to people who receive automated feedback of a pass.

Participants who receive interpersonal feedback of a fail will have a greater fall in CSEs etc overtime compared to participants who receive automated feedback of a fail.

5.5 Methodology

5.5.1 Design

A 2 (self-report questionnaire: pre-testing and post-feedback) x 3 (mode of feedback: e-mail and telephone call, computerised-report, e-mail and computerised-report) x 3 (feedback message: Passed, Reject no explanation, and Reject with explanation) mixed design was employed. The research model and manipulations employed is displayed in Table 5.1.

Table 5.1 Research model showing feedback mode and feedback type manipulations and numbers per group type

Manipulation	Passed	Reject, no explanation	Reject, with explanation
E-mail and computer report	N = 13	N = 12	N = 13
Computer report	N = 11	N = 9	N = 10
E-mail and telephone	N = 15	N = 10	N = 8

Participants completed a short questionnaire measuring Perceived Stress, Core self-evaluations and Affective well-being: i) before completing two psychometric tests -

Ability test and Personality questionnaire (T1), and ii) after receiving dummy test feedback (T2). Control items at T1 were taken asking for test taking experience, computer/internet experience, computer/internet test anxiety and fairness attitudes towards Ability tests and Personality Questionnaires. Procedural fairness and a separate fairness measure were taken at T2. Upon completion of the psychometric tests, participants were randomly assigned to receive one of the following feedback communications: e-mail message and telephone call; computerised-report; e-mail and computerised-report; containing outcome favourability feedback in one of three forms: Passed, Reject no explanation, and Reject with an explanation. However, the feedback bore no relation to the participant's actual test performance (as in the previous study).

Overall, there were 9 different feedback combinations across mode and type of feedback (See Table 5.1). A Power Analysis was performed prior to the study using the software G*Power3 (Erdfelder, Faul & Buchner, 1996) and the required sample size to achieve statistical power of .80 for these manipulations was calculated at 72 participants, so the actual sample size of 101 well exceeded this requirement with statistical power of .95. The dependent variables were scores on the scales for Perceived Stress, Affective well-being, and Core self-evaluations.

5.5.2 Participants

The sample comprised 101 Graduates (38 males, 63 females, mean age 29.76 years) including Postgraduate students from a number of UK Universities (N = 51), graduates in employment (N = 21), and those working and studying (N = 29) and Internet groups (e.g. Facebook, University Alumni groups). Table 5.2 displays the

participant demographics. Participants were selected based on Graduate-level educated individuals who expressed an interest from study advertisements (e-mails, leaflets, and posters) to take part in the study concerning online psychometric testing. A proportion of participants started the study but did not complete it. The breakdown of these participant numbers is as follows: Number expressed an interest = 519; number started online tests = 362; those that completed the testing phase so received test feedback = 148; number completed study = 101.

Table 5.2: Participant demographics

	Postgraduate student	Working graduate	Studying and working	Total
Gender Male	19 (18.8 %)	10 (9.9 %)	9 (8.9 %)	38 (37.6 %)
Female	32 (31.7 %)	11 (10.9 %)	20 (19.8 %)	63 (62.4 %)
Total	51 (50.5 %)	21 (20.8 %)	29 (28.7 %)	101 (100 %)
Age Mean (in years)	24.9	42.1	29.3	29.76
Standard Deviation	5.1	14.2	7.1	10.6
Test experience				
Personality	6 (5.9 %)	4 (4.0 %)	8 (7.9 %)	18 (17.8 %)
Ability tests	4 (4.0 %)	1 (1.0 %)	0 (0.0 %)	5 (5.0 %)
Both	13 (12.9 %)	10 (9.9 %)	7 (6.9 %)	30 (29.7 %)
None	28 (27.7 %)	6 (5.9 %)	14 (13.9 %)	48 (47.5 %)
Total	51 (50.5 %)	21 (20.8 %)	29 (28.7 %)	101 (100 %)
Computer/internet regularity of use				
2-3 times a week	0 (0.0 %)	2 (2.0 %)	0 (0.0 %)	2 (2.0 %)

Every day < 5 hours	25 (24.8 %)	10 (9.9 %)	15 (14.9 %)	50 (49.5 %)
Every day > 5 hours	26 (25.7 %)	9 (8.9 %)	14 (13.9 %)	49 (48.5 %)
Total	51 (50.5 %)	21 (20.8 %)	29 (28.7 %)	101 (100 %)

Total N = 101

5.5.3 Materials

5.5.3.1 Pre- and Post-test measures

Participants were presented with a self-report questionnaire (See Appendix 3) prior to taking the psychometric tests (T1) and another post-feedback (T2). Previously used scale items for Self-esteem, and Work Involvement were omitted but the other scales were retained (Perceived Stress and Procedural Justice). The reliabilities for these existing scales were as follows: perceived stress T1 $\alpha = .89$, T2 $\alpha = .87$ and, procedural justice $\alpha = .70$ (only measured at T2). Additional items and scales introduced in this study are detailed in this section.

Core self-evaluations were measured at both stages using Judge et al.'s (2002) Core Self-Evaluations Questionnaire across 12 items (See Appendix 3). An example of an item is "I am confident I get the success I deserve in life". Participants responded on a 5-point Likert-scale from 1 (Strongly Disagree) to 5 (Strongly Agree), with a higher score indicating stronger agreement with the item. Scores ranged from 12-60 with higher scores representing more positive core self-evaluations. A typical score on this scale is 30, with low scores from 12-21 and high scores over 50. As this broader measure incorporates aspects of stress and self-esteem it has been found to have stronger effects in research contexts (Judge, 2009) than these individual measures, the CSE scale was selected. Furthermore, this instrument has a reported reliability of .85

(Schinkel et al., 2004), and in this study Cronbach's Alpha reliabilities were $\alpha = .88$ at T1, and $\alpha = .87$ at T2. Construct validity has also been demonstrated with CSEs correlating with the individual measures of self-esteem (.75), self-efficacy (.37), neuroticism (.48) and locus of control (.46) (Gardner & Pierce, 2011).

Affective well-being was measured by asking respondents about how they felt (e.g. happy, anxious). An example item was "I can deal with just about any problem in my non-job life." The 12 items were equally divided between positive and negative items concerning the respondent's feelings outside of work so with life in general, so it was deemed as a suitable scale for assessing well-being with mainly a student sample in mind. These items from Warr's (1990) Affective Well-being scale were measured on a 5-point Likert scale from 1 (Strongly Disagree) to 5 (Strongly Agree) with a higher score indicating stronger agreement with the item. The Affective well-being scale has a reported reliability ranging between 0.89-0.93 (Schinkel et al., 2004), and Cronbach's Alpha reliabilities fell within a similar range for this study, with $\alpha = .88$ at T1, and $\alpha = .84$ at T2. Four factors of comfort, depression, enthusiasm, and anxiety (e.g., Gonçalves & Neves, 2011) have been established and one-factor latent factor models for the scale have been suggested using Confirmatory Factor Analysis (CFA).

Four control questions were included in the pre-testing questionnaire (T1) investigating computer/internet test taking anxiety, regularity of computer use, computer/internet test taking experience and test fairness. A single item created for this experiment was used on a Likert scale for each control.

Computer/internet test taking anxiety was measured on a 5-point Likert scale from 1 (Very worried) to 5 (No, not worried). Regularity of computer use was measured using a 7-point Likert scale ranging from 1 occasional use (less than once a month) to 7 regular use (more than 5 hours a day) of the computer/internet. Computer/internet test taking experience was measured by respondents responding to the following item: “Have you had any experience of taking Psychometric Tests? If so, please tick the appropriate box(es)” (Yes, Paper-and-pencil, Online, Both formats, No).

There were two items for test fairness, one for Ability Tests measured at T1: “Ability Tests are fair for recruiting applicants for a Graduate Job”, and one for Personality Questionnaires: “Personality Questionnaires are fair for recruiting applicants for a Graduate Job”. Respondents replied on a scale from 1 (Strongly Agree) - 5 (Strongly Disagree) per item, resulting in a Cronbach’s Alpha of $\alpha = .72$ for this scale. A further measure of Ability Testing fairness “How fair was the Ability Test that you did in this study for your ideal job?” and Personality Questionnaire fairness “How fair was the Personality Questionnaire that you did in this study for your ideal job?” was taken at T2 regarding the tests used in the study, resulting in a Cronbach’s Alpha of $\alpha = .70$.

5.5.3.2 Psychometric instruments used in study

Participants were presented with two Online Graduate Psychometric tests from the test publisher SHL.

- Verbal Ability Series Online (ASO) in common with Experiment 1 (See 4.5.2.4 for instrument details),
- The Occupational Personality Questionnaire 32 (OPQ32) was also administered online and was untimed.

The OPQ32 assesses personality types in relation to work. It is particularly designed for use in organisational psychology and applications include selection and development (Klein, 2000). There are two modes of presentation, normative (normed against a large and acceptable managerial sample) and a self-report, forced choice (ipsative) questionnaire format comprising 136 items. The ipsative version was chosen because the administration was quicker than the normative version with 248 items. This has reported high validity and reliability (internal consistency = .81, Bartram, 1995).

5.5.4 Procedure

An advertisement was circulated via e-mail, and posters were displayed at academic schools at the University of Nottingham, other Universities including the University of Birmingham and Loughborough University, Division of Occupational Psychology Practitioner-in-Training (DOP-Pit) group members, internet groups and other suitable Graduates inviting participation in a study about Psychometric testing for jobs. As a study completion incentive, participants' names were entered into a prize draw for book tokens.

After participants had expressed an interest, they were provided with a sample job advert and asked to undertake an Ability test and a Personality Questionnaire as the first phase of the application process. The advert resembled an actual job advert from an organisation (e.g. from Monster.co.uk), to appear realistic. Prior to testing, participants were asked to complete a short online questionnaire (T1) by following a Survey Monkey weblink. For the reader, Survey Monkey is a specialised software package for accessing and for collecting questionnaire responses.

After completing T1, each participant was then e-mailed instructions, a password and a weblink to follow which linked to an SHL test website to complete the online tests remotely unproctored (unsupervised) usually from their personal computer. A week later, feedback from the psychometric tests was communicated by the researcher to participants in different ways by varying the mode of communication (e-mail and telephone/computer report/e-mail and report) and the feedback content (passed, reject no explanation, reject with explanation). Participants were randomly allocated to one of these nine feedback conditions.

Table 5.3 shows the nine different manipulation groups. In each condition the feedback message was communicated in accordance with whether it was a pass (message 1), reject with no explanation (message 2), or a reject with explanation (message 3) using that particular form of communication (e-mail & telephone/computer report/e-mail & report).

Table 5.3 Research model showing feedback mode and feedback type

E-mail & telephone passed (message 1)	E-mail & telephone reject no explanation (message 2)	E-mail & telephone, reject with explanation (message 3)
Computer-report passed (containing message 1)	Computer-report, reject no explanation (containing message 2)	Computer-report, reject with explanation (containing message 3)
E-mail & computer-report passed (message 1)	E-mail & computer-report, reject no explanation (message 2)	E-mail & computer-report, reject with explanation (message 3)

- One group received feedback via an e-mail message and a telephone call,
- another group were sent a computer-generated feedback report (attached via e-mail) to the e-mail address provided in the T1 questionnaire, and
- the third group received feedback in the form of an e-mail message and computerised report.

In conditions using e-mail feedback, the content was worded within an e-mail; where computerised reports were used, each type of message was edited into the same standardised dummy report provided by SHL that all participants received (a short summary at the end indicating their suitability had it been a job recruitment process).

In conditions involving a telephone conversation, the protocol was for the researcher to only discuss with the participant the wording of the feedback message (message 1, 2 or 3) so that feedback was standardised in whatever form of communication was used. Therefore, the researcher did not digress from this feedback during the telephone conversation. To cover for the eventually that respondents requested further feedback during the telephone conversation they were told that after the study (T2 returned) there would be a debriefing. One of three feedback messages compiled after consulting with relevant experts (e.g., Human Resources Officers) was sent at random to appear realistic and to increase validity.

One message informed the test taker that (s)he has met the standard required to pass the psychometric tests (message 1).

“Thank you for completing the recent psychometric tests. I am pleased to inform you that you met the standard required had it been for job selection for your ideal job.

Your test scores were higher than average compared to other candidates and your personality matched the requirements.”

Another message merely informed the applicant that in a real-life job application this application would have been unsuccessful (message 2).

“Thank you for completing the psychometric tests for your ideal job. Unfortunately, your application would have been unsuccessful in a job application process.”

A third message informed the applicant that their psychometric test scores fell below a percentile of the other applicants and their personality profile did not fit the requirements for their ideal role so in a real-life situation the application would be unsuccessful (message 3). The message was worded as follows:

“Thank you for completing the psychometric tests for your ideal job. Unfortunately, your application would have been unsuccessful in a job application as your ability test score fell below the top 20% of test scores compared to other applicants.

Furthermore, we were looking for a certain type of person for our role. For your ideal job it is important that applicants achieve a high-test score on the ability test and fit the desired personality for that role. Therefore, you would have been deemed unsuitable for this job in a job selection process.”

However, the feedback was manipulated and bore no relation to the psychometric test performance. The purpose behind the feedback manipulation was to examine how test takers responded to different types and modes of feedback. The study had been ethically cleared by the University of Nottingham Ethics Committee prior to commencing. Finally, participants completed a post-feedback questionnaire (T2)

online by following a Survey Monkey weblink provided in an e-mail after receiving the feedback. Reminders were sent to participants that did not complete T2.

After returning T2, participants were sent a debriefing sheet explaining that deception was used for the purpose of the study and the nature of the study was explained.

Participants also had the right to withdraw their data and were assured that their data was strictly confidential and anonymous. This was to adhere to BPS ethical guidelines and the UK Data Protection Act (1998). Participants were then sent their actual personalised computerised test feedback reports from their psychometric tests following the debriefing. Data was stored securely in a filing cabinet that was only accessed by the researcher, and electronic data was password-protected.

As detailed in Experiment 1 (4.6 Ethical concerns) providing misleading test feedback had ethical implications as participants were initially deceived, which may have caused distress, especially for those told they were unsuitable for a job based on their test scores and personality profile. To minimise the time participants were deceived, and any distress, they were debriefed immediately after returning T2.

Researchers have used this approach (e.g., Schinkel et al., 2004, 2011) to deceive and debrief participants to make the recruitment more realistic and replicate a job recruitment process in which positive and negative feedback was conveyed. The choice of manipulating feedback can be justified as without varying feedback to test-takers in a controlled manner, psychological reactions to different feedback cannot be measured, whilst at the same time being sensitive towards these ethical and legal implications to learn how test-takers respond to feedback.

5.6 Analysis

Control items (test taking experience, regularity of computer use, computer/internet test taking anxiety, ability test fairness for Graduate jobs, and personality questionnaire fairness for Graduate jobs) were firstly analysed. This ensured that the sample had similar experience of online testing and pre-testing fairness perceptions towards job recruitment leaving the independent variables (feedback mode, outcome favourability) to be assigned for the main analysis. A One-Way ANOVA was then conducted across mode of feedback (e-mail and telephone, report, e-mail and report), and outcome favourability (passed, reject no explanation, reject with explanation) to ensure participants had similar scores in terms of these control measures.

For each psychological measure, a mixed 2 (time of testing: T1 = pre-testing, T2 = post-feedback) x3 (feedback mode: e-mail and telephone/computerised report/e-mail and report) x3 (feedback type: passed/reject with explanation/ reject no explanation) ANOVA was performed. Procedural justice was only measured at T2 so a 2x3 Univariate ANOVA was performed on this scale. Test fairness was included in the pre-testing questionnaire, as one of the control items as previously stated. A separate fairness measure was taken post-feedback (1 = Fair – 3 = Unfair) for test fairness.

5.7 Results

5.7.1 Controls and preliminary checks

Tables 5.4 and 5.5 display the control items comparing Mean and Standard Deviation (SD) scores across the Mode and Type of feedback groups.

Table 5.4: Control Measures Means and SDs pre-testing by Mode of Feedback

Feedback Mode	<u>e-mail & report</u>		<u>report</u>		<u>e-mail & telephone</u>	
	Mean	SD	Mean	SD	Mean	SD
Control						
Test taking experience	3.21	0.96	3.03	1.25	2.94	1.17
Regularity of computer use	6.50	0.56	6.40	0.56	6.48	0.51
Computer/Internet test anxiety	4.29	1.04	3.90	1.32	3.88	1.29
Ability Test Fairness for Graduate Jobs	4.27	1.03	2.50	1.01	2.55	0.83
Personality Questionnaire Fairness for Graduate Jobs	2.82	0.98	2.87	0.82	2.82	0.95

Table 5.5: Control Measures Means and SDs pre-testing by Feedback Type

Feedback Type	<u>Passed</u>		<u>Reject, no explanation</u>		<u>Reject, explanation</u>	
	Mean	SD	Mean	SD	Mean	SD
Control						
Test taking experience	3.15	1.09	2.84	1.21	3.19	1.05
Regularity of computer use	6.46	0.56	6.39	0.56	6.55	0.51
Computer/Internet test anxiety	3.97	1.22	4.06	1.26	4.10	1.19
Ability Test Fairness for Graduate Jobs	2.46	1.07	2.55	0.93	2.52	0.85
Personality Questionnaire Fairness for Graduate Jobs	2.69	0.83	3.06	1.03	2.77	0.88

A One-Way ANOVA was conducted to compare the mode of feedback groups for each control question. There were no significant differences between the groups on each control: Test taking experience ($F(2,98) = 0.539, p = 0.585$); Regularity of computer use ($F(2,98) = 0.315, p = 0.730$) and Computer/Internet test anxiety ($F(2,98) = 1.296, p = 0.278$). Finally, there were no significant differences between the three different modes of feedback groups for Ability Test ($F(2,98) = 0.049, p = 0.952$) and Personality Questionnaire Fairness ($F(2,98) = 0.030, p = 0.970$).

The same trend was found when comparing the feedback types for the control items: Test taking experience ($F(2,98) = 0.965, p = 0.384$); Regularity of computer use ($F(2,98) = 0.689, p = 0.504$) and Computer/Internet text anxiety ($F(2,98) = 0.095, p = 0.909$). Again there were no significant differences between feedback type groups for Ability test ($F(2,98) = 0.073, p = 0.930$) and Personality Questionnaire Fairness ($F(2,98) = 1.526, p = 0.223$). These results confirm that the groups were similar on these variables, so these will not confound results or bias the groups' results. As a preliminary check to ensure the homogeneity of variance had been met on the data Levene's tests were conducted for each measure (e.g., core self-evaluations). The results were non-significant, so the homogeneity of variance assumption had been met.

5.7.2 Test Fairness

The first analysis concerns the issue of test fairness to test Hypotheses 1 and 4. A test fairness measure (1 = Fair – 3 = Unfair) was taken at T2 for fairness of Ability testing and Personality Questionnaires for the Graduate's ideal job as displayed in Table 5.6.

Table 5.6: Ability testing and Personality Questionnaire fairness Means and SDs by Mode and Type of feedback

Ability testing fairness

Feedback Type	e-mail & report		report		e-mail & telephone	
	Mean	SD	Mean	SD	Mean	SD
Passed	1.69	0.63	1.73	0.91	1.60	0.74
Reject, no explanation	1.50	0.52	2.11	0.78	2.00	0.67
Reject, with explanation	2.00	0.71	2.00	0.67	2.00	0.54

Personality Questionnaire fairness

Feedback Type	e-mail & report		report		e-mail & telephone	
	Mean	SD	Mean	SD	Mean	SD
Passed	1.85	0.69	2.27	0.91	1.47	6.40
Reject, no explanation	2.27	0.65	2.22	0.67	1.80	7.79
Reject, with explanation	2.08	0.76	2.00	0.82	1.88	0.84

A 3x3 univariate ANOVA was conducted for post-feedback Ability testing fairness and Personality Questionnaire fairness scores. The Fairness of Ability testing measure indicated there were no significant main effects for Mode ($F(2,91) = 0.701, p = 0.499$) and Type ($F(2,91) = 1.949, p = 0.148$) of feedback, nor a significant interaction effect between Mode and Type of feedback ($F(4,91) = 0.727, p = 0.576$). In contrast, on the Personality Questionnaire fairness item there was a main effect for Mode of feedback ($F(2,91) = 3.112, p = 0.049$), although the main effect for Feedback type ($F(2,91) = 0.848, p = 0.432$) was not significant and likewise there was no significant interaction between Mode and Type of feedback ($F(4,91) = 0.680, p = 0.608$).

Table 5.7: Ability test fairness and Personality Questionnaire fairness Means and SDs post-feedback (T2) by Feedback Type

<u>Feedback Type</u>	<u>Ability test fairness</u>		<u>Personality Questionnaire Fairness</u>	
	<u>Mean</u>	<u>SD</u>	<u>Mean</u>	<u>SD</u>
Passed	1.67	0.11	1.86	0.12
Reject, no explanation	1.87	0.13	2.06	0.14
Reject, with explanation	2.00	0.13	1.98	0.14

Table 5.7 displays the means for ability test fairness and personality questionnaire fairness by feedback type, and Table 5.8 by mode of feedback.

Table 5.8: Ability test fairness and Personality Questionnaire fairness Means and SDs post-feedback (T2) by mode of feedback

<u>Mode of Feedback</u>	<u>Ability test fairness</u>		<u>Personality Questionnaire Fairness</u>	
	<u>Mean</u>	<u>SD</u>	<u>Mean</u>	<u>SD</u>
E-mail & report	1.73	0.11	2.03	0.12
Report	1.95	0.13	2.17	0.14
E-mail & telephone	1.87	0.13	1.71	0.14

Hypothesis 4 was tested by considering the effect of mode of feedback manipulation on test fairness perceptions. To remind the reader, a lower test fairness score indicates greater fairness. As shown in Table 5.8 Personality Questionnaire test fairness scores differed most between the e-mail and telephone ($M = 1.71$) and report ($M = 2.17$) conditions. Therefore, personality questionnaire feedback using a combination of interpersonal and non-interpersonal feedback elements was perceived as fairer than non-interpersonal feedback (i.e., computerised report). On both test fairness measures the report condition was regarded as the least fair mode of feedback. Therefore, hypothesis 4 is supported.

Overall, this section presented the test fairness measure analysis. The findings support Hypothesis 1 as successful test-takers regarded the tests as fairer than those rejected. Having considered the aspects of test fairness, this leads onto the next section which concerns procedural justice which will also be testing Hypotheses 1 and 4.

5.7.3 Procedural Justice

A confirmatory factor analysis (CFA) was conducted using the Analysis of Moment Structure (AMOS) v. 24 statistical package (Arbuckle, 2016). The estimation method chosen was the maximum likelihood estimate as the data were normally distributed. According to reported conventions the normality assessment usually rejects when the ratio of skewness is $> \pm 1$ and/or kurtosis is $> \pm 2$ (Ahmed, 2010; Nunally & Bernstein, 1994). The 7 items` distribution in this study was accepted as none departed from this normality. The hypothesised one-factor model was fit to the data of the full sample (N = 101). This model fit the data well. $\chi^2(14) = 17.479$, $p = 0.232$, CFI = 0.962, TLI = 0.943, RMSEA = 0.05. No post-hoc modifications were conducted due to the good fit of the data to the model.

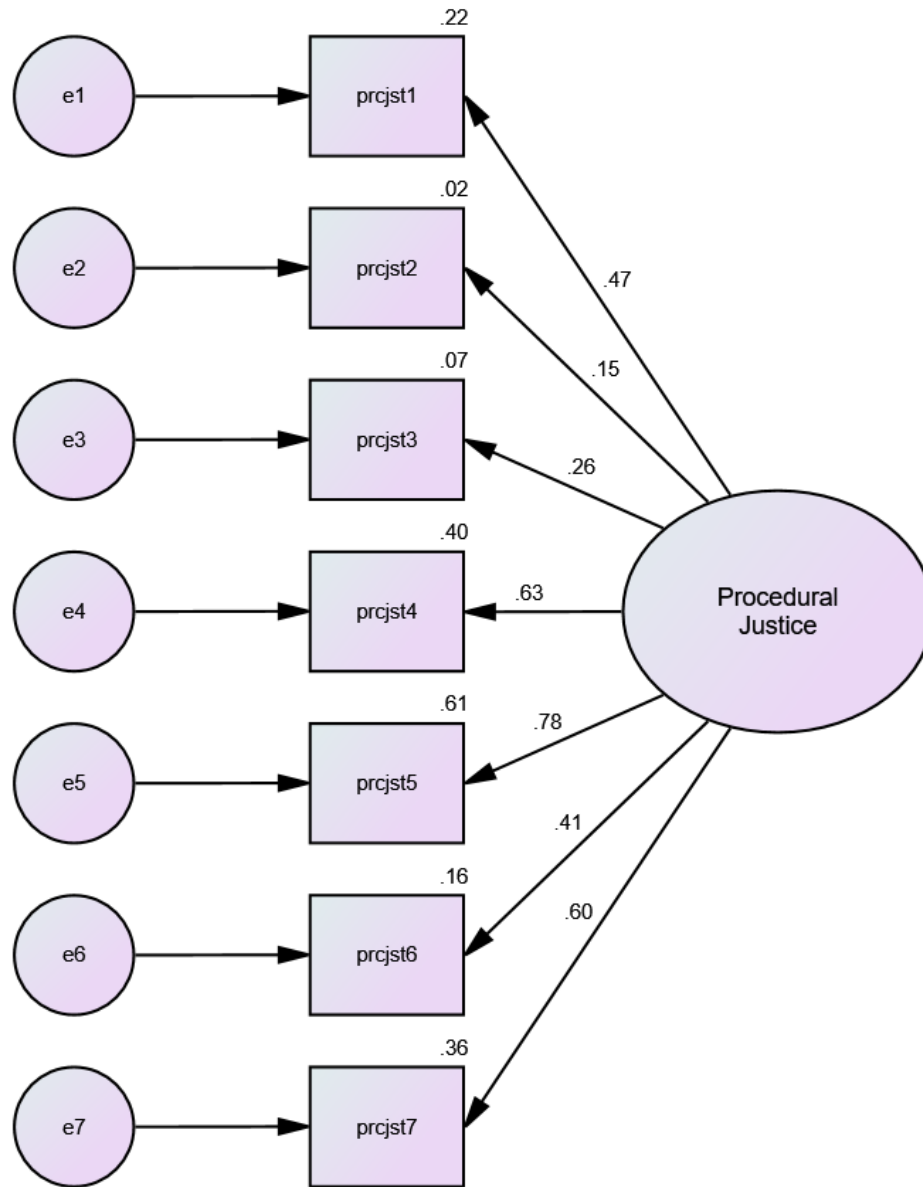
Table 5.9 displays the standardised residual covariances for the procedural justice scale items, and the theoretical model is presented in Figure 5.1.

Table 5.9: Standardised Residual Covariances for Procedural Justice items

Observed variable	prcjt1	prcjt2	prcjt3	prcjt4	prcjt5	prcjt6	prcjt7
prcjt1	.000						
prcjt2	-.324	.000					
prcjt3	.293	1.592	.000				
prcjt4	-.341	-1.036	-.012	.000			
prcjt5	.211	-.448	-.850	.308	.000		
prcjt6	.662	1.142	1.269	.198	-.611	.000	
prcjt7	-.436	1.241	.714	-.392	.121	.114	.000

N = 101

Figure 5.1: Standardised estimates for the 7-item one-factor structure of Procedural Justice



Hypotheses 1 and 4 were also tested on the measure of Procedural Justice and Table 5.10 displays the Mean and SD scores across these conditions.

Table 5.10: Procedural justice of testing process Means and SDs by Mode of feedback and Feedback Type

Feedback Type	e-mail & report		report		e-mail & telephone	
	Mean	SD	Mean	SD	Mean	SD
Passed	21.54	2.18	20.18	2.82	23.20	3.14
Reject, no explanation	20.33	3.26	19.56	4.75	22.00	4.94
Reject, with explanation	19.62	2.93	19.50	4.60	20.75	4.27

As with the fairness measures analysis, a 3 x 3 univariate ANOVA was performed on procedural justice scores at T2. There was no significant main effect for Type of feedback ($F(2,92) = 1.866, p = 0.161$) and the interaction between Mode and Feedback Type was not significant ($F(4,92) = 0.167, p = 0.955$); Mode of feedback was nearly significant ($F(2,92) = 3.011, p = 0.054$) on procedural justice. Tukey HSD post-hoc analyses showed the mean difference in Procedural Justice scores between the report, and e-mail and telephone feedback groups was significant ($p = 0.02$).

As displayed in Table 5.11 when comparing procedural justice scores as predicted in Hypothesis 4, participants in the e-mail and telephone group had higher procedural justice mean scores where there was interpersonal feedback ($M = 21.98$), than non-interpersonal feedback in the report condition ($M = 19.75$). Therefore, Hypothesis 4 is supported.

Table 5.11: Procedural Justice Means and SDs by Feedback Type and Mode

<u>Feedback Type</u>	<u>Mean</u>	<u>SD</u>
Passed	21.64	0.59
Reject, no explanation	20.63	0.66
<u>Reject, with explanation</u>	<u>19.96</u>	<u>0.67</u>

<u>Mode of feedback</u>	<u>Mean</u>	<u>SD</u>
E-mail & report	20.50	0.59
Report	19.75	0.67
<u>E-mail & telephone</u>	<u>21.98</u>	<u>0.65</u>

In comparing outcome favourability (See Table 5.11), participants in the Passed condition had higher procedural justice mean scores ($M = 21.64$) than in the rejected conditions supporting Hypothesis 1.

5.7.4 Repeated measures scales

After testing Hypotheses 1 and 4 in terms of test fairness and procedural justice, Hypotheses 2, 3 and 5 were tested in relation to interaction effects for Mode and Type of feedback on separate psychological scales. For each of these scales, a Mixed ANOVA was performed to compare pre-test and post-test scores between Mode of feedback group (e-mail & report, report, e-mail & telephone) and Feedback Type (Passed, Reject no explanation, and Reject with explanation).

Table 5.12 displays the descriptive statistics and correlation coefficients for the scaled measures. This shows that there was a negative association between perceived stress and CSEs (at T1 and T2). Likewise, there was a negative association between affective well-being and CSEs. On the other hand, there were positive associations between affective well-being and perceived stress at T1 and T2. On procedural justice there were no significant correlations with the other measures.

The results of the analysis from each scale will be presented separately in the following order: Core Self-evaluations (CSEs), Perceived Stress, and Affective well-being.

Table 5.12 Descriptive statistics and correlation coefficients between psychological measures and time of measurement (T1, T2)

Measure	M	SD	1	2	3	4	5	6	7
1. Core Self-evaluations T1	43.20	7.80	(.88)						
2. Core Self-evaluations T2	43.76	7.15	.78**	(.87)					
3. Perceived Stress T1	23.66	6.87	-.77**	-.62**	(.89)				
4. Perceived Stress T2	22.89	6.30	-.60**	-.73**	.60**	(.87)			
5. Affective well-being T1	25.62	7.07	-.76**	-.68**	.67**	.55**	(.88)		
6. Affective well-being T2	25.78	6.31	-.55**	-.70**	.54**	.60**	.71**	(.84)	
7. Procedural Justice T2	20.85	3.71	-.07	-.06	.03	-.01	.08	.07	(.70)

N = 101 **p<0.001. Cronbach's alphas are displayed in parentheses along the diagonal.

5.7.4.1 Core Self-evaluations (CSEs)

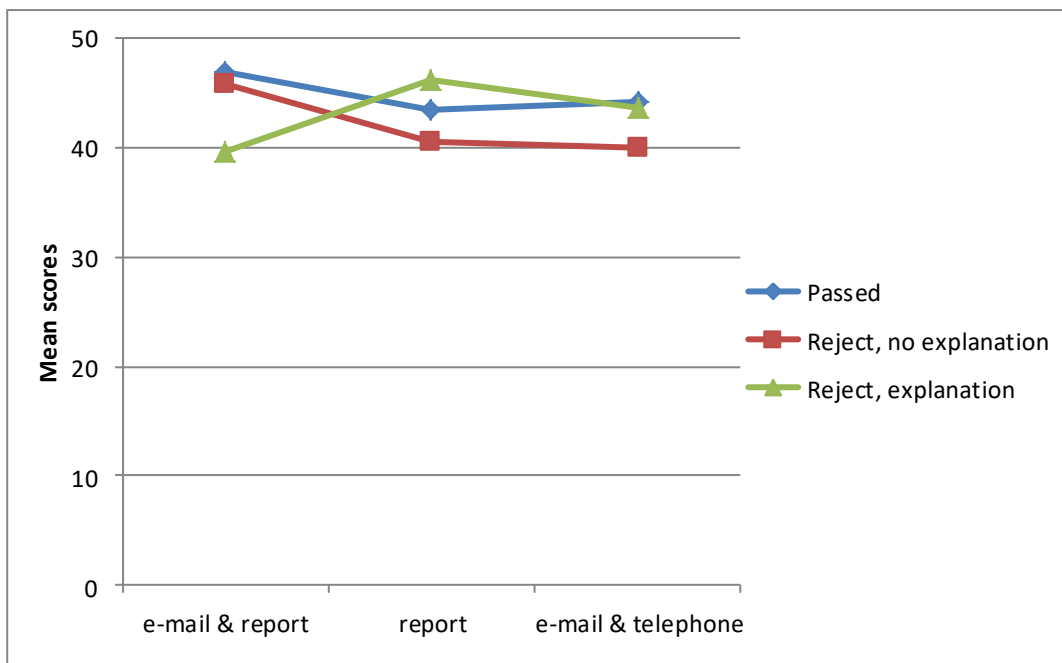
A confirmatory factor analysis (CFA) was conducted on the Core Self-evaluations scale item structure using AMOS v. 24 (Arbuckle, 2016). The estimation method chosen was the maximum likelihood estimate as the data were normally distributed. The 12 items' distribution in this study was accepted as none departed from normality for skewness and kurtosis. The hypothesised one-factor model was fit to the data of the full sample (N = 101). This model fit the data well CFI = 0.865, TLI = 0.835, RMSEA = 0.08. No post-hoc modifications were conducted due to the good fit of the data to the model (See Appendix 6 for the standardised residual covariances matrix, and the theoretical model). Table 5.13 displays the Mean and Standard Deviation CSEs scores across feedback mode and type.

Table 5.13: Comparison of Core Self-evaluations score Means and SDs by Mode of Feedback and Feedback Type

Feedback Type	e-mail & report		report		e-mail & telephone	
	Mean	SD	Mean	SD	Mean	SD
Passed						
t1	46.62	4.84	43.09	7.44	44.27	6.32
t2	47.15	6.20	43.64	6.02	44.00	6.87
Reject, no explanation						
t1	44.92	6.39	39.33	6.36	39.30	10.12
t2	46.92	6.24	41.89	5.13	40.60	7.26
Reject, with explanation						
t1	39.23	8.28	46.80	10.93	44.38	6.02
t2	40.15	6.99	45.50	10.72	43.00	6.39

The main effect of time of measurement ($F(1,92) = 1.140, p = 0.288$); the interaction effects between time of measurement, feedback mode ($F(2,92) = 0.535, p = 0.587$) and feedback type ($F(2,92) = 1.982, p = 0.144$) were all non-significant. A significant interaction for CSEs was found between mode of feedback and feedback type ($F(2,92) = 2.801, p = 0.030$). Figure 5.2 displays the Interaction plot between CSE mean scores between mode and type of feedback.

Figure 5.2: Interaction plot for Core Self-evaluations between type and mode of feedback



The interaction plot shows in the Passed feedback condition, CSE scores were highest in the e-mail and report group ($M t2 = 47.15$), compared to the report ($M t2 = 43.64$), and e-mail and telephone ($M t2 = 44.00$) groups. In the reject with explanation condition, CSEs scores were lowest in the e-mail and report group ($M t2 = 40.15$), and highest in the report group ($M t2 = 45.50$), with middling CSEs between these groups in the e-mail and telephone ($M t2 = 43.00$) condition. There was the opposite pattern in those rejected with no explanation, as

CSE scores were highest in the e-mail and report (M t2= 46.92) condition, falling in the report (M t2= 41.89) group, and lowest in the e-mail and telephone (M t2 = 40.60) group. These findings can be interpreted as test-takers who were rejected receiving an explanation reacted more positively to a non-interpersonal feedback agent (computerised-reports), than from combined (e-mail & report) or interpersonal feedback (e-mail & telephone) agents. In contrast, those informed they had Passed, or Rejected with no explanation had higher CSE scores when there were combined aspects of interpersonal and non-interpersonal feedback, and lower CSE scores when non-interpersonal feedback (reports) was provided. Therefore, Hypothesis 2 is not supported on the CSE scale.

The three-way interaction between time of measurement, Mode of feedback and Feedback group was non-significant ($F(4,92) = 0.244, p = 0.913$), so there is no support for Hypothesis 5 on the CSE measure.

In view of the findings of differing effects of mode and type of feedback on CSE scores, the next part of the analysis considers the aspects of feedback type (Hypothesis 2) and mode of feedback (Hypothesis 3) separately. Table 5.14 displays Mean and Standard Deviation CSEs scores across feedback type.

Table 5.14: Core Self-evaluations score Means and SDs by Feedback Type

Time of measurement	T1		T2	
	Mean	SD	Mean	SD
Passed	44.66	1.22	44.93	1.13
Reject, no explanation	41.18	1.37	43.14	1.27
Reject, with explanation	43.47	1.38	42.89	1.28

As predicted participants who Passed had higher CSE scores at T2 (M = 44.93). In the Reject with an explanation feedback group participants had lower CSE scores at T2 (M = 42.89) which supports Hypothesis 2; although those in the Reject with no explanation group had increased CSE scores over time (t1 M = 41.18, t2 M = 43.14) contrary to the prediction.

Table 5.15: Core Self-evaluations score Means and SDs by Mode of Feedback

Mode of Feedback	T1		T2	
	Mean	SD	Mean	SD
E-mail & report	43.59	1.23	44.71	1.14
Report	43.08	1.38	43.68	1.28
E-mail & telephone	42.65	1.36	42.53	1.26

To test Hypothesis 3, the mean scores were compared for CSEs at T2 across mode of feedback. As displayed in Table 5.17 it was found that CSE scores were highest in the e-mail and report condition (M = 44.71), followed by CSE scores of 43.68 in the report condition, and 42.53 in the e-mail and telephone condition. This data is not in the direction as predicted in Hypothesis 3 as participants had increased CSE scores at T2 when there were aspects of non-interpersonal feedback (report) rather than interpersonal feedback (e-mail & telephone).

This section has reported the results of the Core Self-evaluations (CSEs) measure analysis. In common with the test fairness and procedural justice measures, participants scored higher in response to positive feedback. It was found that CSEs increased when a non-interpersonal feedback agent was used. The next section will present the analysis for Perceived Stress.

5.7.4.2 Perceived Stress

A Confirmatory Factor Analysis (CFA) was conducted on the 10 Perceived Stress scale items using AMOS v. 24 (Arbuckle, 2016). The estimation method chosen was the maximum

likelihood estimate as the data were normally distributed. According to reported conventions the normality assessment usually rejects when the ratio of skewness is $> \pm 1$ and/or kurtosis is $> \pm 2$ (Ahmed, 2010; Nunally & Bernstein, 1994). The 10 items` distribution in this study was accepted as none departed from this normality. The hypothesised one-factor model was fit to the data of the full sample (N = 101). This model fit the data well. CFI = 0.912, TLI = 0.886, RMSEA = 0.07. No post-hoc modifications were conducted due to the good fit of the data to the model.

Table 5.16 displays the standardised residual covariances for the perceived stress scale items, and the theoretical model is presented in Figure 5.3.

Table 5.16: Standardised Residual Covariances for the Perceived Stress scale items

Observed variable	str1	str2	str3	str4	str5	str6	str7	str8	str9	str10
str1	.000									
str2	.946	.000								
str3	.033	.757	.000							
str4	-.180	-1.063	-.469	.000						
str5	.039	-.052	-.542	1.788	.000					
str6	-.398	-.015	.545	-.598	-.258	.000				
str7	-.762	-.400	-.156	1.108	.134	-.262	.000			
str8	-.501	.113	-.094	-.390	-.274	.587	.711	.000		
str9	2.327	-.553	-.486	-.285	.542	-1.030	.049	-.404	.000	
str10	-.295	-.126	.058	.237	-.429	.455	-.210	-.089	.283	.000

Figure 5.3: Standardised estimates for the 10-item one factor structure of Perceived Stress

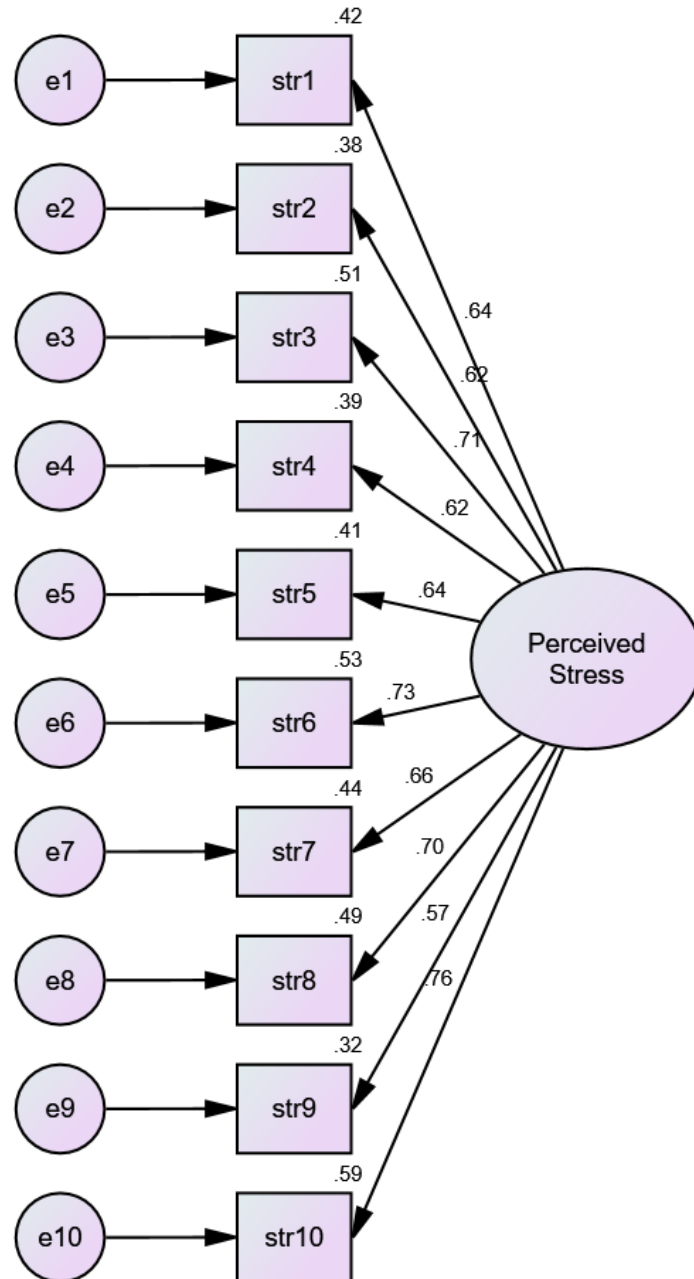


Table 5.17 displays the Mean and SD scores for Perceived Stress across Mode and Type of feedback.

Table 5.17: Comparison of Perceived Stress score Means and SDs by Mode of Feedback and Feedback Type

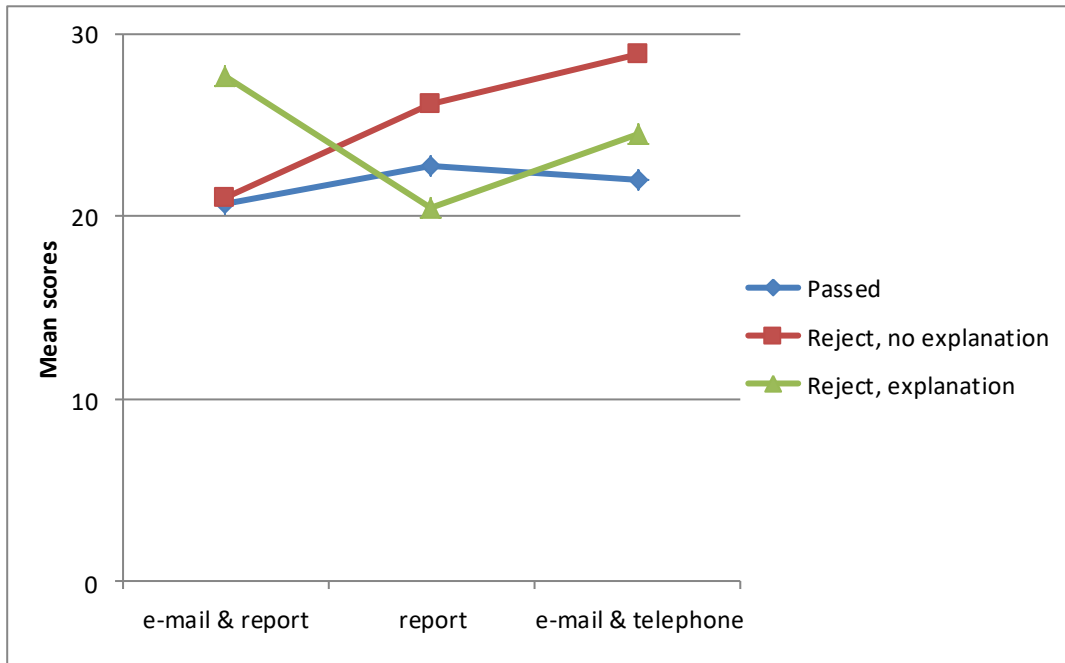
Feedback Type	e-mail & report		report		e-mail & telephone	
	Mean	SD	Mean	SD	Mean	SD
Passed						
t1	20.69	6.49	22.82	6.03	22.07	6.23
t2	21.69	6.54	19.91	4.51	22.73	5.60
Reject, no explanation						
t1	21.08	4.36	26.22	4.94	28.90	7.53
t2	20.50	4.06	24.78	6.83	26.30	5.17
Reject, with explanation						
t1	27.69	9.33	20.50	6.13	24.50	4.11
t2	25.54	7.77	24.00	7.33	20.75	6.99

In the ANOVA results for Perceived Stress scores, the main effect of time of measurement was non-significant, and there were no significant interactions between Time of measurement and Mode of feedback, and Type of feedback. The main effect for Mode of feedback was non-significant, and likewise for Type of feedback, although nearing statistical significance ($p = 0.077$). A significant interaction was found between the Mode and Type of feedback ($F(4,94) = 2.949, p = 0.024$). Furthermore, a significant three-way interaction was found between Time of measurement, feedback mode and type ($F(2,92) = 2.953, p = 0.024$).

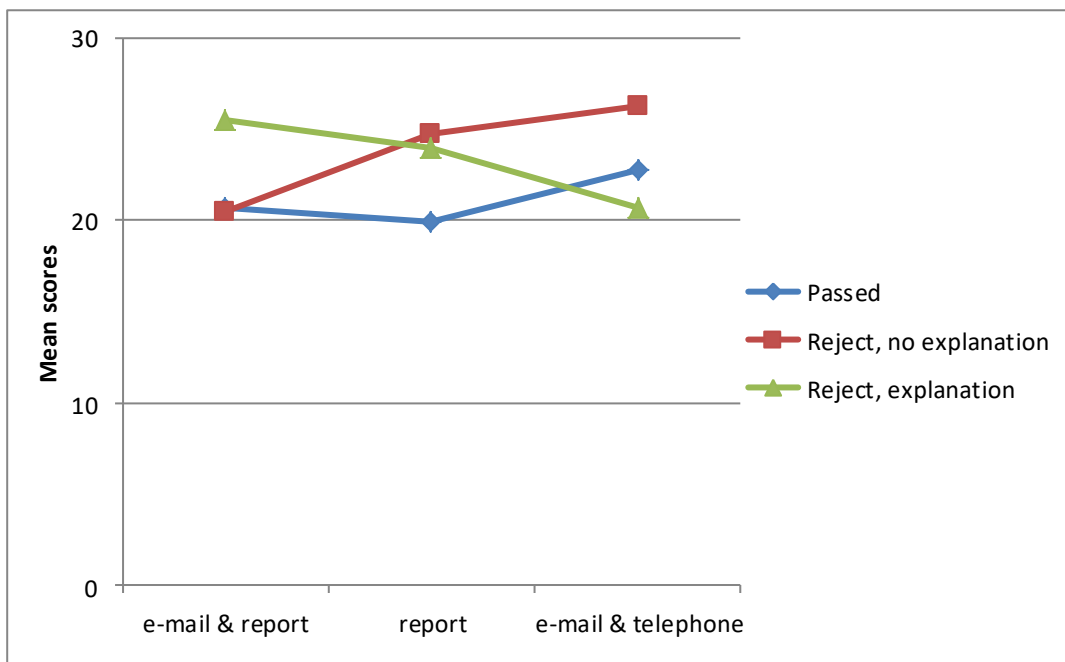
Figure 5.4 displays the three-way interaction plots for Perceived Stress.

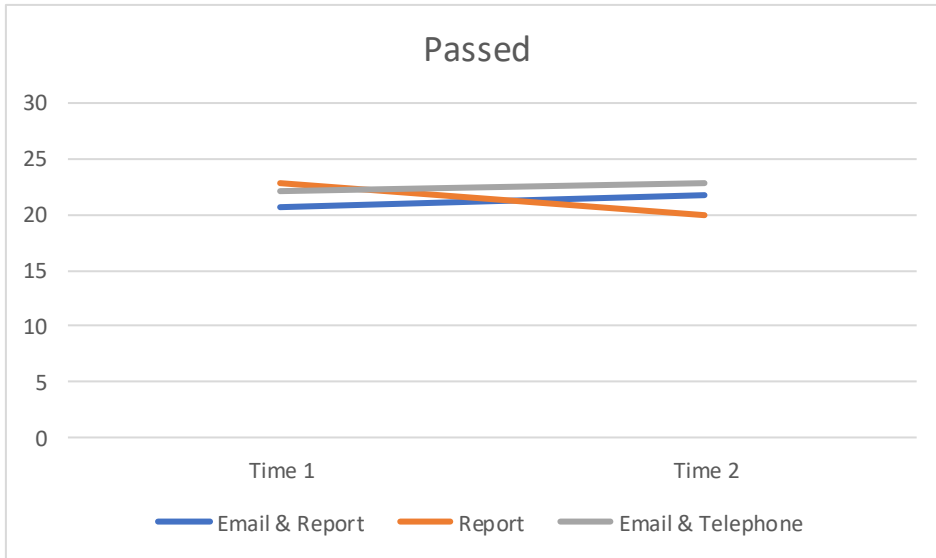
Figure 5.4: Interaction plots comparing Stress scores between time of measurement, Mode & Type of feedback

T1: Pre-testing

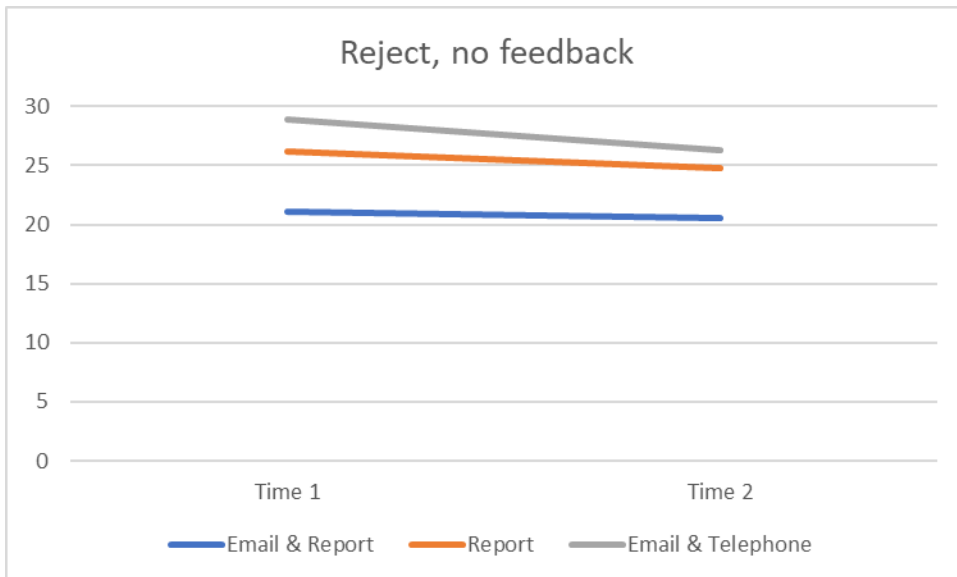


T2: Post-feedback

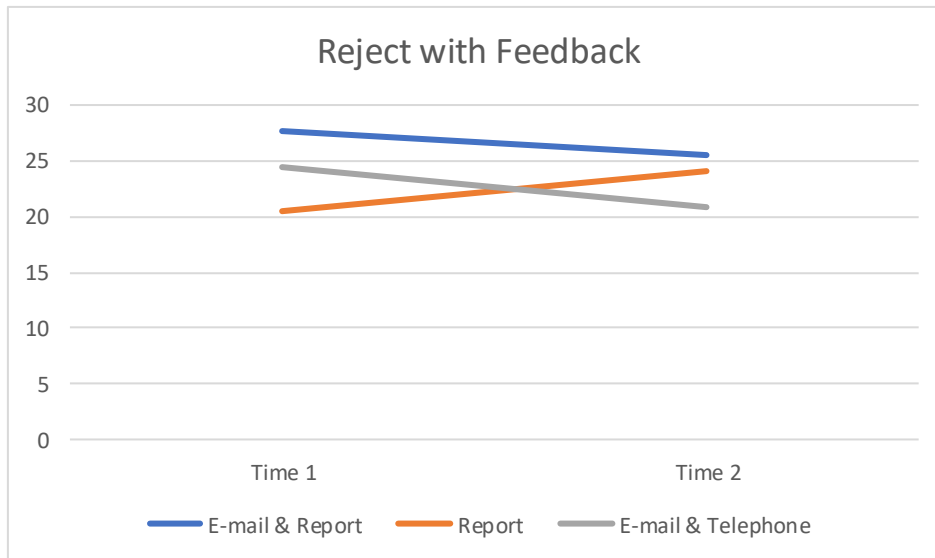




As displayed in the interaction plots participants in the Passed group had increased stress scores over time (T1-T2) in the e-mail and telephone (interpersonal), and e-mail and report (combined) feedback conditions, and decreased stress scores in the report (non-interpersonal) condition.



In the Reject with no explanation group stress scores decreased between T1-T2 in all the feedback conditions.



In the Reject with explanation group (the most stressful condition), in the report condition perceived stress increased over time, whereas when there was interpersonal (e-mail & telephone) or combined feedback (e-mail & report) perceived stress fell, in the opposite trend to the passed group (the least stressful condition). The interaction shows that the report condition seems to have the most direct impact, which suggests that interpersonal feedback is important when negative feedback is conveyed.

Tukey HSD post-hoc analyses showed that the mean difference in Stress scores between the Passed and Reject no feedback group was significant ($p = 0.03$). Contrary to the prediction participants informed of passing the tests had higher stress scores post-feedback compared to baseline. Hypothesis 2 is partly supported as those in the report condition (non-interpersonal feedback element) in the Reject with explanation group had higher stress scores post-feedback as expected.

Two interaction hypotheses are supported on the scale of perceived stress as there was a significant interaction between Mode and Type of feedback (Hypothesis 3), and likewise between Time of measurement, Mode and Type of feedback (Hypothesis 5).

Having considered the aspects of test fairness, procedural justice, and analysed the measures of core self-evaluations and perceived stress, the final measure to be analysed is affective well-being.

5.7.4.3 Affective Well-being

The final scale was Affective Well-being. A Confirmatory Factor analysis (CFA) was conducted on the 12 items using AMOS v. 24 (Arbuckle, 2016). The estimation method chosen was the maximum likelihood estimate as the data were normally distributed. The 12 items` distribution in this study was accepted as none departed from this normality. The hypothesised one-factor model was fit to the data of the full sample (N = 101). This model fit the data well. CFI = 0.853, TLI = 0.821, RMSEA = 0.09. No post-hoc modifications were conducted due to the good fit of the data to the model.

Table 5.18 displays the standardised residual covariances for the procedural justice scale items, and the theoretical model is presented in Figure 5.5.

Table 5.18: Standardised Residual Covariances for Affective well-being items

Observed variable	afwbg1	afwbg2	afwbg3	afwbg4	afwbg5	afwbg6	afwbg7	afwbg8	afwbg9	afwbg10	afwbg11	afwbg12
afwbg1	.000											
afwbg2	.171	.000										
afwbg3	.197	-.128	.000									
afwbg4	.426	-.145	-1.035	.000								
afwbg5	-.064	.775	-.107	.005	.000							
afwbg6	-.126	.489	-.242	1.528	-.665	.000						
afwbg7	.103	.813	-.938	.307	.797	-.436	.000					
afwbg8	.710	-.269	.421	-.137	-.957	.090	.357	.000				
afwbg9	.084	-.139	.267	-.365	-.400	-.463	-.502	1.326	.000			
afwbg10	-.289	-1.323	.778	-.339	.116	-.592	-1.025	-1.046	1.442	.000		
afwbg11	-.585	-.541	.753	-.622	.843	-.425	-.451	-1.257	-.041	2.112	.000	
afwbg12	-1.510	-.075	1.185	-.273	-.524	-.445	2.028	.275	-.543	.334	1.542	.000

Figure 5.5: Standardised estimates for the 12-item one factor structure of Affective well-being

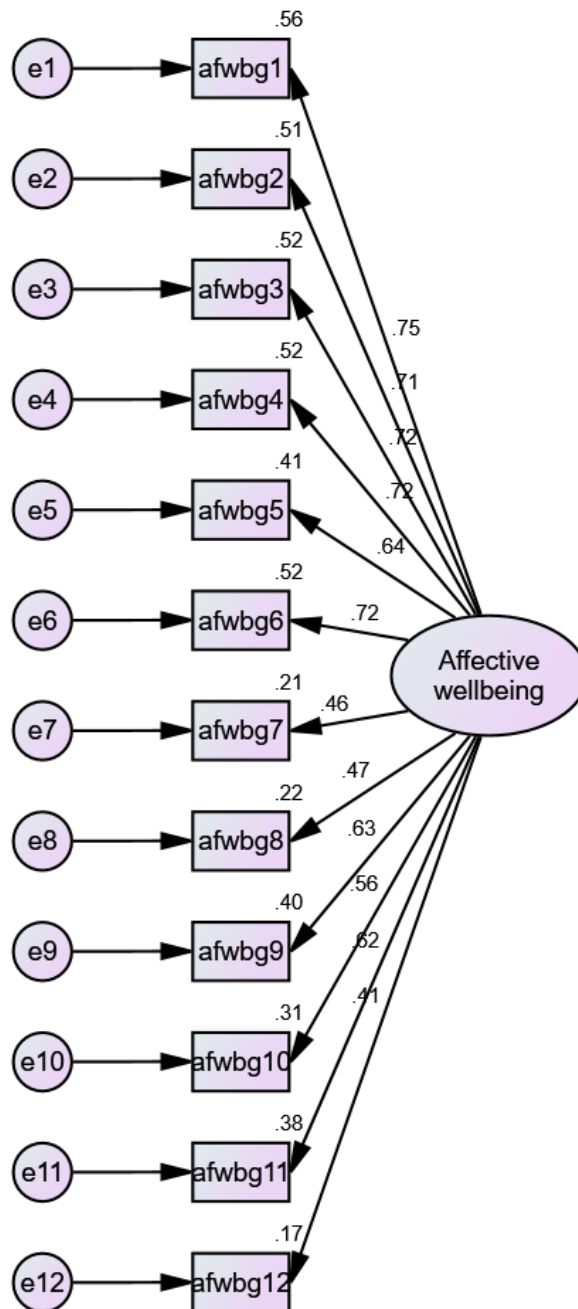


Table 5.19 displays the mean and SD scores for Affective Well-being scores between Mode of feedback and Type of feedback groups.

Table 5.19: Comparison of Affective Well-being score Means and SDs by Mode of Feedback and Feedback Type

Feedback Type	e-mail & report		report		e-mail & telephone	
	Mean	SD	Mean	SD	Mean	SD
Passed						
t1	23.62	6.32	25.18	6.91	24.60	4.44
t2	24.46	6.96	25.27	4.47	23.80	5.38
Reject, no explanation						
t1	23.42	4.40	27.33	3.81	31.20	10.91
t2	24.25	5.17	28.44	3.75	29.80	7.50
Reject, with explanation						
t1	27.38	7.45	24.80	9.57	24.00	7.01
t2	27.92	6.59	24.60	7.23	24.63	8.19

No significant main effects or interactions were found for Affective Well-being.

5.8 Discussion

This experiment like the previous study examined the effect of manipulating test feedback (passed/reject no explanation/reject with explanation) on selected self-report psychological measures, fairness, and procedural justice. Another purpose of this experiment was to examine how test-taker reactions were affected by interpersonal/non-interpersonal/combined feedback agents in conveying test performance in a Graduate job recruitment scenario.

The first hypothesis concerned the effect of outcome favourability on procedural justice and test fairness perceptions. There was support for the hypothesis as those in the Pass condition regarded the tests as fairer and scored higher on procedural justice than those rejected. In comparing these findings with other experiments, Schinkel et al. (2004) found a significant interaction between Procedural fairness perceptions and feedback type. Researchers have found when test-takers are told they have passed a test during job recruitment they regard the test as fairer compared to baseline (pre-testing) perceptions (e.g., Bauer, Maertz, Dolan and Campion, 1998). Pertinently, it seems whether there has been a successful outcome influences how the candidate feels the process has been conducted appropriately and in a fair manner.

Theoretically, self-serving biases would account for these test-takers reactions in terms of their success or failure. As predicted successful test-takers regarded the process and decision outcome as fair; and conversely those notified of rejection regarded the process and selection decision as unfair to protect their self-image (Wiechmann & Ryan, 2003; Ployhart & Ryan, 1997).

Hypothesis 2 was an interaction hypothesis between feedback group and psychological reactions over time. It was predicted that participants informed of rejection would score lower on CSE, and, Affective well-being, and, higher on perceived stress scores over time with a greater effect when rejected with detailed feedback, than those informed they had passed. There was no support on the Perceived Stress measure as successful candidates had higher stress scores at T2 than those in the reject conditions. However, on the CSEs measure Hypothesis 2 was supported as in the Pass group CSEs increased scores and the reject with an

explanation group had lower CSEs score over time. There was no support for Hypothesis 2 on the affective well-being measure. These findings pertaining to stress and affective well-being contradict the view that non-communication of a rejection causes more negative reactions (Waung & Brice, 2007; Thominet, 2020), and negative feedback explanations having more detrimental of a detrimental effect on psychological reactions such as affective well-being (Schinkel et al., 2004).

In considering the measure baseline scores taken at T1, the mean was 23.66 (S.D. 6.87) for perceived stress which is typical for a degree-educated adult norm group (e.g. Cohen & Janicki-Deverts, 2012). The sample had slightly lower core self-evaluations ($M = 43.20$) at baseline than the average per item tested over studies by Judge et al. (2003) in the development of their scale which ranged from 3.78-4.03 per item. In the current sample the mean per item was 3.6 at baseline (T1). Affective well-being baseline scores were 25.62 (S.D. 7.07) so were typical in terms of graduate groups.

Furthermore, on examination of CSE mean scores participants who received non-interpersonal feedback via computerised reports had increased scores at T2, whereas participants receiving interpersonal feedback (e-mail & telephone) had decreased CSE scores at T2. These findings on the CSE measure support the view that people hold more positive self-evaluations when feedback is received from non-interpersonal test feedback agents. Researchers suggest that non-interpersonal technology in testing and feedback is perceived to be fairer, objective, and unbiased (Schmidt et al. 1978; Wiechmann & Ryan, 2003).

In considering the psychological measures there were significant interaction effects for Stress and CSEs between the mode of feedback and type of feedback. In common with the literature these findings regarding CSEs support the view that CSEs are malleable (Judge, 2009), so the feedback agent and type of explanation affected people's psychological reactions. This trend suggests that the communication of the decision, whether from an interpersonal or non-interpersonal feedback agent (Dineen et al., 2004), combined with outcome favourability, and whether an explanation is provided affects test-takers psychological reactions.

Theoretically these findings tie in with Gilliland's procedural justice rules of consistency of administration, treatment during the test, and propriety of questions. Dineen et al. (2004) introduced the procedural justice rule of human vs. automated feedback agent for online contexts which is applicable to this experiment as feedback was conveyed using three formats: interpersonal, non-interpersonal and combined.

Hypothesis 4 predicted that test-takers who received interpersonal positive feedback (e-mail and telephone, passed) would rate the process as fairer and score higher on procedural justice than those receiving negative non-interpersonal feedback (computerised-report, reject with explanation). The hypothesis was supported as there was higher procedural justice in the interpersonal positive feedback (e-mail and telephone) condition than non-interpersonal negative feedback condition (computerised report). In relating these findings to the theoretical background earlier detailed, Dineen et al. (2004) suggested a new fairness predictor: human vs. automated agent as a 11th Procedural Justice rule to Gilliland's (1993) Procedural Justice Rules framework. In this case the test feedback from the interpersonal

(human) agent was regarded by test-takers as fairer and that this procedural justice rule had been fulfilled more than from a computer report, the automated feedback agent. Similarly, these findings fit in with Ilgen et al.'s (1979) feedback process model notions of the source of feedback and acceptance by the feedback recipient.

There was support for Hypothesis 5 on the measure of perceived stress as there was a significant three-way interaction between Time of measurement, Mode of feedback group, and Feedback message. Specifically, test-takers who were rejected with an explanation had increased stress scores over time (T1-T2) in the report (non-interpersonal) condition whereas those in the Passed group had decreased stress scores. When there were aspects of interpersonal feedback: e-mail and telephone (interpersonal), and, e-mail and report (combined) feedback conditions, those rejected with an explanation had lower perceived stress and their successful counterparts increased perceived stress scores between T1-T2. Those rejected without an explanation had decreased perceived stress scores in all feedback conditions. These findings suggest that feedback in a report had the most impact on perceived stress. In terms of the implications of these findings, when there is bad news to convey interpersonal feedback from someone is important in mitigating stress reactions.

In considering Ilgen et al.'s (1979) feedback process theory detailed in the hypotheses and theoretical background section (See 5.4 – Hypotheses and theoretical background) these findings appear to indicate the source of the feedback (or feedback agent) affected test-takers psychological reactions. As predicted non-interpersonal feedback resulted in higher stress in unsuccessful test-takers post-feedback (T2) unlike their counterparts who received no explanation. Furthermore, when there was

an aspect of interpersonal feedback from another person (telephone call, an e-mail sent) perceived stress scores declined when a rejection explanation message was conveyed. According to the feedback process model these findings could be interpreted as the computer-generated feedback reports were regarded as more credible than other feedback agents (whether interpersonal or combined) so had more of a detrimental effect on the recipient when conveying the rejection message. These findings also link with Dineen et al.'s (2004) additional fairness predictor: human (non-interpersonal) vs. automated agent of feedback for online selection contexts.

These findings suggest that a combination of the feedback agent (whether interpersonal, automated, or combined), and outcome favourability (positive or negative) influences these reactions. For example, Attwater and Brett (2006) found that recipients of numeric or normative feedback reacted more favourably towards it than when feedback was sent via a text message, which suggests that the feedback agent influences procedural justice and fairness perceptions.

5.9 Limitations

The first limitation is that such experiments lack ecological validity when attempting a job scenario study. To address student participant representative issues that occurred in Experiment 1, this time Professional Graduates were included to be more representative of a Graduate applicant sample applying for a job involving online tests. The sample was also older (mean age 29.76) than in the previous experiment (mean age 26.79) and working graduates were older (mean age 42.1) than the two other participant groups that consisted of postgraduates who were either studying (mean 24.9 years) or studying and working (mean 29.3 years) (See Table 5.2).

Unfortunately, no experiment can replicate the experiences and feelings of applicants going through a recruitment process with consequences (i.e. a job offer) so as with all experiments is the issue of lacking ecological validity. However, the benefit of such investigations is that they enable researchers to test out different variables to examine how candidates respond to different kinds of feedback. Ideally a broader fairness measure could be taken as only control items for test fairness and a post-feedback test fairness measure was taken. In this study these manipulations enabled an examination to take place into the use of interpersonal and non-interpersonal feedback, and positive and negative feedback.

In terms of the study context, the experiment was conducted in the years 2009-2010. Emerging literature was coming to light regarding test-takers/candidates responding to testing technologies and feedback although there was limited knowledge at the time specifically relating this to organisational justice theory (e.g., Dineen et al., 2004). The use of graduate-level online unproctored assessments as used in this study is consistent with current recruitment trends for entry-level recruitment (ISE, 2019). Most of the sample used the computer or the internet every day for less than 5 hours (49.5 %) or for a longer time (48.5 %) suggesting that the sample were computer/internet savvy. On the other hand, nearly half of the sample (47.5 %) had never completed a psychometric test prior to the study.

Another limitation was the relatively small sample size of 101 participants who completed the study. Advertising was mainly conducted via e-mail and on the internet particularly to contact various academic departments at universities. This was largely due to a high attrition rate through the study phases (T1, testing phase, T2). As there

was no direct supervision and online tests were completed by participants remotely this may have been another cause of attrition as a minority of test-takers contacted the researcher reporting technical problems (e.g., pop-up screens disabling their test access, firewall problems) accessing the tests. The researcher provided guidance by e-mail to participants when problems arose, but participants may have felt frustrated so decided not to continue their participation. This problem could be addressed if the study was replicated in future by participants attending a testing session (or offering this as an alternative to remote testing) with the researcher present in a computer room to ensure that everything is set up correctly and to act on any problems.

Another issue was the load on participants as in addition to the pre- (T1) and post-feedback questionnaires (T2) they were required to complete two tests, the OPQ32 personality questionnaire, and the ASO ability test. The researcher had discussed these issues with the test publisher SHL prior to commencing the study, but the agreement was that both assessments would be utilised using a shorter version of the OPQ32. Consequently, many participants had not completed all of the study phases. Perhaps in future conditions could be randomised only requiring participants to complete one assessment to reduce load.

These types of problems particularly regarding attrition are common research problems when using volunteers. The sample size was sufficient enough though in terms of the power analysis calculated prior to the study for the nine manipulation conditions and was of a similar sample size ($N = 119$) to Schinkel et al.'s (2004) experiment. The sample size had increased considerably from study 1 ($N = 57$) and participants completed the study remotely online unsupervised (unproctored) for their

convenience, unlike the previous study where one group of participants were required to attend a supervised (proctored) testing session. The questionnaires were distributed and completed via Survey Monkey, so participants followed an online link to make the make the questionnaires more user-friendly. Reminders were also sent via Survey Monkey to participants where parts of the study had not been completed.

5.10 Consideration of completed studies

Experiment 1 compared reactions to paper-and-pencil and online administered testing using three feedback conditions (Passed, Reject no explanation, Reject with explanation), and Experiment 2 solely focused on online testing using the same feedback groups, and further examined interpersonal/non-interpersonal/combined feedback agents. A common finding in both experiments was that test-takers regarded tests as fairer and that procedural justice had been served when there was a positive outcome, unlike when candidates received rejection messages. However, it remains unclear whether in a job recruitment setting candidates would react differently as suggested in the literature (Truxillo et al., 2009) which the next study examines.

In both experiments significant interaction effects were found on psychological measures when examining feedback messages and different forms of communicating these to test-takers. The implications of these findings are that the source of the feedback needs to be credible for the recipient to accept the feedback combined with the degree of explanation provided as these factors appear to be critical in conveying feedback. Psychological reactions, fairness and justice perceptions seem to be affected by these key factors. In terms of practical applications of these findings, as nowadays there is a tendency of employers to use technology and automated messages in

recruitment feedback at the expense of human contact, recruiters can become more proactive by making named individuals contactable by providing their contact details (Konradt et al., 2013). There are clearly theoretical links with the procedural justice rules of two-way communication, and interpersonal treatment.

5.11 Original contribution of the experiment and directions for the final study

This second experiment has made an original contribution by comparing test-taker reactions to positive and negative feedback manipulations, as most researchers have only examined negative feedback reactions. The study found that feedback provision can have detrimental effects when negative feedback is communicated to test-takers, so care is needed to avoid such detrimental effects occurring on psychological reactions such as core self-evaluations.

Furthermore, the aspect of candidate fairness and psychological reactions towards an interpersonal, non-interpersonal and combined feedback agent was investigated. Interpersonal aspects of feedback (e-mail & telephone) were rated higher on test fairness and procedural justice. Furthermore, perceived stress fell between baseline and post-feedback when test-takers received notification of their rejection via some mode of interpersonal feedback. These findings suggest that being contacted by somebody was reassuring to candidates when receiving negative feedback which mitigated the effects of rejection. Theoretically the research links to Dineen et al.'s (2004) additional procedural justice rule of human (interpersonal) vs. automated agent in online testing contexts.

The implications of these findings are that the interpersonal (or human) aspect of feedback provision improves test fairness, procedural justice, and perceived stress reactions in candidates. Conversely, automated (non-interpersonal feedback) can have a detrimental effect on candidates' reactions. Applied to a job recruitment context these findings suggest that recruiters should consider utilising some form of personalised feedback to minimise any detrimental effects of rejection (Thominet, 2020).

Confirmatory Factor Analyses (CFA) were conducted on all the scaled measures to examine the underlying one-factor structures, and on the Procedural Justice scale to distinguish justice this from other concepts such as fairness so to theoretically align this to justice theory.

Study 3 examines mediating factors relating to organisational justice theory (e.g. feedback acceptance, clear and open manner) that may underpin some of these reactions. The experimental phase has enabled feedback provision factors to be manipulated and explored under controlled conditions. This paves the way to research applicant reactions in a real-life online job recruitment process considering these feedback factors. Therefore, the final study (Study 3) explores applicant reactions (e.g., perceived stress), process fairness and justice perceptions towards online testing to further address the thesis research aims.

Chapter 6: Survey on job applicants' reactions to online recruitment

6.1 Introduction

The final study represents the culmination of the research. Having conducted a small-scale Pilot study into job applicants' reactions towards traditional recruitment methods (application form, shortlisting, face-to-face interview), and manipulated test feedback under controlled conditions (Experiments 1 and 2); Study 3 focuses on job applicants who had experienced a recruitment process involving some aspect of online testing. In considering the recruitment cycle, online tests tend to be administered following the initial sifting stage (e.g., application forms). A recent development is the usage of more streamlined processes such as one day assessments and prompt feedback provision by companies to shorten recruitment cycle timescales (Howell, 2016) from the average 11 weeks. The Pilot Study earlier presented in the thesis considered selection methods still used during the initial recruitment cycle phases (application forms, shortlisting) (ISE, 2019) so the next step is to consider online testing and applicant reactions to feedback in the later recruitment phases within a field setting.

The purpose of the field study was to examine how different feedback explanations affected job applicants' (successful/unsuccessful) psychological reactions, fairness, and justice perceptions, and linking to organisational justice theory. Another purpose was to examine whether feedback acceptance is a mediator of these reactions. Let us first consider literature and theoretical underpinning of this study.

6.2 Background

As earlier detailed in Chapter 2, Sylva and Mol (2009) researched job applicants' satisfaction based on their perceptions towards an online application system (See 2.6 Job applicant satisfaction towards online selection). These researchers found process fairness, which incorporates all of Gilliland's (1993) Procedural Justice rules to be a determinant of applicant satisfaction. However, Sylva and Mol's study did not investigate the relationship between process satisfaction and applicant attitudes in web-based recruitment contexts as noted by Konradt, Warszta and Ellwart (2013). The study also did not examine how different methods of providing performance feedback by recruiters shaped applicant reactions. Further research was recommended into online applicant perceptions, which this study aims to accomplish.

One study which is relevant in terms of online testing and applicant reactions was conducted by Brünn (2010) as detailed in Chapter 2. In this study reactions towards a web-based cognitive ability test and a work sample test were measured related to Gilliland's procedural justice rules. The procedural justice rules of propriety of questions, opportunity to perform, selection information and a new rule, ease of faking, were found to predict process fairness. Brünn (2010) suggested that the "opportunity to perform" rule may be more critical to web-based selection as there is less face-to-face interaction between the candidate and recruiter unlike with traditional recruitment methods. However, due to the small sample size the robustness of these findings can be questioned. The current study examines the procedural justice aspects of "clear and open manner" (including Selection information, Honesty and "performance feedback" procedural justice rules) which belong to the category of explanations used to examine how these aspects relate to online test-taker reactions.

The agent of feedback whether interpersonal or non-interpersonal (Dineen et al., 2004) was discussed and investigated in Chapter 5 in relation to Gilliland's procedural justice rules, as an additional rule. Previous findings suggest that automated feedback such as interactive voice response (IVR) is rated lower for openness, interpersonal treatment (Bauer et al., 2006) and are considered less fair than face-to-face (two-way) communication (Bauer et al., 2004; Chapman, Uggerslev & Webster, 2003).

However, perceptions towards technological feedback across the other seven procedural justice rules appear more positive such as consistency and honesty (e.g. Bauer et al., 2006; Schmidt et al., 1978). Therefore, this study set out to examine applicant perceptions towards the interpersonal or non-interpersonal feedback agent within a field setting and to relate it to fairness and procedural justice.

Feedback acceptance on the part of the job applicant has been identified as a possible mediator between outcome feedback and attitudes towards the recruiting organisation (e.g. Anseel & Lievens, 2009). In other words, feedback acceptance concerns whether the candidate accepts the feedback pertaining to their level of performance that was communicated by the recruiters. However, Anseel and Lievens did not investigate how feedback acceptance applies to procedural justice rules such as Gilliland's (1993) justice theory to understand applicant behaviours and reactions. Therefore, this field study took the next step by examining whether feedback acceptance has a mediating effect between decision outcome and reactions (e.g., clear and open manner, process fairness) and the organisation, focusing on organisational justice rules and fairness.

As a brief reminder to the reader the theoretical underpinning of the feedback acceptance approach is Ilgen, Fisher and Taylor's (1979) feedback process model.

According to this model three key factors influence feedback acceptance: the kind of feedback message, the recipient, and the source. Pertinently the feedback recipient must accept the feedback for it to have an effect.

As support for the feedback process model, Nease, Mudgett and Quiñones (2000) found that feedback acceptance for test-takers on an adapted test mediated the relationship between feedback and test-taker reactions. However, Leung and Li (1990) found that procedural justice only affected fairness perceptions with negative outcomes, suggesting that feedback acceptance is more influenced by outcome favourability (Ryan & Chan, 1999). Concurrent findings from the literature are that job applicants are more concerned about process fairness when underperforming, contrary to their expectations (Tonidandel & Quiñones, 2002). Notably, Ilgen et al.'s process model was developed before the emergence of Gilliland's organisational justice model and was tailored towards feedback provision for internal staff so integrating both theories to selection contexts seems prudent. Indeed, Anseel and Lievens (2009) called for further research into feedback acceptance in selection contexts so to have more insight into candidate reactions to these feedback processes which the current study sets out to accomplish.

Research has been conducted into the type of explanations conveyed in recruitment feedback and how applicants respond to such explanations (Anseel & Lievens, 2009; Brooks, Guidroz & Chakrabarti, 2009; Truxillo et al., 2009). A distinction has been made between holistic (information about overall performance during the recruitment process) and mechanical (one aspect of performance during recruitment process) explanations. As examples to illustrate these concepts, mechanical feedback could include details about the candidate's test performance so feedback information would

convey their test scores. A holistic explanation could include information about the candidate's performance on each recruitment exercise (e.g., application form, test performance, interview performance).

Brooks, Guidroz and Chakrabarti's (2009) research examined holistic judgement and diversity information with respect to race in selection contexts across two studies. In Study 1, a 2 (selection approach: mechanical/holistic) x 2 (evaluation mode: separate/joint) factorial experimental design was employed. Participants (N = 285, undergraduates from a Midwestern University) completed a decision-making task and were instructed to imagine that they were applying for a job and to read a job advertisement detailing the job selection process, either in the separate (they read one job advertisement) or joint evaluation mode (information about two companies was read at the same time). One half of the participants were told that a holistic approach to race was taken in selection (e.g., all aspects of performance are considered in selection); whereas the other group were told that a mechanical approach (e.g. 20 diversity points were awarded for minority groups in job selection) was adopted in respect of race in job selection. Self-report measures were obtained for how appealing the job was to the candidate, whether the selection system attracted the best candidates for the job, and fairness of the employee selection.

The study found that `applicants` preferred selection policies in which diversity information was conveyed in a holistic as opposed to a mechanical manner.

Pertinently, in the joint evaluation mode the effect sizes were more than three times larger ($d = 1.8$) than in the separate condition ($d = .51$). However, it was noted by the authors that the use of the 20-point selection value in the mechanical condition may have been a factor behind these preferences and not the component of the message.

The researchers justified employing this condition as the University of Michigan had previously used this system for college selection prior to a Supreme Court case, *Gratz vs. Bollinger* (2003) which banned the practice.

In Study 2, the information about the 20 selection points was therefore omitted in the mechanical condition to eliminate this as a confounding variable. An additional variable diversity term (diversity vs. racial diversity) was introduced so there was a total of 16 conditions to which participants (N = 348) were randomly assigned to. Unlike Study 1, a web-based survey was conducted. In common with Study 1, participants preferred holistic policies than mechanical policies when referring to diversity selection policies. When comparing reactions to the diversity terms as evidenced by mean scores, respondents favoured policies which mentioned `diversity` (Separate M = 3.95, Joint M = 4.26) rather than `racial diversity` (Separate M = 3.71, Joint M = 3.59).

Brooks et al. (2009) concluded that both studies demonstrated that holistic approaches were preferred when diversity was included in selection contexts. Considering that the study was conducted in the United States and designed to address legal and diversity issues which are sensitive in that country it can be argued that the study and sample used was homogeneous. In other words, the study was specific to the culture in the United States where there has been a history of racial tensions, whereas in other countries diversity issues may not be so pertinent to job applicants. Another criticism is that a non-applicant sample was investigated so the weight of these conclusions generalised to selection practices can be questioned.

It remains unclear whether applicants prefer holistic over mechanical explanations in job recruitment feedback contexts. Morgeson and Ryan (2009) called for further research to address this question. Anseel and Lievens (2009) also argued that there is a lack of research into informative feedback provision beyond merely pass/fail or comparative feedback messages such as “your score was not as high as the selected candidate.” These kinds of feedback do not convey how the candidate performed overall across the job selection process (holistic explanation) or on a specific aspect (mechanical explanation) such as their performance on a Group Exercise assessment. This field study attempted to address this void by examining job applicants’ perceptions towards holistic and mechanical feedback explanations.

Having reviewed the current literature a number of new measures (See 6.5.2 – Measures) were introduced in this study to address key areas related to applicant reactions to feedback in job recruitment: clear and open manner (Gilliland’s Procedural Justice rule), organisational fulfilment obligations, (a behavioural intention) (Waung & Brice, 2007), and process fairness, to incorporate all ten of Gilliland’s Procedural Justice rules. Additional items were included in terms of job candidate feedback received for: feedback acceptance, mechanical/holistic explanations, and interpersonal/non-interpersonal feedback explanations to address the following research aims:

6.3 Aims

- Firstly, to explore whether applicant process fairness perceptions differed between applicants who received holistic explanations (i.e., overall performance in recruitment) and mechanical explanations (i.e. they did not make it to the short list).

- Secondly, to identify whether there was a difference in applicant reactions (feedback acceptance, process fairness, clear and open manner, organisational fulfilment obligations) towards different kinds of feedback explanations (mechanical/holistic).
- Thirdly, whether applicants perceive the recruitment process as fairer when receiving explanations from technology (e.g., computerised report) than interpersonally (e.g., told face-to-face).
- Finally, this study examined the psychological effect of the recruitment decision on successful and unsuccessful applicants alike in terms of their Core Self-evaluations and Perceived Stress scores.

6.4 Hypotheses

The first hypothesis concerned the extent of feedback provision by recruiters in conveying a recruitment decision explanation to job applicants. As earlier detailed, holistic and mechanical explanations may have different effects on applicant perceptions (e.g., Brooks et al., 2009; Morgeson & Ryan, 2009) as in the diversity context a preference towards holistic policy explanations has been found, but it is unclear whether the same applies to recruitment processes. Such informative feedback messages in recruitment have been called for further investigation (Anseel & Lievens, 2009). A study by Brünn (2010) applied aspects of Gilliland's (1993) justice model for applicant reactions towards a web-based cognitive ability test and a work sample test. It was found that selection information predicted process fairness. In terms of

Ilgen, Fisher and Taylor's (1979) feedback process model, the kind of feedback is one key factor which influences whether the recipient accepts the feedback.

On this basis disclosure of information about the overall recruitment process (holistic explanation) is perceived to be clearer and more open, a fairer process, the organisation had fulfilled its obligations, and the feedback is more accepted than disclosure of a single aspect (mechanical explanation) of the job recruitment process. Thus, it was hypothesised that applicants receiving a holistic feedback explanation would score higher on process fairness, feedback acceptance, clear and open manner, and organisational fulfilment obligations than applicants receiving a mechanical explanation.

Hypothesis 1: Applicants who receive holistic feedback explanations (i.e., overall performance) will score higher on the organisational fulfilment obligations, feedback acceptance, clear and open manner, and process fairness measures than applicants who receive mechanical feedback explanations (i.e., why they did not make the short list).

The second hypothesis concerned the effect of the job decision outcome (job offer/rejection), or outcome favourability on job applicants' process fairness, justice perceptions, and behavioural intentions. Distributive justice which concerns an outcome would apply to a job offer/rejection in this context. Research confirms that recipients of feedback are more accepting of favourable (positive) feedback than unfavourable (negative) feedback (e.g., Anseel & Lievens, 2006; Brett & Atwater, 2001; Tonidandel, Quiñones & Adams, 2002). In the context of assessments,

Wiechmann and Ryan (2003) found that in-basket test success or failure had a bearing on test-taker's perceptions of process fairness and outcome fairness. Research findings suggest that procedural justice only affects fairness perceptions with negative outcomes, suggesting that feedback acceptance is more influenced by outcome favourability (Leung & Li, 1990; Ryan & Chan, 1999). Furthermore, applicants are more concerned about process fairness when underperforming (Tonidandel & Quiñones, 2002).

Theoretically 'self-serving' biases would explain these findings as when job candidates receive a job offer (i.e., a positive outcome) they regard the testing procedures and outcome as fair and be more likely to accept positive feedback, and conversely when unsuccessful consider the procedures and outcome as unfair in protecting their self-image (Wiechmann & Ryan, 2003; Ployhart & Ryan, 1997). Furthermore, successful job candidates would be more likely to feel that the organisation had fulfilled its obligations than unsuccessful candidates. Therefore, it was hypothesised that successful job applicants would score higher on the process fairness, feedback acceptance, organisational fulfilment obligations, and clear and open manner measures than unsuccessful job applicants.

Hypothesis 2: Successful job applicants will score higher on the process fairness, feedback acceptance, organisational fulfilment obligations, and clear and open manner measures than unsuccessful applicants.

The third hypothesis concerned job applicant process fairness perceptions towards the use of technology and interpersonal (human) feedback in communicating feedback in job recruitment. The feedback agent is the person or technology who provides the

feedback. Dineen et al. (2004) distinguished between a human (or interpersonal) vs. automated (or non-interpersonal) feedback agent as an additional procedural justice rule specific for web-based selection. Interpersonal feedback agents were perceived by candidates to be procedurally fairer than an automated feedback agent during the job screening. In terms of modes of feedback disclosures used, research has found test-takers' perceived face-to-face communication to be fairer than technological communication (Bauer et al., 2004; Chapman et al., 2003; Langer, König & Papathanasiou, 2018). However, other research found no such differences (Ötting & Maier, 2018).

Research indicates candidates are more accepting towards computerised explanations in recruitment decisions (Kluger & Rothstein, 1993; Ployhart & Ryan, 1997) as these are regarded as more credible; and successful candidates hold more positive perceptions than unsuccessful candidates (e.g., Brett & Atwater, 2001; Tonidandel, Quinones & Adams, 2002). Indeed, Hypothesis 5 in Experiment 2 (the three-way interaction) found that if an automated response is more accepted in the pass category, then an outcome would be more favourable, and conversely in the failure conditions outcomes were less favourable. In applying Ilgen et al.'s (1979) feedback process model one key factor is the source of the feedback which in this context is the interpersonal or non-interpersonal feedback agent used in conveying the decision outcome which influences whether recipients accept the feedback. Thus, it was hypothesised that applicants would score higher on process fairness when receiving feedback from a interpersonal (human) feedback agent than from an non-interpersonal feedback agent.

Hypothesis 3: Job applicants receiving feedback explanations via an interpersonal (e.g., phone call) feedback agent in communicating the recruitment decision will score higher on process fairness than applicants receiving a non-interpersonal feedback explanation (e.g., computerised report).

The fourth hypothesis concerned feedback acceptance as a potential mediator behind job applicants' process fairness perceptions, clear and open manner, and organisational fulfilment obligations of the recruiting organisation (outcome variables) and the decision outcome (job offer/rejection).

Studies (Anseel & Lievens, 2009; Kinincki, Prussia, Wu & McKee-Ryan, 2004; Langer et al., 2018) have examined the effect of outcome feedback with regards to candidate reactions (e.g., fairness, performance improvement) towards the recruiting organisation and how this is mediated through feedback acceptance. Langer and colleagues (2018) investigated participant acceptance of automated job interviews within an experimental setting. They found that acceptance of the interview was diminished when it was highly automated. The status of the selection context (high-stakes: job selection vs. low-stakes: training) also affected participant's acceptance of the automated interview which received higher criticism in a high-stakes context. Furthermore, automated interviews were rated lower on fairness and social presence. Langer et al. suggested that future research could examine the stakes (high vs. low) of the research setting and key influences over the acceptance of automated selection tools.

Schreurs and colleagues (2008) investigated military service applicants' expectations towards a forthcoming selection procedure. They developed the Applicant Expectation Scale (AES) to measure job applicants' expectations of a selection process. In the final phase of sampling (Sample 3), applicants (N = 74) completed the AES at two phases: at the military recruiting station (T1), and, two weeks later after the selection (T2). One of the measures was feedback and this was found to be significantly related to positive organisation reaction behaviours including job pursuit intentions. Feedback acceptance has been identified as a mediator between outcome feedback and reactions towards the recruiting organisation (e.g. Anseel & Lievens, 2009). Thus, it was hypothesised that feedback acceptance mediates the relationship between decision outcome (job offer/rejection) and the reaction to the recruitment process (process fairness, clear and open manner, and organisational fulfilment obligations).

Hypothesis 4: There will be a significant indirect effect of the recruitment decision (job offer/rejection) on the reaction to the recruitment process (organisational fulfilment obligations, process fairness, clear and open manner) through feedback acceptance the mediator.

Hypothesis 5 concerned whether perceived stress and core self-evaluations scores were moderated by the type of explanation (mechanical vs. holistic) provided and the decision (offered job/unsuccessful). Researchers have found that Core self-evaluations (CSEs) and perceived stress have diminished significantly following receipt of performance feedback (e.g., Ilgen & Davis, 2000; Ployhart, Ryan & Bennett, 1999; Schinkel et al., 2004), and when rejected applicants received no

feedback, their CSEs scores actually increased. However, as it is unclear what effect providing feedback about an aspect of the applicant's performance (mechanical) or overall performance (holistic) explanations have on these psychological measures which this study aimed to address as a potential moderator. On the basis that providing detailed feedback explanations with positive news can have a positive effect and conversely negative feedback a detrimental effect when conveying negative feedback, there will be an interaction between decision outcome (offered job/unsuccessful) and explanation type (holistic/mechanical). Thus, it was hypothesised that the relationship between decision outcome (offered job/unsuccessful) and Perceived stress and CSE scores will be moderated by the explanation type (holistic/mechanical).

Hypothesis 5: The relationship between decision outcome (offered job/unsuccessful) and Perceived stress and CSE scores will be moderated by the explanation type (holistic/mechanical).

The final hypothesis concerned job recruitment decision notification/non-notification, and the psychological effects on perceived stress and CSE scores of notifying/not notifying applicants of the recruitment outcome. Studies such as Waung and Brice (2007) examined applicants' reactions to receiving or not receiving rejection/acceptance letters. These findings suggest that applicants held more negative impressions of the organisation (i.e., rated lower on organisational fulfilment obligations) when decisions were not communicated, than when communicated. However, this was an experimental study so was not investigating job applicants' reactions to feedback communications.

Cortini, Galanti, and Barattucci (2019) employed a semi-experimental approach to investigate how different types of rejection letters affected unsuccessful job applicants' (N = 138) reactions using a semi-experimental approach in Italian job seekers for a logistics firm. The researchers employed a 2 (response time: 2 weeks/2 months) x 2 (politeness formula in the letter: formal/informal) x (personalisation of the letter: anonymous/personalised with the candidate's name) design. Respondents were asked to fill in a questionnaire after receiving the rejection letter with measures including perceived procedural fairness, organisational recommendation, satisfaction, and past job selection experiences. The study found that timely, informal and a customised rejection feedback notification was preferred by job applicants and influenced fairness perceptions and their intention to re-apply for future job vacancies. The conclusion was that as feedback provision can be a low-cost activity, organisations should bear in mind how negative feedback is communicated and responded in a timely fashion in a high stakes setting so to maintain their employer reputation.

Furthermore, the impact of a negative decision appears to be mitigated when an explanation is provided (Bies & Shapiro, 1988; Cortini, Galanti & Barattucci, 2019), and when it is conveyed with care (Schinkel et al., 2011; Thominet, 2020). However, psychological reactions such as perceived stress and CSEs were not measured in the Waung and Brice (2007) and Cortini et al. (2019) studies. As there appears to be a gap in the literature into psychological reactions to job decision notifications, the original contribution of the current study is in examine these aspects. On the basis that notification of a decision enhances candidate reactions it was hypothesised that

applicants receiving a decision notification would score lower perceived stress and higher CSE scores, than applicants not notified.

Hypothesis 6: Job applicants receiving a notification of the job recruitment decision will score lower on perceived stress and higher CSE scores than job applicants not notified of the decision.

6.5 Methodology

6.5.1 Design

An independent measures design was employed. Respondents completed a self-report questionnaire pertaining to their most recent job application involving online testing. Control items were included about the applicant's experience of applying for jobs online, and their internet use. Outcome measures were obtained using items asking about the application outcome (offered job, rejected), the way feedback was communicated (technological- phone call/e-mail/text; or interpersonal- acceptance/rejection letter, told face-to-face; or no communication), time taken to be told the decision, and type of explanation (mechanical/holistic) given. The study was not conducted in collaboration with any recruiting organisations, so there was no control over these recruitment variables. In addition, there were scaled items for Process Fairness, Feedback acceptance, Organisational fulfilment obligations, Core Self-evaluations, and Perceived Stress. The dependent variables were scores on the Process Fairness, Feedback acceptance, Organisational fulfilment obligations, Core Self-evaluations, and Perceived Stress scales.

6.5.2 Materials

Measures

Unlike in the earlier studies, participants only completed the survey at one timepoint (See Appendix 4) after they had undertaken a recruitment process involving some aspect of online testing. The same scales for perceived stress and core self-evaluations were used as in the previous study, apart from a slight amendment to the beginning of each scale item wording for perceived stress to “since hearing the outcome of your latest job application” rather than “during the past week” (original scale wording) or “since taking the test” (wording for Experiments 1 and 2). These amendments were made to make the items more applicable to a job application. The reliabilities for these existing scales were as follows: perceived stress $\alpha = .88$ and, core self-evaluations $\alpha = .78$.

6.5.2.1 Controls

Control items were used to ascertain the applicant’s prior experience with online job applications. In the questionnaire introduction, the wording clearly stated that the survey was regarding a recent job application involving some form of online testing. The following item was used, “Have you previously searched or applied for positions using the internet?” (Sinar, Reynolds & Paquet, 2003). Responses for this item were scored using an ordinal scale (1 = never, 2 = once, 3 = two-four times, 4 = more than four times). In the analysis, these responses were dichotomised as: no experience/prior internet job application experience. The purpose of the internet job application experience control item was to ensure that respondents met the study inclusion criteria of having previously applied online for jobs. When respondents did not meet the study inclusion criteria they were excluded from the analysis.

There was also a control for familiarity with the internet, “I’m familiar in using the internet” (Sinar et al., 2003). This item was measured using a 7-point Likert scale from 1 (Strongly Disagree) to 7 (Strongly Agree). These control items were based on Sinar et al.’s research into online job application processes and job candidate reactions towards these application processes. Sinar et al. found that candidates who were less experienced with online job recruitment processes and less familiar with the internet formed stronger perceptions (system speed, user friendliness and company image) regarding the online recruitment tools used than their more experienced counterparts. The control items were used in the current study as a preliminary check in the analysis to ascertain whether respondents were similar in terms of online testing and job application experience, so to minimise any potential sample bias.

6.5.2.2 Outcome measures

Outcome measures (Offered job or rejected) and items concerning how the feedback was communicated (technological vs. interpersonal, phone call/e-mail/text, letter, told face-to-face, no communication) to applicants were used. In order to assess explanation type there was an item asking whether the feedback was mechanical, “I was told about some aspect of the selection (e.g., test performance)”, or holistic “I was told how I’d performed in all the areas assessed for the job recruitment” or there was no explanation. This explanation type item was created solely for this study and was based on Brooks and colleagues’ (2009) research into holistic and mechanical selection practices. Furthermore, Morgeson and Ryan (2009) called for further research into the aspect of holistic and mechanical feedback provision in the context of selection/recruitment. The item relates to graduate populations within a feedback context as research shows that many recruiters disclose feedback details to job

candidates such as their test scores, and how to interpret a recruitment test score (Ryan et al., 2015). These items were piloted in the development of the survey.

6.5.2.3 Feedback acceptance

Feedback acceptance was measured using items from Anseel and Lievens (2009) that were adapted from Tonidandel, Quiñones and Adams (2002). These items are measured on a 7-point Likert Scale from 1 (Strongly Disagree) to 7 (Strongly Agree). The items are: “The feedback I received was an accurate evaluation of my performance” and “I do not agree with the feedback provided” (Reversed item). This item was selected as feedback acceptance is a key variable when considering whether applicants decide to accept feedback. Internal consistency for this scale has been reported at 0.77 (Anseel & Lievens, 2009). The reliability for feedback acceptance intentions was $\alpha = .80$. The items for feedback acceptance are justified as from a theoretical perspective in Ilgen et al.’s (1979) feedback process model for the feedback recipient (i.e. the applicant) to react in such way they must accept the feedback. Furthermore, feedback acceptance has been suggested (Nease, Mudgett and Quiñones, 2000) as a potential mediator behind feedback provision and applicant reactions (e.g. clear and open manner, process fairness).

6.5.2.4 Organisational fulfilment obligations

Organisational fulfilment obligations were measured using the following item, “Overall, how well did the organisation fulfill the obligation it owed you?” (1 = very poorly fulfilled - 5 = very well fulfilled). Another item concerned the applicant’s impression of the organisation, “Indicate the type of impression that you have of the organisation, based on your direct job search experiences with that organisation” (Waung & Brice, 2007). This item was rated on a 5-point scale from 1 (very negative)

to 5 (very positive). Waung and Brice (2007) adopted this reactions scale by examining outcomes (job offer/rejection) and notification status (notified/not notified) and justified the use of a single item so to make a questionnaire as brief as possible to encourage participants to complete it (e.g., Hinkin, 1995).

6.5.2.5 Process fairness and clear and open manner

The next section concerned the issue of fairness. Two items measuring process fairness were used from Anseel and Lievens (2009): “I perceive the online application as an effective procedure for identifying qualified people for the job that I’m applying for”; and “I perceive the online application procedure as a fair procedure even if I do not get invited for further selection”. Each of these fairness items were measured on a 7-point Likert scale from 1 (Strongly Disagree) to 7 (Strongly Agree) and mean scores were calculated between the item responses for process fairness. The Cronbach’s Alpha reliability for this measure was $\alpha = .78$. The inclusion of the process fairness measure is justified as this measure concerns the job applicant’s fairness perceptions of the process encountered during their online job application. Theoretically the process fairness measure addresses Gilliland’s (1993) ten procedural justice rules which must be met (or violated), and the additional interpersonal vs. automated agent of feedback (Konradt et al., 2013) rule specific for web-based selection.

An item was included to measure whether feedback was provided in a clear and open manner, “I was informed in a clear and open manner”. This item was selected as it concerns several of Gilliland’s (1993) Procedural Justice rules (Performance feedback, Selection information, Honesty) which concern explanations used in the disclosure of information. A 5-point Likert scale was used to measure this item from 1

(Strongly Disagree) to 5 (Strongly Agree). This item is justified as this assesses whether the job applicant felt that the feedback explanation used by the recruiters met these procedural justice rules.

6.5.2.6 Demographics section

There was also a brief section at the end of the questionnaire concerning demographic characteristics (e.g., gender, age, and the job sector of the applicant's latest job application).

6.5.3 Participants

The sample comprised an opportunity sample of 225 (99 males, 126 females, mean age 34.10 years) Graduate-level educated respondents who had experience of applying for a position at an organisation involving some aspect of online testing during the selection/recruitment process. Respondents (N = 11) who did not meet the inclusion criteria of having previously applied for such a job were excluded from the main analysis. The study was open to applicants in general so not restricted to any organisation or job sector. In total 27 different job sectors were represented.

6.5.4 Procedure

Graduate-level educated job applicants with prior experience of applying for a vacancy at an organisation which involved online testing as part of the selection/recruitment process were invited to participate in a study regarding their most recent application. The study was advertised online and targeted towards this group on Graduate job forum sites, using careers advisors, universities, online testing, and e-mail groups including the Practitioner-in-Training e-mail group for the Division of Occupational Psychology (DOP-PiT) which is part of the British Psychological Society. A Survey Monkey weblink was attached to the advertisement (e.g., Facebook, LinkedIn, Online Forum) and/or Information sheet provided to access the research questionnaire. The study advertisement inviting respondents to complete a

short questionnaire regarding their most recent job application that involved some aspect of online testing was also circulated via e-mail at universities to postgraduates (See Appendix 5). An equivalent questionnaire format was also available in a Microsoft (MS) Word document or in a paper-version, to make the study more accessible.

6.6 Analysis

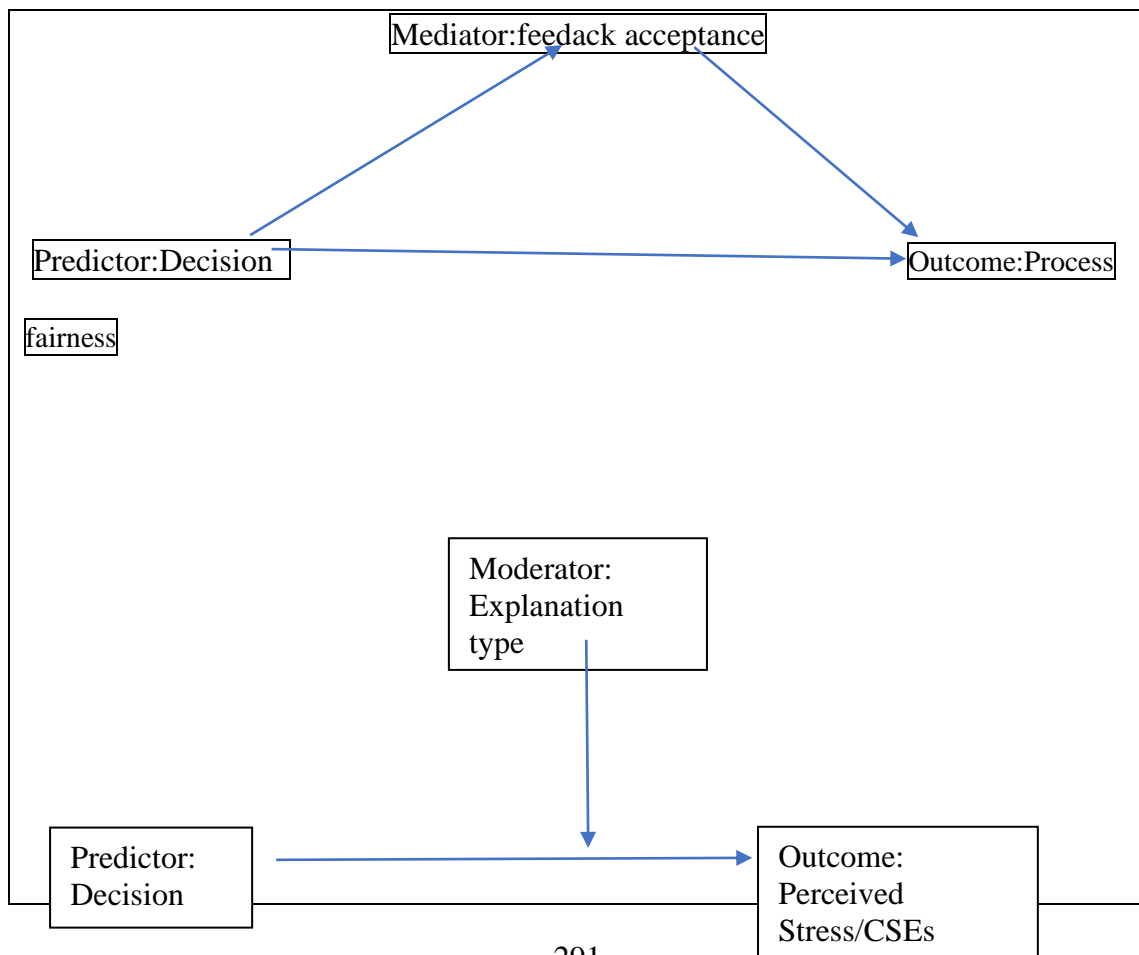
Control items (e.g., internet experience, job search experience) and outcome measures (e.g., Offered job/Rejected, Type of feedback) were firstly analysed. This was to ensure that the sample had similar previous experience of online testing for job recruitment and so that independent variables (e.g., Notification type) could be assigned for the main analysis based on these self-report measures. For each psychological measure (e.g., Stress, Core self-evaluations) obtained from the questionnaire an independent measures ANOVA was performed. The Between-subjects measures were types of explanation provided (holistic/mechanical), Outcome (offered job/rejected) and notification of explanation (explanation, no explanation). The earlier mentioned hypotheses were tested in this analysis.

Furthermore, a Multiple Regression analysis was performed (Brace, Kemp & Snelgar, 2012) as Hypothesis 4 predicted that the relationship between recruitment outcome (job offer/rejection) and DVs clear and open manner, organisational fulfilment, and process fairness would be mediated by feedback acceptance. Regression analyses are employed to explore causal relationships between multiple variables that techniques such as ANOVAs do not address. Moderating relationships occur when the relationship between two variables changes as a function of a third variable, whereas mediating relationships are when a mediating variable influences both the predictor

(independent) and outcome (dependent) variable (Preacher & Hayes, 2004; Howell, 2002). A mediation analysis explains the relationship between the IV and DV, and the level of the result relates to its acceptance.

Statistically a moderator changes the size and or direction of the predictor-outcome variable relationship, whereas a mediator reduces the size of this relationship (Field, 2013, 2018). Through identifying a mediator this enables researchers to claim new insights and to make recommendations about how research trends can proceed. The field study therefore aimed to identify mediators (e.g., feedback acceptance) that influenced applicant reactions so to align these with organisational justice theory. Figure 6.1 displays the difference between the conceptual models of mediation and moderation.

Figure 6.1: The difference between mediation and moderation models



The study employed multiple regressions by applying Gilliland’s procedural justice rules in the field study to identify mediating factors in applicant reactions.

6.7 Results

Table 6.1 displays the participant demographics of gender, age, internet job search experience, internet use familiarity, how feedback was communicated and explained, and the job sector in which they made their most recent job application.

Table 6.1: Participant demographics

	Successful	Unsuccessful	Total
Gender Male	46 (20.4 %)	53 (23.6%)	99 (44.0 %)
Female	62 (27.6 %)	64 (28.4 %)	126 (56.0 %)
Total	108 (48.0 %)	117 (52.0 %)	225 (100.0 %)

Age (years) Mean 34.10

Standard Deviation (S.D.) 11.2

Internet job search/application experience			
Never	0 (0.0 %)	0 (0.0 %)	0 (0.0 %)
Once	11 (4.9 %)	4 (1.8 %)	15 (6.7 %)
2-4 times	36 (16.0 %)	24 (10.7 %)	60 (26.7 %)
>4 times	61 (27.1 %)	89 (39.6 %)	150 (66.7 %)
Total	108 (48.0 %)	117 (52.0 %)	225 (100.0 %)
Internet familiarity			
Familiar	105 (46.7 %)	111 (49.3 %)	216 (96.0 %)

Unfamiliar	3 (1.3 %)	6 (2.6 %)	9 (4.0 %)
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Communication type

Phone call/e-mail/text	70 (31.1 %)	72 (32.0 %)	142 (63.1 %)
Letter	22 (9.8 %)	7 (3.1 %)	29 (12.9 %)
Face-to-face	16 (7.1 %)	2 (0.9 %)	18 (8.0 %)
No communication	0 (0 %)	36 (16 %)	36 (16 %)

Explanation type

Mechanical explanation	6 (2.7 %)	23 (10.2 %)	29 (12.9 %)
Holistic explanation	59 (26.2 %)	26 (11.6 %)	85 (37.8 %)
No explanation	43 (19.1 %)	68 (30.2 %)	111 (49.3 %)

Job sector

Academic/teaching	14 (6.2 %)	7 (3.1 %)	21 (9.3 %)
Architecture	0 (0.0 %)	1 (0.4 %)	1 (0.4 %)
Auditor/accountant	0 (0.0 %)	2 (0.9 %)	2 (0.9 %)
Automotive/aviation	0 (0.0 %)	2 (0.9 %)	2 (0.9 %)
Banking	3 (1.3 %)	10 (4.4 %)	13 (5.8 %)
Biotechnology	1 (0.4 %)	1 (0.4 %)	2 (0.9 %)
Civil Service	46 (20.4 %)	10 (4.4 %)	56 (24.9 %)

Consultancy	9 (4.0 %)	12 (5.3 %)	21 (9.3 %)
Engineering	0 (0.0 %)	3 (1.3 %)	3 (1.3 %)
Environment	1 (0.4 %)	1 (0.4 %)	2 (0.9 %)
Finance	2 (0.9 %)	1 (0.4 %)	3 (1.3 %)
Health	5 (2.3 %)	12 (5.3 %)	17 (7.6 %)
Hospitality	3 (1.3 %)	4 (1.8 %)	7 (3.1 %)
Human Resources (HR)	0 (0.0 %)	3 (1.3 %)	3 (1.3 %)
Information Technology (IT)	3 (1.3 %)	7 (3.1 %)	10 (4.4 %)
Insurance	2 (0.9 %)	0 (0.0 %)	2 (0.9 %)
Law	1 (0.4 %)	0 (0.0 %)	1 (0.4 %)
Leisure	1 (0.4 %)	0 (0.0 %)	1 (0.4 %)
Manufacturing/construction	2 (0.9 %)	6 (2.7 %)	8 (3.6 %)
Marketing/retail	5 (2.2 %)	9 (4.0 %)	14 (6.2 %)
Media	0 (0.0 %)	1 (0.4 %)	1 (0.4 %)
Pharmacy	0 (0.0 %)	1 (0.4 %)	1 (0.0 %)
Professional Services	0 (0.0 %)	3 (1.3 %)	3 (1.3 %)
Psychologist	0 (0.0 %)	1 (0.4 %)	1 (0.4 %)
Public Sector	7 (3.1 %)	10 (4.4 %)	17 (7.6 %)
Real Estate	0 (0.0 %)	1 (0.4 %)	1 (0.4 %)
Research	3 (1.3 %)	9 (4.0 %)	12 (5.3 %)

Total N = 225

6.7.1 Control measures: internet job application experience and internet use familiarity

Two control questions were included in the questionnaire to ensure that groups of respondents did not differ prior to conducting the main analysis. The two control measures were internet job application experience and internet use familiarity. Table 6.2 displays all the survey respondents' internet job application experience.

Table 6.2: Internet job application experience in the initial study sample

<u>Degree of prior internet job application experience</u>	<u>N</u>
Internet job application experience	225
<u>No prior internet job application experience</u>	<u>11</u>

N = 236

Responses were dichotomised as 1 = Prior internet job application experience, 0 = no prior internet job application experience. Most applicants were experienced in applying for jobs (N = 225). However, 11 respondents who did not meet the study inclusion criteria of having prior internet job application experience were excluded from the main analysis.

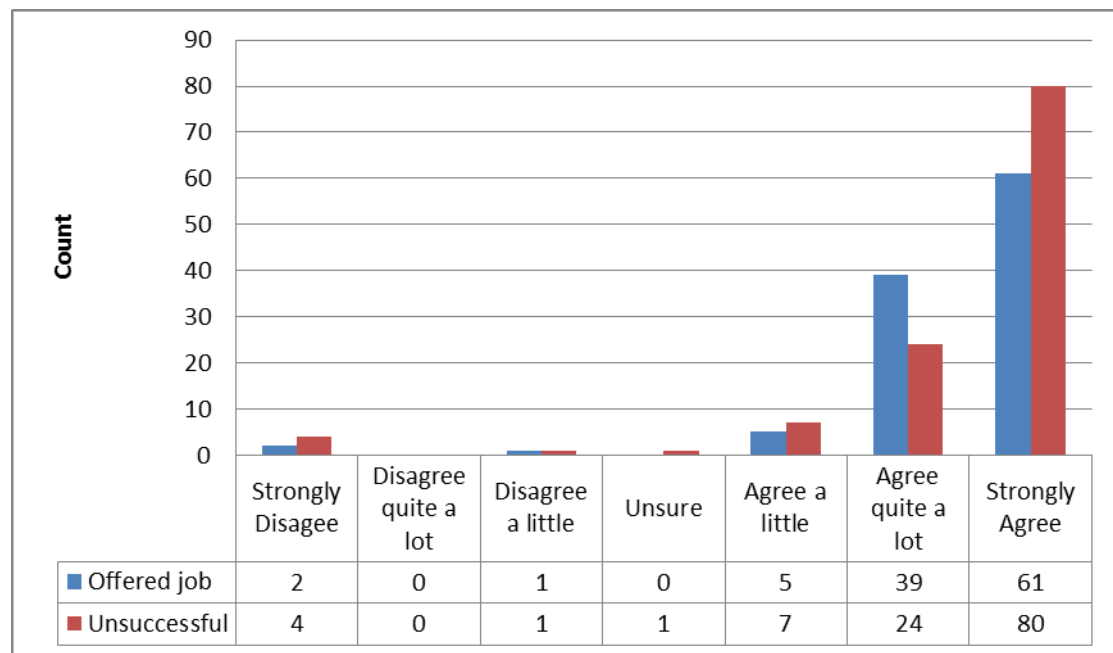
The second control item concerned internet use familiarity, "I'm familiar in using the internet." This item was measured on a 7-point Likert scale with strongly agree (7) indicating regular use. Table 6.3 displays the mean scores across outcome favourability (offered job/unsuccessful), and Figure 6.2 displays the responses across the scale on the internet use familiarity item.

Table 6.3: Internet use familiarity across outcome favourability man scores

Job application outcome	Mean	S.D.	N
Offered job	6.40	1.00	108
Unsuccessful	6.41	1.25	117

N = 225

Figure 6.2: Internet use familiarity across successful and unsuccessful applicants



In terms of internet use familiarity, most respondents indicated strong agreement (N = 141) or agreed quite a lot (N = 63) indicating regular internet use, and regular internet use was evident in successful and unsuccessful applicants alike.

A One-Way ANOVA analysis was conducted to compare outcome favourability (offered job/ unsuccessful) for regularity of internet use. There were no significant differences between successful and unsuccessful job candidates for regularity of internet use ($F(1,223) = 0.006, p = 0.936$). These results are confirmed by similar groups means for successful (M = 6.40) and unsuccessful (M = 6.41) job candidates for regularity of internet use.

Confirmatory Factor Analysis

A confirmatory factor analysis (CFA) was conducted on the Perceived Stress scale using the Analysis of Moment Structure (AMOS) v. 24 statistical package (Arbuckle, 2016). The estimation method chosen was the maximum likelihood estimate as the data were normally distributed. According to reported conventions the normality assessment usually rejects when the ratio of skewness is $> \pm 1$ and/or kurtosis is $> \pm 2$ (Ahmed, 2010; Nunally & Bernstein, 1994). The 10 items` distribution in this study was accepted as none departed from this normality. The hypothesised one-factor model was fit to the data of the full sample (N = 225). This model fit the data well, CFI = 0.884, TLI = 0.850, RMSEA = 0.09. No post-hoc modifications were conducted due to the good fit of the data to the model.

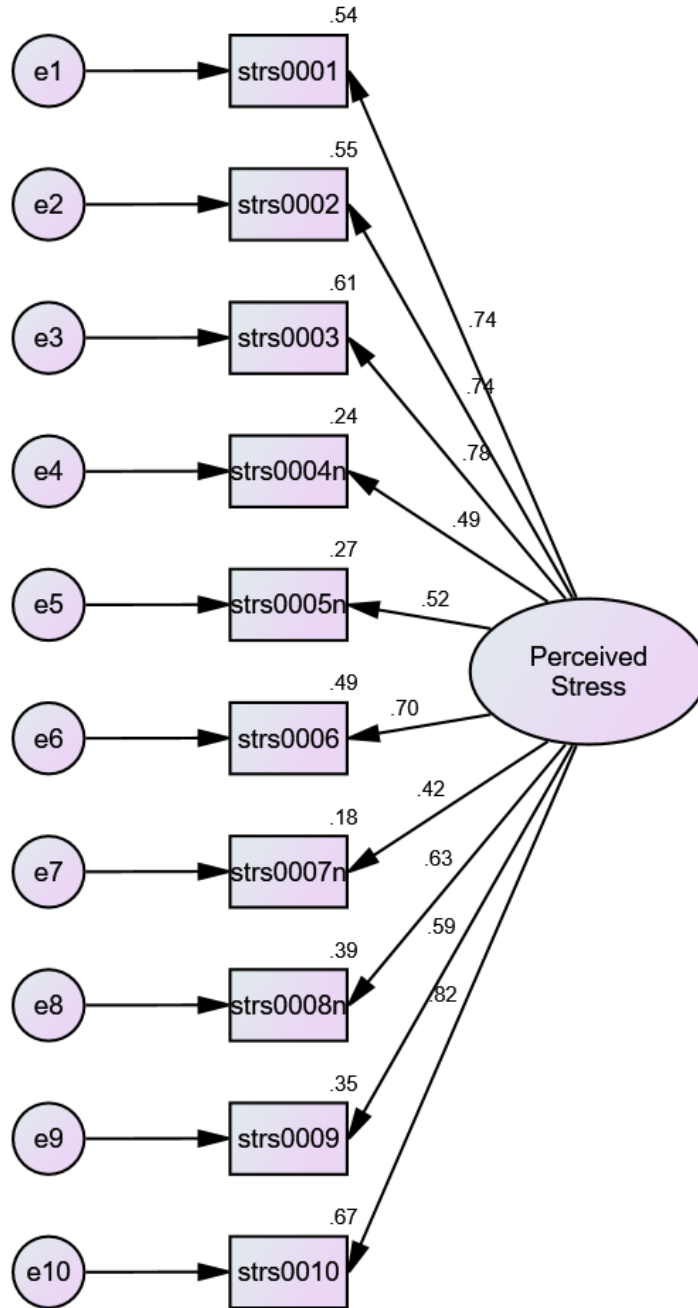
Table 6.4 displays the standardised residual covariances for the perceived stress scale items, and the theoretical model is presented in Figure 6.3.

Table 6:4 Standardised Residual Covariances for Perceived Stress

	str1	str2	str3	str4	str5	str6	str7	str8	str9	str10
str1	.000									
str2	.736	.000								
str3	.140	.388	.000							
str4	-1.483	-.511	-.058	.000						
str5	-.336	-.197	-.338	3.138	.000					
str6	-.277	-.186	.744	-.965	-2.416	.000				
str7	-.617	-.454	-.490	2.422	1.067	-.790	.000			
str8	-1.739	-1.327	.086	2.450	1.475	.703	2.445	.000		
str9	1.622	.351	-.032	-.602	.819	-.964	-.475	-.694	.000	
str10	.238	-.021	-.570	-.245	.072	.774	-.202	.310	-.419	.000

The confirmatory factor analysis (CFA) results for Core Self-evaluations (CSEs) and the other scaled measures (clear and open manner, organisational fulfilment obligations, feedback acceptance and clear and open manner which were found to be distinct scales are provided in Appendix 6.

Figure 6.3: Standardised estimates for the 10-item one factor structure of Perceived Stress



6.7.2 Outcome measures

This section examines outcome measures (explanation types, explanation provision, and outcome) to test hypotheses 1-4. This section will begin by examining holistic vs. mechanical explanations.

6.7.2.1 Holistic vs. mechanical explanations

Hypothesis 1 was tested through comparing scores on the measures for Clear and open manner, Feedback acceptance, Process Fairness and Organisational fulfilment by comparing these between mechanical and holistic explanations. In this analysis only respondents who stated they had received a feedback explanation were included (N = 114) so to compare explanations provided by the recruiters.

Table 6.5: Comparison of reactions measures scores between mechanical and holistic explanations Means and SDs

Explanation Measure and job outcome	Mechanical			Holistic		
	Mean	SD	N	Mean	SD	N
Clear and open manner	3.41	1.24	29	4.05	0.93	85
Offered job	4.17	0.75	6	4.27	0.61	59
Unsuccessful	3.22	1.28	23	3.54	1.27	26
Feedback acceptance	3.95	1.54	29	5.40	1.41	85
Offered job	4.92	1.56	6	5.83	1.11	59
Unsuccessful	3.70	1.47	23	4.42	1.55	26
Process Fairness	3.78	1.58	29	4.89	1.61	85
Offered job	4.83	1.21	6	5.22	1.32	59
Unsuccessful	3.50	1.56	23	4.13	1.96	26

Organisational fulfilment	3.16	1.24	29	3.98	0.95	85
Offered job	4.17	0.82	6	4.25	0.69	59
Unsuccessful	2.89	1.21	23	3.35	1.14	26

N = 114

A two-way ANOVA was performed for each of these measures and significant main effects were found for decision outcome (offered job/unsuccessful) on Clear and open manner ($F(1,110) = 11.618, p = 0.001$), Feedback acceptance ($F(1,110) = 14.965, p = 0.001$), Process fairness ($F(1,110) = 9.404, p = 0.003$), and Organisational fulfilment ($F(1,110) = 20.704, p = 0.001$). A significant main effect was also found for explanation type on Feedback acceptance ($F(1,110) = 5.835, p = 0.017$), although the interaction between outcome and explanation type was non-significant ($F(1,110) = 0.075, p = 0.784$). On the other measures the main effects for explanation type and interactions between outcome and explanation type were all non-significant.

Regarding feedback acceptance, the mean scores show there was more acceptance of feedback when it had been holistic ($M = 5.40$) than a mechanical explanation ($M = 3.95$) suggesting that applicants preferred to be told about their overall performance than about one aspect of their recruitment process performance. The mean scores when controlling for outcome favourability also indicate more acceptance of holistic explanations for successful ($M = 5.83$) and unsuccessful applicants ($M = 4.42$) alike than those receiving mechanical explanations.

Overall, applicants scored higher when receiving holistic explanations on the organisational fulfilment obligations, feedback acceptance, clear and open manner, and process fairness measures than mechanical explanations supporting Hypothesis 1.

6.7.2.2 Reactions measures by decision outcome

This sub-section examines reactions measures by comparing responses across successful and unsuccessful applicants. Table 6.6 displays a comparison of these four fairness, justice, and behavioural intentions measures (clear and open manner, feedback acceptance, process fairness and organisational fulfilment) across successful and unsuccessful applicant's means and SDs.

Table 6.6: Comparison of reactions measures scores between successful and unsuccessful applicants Means and SDs

Outcome Measure	Offered job			Unsuccessful		
	Mean	SD	N	Mean	SD	N
Clear and open manner	3.99	0.84	108	2.65	1.36	117
Feedback acceptance	5.19	1.34	108	3.62	1.37	117
Process Fairness	4.95	1.38	108	3.75	1.68	117
Organisational fulfilment	4.17	0.71	108	2.64	1.17	117

N = 225

An independent measures t-test was performed for each of these measures. Results showed successful applicants scored higher on the clear and open manner measure (M = 3.99, SD = 0.84) than unsuccessful applicants (M = 2.65, SD = 1.36). An independent measures t-test found this difference 1.34 BCa 95% CI [1.04, 1.63] to be significant $t(195.12) = 8.98, p < 0.001; d = 1.17$.

Secondly, for Feedback acceptance successful applicants (M = 5.00, SD = 1.34) scored higher than their unsuccessful (M = 3.07, SD = 1.80) counterparts. An independent measures t-test found this difference 1.93 BCa 95% CI [1.49, 2.37] to be significant $t(221.56) = 8.67, p < 0.005; d = 1.15$. On the reverse worded item for feedback acceptance, the difference was non-significant.

Thirdly, for Process Fairness successful applicants ($M = 4.89$, $SD = 1.56$) scored higher than unsuccessful ($M = 3.72$, $SD = 1.72$) applicants. An independent measures t-test found this difference 1.17 BCa 95% CI [0.76, 1.60] was nearing significance $t(222.93) = 5.35$, $p = 0.058$; $d = 0.71$. On Process effectiveness successful applicants ($M = 5.01$, $SD = 1.50$) scored higher than unsuccessful applicants ($M = 3.78$, $SD = 1.81$). This difference 1.23 BCa 95% CI [0.80, 1.68] was significant $t(220.51, 5.57)$, $p < 0.001$; $d = 0.74$.

On the Organisational fulfilment obligations measure successful applicants ($M = 4.24$, $SD = 0.81$) scored higher than their unsuccessful ($M = 2.56$, $SD = 1.27$) counterparts. This difference 1.68 BCa 95% CI [1.37, 1.95] was significant $t(198.64) = 11.92$, $p < 0.001$; $d = 1.56$. In terms of meeting the candidate's expectations successful job applicants ($M = 4.10$, $SD = 0.79$) scored higher than unsuccessful ($M = 2.71$, $SD = 1.20$) applicants. This difference 1.39 BCa 95% CI [1.13, 1.66] was significant $t(201.15) = 10.35$, $p < 0.0001$; $d = 1.36$.

Together these findings suggest that successful applicants scored higher on process fairness, were more accepting of the job recruitment decision, and felt that recruitment procedures had been followed more than their unsuccessful counterparts supporting Hypothesis 2.

6.7.2.3 Technological vs. interpersonal feedback

Hypothesis 3 was tested by comparing applicant process fairness scores when receiving technological and interpersonal feedback. In this analysis only respondents who stated they had received a feedback explanation were included ($N = 114$). Table

6.7 displays the process fairness measures mean and SD scores comparing technological and interpersonal feedback.

Table 6.7: Comparison of process fairness measures scores between job outcome and type of feedback Means and SDs

Feedback Type	Offered job			Unsuccessful		
	Mean	SD	N	Mean	SD	N
Technological feedback	5.07	1.48	43	3.79	1.89	43
Interpersonal feedback	5.41	0.87	22	4.17	0.88	6

N = 114

A two-way ANOVA was conducted for Feedback type (technological vs. interpersonal feedback) and decision outcome (successful, unsuccessful) on process fairness. There was no significant main effect for explanation type (technological or interpersonal) ($F(1,110) = 0.834, p = 0.363$), however there was a highly significant main effect for decision outcome ($F(1,110) = 10.358, p = 0.002$), but there was no significant interaction between explanation provided and decision outcome ($F(1,110) = 0.002, p = 0.963$).

Regarding mean differences across outcome, there were differences in process fairness scores as successful applicants had higher scores when receiving technological feedback ($M = 5.07$) than their unsuccessful counterparts ($M = 3.79$), and likewise when receiving interpersonal feedback, the mean score was 5.41 for successful, and 4.17 for unsuccessful applicants. Thus, Hypothesis 3 is not supported.

6.7.2.4 Feedback acceptance

Hypothesis 4 was firstly tested using a Multiple Regression analysis to examine whether the effect on favourable feedback (job offer) on attitudes (clear and open

manner, process fairness and organisational fulfilment obligations) towards the recruiting organisation was influenced by the applicant's feedback acceptance.

Preliminary checks were conducted on the data for feedback acceptance to ensure it met the assumptions of normality, linearity, and homoscedasticity of residuals. Figure 6.4 displays the normal probability plot, and Figure 6.5 the scatterplot to test these assumptions on feedback acceptance.

Figure 6.4: Normal probability plot for feedback acceptance

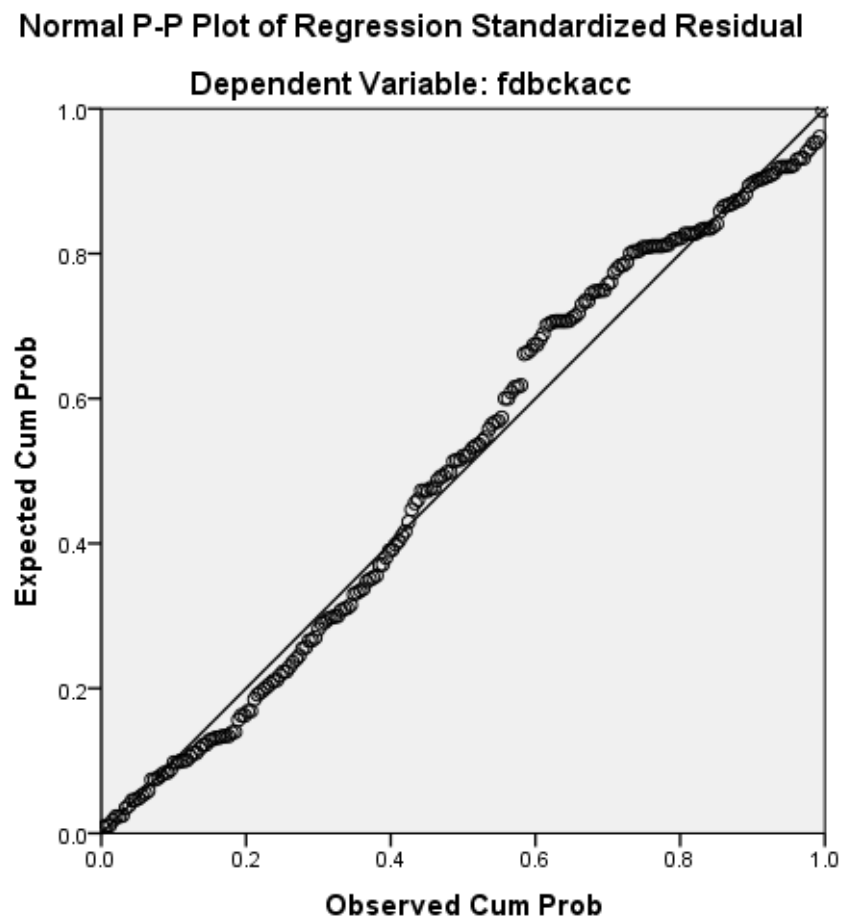
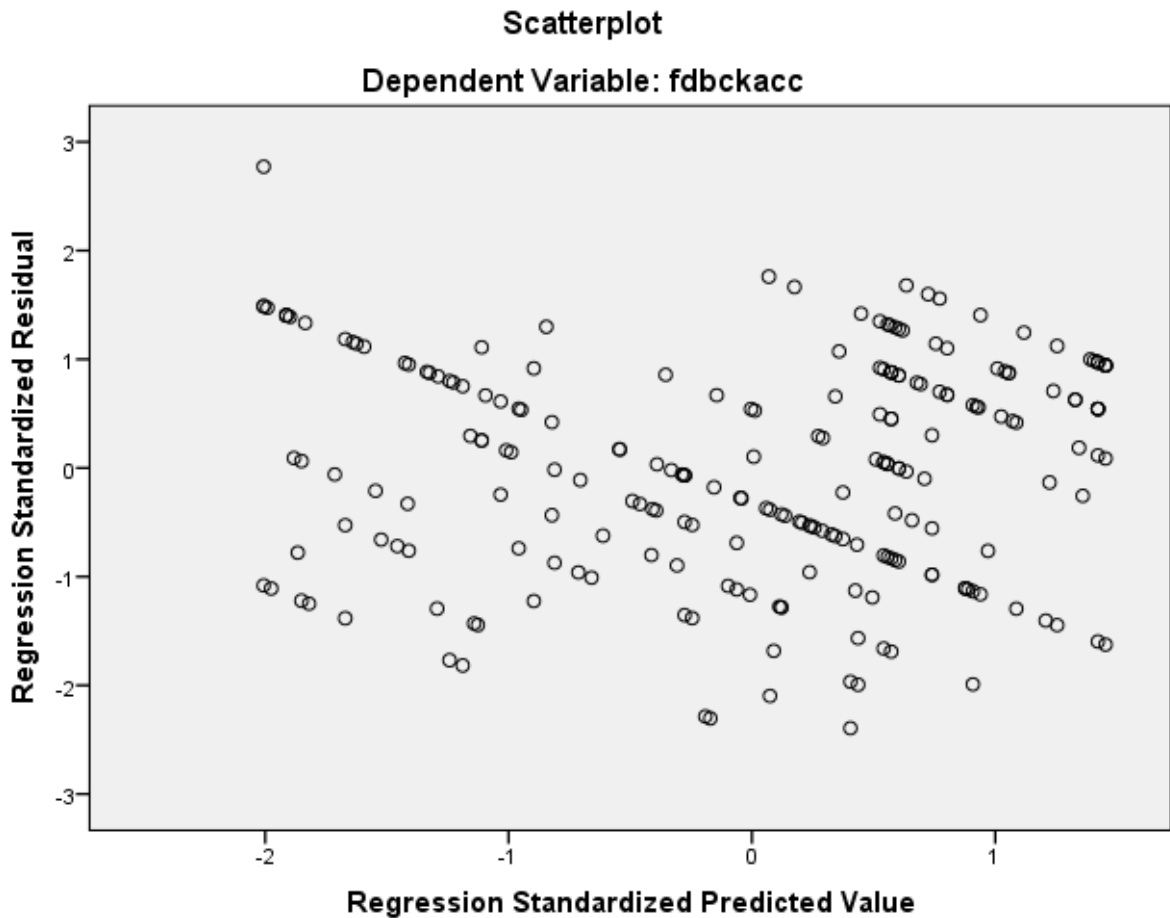


Figure 6.5: Scatterplot for feedback acceptance



As the data points were fairly close to the straight line on the normal probability plot, it can be assumed that the normality assumption had been met on the feedback acceptance data. The scattergraph also shows that the data met the assumptions of normality, linearity and homoscedasticity with reasonable distribution of data points across a rectangular shape. The assumption of No Multicollinearity (that the measures used were not highly correlated) was also tested across the measures and the VIF values were well below 10 and the tolerance statistics were much higher than 0.2 the accepted parameters (e.g. Bowerman & O’Connell, 1990; Field, 2013; Menard, 1995), so this demonstrated there was no multicollinearity in the data.

Those variables that were significantly related with the criterion variable, feedback acceptance was entered as predictors into a multiple regression using the standard method. A significant model emerged ($F(3,221) = 60.447, p = 0.001$). The model explained 44.3% of the variance in feedback acceptance (Adjusted $R^2 = .443$). Table 6.8 details the descriptive statistics and correlation coefficients, and Table 6.9 the regression coefficients for the predictor variables entered into the model.

Table 6.8: Descriptive statistics and correlation coefficients between feedback acceptance on reactions towards the organisation and outcome

Measure	M	SD	1	2	3	4
1. Feedback acceptance	4.37	1.57	-			
2. Clear and open manner	3.29	1.32	.64*	-		
3. Process fairness	4.32	1.65	.33*	.37*	-	
4. Organisational fulfilment	3.37	1.24	.60*	.70*	.49*	-

N = 225 * $p < 0.001$

Table 6.9: The unstandardised and standardised regression coefficients for the reactions measures entered into the model for feedback acceptance

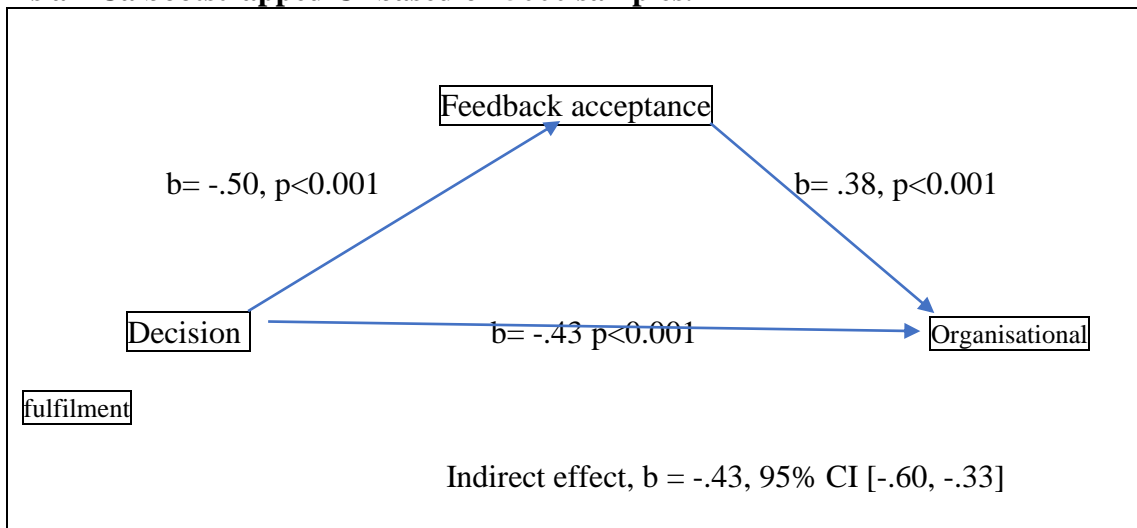
Measure	B	SE B	Beta	p
Clear and open manner	.507	.083	.428	.001*
Process fairness	.033	.054	.034	.549
Organisational fulfilment	.352	.095	.279	.001*

N = 225 * $p < 0.001$

It was found that clear and open manner and organisational fulfilment were significant predictors with a positive relationship to feedback acceptance. Therefore, a mediation analysis was conducted to examine whether feedback acceptance was the mediating factor behind decision outcome and these fairness reactions.

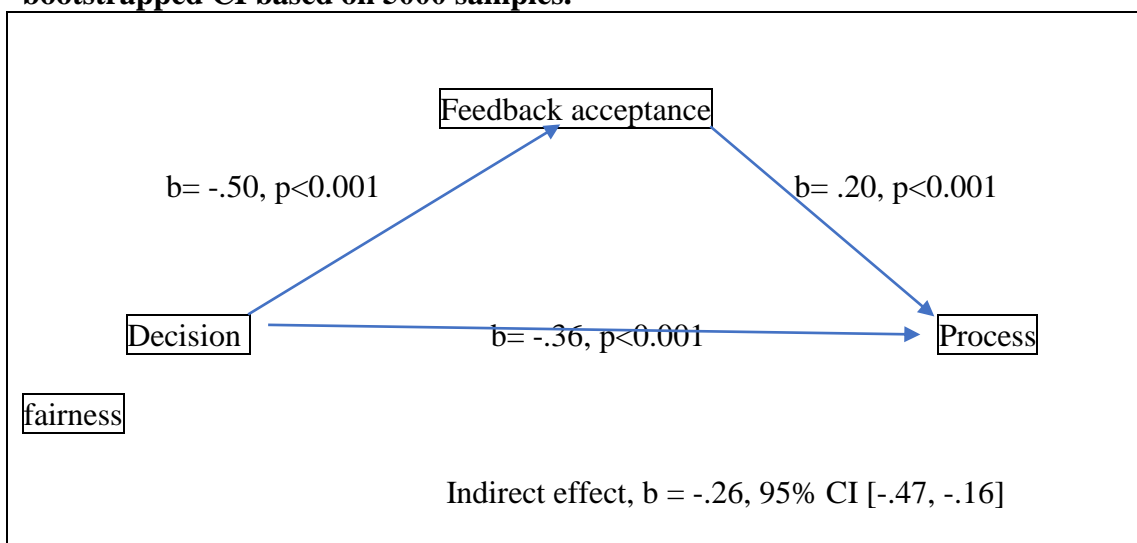
Figures 6.6 - 6.8 display the mediation analysis conducted following Preacher & Hayes (2004).

Figure 6.6: Model of decision as a predictor of organisational fulfilment, mediated by feedback acceptance. The confidence interval for the indirect effect is a BCa bootstrapped CI based on 5000 samples.



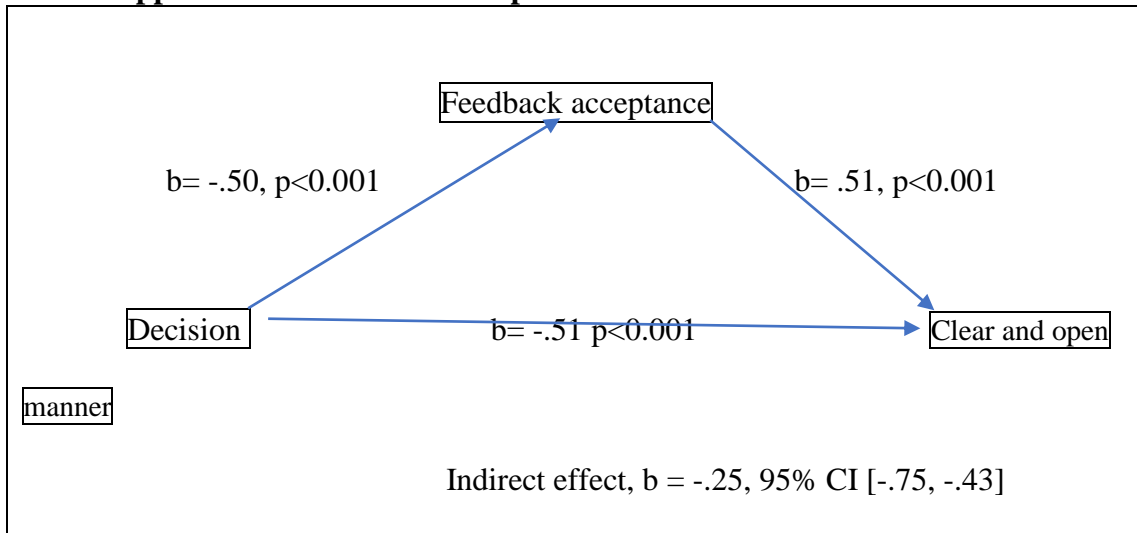
There was a significant indirect effect of the recruitment decision on organisational fulfilment through feedback acceptance, $b = -.428, 95\% \text{ BCa CI } [-.6031, -.3320]$.

Figure 6.7: Model of decision as a predictor of process fairness, mediated by feedback acceptance. The confidence interval for the indirect effect is a BCa bootstrapped CI based on 5000 samples.



There was a significant indirect effect of the recruitment decision on process fairness through feedback acceptance, $b = -.264$, 95% BCa CI $[-.4678, -.3586]$.

Figure 6.8: Model of decision as a predictor of clear and open manner, mediated by feedback acceptance. The confidence interval for the indirect effect is a BCa bootstrapped CI based on 5000 samples.



There was a significant indirect effect of the recruitment decision on clear and open manner through feedback acceptance, $b = -.251$, 95% BCa CI $[-.7471, -.4332]$.

Therefore, Hypothesis 4 was supported as the impact of decision on evaluations of process fairness, clear and open manner, organisational fulfilment obligations is mediated by the extent to which the decision is accepted.

6.7.2.5 Holistic vs. mechanical explanations

Hypothesis 5 concerned moderating relationships between core self-evaluations (CSEs) and perceived stress scores and explanation type (holistic/mechanical) and outcome favourability. Table 6.10 displays mean and SD scores across these measures between explanation type and job application outcome.

Table 6.10: Core Self-evaluations and Perceived Stress scores by explanation type and application outcome Means and SDs

Core Self-evaluations

Feedback Type	<u>Offered job</u>			<u>Unsuccessful</u>		
	Mean	SD	N	Mean	SD	N
Holistic explanation	40.51	2.92	59	38.81	3.42	26
<u>Mechanical explanation</u>	<u>40.33</u>	<u>2.34</u>	<u>6</u>	<u>40.65</u>	<u>2.53</u>	<u>23</u>

Perceived Stress

Feedback Type	<u>Offered job</u>			<u>Unsuccessful</u>		
	Mean	SD	N	Mean	SD	N
Holistic explanation	24.71	5.75	59	23.31	6.06	26
<u>Mechanical explanation</u>	<u>22.83</u>	<u>5.15</u>	<u>6</u>	<u>27.83</u>	<u>7.73</u>	<u>23</u>

N = 114

A moderation analysis was performed using PROCESS for SPSS version 3.4 (Hayes, 2018) on the measures of Core self-evaluations and Perceived Stress for explanation type and job application outcome. Tables 6.11 and 6.12 display the analyses for both measures.

Table 6.11: Linear model of predictors of Core self-evaluations

	b	SE B	t	p
Constant	39.84 [39.46, 40.22]	.190	208.87 <0.001	
Decision (centred)	-.73 [-1.48, 0.02]	.380	-1.93	0.0552
Explanation type (centred)	-.49 [-1.00, 0.02]	.260	-1.91	0.0580
Decision x Explanation type	-.01 [-1.03, 1.01]	.520	-0.23 0.9812	
R² = 0.03, N = 114				

Table 6.12: Linear model of predictors of Perceived Stress

	b	SE B	t	p
Constant	26.11 [25.28, 26.94]	.420	62.05	<0.001
Decision (centred)	1.10 [-0.54, 2.75]	.834	1.32	0.1873
Explanation type (centred)	1.26 [0.63, 2.46]	.610	2.07	<0.05
Decision x Explanation type	-1.70 [-4.09, 0.69]	1.213	-1.40 0.1631	
R² = 0.03, N = 114				

Hypothesis 5 is not supported as there were no moderating effects between perceived stress scores and CSEs, holistic/mechanical explanations and outcome favourability.

6.7.2.6 Notification type

Hypothesis 6 concerned the psychological effect of notification/no notification of the recruitment decision to the job candidate on the scaled measures of Core Self-

evaluations and Perceived Stress. Table 6.13 displays mean and SD scores across these measures and between notification and non-notification and feedback type.

Table 6.13: Core Self-evaluations and Perceived Stress scores by notification or no notification and application outcome Means and SDs

Core Self-evaluations

Feedback Type	<u>Offered job</u>			<u>Unsuccessful</u>		
	Mean	SD	N	Mean	SD	N
Notification provided	40.49	2.86	65	39.67	3.15	49
No notification provided	39.84	2.44	43	39.34	3.04	68

Perceived Stress

Feedback Type	<u>Offered job</u>			<u>Unsuccessful</u>		
	Mean	SD	N	Mean	SD	N
Notification provided	24.54	5.69	65	25.43	7.20	49
No notification provided	26.93	5.23	43	27.53	6.85	68

N = 225

A Univariate ANOVA was performed on the measure of Perceived Stress for notification type. It was found that there was a significant main effect for notification provided ($F(1,221) = 6.835, p = 0.010$), however there was no significant main effect for outcome ($F(1,221) = 0.751, p = 0.387$) nor a significant interaction between notification provided and outcome ($F(1,221) = 0.029, p = 0.866$).

The mean scores for perceived stress were higher in successful applicants who received no notification for the recruitment decision ($M = 26.93$) compared to those notified ($M = 24.54$). Similarly, with unsuccessful applicants, stress scores were higher when no notification was provided ($M = 27.53$) than when the candidate was notified ($M = 26.93$). These results suggest that being notified of the decision, whether a positive outcome (i.e. a job offer) or a negative outcome (i.e. rejection) resulted in applicants feeling less stressed than not receiving a notification explanation. This finding supports Hypothesis 6, as both groups (successful and unsuccessful) of applicants were less stressed when recruitment decisions were explained.

On the measure of Core Self-evaluations, there were no significant main effects for notification given ($F(1,221) = 1.578, p = 0.210$), outcome ($F(1,221) = 2.795, p = 0.096$) and no significant interaction between notification and outcome ($F(1,221) = 0.165, p = 0.685$).

Overall, Hypothesis 6 is partially supported as shown by lower perceived stress scores for applicants who were notified of the job recruitment decision than those not notified. However, there was no support for the hypothesis on the CSE scores.

6.8 Discussion

The purpose of this field study was to examine the feelings of job applicants, process fairness and justice perceptions, and behavioural intentions and to link this to organisational justice theory. Secondly, the study set out to investigate the effect of different types of explanations (holistic vs. mechanical) on online job applicants'

reactions to receiving feedback. In considering study context, the study was conducted in the years 2012-2013 when online recruitment tests were widely used by organisations in job recruitment. The earlier mentioned Sylva and Mol (2009) study did not include UK applicants in the main analysis and relate process fairness to applicant reactions within web-based selection settings whereas the current study achieved these objectives.

Hypothesis 1 predicted that job applicants who received holistic explanations (regarding overall performance in the recruitment process) would score higher on the organisational fulfilment obligations, feedback acceptance, clear and open manner, and process fairness measures than those receiving mechanical explanations (one specific aspect such as not making the short list). This field study found that job applicants receiving holistic explanations scored higher on all four fairness and justice measures (feedback acceptance, clear and open manner, organisational fulfilment obligations, and process fairness). These findings concur with the organisational justice literature and tie in with Gilliland's (1993) procedural justice rules as job applicants felt more accepting towards the feedback when it was clear and open (e.g., Selection information, Honesty, Performance feedback). Therefore, Hypothesis 1 was supported.

This new insight addressed Morgeson and Ryan's (2009) call for further investigation as they were uncertain about the effects of these types of feedback explanations on job applicants. These findings showed that as well as in diversity contexts as found by Brooks, Guidroz and Chakrabarti (2009) as earlier detailed (See 6.2 Background), in job recruitment settings candidates preferred holistic feedback explanations. This

current study included real-world job applicants whereas Brooks et al.'s investigation utilised job-scenario research designs with non-applicant samples. Another difference was that Brooks et al. focused on an organisation explaining diversity policies (holistic/mechanical) whereas the focus of this study was on feedback explanations regarding the candidate's performance during a job selection/recruitment process. Theoretically these findings link with the Bränn (2010) study earlier detailed which measured reactions towards a web-based cognitive ability test and a work sample test applied to Gilliland's procedural justice rules. The procedural justice rules of Selection information and Performance feedback apply in this context when considering that the holistic feedback explanation was rated higher on four reaction measures including process fairness as in Bränn's (2010) study.

Hypothesis 2 was the prediction that successful applicants would score higher on the process fairness, feedback acceptance, organisational fulfilment obligations, and clear and open manner measures than their unsuccessful counterparts. As expected, successful applicants scored higher on all four of these measures (e.g., Anseel & Lievens, 2006; Brett & Atwater, 2001; Morgeson & Ryan, 2009; Tonidandel, Quiñones & Adams, 2002) whereas rejected applicants felt less accepting towards the recruitment decision, and more unfairly treated, and that procedures had been less transparent.

In considering the literature and theory earlier discussed regarding assessments, Wiechmann and Ryan (2003) also found that in-basket test success or failure had a bearing on test-taker's perceptions of process fairness and outcome fairness. Contrary to research findings (e.g., Leung & Li, 1990; Ryan & Chan, 1999) suggesting that

procedural justice only affects fairness perceptions with negative outcomes and underperformance (Tonidandel & Quiñones, 2002), this field study found that with a successful outcome (i.e. a job offer) feedback acceptance, process fairness, clear and open manner, and organisational fulfilment obligations reactions were also affected with respondents scoring higher on these measures.

Theoretically 'self-serving' biases confirm these findings as when job candidates receive a job offer (i.e., a positive outcome) they regard the testing procedures and outcome as fair and accept positive feedback, whereas unsuccessful candidates feel the procedures and outcome are unfair to protect their self-image (Wiechmann & Ryan, 2003; Ployhart & Ryan, 1997).

Hypothesis 3 predicted applicants would score higher on process fairness when receiving recruitment decisions from a technological feedback agent than from an interpersonal (human) feedback agent, combined with outcome favourability (job offer/rejection). This hypothesis was only partly supported as only one significant main effect was found for outcome when examining process fairness. Overall, these findings suggest that job applicants felt indifferent to the source of feedback (or feedback agent) and what mattered most to them was whether they had been successful with their job application. This relates to distributive justice and the equity rule from Gilliland's (1993) organisational justice framework so the reward of a job offer or being unsuccessful with the job application would be based on the input and work put in by the applicant.

Hypothesis 4 concerned a mediation effect for feedback acceptance. A significant

indirect effect of the recruitment decision was predicted on organisational fulfilment obligations, process fairness and clear and open manner (analysed separately) through feedback acceptance. Hypothesis 4 was supported as on three measures a full mediation effect for feedback acceptance was found. In other words, the impact of decision on evaluations of process fairness, clear and open manner, organisational fulfilment obligations were mediated by the extent to which the job recruitment decision (job offer/unsuccessful) is accepted. The implications of these findings are that if job recruiters can improve job applicants' feedback acceptance, then this may mitigate any negative job candidate impacts on process fairness evaluations etc.

These findings have theoretical links with feedback process models (e.g., Ilgen et al., 1979; Kinicki et al., 2004) which also predicted that perceptions of feedback accuracy would be mediated in this way. A mediation effect for feedback acceptance was also found in two earlier research studies (Anseel & Lievens, 2009; Kinincki et al., 2004) although neither of these studies examined job applicant reactions as Anseel and Lievens conducted experiments, and Kinicki et al. researched employee performance appraisal. This new insight also links with Gilliland's procedural justice (1993) model within the context of job selection as it addresses the procedural justice "performance feedback" rule. Specifically, this performance feedback rule addresses the aspect of acceptance towards informative feedback which is often overlooked in the literature as usually pass/fail or accept/reject feedback is compared. According to feedback process theory (e.g., Ilgen et al., 1979) explanations the recipient of the feedback needs to accept the feedback message for it to have such an effect.

On a practical level the findings that feedback acceptance is a mediator of test-taker perceptions shows its importance for job applicants. In other words, the implications

of these findings are that what matters is whether candidates deem the feedback from the recruiters to be accurate and credible. There are various ways in which feedback could become more acceptable to job candidates. For example, in view of a preference towards holistic feedback explanations recruiters could detail the candidate's performance during the various phases of selection (shortlisting, test performance, Assessment Centre performance and the final interview). The viability of such detailed feedback provision is an issue though as there are often limited company resources. Holistic feedback does not necessarily have to be detailed though as a simple letter with a sentence about each phase of the selection process may be adequate for the candidate. For example, a letter could be worded as follows "your C.V. shows that you are highly qualified, you scored well on the numerical test, and the interview panel were impressed with your answers."

Detailed feedback is often provided for Assessment Centres (e.g., Lievens & Klimoski, 2001; Thornton & Rupp, 2005). In this kind of feedback, the candidate's performance is rated across various competencies and assessment exercises and feedback reports are provided containing summaries and conclusions of overall performance. It appears that companies with sufficient resources to employ external assessors and experts such as consultants would benefit from such detailed feedback delivery. Perhaps some form of automated and personalised feedback delivery would be a solution when there are limited budgets and staff available for HR functions, although companies need to bear in mind adverse candidate perceptions towards automated feedback (Langer et al., 2018). Testing bodies including the British Psychological Society also recommend that test feedback sessions should take place.

Pertinently the feedback message needs to be regarded by the candidate as credible to be accepted which ties in with Ilgen et al.'s (1979) feedback process model.

Credibility perceptions could be enhanced by recruiters employing qualified assessors such as Occupational Psychologists and professionals holding BPS (or equivalent) Test User qualifications. On the other hand, bad practices such as using untrained staff to provide candidate feedback would probably lead the selection process to be perceived as less accurate feedback by the candidate and would not be accepted. Similarly, highly automated selection process appears to be less accepted by candidates in high-stakes contexts such as job selection due to the lack of social presence and perceived fairness (Langer et al., 2018).

An alternative approach bearing in mind the company resources required is to offer such detailed feedback only to the small number of candidates who have progressed to the final selection phase, with briefer feedback for those rejected earlier on in the recruitment cycle process (e.g., a brief rejection message for those not shortlisted). Feedback which names a contactable person from the organisation to discuss their feedback would also enhance these acceptability issues. Walker and colleagues (2014) discussed how feedback can be sensitively conveyed by addressing the candidate in person, explaining the recruitment process and by maintaining interpersonal contact.

For example, according to the self-serving bias, unsuccessful applicants deemed the process as unfair and not transparent in anticipation of the bad news so blamed their failure on an external cause; whereas their successful counterparts felt the process was fair, clear, and open as found in other studies (e.g., Van Rooy & Viswesvaran, 2004).

In terms of relating these findings to feedback provision, receiving a job offer is a very powerful form of positive feedback.

Hypothesis 6 predicted that job applicants receiving a notification of the job recruitment decision would score lower on perceived stress and higher CSE scores than job applicants not notified. providing an explanation to unsuccessful applicants would result in lower Perceived Stress and higher CSEs scores with the opposite effect for successful job applicants. For Perceived Stress there was a significant effect for explanation provided, whereas there were no significant main effects for CSEs. These findings suggest that applicants' stress levels were affected by the provision of an explanation, irrespective of outcome favourability, as these candidates felt less stressed than their counterparts that were not notified of the recruitment decision.

In terms of practical applications, this finding about the benefits of providing explanations can be reassuring to recruiters since providing feedback was found to be helpful to applicants and resulted in more positive reactions, contrary to some of the literature (e.g. Schinkel et al. 2004) and feedback process models (e.g. Ilgen et al., 1979) that suggest applicants find this feedback psychologically damaging. In view of this finding, for best practice recruiters should be more proactive in providing explanations to candidates with due care and attention (e.g., Konradt et al., 2013; Schinkel et al., 2011). However, having the necessary resources available such as having dedicated personnel staff, organisational size, finances, and the practicality of providing feedback are considerations for organisations (Cripps, 2017). Perhaps economical means (e.g., sending a standardised e-mail) of providing feedback that do not require significant staff input and financial expense would be the best way to

achieve this goal in a recruitment context and at the same time mitigate the effect of rejection on unsuccessful candidate's reactions (Cortini et al., 2019).

6.9 Strengths of study

Unlike the experimental studies, there were no ethical issues such as participant deception as feedback was not manipulated. Instead, feedback was provided directly from the job recruiters to the job candidates and the researcher was not involved at all during the feedback provision. Participants provided written consent by ticking the box at the end of the questionnaire introduction section in the Survey Monkey instrument. The study was not so loading on participants unlike the previous studies in terms of multiple study phases which overcame the problem of participant attrition. The only study requirement was for participants to complete a brief study survey which took about 10 minutes to complete.

Adopting a mediation analysis approach was a further strength as this enabled the relationship between causal factors to be considered which other techniques such as ANOVAs do not examine. Dependent variables (clear and open manner, process fairness, and organisational fulfilment obligations), an independent variable (outcome favourability) and the mediator variable feedback acceptance were modelled to investigate whether there was a mediating effect. Mediators including feedback acceptance can also be applied to theoretical models which in this case was the feedback process model (Ilgen et al., 1979). Confirmatory Factor Analyses (CFAs) were also conducted on the scale measures to provide a theoretical underpinning to the research.

A further strength was that there was more external validity studying the reactions of job applicants to feedback provision. Unlike the experimental phase of the research where the sample was predominantly student participants, the field study sample comprised job applicants in a high-stake setting was a major strength. Therefore, as reported in the literature (e.g., Hausknecht et al., 2004) such field studies capture the feelings of job applicants and are more ecologically valid than job-scenario studies. However, there were study limitations which will be detailed in the next sub-section.

6.10 Limitations

A limitation of this study was that only one survey was conducted (so not a longitudinal study) so there were no comparative measurements to assess scores across phases of the application process which is a problem with snapshot designs. As no baseline measures were taken unlike in the previous studies it is unclear whether applicant perceptions changed during different phases of the recruitment process. More pertinently it was unclear whether the outcome had a bearing on the measures (e.g., perceived stress, process fairness) or some external factor such as individual differences. However, the study was useful as it offered insight into applicant feelings towards feedback provision for online Graduate recruitment involving psychometric testing.

A second limitation was that applicants were completing a self-report survey regarding their experiences of online recruitment from various organisations as this study was not coordinated with any organisation. This means there was no control for different organisation recruitment process experiences which may have affected these responses. Furthermore, the survey is reliant on accurate responses from candidates

about the actual recruitment process they encountered. Unlike experimental studies such as Brooks et al. (2009) earlier discussed this field study was researching online job candidate experiences although the pre-assigned variable conditions (e.g., holistic/mechanical explanations) were based on these responses. Ideally in research the accuracy of these recollections would need to be verified but this approach seemed the most appropriate within the constraints. Therefore, there was no control over the study variables unlike when these were controlled experimentally. For example, it is unclear about individual factors such as different styles of communicating feedback and the company's motivation for providing types of feedback.

Initially the intention was to conduct the study through an organisation, however due to practical issues in obtaining agreement with an organisation and the timescale of the research; the best compromise was to conduct an open survey approach. However, despite this issue the study approach provided a broad overview of job sectors (Finance, Health, the Civil Service, and Manufacturing etc.) that were utilising online testing for graduate recruitment. Therefore, this enabled the findings regarding applicant reactions to be more generalisable to different professions.

In terms of the sample composition, most respondents (N = 225) from the initial 236 were experienced in applying for jobs in which online tests were utilised. There were only 11 respondents who did not meet the eligibility criteria of having such online testing experience in applying for jobs, so they were excluded from the main analysis. Similarly, much of the sample were regular users of the internet as 204 out of the 225 respondents indicated strongly agree (N = 141) or agree quite a lot (N = 63) to this

item. Maybe job seekers who were less familiar with online recruitment tests and computer technology may have responded differently on items including process fairness and feedback acceptance. The sample were relatively young (mean age = 34.10 years) and both genders were evenly represented. As the sample were internet savvy perhaps those less familiar with online testing such as older adults may have favoured different types of feedback explanations such as interpersonal methods (e.g., telephone calls). This relates to the ideas about the internet generation and possible `Digital Divide`. Most of the sample had applied for more than four jobs (N = 150, 67.6 %) online or on the internet. Successful (48 %) and unsuccessful (52 %) applicants were evenly represented in the survey sample, so the survey was not over-represented by outcome groups.

Nearly a quarter of the sample were from the civil service (N = 56, 24.9 %). Due to this sample size the experiences of civil service online recruitment processes were well represented. The study was advertised internally by a contact from the Health and Safety Executive (HSE). However, it is unclear whether the online tests were used for their current role or for previous job applications. The academic/teaching and consultancy sectors were the next largest groups represented with 21 respondents from each of these sectors, respectively.

In terms of the recruitment strategy, an advert was circulated online but this may have been self-selecting as participants needed to be actively using the internet to participate from the outset which is a potential sample bias. Perhaps those without regular internet access who had previously been tested online for job recruitment

would hold differing fairness and procedural perceptions towards online testing relating to the concept of the `Digital Divide`.

6.11 Original contribution of study and future directions

This field study made an original contribution by studying job applicants' reactions, both successful and unsuccessful to online testing and relating this to procedural justice and reactions an aspect that is lacking in the literature (Schinkel et al., 2013). Another contribution was finding that holistic explanations concerning all aspects of recruitment process performance heightens online job candidate reactions (e.g. organisational fulfilment obligations, feedback acceptance, process fairness) compared to more narrow feedback concerning one aspect of their performance (mechanical explanations), so people like to hear about their overall performance, an aspect that was unclear in recruitment settings previously (Morgeson and Ryan, 2009; Anseel & Lievens, 2009). The implication of this finding is that at a practical level, organisations can tailor candidate feedback to job applicants to inform them how they fared across the recruitment exercises in an informative and accurate manner to improve candidate reactions. Organisations can find inexpensive ways of providing such candidate feedback bearing in mind time and resources available (Cortini et al., 2019). In revisiting Anderson's (2003) notion this practice reinforces the `Bilateral process` between the organisation and job applicant.

A third original contribution of the study was the finding that the extent of the feedback acceptance on the part of the job applicant is critical in shaping their reactions to feedback. In other words, the feedback recipient must accept the feedback for it to have a greater effect on these reactions. One key factor influencing these

candidate reactions is the feedback agent, who provides the candidate feedback which could be via technology (e.g. an automated message) or interpersonally from another person (e.g. a telephone call). The implication of this finding is that organisations should consider various factors in feedback communication to job candidates: the feedback agent used (interpersonal vs. automated), the extent of feedback, and whether the feedback is accurate and credible.

Finally, another contribution was the finding that perceived stress was lower in candidates notified of the recruitment decision than when non notified by the recruiters. The implications of this finding are that decisions should be communicated to job candidates especially when there is negative feedback to mitigate the negative psychological effects of rejection such as perceived stress. In turn this practice of offering feedback maintains the organisations reputation and there is more likelihood of candidates re-applying for jobs when this positive relationship is maintained with that organisation (Thominet, 2020; Cortini et al., 2019).

Despite the problems encountered, a strength of this study was investigating experiences of actual job applicants which added ecological validity to the research, an aspect that is often overlooked in the literature (see Hausknecht et al., 2004).

Further research could be conducted using a within-organisational design to further explore these factors at different phases of online recruitment (e.g., pre-recruitment, post-decision) within a homogeneous sample from a single organisation. This kind of research would enable recruitment practices and reactions from candidates at one organisation to be investigated. Alternatively, longitudinal research could be

conducted to monitor candidate reactions after the selection process although this would require more time and resources. Longitudinal studies such as Konradt et al.'s (2015) have been conducted (for further details see 1.5.2 Why is the role of feedback important in job selection processes?) over several years to monitor candidate reactions and perceptions for one organisation during the recruitment process and post-recruitment. The use of new selection technologies during selection processes and in feedback provision is another area to investigate (Langer et al., 2018).

The next step is to consider in the final chapter how the findings of the thesis tie in with the key themes, the aims and objectives, theoretical and practical links, and the original contribution of this research to advance this discipline further.

Chapter 7: Discussion of contribution of the thesis

7.1 Introduction

In this final chapter, the aim is to revisit and evaluate this research considering the key background literature, aims/hypotheses, theoretical underpinning, key themes, and strengths and limitations of the thesis. Final consideration will be given to its original contribution and practical implications and how further research can build upon these insights.

7.2 What the thesis was about and addressing the thesis aims

A starting point is to remind the reader of the scope of the thesis. The focus was on online testing for graduate recruitment and the role of feedback in shaping applicant reactions. As online tests are nowadays widely used as part of graduate recruitment processes (ISE, 2019; High Fliers Research, 2019) applicant reactions to this mode of testing warranted investigation. Using the definition of knowledge of performance/results as detailed in Chapter 1 (See 1.5 What is feedback?) feedback entails providing information about the candidate's performance such as a test score and in this research, feedback regarding to a recruitment decision. The thesis explored how candidates responded to positive and negative feedback using different ways of conveying this information in the experiments. Applicant reactions to feedback were further examined in real-life settings with candidates applying for jobs.

The aims and how the fieldwork addressed these in turn are detailed:

1. Firstly, the research examined how applicant reactions (e.g., perceived stress, self-esteem, process fairness) were affected by manipulating the type of feedback provided on psychometric test performance (Experiments 1 and 2).

2. Secondly, the research examined whether applicants reacted (e.g. perceived stress, process fairness scores) differently towards feedback via interpersonal vs. non-interpersonal feedback agents (Experiment 2 and Study 3).
3. Thirdly, it was investigated whether there was an interaction between the source of feedback (e-mail, letter, report etc.) and outcome favourability (acceptance/rejection) in shaping candidate reactions (Pilot Study, Experiment 2, and Study 3).
4. Finally, this research examined whether applicant reactions differ for feedback depending on whether an Internet test or paper-and-pencil test is used (Experiment 1).

7.2.1 Summary of key findings from each chapter

Chapter One

The literature review found that online job selection tests are now more widely used by graduate recruiters. Tests are mainly used in the middle phases (50.7 %) and towards the end of the recruitment cycle (23.3 %) according to Ryan and colleagues (2015). Another finding was that feedback can be in many forms including written, verbal, or using some form of technology. Feedback can become more effective through timely, detailed, and accurate communication and whether acceptable to the recipient. Organisational constraints such as having sufficient time and resources to provide candidate feedback are also practical considerations. The literature review identified key experiments (e.g., Schinkel et al., 2004; 2011; Wiechmann & Ryan, 2003) conducted in the applicants' reactions field to vary types (e.g., positive, negative feedback) and methods of delivering feedback to study applicant reactions.

Chapter Two

The key finding in Chapter Two was that Organisational Justice Theory and specifically the Justice Model of Applicant Reactions (Gilliland, 1993) is the dominant approach in the applicants' reactions literature. Procedural justice and distributional justice elements are integral to applicant reactions in selection contexts. Gilliland's original model has since been applied to online testing (e.g., Lievens & Harris (2003; Konradt et al., 2013). An additional procedural justice rule specific to online testing was identified: interpersonal vs. non-interpersonal feedback agent from the research of Dineen, Noe, and Wang (2004) for further investigation in the thesis.

Chapter Three

A Pilot Study was conducted with the Open University to explore the psychological constructs of perceived stress, self-esteem, and work involvement in a job selection setting. Unsuccessful applicants had increased work involvement scores post-outcome whereas work involvement scores fell in successful applicants. This finding suggests that successful applicants put a greater effort into obtaining a job as shown at baseline and then once appointed work involvement was less pertinent. Open-ended items indicated that unsuccessful candidates felt disillusioned or puzzled following the decision. These findings revealed insight into fairness and procedural justice to incorporate into the subsequent research. The contribution of the study was finding that work involvement is changeable as evidenced by unsuccessful candidates having increased work involvement following rejection.

Chapter Four

The study found that there were no significant differences between mode of test administration (paper-and-pencil, online) when comparing test-taker reactions to

bogus feedback provision under experimental conditions. Outcome favourability (passed/rejected) was found to affect fairness perceptions. As there was no clear difference the focus of the thesis moved towards online tests which are now more commonly used by graduate selectors (ISE, 2019; Cripps, 2017). The original contribution of the study was in finding that perceived stress increased when rejection was reinforced, whereas perceived stress fell when no explanation was offered for the rejection. In terms of test fairness and procedural justice, feedback explanations were found to mitigate negative evaluations compared to when rejection decisions were not explained to test-takers. Therefore, it appears that decisions should be explained to candidates with due care as reinforcing a candidate`s deficiencies should be avoided so to mitigate any negative effects.

Chapter Five

This chapter found that test-takers who received bogus feedback in the form of a computer report recorded higher perceived stress scores than those who were contacted interpersonally via an e-mail and telephone call. These observations tie in with ideas of personalised and interpersonal feedback as being perceived to be more credible (e.g., Dineen et al., 2004) than from an automated source. The study also found that a positive outcome (informed they had passed) resulted in test-takers regarding the tests as fairer. The technological/non-technological feedback aspect links to the final field study of job applicants. The original contribution of the study is the insight that interpersonal (or human) aspects of feedback provision can mitigate the effects of perceived stress when there is a negative outcome, as automated feedback appears to have more detrimental psychological effects. Organisations need

to consider in what format the feedback is communicated to avoid detrimental psychological reactions and potential reputational damage.

Chapter Six

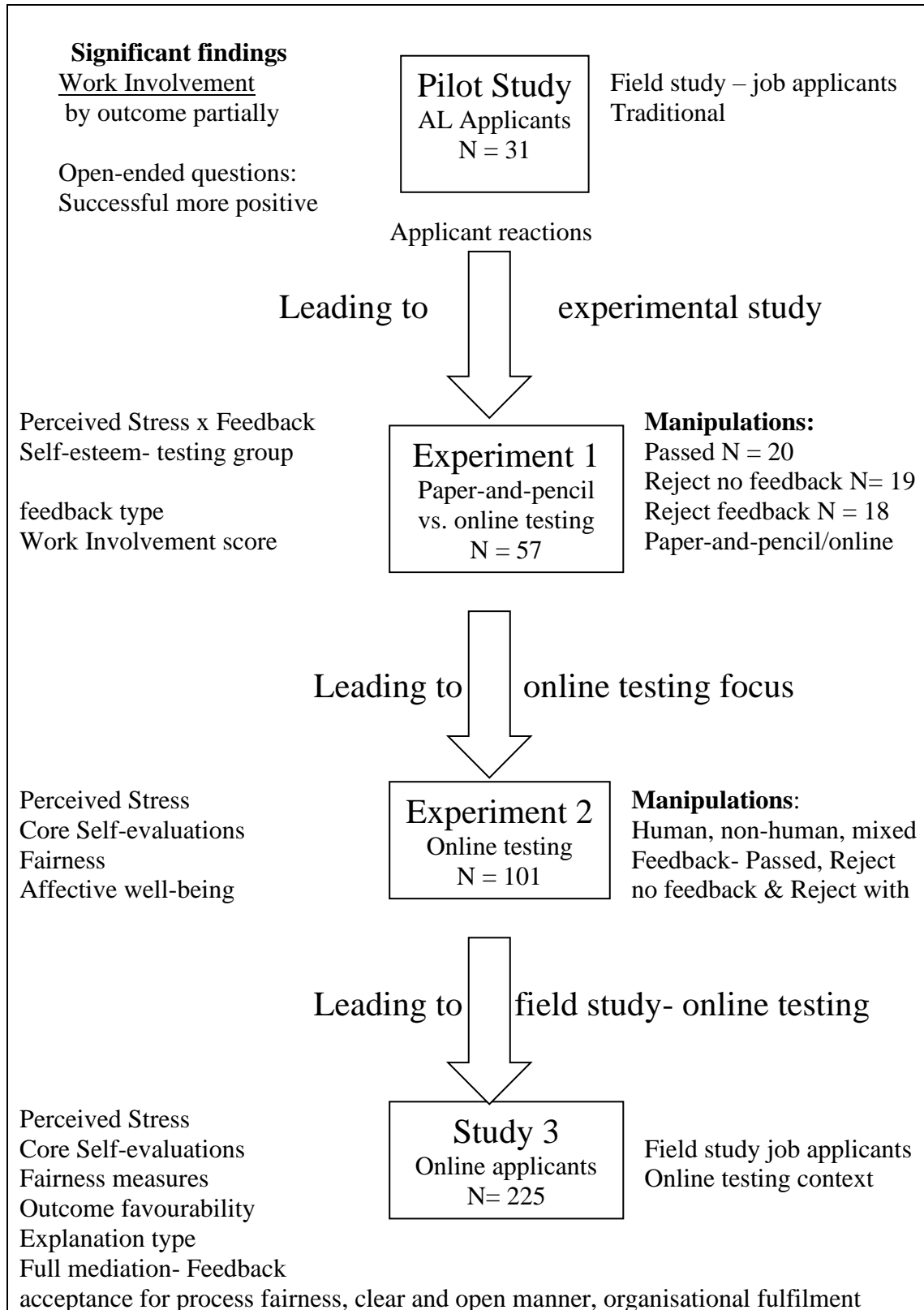
This field study investigated the feelings and perceptions of actual job applicants surveyed about a job application involving online psychometric testing. The new insights from the study were that feedback acceptance is a full mediator for process fairness, clear and open manner, and organisational fulfilment obligations. Another key finding was that holistic explanations (regarding overall performance) were scored higher by job applicants on organisational fulfilment obligations, feedback acceptance, clear and open manner and process fairness compared to mechanical explanations (one aspect of performance) in online recruitment contexts. Candidates notified of the decision outcome recorded lower perceived stress compared to those not notified irrespective of outcome favourability (offered job/unsuccessful).

The practical implications of these survey findings are that recruiters should consider the need to convey feedback to applicants even when faced with limited resources.

The contribution of the study is that extent of the feedback acceptance by the recipient of the job application decision is critical. Feedback must be acceptable to the job applicant to influence their reactions towards it. In terms of the implications of these findings, organisations should consider how feedback is effectively communicated and by what agent (interpersonal vs. automated). Furthermore, decisions should be communicated to mitigate the negative effects of rejection and to maintain the organisation`s reputation (Tjominet, 2020; Cortini et al., 2019).

Figure 7.1 displays the progression of the thesis studies and main findings.

Figure 7.1: Phases of thesis studies and findings



7.3 Key themes of the thesis

This section discusses key themes of the thesis and how the thesis has contributed to this knowledge, starting with the purpose of job applications.

7.3.1 Purpose of online job applications

The main purpose of online job applications is to make applications more efficient and convenient for organisations (and to applicants). The use of technology enables large volumes of candidates to be handled which would otherwise require staff to sift through job applications and assessments which would be expensive and time consuming (Burke, 2017; Huff, Cline & Guynes, 2012; Ryan et al., 2015). Chapter 1 discussed the use of volume testing for graduate recruitment (See 1.3 Volume and bespoke testing).

Job applications and assessments can be completed at any time or any place by the job applicant using such online systems. At a more general level online applications such as filling in an initial job application form can be made (qualifications, experience, and a personal statement about suitability for a role). In contrast, an online test is when a candidate undertakes some form of assessment online which can be an ability test, personality questionnaire, or some other form of assessment. This usually occurs later in the recruitment cycle following the initial screening phase (e.g., application form, or C.V.) However, there are issues with the use of online applications including the candidate having less direct interpersonal contact with the organisation during the early recruitment phases, and the potential for cheating to occur (Arthur, Glaze, Villado & Taylor, 2009; Taylor, 2019). Clearly a balance is needed for the recruiters in terms of efficiency and maintaining a positive candidate image (Cripps, 2017).

Related to the discussion of the purpose of online job applications, is a consideration of test administration formats, paper-and-pencil, online and via modern testing technologies.

7.3.2 Paper-and-pencil vs. online testing (and new technologies)

Psychometric tests were originally administered in paper-and-pencil format although nowadays these are mainly administered online in recruitment contexts (HR Magazine, 2020; Burke, 2017).

Experiment 1 was designed specifically with the objective of investigating whether online test-takers responded differently to feedback on the psychological measures (e.g. perceived stress, self-esteem) than paper-and-pencil test-takers. Furthermore, it was hypothesised that process fairness and procedural justice perceptions would be rated higher by test-takers who had undertaken an online test rather than a paper-and-pencil equivalent.

Another variable to consider was that the Verbal Ability tests in the paper-and-pencil version were administered under proctored (supervised) conditions whereas the online tests were unproctored (unsupervised) during the study. Study conditions were not included for paper-and-pencil unproctored and online proctored test administrations, to cover all four possible testing combinations (paper-and-pencil proctored/paper-and-pencil unproctored/online proctored/online unproctored). As there is greater use of online unproctored testing (e.g., Huff, Cline & Guynes, 2012; Ryan et al., 2015) and proctored paper-and-pencil tests by recruiters the two comparative conditions represent common recruitment practice. Recruiters do have the option of verification

testing in which candidates who initially completed an unproctored test are re-tested later in the recruitment cycle under proctored conditions to minimise the chances of cheating (Arthur & Glaze, 2011; Ryan et al., 2015).

The experiment found no clear test-taker fairness and procedural justice reaction differences between online, and paper-and-pencil administered ability tests. On procedural justice there was a slight but non-significant preference towards paper-and-pencil testing. In accounting for these findings, from the aspect of fairness, candidates may have felt the tests were fairer when completed unsupervised which is separate from the procedural aspect of the testing process. As candidates could see the test administrator and experienced the controlled examination conditions in the supervised paper-and-pencil testing condition (unlike in the online condition) this may explain why procedural justice scored higher in the paper-and-pencil testing condition. The conditions are the essence of procedural justice in that proctored paper-and-pencil tests were standardised, whereas unproctored online tests involved no interpersonal contact with a test administrator so were less standardised.

In comparing T1-T2 scores on the psychological scales (e.g., perceived stress, self-esteem) there were no clear differences in scores at T2 after feedback had been received. This observation of no clear differences in post-test reactions towards either paper-and-pencil or online administered testing has been noted by other researchers (e.g., Wiechmann & Ryan, 2003). Therefore, these inconclusive findings about reactions to different testing modes enabled the thesis to focus on online testing from Experiment 2 onwards in line with modern recruitment practices.

At the time of the study (2008-2009), paper-and-pencil tests were still widely used in recruitment contexts. However, nowadays more technological means of testing have been utilised in recruitment such as mobile phone testing (King et al., 2015; Smelzer, 2013; Schroeders & Wilhelm, 2010; Cripps, 2017). Recruiters use these technological methods to be more efficient and reduce costs. Trained administrators are required to conduct supervised (proctored) paper-and-pencil testing, and there are costs involved in duplicating test booklets, materials, and travel expenses and also fees to pay for test administrators and assessors to conduct the sessions. In contrast, with online testing scores and feedback reports can be generated by computer software.

As paper-and-pencil tests have largely been superseded by online and other technologies (mobile phone apps, gaming devices) such comparative study has less significance in the current recruitment context than in previous decades (Cripps, 2017). From a practical consideration (to avoid costs, journey times) for both candidates and recruiters alike it is more efficient for candidates to undertake tests remotely (Burke, 2017; Huff, Cline & Guynes, 2012; Ryan et al., 2015). As most households now own computers more candidates have access to this technology this is another reason why more online assessments are used.

Having considered the role of online applications, and the use of paper-and-pencil versus online tests, the next section considers the content of feedback.

7.3.3 Content of feedback

For feedback to be effective the content is critical in conveying the intended message to the feedback recipient. As was discussed in Chapter 1 (See 1.5 What is feedback?)

1.5.1 Types of feedback) there are various types of feedback including objective, numerical and subjective. Feedback can also be conveyed in positive and negative ways.

In terms of feedback content, this can include information about the recruitment process (procedural aspects) and the candidate`s performance during the job recruitment on assessments. A recruitment decision can be justified in writing or verbally using explanations. For example, a rejection letter decision explanation could be worded as follows “We carefully considered your job application but unfortunately a candidate with more experience and qualifications was offered the role. Thank you for your interest in working for us.” Recruiters face the dilemma of how much information to provide to candidates (if any) so to maintain a good image but must take care in not disclosing information that could be challenged. There are also practical considerations such as time and resources available to contact candidates (Cripps, 2017).

Another issue that the thesis examined was whether it is best for recruiters to explain their recruitment decision or not, to applicants. To address this dilemma, psychological constructs (e.g., perceived stress, self-esteem, procedural justice) were measured in the research comparing test-takers receiving positive and negative feedback. This specifically addressed three of Gilliland`s procedural justice rules: openness, two-way communication, and interpersonal treatment. The experimental studies examined different ways of conveying feedback using positive and negative feedback. The conditions were Passed, Reject with no explanation, and Reject with an explanation. In the Passed condition candidates were notified that they had been

successful, and in the Reject with explanation condition detail was provided (e.g. their scores were not in the top 20% compared to other test-takers) to reinforce the rejection, whereas in the Reject with no explanation condition participants were merely told they had been unsuccessful.

In assessing the experimental findings there is conflicting evidence regarding the provision of explanations debate. Experiment 1 found that receiving feedback explanations increased stress levels; whereas in Experiment 2 perceived stress scores decreased when feedback explanations were provided, apart from the group of participants who received a report (compared to e-mail and report; e-mail and telephone conditions). These findings suggest that receiving interpersonal feedback from someone was reassuring to test-takers to mitigate the rejection unlike when the feedback was via an automated feedback agent.

There were mixed findings on the two main scales used in Study 3 regarding notification of the job selection outcome, as on the scale of Perceived Stress, there was a significant effect for explanation given, whereas there were no significant main effects for Core Self-evaluations. These findings suggest that applicants were affected psychologically by stress as providing an explanation irrespective of outcome resulted in lower stress levels, and conversely higher stress levels for job candidates not notified. Similarly, in Experiment 2 these findings were supported in the feedback agent (interpersonal/non-interpersonal/combined) conditions suggesting that a human element when there was bad news to convey is important to mitigate the effects of stress. These findings contradict some of the literature (e.g., Schinkel et al., 2004) and fairness process models (e.g. Ilgen & Davis, 2000) that suggests the practice of

recruiters conveying negative feedback explanations is psychologically damaging to applicants. On the other hand, attribution theory supports these findings as it has been reported that individuals are more accepting of specific feedback pertaining to their performance than non-specific performance feedback (e.g., Liden & Mitchell, 1988).

Related to the content of feedback, is the issue of how much detail to provide (some aspect of performance, or overall performance) which will be considered in the next sub-section.

7.3.4 Mechanical vs. holistic explanations

Another major area that emerged in the thesis is the type of explanations of recruitment decisions, and three of Gilliland's (1993) organisation justice rules apply:

- Feedback on test results
- Information known about the test process
- Openness of communication about the test

Study 3 examined whether applicants responded more favourably to holistic or mechanical explanations in a selection/recruitment context, in order to fill a gap in the applicants' reactions literature that was identified in a literature review (Morgeson & Ryan, 2009). It was predicted that job applicants would react more positively to holistic explanations (how they had performed overall) than mechanical explanations (a certain aspect of their performance such as test scores) as this trend had previously been observed with explanations in diversity (Brooks, Guidroz & Chakrabarti, 2009; Morgeson & Ryan, 2009) policy contexts.

Indeed, applicants responded more positively towards holistic than mechanical feedback explanations in the online recruitment context. On the four measures (organisational fulfilment obligations, process fairness, feedback acceptance, clear and open manner) applicants rated the holistic explanation higher than the mechanical explanation. This finding concurring with the context of diversity, in selection and recruitment, job applicants prefer to be told about their overall performance rather than how they fared on a specific aspect. In terms of the literature and procedural justice rules in job recruitment, this suggests that the feedback on test results rule must be satisfied in conveying the test results, and also information about the process in the form of test feedback results (i.e., scores), and that this feedback needs to be openly communicated to applicants (e.g. Konradt et al., 2013).

Technological means of feedback content such as automated computer reports are one way in which recruiters can provide feedback to candidates. Even so, according to the recommended practice of the British Psychological Testing Centre, test feedback should involve an overall discussion of at least 20 minutes (Cook & Cripps, 2005; Cripps, 2017; CIPD, 2015). If information is not conveyed sensitively or appropriately, then this can have detrimental effects and contravene best practice.

The extent of interpersonal and non-interpersonal contact between the recruiters and candidates at various stages of the recruitment process is a consideration for recruiters. Perhaps at the final stages (interviewing) the interpersonal side of meeting candidates and providing interpersonal feedback is more critical than in the early phases which will be considered in the next sub-section.

7.3.5 Delivering feedback (Interpersonal vs. non-interpersonal)

The issue of test-takers' perceptions towards the delivery of interpersonal vs. non-interpersonal feedback was addressed in Experiment 2 and Study 3 to assess another research aim. Dineen et al. (2004) suggested that interpersonal vs. automated feedback is an additional Procedural Justice rule with online testing in mind. On the Perceived Stress scale, Experiment 2 found a significant interaction effect between time of measurement, feedback mode (interpersonal, non-interpersonal, mixed) and type of feedback (passed/reject no explanation/reject with explanation). In the reject with explanation condition (the most stressful) the computer report element increased stress when compared with personal feedback. In the pass feedback condition (less stressful) the report decreases stress compared to personal feedback from someone.

This finding suggests that the automated report appears to have the most direct impact, so personal communication is important when communicating bad news. Therefore, applied to Dineen's 11th procedural justice rule for online testing, the interpersonal element of the online job candidate receiving some form of human contact during feedback meets this rule, and too much automation appears to violate this rule. Research confirms that in high-stakes settings such as job selection that candidates appear to react negatively to automated processes such as highly automated interviews (Langer, König & Papathanasiou, 2018).

Study 3 examined process fairness reactions and did not find any clear differences when comparing interpersonal and non-interpersonal feedback explanations.

These conflicting findings need to be considered considering the literature into the use of technology in online recruitment. One school of thought is that people have a more

favourable preference towards computerised-testing and depersonalised (non-human) forms of test feedback for various reasons including: being fairer, objective, and unbiased (Schmidt et al., 1978; Wiechmann & Ryan, 2003) unlike traditional testing, which Experiment 2 indicated. On the other hand, other researchers (e.g., Garcia-Izquierdo, Aguinis & Ramos-Villagrasa, 2010) argue that job applicants can perceive decisions procedurally fair or unfair irrespective of the job application outcome (Bell, Ryan & Wiechmann, 2004) and technology used (Bauer et al., 2004) as Study 3 suggested. Pertinently, Study 3 revealed that what mattered to applicants in shaping their fairness perceptions and psychological reactions particularly for perceived stress was the type of feedback explanation given by the recruiting organisation, and not whether they received a job offer.

Overall, these mixed findings from these studies are consistent with the literature as there is support and rebuttal of the view that computerised methods are perceived more favourably by job applicants. Perhaps the complexity of these findings in relation to interpersonal and non-interpersonal feedback can be accounted for by unknown moderating factors such as personality types and organisational practices requiring further investigation (Gilliland, 1993; Ryan & Ployhart, 2000).

7.4 Implications of findings to research and theory development

In this section a consideration is made of how the thesis findings relate and contribute to existing theory. The theoretical underpinning of the thesis is organisational justice theory as discussed in detail in Chapter 2. Gilliland's (1993) Justice Model of Selection has applications to online testing. This model was the first known example of a theoretical model relating procedural justice to job recruitment, and the model is

grounded by organisational justice theory (Greenberg, 1990). According to this model, there are ten justice rules, which result in positive or negative test-taker reactions dependent on whether the rules are satisfied or violated. Procedural justice rule perceptions (process fairness) of selection procedures are categorised into three main categories:

- formal aspects of procedures (job-relatedness of the test, opportunity to perform on the test, reconsideration of test results, consistency of administration),
- explanations used (feedback on test results, information known about the test process, and openness of communication about the test), and
- interpersonal treatment (treatment during the test, two-way communication regarding the test, and propriety of questions).

On the other hand, distributive justice (outcome fairness) regards perceptions in terms of:

- equality (everyone should have an equal chance in terms of receiving the same outcome, irrespective of differences such as ability or knowledge),
- equity (individuals should receive rewards to reflect how much input they put into a situation, when compared with a relevant comparison), and
- needs for outcomes (rewards should be distributed in accordance with individual needs and be perceived as fair) – i.e., a job offer.

Another principle of Gilliland's model is that issues pertaining to fairness are based around interpersonal treatment, and formal aspects of the selection process. The thesis focused on the ten procedural justice rules regarding applicant reactions, and the

equity distributive justice rule as this notably concerns outcome favourability (i.e. job offer/rejection).

Researchers have investigated how aspects of Gilliland's (1993) model particularly procedural justice rules relate to internet testing (Harris, 2006; Konradt, Warszta & Ellwart, 2013). For example, Konradt et al. (2013) examined the model within a web-based context using a reflective first-order formative second-order model. These researchers found from the responses that in web-based selection the second-order factors, formal characteristics, and interpersonal treatment (but not explanation) are related to process fairness perceptions, and in terms of procedural justice rules, most notable were: opportunity to perform, treatment of applicants, reconsideration opportunity, and propriety of questions. Furthermore, Konradt et al. found process fairness to be positively related to job applicants' reactions, which in turn fully mediated how applicant reactions and justice factors related. Similarly, other research (Brünn, 2010, Dineen et al., 2004; Lievens & Harris, 2003) has established links between procedural justice rules and attitudes towards online recruitment. Dineen et al. (2004) introduced a new Procedural Justice rule: automated vs. human (interpersonal) feedback to online testing contexts.

Therefore, the thesis research added this additional Procedural Justice rule making a refinement in terminology to an interpersonal vs. non-interpersonal feedback agent and also introduced a third variant of a combined feedback agent (interpersonal and non-interpersonal aspects) and focused on online testing a modern application of organisational justice theory. Another addition was investigating reaction measures including perceived stress, self-esteem, feedback acceptance, and organisational

fulfilment obligations. The thesis also set out to examine these fairness and justice perceptions within an online job recruitment context.

Study 3 involved a field study into the feelings of job applicants who had recently participated in an online job recruitment process to build on research (e.g., Sylva & Mol, 2009) regarding online applicant reactions. Another objective was to incorporate aspects of procedural justice to online testing during job recruitment, an aspect that had been lacking in prior research. Four reactions measures (feedback acceptance, clear and open manner, process fairness and organisational fulfilment obligations) were first tested by comparing respondents that received holistic and mechanical explanations. Significant main effects were found on all these measures for outcome favourability so successful applicants held more positive perceptions towards the organisation than unsuccessful candidates.

Overall, on feedback acceptance, there was a higher acceptance of holistic than mechanical explanations, which indicates that applicants were more accepting towards explanations detailing their overall performance than how they performed on specific aspect during the recruitment process. Likewise, a similar trend was apparent when comparing process fairness scores, as respondents that received holistic explanations considered the process as fairer than those who were given mechanical explanations.

Furthermore, when comparing outcome favourability (offered job, unsuccessful) there were significant main effects for all four of these fairness and justice measures. This trend was highlighted by higher mean scores on each of these measures for successful

applicants compared to their unsuccessful counterparts. These findings are as expected as applicants receiving a job offer would feel that they had been treated fairly and procedures had been properly followed, and, conversely, unsuccessful applicants would feel less fairly treated and more aggrieved about the recruitment process (e.g. Anseel & Lievens, 2006; Brett & Atwater, 2001; Tonidandel, Quiñones & Adams, 2002). Furthermore, these findings tie in with Ilgen, Fisher and Taylor's (1979) feedback process model which predicted that successful recipients of positive feedback would be more accepting of it than those receiving negative feedback. -

Hypothesis 4 (Study 3) tested whether feedback acceptance was a mediator between the job decision outcome (job offer/rejection) and applicant reactions (process fairness, clear and open manner etc.) towards the feedback. Indeed, a full mediational effect was found for feedback acceptance on process fairness, organisational fulfilment obligations, and clear and open manner.

The implications of these findings are that if job recruiters can improve job applicants' feedback acceptance then this may mitigate any negative job candidate impacts on evaluations such as process. This finding also has theoretical links with feedback process models (e.g. Ilgen et al., 1979; Kinicki et al., 2004) which also predict that perceptions of feedback accuracy would be mediated in such a way, and other supporting research findings (Anseel & Lievens, 2009; Kinicki et al., 2004).

In assessing the findings regarding candidates' reactions towards mechanical and holistic explanations, on the procedural justice rules of clear and open manner, and organisational fulfilment obligations, there was greater acceptance towards holistic explanations preferences towards the explanation type. In contrast, there was greater

acceptance of holistic feedback explanations, and these explanations were considered fairer than mechanical explanations. Perhaps these discrepancies in fairness and justice perceptions were due to differences in recruitment processes between different organisations that applicants had applied to work for, as there was no control over this in the field study of the current research. For example, only 6 of the 65 successful applicants received holistic explanations whereas the majority received mechanical explanations. This finding suggests that perhaps recruiters feel it is not necessary to detail a successful candidate's overall performance as a job offer is a powerful feedback.

Having considered the theoretical contribution, it is important to consider how these findings relate to recruitment practices within a practical context.

7.5 Practical implications and the ideal feedback process

In terms of practical applications, these findings suggest in terms of best practice that recruiters should make more use of holistic explanations when conveying recruitment feedback to job applicants. This is because the study found that job applicants respond more favourably towards such explanations and are less psychologically affected than not being told at all how they fared. Therefore, this would help applicants in informing them about how they performed overall during the recruitment process and would also create a more favourable impression of the organisation. For example, recruiters could tailor the feedback detailing how the candidate performed during each stage of the recruitment process. Finding economical ways of feedback provision such as automated e-mails in which a named person from Human Resources is stated and

contactable is one way in which feedback can be conveyed when there are costs and practical constraints for the organisation.

An ideal feedback process would be when personalised detailed feedback is provided to every candidate concerning each aspect of their performance during the job recruitment process. Research indicates that such a tailored approach improves the recipient's reactions (Thominet, 2020; Cortini et al., 2019). The feedback would detail what was assessed and how the candidate scored on each component. An Assessment Centre or Development Centre feedback approach would be one way in which detailed feedback could be conveyed across different assessment exercises. There is literature into Assessment Centre feedback (e.g., Lievens & Klimoski, 2001; Thornton & Rupp, 2005). Assessors would rate the candidate's performance against various exercises such as a psychometric test, a group exercise and a competency-based interview and produce overall scores across exercises and the competencies assessed for the role. Report writers are sometimes employed by organisations to compile individual reports to summarise how each candidate performed on the assessment day.

Figure 7.2 displays an example of holistic feedback that conveys personalised feedback across the recruitment exercises in a concise manner.

Figure 7.2 Example of holistic feedback for a job candidate

Feedback Report for Steve Jones who attended the Assessment Centre held on 30 January for the position of telesales executive.	
Exercise	Assessment Rating
Role play	Approaching Competence (AC)
In Basket	Competent (C)
Psychometric Test	Limited (L)
Group exercise	Competent (C)
Competency-based interview	Excelling (E)
Overall summary	You have demonstrated advanced skills in the competency-based interview and are demonstrated the desired skills for the In Basket and Group exercises. However, your role play skills need developing and more practice is needed on psychometric tests for this job role.

Similarly, staff could be trained in handling job candidates as suggested by Truxillo et al. (2018). In terms of volume testing, McCarthy (2013) cite the examples of two organisations *Marriott* and *Google* who are proactive in improving the handling of the applicant experience which includes providing performance feedback to large numbers of candidates. Truxillo et al. report that such organisations use research literature to adopt ways of improving the candidate experience at a practical level. However, it needs to be considered that these are large international organisations,

and smaller organisations would not have the infrastructure, resources, and finances to implement these practices.

It would appear to be in the recruiter's interests to provide feedback as this comes across as courteous and creates a good impression of the organisation particularly as applicants invested time and energy in applying for a job at that organisation (Cortini et al., 2019; Thominet, 2020). As earlier discussed in Chapters 1 and 2, this encapsulates the notions of a `bilateral process` (Anderson, 2003), and corporate social responsibility (Rupp et al., 2013) and that the recruitment process for both parties is a social process (Derous & De Witte, 2001). There are also practical considerations for the organisation such as resources available and whether feedback provision would be beneficial.

Having discussed the key themes of the thesis, the next section considers the strengths of the thesis.

7.6 Strengths of thesis

In spite of some of the problems identified in previous chapters, the strength of the thesis was its investigation of experiences of actual job applicants after testing experimentally a number of manipulations upon which to later ground the research; this research model is seldom implemented in the applicants' reactions literature (e.g., Hausknecht et al., 2004). The field study, unlike the experimental studies, found several significant findings in terms of effects of outcome favourability, mode of feedback and fairness and justice perceptions.

A major strength of the thesis is that actual job applicants provided feedback about their experiences of online testing for job recruitment in the final field study. This insight from the candidate`s perspective adds validity to the study findings. Although not a survey of job applicants to a specific organisation or sector as initially intended, this enabled a broader overview of recent recruitment experiences (surveyed in the years 2012-2013) for different sectors to be examined. The Pilot Study also surveyed job applicants although not focused on online testing but explored how candidates respond to feedback in traditional job recruitment processes (application form, shortlisting for interview, final feedback). The Pilot Study also focused on candidates applying for job vacancies at one organisation the Open University, so it was focused on practices of that organisation.

A further strength of the thesis was the experimental manipulation of feedback messages (positive and negative) and the use of different means of communicating feedback to test-takers (e.g., interpersonal, non-interpersonal). The experimental approach enabled variables to be controlled and for study measures such as perceived stress to be compared at T1 (baseline) and T2 (post-feedback). In a job recruitment process, it would be problematic for organisations to vary feedback provision for ethical and legal reasons, so the experimental approach enabled these factors to be examined.

These combined methods of experiments and field studies provided a framework to examine applicant reactions to feedback provision both within an experimental and field context. Patterson (2001) called for more mixed methods when studying applicant reactions. A recent combined methods approach was conducted by Schinkel,

van Vianen and Ryan (2016) in which 3 field studies and an experimental study were employed.

Theoretically the research expanded on organisational justice theory with an application to online testing. These findings also pave the way for further knowledge now that recruitment technologies are evolving such as testing on mobile devices including smartphones (e.g. King et al., 2015). Despite these strengths, the thesis was not without its limitations which will now be considered.

7.7 Limitations of thesis

A limitation of the thesis in the field study is that job applicants for a specific organisation were not investigated. This problem arose as over 200 organisations were contacted about the proposed study, but this option became no longer viable due to the time that had been spent (over a year) trying to arrange for such a study to take place. To a major extent the difficulty was accessing contact with a relevant person from Human Resources from each organisation as there were gateholders to liaise with on initial contact. In most cases there was no response to the initial enquiry.

The researcher also attended Graduate Recruiter fairs to meet HR representatives from various organisations discussing the study and passed on contact details for the organisation to follow up the enquiry. However, these company representatives did not have the authority to agree to the study so had to consult with other staff afterwards. Despite the researcher attempting to follow up the contact with the organisations there was a very poor response.

Unfortunately, this type of problem is common in research. Anderson, Herriot and Hodgkinson (2001) highlight this major problem encountered by academics in conducting real-life research as this tends to take longer than experimental laboratory studies, mainly due to the processes and protocols involved whilst negotiating with the organisation to access the participants, which in turn is often a low priority of the employers and employees. An issue appeared to be the time and resources required by an organisation to conduct the research as a number approached said an applicant reactions study would be interesting. For example, a contact from the international bank *HSBC* who was based in Hong Kong was interested in the study but due to various layers of personnel to consent to the study and the logistics (e.g., conducting the research from another country) the study did not take place.

In terms of study context, at the time of the proposed field study (2010-2011) the UK and other major world economies was coming out of a major economic recession which had a detrimental effect on the research. *The Health and Safety Executive* (HSE) for example said they would have been interested in such a study in more favourable economic circumstances. However, there was a hiring freeze at the time for graduate entry level inspector positions, something that was common to the Civil Service in the UK as part of the Government's economic policies to reduce spending. The HSE Human Resources (HR) department were asked if it was possible to do a retrospective study for applicants prior to the hiring freeze. However, such study was not possible due to Data Protection reasons as applicant data and personal information had to be destroyed by HR after a certain period. Had there been better economic circumstances with more job openings in job sectors, there may well have been more opportunities to conduct the proposed phased study with an organisation.

Another reason for the lack of interest from organisations appeared to be a fear of receiving negative candidate responses of the recruitment process in the research findings as expressed in some of the reasons for not agreeing to participate. Other reasons for not agreeing to the study included a lack of control by the recruiters over the study and the time and resources that this would involve on the recruiter`s part, that online tests were not currently in use for job recruitment, and that their organisation did not participate in student research. The researcher clarified that there would be little involvement on the organisation`s part as most of the study would be organised by the researcher, and the only aspect for the recruiters would be to contact or advertise the study to the job applicants. However, recruiters would still not agree to such study despite these reassurances.

These kinds of problems negotiating with external organisations links with Chapter 1 (See 1.5 What is feedback?) which discussed the literature and main reasons for recruiters not providing performance feedback to job candidates. The reasons stated by recruiters for not agreeing to the field study mirror the findings of an international survey regarding feedback practices. Ryan and colleagues (2015) in this research surveyed HR practitioners and asked for reasons why they did not monitor applicant feedback. The reasons for not conducting such research included: having limited time, the research having minimal use to the organisation, and fear of possible litigation.

There were also changing priorities of organisations to consider. One example was the large supermarket chain *Sainsbury`s* who initially invited such a study as they were contacting research into the candidate experience. However, at a later follow-up their research agenda had changed. These findings link with the discussion regarding

efficiency and organisation priorities discussed in Chapter 1. Clearly financial constraints and research priorities are a contributing factor as to whether such studies take place. Without the finances and resources then it causes difficulties conducting such research.

Further, organisations need to find some buy-in to agree to such research otherwise what is there to gain from their perspective. The researcher offered to provide a report of the findings to the organisation upon completion of the study, and to acknowledge the organisation in any potential research publication such as an academic journal. It was also explained that by learning how candidates felt about their experience of the online recruitment process that the organisation could learn from this insight.

A common problem with the experimental studies was attrition rates during the phases of the study (T1, testing, T2) and the small sample sizes (N = 57 Experiment 1, N = 101 Experiment 2). Unfortunately, when relying on the goodwill of volunteers this is a problem that researchers must face. Related to the experimental approach was the issue of the generalisability of the findings to job applicants. There had to be some trade-off between the control of the experimental approach and the external validity. However, the combination of field research in the Pilot Study and Study 3 with the experimental element addressed the validity overall for the thesis.

In each study self-report questionnaires were utilised. Although these enable the respondent to respond from his or her perspective, another person may have different perceptions about that this person. For example, in a work setting a line manager may have a different appraisal of the employee. A problem with self-reports is the

possibility of response biases. In the case of repeated measurements as was the case in three of the studies there is the tendency for respondents to respond in a similar manner so in these cases the measures do not fully capture what is intended.

As detailed in the section that compared paper-and-pencil and online testing, recruitment trends are evolving so what appeared to be a pertinent theme both from the practitioner and research literature at the outset of the research (i.e., comparability of paper-and-pencil and online tests), this is less of an issue in recent years. The problem of the currency of research is often encountered when researchers embark on a research programme on a part-time basis over many years which was the case with the thesis. However, the insight from the study about the shift towards online testing was still useful.

Having considered the strengths and limitations of the thesis the next section considers the original contribution of the thesis to the current knowledge.

7.8 Original contribution of this thesis

The thesis has made an original contribution to the literature surrounding applicants' reactions in several ways. Firstly, it is original in considering the effects of both positive (i.e. job offer) and negative feedback (i.e. rejection) on applicant test-taker perceptions, whereas other researchers (e.g. Schinkel et al., 2004, 2011; Wiechmann & Ryan, 2003) tend to focus on one aspect in isolation (typically negative feedback), probably due to the nature of organisational justice theory which is geared towards this. As it is important to compare all applicant groups, this was a major contribution.

Secondly, the perceptions of online job applicants towards different modes of feedback were investigated (e.g., holistic, mechanical) both under experimental and field settings. Mixed methods approaches in this field are lacking and are much needed (Patterson, 2001). Pertinently, the field study found that applicants prefer to receive holistic explanations (about their overall recruitment process performance) than mechanical explanations (one aspect of performance) in selection/recruitment contexts; a finding which was unclear and called for further investigation by other researchers (Morgeson & Ryan, 2009). Further, applicants respond more positively when a decision is explained, than when no explanation is provided (Cortini et al., 2019; Thominet, 2020). In other words, this thesis addressed the issue of applicants' preferences towards the various methods used by recruiters to explain the recruitment/selection decision. Psychological constructs application to theory rather than merely fairness and justice which is lacking in the literature.

Thirdly, the research examined and tested for the mediator of feedback acceptance, and outcome variables (feedback provision, mode of feedback, type of feedback), linking these to online recruitment, feedback process models and organisational justice theory. Feedback acceptance was identified as a mediator for process fairness. The implications of this finding are that in selection contexts what is critical is whether the process is regarded as acceptable to the candidate. This was achieved firstly under controlled experimental conditions to ground the research, and then in a field study on actual job applicants. This mixed methods approach is considered a major strength of this thesis.

7.9 Future directions

Further research could be conducted longitudinally to investigate these insights identified from the field study. For example, self-report measures could be taken at baseline (T1), post-feedback (T2), and a year later (T3) to compare online test-takers' reactions to feedback provision over a period. Konradt, Garbers, Erdogan and Bauer (2016) conducted a 3-phase approach to study German apprenticeship candidates (N = 182) but no post-feedback measures were taken. More multi-phased longitudinal investigations such as by Konradt and colleagues (2013) as discussed in Chapter 1 have tracked the progress of applicants over a longer period by taking six waves of measurements. Conducting such research in a job promotion context enables participants to be retained as unsuccessful promotion candidate employees usually remain with the organisation, unlike rejected external candidates who are more difficult to study over time.

Another development would be to compare different job sectors (e.g., banking, engineering, and legal) so to ascertain which explanations are most suitable and acceptable to job applicants in those sectors. This comparison of job sectors and suitable explanation types has been called for by other researchers (e.g., Brooks, Guidroz & Chakrabarti, 2009; Morgeson & Ryan, 2009) but a thesis is limited in scope and due to practical issues in obtaining consent from an organisation, further research could pursue this avenue. In more prosperous economic circumstances (unlike when the research was conducted after a major recession) with more job opportunities, and over a longer period then maybe there would be more opportunities to conduct such a study.

Another area for further research is to investigate the role of emerging mobile technologies for graduate recruitment testing. This research holds promise in terms of the type of devices used for test administration (mobile phones, apps, gaming devices) and in effective conveying of feedback to candidates (e.g., text message, an automated message). Job interviews and assessments are increasingly being conducted using automated platforms and videoconferencing (Langer, König & Papathanasiou, 2018) by organisations so research needs to examine how candidates react towards automated and interpersonal processes. Considerations such as social contact, trust and acceptance of these novel technologies are key variables to consider.

Job candidate reactions towards the use of social media sites including Facebook by recruiters to find out information about candidates is another emerging area (e.g. Baysinger et al., 2014; Roulin, 2014). Furthermore, how candidates respond and accept these new technological forms of assessments and communications of feedback compared to more traditional communications such as a phone call merits further investigation (e.g., Langer et al., 2018; Cripps, 2017). A revision of justice theory in relation to modern technology and recruitment practices is also needed. Gilliland's (1993) justice model requires modern theoretical alignment as was devised 30 years ago before the advent of the emergence of these recruitment methods and technologies.

7.8 Conclusion

In summary, the thesis found that job applicants who undertake some form of online testing during recruitment respond more positively (e.g., lower stress, more feedback acceptance) when receiving feedback explanations (as opposed to having no feedback

explanation) of a recruitment decision. These findings were evident in both the case of positive and negative outcomes (job offer/rejection). Furthermore, the research also ascertained those holistic explanations (regarding overall performance) enhanced candidate reactions (e.g. process fairness, feedback acceptance) more than mechanical explanations (regarding one aspect of performance) when organisations convey recruitment decisions. Personalised feedback with an interpersonal element from another person also enhances recipient`s reactions (e.g. Thominet, 2020; Cortini et al., 2019). The implications of these findings are that recruiters should be encouraged to disclose performance feedback to job candidates, something they are often reluctant to do for legal and reputational concerns. Feedback acceptance was found to have a mediating effect between the job decision (job offer/rejection) and people`s reactions (process fairness, clear and open etc) and the feedback. In essence, feedback is a powerful tool that needs to be communicated effectively to enhance the recipient`s responses to it. Effective feedback communication mitigates the effect of a negative outcome.

This new insight opens up a number of avenues for further investigation in this field such as: more longitudinal field studies into feedback explanation provision, an examination of reactions towards modern recruitment technologies, comparisons of job sectors in feedback provision practices, and more collaboration with job recruiters into providing effective feedback to candidates.

References

- Adams G. & Rau B. (2004). Job seeking among retirees seeking bridge employment. *Personnel Psychology*, 57 (3), 719-744.
- Adams, J.S. (1965). Inequity in social exchange. In L. Berkowitz (ed.), *Advances in Experimental Social Psychology*, vol. 2 New York: Academic Press.
- Ahmad, M.M. (2010). Validation of the Cognitive Appraisal Health Scale with Jordanian Patients. *Nursing and Health Sciences*, 12, 74-79.
- Al-Dubai, S., Ganasegeran, K., Barua, A., Rizal, A., & Rampal, K. (2014). Evaluation of the psychometric properties of the Malay version perceived stress scale in two occupational settings in Malaysia. *Annals of medical and health sciences research*, 4(2), S104-S107.
- American Psychological Association (2012). *Ethical Principles of Psychologists and Code of Conduct*. Washington, DC: American Psychological Association.
- Andersson, C., Johnsson, K.O., Berglund, M., & Ojehagen, A. (2009). Stress and hazardous alcohol use: Associations with early dropout from university. *Scandinavian Journal of Public Health*, 37, 713–719.
- Anderson, N. (1992). Eight decades of employment interview research: A retrospective meta-review and prospective commentary. *European Work and Organizational Psychologist*, 2, 1-32.
- Anderson, N. (1998a). The practitioner-researcher divide in work and organizational psychology. *The Occupational Psychologist*, 34, 7-16.
- Anderson, N. (2001). Towards a theory of socialization impact: Selection as pre-entry socialization. *International Journal of Selection and Assessment*, 9, 84-91.
- Anderson, N. (2003). Applicant and recruiter reactions to new technology in selection: A critical review and agenda for future research. *International Journal of Selection and Assessment*, 11, 121-136.
- Anderson, N. (2011a) Perceived Job Discrimination: Going beyond a science of mean effects, *International Journal of Selection & Assessment*, 19, 229-244.
- Anderson, N. (2011b) Perceived Job Discrimination: Toward a model of applicant propensity to case initiation in selection. *International Journal of Selection & Assessment*, 19, 229-244.

- Anderson, N. (2012). Applicant reactions in Saudi Arabia: Organizational attractiveness and core self-evaluations. *International Journal of Selection & Assessment*, 20, 197-208.
- Anderson, N., Born, M., & Cunningham-Snell, N. (2001). Recruitment and selection: Applicant perspectives and outcomes. In N. Anderson, D.S. Ones, H.K. Sinangil, & C. Viswesvaran (Eds.), *Handbook of Industrial, Work, and Organizational Psychology*. Vol 1. London: Sage.
- Anderson, N., & Goltsi, V. (2006). Negative Psychological Effects (NPEs) of assessment centres. Construct formulation and an empirical investigation. *International Journal of Selection and Assessment*, 14, 236-255.
- Anderson, N., Herriot, P., & Hodgkinson, G.P. (2001). The practitioner-researcher divide in Industrial, Work and Organizational (IWO) psychology. Where are we now, and where do we go from here? *Journal of Occupational and Organizational Psychology*, 74, 391-411.
- Anderson, N., Salgado, J.F., & Hülshager, U.R. (2010). Applicant reactions in selection: Comprehensive meta-analysis into reaction generalizability versus situational specificity. *International Journal of Selection and Assessment*, 18, 291-304.
- Anderson, N., & Witvliet, C. (2008). Fairness reactions to personnel selection methods: An international comparison between the Netherlands, the United States, France, Spain, Portugal, and Singapore. *International Journal of Selection and Assessment*, 16, 1-13.
- Anseel, F. (2011). A closer look at the mechanisms of perceived job discrimination: `How I think you think about us.` *International Journal of Selection and Assessment*, 19, 245-258.
- Anseel, F. & Lievens, F. (2006). A within-person perspective on feedback seeking about task performance. *Psychologica Belgica*, 46 (4), 269-286.
- Anseel, F. & Lievens, F. (2009). The Mediating Role of Feedback Acceptance in the Relationship between Feedback and Attitudinal and Performance Outcomes. *International Journal of Selection and Assessment*, 17, 362-376.
- Arbuckle, J.L. (2016). *IBM SPSS Amos 24 User's Guide*. Chicago, IL: Amos Development Corporation.
- Argyris, C. (1960). *Understanding Organizational Behavior*. Homewood, IU: Dorsey Press.
- Arnold, J., Silvester, J., Patterson, F., Robertson, I., Cooper, C., & Burnes, B. (2005). *Work Psychology. Understanding Human Behaviour in the Workplace (4th ed.)* London: Prentice Hall.

- Arthur, W., Doverspike, D., Muñoz, G.J., Taylor, J.E. & Carr, A.E. (2014). The Use of Mobile Devices in High-stakes Remotely Delivered Assessments and Testing. *International Journal of Selection and Assessment*, 22 (2), 113-123.
- Arthur, W. & Glaze, R. M. (2011). Cheating and response distortion on remotely delivered assessments. In N. T. Tippins, & S. Adler (Eds.), *Technology-enhanced assessment of talent* (pp. 99-152). San Francisco, CA: Jossey-Bass.
- Arthur, W., Glaze, R. M., Villado, A. J., & Taylor, J. E. (2009). Unproctored internet-based tests of cognitive ability and personality: Magnitude of cheating and response distortion. *Industrial and Organizational Psychology*, 2, 39–45.
- Arthur, W., Glaze, R. M., Villado, A. J., & Taylor, J. E. (2010). The magnitude and extent of cheating and response distortion effects on unproctored internet-based tests of cognitive ability and personality. *International Journal of Selection and Assessment*, 18(1), 1-16.
- Arvey, R.D. & Sackett, P.R. (1993). Fairness in selection: Current developments and perspectives. In N. Schmitt & W. Borman (Eds.), *Personnel Selection*. San Francisco: Jossey-Bass.
- Arvey, R.D.; Strickland, W.; Drauden, G. & Martin, C. (1990). Motivational components of test taking. *Personnel Psychology*, 43, 695-716.
- Association of Graduate Recruiters (2000). *Going to Work on the Web: Web-Based Graduate Recruitment*, AGR Briefing No. 11, July: Warwick: Association of Graduate Recruiters.
- Association of Graduate Recruiters (2014a). The AGR Graduate Recruitment Survey 2014. Summer Review. London: The Association of Graduate Recruiters.
- Association of Graduate Recruiters (2014b). The AGR Graduate Recruitment Survey 2014. Winter Review. London: The Association of Graduate Recruiters.
- Association of Graduate Recruiters (2015). The AGR Annual Survey. London: The Association of Graduate Recruiters.
- Association of Graduate Recruiters (2016). The AGR Annual Survey. London: The Association of Graduate Recruiters.
- Atwater, L. & Brett, J. (2006). Feedback format: Does it influence manager's reactions to feedback? *Journal of Occupational and Organizational Psychology*, 79, 517-532.
- Audia, P.G., & Locke, E.A. (2003). Benefiting from negative feedback. *Human Resource Management Review*, 13, 631-646.
- Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist*, 37, 122-147.

- Barbeite, F.G. & Weiss, E.M. (2004). Computer self-efficacy and anxiety scales for an Internet sample: testing measurement equivalence of existing measures and development of new scales. *Computers in Human Behavior*, (20) 1–15.
- Barber, L. (2006). *e-Recruitment Developments*. Brighton: Institute for Employment studies.
- Baron, H. & Janman, K. (1996). Fairness in the assessment centre. *International Review of Industrial and Organisational Psychology*, 11, 61–114.
- Baron, R.M., & Kenny, D.A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173-1182.
- Barrick, M.R. & Mount, M.K. (1991). The Big Five Personality Dimensions and Job Performance: A Meta-analysis. *Personnel Psychology*, 44 (1), 1-26.
- Bartram, D. (1995). The changing face of testing. *The Psychologist*, 18 (11), 666-668.
- Bartram, D. (2000). Internet recruitment and selection: Kissing frogs to find princes. *International Journal of Selection and Assessment*, 8, 261-274.
- Bartram, D. (2006). Testing on the Internet: Issues, Challenges and Opportunities in the Field of Occupational Assessment. In D. Bartram, and R.K. Hambleton (Eds.) *Computer-Based Testing and the Internet: Issues and Advances*. London: John Wiley and Sons.
- Bauer, T.N., Erdogan, B., Liden, R.C. & Wayne, S.J. (2006). A longitudinal study of the moderating role of extraversion: Leader member exchange, performance, and turnover during executive development. *Journal of Applied Psychology*, 91(2), 298-310.
- Bauer, T.N., Maertz, C.P., Dolen, M. R., & Campion, M.A. (1998). Longitudinal assessment of applicant reactions to an employment test. *Journal of Applied Psychology*, 83, 892-903.
- Bauer, T.N., Truxillo, D., Campion, M.A. & Weekley, J.A. (2004). Applicant reactions to different selection techniques: Face to face, interactive voice response, and computer assisted telephone screening interviews. *International Journal of Selection and Assessment*, 12, 135-148.
- Bauer, T., Truxillo, D., Sanchez, R., Craig, J., Ferrera, P. & Campion, M. (2001). Applicant reactions to selection: Development of the selection procedural justice scale (SPJS). *Personnel Psychology*, 54, 388-420.
- Baysinger, M., Krauss, A., Truxillo, D.M., Bauer, T.N. & Rineer, J. (2014). The impact of explanations and fairness perceptions on applicant outcomes. In M. Baysinger (Symposium Chair), Understanding applicant fairness perceptions:

- Moderators, mediators, and contextual influences. SIOP International Conference, Honolulu, HI.
- Beatty, J.C., Fallon, J.D. & Shepherd, W. (2002, April). Proctored versus unproctored web-based administration of a cognitive ability test. In F.L. Oswald & J.M. Stanton (Chairs), *Being virtually hired: Implications of web testing for personnel selection*. Symposium presented at the 17th Annual Conference of the Society for Industrial and Organizational Psychology, Toronto, Canada.
- Becker, W.J., Connolly, T. & Slaughter, J.E. (2010). The effect of job offer timing on offer acceptance, performance, and turnover. *Personnel Psychology*, 63, 223-241.
- Bell, B.S., Ryan, A.M., & Wiechmann, D. (2004). Justice expectations and applicant perceptions. *International Journal of Selection and Assessment*, 12, 24-38.
- Bell, B.S., Wiechmann, D. & Ryan, A.M. (2006). Consequences of organizational justice expectations in a selection system. *Journal of Applied Psychology*, 91, 455-466.
- Berlowitz, J., Hall, D.L., Joyce, C., Fredman, L., Sherman, K.J., Saper, R.B. & Rosen, E.J. (2020). Changes in Perceived Stress After Yoga, Physical Therapy, and Education Interventions for Chronic Low Back Pain: A Secondary Analysis of a Randomized Controlled Trial. *Pain Medicine*, 0(0), 1–9.
- Bernerth, J. B., Feild, H. S., Giles, W. F., & Cole, M. S. (2006). Perceived fairness in employee selection: The role of applicant personality. *Journal of Business and Psychology*, 20, 545-563.
- Bies, R.J. & Moag, J.S. (1986). Interactional justice: Communication criteria of fairness. In R.J. Lewicki, B.H. Sheppard & M.H. Bazerman (eds.), *Research on negotiations in organizations*. Vol 1. Greenwich, CT: JAI Press.
- Bies, R.J. & Shiparo, D.L. (1988). Voice and justification: Their influence on procedural fairness judgements. *Academy of Management Review*, 31, 676-685.
- Blascovich, J. & Tamaka, J. (1991). Measures of self-esteem. In J.R. Robinson & P.R. Shaver (eds.), *Measures of personality and social psychological attitudes*. San Diego, CA: Academic Press.
- Blackhart, J.C., Nelson, B.C., Knowles, M.L. & Baumeister, R.F. (2009). Rejection Elicits Emotional Reactions but Neither Causes Immediate Distress nor Lowers Self-Esteem: A Meta-Analytic Review of 192 Studies on Social Exclusion. *Personality and Social Psychology Review*, 13(4), 269-309.
- Blascovich, J. & Tamaka, J. (1991). *Measures of self-esteem*. In J.P. Robinson & P.R. Shaver (Eds.), *Measures of Personality and Social Psychological Attitudes*. San Diego, CA: Academic Press.

- Blood, M.R. (1969). Work Values and Job Satisfaction. *Journal of Applied Psychology*, 53(6), 456-459.
- Bono, J.E. & Colbert, A.E. (2005). Understanding responses to Multi-source feedback: The role of Core Self-evaluations. *Personnel Psychology*, 58, 171-203.
- Borman, W.C., Hanson, M. & Hedge, J.W. (1997). Personnel Selection. *Annual review of psychology*, 48, 299-337.
- Bowerman, B.L. & O'Connell, R.T. (1990). *Linear Statistical Models: An Applied Approach* (2nd Edition). Belmont, California: Duxbury Press.
- Brace, N., Kemp, R. & Snelgar, R. (2012). *SPSS for psychologists* (5th ed.) Basingstoke: Palgrave Macmillan.
- Branine, M. (2008). Graduate recruitment and selection in the UK. A study of the recent changes in methods and expectations. *Career Development International*, 13(6), 497-513.
- Braun, V. & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101.
- Breaugh, J.A. & Starcke, M. (2000). Research on employee recruitment: So many studies, so many remaining questions. *Journal of Management*, 26, 405-434.
- Brender-Ilan, Y. & Sheaffer, Z. (2015). Do Immigrants Have Different Procedural Justice Perceptions of Personnel Selection methods? The case of native Israelis and immigrants from the Former Soviet Union. *International Journal of Selection and Assessment*, 23, 27-36.
- Brett, J.F., & Atwater, L.E. (2001). 360° feedback: Accuracy, reactions, and perceptions of usefulness. *Journal of Applied Psychology*, 86, 930-942.
- Bringsjord, E. L. (2001). *Computerized-adaptive versus paper-and-pencil testing environments: An experimental analysis of examinee experience*. Dissertation Abstracts International Section A: Humanities and Social Sciences.
- British Psychological Society Statement of Ethical Principles (1990). *The Psychologist*, June 1990, 269-272.
- British Psychological Society (2007). *Report of the working party on conducting research on the Internet: Guidelines for ethical practice in psychological research online*. Leicester: British Psychological Society.
- British Psychological Society (2009) Ethical guidelines. Leicester: British Psychological Society.
- British Psychological Society (2012). Candidate Handbook- Division of Occupational Psychology Stage 2. Leicester: British Psychological Society.

- Brockner, J., Heuer, L., Siegel, P.A., Wisenfeld, B., Martin, C., Grover, S., Reed, T., & Bjorgvinsson, S. (1998). The moderating effect of self-esteem in reaction to voice: Converging evidence from five studies. *Journal of Personality and Social Psychology*, 75, 394-407.
- Brockner, J., & Wiesenfeld, B.M. (1996). An integrative framework for explaining reactions to decisions: Interactive effects of outcomes and procedures. *Psychological Bulletin*, 120, 189-208.
- Brooks, M.E., Guidroz, A.M., & Chakrabarti, M. (2009). Distinction Bias in Applicant Reactions to Using Diversity Information in Selection. *International Journal of Selection and Assessment*, 17, 377-390.
- Brown, A. (2019). Research and Guidelines Committee. *Testing International*, 42, 12-13.
- Brown, J.D., & Dutton, K.A. (1995). The thrill of victory, the complexity of defeat: Self-esteem and people's emotional reactions to success and failure. *Journal of Personality and Social Psychology*, 68, 712-722.
- Brünn, S. (2010). Internettestverfahren zur Personalauswahl – Einflussgrößen der Fairnesswahrnehmung und ihre Wirkung auf die Intentionen und Reaktionen der Bewerber. [Internet-based tests in personnel selection – Factors on fairness perceptions and their impact on applicants' intentions and reactions]. Munich: Rainer Hampp.
- Bryman, A. (2004). *Social Research Methods* (2nd Ed.) Oxford: Oxford University Press.
- Bryman, A., & Cramer, D. (1990). *Quantitative Data Analysis for Social Scientists*. London: Routledge.
- Burke, M.J.; Normand, J. & Raju, N.S. (1987). Examinee attitudes toward computer-administered ability testing. *Computers in Human Behavior*, 3, 95-107.
- Buss, A.H. (1989). Personality as traits. *American Psychologist*, 44, 1378-1388.
- Callan, A., & Geary, B. (1994). Best practice-putting practice testing to work. *Selection and Development Review*, 10, 2-4.
- Cannon, W.B. (1929). *Bodily changes in Pain, Hunger, Fear and Rage*. New York: Appleton.
- Cardon, M.S. & Stevens, C.E. (2004). Managing human resources in small organisations. What do we know? *Human Resource Management Review*, 14, 295-323.
- CareerBuilder.com (2009). Forty-five Percent of Employers Use Social Networking Sites to Research Job Candidates, CareerBuilder Survey Finds. CareerBuilder.com.

Retrieved August 10, 2009,

http://www.careerbuilder.com/share/aboutus/pressreleasedetail.aspx?id=pr519&sd=8%2f19%2f2009&ed=12%2f31%2f2009&siteid=cbpr&sc_cmp1=cb_pr519

CareerBuilder.com (2012). Thirty-seven percent of companies use social media networks to research potential job candidates, according to new CareerBuilder Survey. Available at Careerbuilder.com website:

<http://www.careerbuilder.com/share/aboutus/pressreleasesdetail.aspx?id=pr691&sd4%2F18%2F2012&ed=4%2F18%2F2009> (accessed 10 January 2013).

Carless, S. & Heatherington, K. (2011). Understanding the Applicant Recruitment Experience: Does timeliness matter? *International Journal of Selection and Assessment*, 19, 105-108.

Cascio, W.F. & Aguinis, H. (2011). *Applied Psychology in Human Resource Management (7th Ed.)* New York: Prentice Hall.

Celani, A., Deutsch-Salamon, S. & Singh, P. (2008). In justice we trust: A model of the role of trust in the organization in applicant reactions to the selection process. *Human Resource Management Review*, 18, 63-76.

Chan, D. & Schmitt, N. (2004). An agenda for future research on applicant reactions to selection procedures: A construct oriented approach. *International Journal of Selection and Assessment*, 12, 9–23.

Chan, D., Schmitt, N., DeShon, R.P., Clause, C.S. & Delbridge, K. (1997). Reactions to cognitive ability tests: The relationship between race, test performance, face validity perceptions, and test-taking motivation. *Journal of Applied Psychology*, 82, 300-310.

Chan, D., Schmitt, N., Jennings, D., Clause, C.S. & Delbridge, K. (1998). Applicant perceptions of test fairness: Integrating justice and self-serving bias perspectives. *International Journal of Selection and Assessment*, 6, 232-239.

Chapman, D.S., Uggerslev, K.L., Carroll, S.A., Piasentin, K.A. & Jones, D.A. (2005). Applicant attraction to organizations and job choice: A meta-analytic review of the correlates of recruiting outcomes. *Journal of Applied Psychology*, 90, 928-944.

Chapman, D.S., Uggerslev, K.L. & Webster, J. (2003). Applicant reactions to face-to-face and technology-mediated interviews: A field investigation. *Journal of Applied Psychology*, 88(5), 944-953.

Chapman, D.S. & Webster, J. (2006). Toward an integrated model of applicant reactions and job choice. *International Journal of Human Resource Management*, 17, 1032-1057.

Chartered Institute of Personnel Development (CIPD) (2006). *Recruitment and Retention 2006*. London: CIPD.

- Chartered Institute of Personnel Development (CIPD) (2015). *A head for hiring: The behavioural science of recruitment and selection*. (Research Report Number 7019).
- Chua, S.L., Chen, D., & Wong, A.F.L. (1999). Computer anxiety and its correlates: A meta-analysis. *Computers in Human Behavior*, 15, 609-623.
- Clark-Carter, D.C. (2010). *Quantitative psychological research: The complete student's companion* (3rd ed.) Hove: Psychology Press.
- Cober, R., Brown, D., Blumental, A., Doverspike, D., & Levy, P. (2000). The quest for the qualified job surfer: It's time the public sector catches the wave. *Public Personnel Management*, 29, 479-494.
- Cober, R. & Brown, D. (2006). *2006 Direct Employers Association Recruiting Trends Survey*. Washington, DC: Booz Allen Hamilton.
- Cohen, J. (1998). *Statistical Power Analysis for the Behavioral Sciences* (2nd Ed.) Hillsdale, N.J.: Lawrence Erlbaum Associates.
- Cohen, S., Kamarck, T. & Mermelstein, R. (1983) A Global Measure of Perceived Stress. *Journal of Health and Social Behavior*, 24, 385-396.
- Cohen, S. & Williamson, G. (1988). Perceived Stress in a Probability Sample of the United States. In Spacaman, S. & Oskamp, S. (1988). *Social Psychology of Health* (eds). Newbury Park, CA.: Sage.
- Cojuharenco, I., Patient, D. & Bashshur, M.R. (2011). Seeing the “forest” or the “trees” of organizational justice: Effects of temporal perspective on employee concerns about unfair treatment at work. *Organizational Behavior and Human Decision Processes*, 116, 17-31.
- Colquitt, J.A. (2001). On the dimensionality of organizational justice: A construct validation of a measure. *Journal of Applied Psychology*, 86, 386-400.
- Colquitt, J.A., Scott, B.A., Judge, T.A. & Shaw, J.C. (2006). Justice and Personality: Using integrative theories to derive moderators of justice effects. *Organizational Behavior and Human Decision Processes*, 100, 1110-127.
- Connerley, M.L., Mael, F.A. & Morath, R.A. (1999). ‘Don't ask—Please tell’: Selection privacy from two perspectives. *Journal of Occupational and Organizational Psychology*, 4, 405–422.
- Cook, M. & Cripps, B. (2005). *Psychological Assessment in the workplace. A Manager's Guide*. Chichester: John Wiley & Sons Limited.
- Cooley, C.H. (1902). *Human nature and the social order*. New York: Schribner.
- Coolican, H. (2007). *Applied Psychology* (2nd ed.) Abingdon: Hodder Arnold.

- Coopersmith, S. (1967). *The antecedents of self-esteem*. Palo Alto: Consulting Psychology Press.
- Coopersmith, S. (1981). *Self-esteem inventories*. Palo Alto, CA: Consulting Psychologists Press Inc.
- Cortini, M., Galanti, T. & Barattucci, M. (2019). The Effect of Different Rejection Letters on Applicants` Reactions. *Behavioral Sciences*, 9(10): 102, 1-15.
- Cripps, B. (2017). *Psychometric Testing. Critical Perspectives*. Chichester: John Wiley & Sons Limited.
- Criterion Partnership (2016). Website accessed on 17/03/16.
- Czaja, S., & Sharit, J. (1998). Age differences in attitudes toward computers. *Journal of Gerontology: Series B: Psychological Sciences and Social Sciences*, 53, 329-340.
- Darum, D.L. (1994). *Examinee attitudes toward paper and pencil and computerized versions of cognitive ability tests and biodata inventories*. Unpublished doctoral dissertation: Bowling Green State University.
- Darwin, C. (1859). *The origin of the species by means of natural selection*. London: John Murray.
- Data Protection Act (1998). London: The Stationery Office, HMSO.
- De Cremer, D.D. & Sedikides, C. (2005). Self-uncertainty and responsiveness to procedural justice. *Journal of Experimental and Social Psychology*, 157-173.
- De Witte, H., Rothmann, S. & Jackson, L.T.B. (2012). On the psychological consequences of unemployment in South-Africa. *South African journal of economic and management sciences*, 15(3), 235-252.
- Demo, D.H. (1985). The measurement of self-esteem: Redefining our methods. *Journal of Personality and Social Psychology*, 48, 1490-1502.
- Derous, E., Born, M. & de Witte, K. (2004). How Applicants Want and Expect to Be Treated: Applicants` Selection Treatment Beliefs and the Development of the Social Process Questionnaire on Selection. *International Journal of Selection and Assessment*, 12, 99-119.
- Derous, E. & De Witte, K. (2001). Looking at selection from a social process perspective: Towards a social process model on personnel selection. *European Journal of Work and Organisational Psychology*, 10, 319-342.
- Derous, E., De Witte, K. & Stroobants, R. (2003). Testing the Social Process model on Selection through expert analysis. *Journal of Occupational and Organisational Psychology*, 76, 179-199.

- Diener, E. & Ryan, K. (2009). Subjective well-being: A general overview. *South African Journal of Psychology*, 38, 391-406.
- Dineen, B. R., Noe, R. A. & Wang, C. (2004). Perceived fairness of web-based applicant screening procedures: Weighing rules of justice and the role of individual differences. *Human Resource Management Journal*, 43, 127–145.
- Dineen, B.R. & Noe, R.A. (2009). Effects of Customization on Applicant Decisions and Applicant Pool Characteristics in a Web-Based Recruitment Context. *Journal of Applied Psychology*, 94, 224-234.
- Dineen, B.R. & Williamson, I.O. (2012). Screening-orientated Recruitment Messages: Antecedents and Relationships with Applicant Pool Quality. *Human Resource Management*, 51, 343-360.
- Dodgson, P.G., & Wood, J.V. (1998). Self-esteem and the cognitive accessibility of strengths and weaknesses after failure. *Journal of Personality and Social Psychology*, 75, 178-197.
- Drasgow, F., Nye, C.D., Guo, J. & Tay, L. (2009). Cheating on proctored tests: The other side of the proctored debate. *International and Organizational Psychology: Perspectives on Science and Practice*, 2(1), 46-48.
- Drasgow, Olson-Buchanan & Moberg, (1999). *Innovations in computerized assessment*. N.J: Elbraum.
- Dufour, F. (2011). “Recruiters concerns”, Available at <http://talent.linkedin.com/blog/index.php/tag/statistics/> (accessed 30 March 2014).
- Dyck, J.L., & Smither, J.A. (1994). Age differences in computer anxiety: The role of computer experience, gender and education. *Journal of Educational Computing Research*, 10, 239-248.
- Eisenbarth, C. (2012). Does Self-Esteem Moderate the Relations among Perceived Stress, Coping, and Depression? *College Student Journal*, 46(1), 149-157.
- Electronic Recruiting Index (ERI) (2000). “Performance and the emergence of the middle market”, Executive summary, Available at <http://www.interbiznet.com/2000ERI> (accessed 11 November 2015).
- Ellis, S. Mendel, R. & Nir, M. (2006). Learning from successful and failed experience: the moderating role of kind of after-event review. *Journal of Applied Psychology*, 91, 669-680.
- Ellis, R.A. & Taylor, S.M. (1983). Role of self-esteem within the job search process. *Journal of Applied Psychology*, 68, 632–640.

- Elo, S. & Kyngäs, S.H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing*, 62(1), 107–115
- Erdfelder, E., Faul, F. & Buchner, A. (1996). GPOWER: A general power analysis program. *Behavior Research Methods, Instruments, & Computers*, 28, 1-11.
- European Civil Service organisations (ESPO, 2005). Unknown Source.
- Evans, W.R. & Davis, W.D. (2011). An examination of perceived corporate citizenship, job application attraction, and CSR work role definition. *Business & Society*, 50, 456-480.
- Fallow, S.S., Kantrowitz, T.M. & Dawson, C.D. (2012). *2012 Global Assessment Trends Report*. SHL.
- Faul, F., Erdfelder, E., Lang, A.G. & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, 39, 175-191.
- Festinger, L. (1957). *A theory of cognitive dissonance*. Evanston, IL: Row Peterson.
- Field, A. (2013). *Discovering statistics using IBM SPSS statistics (4th Ed.)* London: Sage Publications Ltd.
- Fiske, S.T., & Taylor, S.E. (1991). *Social cognition*. Oxford: Blackwell.
- Fletcher, C. (1991). Candidates` reactions to assessment centres and their outcomes: A longitudinal study. *Journal of Occupational Psychology*, 64, 117-127.
- Folger, R., & Cropanzano, R. (2001). Fairness theory: Justice as accountability. In J. Greenberg & R. Cropanzano (eds.), *Advances in Organization Justice*. Stanford, CA: Stanford University Press.
- Folger, R., & Cropanzano, R. (2001). Fairness theory: Justice as accountability. In J. Greenberg & R. Cropanzano (eds.), *Advances in Organization Justice*. Stanford, CA: Stanford University Press.
- Folkman, S. (1997). Positive psychological states and coping with severe stress. *Social Science Medicine*, 45, 1207-1221.
- Ford, D.K., Truxillo, D.M., & Bauer, T.N. (2009). Rejected but Still There: Shifting the focus in applicant reactions to the promotional context. *International Journal of Selection and Assessment*, 17, 402-416.
- Försterling, F., Buhner, M. & Gall, S. (1998). Attributions of depressed persons: How consistent are they with the covariation principle? *Journal of Personality and Social Psychology*, 75, 1047–1061.
- Fosterling, F. (2001). *Attribution: An Introduction to Theories, Research and*

Application. London: Academic Press.

Fredricks, L., Ehrhart, K.L., & O`Connell, M.S. (2003, April). *Computer anxiety and test performance: Comparing selection test formats*. Paper presented at the Society for Industrial and Organizational Psychologists Conference, Orlando, FL.

Fryer, D. (1998). Labour market disadvantage, deprivation and mental health. In P. Drenth. & H. Thierry (eds.) *Handbook of Work and Organizational Psychology*, vol. 2. Hove: Psychology Press.

Garcia-Izquierdo, A.L., Aguinis, H., & Ramos-Villagrasa, P.J. (2010). Science-practice gap in e-recruitment. *International Journal of Selection and Assessment*, 18, 432-438.

Geenen, B., Proost, K., van Dijke, M., de Witte, K. & von Grumbkow, J. (2012). The Role of Affect in the Relationship Between Distributive Justice Expectations and Applicants` Recommendation and Litigation Intentions. *International Journal of Selection and Assessment*, 20, 404-413.

Geenen, B., Proost, K., Schreurs, B., van Dam, K. & von Grumbkow, J. (2013). What friends tell you about justice: The influence of peer communication on applicant reactions. *Revista de Psicología del Trabajo y de las Organizaciones*, 29, 37-44.

Gentle, S. (2018). "Graduate Recruitment Trends 2018." Available at <https://www.onrec.com/news/news-archive/graduate-recruitment-trends-2018> (accessed 15 April 2020).

Gilbert, D.T. & Malone, P.S. (1995). The Correspondence Bias. *Psychological Bulletin*, 117, 21-38.

Gilbert, D.T., Pelham, B.W. & Krull, D.S. (1988). On cognitive busyness: When person perceivers meet person perceived. *Journal of Personality and Social Psychology*, 54, 733-740.

Gilliland, S.W. (1993). The Perceived Fairness of Selection Systems: An organizational justice perspective. *Academy of Management Review*, 18, 694-734.

Gilliland, S.W. (1994) Effects of Procedural and Distributive Justice on Reactions to a Selection System. *Journal of Applied Psychology*, 79, 691-701.

Gilliland, S.W. (1995). Fairness from the applicant`s perspective: Reactions to employee selection procedures. *International Journal of Selection and Assessment*, 3, 11-19.

Gilliland, S. W. (2008). The tails of justice: A critical examination of the dimensionality of organizational justice constructs. *Human Resource Management Review*, 18, 271–281.

Gilliland, S.W., Groth, M., Baker, R.C., Dew, A.F., Polly, L.M., & Langdon, J.C. (2001). Improving applicants` reactions to rejection letters: An application of fairness theory. *Personnel Psychology*, 54, 699-703.

Gilliland, S.W., & Steiner, D.D. (1999). Causes and consequences of applicant perceptions of unfairness. In R. Cropanzano (Ed.), *Justice in the Workplace*, Vol. 2. Mahweh, NJ: Lawrence Erlbaum.

Girard, A. & Fallery, B. (2010). Human Resource Management on Internet: New Perspectives. *Contemporary Management Research*, 4 (2), 1-14.

Giumetti, G.W., & Sinar, E.F. (2012). Don` t You Know Me Well Enough Yet? Comparing Reactions to Internal and External Candidates to Employment Testing. *International Journal of Selection and Assessment*, 20, 139-148.

Golden-Kreutz, D.M., Browne, M.W., Frierson, G.M. & Anderson, B.L. (2004). Assessing stress in cancer patients: A second-order factor analysis model of the Perceived Stress Scale. *Assessment*, 11, 216-223.

Goldman, B. (2001). Toward an understanding of employment discrimination-claiming: An integration of organizational justice and social information processing theories. *Personnel Psychology*, 54, 361-386.

Greenberg, J. (1987). A taxonomy of organizational justice theories. *Academy of Management Review*, 12, 9-22.

Greenberg, J. (1990). Organizational justice: Yesterday, today, tomorrow. *Journal of Management*, 16, 399-432.

Gregory, R.J. (1998). Testing in clinical psychology. In S. Cullari (Ed.), *Foundations of clinical psychology*. Boston, MA: Allyn & Bacon.

Gregory, R.J. (2004). *Psychological Testing. History, Principles, and Applications* (4th ed.) Boston, MA: Allyn & Bacon.

Gutierrez, S.L. & Meyer, J.M. (2013). Assessment on the go: applicant reactions to mobile testing. In A.D. Mead (Chair) *Mobile Devices in Talent Assessment: Where are we now? Symposium conducted at the 28th Annual Society for Industrial-Organizational Psychology Conference, Houston, TX.*

Haladyna, T.M., & Roid, G.H. (1983). A comparison of two approaches to criterion-referenced test construction. *Journal of Educational Measurement*, 20, 271-282.

Hambledon, R. K. & Swaminathan, H. (1985). *Item response theory: Principles and applications*. Boston: Kluwer Academic Publishers Group.

Hammersley, M. (1996). The Relationship between Qualitative and Quantitative Research: Paradigm Loyalty versus Methodological Eclecticism. In J.T.E. Richardson

(ed.), *Handbook of Research Methods for Psychology and the Social Sciences*. Leicester: BPS Books.

Harris, M.M. (2006). Internet Testing: The Examinee Perspective. In D. Bartram & R.K. Hambleton (Eds.), *Computer-Based Testing and the Internet: Issues and Advances*. John Wiley and Sons: London.

Hattie, J. & Timperley, H. (2007). The power of feedback. *Review of Educational Research*, 77 (1), 81-112.

Hausknecht, J.P., Day, D.V. & Thomas, S.C. (2004). Applicant Reactions to Selection Procedures: An updated model and Meta-Analysis. *Personnel Psychology*, 57, 639-683.

Hausknecht, J.P., Halpert, J.A., Harder, B.K., Kuljanin, G. & Moriarty, M. (2006, April). Issues in repeated testing: Test attitudes and applicant reactions. Presented at the 20th annual conference of the Society for Industrial and Organizational Psychology, Los Angeles, CA.

Heider, F. (1958). *The psychology of interpersonal relations*. New York: Riley.

Herriot (1981). Towards an attributional theory of the selection interview. *Journal of Occupational Psychology*, 165-173.

Herriot, P. (1989). Selection as a Social Process. In M. Smith & I. T. Robertson (Eds.), *Advances in selection and assessment*. New York: John Wiley and Sons.

HESA (2020). *Higher Education Student Statistics: UK, 2018/19 – Qualifications Achieved*. Statistical Bulletin S8255.

High Fliers Research (2016). *The Graduate Market in 2016. Annual review of graduate vacancies & starting salaries at Britain's leading employers*. London: High Fliers Research Limited.

Hinkin, T. R. (1995). A review of scale development practices in the study of organizations. *Journal of Management*, 21, 967-988.

Holbeche, L. (2013). *Aligning human resources and business strategy*. London: Routledge.

Holtz, B.C., Ployhart, R.E. & Dominguez, A. (2005). Testing the rules of justice: The effects of frame-of-reference and pre-test validity information on personality test responses and test perceptions. *International Journal of Selection and Assessment*, 13, 75–86.

Honkaniemi, L., Feldt, T., Metsäpelto, R. & Tolvanen, A. (2013). Personality Types and Applicant Reactions in Real-life Selection. *International Journal of Selection and Assessment*, 21, 32-45.

- Hough, L.M., & Oswald, F.L. (2000). Personnel Selection: Looking Toward the Future-Remembering the Past. *Annual Review of Psychology*, 51, 631-664.
- Howell, D.C. (2002). *Statistical Methods for Psychology* (5th Ed). CA: Duxbury.
- Howell, J. (2016). "KPMG revolutionises the graduate recruitment process." Available at <https://www.graduate-jobs.com/news/?sort=latest&page=5> (Accessed 26 January 2020).
- HR Magazine. (2008). *HR Screening Technology Trends and Fast Facts*, Cited in Need for New Screening Technology, Harquen Voice Screener, Online document.
- HR Magazine. (2018). *Technology Supplement. Futureproofing versus present practicalities: Getting the balance right*. November Online Edition, 1-24.
- Huff, K., Cline, M. & Guynes, C.S. (2012). Web-Based Testing: Exploring The Relationship Between Hardware Usability and Test Performance. *American Journal of Business Education*, 5(2), 179-186.
- Hülshager, U.R. & Anderson, N. (2009). Applicant perspectives in selection: Going beyond preference reactions. *International Journal of Selection and Assessment*, 17, 335-345.
- Hurtz, G. M., & Donovan, J. J. (2000). Personality and job performance: The Big Five revisited. *Journal of Applied Psychology*, 85, 869-879.
- Huo, Y.J., Smith, H.J., Tyler, T.R. & Lind, E.A. (1996). Superordinate Identification, Subgroup Identification, and Justice Concerns. *Psychological Science*, 7, 40-45.
- Ilgén, D.R., & Davis, C.A. (2000). Bearing bad news: Reactions to negative performance feedback. *Applied Psychology: An International Review*, 49, 550-565.
- Ilgén, D. R., Fisher, C. D., & Taylor, M. S. (1979). Consequences of individual feedback on behavior in organizations. *Journal of Applied Psychology*, 64, 349–371.
- Iles, P.A., & Robertson, I.T. (1997). The impact of personnel selection procedures on candidates. In N. Anderson & P. Herriot (eds.), *International handbook of selection and assessment*. Chichester: Wiley.
- International Test Commission (2006). International guidelines on computer-based and internet-delivered testing. *International Journal of Testing*, 6(2), 143-171.
- IRS Employment Review (2005). `Log on, log in: corporate online recruitment in the FTSE 100`. *IRS Employment Review*, (accessed on 2 April 2008 from www.holland.butterworths.co.uk).
- Institute of Student Employers (2018). ISE Annual Student Recruitment Survey 2018. London: Institute of Student Employers.

- Institute of Student Employers (2019). ISE Annual Student Recruitment Survey 2019. London: Institute of Student Employers.
- Institute of Student Employers (2020). ISE Annual Student Recruitment Survey 2020. London: Institute of Student Employers.
- Jacksch, V. & Klehe, U. (2016). Unintended Consequences of Transparency During Personnel Selection: Benefitting some candidates, but harming others? *International Journal of Selection and Assessment*, 24, 4-13.
- Jackson, C. (1996). *Understanding Psychological Testing*. Leicester: BPS Blackwell.
- Jobvite (2012) 2012 Social Recruiting Survey Results. Available at http://web.jobvite.com/rs/jobvite/images/Jobvite_2012_Social_Recruiting_Survey.pdf (Accessed 22 September 2014).
- Johnson, M. (1999). Using anti-harrassment training to shelter yourself from suits. *HR Magazine*, 44 (October), 76-81.
- Jones, D.A., Willness, C.R. & MacNeil, S. (2009). Corporate social responsibility and recruitment: Person-organization fit and signalling mechanisms. In G.T. Solomon (Ed.), Best paper proceedings of the 69th annual meeting of the Academy of Management (CD), ISSN 1543-8643.
- Jones, E.E. & Nisbett, R.E. (1972). The actor and the observer: Divergent perceptions of the causes of the behaviour. In E. E. Jones, D. E. Kanouse, H. H. Kelley, R. E. Nisbett, S. Valins & B. Weiner (Eds.) *Attribution: Perceiving the causes of behavior*. Morristown, NJ: General Learning Press.
- Jones, J.W. & Dages, K.W. (2003). Technology Trends in Staffing and Assessment: A Practice Note. *International Journal of Selection and Assessment*, 11, 247-252.
- Judge, T.A. (2009). Core Self-Evaluations and Work Success. *Current Directions in Psychological Science*, 18, 58-62.
- Judge, T.A. & Bono, J.E. (2001). Relationship of core self evaluations traits- self esteem, generalized self-efficacy, locus of control, and emotional stability- with job satisfaction and job performance: A meta-analysis. *Journal of Applied Psychology*, 86, 80-92.
- Judge, T.A., Erez, A., Bono, J.E., & Thoresen, C.J. (2002). Are measures of self-esteem, neuroticism, locus of control, and generalized self-efficacy indicators of a common core construct? *Journal of Personality and Social Psychology*, 83, 693-710.
- Judge, T.A., Erez, A., Bono, J.E. and Thoresen, C.J. (2003) 'The Core Self-Evaluations Scale (CSES): Development of a measure', *Personnel Psychology*, 56, 303-31.

- Judge, T. A., Locke, E. A., & Durham, C. C. (1997). The Dispositional Causes of Job Satisfaction: A Core Evaluations Approach. *Research in Organizational Behavior*, 19, 151-188.
- Kaiser, H.F. & Rice, J. (1974). Little jiffy, mark 4. *Educational and psychological measurement*, 34 (1), 111-117.
- Karl, K., Peluchette, J. & Schlaegel, C. (2010). Who`s posting Facebook faux pas? A cross-cultural examination of personality differences. *International Journal of Selection and Assessment*, 18, 174-186.
- Kashi, K., & Zheng, C. (2013). Extended Technology Acceptance Model to the E-recruitment context in Iran. *International Journal of Selection and Assessment*, 21, 121-129.
- Kehoe, J.F. & Olson, A. (2005). Cut scores and employment discrimination litigation. In Landy (Ed). *Employment Discrimination Litigation: Behavioral, Quantitative, and Legal Perspectives*. Society for Industrial/Organizational Psychology (2003).
- Keller, J. (1996). Public access issues: An introduction. In B. Kahin and J. Keller (Eds.), *Public access to the Internet*. Cambridge, MA: MIT Press.
- Kellett, D. (1991). Practice tests in occupational selection-further steps. *Guidance and Assessment Review*, 7, 1-3.
- Kelley, H. (1967). Attribution theory in social psychology. In D. Levine (ed.), *Nabraska Symposium on Motivation, 1967*. Lincoln: University of Nabraska Press.
- Kelley, H. H. (1972). *Causal schemata and the attribution process*. New York: General Learning Press.
- Kernis, M.H., Brockner, J. & Frankel, B.S. (1989). Self-esteem and reactions to failure: The mediating role of overgeneralization. *Journal of Personality and Social Psychology*, 57, 707-714.
- King, D.D., Ryan, A.M., Kantrowitz, T., Grelle, D. & Dianis, A. (2015). Mobile Internet Testing: An analysis of equivalence, individual differences, and reactions. *International Journal of Selection and Assessment*, 23, 382-394.
- Kinincki, A.J. Prussia, G.E., Wu, B. & McKee-Ryan, F.M. (2004). A Covariance Structure Analysis of Employees` Response to Performance Feedback. *Journal of Applied Psychology*, 89, 1057-1069.
- Klein, S. B. (2000). *Biological psychology*. Upper Saddle River, NJ: Prentice-Hall Publishing Company.
- Kline, P. (1999). *Handbook of Psychological Testing (2nd Ed.)* London: Routledge.

Klinger, D.E., Johnson, J.H., & Williams, T.A. (1976). Strategies in the evaluation of an on-line computer-assisted unit for intake assessment of mental health patients. *Behavior Research Methods and Instrumentation*, 8, 95-100.

Kluger, A. N., & DeNisi, A. (1996). The effects of feedback interventions on performance: A historical review, a meta-analysis, and a preliminary feedback intervention theory. *Psychological Bulletin*, 119(2), 254–284.

Kluger, A.N. & Rothstein, H.R. (1993). The influence of selection test type on applicant reactions in employment testing. *Journal of Business and Psychology*, 8, 3-25.

Konovsky, M.A. (2000). Understanding procedural justice and its effect on business organizations. *Journal of Management*, 26, 489-511.

Konradt, U., Garbers, Y., Erdogan, B. & Bauer, T. (2016). Patterns of Change in Fairness Perceptions During the Hiring Process. *International Journal of Selection and Assessment*, 24 (3), 246-259.

Konradt, U., Warszta, T. & Ellwart, T. (2013). Fairness Perceptions in Web-based Selection: Impact on applicants' pursuit intentions, recommendation intentions, and intentions to reapply. *International Journal of Selection and Assessment*, 21, 155-169.

Korman, A.K. (1970). Toward a hypothesis of work behavior. *Journal of Applied Psychology*, 54, 31-41.

Kravitz, D.A., Stinson, V., & Chavez, T.L. (1996). Evaluations of tests used for making selection and promotion decisions. *International Journal of Selection and Assessment*, 4, 24-34.

Kuhn, T.S. (1970). *The structure of scientific revolutions* (2nd Ed.) Chicago, IL: University of Chicago Press.

Kumar, D. & Pandya, S. (2012). Leveraging Technology toward HR Excellence. *Information Management and Business Review*, 4, 205-216.

LaHuis, D.M., MacLane, C.N. & Schlessman, B.R. (2007). Do Applicants' Perceptions Matter? Investigating Reapplication Behavior Using Fairness Theory. *International Journal of Selection and Assessment*, 15, 383-393.

Landy, F.J., and Conte, F.M. (2007). *Work in the 21st Century. An Introduction to Industrial and Organizational Psychology* (2nd Ed.) Malden, MA: Blackwell Publishing.

Langer, M., König, C.J. & Papathanasiou, M. (2018). Highly automated job interviews: Acceptance under the influence of stakes. *International Journal of Selection and Assessment*, 27, 217-234.

- Lanyon, R.I., Goodstein, L.D. & Wershba, R. (2014). `Good Impression` as a Moderator in Employment-related Assessment. *International Journal of Selection and Assessment*, 22, 52-61.
- Lawler, E.E. (1969). Job design and employee motivation. *Personnel Psychology*, 22, 426-435.
- Lazarus, R.S. & Folkman, S. (1984). *Stress, appraisal and coping*. New York: Springer.
- Lee, E. (2012). Review of the Psychometric Evidence of the Perceived Stress Scale. *Asian Nursing Research*, 6, 121-127.
- Leonard, N.H., Beauvais, L.L. & Scholl, R.W. (1999). Work Motivation: The Incorporation of Self-Concept-Based Processes. *Human Relations*, 52, 969-998.
- Lesage, F., Berjot, S. & Deschamps, F. (2012). Psychometric properties of the French versions of the perceived stress scale. *International Journal of Occupational Medicine*, 25, 178-184.
- Leung, K. & Li, W. (1990). Psychological mechanisms of process-control effects. *Journal of Applied Psychology*, 75, 613-620.
- Leventhal, G.S. (1980). What should be done with equity theory? In K.J. Gergen, M.S. Greenberg & R.H. Willis (eds.) *Social Exchange: Advances in Theory and Research*. New York: Plenum.
- Liden, R.C. & Mitchell, T.R. (1988). Ingratiation Behaviors in Organizational Settings. *The Academy of Management Review*, 13, 572-587.
- Lievens, F., & Harris, M.M. (2003). Research on Internet Recruitment and Testing: Current Status and Future Directions. In C.L. Cooper and I.T. Robertson (Eds.), *International Review of Industrial and Organizational Psychology*, vol. 16, 131-165.
- Lievens, F. & Klimoski, R.J. (2001). Understanding the Assessment Centre Process: Where are we now? In Cooper, C.L. & Robinson, I.T. (eds.), *International Review of Industrial and Organizational Psychology*, Vol. 16. (pp. 245-286). Chichester: John Wiley & Sons Ltd.
- Lind, E.A. (2001). Fairness heuristic theory: justice judgements as pivotal cognitions in organizational relations. In J. Greenberg & R. Cropanzano (eds.), *Advances in organizational justice*. Stanford, California: Stanford University Press.
- Loundsbury, J.W., Bobrow., & Jensen, J.B. (1989). Attitudes toward employment testing: Scale development, correlates, and "known groups" validation. *Professional Psychology: Research and Practice*, 5, 340-349. Chichester: Wiley.

- Macan, T.H., Avedon, M.J., Pease, M. & Smith, D.E. (1994). The effects of applicants' reactions to cognitive ability tests and an assessment center. *Personnel Psychology*, 47, 715–738.
- MacRae, I. (2016). Psychometric testing online: Practical recommendations from experience. *Assessment & Development Matters*, 8(3), 15-18.
- Madigan, J. & Macan, T.H. (2005). Improving Applicant Reactions by Altering Test Administration. *Applied H.R.M. Research*, 10(2), 73-88.
- Maertz, C.P., Bauer, T.N., Mosley, D.C., Posthuma, R.A. & Campion, M.A. (2004). Do procedural justice perceptions in a selection context predict applicant attraction and intention toward the organization? *Journal of Applied Social Psychology*, 34, 125-145.
- Management Team 500 (2008, January). Sollicitaties worden niet fatsoenlijk afgehandeld. Available at <http://www.mt.nl/1/8227/home/sollicitaties-worden-niet-fatsoenlijk-afgehandeld.html> (accessed 3 September 2015).
- Marcus, B. (2003). Attitudes Towards Personnel Selection Methods: A Partial Replication and Extension in a German Sample. *Applied Psychology: An International Review*, 52, 515-532.
- Martin, C.L. & Nagao, D.H., (1989). Some effects of computerized interviewing on applicant response. *Journal of Applied Psychology*, 74, 72-80.
- Martin, C.J., Bassey, R.K., & Biggs, D.M. (2005). Self-esteem, stress and reactions to selection and recruitment outcomes. *Selection and Development Review*, 21, 8-12.
- Maslow, A.H. (1970). *Motivation and Personality*. New York: Harper and Row.
- Masterman, M. (1970). "The Nature of a Paradigm," in I.Latakos & A.Musgrave (eds.), *Criticism and the Growth of Knowledge*, Cambridge: Cambridge University Press.
- Maurer, S., & Lui, Y. (2007). Developing effective e-recruiting websites: Insights for managers from marketers. *Business Horizons*, 50, 305-314.
- Mayer & Ployhart (2007). In R.E. Ployhart, R.E., Ryan, A.M., & Bennett, M. (1999). Explanations for Selection Decisions: Applicants' reactions to informational and sensitively features of explanations. *Journal of Applied Psychology*, 84, 87-106.
- Mayson, S. & Barrett, R. (2006). The `science` and `practice` of HRM in small firms. *Human Resource Management Review*, 16, 447-455.
- McCarthy, J.M. (2013). When it comes to practice, do applicant reactions matter? Exploring theory-practice disconnects from the front lines. J. McCarthy (Chair) with panelists Tayla Bauer (Portland State University), Todd Carlisle (Google), Victoria Davis (Marriott International) & Donald Truxillo (Portland State University) and

Wayne Cassio (Discussant). Panel discussion at SIOP's Annual Meeting, Houston, TX.

McCarthy, J.M., Bauer, T.N., Truxillo, D.M., Anderson, N.R., Costa, A.C. & Ahmed, S.A. (2017). Applicant Perspectives During Selection: A Review Addressing “So What?”, “What’s New?” and “Where to Next?” *Journal of Management*, 43, 1693-1725.

McCarthy, J.M., Van Iddekinge, C.H., Lievens., F., Kung., M., Sinar, E.F. & Campion, M.A. (2013). Do candidate reactions relate to job performance or affect criterion-related validity? A multistudy investigation of relations among reactions, selection test scores, and job performance. *Journal of Applied Psychology*, 98, 701-719.

McDowall, A., Harris, M., & McGrath, M. (2009). Feedback: Evidence from psychology for best practice. *Assessment & Development Matters*, 1(3), 16-19.

McFarlin, D.B., Baumeister, R.F., & Bloscovich, J. (1984). On knowing when to quit: Task failure, self-esteem, advice, and non-productive persistence. *Journal of Personality*, 52, 138-155.

Mead, A.D., & Coussons-Read, M. (2002, April). The equivalence of paper- and web-based versions of the 16PF questionnaire. In F.L. Oswald & J.M. Stanton (Chairs), *Being virtually hired: Implications of web testing for personnel selection*. Symposium presented at the 17th Annual Conference of The Society for Industrial and Organizational Psychology, Toronto, Canada.

Meier, S.T. & Lambert, M.E. (1991). Psychometric properties and correlates of three computer aversion scales. *Behavior Research, Methods, Instruments and Computers*, 23(1), 9-15.

Menard, S. (1995). *Applied Logistic Regression Analysis: Sage University Series on Quantitative Applications in the Social Sciences*. Thousand Oaks, CA: Sage.

Millward, L. (2005). *Understanding Occupational & Organizational Psychology*. London: Sage.

Morelli, N.A., Mahan, R.P. & Illingworth, A.J. (2014). Establishing the Measurement Equivalence of Online Selection Assessments Delivered on Mobile versus Nonmobile Devices. *International Journal of Selection and Assessment*, 22, 124-138.

Morgan, D.L. (1998). Practical Strategies for Combining Qualitative and Quantitative Methods: Applications for Health Research. *Qualitative Health Research*, 8, 362-376.

Morgeson, F.P. & Ryan, A.M. (2009). Reacting to applicant perspectives research: What’s next? *International Journal of Selection and Assessment*, 17, 431-437.

Moynihan, L.M., Roehling, M.V., LePine., M.A. & Boswell, W.R. (2003). A longitudinal study of the relationships among job search self-efficacy, job interviews, and employment outcomes. *Journal of Business and Psychology*, 18, 207-233.

Munir, F., Yarker, J., Hicks, B. & Donaldson-Feilder, E. (2012). Returning Employees Back to Work: Developing a Measure for Supervisors to Support Return to Work (SSRW). *Journal of Occupational Rehabilitation*, 22, 196-208.

Murphy, G.C., & Athanasou, J.A. (1999). The effect of unemployment on mental health. *Journal of Occupational and Organizational Psychology*, 72, 83-99.

Murphy, K.R., Thornton, G.C., & Reynolds, D.H. (1990). College students` attitudes toward employee drug testing programs. *Personnel Psychology*, 43, 615-631.

Murphy, N. (2009). Recruiters back online psychometric testing. *Assessment & Development Matters*, 1, 29-31.

Nease, A., Mudgett, B.O. & Quiñones, M.A. (1999). Relationships among feedback sign, self-efficacy, and acceptance of feedback. *Journal of Applied Psychology*, 84, 806-814.

Niessen, S.N., Meijer, R.R. & Tendeiro, J.N. (2017). Applying organizational justice theory to admission into higher education: Admission from a student perspective. *International Journal of Selection and Assessment*, 25, 72-84.

Noyes, J. M., & Garland, K. J. (2008). Computer- vs. paper-based tasks: Are they equivalent? *Ergonomics*, 51(9), 1352-1375.

Nunnally, J. & Bernstein, I. (1994). *Psychometric Theory*. New York: McGraw-Hill.

O'Brien, G.E. (1986). *Psychology of work and unemployment*. Chichester: Wiley.

O'Brien, G.E. (1989, August). The Pittsburgh Science, Technology Society Project: A Final Report. Pittsburgh, PA: University of Pittsburgh, School of Education (ERIC Document Reproduction Service No. ED 305 240, SE 050 432).

Ollington, N., Gibb, J., & Harcourt, M. (2013). Online social networks: an emergent recruiter tool for attracting and screening. *Personnel Review*, 43(3), 248-265.

Office for National Statistics (2017). *Graduates in the UK labour market: 2017*. Office for National Statistics: London.

Office for National Statistics (2020).

Okolie, U.C., Nwosu, H.E. & Mlanga, S. (2019). Graduate employability: How the higher education institutions can meet the demand of the labour market. *Higher Education, Skills and Work-Based Learning*. Epub ahead of print 26 February 2019.

Oswald, F.L., Carr, J.Z., & Schmidt, A.M. (2001, April). The medium and the message: Dual effects of supervision and web-based testing on measurement equivalence for ability and personality questionnaires. In F.L. Oswald (Chair), *Computers=good? How test-user and test-taker perceptions affect technology-based*

employment testing. Symposium held at the 16th Annual Conference for The Society for Industrial and Organizational Psychology, San Diego, CA.

Ötting, S.K. & Maier, G.W. (2018). The importance of procedural justice in Human-Machine Interactions: Intelligent systems as new decision agents in organizations. *Computers in Human Behavior*, 89, 27-39.

Oxford Dictionary of English (2005). *Second Edition, Revised*. (Edited by Soanes, C., & Stevenson, A.) Oxford: Oxford University Press.

Parker, S.W., Wall, T.D. & Cordery, J. (2001). Future work design research and practice: Towards an elaborated model of work design. *Journal of Occupational and Organisational Psychology*, 74, 413-440.

Parry, E. & Tyson, S. (2006). Up to data, *People Management*. Available at <http://www.cipd.co.uk/pm/peoplemanagement/b/weblog/archive/2013/01/29/uptodata-2006-06.aspx> (accessed 22 September 2014).

Parry, E., & Tyson, S. (2008). An analysis of the use and success of online recruitment methods in the UK. *Human Resource Management Journal*, 18, 257–274.

Patterson F. (2001) Work and organizational psychology; emerging themes and future issues. *Journal of Occupational and Organizational Psychology*, 74(4), 381-90.

Patterson, F., Baron, H., Carr, V., Plint, S. & Lane, P. (2009). Evaluation of three short-listing methodologies for selection into postgraduate training in general practice. *Medical Education*, 43, 50-57.

Patterson F. & Zibarras L. (2011) Exploring the construct of perceived job discrimination and a model of applicant propensity for case initiation in selection. *International Journal of Selection & Assessment*. 19, 3, 251-257.

Patterson, F., Zibarras, L., Carr, V., Irish, B. & Gregory, S. (2011). Evaluating candidate reactions to selection practices using organisational justice theory. *Medical Education*, 45, 289-297.

Pfieffermann, B., Wagner, S.H., & Libkuman, T. (2010). Recruiting on corporate web sites: Perceptions of fit and attraction. *International Journal of Selection and Assessment*, 18, 40-47.

Phillips & Gully, (2002). In E. Parry & S. Tyson (2008). An analysis of the use and success of online recruitment methods in the UK. *Human Resource Management Journal*, 18, 257-274.

Pinpoint. (2004). *Australian e-recruiting trends, 2002-2004*. South Yarra: Pinpoint HRM.

- Ployhart, R.E. & Harold, C.M. (2004). The Applicant Attribution-Reaction Theory (AART): An Integrative theory of applicant attributional processing. *International Journal of Selection and Assessment*, 12, 84–98.
- Ployhart, R.E., Holcombe-Ehrhart, K. & Hayes, S.C. (2005). Using Attributions to Understand the Effects of Explanations on Applicant Reactions: Are Reactions Consistent With the Covariation Principle? *Journal of Applied Social Psychology*, 35, 259-296.
- Ployhart, R.E., McFarland, L. & Ryan, A.M. (2002). Examining Applicants' Attributions for Withdrawal from a Selection Procedure. *Journal of Applied Social Psychology*, 32, 2228-2252.
- Ployhart, R.E. & Ryan, A.M. (1997). Toward an explanation of applicant reactions: An examination of organizational fairness and attribution frameworks. *Organizational Behavior and Decision Processes*, 72, 308-335.
- Ployhart, R.E., & Ryan, A.M. (1998). Applicants' reactions to the fairness of selection procedures: The effects of positive rule violation and time of measurement. *Journal of Applied Psychology*, 83, 3-16.
- Ployhart, R.E., Ryan, A.M. & Bennett, M. (1999). Explanations for Selection Decisions: Applicants' reactions to informational and sensitively features of explanations. *Journal of Applied Psychology*, 84, 87-106.
- Ployhart, R., Weekley, J., Holtz., B., & Kemp, C. (2003). Web-based and paper-and-pencil testing of applicants in a proctored setting: Are personality, biodata, and situational judgement tests comparable? *Personnel Psychology*, 56, 733-752.
- Podsakoff, P.M. & Fahr, J. (1989). Effects of feedback sign and credibility on goal setting and task performance. *Organizational Behavior and Human Decision Processes*, 44, 45-67.
- Pomplun, M., Frey, S., & Becker, D. (2002). The score equivalence of paper-and-pencil and computerized versions of a speeded test of reading comprehension. *Educational and Psychological Measurement*, 62, 337-354.
- Potosky, D. & Bobko, P. (2004). Selection testing via the internet: Practical considerations and exploratory empirical findings. *Personnel Psychology*, 57, 1003-1034.
- Preacher, K.J. & Hayes, A.F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods Instruments & Computers*, 36 (4), 717-731.
- Proudfoot, J. G., Corr, P.J., Guest, D.E. & Gray, J.A. (2001). The development and evaluation of a scale to measure occupational attributional style in the financial services sector. *Personality and Individual Differences*, 30, 259-270.

Randall, R., Nielsen, N. & Tvedt, S.D. (2009). The development of five scales to measure participants' appraisals of organizational-level stress interventions. *Work and Stress*, 23, 1-23.

Randall, R. & Sharples, D. (2012). The impact of rater agreeableness and rating context on the evaluation of poor performance. *Journal of Occupational and Organizational Psychology*, 85, 42-59.

Reis, H.T., Sheldon, K.M., Gable, S.L., Roscoe, R., & Ryan, R. (2000). Daily well being: The role of autonomy, competence, and relatedness. *Personality and Social Psychology Bulletin*, 26, 419-435.

Reis, R.S., Hino, A.A.F. & Anez, C.R.R. (2010). Perceived Stress Scale: Reliability and Validity Study in Brazil. *Journal of Health Psychology*, 15(1), 107-114.

Reynolds, D.H., Sinar, E.F. & McClough, A.C. (2000, April). Evaluation of an Internet-based selection procedure. In N.J. Mondragon (Chair), *Beyond the demo: The empirical nature of technology-based assessments*. Symposium presented at the 15th Annual Conference of the Society for Industrial and Organizational Psychology, New Orleans, LA.

Roberti, J.W., Harrington, L.N. & Storch, E.A. (2006). Further Psychometric Support for the 10-Item Version of the Perceived Stress Scale. *Journal of College Counselling*, 9, 135-147.

Robertson, I.T. & Smith, M. (1989). Personnel selection methods. In M. Smith & I. Robertson (Eds.), *Advances in selection and assessment*. Chichester: Wiley.

Roebuck, C. (1996) Constructive Feedback: Key to Higher Performance and Commitment. 29(3) pp. 328-336 [Online] [Available at] http://www.sciencedirect.com/science?_ob=MImg&_imagekey=B6V6K-3VW1PHK-52&_cdi=5817&_user=128556&_pii=0024630196000283&_orig=search&_coverDate=06%2F30%2F1996&_sk=999709996&view=c&wchp=dGLbVzW-zSkzS&md5=961ff1acce8187182cd82b526e812135&ie=/sdarticle.pdf

Rolland, F. & Steiner, D. (2007). Test-Taker Reactions to the Selection Process: Effects of Outcome Favourability, Explanations, and Voice on Fairness Perceptions. *Journal of Applied Psychology*, 237, 2800-2826.

Rosenberg, M. (1965). *Society and The Adolescent Self-Image*. Princeton, NJ: Princeton University Press.

Ross, L. (1977). The intuitive psychologist and his shortcomings: Distortions in the attribution process. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (vol. 10). New York: Academic Press.

Rotter, J.B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs*, 33 (1), 300-303.

- Roulin, N. (2014). The Influence of Employers' Use of Social Networking Websites in Selection, Online Self-promotion, and Personality on the Likelihood of Faux Pas Postings. *International Journal of Selection and Assessment*, 22, 80-87.
- Rousseau, D.M. (1989). Psychological and implied contracts in organizations. *Employee responsibilities and Rights Journal*, 2, 121-139.
- Rupp, D.E., Shao, R., Thornton, M.A. & Skarlicki, D.P. (2013). Applicants' and Employees' Reactions to Corporate Social Responsibility: The Moderating effects of First-party justice perceptions and moral identity. *Personnel Psychology*, 66, 895-933.
- Russell, D. (1982). The causal dimension scale: A measure of how individuals perceive causes. *Journal of Personality and Social Psychology*, 42, 1137-1145.
- Rust, J. & Golombok, S. (2000). *Modern Psychometrics. The Science of Psychological Assessment (2nd ed.)* Routledge: London.
- Ryan, A.M. & Chan, D. (1999). Perceptions of the EPPP: How do licensure candidates view the process? *Professional Psychology: Research and Practice*, 30, 519-530.
- Ryan, A. M. & Huth, M. (2008). Not much more than platitudes? A critical look at the utility of candidate reactions research. *Human Resource Management Review*, 18, 119-132.
- Ryan, A.M.; Inceoglu, I., Bartram, D., Golubovich, J., Grand, J.; Reeder, M., Deros, E.; Nikolaou, I. & Yao, X. (2015). Trends in Testing: Highlights of a Global Survey. In I. Nikolaou & Oostrom (2015). *Employee Recruitment, Selection, and Assessment: Contemporary issues for theory and practice*. Psychology Press: Taylor & Francis.
- Ryan, A.M. & Ployhart, R.E. (2000). Applicants' perceptions of selection procedures and decisions: A critical review and agenda for the future. *Journal of Management*, 26, 565-606.
- Ryan, A.M., Sacco, J.M., McFarland L.A. & Kriska S.D. (2000). Applicant self-selection: correlates of withdrawal from a multiple hurdle process. *Journal of Applied Psychology*, 85(2), 163-79.
- Ryan, J. C. (2011). Development of a measure of work motivation for a meta-theory of motivation. *Psychological Reports*, 108, 743-755.
- Rynes, S.L., Bretz, R.D. & Gerhart, B. (1991). The importance of recruitment in job choice: A different way of looking. *Personnel Psychology*, 44, 487-521.
- Rynes, S.L. & Cable, D.M. (2003). Recruitment research in the twenty-first century. In Borman, D.R., Ilgen, D.R. (Eds.), *Handbook of psychology: Industrial and organizational psychology* (Vol. 12, pp. 55-76). New York: Wiley.

- Salgado, J.F., Anderson, N., Moscoso, S., Bertua, C., & de Fruyt, F. (2003a). International validity generalization of GMA and cognitive abilities: A European Community meta-analysis. *Personnel Psychology*, 56, 573-605.
- Salgado, J.F., Anderson, N., Moscoso, S., Bertua, C., & de Fruyt, F. (2003b). A meta-analytic study of general mental ability validity for different occupations in the European Community. *Journal of Applied Psychology*, 88, 1068-1081.
- Salgado, J.F., & Moscoso, S. (2003). Paper-and-pencil and Internet-based personality testing: Equivalence of measures. *International Journal of Selection and Assessment*, 11, 194-295.
- Sawneh, G. & Cigularov, K.P. (2014). Measurement equivalence and latent mean differences of personality scores across different media and proctoring administration conditions. *Computers in Human Behaviour*, 36, 412-421.
- Schinkel, S., van Dierendonck, D., & Anderson, N. (2004). The Impact of Selection Encounters on Applicants: An experimental study into feedback effects after a negative selection decision. *International Journal of Selection and Assessment*, 12, 197-205.
- Schinkel, S., van Dierendonck, D., van Vienen, A. & Ryan, A.M. (2011). Applicant Reactions to Rejection. Feedback, Fairness, and Attributional Style Effects. *Journal of Personnel Psychology*, 4, 146-156.
- Schinkel, S. van Vienen, A.E. & Ryan, A.M. (2016). Applicant Reactions to Selection Events: Four studies into the role of attributional style and fairness perceptions. *International Journal of Selection and Assessment*, 107-118.
- Schinkel, S., van Vienen, A. & van Dierendonck, D. (2013). Selection Fairness and Outcomes: A field study of interactive effects on applicant reactions. *International Journal of Selection and Assessment*, 21, 22-31.
- Schleicher, D. J., Venkataramani, V., Morgeson, F. & Campion, M. (2006). So you didn't get the job...Now what do you think? Examining opportunity-to-perform fairness perceptions. *Personnel Psychology*, 59, 559-590.
- Schmidt, F.L., Urry, V.W. & Gugel, J.F. (1978). *Educational and Psychological Measurement*, 38, 265-273.
- Schmitt, N. & Chan, D. (1999). The status of research on applicant reactions to selection tests and its implications for managers. *International Journal of Management Review*, 76, 103-117.
- Schmitt, N., Oswald, F.L., Kim, B.H., Gillespie, M.A. & Ramsay, L.J. (2004). The Impact of Justice and Self-Serving Bias Explanations of the Perceived Fairness of Different Types of Selection Tests. *International Journal of Selection and Assessment*, 12, 160-171.

- Schroeders, U., & Wilhelm, O. (2010). Testing Reasoning Ability with Handheld Computers, Notebooks, and Paper and Pencil. *European Journal of Psychological Assessment*, 26, 284-292.
- Schreurs, B. Derous, E., Proost, K., Notelaers, G. & De Witte, K. (2008). Applicant selection expectations: Validating a multidimensional measure in the military. *International Journal of Selection and Assessment*, 16, 170-176.
- Schumacher, P. & Morahan-Martin, J. (2001). Gender, Internet and computer attitudes and experiences. *Computers in Human Behavior*, 17, 95-110.
- Searle, R.H. (2003). *Selection & Recruitment: a critical text*. London: Palgrave Macmillan.
- Sedikides, C. & Brewer, M.B. (2001). *Individual self, relational self, collective self*. Philadelphia, PA: Psychology Press.
- Sedikides, C. & Gregg, A. P. (2003). Portraits of the self. In M. A. Hogg & J. Cooper (Eds.), *Sage handbook of social psychology*. London: Sage Publications.
- Selden, S. & Orenstein, J. (2011). Government E-Recruiting Web Sites: The influence of e-recruiting content and usability on recruiting and hiring outcomes in US state governments. *International Journal of Selection and Assessment*, 19, 31-40.
- Seligman, M.E.P. (1975). *Helplessness: On depression, development and death*. San Francisco: Freeman.
- Shaw, J.C., Wild, E. & Colquitt, J.A. (2003). To Justify or Excuse? A Meta-Analytic Review of the Effects of Explanations. *Journal of Applied Psychology*, 88, 444-458.
- SHL (2008). *ASO Management Edition. Advanced Ability Screening Online (ASO) for graduate and management applicants*. Thames Ditton, Surrey: SHL Group plc.
- Shrauger, J.S. (1975). Responses to evaluation as a function of initial self-perceptions. *Psychological Bulletin*, 82, 581-596.
- Shrauger, J.S. & Sorman, P.B. (1977). Self-evaluations, initial success and failure, and improvement as determinants of persistence. *Journal of Consulting and Clinical Psychology*, 25, 784-795.
- Shrauger, J.S. & Terbovic, M.L. (1976). Self-evaluation and assessments of performance by self and others. *Journal of Consulting and Clinical Psychology*, 44, 564-572.
- Silvester, J. (1997). Spoken attributions and candidate success in graduate recruitment interviews. *Journal of Occupational and Organizational Psychology*, 70, 61-73.

- Silvester, J., Anderson, N.R. & Patterson, F. (2000). Organizational culture change: An inter-group attributional analysis. *Journal of Occupational and Organizational Psychology*, 72, 1-23.
- Sinar, E.F., & Reynolds, D.H. (2001, April) Applicant reactions to internet-based selection techniques. In F.L. Oswald (Chair) *Computers=good? How test user and test taker perceptions affect technology based employment*. Symposium presented at the 16th Annual Conference of the Society for Industrial and Organizational Psychology, San Diego: CA.
- Sinar, E.F., Reynolds, D.H. & Paquet, S.L. (2003). Nothing but 'Net? Corporate Image and Web-Based Testing. *International Journal of Selection and Assessment*, 11, 150-157.
- Smither, J.W., Reilly, R.R., Millsap, R.E., Pearlman, K., & Stoffey, R.W. (1993). Applicant reactions to selection procedures. *Personnel Psychology*, 46, 49-76.
- Snyder, J. & Shanani-Denning, C. (2012). Fairness Reactions to Personnel Selection Methods: A look at professionals in Mumbai, India. *International Journal of Selection and Assessment*, 20, 297-307.
- Society for Industrial and Organizational Psychology. (2003). *Principles for the validation and use of personnel selection procedures* (4th ed). Bowling Green, OH: Author.
- Stanton, J.M., & Rogelberg, S.G. (2001a, April). *Challenges and obstacles in conducting employment testing via the Internet*. Paper presented at the 16th Annual meeting of the Society for Industrial and Organizational Psychology, San Diego, CA.
- Starcke, A. (1996). 'Internet recruiting shows rapid growth.' *HR Magazine*, 41, 8-61.
- Statistics, (2005) – *the growth of online recruitment*, 29 June, www.onrec.com, accessed on 21/11/05
- Steele, C.M. (1988). The psychology of self-affirmation: Sustaining the integrity of the self. In P.G. Audia & E.A. Locke (2003). Benefiting from negative feedback. *Human Resource Management Review*, 13, 631-646.
- Steiner, D.D., & Gilliland, S.W. (1996). Fairness Reactions to Selection Personnel Selection Techniques in France and the United States. *Journal of Applied Psychology*, 81, 131-141.
- Stone, D.L. & Stone, F.F. (1990). Privacy in organizations: Theoretical issues, research findings, and protection mechanisms. *Research in Personnel and Human Resources Management*, 8, 349-411.

- Sumanth, J.J. & Cable, D.M. (2011). Status and organizational entry: How organizational and Individual status affects justice perceptions of hiring systems. *Personnel Psychology*, 64, 963-1000.
- Sylva, H., & Mol, S. (2009). E-recruitment: A study into applicant perceptions of an online application system. *International Journal of Selection and Assessment*, 17, 311-323.
- Symon, G., Cassell, C., & Dickson, R. (2000). Expanding our research and practice through innovative research methods. *European Journal of Work and Organizational Psychology*, 9, 457-462.
- Teoh, W.; Tan, S. & Chong, S.C. (2013). Factors influencing perceptions of University students towards internet recruitment. *Asian Academy of Management Journal*, 18, 123-142.
- The Society for Human Resource Management (SHRM) 2007-2008 Workplace Trends list. Alexandria, VA: Society for Human Resource Management.
- Thibaut, J. & Walker, L. (1975). *Procedural Justice: A Psychological Analysis*. Hillsdale, N.J.: Lawrence Erlbaum Associates.
- Thielsch, M.T., Träumer, L. & Pytlik, L. (2012). E-Recruiting and fairness- the applicant's point of view. *Information Technology and Management*, 13, 59-67.
- Thominet, L. (2020). We've Selected a Candidate Who More Closely Fits Our Current Needs: A Genre Analysis of Academic Job-Refusal Letters. *Journal of Business and Technical Communication*, 34 (1), 3-37.
- Thornton, G.C. & Rupp, D.E. (2005). *Assessment Centres in Human Resource Management: Strategies for Prediction, Diagnosis and Development*. Mahwey, NJ: Lawrence Erlbaum Associates.
- Tonidandel, S., Quiñones, M.A., & Adams, A.A. (2002). Computer-adaptive testing: The impact of test characteristics on perceived performance and test takers' reactions. *Journal of Applied Psychology*, 87, 320-332.
- Tonidandel, S. & Quiñones, M.A. (2000). Psychological reactions to adaptive testing. *International Journal of Selection and Assessment*, 8, 7-15.
- Tonidandel, S. & Quiñones, M.A. (2002, April). Reactions to adaptive testing: Effects of test length and explanation. Paper presented at the 17th Annual Conference of the Society for Industrial and Organizational Psychology. Toronto, Canada.
- Toode, K. (2015). Nurses' Work Motivation. Essence and associations. (Academic Dissertation). University of Tampere, Finland: Tampere University Press.
- Toode, K., Routasalo, P., Suominen, T. (2011). Work motivation of nurses: A literature review. *International Journal of Nursing Studies*, 48(2), 246-257.

- Trope, Y. (1986). Identification and inferential processes in dispositional attribution. *Psychological Review*, 93, 239-257.
- Truxillo, D.M., & Bauer, T.N. (1999). Applicant reactions to test score banding in entry level and promotional contexts. *Journal of Applied Psychology*, 84, 322-339.
- Truxillo, D.M., Bauer, T.N., Campion, M.A., & Paronto, M.E. (2002). Selection Fairness Information and Applicant Reactions: A longitudinal field study. *Journal of Applied Psychology*, 87, 1020-1031.
- Truxillo, D.M., Bauer, T.N., McCarthy, J.M. (2015). Applicant Fairness Reactions to the Selection Process. In Cropanzano, R. & Ambrose, M. (Eds.) *Oxford Handbook of Justice in Work Organisations* (pp. 621-640). Oxford Editors: Oxford.
- Truxillo, D.M., Bauer, T.N., McCarthy, J.M., Anderson, N. & Ahmed, S. (2018). *Applicant Perspectives on Employee Selection Systems*. In Ones, D., Anderson, N., Viswesvaran, C. & Sinangil, H.K. (Eds.) *The Sage Handbook of Industrial, Work & Organizational Psychology*. pp. 508-532. Sage Editors: London.
- Truxillo, D.M., Bauer, T.N., & Sanchez, R.J., (2001). Multiple dimensions of procedural fairness: Longitudinal effects on selection system fairness and test-taking self-efficacy. *International Journal of Selection and Assessment*, 9, 336-349.
- Truxillo, D.M., Bodner, T.E., Bertolino, M., Bauer, T.N. & Yance, C.A. (2009). Effects of Explanations on Applicant Reactions: A meta-analytic review. *International Journal of Selection and Assessment*, 17, 346-361.
- Truxillo, D.M., Steiner, D.D., & Gilliland, S. (2004). The importance of organizational justice in personnel selection: Defining when selection fairness really matters. *International Journal of Selection and Assessment*, 12, 39-53.
- Tyler, T.R. & Blader, S. (2003). Procedural justice, social identity, and cooperative behaviour. *Personality and Social Psychology Review*, 7, 349-361.
- Tyler, T.R., DeGoey, P., & Smith (1996). Understanding Why the Justice of Group Procedures Matters: A test of the psychological dynamics of the group value model. *Journal of Personality and Social Psychology*, 70, 913-930.
- Tyler, T.R. & Lind, E.A. (1992). A relational model of authority in groups. In M. Zanna (ed.) *Advances in experimental social psychology*, vol. 25.
- Uggerslev, K. L., Carroll, S. A., Piasentin, K. A., & Jones, D. A. (2005). Applicant attraction to organizations and job choice: A meta-analytic review of the correlates of recruiting outcomes. *Journal of Applied Psychology*, 90, 928-944.
- Uggerslev, K.L., Fassina., N.E. & Kraichy, D. (2012). Recruiting through stages: A meta-analytic test of predictors of applicant attraction at different stages of the recruiting process. *Personnel Psychology*, 65, 597-660.

Van den Bos, K. (2001). Uncertainty judgement: The influence of uncertainty salience on reactions to perceived procedural fairness. *Journal of Personality and Social Psychology*, 80, 391-341.

Van den Bos, K., Lind, E.A., Vermunt, R. & Wilke, H.A.M. (1997). How do I judge my outcome when I do not know the outcome of others? The psychology of the fair process effect. *Journal of Personality and Social Psychology*, 72, 1034-1046.

Van Rooy, D.L. & Viswesvaran, C. (2004). Emotional intelligence: A meta-analytic investigation of predictive validity and nomological net. *Journal of Vocational Behavior*, 65, 71-95.

Van Vianen, A.E.M., Taris, R., Scholten, E. & Schinkel, S. (2004). Perceived Fairness in Personnel Selection: Determinants and Outcomes in Different Stages of the Assessment Procedure. *International Journal of Selection and Assessment*, 149-159.

Vasta, R. & Brockner, J. (1979). Self-esteem and self-evaluation covert statements. *Journal of Consulting and Clinical Psychology*, 47, 776-777.

Vermunt, R., van Knippenberg, D., van Knippenberg, B., & Blauuw, E. (2001). Self-esteem and outcome fairness: Differential importance of procedural and outcome considerations. *Journal of Applied Psychology*, 86, 621-628.

Walker, H.J., Bauer, T.N., Cole, M.S., Bernerth, J.B., Field, H.S. & Short, J.C. (2013). Is this how I will be treated? Reducing uncertainty through recruitment interactions. *Academy of Management Journal*, 56, 1325-1347.

Walker, H.J., Helmuth, C. A., Feild, H.S. & Bauer, T.N. (2014). Watch what you say: Job applicants` justice perceptions from initial organizational correspondence. *Human Resource Management*, 54 (6), 999-1011.

Warr, P. (1987). *Work, unemployment and mental health*. Oxford: Clarendon Press.

Warr, P. (1990). The measurement of well-being and other aspects of mental health. *Journal of Occupational Psychology*, 63, 193-210.

Warr, P., Cook, J.D., & Wall, T.D. (1979). `Scales for the measurement of some attitudes and aspects of psychological well being,` *Journal of Occupational Psychology*, 52, 285-294.

Watson, D., Clark, L.A. & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, 54, 1063-1070.

Waung, M. & Brice, T.S. (2007). The Effect of Acceptance/Rejection Status, Status Notification, and Organizational Obligation Fulfillment on Applicant Intentions. *Journal of Applied Social Psychology*, 37, 2048-2071.

- Weiner, B. (1985). An attribution theory of achievement motivation and emotion. *Psychological Review*, 92, 548-573.
- Weiner, B. (1986). An attributional theory of motivation and emotion. New York: Springer-Verlag.
- Wiechmann, D., & Ryan, A. M. (2003). Reactions to computerized testing in selection context. *International Journal of Selection and Assessment*, 11, 215–229.
- Whitley, B.E. (1997). Gender differences in computer-related attitudes and behaviour: A meta-analysis. *Computers in Human Behavior*, 13, 1-22.
- Winefield, A.H. (1995). Unemployment: Its psychological costs. In C.L. Cooper & I.T. Robertson (eds.) *International Review of Industrial and Organisational Psychology*, vol. 10. Chichester: Wiley.
- Woodruffe, C. (1990). *Assessment Centres: Identifying and Developing Competence*. London: Institute of Personnel and Development.
- Woods, S.A., Ahmed, S., Nikolaou, I., Costa, A.C. & Anderson, N.R. (2020). Personnel selection in the digital age: a review of validity and applicant reactions, and future research challenges. *European Journal of Work and Organizational Psychology*, 29(1), 64-77.
- Yarker, J., Lewis, R. & Donaldson-Feilder, E. (2008). *Management competencies for preventing and reducing stress at work: identifying the management behaviours necessary to implement the management standards: phase two*. (Project Report). Bootle, UK: Health and Safety Executive. (Report no. RR633).
- Yonce, C.A. (2005). *Rejection in the job selection process: The effects of information and sensitivity*. Unpublished Master`s Thesis, Orlando, FL: University of Central Florida.
- Zibarras, L. & Lewis, R. (2013). Emerging trends and future directions in Occupational Psychology. In R. Lewis & L. Zibarras (eds.), *Work and Occupational Psychology. Integrating Theory and Practice*. London: Sage Publications.
- Zibarras, L.D. & Patterson, F. (2015). The Role of Job Relatedness and Self-efficacy in Applicant Perceptions of Fairness in a High-stakes Selection Setting. *International Journal of Selection and Assessment*, 23 (4), 332-344.
- Zibarras, L.D. & Woods, S.A. (2010). A survey of UK selection practices across different organizational sizes and industry sectors. *Journal of Occupational and Organizational Psychology*, 83, 499-511.

Appendix 1 – Pilot Study Questionnaires

Questionnaire 1

This is a brief questionnaire that should take no longer than 10 minutes to complete. There are a number of questions, starting with ones asking for brief details about you and then 10 questions about self-esteem and 12 concerning motivation. Please fill in the spaces provided and tick the relevant box for each question. Your details and responses are strictly confidential and shall not be passed onto a third party.

Section 1

Job Title **Associate lecturer**

Reference Number _____

Gender: Male Female

Age 16-21

22-25

26-31

32-41

42-51

52-60

61+

Briefly state how you feel in relation to the job you are applying for (e.g. degree of optimism about success of application, feelings about being a potential Associate Lecturer).

Have you been upset or pleased by a recent event? If so, please explain.

Do you tend to have an optimistic, pessimistic or a balanced outlook on life?

Do you tend to set yourself long-term goals? Please provide an example in support of your response.

Generally, do you tend to enjoy finishing tasks or prefer doing different tasks without completing them? Please provide an example to support your response.

Please indicate in the space provided (score 1, 2, 3, 4 or 5) using the scale below how you felt or thought a certain way during the last week, including today.

1	2	3	4	5
Never	Almost Never	Sometimes	Fairly Often	Very Often

1. In the last week, how often have you been upset because of something that happened unexpectedly? _____
2. In the last week, how often have you felt you were unable to control the important things in your life? _____
3. In the last week, how often have you felt nervous or “stressed”? _____
4. In the last week, how often have you felt confident about your own ability to handle your personal problems? _____
5. In the last week, how often have you felt that things were going your way? _____
6. In the last week, how often have you felt that you could not cope with all the things that you had to do? _____
7. In the last week, how often have you been able to control irritations in your life? _____
8. In the last week, how often have you felt you were on top of things? _____
9. In the last week, how often have you been angered because of things outside of your control? _____

10. In the last week, how often have you felt difficulties piling up so high that you could not overcome them? _____

Section 2

For each question, please indicate the degree to which you agree with it in the space provided. If you strongly agree put 5, agree 4, neutral/undecided 3, disagree 2 and strongly disagree 1.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral/ Undecided	Agree	Strongly Agree

11. On the whole, I am satisfied with myself. _____
12. At times I think I am no good at all. _____
13. I feel that I have a number of good qualities. _____
14. I am able to do things as well as most people. _____
15. I feel I do not have much to be proud of. _____
16. I certainly feel useless at times. _____
17. I feel that I'm a person of worth, at least on an equal plane with others. _____
18. I wish I could have more respect for myself. _____
19. All in all, I am inclined to feel I am a failure. _____
20. I take a positive attitude towards myself. _____

Section 3

For the third part of this questionnaire, there are further sets of questions about motivation to work in which you respond with a choice of 7 options. For each question indicate how strongly you agree or disagree with the statement.

Part A

Below are some statements which people have made about work and working in general. You do not have to limit yourself to your current job when responding to these. These six questions are about paid jobs in general, not simply your present job.

1	2	3	4	5	6	7
Strongly Disagree	Disagree quite a lot	Disagree a little	Unsure	Agree a little	Agree quite a lot	Strongly Agree

21. Even if I won a great deal of money on the pools I would continue to work somewhere. _____
22. Having a job is very important to me. _____
23. I should hate to be on the dole. _____
24. I would soon get very bored if I had no work to do. _____
25. The most important things that happen to me involve work. _____
26. If unemployment benefit was high I would still prefer to work. _____

Part B

Below are six statements that people have made about work, and consider you current job, not work in general when answering these. Please indicate on the same scale as before how strongly you agree or disagree with each comment.

1	2	3	4	5	6	7
Strongly Disagree	Disagree quite a lot	Disagree a little	Unsure	Agree a little	Agree quite a lot	Strongly Agree

27. I feel a sense of personal satisfaction when I do this job well. _____
28. My opinion of myself goes down when I do this job badly. _____
29. I take pride in doing my job as well as I can do. _____
30. I feel unhappy when my work is not up to my usual standard. _____
31. I like to look back on the day's work with a sense of a job well done. _____
32. I try to think of ways of doing my job effectively. _____

Please return your questionnaire in the S.A.E. provided and thank you for your time.

Questionnaire 2

This is a brief questionnaire that should take no longer than 10 minutes to complete. There are a number of questions, starting with ones asking for brief details about you and then 10 questions about self-esteem and motivation. This is similar to the first questionnaire you completed, with a few additional questions. Please fill in the spaces provided and tick the relevant box for each question. Your details and responses are strictly confidential and shall not be passed onto a third party.

Section 1

Job Title **Associate Lecturer**

Reference Number _____

Gender: Male Female

Age 16-21

22-25

26-31

32-41

42-51

52-60

61+

AL Job application outcome: Offered Job

Unsuccessful

Feedback requested? Yes/No

If no feedback requested, please go to next section (Question 1).

If feedback requested, type given: Verbal

Written

Both (Verbal & Written)

Briefly state how you feel in relation to the AL job that you recently applied for (e.g. pleased, disappointed etc...).

Have you been upset or pleased by a recent event (in the last month)? If so, please explain.

Has the outcome of the AL application affected your general outlook on life (e.g. optimism, pessimism etc...)? Please explain your answer.

Do you tend to set yourself long-term goals? For instance, perhaps it is your ambition to have a lecturing career. Please provide an example in support of your response.

Generally, do you tend to enjoy finishing tasks (at home or work) or prefer doing different tasks without completing them? Please provide an example to support your response.

Please indicate in the space provided (score 1, 2, 3, 4 or 5) using the scale below how you felt or thought a certain way during the last month, including today. Please also take into account your recent AL application.

1	2	3	4	5
Never	Almost Never	Sometimes	Fairly Often	Very Often

1. In the last month, how often have you been upset because of something that happened unexpectedly? _____
2. In the last month, how often have you felt you were unable to control the important things in your life? _____

3. In the last month, how often have you felt nervous or “stressed”? _____
4. In the last month, how often have you felt confident about your own ability to handle your personal problems? _____
5. In the last month, how often have you felt that things were going your way? _____
6. In the last month, how often have you felt that you could not cope with all the things that you had to do? _____
7. In the last month, how often have you been able to control irritations in your life? _____
8. In the last month, how often have you felt you were on top of things? _____
9. In the last month, how often have you been angered because of things outside of your control? _____
10. In the last month, how often have you felt difficulties piling up so high that you could not overcome them? _____

Section 2

This part of the questionnaire is about self-esteem. For each question, please indicate the degree to which you agree with it in the space provided. If you strongly agree put 5, agree 4, neutral/undecided 3, disagree 2 and strongly disagree 1.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral/ Undecided	Agree	Strongly Agree

11. On the whole, I am satisfied with myself. _____
12. At times I think I am no good at all. _____
13. I feel that I have a number of good qualities. _____
14. I am able to do things as well as most people. _____
15. I feel I do not have much to be proud of. _____
16. I certainly feel useless at times. _____
17. I feel that I’m a person of worth, at least on an equal plane with others. _____
18. I wish I could have more respect for myself. _____
19. All in all, I am inclined to feel I am a failure. _____
20. I take a positive attitude towards myself. _____

Section 3

For the third part of this questionnaire, there are further sets of questions about motivation to work in which you respond with a choice of 7 options. For each question indicate how strongly you agree or disagree with the statement.

Part A

Below are some statements which people have made about work and working in general. You do not have to limit yourself to your current job when responding to these. These six questions are about paid jobs in general, not simply your present job.

1	2	3	4	5	6	7
Strongly Disagree	Disagree quite a lot	Disagree a little	Unsure	Agree a little	Agree quite a lot	Strongly Agree

21. Even if I won a great deal of money on the pools I would continue to work somewhere. _____
22. Having a job is very important to me. _____
23. I should hate to be on the dole. _____
24. I would soon get very bored if I had no work to do. _____
25. The most important things that happen to me involve work. _____
26. If unemployment benefit was high I would still prefer to work. _____

Part B

Below are six statements that people have made about work, and consider your current job, not work in general when answering these. If you have several jobs, are self-employed or unemployed, consider how you would feel if in the AL job that you applied for. Please indicate on the same scale as before how strongly you agree or disagree with each comment.

1	2	3	4	5	6	7
Strongly Disagree	Disagree quite a lot	Disagree a little	Unsure	Agree a little	Agree quite a lot	Strongly Agree

27. I feel a sense of personal satisfaction when I do this job well. _____
28. My opinion of myself goes down when I do this job badly. _____
29. I take pride in doing my job as well as I can do. _____
30. I feel unhappy when my work is not up to my usual standard. _____
31. I like to look back on the day's work with a sense of a job well done. _____
32. I try to think of ways of doing my job effectively. _____

Please return your questionnaire in the S.A.E. provided and thank you for your time.

Appendix 2 – Experiment 1 Questionnaires

Questionnaire 1

Introduction

This is a brief questionnaire about your ideal job that you will shortly have a Psychometric test for. In particular this questionnaire is focusing on the role of Self-esteem, Stress and Work Motivation. The questionnaire should take no longer than 10 minutes to complete. There are four sections of questions. Section 1 comprises of questions about Psychometric testing, life in general and Stress. Section 2 has 10 questions about Self-esteem and Section 3 consists of 12 questions about Motivation. Finally, Section 4 asks for brief details about you. Please fill in the spaces provided and tick the relevant box for each question. Your details and responses are strictly confidential and shall not be passed onto a third party.

Section 1

Your Ideal Job _____

Participant Number _____

Have you had any experience of taking Psychometric Tests? If so, please tick the appropriate box(es).

Yes

Paper-and-pencil

Computer/online

No

How regularly do you use a computer/the internet?

Occasionally (Less than once a month)

Monthly

Twice a month

Weekly

2-3 times each week

Every day for less than 5 hours

More than 5 hours every day

Are you worried about completing computer/internet based tests?

Yes, very worried

Yes, a bit worried

Neutral/undecided

No, seldom worried

No, not worried

“Psychometric Tests are fair for recruiting applicants for a Graduate job.”

1	2	3	4	5
Strongly Agree	Agree	Neutral/ Undecided	Disagree	Strongly Disagree

Please give a score (1-5) to indicate the degree that you agree/disagree with the above statement. _____

Briefly state how you feel in relation to your ideal job you are applying for (e.g. degree of optimism about success of application, feelings about having the job).

Have you been upset or pleased by a recent event? If so, please explain.

Do you tend to have an optimistic, pessimistic or a balanced outlook on life?

Do you tend to set yourself long-term goals? Please provide an example in support of your response.

Generally, do you tend to enjoy finishing tasks or prefer doing different tasks without completing them? Please provide an example to support your response.

These items measure Stress. For each of the following questions please highlight (score 1, 2, 3, 4 or 5) in the appropriate box using the scale below how you felt or thought a certain way during the last week, including today.

1	2	3	4	5
Never	Almost	Sometimes	Fairly	Very

	Never	Often	Often			
1. In the last week, how often have you been upset because of something that happened unexpectedly?	1	2	3	4	5	
2. In the last week, how often have you felt you were unable to control the important things in your life?	1	2	3	4	5	
3. In the last week, how often have you felt nervous or “stressed”?	1	2	3	4	5	
4. In the last week, how often have you felt confident about your own ability to handle your personal problems?	1	2	3	4	5	
5. In the last week, how often have you felt that things were going your way?	1	2	3	4	5	
6. In the last week, how often have you felt that you could not cope with all the things that you had to do?	1	2	3	4	5	
7. In the last week, how often have you been able to control irritations in your life?	1	2	3	4	5	
8. In the last week, how often have you felt you were on top of things?	1	2	3	4	5	
9. In the last week, how often have you been angered because of things outside of your control?	1	2	3	4	5	
10. In the last week, how often have you felt difficulties piling up so high that you could not overcome them?	1	2	3	4	5	

Section 2

These items measure Self-esteem. For each question, please indicate with a number (1-7) the degree to which you agree with it in the appropriate box provided.

1	2	3	4	5	6	7
Strongly Disagree	Disagree quite a lot	Disagree a little	Unsure	Agree a little	Agree quite a lot	Strongly Agree

11. On the whole, I am satisfied with myself.	1	2	3	4	5	6	7
12. At times I think I am no good at all.	1	2	3	4	5	6	7
13. I feel that I have a number of good qualities.	1	2	3	4	5	6	7
14. I am able to do things as well as most people.	1	2	3	4	5	6	7
15. I feel I do not have much to be proud of.	1	2	3	4	5	6	7
16. I certainly feel useless at times.	1	2	3	4	5	6	7
17. I feel that I'm a person of worth, at least on an equal plane with others.	1	2	3	4	5	6	7

18. I wish I could have more respect for myself.	1	2	3	4	5	6	7
19. All in all, I am inclined to feel I am a failure.	1	2	3	4	5	6	7
20. I take a positive attitude towards myself.	1	2	3	4	5	6	7

Section 3

For the third part of this questionnaire, there are further sets of questions about Motivation to work in which you respond with a choice of 7 options. For each question indicate how strongly you agree or disagree with the statement.

Part A

Below are some statements which people have made about work and working in general. You do not have to limit yourself to your current job when responding to these. If you are not currently in work then please consider work experience and/or your current Postgraduate course. These six questions are about paid jobs in general, not simply your present job.

1	2	3	4	5	6	7
Strongly Disagree	Disagree quite a lot	Disagree a little	Unsure	Agree a little	Agree quite a lot	Strongly Agree

21. Even if I won a great deal of money on the pools I would continue to work somewhere.	1	2	3	4	5	6	7
22. Having a job is very important to me.	1	2	3	4	5	6	7
23. I should hate to be on the dole.	1	2	3	4	5	6	7
24. I would soon get very bored if I had no work to do.	1	2	3	4	5	6	7
25. The most important things that happen to me involve work.	1	2	3	4	5	6	7
26. If unemployment benefit was high I would still prefer to work.	1	2	3	4	5	6	7

Part B

Below are six statements that people have made about work, and consider you current job, not work in general when answering these. If you are not currently in work then please consider work experience and/or your current Postgraduate course. Please indicate on the same scale as before how strongly you agree or disagree with each comment.

1	2	3	4	5	6	7
Strongly Disagree	Disagree quite a lot	Disagree a little	Unsure	Agree a little	Agree quite a lot	Strongly Agree

27. I feel a sense of personal satisfaction when I do this job well.	1	2	3	4	5	6	7
28. My opinion of myself goes down when I do this job badly.	1	2	3	4	5	6	7
29. I take pride in doing my job as well as I can do.	1	2	3	4	5	6	7
30. I feel unhappy when my work is not up to my usual standard.	1	2	3	4	5	6	7
31. I like to look back on the day's work with a sense of a job well done.	1	2	3	4	5	6	7
32. I try to think of ways of doing my job effectively.	1	2	3	4	5	6	7

Section 4

Gender: Male Female

Age _____

Academic School to which you belong at the University of Nottingham:

- Built Environment
- Business
- Chemistry
- Computer Sciences
- Economics
- Education
- Geography
- History
- Institute for Science & Society
- Institute of Work, Health & Organisations
- Law
- Mathematical Sciences
- Pharmacy
- Psychology
- Sociology & Social Policy

Course Type:

- Taught Postgraduate (e.g. MA, MSc)
- Research Postgraduate (e.g. MPhil, PhD)
- Final Year Undergraduate (e.g. BA, BSc)

Please return your questionnaire to the following e-mail address lwxcjm1@nottingham.ac.uk. Thank you for your time.

Questionnaire 2

Introduction

This is a brief questionnaire about your ideal job that you were recently tested for with a Psychometric test. In particular this questionnaire is focusing on the role of Self-esteem, Stress and Work Motivation. The questionnaire should take no longer than 15 minutes to complete. There are four sections of questions. Section 1 comprises of questions about Psychometric testing, life in general and Stress. Section 2 has 10 questions about Self-esteem and Section 3 consists of 12 questions about Motivation. Finally, Section 4 asks for brief details about you. Please fill in the spaces provided and tick the relevant box for each question. Your details and responses are strictly confidential and shall not be passed onto a third party.

Section 1

Your Ideal Job _____
Participant Number _____

How fair was the Psychometric Testing you did in this study for your ideal job?

- Fair
Neutral/undecided
Unfair

Test outcome: Passed
 Failed

How detailed did you regard the test feedback?

- Detailed
Sufficient
Insufficient

A number of items will now be listed that refer to the procedures used to arrive at your Psychometric test outcome. For each question, please indicate the degree to which you agree with it in the space provided. If you strongly agree with it put 5, agree 4, neutral/undecided 3, disagree 2 and strongly disagree 1.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral/ Undecided	Agree	Strongly Agree

1. Have you been able to express your views and feelings during the testing procedure?	1	2	3	4	5
--	---	---	---	---	---

2. Have you had influence over the outcome arrived at by these testing procedures?	1	2	3	4	5
3. Have those procedures been applied consistently?	1	2	3	4	5
4. Have those procedures been free of bias?	1	2	3	4	5
5. Have those procedures been based on accurate information?	1	2	3	4	5
6. Have you been able to appeal about the test results from these procedures?	1	2	3	4	5
7. Have these testing procedures upheld ethical and moral standards?	1	2	3	4	5

Briefly state how you feel in relation to the ideal job you were being tested for (e.g. pleased, disappointed etc...).

Have you been upset or pleased by a recent event (in the last month)? If so, please explain.

Has the outcome of the psychometric test affected your general outlook on life (e.g. optimism, pessimism etc...)? Please explain your answer.

Do you tend to set yourself long-term goals? For instance, perhaps it is your ambition to have a career based on your current studies. Please provide an example in support of your response.

Generally, do you tend to enjoy finishing tasks (at home or work) or prefer doing different tasks without completing them? Please provide an example to support your response.

Please indicate in the space provided (score 1, 2, 3, 4 or 5) using the scale below how you felt or thought a certain way since taking the psychometric test, including today. Please also take into account your recent psychometric test performance.

1	2	3	4	5
Never	Almost Never	Sometimes	Fairly Often	Very Often

8. Since taking the test, how often have you been upset because of something that happened unexpectedly?	1	2	3	4	5
9. Since taking the test, how often have you felt you were unable to control the important things in your life?	1	2	3	4	5
10. Since taking the test, how often have you felt nervous or “stressed”?	1	2	3	4	5
11. Since taking the test, how often have you felt confident about your own ability to handle your personal problems?	1	2	3	4	5
12. Since taking the test, how often have you felt that things were going your way?	1	2	3	4	5
13. Since taking the test, how often have you felt that you could not cope with all the things that you had to do?	1	2	3	4	5
14. Since taking the test, how often have you been able to control irritations in your life?	1	2	3	4	5
15. Since taking the test, how often have you felt you were on top of things?	1	2	3	4	5
16. Since taking the test, how often have you been angered because of things outside of your control?	1	2	3	4	5
17. Since taking the test, how often have you felt difficulties piling up so high that you could not overcome them?	1	2	3	4	5

Section 2

These items measure Self-esteem. For each question, please indicate with a number (1-7) the degree to which you agree with it in the appropriate box provided.

1	2	3	4	5	6	7
Strongly Disagree	Disagree quite a lot	Disagree a little	Unsure	Agree a little	Agree quite a lot	Strongly Agree

18. On the whole, I am satisfied with myself.	1	2	3	4	5	6	7
19. At times I think I am no good at all.	1	2	3	4	5	6	7
20. I feel that I have a number of good qualities.	1	2	3	4	5	6	7
21. I am able to do things as well as most people.	1	2	3	4	5	6	7
22. I feel I do not have much to be proud of.	1	2	3	4	5	6	7
23. I certainly feel useless at times.	1	2	3	4	5	6	7
24. I feel that I'm a person of worth, at least on an equal plane with others.	1	2	3	4	5	6	7
25. I wish I could have more respect for myself.	1	2	3	4	5	6	7
26. All in all, I am inclined to feel I am a failure.	1	2	3	4	5	6	7
27. I take a positive attitude towards myself.	1	2	3	4	5	6	7

Section 3

For the third part of this questionnaire, there are further sets of questions about Motivation to work in which you respond with a choice of 7 options. For each question indicate how strongly you agree or disagree with the statement.

Part A

Below are some statements which people have made about work and working in general. You do not have to limit yourself to your current job when responding to these. If you are not currently in work then please consider work experience and/or your current Postgraduate course. These six questions are about paid jobs in general, not simply your present job.

1	2	3	4	5	6	7
Strongly Disagree	Disagree quite a lot	Disagree a little	Unsure	Agree a little	Agree quite a lot	Strongly Agree

28. Even if I won a great deal of money on the pools I would continue to work somewhere.	1	2	3	4	5	6	7
--	---	---	---	---	---	---	---

29. Having a job is very important to me.	1	2	3	4	5	6	7
30. I should hate to be on the dole.	1	2	3	4	5	6	7
31. I would soon get very bored if I had no work to do.	1	2	3	4	5	6	7
32. The most important things that happen to me involve work.	1	2	3	4	5	6	7
33. If unemployment benefit was high I would still prefer to work.	1	2	3	4	5	6	7

Part B

Below are six statements that people have made about work, and consider you current job, not work in general when answering these. If you are not currently in work then please consider work experience and/or your current Postgraduate course. Please indicate on the same scale as before how strongly you agree or disagree with each comment.

1	2	3	4	5	6	7
Strongly Disagree	Disagree quite a lot	Disagree a little	Unsure	Agree a little	Agree quite a lot	Strongly Agree

34. I feel a sense of personal satisfaction when I do this job well.	1	2	3	4	5	6	7
35. My opinion of myself goes down when I do this job badly.	1	2	3	4	5	6	7
36. I take pride in doing my job as well as I can do.	1	2	3	4	5	6	7
37. I feel unhappy when my work is not up to my usual standard.	1	2	3	4	5	6	7
38. I like to look back on the day's work with a sense of a job well done.	1	2	3	4	5	6	7
39. I try to think of ways of doing my job effectively.	1	2	3	4	5	6	7

Section 4

Gender: Male Female

Age _____

Academic School to which you belong at the University of Nottingham:

Business

Chemistry

- Computer Sciences
- Economics
- Education
- Geography
- History
- Institute for Science & Society
- Institute of Work, Health & Organisations
- Law
- Mathematical Sciences
- Pharmacy
- Psychology
- Sociology & Social Policy

Course Type:

- Taught Postgraduate (e.g. MA, MSc)
- Research Postgraduate (e.g. MPhil, PhD)
- Final Year Undergraduate (e.g. BA, BSc)

Please return your questionnaire to the following e-mail address lwxcjm1@nottingham.ac.uk. Thank you for your time.

Appendix 3 – Experiment 2 Questionnaires

Questionnaire 1

Introduction

This is a brief questionnaire about your ideal job that you will shortly have Psychometric tests for. In particular this questionnaire is focusing about how you feel in general. The questionnaire should take no longer than 10 minutes to complete. There are three sections of questions. Section 1 comprises of questions about Psychometric testing, life in general and Stress. Section 2 has 12 questions about how you feel about yourself. Finally, Section 3 asks for brief details about you. Please fill in the spaces provided and circle the relevant box for each question. Your details and responses are strictly confidential and shall not be passed onto a third party.

Section 1

Your Ideal Job _____

Have you had any experience of taking Psychometric Tests? If so, please tick the appropriate box(es).

Yes Personality Questionnaires Ability tests
No

How regularly do you use a computer/the internet?

Occasionally (Less than once a month)
Monthly
Twice a month
Weekly
2-3 times each week
Every day for less than 5 hours
More than 5 hours every day

Are you worried about completing computer/internet based tests?

Yes, very worried
Yes, a bit worried
Neutral/undecided
No, seldom worried
No, not worried

Please circle using the scale below (1-5) the degree that you agree/disagree with the following statements.

“Ability Tests are fair for recruiting applicants for a Graduate job.”

1	2	3	4	5
Strongly Agree	Agree	Neutral/ Undecided	Disagree	Strongly Disagree

“Personality Questionnaires are fair for recruiting applicants for a Graduate job.”

1	2	3	4	5
Strongly Agree	Agree	Neutral/ Undecided	Disagree	Strongly Disagree

These items measure how you feel about yourself. For each question, please indicate the degree to which you agree with it in the appropriate box provided. For each of the following questions please circle (score 1, 2, 3, 4 or 5) in the appropriate box using the scale below.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral/ Undecided	Agree	Strongly Agree

1. I am confident I get the success in life I deserve.	1	2	3	4	5
2. Sometimes I feel depressed.	1	2	3	4	5
3. When I try, I generally succeed.	1	2	3	4	5
4. Sometimes when I fail I feel worthless.	1	2	3	4	5
5. I complete tasks successfully.	1	2	3	4	5
6. Sometimes, I do not feel in control of my work.	1	2	3	4	5
7. Overall, I am satisfied with myself.	1	2	3	4	5
8. I am filled with doubts about my competence.	1	2	3	4	5
9. I determine what will happen in my life.	1	2	3	4	5
10. I do not feel in control of my success in my career.	1	2	3	4	5
11. I am capable of coping with most of my problems.	1	2	3	4	5
12. There are times when things feel pretty bleak and hopeless to me.	1	2	3	4	5

These items measure Stress. For each of the following questions please circle (score 1, 2, 3, 4 or 5) in the appropriate box using the scale below how you felt or thought a certain way during the last week, including today.

	1	2	3	4	5
	Never	Almost Never	Sometimes	Fairly Often	Very Often
13. In the last week, how often have you been upset because of something that happened unexpectedly?	1	2	3	4	5
14. In the last week, how often have you felt you were unable to control the important things in your life?	1	2	3	4	5
15. In the last week, how often have you felt nervous or “stressed”?	1	2	3	4	5
16. In the last week, how often have you felt confident about your own ability to handle your personal problems?	1	2	3	4	5
17. In the last week, how often have you felt that things were going your way?	1	2	3	4	5
18. In the last week, how often have you felt that you could not cope with all the things that you had to do?	1	2	3	4	5
19. In the last week, how often have you been able to control irritations in your life?	1	2	3	4	5
20. In the last week, how often have you felt you were on top of things?	1	2	3	4	5
21. In the last week, how often have you been angered because of things outside of your control?	1	2	3	4	5
22. In the last week, how often have you felt difficulties piling up so high that you could not overcome them?	1	2	3	4	5

Section 2

For the second part of this questionnaire, there are further sets of questions about how you feel in general life in which you respond with a choice of 5 options. For each question circle the number to show how strongly you agree or disagree with the statement.

Below are some statements which people have made about life in general. Therefore, do not respond in terms of your job/studies. For each question please respond according to the following statement:

“In the past few weeks, how much of the time in your life outside your job have you felt each of the following?”

1	2	3	4	5
Strongly Agree	Agree	Neutral/ Undecided	Disagree	Strongly Disagree

23. I can deal with just about any problem in my non-job life.	1	2	3	4	5
24. I sometimes think I am not very competent in my non-job life.	1	2	3	4	5
25. Most things I do, I do well.	1	2	3	4	5
26. I find my non-job life quite difficult.	1	2	3	4	5
27. I feel I am better than most people at tackling difficulties.	1	2	3	4	5
28. I often have trouble coping in my non-job life.	1	2	3	4	5
29. I enjoy doing new things in my non-job life.	1	2	3	4	5
30. I am not very interested in the world around me.	1	2	3	4	5
31. I like to set myself challenging targets in my non-job life.	1	2	3	4	5
32. I prefer to avoid difficult activities in my non-job life.	1	2	3	4	5
33. I make a special effort to keep trying when things seem difficult.	1	2	3	4	5
34. I am not very concerned how things turn out in my non-job life.	1	2	3	4	5

Section 3

Gender: Male Female

Age _____

Please can you provide an E-Mail address so that you can be contacted for the purpose of the study _____

Students-

Course Type:

Taught Postgraduate (e.g. MA, MSc)

Research Postgraduate (e.g. MPhil, PhD)

Final Year Undergraduate (e.g. BA, BSc)

If you are also in employment please fill in the items about current employment.

Those in employment/recently employed-

Please state your occupation.

For each question, please tick the box that applies to you.

Did you do any Psychometric tests as part of the selection procedure for this job?

Yes

No

Type of employment

Self-employed

Part-time employee

Full-time employee

Unemployed

If you have recently become unemployed (past 12 months), please answer the following questions relating to your previous job.

How long have you been in this role?

Less than 12 months

1-2 years

3-5 years

6-10 years

11-20 years

21-30 years

Over 30 Years

Job Level

Entry Level

Line Manager

Managerial

Senior Management

Please briefly state what your Job involves

Sector

Private

Public

Both

Please submit your questionnaire by clicking the submit button. Thank you for your time.

SUBMIT

Information about my study

Dear Postgraduate,

I am running a study for my PhD about psychometric testing for Graduate job applicants. Perhaps I could outline ethical and practical considerations of this research.

In terms of the time involved for your participation, you are asked to complete a short questionnaire at the start of the study. This questionnaire should take no longer than 10 minutes of your time. Then you will do a psychometric test either online or in paper-and-pencil format, the test lasts for approximately 20 minutes. You will then receive feedback about your test performance and have a short questionnaire to complete. The questionnaire will take about 15 minutes to complete. This will be the end of the study. After finishing the study, you will be fully debriefed.

Ethical concerns shall now be addressed. Perhaps I should firstly point out that my study has been approved by the Ethics Committee at the Institute of Work, Health & Organisations (I-WHO). Throughout the study your personal details will remain anonymous and will be treated as strictly confidential. If you decide to participate, you will be assigned a participant number throughout the study. You have the right to withdraw from the study at any stage and request that any data about you is deleted. Data collected about you will be stored in a secure database that requires a password. This data will only be available to me and will not be passed onto any third parties. Copies of your test materials will be stored in a secure filing cabinet. Throughout your study, the Data Protection Act will be followed.

After the study has been completed my findings will be published in my PhD thesis at the University of Nottingham. There is also the possibility that the study may be published in an Academic Journal. I will also produce a report of this study, which you can request to see. Please be assured that no names of participants will be published, but instead reference will be made to participant numbers.

If you require any further information please do not hesitate to contact me.

From,
Mr Christopher Martin (PhD Student from the Institute of Work, Health & Organisations)
E-Mail lwxcjm1@nottingham.ac.uk

Questionnaire 2

Introduction

This is a brief questionnaire about your ideal job that you were recently tested for with Psychometric tests. In particular this questionnaire is focusing about how you feel in general. The questionnaire should take no longer than 10 minutes to complete. There are three sections of questions. Section 1 comprises of questions about Psychometric testing, how you feel about yourself and Stress. Section 2 has a further 12 questions about how you feel. Finally, Section 3 asks for brief details about you. Please fill in the spaces provided and circle the relevant box for each question. Your details and responses are strictly confidential and shall not be passed onto a third party.

Section 1

Your Ideal Job _____

Participant Number _____

How fair was the Ability Test that you did in this study for your ideal job?

Fair

Neutral/undecided

Unfair

How fair was the Personality Questionnaire that you did in this study for your ideal job?

Fair

Neutral/undecided

Unfair

Test outcome: Passed

Failed

How detailed did you regard the test feedback?

Detailed

Sufficient

Insufficient

A number of items will now be listed that refer to the procedures used to arrive at your Psychometric test outcome. For each question, please indicate the degree to which you agree with by circling a number in the space provided. If you strongly agree with it put 5, agree 4, neutral/undecided 3, disagree 2 and strongly disagree 1.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral/ Undecided	Agree	Strongly Agree

1. Have you been able to express your views and feelings during the testing procedure?	1	2	3	4	5
2. Have you had influence over the outcome arrived at by these testing procedures?	1	2	3	4	5
3. Have those procedures been applied consistently?	1	2	3	4	5
4. Have those procedures been free of bias?	1	2	3	4	5
5. Have those procedures been based on accurate information?	1	2	3	4	5
6. Have you been able to appeal about the test results from these procedures?	1	2	3	4	5
7. Have these testing procedures upheld ethical and moral standards?	1	2	3	4	5

These items measure how you feel about yourself. For each question, please indicate with a number (1-5) the degree to which you agree with it in the appropriate box provided. For each of the following questions please circle (score 1, 2, 3, 4 or 5) in the appropriate box using the scale below.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral/ Undecided	Agree	Strongly Agree

8. I am confident I get the success in life I deserve.	1	2	3	4	5
9. Sometimes I feel depressed.	1	2	3	4	5
10. When I try, I generally succeed.	1	2	3	4	5
11. Sometimes when I fail I feel worthless.	1	2	3	4	5
12. I complete tasks successfully.	1	2	3	4	5
13. Sometimes, I do not feel in control of my work.	1	2	3	4	5
14. Overall, I am satisfied with myself.	1	2	3	4	5
15. I am filled with doubts about my competence.	1	2	3	4	5
16. I determine what will happen in my life.	1	2	3	4	5
17. I do not feel in control of my success in my career.	1	2	3	4	5
18. I am capable of coping with most of my problems.	1	2	3	4	5
19. There are times when things feel pretty bleak and	1	2	3	4	5

hopeless to me.

Please circle in the space provided (score 1, 2, 3, 4 or 5) using the scale below how you felt or thought a certain way since taking the psychometric test, including today. Please also take into account your recent psychometric test performance.

1	2	3	4	5
Never	Almost Never	Sometimes	Fairly Often	Very Often

20. Since taking the test, how often have you been upset because of something that happened unexpectedly?	1	2	3	4	5
21. Since taking the test, how often have you felt you were unable to control the important things in your life?	1	2	3	4	5
22. Since taking the test, how often have you felt nervous or "stressed"?	1	2	3	4	5
23. Since taking the test, how often have you felt confident about your own ability to handle your personal problems?	1	2	3	4	5
24. Since taking the test, how often have you felt that things were going your way?	1	2	3	4	5
25. Since taking the test, how often have you felt that you could not cope with all the things that you had to do?	1	2	3	4	5
26. Since taking the test, how often have you been able to control irritations in your life?	1	2	3	4	5
27. Since taking the test, how often have you felt you were on top of things?	1	2	3	4	5
28. Since taking the test, how often have you been angered because of things outside of your control?	1	2	3	4	5
29. Since taking the test, how often have you felt difficulties piling up so high that you could not overcome them?	1	2	3	4	5

Section 2

For the second part of this questionnaire, there are further sets of questions about how you feel in general life in which you respond with a choice of 5 options. For each question indicate by circling a number how strongly you agree or disagree with the statement.

Below are some statements which people have made about life in general. Therefore, do not respond in terms of your job/studies. For each question please respond according to the following statement:

“In the past few weeks, how much of the time in your life outside your job have you felt each of the following?”

1	2	3	4	5
Strongly Agree	Agree	Neutral/ Undecided	Disagree	Strongly Disagree

30. I can deal with just about any problem in my non-job life.	1	2	3	4	5
31. I sometimes think I am not very competent in my non-job life.	1	2	3	4	5
32. Most things I do, I do well.	1	2	3	4	5
33. I find my non-job life quite difficult.	1	2	3	4	5
34. I feel I am better than most people at tackling difficulties.	1	2	3	4	5
35. I often have trouble coping in my non-job life.	1	2	3	4	5
36. I enjoy doing new things in my non-job life.	1	2	3	4	5
37. I am not very interested in the world around me.	1	2	3	4	5
38. I like to set myself challenging targets in my non-job life.	1	2	3	4	5
39. I prefer to avoid difficult activities in my non-job life.	1	2	3	4	5
40. I make a special effort to keep trying when things seem difficult.	1	2	3	4	5
41. I am not very concerned how things turn out in my non-job life.	1	2	3	4	5

Section 3

Participant Number _____

Gender: Male Female

Age _____

Please submit your questionnaire by clicking the submit button. Thank you for your time.

SUBMIT

Information about my study

Dear Participant,

I am running a study for my PhD about psychometric testing for Graduate job applicants. Perhaps I could outline ethical and practical considerations of this research.

In terms of the time involved for your participation, you are asked to complete a short questionnaire at the start of the study. This questionnaire should take no longer than 10 minutes of your time. Please follow the link below to complete this questionnaire.
<http://www.surveymonkey.com/s/V6H6GBW>

Then you will do two psychometric tests (Ability & Personality) online, each test lasts for approximately 20 minutes. You will then receive feedback about your test performance and have a short questionnaire to complete. The questionnaire will take about 10 minutes to complete. This will be the end of the study. There will be some prizes drawn at random from people that complete the study (both questionnaires and Psychometric tests completed). A cash prize will be awarded to the person that would best fit the criteria had this person been actually applying for a Graduate-level job on the basis of the Psychometric Tests. After finishing the study, you will be fully debriefed.

Ethical concerns shall now be addressed. Perhaps I should firstly point out that my study has been approved by the Ethics Committee at the Institute of Work, Health & Organisations (I-WHO) at the University of Nottingham. Throughout the study your personal details will remain anonymous and will be treated as strictly confidential. If you decide to participate, you will be assigned a participant number throughout the study. In the first questionnaire, you will be asked to provide an e-mail address; this is so I can contact you during the study. You have the right to withdraw from the study at any stage and request that any data about you is deleted. Data collected about you will be stored in a secure database that requires a password. This data will only be available to me and will not be passed onto any third parties. Copies of your test materials will be stored in a secure filing cabinet. Throughout your study, the Data Protection Act will be followed.

After the study has been completed my findings will be published in my PhD thesis at the University of Nottingham. There is also the possibility that the study may be published in an Academic Journal. I will also produce a report of this study, which you can request to see. Please be assured that no names of participants will be published, but instead reference will be made to participant numbers.

If you require any further information please do not hesitate to contact me. Below is a section for you to fill in to provide written consent to participate. Alternatively, you can e-mail me to give consent to take part in this study.

From, Mr Christopher Martin (PhD Student from I-WHO, University of Nottingham)
E-Mail lwxcjm1@nottingham.ac.uk

I _____ give written consent to take part in this study. I also understand I can withdraw from the study at any stage.

Signed _____
Date _____

Appendix 4– Study 3 Research Questionnaire

Job Applicant Research Questionnaire

Introduction

As explained in the Information sheet/advert this study is aimed at people like you that have applied for a Graduate-level job involving some form of online Psychometric testing as part of the selection/recruitment process. Please refer to your latest job application in your responses. This questionnaire is focusing about how you feel in general. The questionnaire should take no longer than 10 minutes to complete. There are three sections of questions. Section 1 comprises of questions about Psychometric testing, your recent job application and perceptions towards it. Section 2 comprises of two sets of questions about how you feel about yourself. Finally, Section 3 asks for brief details about you. Please fill in the spaces provided and circle the relevant box for each question. Your details and responses are strictly confidential and shall not be passed onto a third party.

Consent

Having read the background to the study, please can you tick the box next to the statement below if you decide to participate as a form of written consent. If you require further information first then please contact me at the following e-mail address lwxcjm1@nottingham.ac.uk

I agree to participate in this study .

Section 1

Have you previously searched or applied for positions using the internet?"

- Never
Once
2-4 times
More than 4 times

This item concerns your experience of using the internet. Please circle using the scale below (1-7) the degree that you agree/disagree with the following statement.

“I’m familiar in using the internet.”

1	2	3	4	5	6	7
Strongly Disagree	Disagree quite a lot	Disagree a little	Unsure	Agree a little	Agree quite a lot	Strongly Agree

For the next item, please refer to your latest job application and state whether you were offered a job, unsuccessful or you're unsure of the outcome by choosing one of the options below:

- Job application outcome: Offered job
 Unsuccessful
 Unsure

How was the feedback/news given to you concerning your latest job application?

- Phone call/e-mail/text message
 Letter
 Told face-to-face
 No communication

What sort of explanation were you given for the selection decision?

- Told I was compared to other applicants in one area assessed (e.g. test scores)
 Told about overall performance (e.g. test, interview) during the selection process
 Not told why I was offered/not offered the job

Please circle your agreement with the following statement using the scale from 1 (Strongly Disagree) to 5 (Strongly Agree):

“I was informed in a clear and open manner.”

1	2	3	4	5
Strongly Disagree	Disagree	Neutral/ Undecided	Agree	Strongly Agree

Below are two items regarding how you felt about the feedback that you received from your latest job application. Please circle using the scale below (1-7) the degree that you agree/disagree with the following statements:

“The feedback I received was an accurate evaluation of my performance.”

1	2	3	4	5	6	7
Strongly Disagree	Disagree quite a lot	Disagree a little	Unsure	Agree a little	Agree quite a lot	Strongly Agree

“I do not agree with the feedback provided.”

1	2	3	4	5	6	7
Strongly Disagree	Disagree quite a lot	Disagree a little	Unsure	Agree a little	Agree quite a lot	Strongly Agree

Please circle using the scale below (1-5) the degree that you agree/disagree with the following statements.

“Overall, how well did the organisation fulfil its obligation to treat you as a potential employee?”

1	2	3	4	5
Very poorly fulfilled	Somewhat poorly fulfilled	Neutral/ Undecided	Somewhat fulfilled	Very fulfilled

“Indicate the type of impression that you have of the organisation, based on your direct job search experiences with that organisation.”

1	2	3	4	5
Very negative	Somewhat negative	Neutral/ Undecided	Somewhat positive	Very positive

The next items concern the issue of fairness in relation to your latest job application which involved some aspect of online testing. Please circle using the scale below (1-7) the degree that you agree/disagree with the following statements.

“I perceived the online application as an effective procedure for identifying qualified people for the job that I applied for”;

1	2	3	4	5	6	7
Strongly Disagree	Disagree quite a lot	Disagree a little	Unsure	Agree a little	Agree quite a lot	Strongly Agree

“I perceived the online application procedure as a fair procedure even if I didn't get invited for further selection.”

1	2	3	4	5	6	7
Strongly Disagree	Disagree quite a lot	Disagree a little	Unsure	Agree a little	Agree quite a lot	Strongly Agree

Section 2

These items measure how you feel about yourself. For each question, please indicate with a number (1-5) the degree to which you agree with it in the appropriate box provided. For each of the following questions please circle (score 1, 2, 3, 4 or 5) in the appropriate box using the scale below.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral/ Undecided	Agree	Strongly Agree

1. I am confident I get the success in life I deserve.	1	2	3	4	5
2. Sometimes I feel depressed.	1	2	3	4	5
3. When I try, I generally succeed.	1	2	3	4	5

4. Sometimes when I fail I feel worthless.	1	2	3	4	5
5. I complete tasks successfully.	1	2	3	4	5
6. Sometimes, I do not feel in control of my work.	1	2	3	4	5
7. Overall, I am satisfied with myself.	1	2	3	4	5
8. I am filled with doubts about my competence.	1	2	3	4	5
9. I determine what will happen in my life.	1	2	3	4	5
10. I do not feel in control of my success in my career.	1	2	3	4	5
11. I am capable of coping with most of my problems.	1	2	3	4	5
12. There are times when things feel pretty bleak and hopeless to me.	1	2	3	4	5

Please circle in the space provided (score 1, 2, 3, 4 or 5) using the scale below how you felt or thought a certain way since hearing the outcome of your latest job application.

1	2	3	4	5
Never	Almost Never	Sometimes	Fairly Often	Very Often

13. Since hearing the outcome of your latest job application, how often have you been upset because of something that happened unexpectedly?	1	2	3	4	5
14. Since hearing the outcome of your latest job application, how often have you felt you were unable to control the important things in your life?	1	2	3	4	5
15. Since hearing the outcome of your latest job application, how often have you felt nervous or “stressed”?	1	2	3	4	5
16. Since hearing the outcome of your latest job application, how often have you felt confident about your own ability to handle your personal problems?	1	2	3	4	5
17. Since hearing the outcome of your latest job application, how often have you felt that things were going your way?	1	2	3	4	5
18. Since hearing the outcome of your latest job application, how often have you felt that you could not cope with all the things that you had to do?	1	2	3	4	5
19. Since hearing the outcome of your latest job application, how often have you been able to control irritations in your life?	1	2	3	4	5

20. Since hearing the outcome of your latest job application, how often have you felt you were on top of things?	1	2	3	4	5
21. Since hearing the outcome of your latest job application, how often have you been angered because of things outside of your control?	1	2	3	4	5
22. Since hearing the outcome of your latest job application, how often have you felt difficulties piling up so high that you could not overcome them?	1	2	3	4	5

Section 3

Gender: Male Female

Age _____

What job sector was your latest job application in?

- Academic/teaching
- Banking
- Civil Service
- Consultancy
- Health
- Information Technology (I.T.)
- Law
- Manufacturing/Construction
- Marketing/Retail
- Public Sector
- Self-employed
- Other (please specify)_____

Please submit your questionnaire by clicking the submit button. Thank you for your time.

SUBMIT

Information about my study

Dear Participant,

I am running a study for my PhD about psychometric testing for Graduate job applicants. This study is aimed at applicants that have applied for a position(s) involving some form of online testing as part of the selection/recruitment process. Perhaps I could outline ethical and practical considerations of this research.

In terms of the time involved for your participation, you are only required to complete a short questionnaire. This questionnaire should take no longer than 10 minutes of your time. Please follow the link below to complete this questionnaire.

<http://www.surveymonkey.com/s/QRQZ2NF>

There will be some prizes drawn at random from people that complete the questionnaire. After finishing the study, you will be fully debriefed.

Ethical concerns shall now be addressed. Perhaps I should firstly point out that my study has been approved by the Ethics Committee at the Institute of Work, Health & Organisations (I-WHO) at the University of Nottingham. Throughout the study your personal details will remain anonymous and will be treated as strictly confidential. If you decide to participate, you will be assigned a participant number throughout the study. You have the right to withdraw from the study at any stage and request that any data about you is deleted. Data collected about you will be stored in a secure database that requires a password. This data will only be available to me and will not be passed onto any third parties. Throughout your study, the Data Protection Act will be followed.

After the study has been completed my findings will be published in my PhD thesis at the University of Nottingham. There is also the possibility that the study may be published in an Academic Journal. I will also produce a report of this study, which you can request to see. Please be assured that no names of participants will be published, but instead reference will be made to participant numbers.

If you require any further information please do not hesitate to contact me. Below is a section for you to fill in to provide written consent to participate. Alternatively, you can e-mail me to give consent to take part in this study. There will also be a consent section in the questionnaire for you to complete prior to participating.

From, Mr Christopher Martin (PhD Student from I-WHO, University of Nottingham)
E-Mail lwxcjm1@nottingham.ac.uk

I _____ give written consent to take part in this study. I also understand I can withdraw from the study at any stage.

Signed _____

Date _____

Appendix 5- AL Application process and application form

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What next?

Receipt of your application form will be acknowledged via an automated email. As soon as possible after the closing date, applications are considered and a shortlist drawn up. Shortlisted candidates will be contacted and invited for interview.

We do not contact applicants who have not been shortlisted.

The interview panel usually consists of two members of OU staff. You will be informed of the outcome of the interview. If you are appointable, and there are sufficient student numbers, a contract is sent to you approximately one month before the start of the module.

Your application remains valid for a 12-month period from the date of receipt. Applications of appointable candidates will be extended to the start of the next module presentation plus 12 months.

Applications of candidates who are not deemed appointable after an interview will be terminated and you will need to reapply following a vacancy advertisement.

Feedback on recruitment process

Any comments or concerns about any stage of the recruitment process should be sent to:

HR Adviser Student Services
Human Resources
The Open University
Walton Hall
Milton Keynes
MK7 6AA

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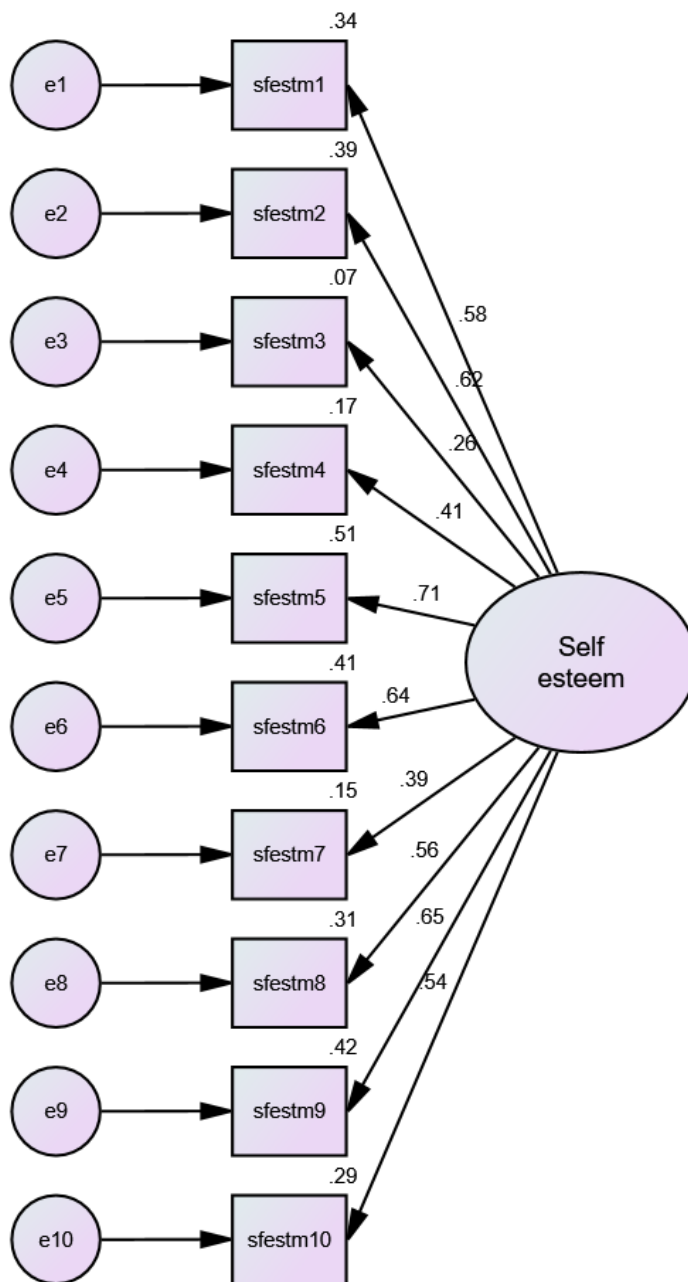
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Appendix 6 - Confirmatory Factor Analysis (Chapter 4)

Standardized Residual Covariances (Group number 1 - Default model)

	sfestm1	sfestm2	sfestm3	sfestm4	sfestm5	sfestm6	sfestm7	sfestm8	sfestm9	sfestm10
sfestm1	.000									
sfestm2	.201	.000								
sfestm3	1.424	-.947	.000							
sfestm4	.964	-.731	2.453	.000						
sfestm5	-.404	-.220	-.714	-1.268	.000					
sfestm6	-1.005	1.599	-1.815	-1.576	.791	.000				
sfestm7	-.240	-1.790	2.276	3.248	.214	-1.650	.000			
sfestm8	1.053	1.089	-.929	.138	-.747	.870	-1.049	.000		
sfestm9	-.347	.152	.030	-.637	.505	.089	-.352	-.082	.000	
sfestm10	.420	-1.692	1.626	2.585	.549	-1.021	3.400	-1.529	-.249	.000



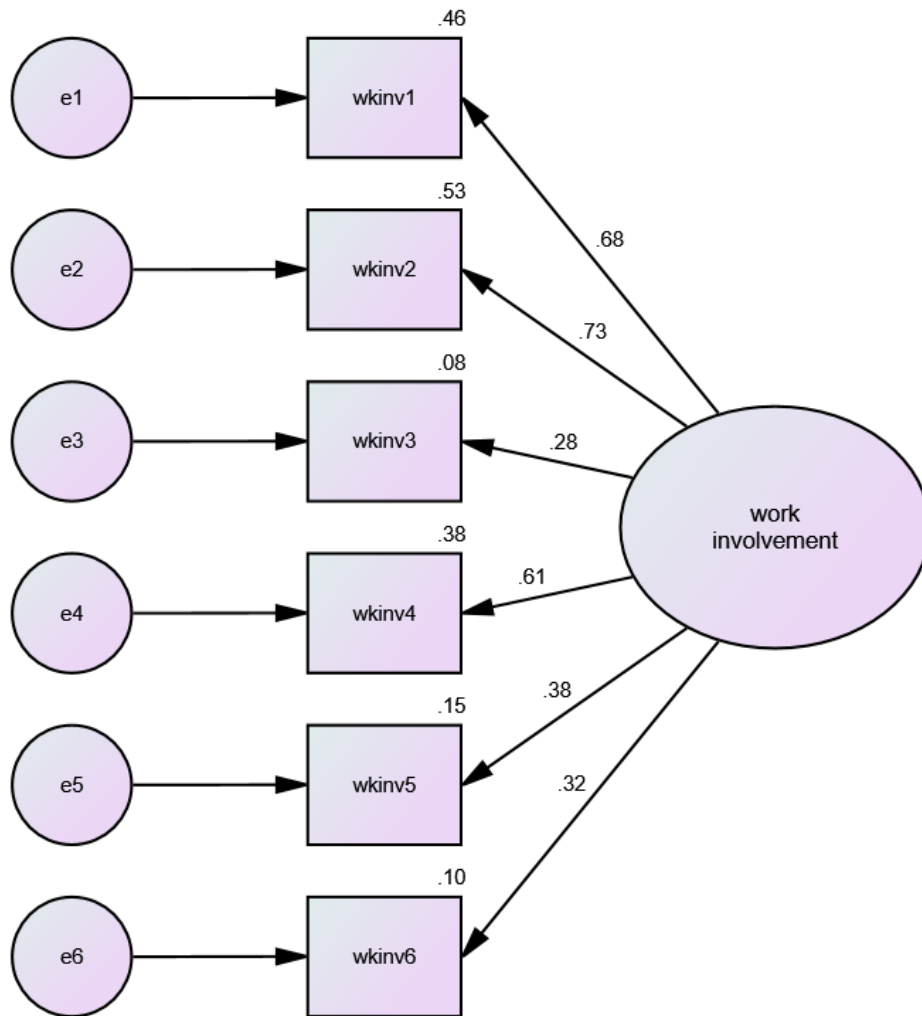
Standardized Residual Covariances (Group number 1 - Default model)

	wkinv1	wkinv2	wkinv3	wkinv4	wkinv5	wkinv6
wkinv1	.000					
wkinv2	.239	.000				
wkinv3	-.472	.472	.000			

	wkinv1	wkinv2	wkinv3	wkinv4	wkinv5	wkinv6
wkinv4	-.317	-.223	.266	.000		
wkinv5	-.330	-.226	-.967	1.404	.000	
wkinv6	.599	-.363	.053	.214	-.912	.000

Standardized Residual Covariances (Group number 1 - Default model)

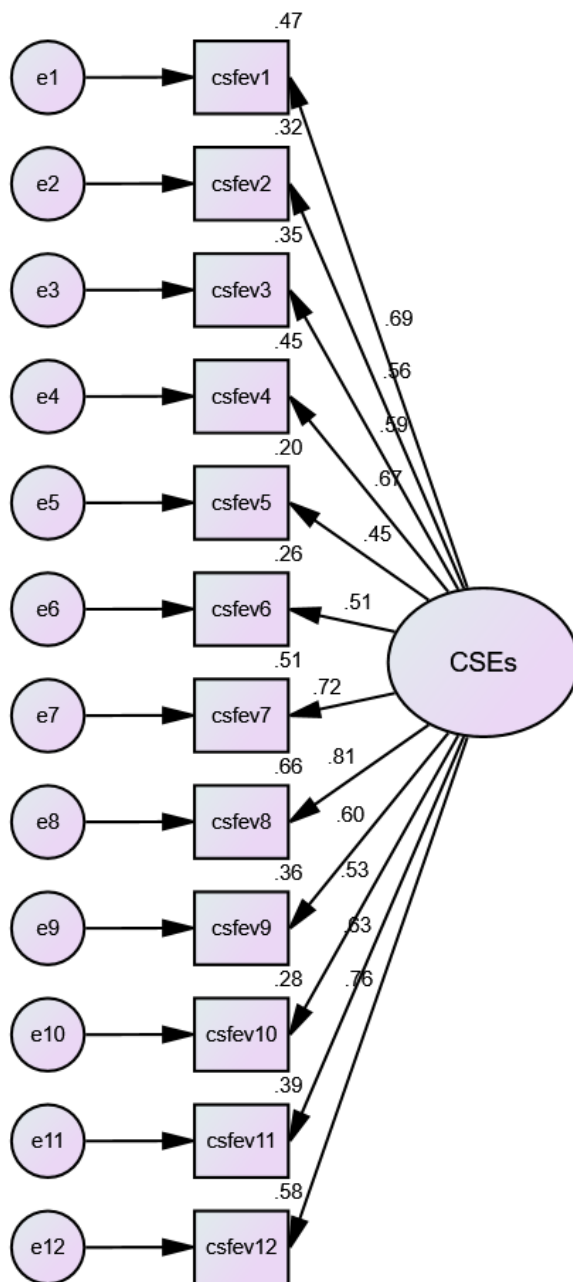
	wkinv1	wkinv2	wkinv3	wkinv4	wkinv5	wkinv6
wkinv1	.000					
wkinv2	.239	.000				
wkinv3	-.472	.472	.000			
wkinv4	-.317	-.223	.266	.000		
wkinv5	-.330	-.226	-.967	1.404	.000	
wkinv6	.599	-.363	.053	.214	-.912	.000



Chapter 5

Standardized Residual Covariances (Group number 1 - Default model)

	csfev1	csfev2	csfev3	csfev4	csfev5	csfev6	csfev7	csfev8	csfev9	csfev10
csfev1	.000									
csfev2	-.205	.000								
csfev3	2.035	-1.609	.000							
csfev4	-.322	2.053	-.157	.000						
csfev5	.668	-.578	1.784	.341	.000					
csfev6	-.606	1.168	-.710	.780	-.689	.000				
csfev7	.365	-.747	.173	-.970	-.118	-.789	.000			
csfev8	-.451	.052	-.189	.667	-.465	.575	.336	.000		
csfev9	.375	-.244	-.170	-.802	-.276	-1.149	.318	-1.141	.000	
csfev10	.485	-.582	-.018	-.643	.070	.182	.580	-.253	1.192	.000
csfev11	-.232	-.610	.418	-.982	-.055	-.127	.424	-.368	2.186	.342
csfev12	-.588	.512	-.916	.120	-.213	.408	-.110	.460	.546	-.670



Chapter 6

