

The Use of Personality Assessments as a Selection Tool in U.S. Small and Medium-Sized High Impact Firms

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Abstract

This thesis is a comparison of employee selection techniques used by U.S. high impact and non-high impact SMEs to Piotrowski & Armstrong's (2006) findings on employee selection techniques used by U.S. large companies. Primarily, the focus is on personality and integrity assessments, as these tools, combined with other selection techniques, increase the ability to predict job success as measured by supervisory rating and turnover (Barrick & Mount, 1991; Barrick, Stewart, & Piotrowski, 2002). Personality and integrity assessments have also been shown to reduce adverse hiring practices on minorities (Nga & Sears, 2010; Ones, Schmidt, & Viswesvaran, 1993). Despite the advantages of these assessment tools, empirical research indicates most employers prefer to use the 'classic trio' of selection techniques, which include conducting interviews, reviewing applications and CV's, and contacting references (Cook, 2004). Piotrowski & Armstrong (2006) indicate that less than 29% of large U.S. firms utilize personality or integrity assessments, however, trade publications suggests psychological tests, including personality and integrity assessments, is nearing \$2 billion in revenue. This suggests that many more firms are using assessments than reported by recent research.

This research was conducted through a self-administered questionnaire. Descriptive statistics in the form of frequency tables were used to describe the findings on selection techniques for both high impact and non-high impact SMEs and a comparison to large firms. Results from this project suggest both high impact and non-high impact SMEs use both personality and integrity assessments more often than large firms. The research further demonstrates that similar to research on Italian, German, and British SMEs, American high impact, or knowledge and skills intensive firms, are more likely to have a full-time HR person or group, than similarly related non-high impact firms.

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Masters of Research

Author's Declaration

I declare that the work in this thesis was carried out in accordance with the regulations of the University of Gloucestershire and is original except where indicated by specific reference in the text. The thesis has not been presented to any other education institution in the United Kingdom or overseas.

Any views expressed in the thesis are those of the author and in no way represent those of the University.

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Chapter One Introduction

1.1 Introduction

This research focuses on employee selection techniques used by high impact and non-high impact small and medium-sized enterprises (SMEs) in the United States. The interest in this subject came after fifteen years of management experience in a large financial services company, which included human resources management (HRM) practices such as employee selection, followed by the experience of looking for a year-long employment position prior to enrolling in the Master of Research programme. The experience of looking for employment after fifteen years with one company exposed how much the job application process had changed in the past twenty years. This fuelled a desire to understand how employers use various selection techniques.

1.2 Research Problem

Employee selection is crucial to the financial well-being of a business. It is estimated that positive employee engagement can contribute more than a \$100,000 value to a large company's annual operating income (Davenport, Harris, & Shapiro, 2010) but disruptive behaviour, such as absenteeism, low productivity, high turnover, and theft, results in an almost \$25 billion cost per year to U.S. companies (PR Newswire, 2011; Woods & Savino, 2007), therefore, selecting employees who will be positively engaged in their role, rather than disruptive, should be a concern for employers.

Employers are concerned with selecting the best candidate, but U.S. companies also must adhere to fair and ethical hiring practices according to federal and state regulations. The Civil Rights Act of 1964, Title VII, prohibits employers with 15 or more employees from discriminating based on race, colour, religion, sex, or national origin. The Americans with Disabilities Act prohibits employers with 15 or more employees from discriminating base on physical or mental impairments (EEOC, Woods & Savino, 2007). Employee selection tools that help the employer hire the best candidate and also provide objective and quantifiable results are generally considered fairer than subjective techniques (Arvery & Renz, 1992) and help employers hire based on EEOC guidelines.

Personality and integrity assessments used in the employee selection process have been shown to provide predictive value in areas such as job performance, supervisor satisfaction and turnover rates (Barrick & Mount, 1991; Barrick, Stewart, & Piotrowski, 2002; Dunnette, Easton, Hough, Kamp, & McClellowly, 1990) and have also been shown to help mitigate discrimination against protected classes of workers such as race, colour, sexual orientation, religion, gender, and disability (de Meijer, Born, Terlouw, & van der Molen, 2006; Nga & Sears, 2010; Ones, Schmidt, & Viswesvaran, 1993). These assessments have been found to be more predictive when designed using personality based job analysis (PBJA) and connected to person-job (P-J) fit over person-organization (P-O) fit, but many organizations favour P-O fit and primarily use the 'classic trio' of selection techniques which include conducting an interview, reviewing an application, and contacting references (Cook, 2004). Additionally, some states, such as Massachusetts, restrict or prohibit the use of pencil and paper or computer tests that screen future employees for deceptive traits (Woods & Savino, 2007; Commonwealth of MA). This may impact the usability of personality and integrity assessments for firms in those states.

Selection techniques and other HRM functions within SMEs have started to gain attention in the past decade, with a look at British (Bacon & Hoque, 2005), German (Behrends, 2008) and Italian firms (Ordanini & Silversti, 2008). Recent research in the U.S. has indicated that 29% of large companies use personality and integrity assessments as selection tools, but little research has covered selection techniques of small American firms. However, entrepreneurial and small business activity has been touted as a panacea for curing unemployment and boosting economic growth in the United States (Litan, 2010; Office of the United States Trade Representative). Over half of the U.S. working population is employed by an SME and SMEs accounted for 64% of net new jobs between 1993 and 2008 (SBA, 2010) which suggests an increasing number of workers will go through a pre-employment screening process with an SME at some point in their professional life.

Much of the existing literature on SMEs indicate they are less likely to engage in formal HRM practices, including recruitment and selection techniques, than their large company counterparts (Carlson, Upton, & Seaman, 2006). The reasons for deficient HRM functions in SMEs can vary from lack of financial and human capital

resources (Hall, 1992; Rutherford, Buller, & McMullen, 2003) to lack of need (Behrends, 2007; Leung, 2003). Some small firms are more likely to outsource HRM functions (Barczyk, Husain, & Green, 2007; Ordanin & Silvestri, 2008) or develop HRM in-house as the complexity of the firm grows (Behrends, 2007).

High impact SMEs are firms that are rapidly growing in both revenue and employees, are generally in knowledge and technology intensive industries, and typically have more than 15 employees (Bee, 2009). In these firms, the need for highly qualified employees may outstrip the informal social network from which other small firms use to recruit and hire (Bacon & Hoque, 2005; Behrends, 2007). Additionally, firms with more than 15 employees are required to comply with the U.S. Equal Employment Opportunity Commission's discrimination policies. Both of these factors can influence the need for these firms to adopt selection practices that can increase the predictiveness of a good hire, and also be objective and fair for all candidates. The aim of this thesis is fill the gap regarding selection techniques for high impact SMES in the U.S. and to determine if these firms use personality and / or integrity assessments as part of the employee selection process.

1.3 Research Hypotheses

Three research hypotheses were developed to respond to the gap in the current knowledge regarding the use of personality and integrity assessments in U.S. high impact SMEs. Each of the hypotheses was formed within the context of the literature regarding the legality of integrity assessments in certain states and the reported use of the selection tools in large companies. The hypotheses are as follows:

H₁ Employers in Massachusetts will be less likely to use personality assessments of any kind during the selection process due to the legality of testing for honesty / integrity.

H₂ SMEs in the U.S. will be less likely to use personality / integrity assessments than large firms as indicated by Piotrowski and Armstrong (2006).

H₃ High impact SMEs will be more likely than non-high impact SMEs to adopt personality / integrity assessments in the selection process.

The goal of this project is to contribute to the growing empirical knowledge of SMEs HRM functions. The findings of this project help identify current employee selection practices and related HRM functions.

1.4 Plan of the Thesis

Chapter two provides a background knowledge regarding employee selection techniques and how they are used to help predict successful placement outcomes for both employees and employers, and how employee selection is placed within the field of HRM. The chapter also discusses SMEs, what recent literature has been produced in regards to their use of HRM function and employee selection practices, and the relevance of these firms to the U.S.

Chapter three explores objective epistemological claims and the positivist theoretical perspective and its relationship to HRM theories. The chapter also discusses current criticism regarding positivism, both from within, and outside, the paradigm.

Chapter four outlines the research methods used to create a quantitative self-administered survey questionnaire used to collect data for the project, and review the data analysis process. It also discusses how sample participants were selected and ethical concerns, including measures used to mitigate harm to self, the reputation of the university, and participants.

Chapter five reviews the analyzed findings from the survey and chapter six provides a deeper discussion of the findings, how they relate to the hypotheses and overall aim of the research, and the current debate in literature.

Chapter seven provides a further discussion regarding the research process, the limitations of the findings and suggestions for future research. It also reviews the limitations of the researcher and considers how the limitations will be addressed in the future and provides a conclusion to the thesis.

Chapter Two Literature Review

2.1 Introduction

The aim of this chapter is to examine the use of personality and integrity assessments as an employee selection tool, in context with firm size and geographical location. It starts by looking at the importance of employee selection and the concepts of differing 'fit' between employee and employer. It then reviews the different selection techniques currently in practice and empirical evidence suggesting which techniques predict successful placement. The chapter then takes a deeper look into the value of personality and integrity assessments. It concludes by reviewing emerging research on SME HRM and employee selection processes and looks at the importance of SMEs in the U.S. and identifies current gaps in the literature regarding U.S. SMEs in order to help justify the purpose of this research.

2.2 The Importance of Selection

Recruiting, hiring, and engaging the 'right' employee has financial implications to a company. Schmidt & Hunger (1998) calculated that based on a \$40,000 annual position, an employee working at the 84th percentile produces \$16,000 more per year for the company than those employees who are ranked by their supervisor at the 50th percentile. In other words, top performers produce almost 40% more for an employer than an average worker. Davenport, Harris & Shapiro (2010) calculated that positive employee engagement can contribute more than a \$100,000 value to a large company's annual operating income. Conversely, disruptive employee behaviour such as absenteeism, low productivity, high turnover, and theft, results in almost a \$25 billion cost per year for U.S. companies (PR Newswire, 2011; Woods & Savino, 2007).

Employee turnover costs vary by industry, from approximately \$6,000 for leisure and hospitality employees to almost \$20,000 for information and knowledge intensive employees (O'Connell & Kung, 2007). Zielinski (2011) estimated the actual cost of turnover, which factors in loss of production and effects on other employees in addition to recruitment, selection, and training costs, is closer to the annual salary of that particular position. As a benchmark for what that cost

may be to the employer, the median salary for an IT generalist, which would be a knowledge intensive employee, in the Chicago area, is currently \$53,873 (Salary.com).

With increased capital on one end of the spectrum and substantial loss on the other, selecting the right employee should be important to all organizations.

2.3 Fit

Determining what makes a ‘right’ employee is different for each organization. Some organizations are more interested in employees having person-organization (P-O) fit. P-O fit occurs when the employee’s actions, customs, beliefs, or attitudes match the organization’s mission and culture as a whole. Some organizations may desire employees who have a stronger person-job (P-J) fit. P-J fit occurs when the employee’s knowledge and skills match the needs of a specific job (Arthur, Bell, Villado, & Doverspike, 2006; Carless, 2005).

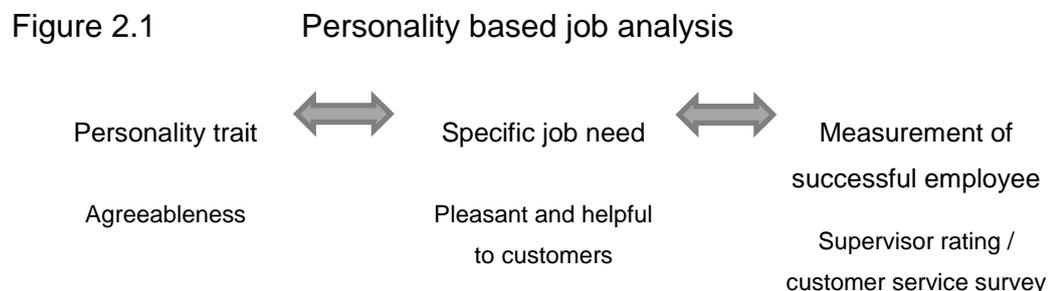
Recruitment agencies often find they are able to place more candidates when they focus on matching P-O fit (Coverdill & Finlay, 1998). Employees with strong P-O fit tend to have more of their personal needs met through work, and employee-employee and employee-employer conflict may be lower than those employees who are hired based on P-J fit (Arthur *et al.*, 2006; Bolton & Bolton, 1996). However, P-O fit has been shown to have less significance in predicting performance levels, job satisfaction, and overall turnover than P-J fit does (Kristof-Brown, Zimmerman, & Johnson, 2005). The table below demonstrates the predictive validity of performance, satisfaction, and retention rates of P-O fit versus P-J fit as researched by O’Reilly, Caldwell, & Mirable (1992)* and Arthur *et al.*, (2006)**.

Table 2.1 P-J fit versus P-O fit

| | Performance | Overall Satisfaction | Retention |
|-----------|-------------|----------------------|-----------|
| P-J Fit* | 0.34 | 0.49 | 0.26 |
| P-O Fit** | 0.15 | 0.32 | 0.24 |

In all three factors, P-J fit demonstrated a higher validity in predicting a successful job placement. Additionally, there are concerns that focusing on P-O fit can lead to unethical and unfair hiring practices. Hiring managers may have an explicit or implicit desire to find candidates that have social similarities to themselves, or the image that management is trying to project about their company. An applicant that does not match the desired image based on race, gender, age, or appearance could be excluded (Coverdill & Finlay, 1998). An example includes discriminating against overweight people for public facing jobs such as sales positions (Pingitore, Dugoni, Tindale, & Spring, 1994).

However, creating personality measures that correlate to job performance is difficult (Murphy & Dziweczyński, 2005). Personality based job analysis (PBJA) is the attempt to match specific personality traits to specific job needs. It also means knowing what work performances should be measured. In many analyses, supervisory satisfaction, or ranking, is the concept measured, but the criterion could also be sales growth, customer satisfaction, absences and punctuality (Cook, 1998).



Experts may fall into the trap of selecting traits that are self-serving. As an example, an executive who is a people oriented person may believe that being people oriented is an important trait for leadership, where as an analytical executive may believe that being analytical is more important (Cucina, Vasilopoulos, & Sheal, 2005). Additionally, some managers lack the experience needed for PBJA, or may not be aware that some factors have been empirically measured as more important than others (Varczyk, Husain, & Green, 2007).

2.4 Selection Techniques

For some employers, the process of employee selection can seem as arbitrary as casting lots. In most situations, a large pool of candidates needs to be filtered down to a point where only one candidate is hired for a particular position (Guion & Gibson, 1988). There are many techniques that can be used as the filter. Some techniques have been empirically proven to be more valid and reliable in predicting job success than others, while some techniques have been shown to increase an adverse impact on protected classes (Arvey & Renz, 1992). Protected classes include minority's that could be judged based on race, colour, religion, sex (including pregnancy), national origin, age (40 or older), disability, or genetic information (EEOC). From the employer's perspective, the desire is to hire the candidate that will be the most productive, for the longest duration of employment, with the least amount of difficulty or conflict. From a societal and governmental perspective, employers must also consider fair and equal hiring practices.

Many studies have been conducted regarding the predictive validity of various selection tools. Job performance based on supervisory rating is a common measurement. The table below shows the meta-analysis of some of these tools as assessed by Ones, Schmidt, & Viswesvaran (1993), Robertson & Smith (2001) and Schmidt & Hunter (1998). However, Bartram (2004) cautioned that there should not be an over reliance on meta-analysis of one single measurement as measurements work better in connection with one another.

Table 2.2 Meta-analysis of various selection techniques

| Ones, Schmidt & Viswesvaran, 1993 | | Robertson & Smith, 2001 | | Schmidt & Hunter, 1998 | |
|-----------------------------------|-----|-------------------------|-----|------------------------|-----|
| GMA + P + I | .67 | GMA + I | .65 | Work samples | .54 |
| | | GMA + structured | | | |
| GMA + I | .65 | interview | .63 | GMA | .51 |
| GMA + P | .53 | GMA + work sample | .60 | Structured interview | .51 |
| Integrity | .41 | Work sample | .54 | Job knowledge test | .48 |
| | | GMA | .51 | Integrity | .41 |
| | | Structured interview | .51 | Unstructured interview | .38 |
| | | Integrity | .41 | Assessment centre | .37 |
| | | Personality assessment | .40 | Biodata | .35 |
| | | Biodata | .35 | Job experience | .18 |
| | | References | .26 | | |
| | | Years of experience | .18 | | |

(A note regarding different technique labels: Different researchers use different terms for similar tools. General mental ability (GMA) and cognitive tests are often used simultaneously (Cook, 2004) though cognitive tests generally refer to numbers, spatial awareness, and verbal abilities (Bertua, Anderson, & Salgado, 2005). In this thesis, GMA will be used throughout to include both. Likewise, integrity and honesty are used interchangeably throughout the literature. Integrity will be used to represent both for the remainder of this thesis.)

Despite the evidence supporting GMA, integrity, and personality assessments, employers tend to rely on techniques that present a lower validity in predicting job success. Cook (2004) indicated that most employers rely on the 'classic trio' as a selection process, which includes reviewing applications or resumes, conducting an interview, and contacting referees. Early research by Harris and Dworkin (1990) indicated that out of 200 HR practitioners, 88% used unstructured interviews, 76% conducted structured interviews, and 97% used references. At that time only 20% used personality assessments and 5% used paper and pencil integrity tests. The increased availability of the Internet and software applications may have lead to an increase in the use of similar computer assessments. Terpestra (1996) indicated that the top five selection methods among HR executives was collecting work samples, contacting references, conducting unstructured interviews followed by conducting

structured interviews and using assessment centres. The least likely tools to be used were assessing GMA, collecting biodata, and using personality assessments.

A recent study by Piotrowski and Armstrong (2006) indicated large U.S. companies are embracing the use of the Internet to facilitate the selection process, but similar to earlier research, the most common methods are gathering information from resumes, application blanks and references. Only 19% indicated they used personality assessments, while 28.5% assessed for integrity and 21.9% tested for violence potential. So while the use of integrity testing has risen since the early 1990's, personality assessment use has stayed the same. As has been pointed out by these many researchers, practitioners often use methods that are in opposition of empirically tested methods.

2.4.2 The classic trio

Is it an issue that employers prefer to use the classic trio over other techniques? Possibly, yes. According to the meta-analysis represented in table 2.2, references and job experience are both considered two of the lowest predictors of job success. Fifteen years of management experience has also shown these are two of the easiest tools for candidates to fabricate or embellish.

Unstructured interviews are not only low predictors of job success, they can also call into question issues of fairness for excluding members of protected classes. As discussed in the section regarding fit, unstructured interviews are more likely to occur when P-O fit is desired. The interviewer randomly asks a candidate questions that may not be relevant to the skills and knowledge needed for the job, but help ascertain a fit to the organization. Interviewers can also use ad-hoc questions in order to identify behaviour and beliefs that are different than the interviewers, but would not actually have an impact on job performance. There is a subjective assessment of the candidate, rather than measuring and rating scores from each candidate's response to the same question (Wiesner & Cronshaw, 1988).

Structured interviews are more often used when P-J fit is desired and have been shown to have a high validity in predicting job success (Wiesner & Cronshaw,

1988). A structured interview is designed as specific questions asked of each candidate and should be based on a detailed job analysis and responses to specific skill related questions are quantified, scored, and measured against other candidates. Thus, image, race, gender, and other non-skill related factors should become irrelevant and decrease the adverse impact on protected classes (Arvey & Renz, 1992).

One such type of structured interview is the competence or behaviour description interview (BDI). The BDI uses specific questions based on the behaviour needed for a specific job, and where the candidate provides responses from similar past experiences (Janz, 1982). The information regarding past behaviour strongly predicts the likelihood the candidate will have the same behaviour in the future in a similar job (Motowidlo, Carter, Dunnette, Tippis, Werner, Burnette, & Vaughan, 1992).

There are debates on how BDI's should be used. Motowidlo et al., (1992) suggested that BDI's allow employers to probe a candidate based on their initial response. They believed that more experienced interviewers would be more successful using the BDI format. However, Lievens & Peeters (2008) did not find a significant difference between novice and experienced interviewers in their ability to effectively use the BDI format. Lievens & Peeters (2008) also demonstrated that these types of highly structured interviews were better at evaluating competency while mitigating employer response to impression management behaviour.

An additional concern with extensive probing is that further questions are based on a candidate's response. As such, the additional questions would not be standard questions applied to each candidate. A recent study by McCarthy, Van Iddenkinger, & Campion (2010) set out to measure the effects of demographic similarity during the selection process. They felt by limiting the use of follow-up questions during the BDI format, the candidate still provided valid responses, and the highly structured nature of the interview could reduce adverse impact on minorities.

According to the meta-analysis, structured interviews provide .51 validity and increase when combined with techniques such as GMA but not necessarily with

the two other methods that comprise the classic trio. According to McDaniel, Schmidt, & Maurer's (1994) research, the validity of structured interviews drop to .44 validity, which is marginally higher than the validity of integrity and personality assessments. They also indicate that between structured and unstructured, situational to psychological, there are fifteen different ways that an interview can be conducted and measured, which suggests that pinpointing the exact style of interview an employer conducts can be difficult.

2.4.3 Biodata

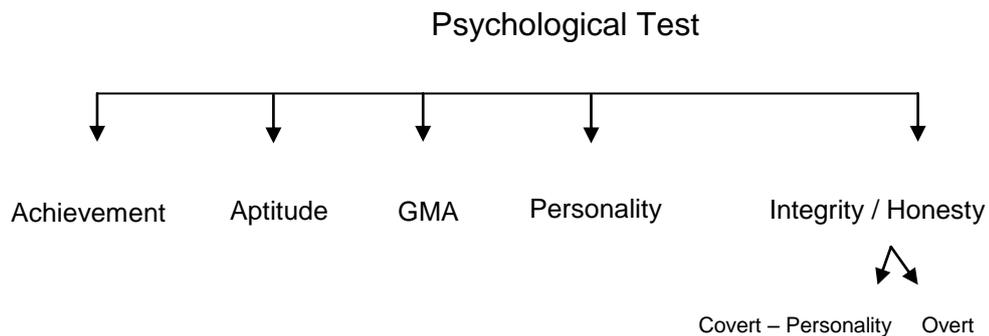
Biodata has been shown to have low validity and according to the research is one of the least used tools (Piotrowski & Armstrong, 2006; Terpestra, 1996) but it is important to discuss as a comparison to personality assessments. It may be difficult to get an accurate assessment of how many company's really use biodata information. If the majority of company's indicate they use application and resumes, biodata is presented. However, hiring candidates based on age, marital status and other biodata related factors can be grounds for discrimination lawsuits and therefore companies may be hesitant to reveal they use this information.

Biodata is information regarding age, marital status, and length of service with previous employers. This information can be captured through an application, resume, or a specific questionnaire. It looks for "aspects of personal background that can predict work behaviour" (Cook, 1998, p.135). Employers may hope to gain insight into a candidate's level of assertiveness, independence, or other such personality factors. In this way, biodata can overlap, or seem similar to personality assessments. However, among other issues, personality inventory scoring remains consistent and quantifiable for all candidates, while biodata does not (Cooper & Robertson, 1995).

2.4.4 Psychological Tests

There are several forms of psychological tests that can be used in the employee selection process. These include achievement, aptitude, general mental ability and personality traits and behaviours. This chapter is concern with GMA, personality and integrity tests.

Figure 2.2 Common forms of psychological tests for employment selection



2.4.4.a GMA

GMA has shown a high degree of validity. As a stand-alone assessment it provides .51 predictability to job success. Its validity increases when paired with other selection techniques and its score is objective and can be compared to a standard norm, elements that according to Arvey and Renze (1992) are necessary for fair hiring practices. However, using GMA as a selection tool has been shown to have a negative impact on minorities and its use is the most often cause of discrimination lawsuits (Murphy & Dziweczynski, 2005) which may explain why companies that are regulated for ethical fairness are less likely to use GMA assessments (Nga & Sears, 2010).

2.4.4.b Personality and Integrity: Reverse Adverse Impact on Minorities

Personality and integrity assessments have also shown a high degree of validity, and similar to GMA, increase in validity when paired with other techniques. Their scores are also objective and quantifiable and meet the criteria for fairness. Interestingly, many employers and HR managers consider personality and integrity assessments to have a negative impact on minorities (Rynes, Colbert, & Brown, 2002). Nga & Sears (2010) showed that 75% of HR manager's interviewed believed personality assessments were biased against minorities. However, these assessments have shown to not only *not* discriminate against minorities, they have been shown to *increase* minority's viability (Nga & Sears, 2010). De Meijer, Born, Terlouw, & van de Molen (2006) indicated that only in the use of personality tests did minorities 'score higher' than the majority. Ones

et al., (1993) demonstrated that based on ability tests alone, only 15.9% of black applicants were hired, but when ability and integrity tests were combined, 21.8% of black applicants were hired.

2.4.4.c Personality and Integrity: Similar but Different

Personality and integrity assessments often get lumped together as if one type of assessment. One consultant's website indicated "the most commonly used personality tests are honesty or integrity" (Business Insight Technologies) and Woods and Savino (2007) believed that both integrity and personality tests are used to "point out potential shortcomings of job applicants, such as tendencies to engage in theft and violence in the workplace" (p.4). However, while both of these tests can have overlapping trait assessments, they are not the same (Wanek, Sackett, & Ones, 2003).

The use of integrity tests in U.S. employment has increased since the mid-1980's when polygraphs were banned from the workplace (Woods & Savino, 2007). They were designed to assess the employee's propensity towards theft, absenteeism, turnover, and global performance. Integrity tests can be overt, in which questions directly ask about past or future behaviours and attitudes towards theft, dishonesty, and illegal acts. Covert tests are based on personality measures and not explicit to the test taker what is being measured (Sackett, Burris, & Callahan, 1989). In this way, covert personality based integrity test and personality test seem to blur the assessment line.

Table 2.3 and 2.4 capture the factors that four common covert integrity test measure and the factors that four common personality assessments measure.

Table 2.3 Covert personality based integrity factors

| TEST | FACTOR | FACTOR | FACTOR | FACTOR | FACTOR | FACTOR |
|------------------------------------------------------|---------------|---------------------------|-------------------|---------------------|----------------------|--------------------------|
| Personnel Reaction Blank (PRB) | Sociability | Dependability | Conscientiousness | Internal Values | Self-Restraint | Acceptance of convention |
| Personnel Decisions Inc (PDI) Employment Inventory | Authority | Thrill seeking | Hostility | Non-conformance | Irresponsibility | Socialization |
| Reliability Scale / Hogan Personnel Selection Series | Authority | Thrill seeking | Conscientiousness | Vocational identity | Social insensitivity | |
| London House Employment Productivity Index | Dependability | Interpersonal Cooperation | Drug avoidance | | | |

Table 2.4 Personality assessment factors

| TEST | FACTOR | FACTOR | FACTOR | FACTOR | FACTOR | FACTOR | FACTOR | FACTOR |
|---------------------------------------|-----------------------|---------------------|-------------------------------------------|-----------------------------|----------------------------------|-----------------------------------|--------------------------|----------------|
| 16PF | Cool - Warm | Concrete - Abstract | Affected by feelings - Emotionally stable | Submissive - Dominate | Sober - Enthusiastic | Expedient - Conscientious | Shy - Bold | Tough - Tender |
| | Trusting - Suspicious | Forthright - Shrewd | Self-assured - Apprehensive | Conservative - Experimental | Group oriented - Self-sufficient | Undisciplined - Follow self-image | Relaxed - Tense | |
| California Psychology Inventory (CPI) | Dominance | Capacity for status | Social presence | Self-acceptance | Sense of well being | Responsibility | Socialisation | Self-control |
| | Tolerance | Good impression | Communality | Conformance | Independence | Intellectual efficiency | Psychological mindedness | Flexibility |
| | Feminity | Empathy | Independence | Managerial potential | Work orientation | | | |
| NEO - FFI / Big Five | Conscientiousness | Agreeableness | Extraversion | Emotional Stability | Openness | | | |
| DiSC | Dominance | Influence | Stable | Compliant | | | | |

It is easy to see the similarities in the factors. Most noticeably, the integrity tests and the Big Five (Costa & McCrae, 1987), measure conscientiousness, agreeableness, and emotional stability. Other similarities could be factors such as socialization or sociability in comparison to social presence, influence, and group orientation.

Despite the similarities in the factor that is being measured, the two tests are measuring the factors for different reasons. Integrity tests are attempting to assess the candidate's ethics and honesty, while personality assessments are looking for factors or traits that determine if that candidate will be successful in a specific job. For example, conscientiousness measures the ability to be guided by an internal compass which demonstrates self-discipline, thinking clearly before taking action, and being organized (Cook, 2004). The integrity test may measure this factor to see if the candidate has the self-discipline to avoid unethical behaviour, while the personality test is measuring the candidate's self-discipline to meet projected business targets. A similar factor, but with a different goal of measurement.

2.4.4.d Legality of Integrity Assessments

While integrity tests have been shown to provide an overall higher predictive validity than personality assessments, legislation is such that not all states are allowed to use them. Currently, California and Rhode Island allow the tests to be used, but employers cannot use the outcomes as a basis for refusal to hire. Massachusetts' general labour laws state that it is unlawful to use "a polygraph or any other device, mechanism, instrument or written examination" to detect "deception, the verification of truthfulness, or rendering of a diagnostic opinion regarding the honesty of an individual" (The Commonwealth of MA) which is interpreted by some to include integrity and honesty assessments (Shaffer & Schmidt, 1999; Woods & Savino, 2007). This can be an issue, as noted earlier, the difference between personality and integrity tests can be confusing, or assessments are designed to overlap with one another. This issue leads to the first hypothesis of the research project.

H₁ Employers in Massachusetts will be less likely to use personality assessment of any kind during the selection process due to the legality of testing for honesty / integrity.

2.4.4.e Personality Assessments

2.4.4.e.1 Predictive Validity and Reliability

Employee's can generally learn new skills, but personality traits, such as openness and honesty are difficult to train. However, openness and honesty are valued more than skills, and are "attributes well measured by integrity and personality questionnaires" (Bartram, 2004, p.251). The concern for how well personality assessments can measure these traits and predict a successful applicant has been addressed by several researchers.

In the late 1960's researchers felt that employers used catch-all personality inventories for all job positions, with no forethought into what the specific needs of the job were. This resulted in low predictive validity (Guion & Gottier, 1965). Hollenbeck and Whitener (1988) suggested that perhaps earlier research, specifically Guion & Gottier's, was tarnished by low sample size. Twenty years after his 1960's claims, Guion (1987; 1988) retracted his earlier sentiments and suggested that personality assessments do offer more validity in predicting job success, but maintained they should be custom designed from attributes needed for a specific job. He suggested employers should hire candidates based on a 'prototype', which can be thought of as a pattern, or model, employers can use to define the most applicable traits needed for that particular job. Hired candidates should match this prototype as closely as possible. This is similar to the idea of hiring based on PBJA and P-J fit, which has also been shown to have a higher degree of predictive validity.

Barrick & Mount (1991), Barrick, Stewart, & Piotrowski (2002), Bartram (2004; 2005), Dunnette, Eaton, Hough, Kamp, & McClowly (1990) and Hough (2002) are some of the researchers that have indicated that personality assessments demonstrate predictive validity to job success. The meta-analysis indicates the device provides upwards of .41 validity. Even those who caution against the

enthusiastic use of personality assessments as a selection tool have indicated that they do provide an acceptable amount of validity (Hurtz & Donovan, 2000). While .41 is slightly lower than that of structured interviews, the fact that personality assessments in combination with other measurement tools reduce the adverse affects against minorities, suggest it is a tool that should be used more often.

Not all personality assessments are equal, nor are they all equal to the task of employee selection. As an example, the Myers-Brigg Type Indicator (MBTI) is a popular test with corporate trainers in America, and shows value as a development tool amongst existing employee's, but is not designed as a predictive tool, nor does it offer a method for assessing faking responses (Searle, 2003). One assessment that has shown to demonstrate high predictive validity and has lower response distortion is the NEO-FFM, also known as the Big Five, or five factor model.

The Big Five measure five factors (Digman, 1997): Extraversion / surgency, agreeableness, conscientiousness, emotional stability / neuroticism, and openness to experience. Extraversion is "interest in social interaction [and] an active, zestful, and venturesome approach to life and interpersonal relationships" (Digman, 1997, 1250.). Emotional stability / neuroticism is a reverse trait in that it measures for levels of anxiety, depression, anger, and insecurity (Barrick & Mount, 1991). Agreeableness is the level of "being courteous, flexible, trusting, good-natured, cooperative, forgiving and tolerant" (Barrick & Mount, 1991, p.4) and conscientiousness measures the ability to "be careful, thorough, responsible, organized and planful" (Barrick & Mount, 1991, p.4). Openness to experience is "being imaginative, cultured, curious, and broad-minded" (Barrick & Mount, 1991, p.5).

Empirical research has demonstrated that 'conscientiousness' has a strong predictive value for almost all positions and multiple criterion measures such as supervision rating and job training proficiency (Barrick & Mount, 1991). Bartram's 2004 report indicated that "conscientiousness actually appears to assess honesty better than general job performance while the reverse is the case for integrity tests" (p.251). If this is the case employers who are prohibited

from using integrity assessments can look to using the Big Five as not only a job predictive assessment, but also as a measurement of integrity.

Barrick & Mount (1991) also reported that certain Big Five traits are better at predicting success for certain positions, such as 'extraversion' for management and sales, but is less important in skilled positions such as secretarial or accounting work. This relates back to Guion's (1987; 1988) suggestion that personality assessments should be used, but only as it is designed towards specific positions.

Interestingly, 'agreeableness', which could be considered traits needed to get along with teammates, has not been shown to be a valid predictor for most positions (Barrick & Mount, 1991), which is in opposition to the common perception that people are more often dismissed because of personality disagreements than job skills (Bolton & Bolton, 1996; English, 2011; Schminke, 2006).

Carless (2003) provided guidelines for when managers should review personality scores, suggesting managers review the scores after an interview so as not to have a preconceived idea about the candidate. This suggests personality assessments are used as a confirming tool, or as a way to select between two otherwise equal candidates. She also suggested by reviewing the scores afterwards, non-job relevant personality traits will not influence the decision. However, in an ideal situation, the personality assessment would be designed to the relevant job, thus not capturing irrelevant personality information in the first place.

Kim Yin, Drasgo, & Sawin (1999) indicated that over time, certain taxonomy, or criterion, can become irrelevant, especially when an assessment is based on job skills that have become obsolete. The warning here is that if a company does design a personality assessment based on PBJA, the test should be reviewed every few years, or when job roles change, to adjust for outdated constructs.

There are different theories as to how personality affects job performance. One theory is that personality traits work through the relationship with motivation.

Motivation propels a person towards action or a state of doing (Hollenbeck & Whitener, 1988). Barrick *et al.*, (2002) demonstrated that 'conscientiousness' and 'extraversion' are motivation drivers for sales staff in achieving status and accomplishments. Bartram (2005) suggested rather than motivation, personality traits affect competency, or ability, which in turn affects job performance.

Less has been published regarding reliability issues, which suggest that it is less of a concern for academics than questions of validity. It may be less of a concern as it is generally tested before continuing on to test for validity. Reliability means the measurement tool remains consistent. In a test re-test situation scores should be at least .80 consistent (Salkind, 2008). A reliable personality assessment is what provides the objective and quantifiable measure as all participants engage with the same, or similar, questions regarding attitudes and actions.

2.4.4.e.2 Distortion

Another concern that has been raised regarding personality and integrity assessments is the ability of the test taker to fake or distort responses. Faking, sometimes known as 'impression management' or 'consistency' can result in employers selecting a candidate that is not fit for the position, which affects the validity of the assessment. Faking can also result in a dishonest candidate getting hired over a more honest one, which impacts fairness (Arvey & renze, 1992). Unfortunately, there is no tool designed to be guaranteed fake proof. Even the very way that candidates dress in their best attire, smile, and are courteous during an interview, attempts to manipulate the impression of the interviewer. However, there are some ways to reduce distortion.

There are two main sources for faking: self-deception and impression management. Self-deception occurs when a candidate selects a response based on an inaccurate and often overly positive view of their self (Barrick, Murraray, & Mount, 1996). Impression management occurs when a candidate chooses an answer that they feel is more socially desirable than an honest answer would be (Barrick, Murray, & Mount, 1996). In the case of applying for a job, the candidate would choose a response they feel would make them appear

to be more qualified for the position, regardless if the response is truthful or not. While a small amount of both self-deception and impression management does occur in the results of personality and integrity assessments, it does not occur at high levels, nor does it seem to affect the validity of the assessments (Barrick, Murraray, & Mount, 1996; Dunnette *et al.*, 1990). Dunnette et al, (1990) indicated that careless responses were more of an issue than faking for social desirability. They also suggested that when candidates were warned that fake responses would be detected, faking decreased.

Different assessment formats can also be used to decrease faking. There are three basic inventory formats: endorsement, forced-choice and rating. Table 2.5 below provides an example of each.

Table 2.5 Personality inventory format

| | | | | | | | |
|------------------------------------|-----------------|------------------|---|---|---|---|--------|
| Endorsement format | | | | | | | |
| I like meeting new people | True | False | | | | | |
| Forced-choice format | | | | | | | |
| On your day off would you rather | paint a picture | paint your house | | | | | |
| Rating format | | | | | | | |
| I feel tired at the end of the day | Never | 5 | 4 | 3 | 2 | 1 | Always |

The forced-choice format has been shown to decrease faking (Dunnet *et al.*, 1990) in such a way that all responses are equally social desirable. However, the concern with this format is that at times either both answers suit the participant equally, or neither does at all. This forces a response that is not always fully indicative of that person (Walley & Smith, 1998). However, tests that offer four choices within a scale of “most like me” and “least like me” (Cook, 2004, p.162) offer candidates more choices instead of forcing them into an either / or response.

2.4.4.e.3 Privacy

There is justifiable concern regarding privacy and the use of some personality assessments as a selection tool. Intensive assessments such as Minnesota

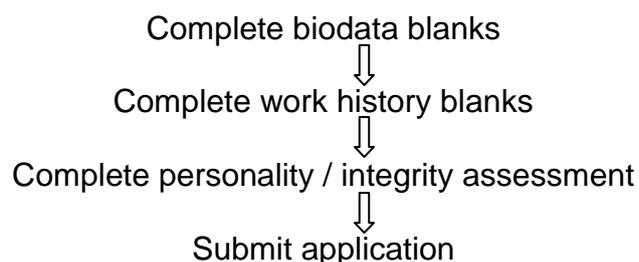
Multiphase Personality Inventory (MMPI) and the California Personality Inventory (CPI) are also used in medical and psychological situations to uncover physical and mental disabilities. Most employment positions do not warrant the employer knowing about physical or mental issues such as anxiety or depression. Additionally, questions regarding sexual practices, religious commitments, and political affiliation not only invade a person's privacy, but are illegal and unethical constructs to use as a measure of discrimination (Woods & Savino, 2007). Furthermore, catch-all inventory questionnaires have not shown to increase the validity in predicting job success. Therefore, abbreviated personality assessments based on PBJA helps both test validity and also decreases invasion of privacy.

2.4.4.e.4 Current Use of Personality and Integrity as a Selection Tool

Most academic research has indicated that the use of personality and integrity assessments as a selection tool is less than 29% for large U.S. companies (Piotrowski & Armstrong, 2006; Teprestra, 1996). However, according to practitioners and trade publications, there are anywhere from 2,500 to 8,000 personality related tests on the market and over 65% of employers are using them (Katunich, 2005; Woods & Savino, 2007).

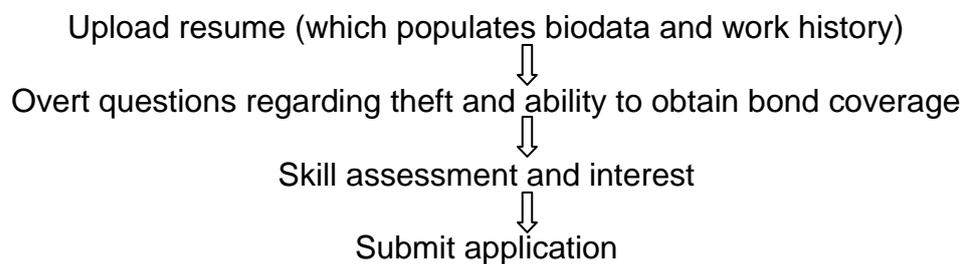
It's difficult to know exactly why there is a gap between empirical findings and trade publication numbers. Finding the answer is beyond the scope of this project, however, one suggestion may be that perhaps where the assessment takes place in the pre-employment process may alter an employer's perception of if they believe they use the assessment as a selection process or not.

For many large retail service chains and employment agencies a candidate applies for a position through the Internet on the company's website. The steps to apply for a job are:



One large international fast food company has customized a thirty-five question personality assessment that the candidate must complete before being permitted to submit an application. (This questionnaire was accessed by using a dummy profile and a sample of the first ten questions can be found in the appendix.)

A large financial services company has a different approach to measuring a candidate's personality. Similar to above, the candidate applies directly through the company website, but does not complete a personality assessment at this time. Their steps are:



After successful completion of the first interview, the candidate is then subjected to a customized personality assessment based on a sales position using PBJA.

Both of these situations demonstrate that candidates encounter a personality / integrity assessment, but at different stages of the application process. In the first scenario, the company website is both a recruitment and selection tool (Tippins, Beaty, Drasgow, Fritz, Gibson, *et al.*, 2006). The candidate can investigate the company, and then, if they feel there may be a strong P-O fit, they take the next step and apply directly on-line. It may be possible that in these situations, a company does not consider the pre-interview filtering tool as using personality / integrity assessment as part of the selection process but rather a part of the recruitment process.

Both of these examples also demonstrate practices used by large companies. Small firms may be less likely to use the Internet to facilitate the selection process. The next section of this chapter will briefly review the current knowledge regarding HRM and selection techniques used by SMEs and to explain why this project focuses on SMEs in the United States.

2.5 Small and Medium-Sized Enterprises

2.5.1 High Impact Small and Medium-Sized Enterprises

The current unemployment rate in the United States is 9.1%, which accounts for almost 13.9 million affected qualified workers (Bureau of Labour Statistics). SMEs have been counted on to boost job creation to help reduce the unemployment rate (Litan, 2010). SMEs in the United States are classified as companies with 500 or less employees. They accounted for 64% of net new jobs between 1993 and 2008, two-thirds of which came from firm expansion (Small Business Economy, 2010) and almost half of the working population is employee by an SME (Bureau of Labor Statistics).

Not all SMEs are equal to the task of job creation. Many micro (10 or fewer employees) and small businesses start and stay small. Headd & Kirchhoff (2009) indicated that approximately 30% of small firms do not expand their head count and that growth intentions are more important than size. Davies (2010) and Haltiwanger, Jarmin, & Mirana (2010) indicated that young firms create more jobs than old firms, while others indicate that 'high impact' firms create more jobs than young or old, small or large (Bee, 2009; Small Business Economy, 2010). High impact firms are those that are growing in both sales and jobs, are typically not a micro business, and are usually four years or older (Bee, 2009).

The age of the firm is important as the survival rate of a new business increases to 50% after the first four years (Headd & Kirchhoff, 2009). Survival and growth is based on numerous factors. Some owners do not have intentions toward growth (Delmar & Wiklund, 2008) while others may lack the necessary skills and knowledge to be competitive in their given industry (Barczyk, Husain, & Green, 2007; de Kok, Uhlaner, & Thurik, 2006).

A major contributing factor to firm failure is lack of management experience. Managing human capital is more relevant to a company's success than price, product, or competition (Davenport, Harris, & Shapiro, 2010) yet most research has indicated that SMEs often have less formal HRM procedures than large

companies (Carlson, Upton, & Seaman, 2006). However, small high performing firms tend to invest more in HRM practices such as recruitment, selection, training, and development, than low performing firms (Carlson, Upton, & Seaman, 2006; Mazzarol, 2003). Here then is an indication that size is not the differentiating factor in HRM practices, but firm performance.

2.5.2 The Selection Process in High Impact SMEs

The difference between recruitment and selection can be fuzzy in small firms. Many micro companies employ family members, and well known friends, where the selection process is based on willingness and availability (Leung, 2003). As business grows, referrals from existing employees begin to replace the internal social network of the owner / manager (Behrends, 2007; Kotey & Slade, 2005). One business owner indicated that he in-sourced new employees from business partners after having worked with the employee on joint projects (Leung, 2003). In these situations, the recruitment process eliminates the need for a formal selection process.

As firms increase head count, they become subject to legal requirements of fairness. The Civil Rights Act and the American Disability Acts become applicable to firms once they have 15 or more employees. Most high impact SMEs have more than 15 employees and therefore are required to comply with these laws which may alter their selection process.

Section 2.3 discusses the issues surrounding P-J fit, namely that hiring a candidate with a strong P-J fit provides more predictive validity in performance levels, job satisfaction, and overall turnover (Kristof-Brown, Zimmerman, & Johnson, 2005). However hiring based on P-J fit takes more time and skill to conduct a personality based job analysis (PBJA). Moreover, employees of small businesses tend to have many functions and job roles which means the employee may need to fit several personality based job roles. Additionally, employers perceive their ability to select a promising candidate as relatively high, but their ability for job design and strategic HR planning as quite low (Barczy, Husain, & Green, 2007). This suggests that SMEs are more likely to hire based on P-O fit, instead of P-J fit. Little research has been conducted on

the importance of P-O fit versus P-J fit for small businesses. Barrett, Neeson, & Billington (2007) interviewed small business owners who suggested that finding employees “who reflected their own philosophy” and had work attitudes “similar to their own” was most important, which suggests hiring based on P-O fit intuitively feels better to small business owners. However, Barber, Wesson, Roberson, & Taylor (1999) indicated that almost 60% of employees in small business self-selected into the company (Barber, Wesson, Roberson, & Taylor, 1999), therefore, SME employers should be even more concerned with trying to find P-J fit among the already interested P-O candidates.

Regardless of which fit the employer is most interested in hiring for, the more formalized HRM practices the business has, the more likely the employee will feel both P-J and P-O fit (Boon, Den Hartog, Boselie, & Paauwe, 2011; Pajo, Coetzer, & Guenole, 2010). Boon *et al.*, (2011) indicated that increased HR functions increased fit “by consistently communicating values characteristics as well as demands and expectations of the organisation” (p.140). However, as reviewed in section 2.5.1, the level of HRM in SMEs may vary by performance.

Administration costs may be another reason SMEs adopt fewer HRM practices and may keep the selection process as informal as possible. Assessments are expensive, while interviewing is not. Bates (2002) estimated the average price to customize an assessment is \$20,000, with an additional \$50 per applicant. One large company indicated they spent over \$200,000 to customize their personality simulations (Zielinski, 2011). Small firms that do not forecast hiring needs, nor hire large quantities of people at once, do not have the benefit of economy of scale to absorb such costs (Barber *et al.*, 1999). This provides context for the second hypothesis.

H₂ Small and medium-sized enterprises in the U.S. will be less likely to use personality / integrity assessments than large firms as indicated by Piotrowski and Armstrong (2006).

As a firm grows it must move from a simple central structure, where employees have informal roles and report to small number of managers, to a functional decentralized structure, where employees have more structured roles within

divisions (Stacey, 1996). There is not specific measurement of complexity for when this must occur within a given firm.

Ordanini & Silvestri (2008) indicated that many small Italian firms outsource some HRM functions due to cost. 12% outsourced the entire recruitment and selection process. However, knowledge and technology intensive firms were less likely to outsource these functions, but managed them in-house. Likewise, Bacon & Hoque (2005) indicated SMEs in the United Kingdom involved in knowledge intensive work, or with highly skilled employees, are more likely to engage in formal HRM practices, including the use of personality, or skills assessment, in the selection process. The majority of high impacts SMEs in the U.S. are knowledge and technology intensive firms. This leads to the third hypothesis.

H₃ High impact SMEs will be more likely than non-high impact SMEs to adopt personality / integrity assessments in the selection process.

2.6 Conclusion

Employers use many techniques to select which candidate they hire. The literature reviewed in this chapter, such as Arvey & Renz (1992), suggested that some tools, such as unstructured interviews, are more subjective than others, which may open companies to litigation for adverse hiring practices. Some techniques such as contacting references, has demonstrated low predictive ratings but are favoured by most employers.

Personality and integrity assessments have been shown to offer predictive validity in job success, and reduce the impact of adverse hiring practices on protected classes. While companies may prefer P-O fit, employees with a strong P-J fit have also been shown to have a higher prediction of job success. Personality assessments, as described above, are best used with a P-J fit model. They should be custom designed based on an assessment of skills and knowledge needed for a particular position.

Some states are not currently allowed to test candidates for honesty which could limit their usage of integrity assessments. However, 'conscientiousness', one of the factors of the Big Five, has shown to predict both job success in almost all positions, and also to measure integrity. Other factors of the Big Five, such as 'extraversion' have also demonstrated validity in predicting job success in certain positions.

Despite their validity, a recent survey showed that less than 30% of larger American firms used either integrity or personality assessments. This research builds on that study by researching the selection techniques, including personality and integrity assessments, of high impact SMEs in the U.S.

The next chapter will discuss the philosophical underpinnings that guided the theory and design of this project.

Chapter Three Epistemology

3.1 Introduction

The subject of epistemology is a stand-alone chapter in this thesis. The Master of Research degree was undertaken as a foundation to pursuing a PhD. This foundation involves learning how to critically think about the purpose of research which includes gaining “a sound knowledge of research philosophies, paradigms, and theoretical perspectives in particular areas” (Master of Research Handbook, p. 4)

The purpose of research is to move beyond passive and anecdotal observations of the everyday world, and engage in a thorough examination of the phenomena of the social world. Knowledge gained through deliberate study can contribute to existing knowledge, provide information to professional practitioners, or help build new theory (Black, 1999; Bryman, 1989; 1995).

At times it can seem that deliberate study is achieved through designing a research project by choosing between qualitative and quantitative methods such as designing a survey or participating in observation based on personal preferences. But deliberate study requires an understanding that method choices are not independent of theory, and should not be made merely to legitimate, or prove a specific point (Hoshmand, 2003). Researchers should first identify the epistemological and theoretical underpinnings of their research, which in turn shapes the design, collection, and analysis of the data. It can even affect the literature used in building the foundation of theory development (Crotty, 1998). Similarly, Silverman (2001) suggested philosophical theories help guide researchers to look at phenomena from a particular view, and that choice guides the direction of the methods. However, unlike Hoshmand, he indicates that one methodology over another “isn’t true or false, only more useful” (p.4). Or in other words, the goals of the researcher can help decide what philosophy is most useful (Black, 1999; de Vaus, 1996).

3.2 Two Paradigms

There are largely two contrasting paradigms in the social sciences; positivism and social constructionism. This research contributes to the field of HRM and borrows from psychology theory regarding personality trait assessments. While the majority of the literature used as supporting evidence in this project is from the positivist paradigm, HRM and psychology researchers also operate under constructionist paradigms.

An HRM researcher working in the positivist paradigm may be interested in looking at uncovering HRM best practices from many organizations, or creating experimental groups to determine cause and effect of a new management process. These aims are undertaken by being objective, systematic, and reducing the phenomena to the simplest, operationalized term. Things, constructs, people's actions, can be quantified and measured.

Under social constructionist paradigms, the researcher might become more entrenched in one specific organization to understand how employees perceive HRM practices and how their perception affects the impact of the HRM designs.

Table 3.1 Comparison between two paradigms

| | <i>Positivism</i> | <i>Social Constructionist</i> |
|-----------------------------|---------------------------------|--------------------------------------------------|
| The observer | Must be independent | Part of what is being observed |
| Research progresses through | Hypothesis and deductions | Gathering rich data from which ideas are induced |
| Concepts | Operationalized and measurable | Stakeholder perspective |
| Units of analysis | Reduced to simplest terms | Complexity of the 'whole' situation |
| Generalization | Statistical probability | Theoretical abstraction |
| Sample requires | Large numbers selected randomly | Small numbers chosen for specific reasons |

Easterby-Smith, Thorpe, & Lowe (2002), p.30

A quantitative positivistic research project can most often be completed more quickly than a qualitative constructionist project. Responses can be gathered using a survey that reaches many participants in a short span of time. The data gathered is already pre-coded as variables are operationalized during the design

of the project, and the results can be used as a general application for similar institutions (Easterby-Smith, Thorpe, & Lowe, 2002). Constructionists, on the other hand, must immerse themselves with their participants. Building trust and decoding the groups particular language takes time. The researcher must also spend enough time observing participants to gather enough information to find patterns, after which complex analysis is applied to extract meaning (Easterby-Smith, Thorpe, & Lowe, 2002).

However, quantitative research practices have difficulty capturing why concepts and phenomena have been created, and also limits the ability to generate new theories (Easterby-Smith, Thorpe, & Lowe, 2002; Yin, 2003).

Table 3.2 Strength and weakness of two paradigms

| |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><i>Positivism</i></p> <p>Strengths</p> <ul style="list-style-type: none"> • Fast and economical • Cover a wide range • Can be predictive • Considered more 'legitimate' by policy makers <p>Weaknesses</p> <ul style="list-style-type: none"> • Not flexible • Difficult to understand the 'why' • Not ideal for generating new theory <p><i>Constructionist</i></p> <p>Strengths</p> <ul style="list-style-type: none"> • Look at process over time • Understand meaning and 'why' • Can help create new theory <p>Weaknesses</p> <ul style="list-style-type: none"> • Increased time and involvement • More complex analysis and interpretation • Lower credibility based on 'subjective' interpretation |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Easterby-Smith, Thorpe, & Lowe (2002), p.42

3.2 Chosen Paradigm

This research is based on the epistemology of objectivism, which means there is a belief that phenomena exists outside constructed social meanings, can be independently observed, and measured by the researcher. The social theoretical perspective adopted under this epistemology is positivism. As in the natural

sciences, positivism attempts to provide knowledge that is general, “unambiguous and accurate” (Crotty, 1998, p.18).

This paradigm was chosen for several reasons. First, there was a pre-determined goal of the research to collect specific responses to specific questions from a specific sample of participants. Deductive reasoning, or pre-determinism, is a hallmark of positivism, where systematic and objective testing is done to prove or disprove a hypothesis. Secondly, the data collected from this research was not used to build new theory, but was used to statistically compare with previous quantitative research performed by Piotrowski & Armstrong (2006). By collecting data from similar constructs, using similar methods, the two results can be compared for similarities and differences between large companies and small companies. Lastly, the scope of the project in both time and size necessitated a more systematic approach than paradigms that involve building theory based on interpretations from observation.

The positivist paradigm in HRM research is not without its critics. Hendry & Pettigrew (1992) suggested that each organizations language and norms are different and react to external conditions differently. The implication is that organizational studies should be subjective and constructive. Sisson & Storey (2000) suggested the HRM model, which is focused on building work teams, should be a qualitative endeavour – getting the ‘right’ people in teams. However, many of the scales used to measure ‘right’ fit employees are based on statistical modelling from measuring employee efficiency (Nelson, 1980) to psychometric measures (Barrick & Mount, 1991; Barrick, Stewart, & Piotrowski, 2002; Dunnette, Eaton, Hough, Kampe, & McCloy, 1990). Additionally, sometimes a spectator can more easily observe than someone within the group. Sometimes “knowing requires a certain distance from being or doing” (Fay, 1996, p.20). Outside observers are not as easily caught in the mixed and contradicting driving emotions as someone who is ‘being’.

Critics also argue that positivists’ obsession with finding legitimacy is an issue. Essex & Smythe (1999) implied that researchers sometimes use numbers, or statistics, as proof of an outcome, with an assumption that numbers are theory free. They explained that statistics are measurements, and if used incorrectly,

lead to either an incorrect outcome, or a useless one. Costa & Shrimp (2001) suggested American students are taught that methods are more important than theory, and often the methods are quantitative, which results in students being implicitly taught the positivist paradigm. Fleetwood & Hesketh (2006) echoed this sentiment, suggesting graduate students are taught statistical measures, but their research never explicitly explains how the scientific method is used, and therefore, are unaware of how it affects the outcome of their research. They further indicate that by not acknowledging the epistemological claims, the results of the observed phenomena are closed to further interpretation. In contrast, the UK Master of Research programs help students learn the importance of theory and provide the opportunity to explicitly discuss how a chosen paradigm affects the outcomes of the research project.

The use of statistics or discussion between quantitative and qualitative methods does not in itself signify a division between positivist and constructionist. The goal of being objective, valid, and generalisable is what defines positivism (Crotty, 1998). Additionally, positivism is concerned with providing technical knowledge that can be used by others, but does not provide a value term in of itself (Giddens, 1975) but allows the interpreter, and in this case, the HRM practitioner, to decide if the knowledge is useful to their organization. However, Wick & Freeman (1998) contest this idea and believe that value-less research does not produce practical knowledge.

Some critics believe that positivists are overly concerned with publication and providing outcomes (Wagoner, 2007) which results in 'scientism' (Fleetwood & Hesketh, 2006). Scientism is "an exaggerated trust in the efficacy of scientific methods to explain social or psychological phenomena" (Proctor, 1985). There is a desire to be absolute and correct (Cohen, Manion, & Morrison, 2007) or in other words, inflexible and unyielding. However, natural scientists, who are not tied to the constrictions of positivism, acknowledge there is a level of subjectivity occurring in observation. Scientists incorporate 'discretion' and 'judgment' when developing their experiments, but attempt to do so without compromising objectivity by adhering to "logical consistency" (Kosso, 2009, p.38).

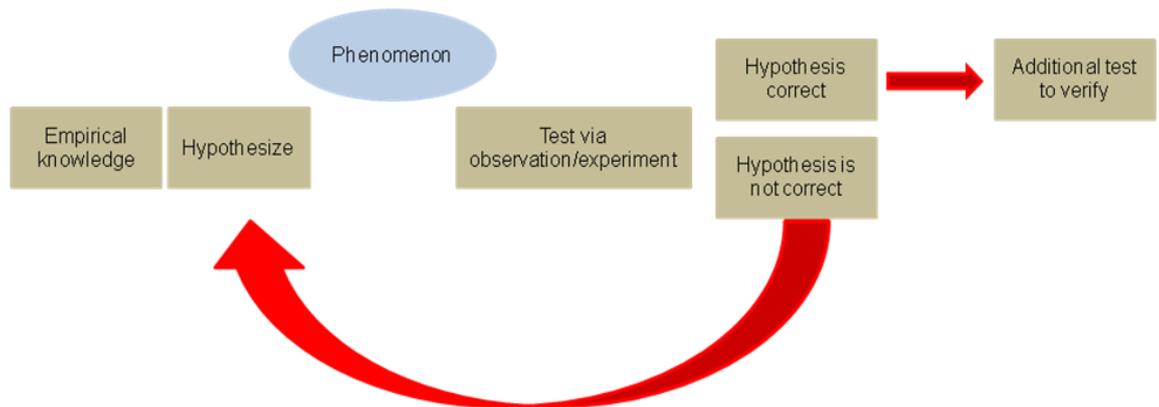
Garfinkel, an early positivist philosopher, indicated there should be some degree of fit between observation and theory, and that one should choose the more rational choice, or the choice that is more closely related to the theory (Giddens, 1975). Economist Matiaske (2004) also suggested that rational choice focuses on the collective phenomena of organized actions, or the “aggregated effects of individual actions” (p.260). These aggregated actions give an organization its own character and language, which could allow HRM to create its own ontological claims. He explains there is a difference between describing individual behaviour and the logic of aggregating typical actions. This is not dissimilar to Durkheim who believed there was a common belief among the collective conscience, but believed that “fundamental definitions must be sought among the external characteristics of phenomena” (Giddens, 1972, p.65) and that in order to predict the future, one must break down and identify patterns. Constructionists may indicate that “typical” cannot be defined, but positivism suggests there are a set of norms, within a body of people, that can be observed. There are always exceptions and outliers, but it is the collective whole that creates the nucleus of phenomena, or in this case, an organization.

Habermas cautions that if not careful, one could have an over-reliance on empiricism and choose to ignore prejudice in observation and one should question the authority of the original knowledge that is providing ontological claims (Giddens, 1975). Here then is the link between natural sciences ‘logical consistency’ and positivism’s ‘rational choice’, noting that the positivistic philosophy is not suggesting an absolute right or wrong choice, but the one that has the better fit.

3.3 Stages of Discovery

Positivists generate hypothesis a priori, or after the process of gaining empirical knowledge. Hypotheses are thus generated based on a hierarchical process of knowledge.

Figure 3.1 Deductive stages of empirical knowledge (Bryman, 1998; Kosso, 2009)



Bryman (1989) explained that it is not only the presence of counting and measuring that makes research quantitative, but it is the use of deductive reasoning. Deductive reasoning allows for research to be “propelled by a prior set of concerns” (p.24) that are tied to the general and wide set of phenomena. Ayalon and Even (2008) indicated that deductive reasoning is logical and procedural, systematic and organized. Subjective inference, which occurs in social sciences, is still based on the rules of formal logic.

Systematic deductive reasoning prepares the researcher to find certain patterns in the phenomena (Black, 1999). This is similar to looking for car keys in a cluttered room. Thinking about the shape, size, and colour of the keys allows the mind to visually discard anything that is not the set of keys. Oftentimes, this pre-coding facilitates quicker collection and analysis of data. Black also suggested the purpose of quantitative results in social sciences is to present data on what the general population *has* done, with the intent to predict what the general population *will* do. Fast and predictive information is an advantage to business organizations.

Business organizations want information that is relevant and easy to understand (Carless, 2009; Saari, 2007). Bryman (1989) suggested business organizations have specific needs that differ from other social sciences such as psychology and sociology. Typically, “relevant” (p.32) knowledge is gained and discussed

through quantitative research. Statistics can provide descriptive predictions in a language that business professionals can understand. Quantitative research can also capture similarities between many employees or firms, which help practitioners identify information that is applicable to their organization without the need to interpret individualized subjective qualitative research.

Determining the relationship of the hypothesis to the design of the research is also important. There are two types of hypothesis in the social sciences; correlational and causal (Balnaves & Caputi, 2007). A correlation hypothesis suggests that A is related to B. Generally, testing the hypothesis is done by gathering data, but does not include an experimental design as variables do not need to be manipulated to show a relationship. A causation hypothesis proposes that A affects, or changes, B. Testing this relationship is usually done through experimentation and can be difficult to prove. Bryman (1989) warned that quantitative research can be overly focused on finding causality. In fact, the phrase “correlation does not imply causation” has become repeated so often it would be difficult to assign an original author to it.

Black (1999) cautioned that it is more important for researchers to find “truth” than to be “right” (p.6). Expectations can lead researchers to design experiments that will statistically prove the hypothesis is correct. However, the purpose of systematic analysis is to collect data that “either proves or refutes evidence of a proposed relationship” (p.20) which provides empirical information that is closer to being ‘truth’.

3.4 Conclusion

The continued debate regarding differing epistemological and theoretical perspectives helps the researcher to be vigilant in their approach to research design. There are strengths and weaknesses with each approach and researchers should look to their goals to decide what paradigm to embrace. Researchers may also find that throughout their career, alternating paradigms and methodological approaches can bring a more rich and broad spectrum to their body of work. Above all, researchers should be aware that methods are of little use without epistemological guidance.

Chapter Four Research Methods

4.1 Introduction

The previous chapter discussed the importance of knowing the boundaries of the philosophical foundation supporting a research project before being able to design the research methods. This project embraces the positivist paradigm, which dictates the methods of data collection and analysis is systematic, operationalized, and quantified.

4.2 Project Phases

This research project has been carried out in four major phases. The first phase included an extensive literature review in the field of HRM, psychology, and their associated epistemological and ontological claims. The review provided an opportunity to identify gaps in the current field regarding selection techniques in American high impact and non-high impact SMEs which led to the formation of the three hypotheses outlined in chapter two.

The second phase was designing the methods needed to collect and analyze the data, and identifying a sample population. The third phase involved the collection and analysis of the data and the fourth phase involved synthesizing the information for discussion and the completion of the Master of Research thesis.

This chapter explores the second phase of the research; designing a quantitative research project which was used to systematically collect and measure evidence to support three hypotheses. This chapter will describe the creation of a self-administered survey questionnaire, identify the sample participants, the distribution of the survey and collection of the data, and the method of analysis.

The goal of survey design is to create an analysis that is generalisable (Bryman, 1998). In the case of investigating selection techniques and HRM functions, the aim is to provide information that is applicable to a wide range of organizations

in size, location, and industry. A second goal is to create a project that can be replicated (Bryman, 1998) in such a way that the same, or different researchers, can create a similar project to test the validity of the original data. Sections 4.3 through 4.5 provide the steps used for this project that can be used for replication.

4.3 Participants

4.3.1 Sampling

Well designed quantitative research attempts to gather information from as many participants as possible that represent the targeted population. When the population is large, researchers narrow down the list to a sample of the population. Ideally, the sample should represent the whole as best as possible (Black, 1999). There are several ways that a sample list can be created; simple random sampling, stratified random sampling, cluster sampling, and purposive sampling (Black, 1999).

Random sampling is done by choosing, at random, the companies that will be contacted. While this is random, it may also result in not having a balanced representation of the whole. Stratified random sampling occurs when the researcher identifies specific groups that have similar traits and then randomly chooses among the identified groups. Cluster sampling involves participants within a given cluster, such as industry or geography. Purposive sampling involves hand picking the companies who will be included in the project. The benefit of this method is assuring the participants closely align to the aim of the project, however, this method is also open to criticism that the researcher selected firms that would respond in a manner that would support the hypothesis (Black, 1999). Despite this concern, this research project did use purposive sampling as it provided greater control in finding a very specific population that applied to the hypothesis.

4.3.2.a Sample Size and Purposive Sampling

The range of employee size for SMEs in the United States is one to 500 employees. Micro firms (10 or fewer employees) were excluded from this sample as they fall below the EEOC regulations for fair hiring practices and may only need to use recruitment over selection practices. The range of 10 to 500 employees is wide and needed to be narrowed, thus firms with over 250 employees were also excluded. There are two reasons for this. First, there are many more complex human resource issues as firms become larger (Stacey, 1996) and including the larger firms would alter the results of the truly small firms. Second, many of the other regions in the world classify SMEs as 1 to 250. By capping this sample size to 250, this project can more easily be compared against other studies such as those conducted by Behrends (2007) and Bacon and Hoque (2005).

There are three targeted groups for this project; high impact SMEs in all U.S. states minus Massachusetts, high impact SMEs in Massachusetts, and non-high impact SMES in all U.S. states. These three groups correlate to the three hypotheses:

H₁ Employers in Massachusetts will be less likely to use personality assessments of any kind during the selection process due to the legality of testing for honesty / integrity.

H₂ SMEs in the U.S. will be less likely to use personality / integrity assessments than large firms as indicated by Piotrowski and Armstrong (2006).

H₃ High impact SMEs will be more likely than non-high impact SMEs to adopt personality / integrity assessments in the selection process.

4.3.2.b Group One: High Impact SMEs in the U.S. Minus MA

U.S. high impact SMEs were identified through Inc.'s annual 500 list. Inc., is a leading business magazine in the U.S., catering to entrepreneurs and innovative

business owners. Each year the magazine publishes an annual report of the top 500 fastest growing companies based on the current three years of revenue. Companies must be privately held, based in the U.S., and not a subsidiary of a larger company (Inc. 500/5000 FAQ). These are considered high impact firms.

The on-line database of the published lists allows the viewer to sort listings according to location, number of employees, growth, and industry. The database can also be customized to capture previous years, or extend beyond the print listed 500 companies. This research used the current 2011 top 500. Out of 500 companies, 86 were omitted because they had fewer than 10 employees, or more than 250. An additional 11 companies were registered in Massachusetts and were moved to the Massachusetts high impact list. As the Inc. list is a sample in itself, the goal was to contact the remaining 403 companies.

4.3.2.c Group Two: High Impact SMES in MA

In order to collect enough responses from the MA group to quantifiably test hypothesis one, the Inc. list was expanded to 2010 and 2009. The inclusion increased the MA sample size to 138.

4.3.2.d Group Three: Non-high Impact SMEs

There are several business listing services available for a paid subscription, such as Dunn & Bradstreet and Reference USA, however, due to budget constraints non-high impact SMEs were identified through MANTA, a free on-line business listing resource. MANTA collects information regarding business listings through third-party sources (MANTA FAQ). MANTA is not equal to Inc. in reliability, validity, nor in its filtering system, however, it does provide a comprehensive list of firms that do, or have, existed.

The following filter was applied to the database:

- Has been claimed by a company representative
- Number of employees 10 – 249
- Single location

These filters resulted in 91,720 companies though not all listed companies are active. The 'claimed by company representative' filter indicates that a representative from the company has contacted MANTA to verify its existence, which suggests these listings should be legitimate and currently operational. The 'single location' filter also indicates the company is located in one area, and not part of a subsidiary.

The goal was to contact an equal number of non-high impact SMEs in similar industries as those in the high impact SMEs sample. By comparing similar industries, growth impact could be attributed towards management factors such as HRM, rather than differences in industry fluctuation. By matching as many similar traits as possible, a better comparison can be made between high impact and non-high impact firms.

After six weeks of creating the non-high impact sample size, only 252 companies were located.

4.4 Survey Design

4.4.1 Reliability and Validity

The value, strength, and authority of knowledge gained by quantitative research methods depend on the survey design and analysis. The design must be both reliable and valid (Black, 1999; de Vaus, 1996).

4.4.1.a Reliability

The extent to which answers provided by the participants are consistent, honest, or true represents the reliability of a test or survey (Black, 1999). Social scientists examine human behaviour, attitudes, beliefs, and actions, which are notoriously complex. Confusion between researcher and participants can be caused by regional, ethnic, or social differences. In the case of business research, confusion can be caused by different employment background (Black,

1999; de Vaus, 1996). Confusion can also occur if questions are poorly written, or involve jargon, or technical terminology (de Vaus, 1996).

4.4.1.b Validity

Validity means the survey, or experiment, measures variables relevant to the hypothesis being tested, and is meaningful to the field of research. It also means the construct that was intended to be measured was measured, but does not include constructs that are irrelevant to the study. To obtain validity, the researcher must ask the right questions from the right population (de Vaus, 1996; Balnaves & Caputi, 2007).

This project was designed to capture information from high impact and non-high impact SMEs in the U.S. regarding their selection techniques. The survey was distributed to firms with only 10 to 250 employees, a size within the SME parameter. Additionally, the survey was distributed to a cohort of SMEs which had achieved exceptional growth in the past three years, which classified them as high impact. These measures helped target the right population.

The questions on the survey were designed to capture information about the use of selection techniques and HRM concepts as they related to the hypotheses, but did not ask questions that may have been interesting to the researcher, but irrelevant to the study. A sample of the survey questionnaire can be found in the appendix.

4.4.1.c Pilot Study

A pilot survey was distributed to five HRM practitioners and five SME business owners within the researcher's social network. This allowed for detailed discussions regarding the intended goals of the survey and the perceptions and understanding of the questions as they were written. The pilot survey also tested for confusing, ambiguous, or jargon laden questions and was adjusted according to their feedback. This helped increase both the reliability and validity of the survey.

4.4.2 The Questionnaire

There are two main methods for conducting exploratory quantitative analysis: interviews or self administered surveys (Bryman, 1998). The self administered survey questionnaire was used for this project. Some disadvantages to this method are the inability to explain confusing or ambiguous terms, the inability to verify who responded to the survey, and the tendency to produce extremely low response rates (Bryman, 1998). However, for a year-long graduate student project, the advantages outweighed the disadvantages. The advantages are lower administration cost, faster distribution and collection of data, and less interview affect on participant responses (Bryman, 1998). In addition, geographical boundaries limited the ability to conduct in person or telephone interviews. To mitigate some of the disadvantages, the pilot study was conducted to address issues of clarity and in order to address low response rates, follow up reminders were distributed in a timely manner.

Two questionnaires were created with a combination of open-ended questions and closed-end forced Likert scales. Initial ideas for the design was adopted from research performed by Piotrowski & Armstrong (2006) regarding recruitment and selection practices of the U.S. Fortune 1000, Behrends (2005) research on HRM practices of German SMEs, De Kok, Uhlaner, and Thurik's (2006) research on HRM practices in family owned firms, and Woodall, Scott-Jackson, Newham & Gurney (2005) research on outsourced HRM functions.

The first questionnaire was distributed to high impact SMEs and high impact SMEs in Massachusetts. The first four questions pertained to the demographics of the organization. Question one asked for the state of registration in order to insure MA responses were kept separate from all other states and was directly related to H₁. Questions two, three, and four asked for employee size, industry, and growth rate to insure the responses were from high impact SMEs and to compare to the demographics of the non-high impact firms.

The question regarding industry was forced choice based on the represented industries on Inc. There are currently 20 sectors and 1,170 industries in the U.S. (U.S. Census Bureau, NAICS). NAICS codes can seem to overlap, such as

541511 – custom computer programming and 541512 – computer systems design services. To provide an open-ended question would open the possibility of having too many variations of responses. This project is more concerned with larger group analysis such as computers and advertising, not the subgroup of each sector. As non-high impact firms were selected to closely mirror the high impact firms, the forced choice categories helped narrow the choices to the most closely related industry.

Questions five and six asked if the firm had a full time HR person or division, and if the firm outsourced any recruitment or selection processes. These questions used Likert type scales by including “yes, for all jobs”, “yes, for some jobs” and “no”. These two questions were indirectly related to the hypothesis, but the rationale was if firms were more likely to outsource these processes, they would be less likely to know what selection techniques were used by a third party.

Question seven asked if firms used any of eleven selection techniques including integrity and personality assessments and also used a Likert type scale by including “yes, for all jobs”, “yes, for some jobs” and “no”. This question was directly related to all three hypotheses. Question eight asked if the firm felt P-O or P-J was more important to the organization. This question went beyond the hypotheses but was important to investigate how fit might affect selection processes.

The survey for the non-high impact SMEs was altered by removing the question regarding the firm’s growth in the past three years. The feedback from the pilot study indicated that non-high impact firms felt this question was an invasion of privacy where as high impact firms had already provided this information to Inc. making it public knowledge. The majority of the non-high impact firms were more than 15 years old, and were cross referenced with the Inc database to insure they were not classified as a high impact firm. Intention and ability to achieve substantial continuous growth would have most likely occurred by this time (citation), thus, presumably the firms included in this sample were truly non-high impact firms.

4.4.3 Data Collection

The questionnaire was constructed on SurveyMoneky, an on-line survey software program. There were three active surveys for the targeted samples. The titles were as follows:

- MRes = High impact SMEs excluding MA
- MASS MRes = High impact SMEs in MA
- SMEs = Non-high impact SMEs

The titles were used as a way for the researcher to keep track of the different surveys, but not unduly influence the responses by indicating to the participant which group they were in.

A first email with a request for informed consent was distributed, with the appropriate survey link, from the student's university email account. The emails were inserted into blind copy so that no company would be able to see who else was on the list. Companies that indicated they could not take part in the survey were placed on a do not contact list. One week after the drop of the first email, a reminder was distributed. One week prior to the deadline, a final email was issued requesting a final call for any company that would like to participate. Those companies that have indicated an interest in the research findings have been added to a distribution list to receive a copy of the findings when completed.

SurveyMonkey was monitored on a consistent basis and answers were extracted and placed into both an Excel and SPSS database for analysis.

4.4.4 Data Analysis

This project had three hypotheses to test and needed to compare the use frequency of personality and integrity assessments of SMEs to the Fortune 1000; to compare the use frequency of personality and integrity assessments between high impact SMEs in Massachusetts with high impact SMEs in all other

states; and to compare the use frequency of personality and integrity assessments between high impact SMEs and non-high impact SMEs.

For this purpose, descriptive statistics were created using frequency tables providing the mode and percentage of responses, as they compared to the above stated categories. Descriptive statistics describe the data in accessible graphs and charts that are easier for the general public to understand (Black, 1999). These tables were created by using SPSS® to perform an ordinal univariate analysis. A univariate analysis attempts to show the frequency of the variable (de Vaus, 1996) and is the same technique used by the Piotrowski & Armstrong's (1996) comparison study. In addition to the frequency tables, a chi-square test was conducted on the variables. Chi-square is a nonparametric test used in situations where the sample size is smaller than 30 or in situations where Likert scales are used (Dancey & Reidy, 2011; Salkind, 1996). Chi-square analysis helps determine whether the results of the survey are significant beyond what would be expected by chance (Salkind, 1996).

4.4.5 Data Coding in SPSS

Variables represent the constructs within the hypothesis. In order to quantify the responses, the variables must be coded in a way that numeric labels are assigned. The data is then inserted into SPSS® which allows the researcher to use descriptive statistics to show the frequency of the variables.

The range for employee size increased after 100 as there were fewer firms in the higher range category. To obtain employee frequency, size was coded in SPSS ® as the following:

| SPSS ® code | Employee size |
|-------------|---------------|
| 1 | 10 – 20 |
| 2 | 21 - 30 |
| 3 | 31 – 40 |
| 4 | 41 – 50 |
| 5 | 51 – 60 |
| 6 | 61 – 70 |
| 7 | 71 – 80 |
| 8 | 81 – 90 |
| 9 | 91 – 100 |
| 10 | 101 – 125 |
| 11 | 126 – 150 |
| 12 | 151 – 190 |
| 13 | 190 + |
| 14 | Declined |

Similar to the employee range, the decision for the range of growth came after reviewing the responses and deciding how the range would best be represented without cluttering the chart with excessive columns. Growth frequencies for high impact SMEs were coded as the following:

| SPSS ® code | Percentage of Growth |
|-------------|----------------------|
| 1 | 10 – 20% |
| 2 | 21 – 40% |
| 3 | 41 – 50% |
| 4 | 50 – 70% |
| 5 | 71 – 99% |
| 6 | 100 – 200% |
| 7 | 201 – 300% |
| 8 | 301 – 400% |
| 9 | 401 – 500% |
| 10 | 501 – 700% |
| 11 | 701 – 900% |
| 12 | 901% + |
| 13 | Declined |

Coding for the question regarding outsourcing and selection techniques were coded as the following:

| SPSS [®] code | Outsourcing |
|------------------------|-------------------------|
| 1 | Yes, for all positions |
| 2 | Yes, for some positions |
| 3 | No |
| 4 | Declined |

Coding for the question regarding a designated HR group or person was the following:

| SPSS [®] code | Designated HR |
|------------------------|----------------|
| 1 | Yes, full time |
| 2 | Yes, part time |
| 3 | No |

The response to P-O and P-J fit were coded as the following:

| SPSS [®] code | Fit |
|------------------------|---------|
| 1 | P-O fit |
| 2 | P-J fit |

4.5 Ethical Framework

Effective quantitative research is not only systematic and practical, it is also ethical. Researchers try to contribute to the existing field of knowledge, but they must also consider how their investigations, experiments, and findings impact those they interact with, and society at large. At the very least, researchers should avoid doing harm to others or themselves. At the best, researchers can contribute to the greater good of society (Beauchamp, Faded, Wallace Jr., & Walters, 1982).

Some critics believe unethical research practices not only harm participants, but can erode “trust” and are “morally unjustifiable” (Beauchamp *et al.*, 1982, p.12) and that the ends do not justify the means, which is a deontological view (Saunders, 2008). Others take a teleological view and believe scientists have a right to unearth information that contributes to knowledge, which at times can mean taking calculated risks that broach blurry ethical lines (Saunders, 2008) or that the ends do justify the means. This project does not take any extreme teleological notion of ethics and is concern with practices that are ethical to self, the university and the participants of the project.

4.5.1 Informed Consent

Informed consent is the process in which the researcher communicates to the participant the goals, methods, and any risk associated with the project, and allows the participant to autonomously consent, or decline, the invitation to be involved in the project. The informed consent should be accurate, clear, and understandable to the participant. It should also be free from deception, provocation, or coercion that may persuade the participants to take part against their will. It should also explain how the researcher will deal with issues of confidentiality and anonymity (Beauchamp *et al.*, 1982; Research Ethics, 2008).

The informed consent for this project involved a cover letter in the email to the participants, explaining the purpose of the project. It was addressed to the owner / manager or HR division of the firm and used business terms and concepts that are common to those positions. There was no threat or offer for reward involved. Participants consented by taking part in the survey. Contact information for both the researcher and the researcher's supervisor was provided should participants have had any questions or concerns regarding the project. A copy of the informed consent letter can be found in appendix B.

4.5.2 Deception

Deception occurs when a researcher misrepresents themselves and / or the goals of the research project. It can also occur if a researcher omits information that would prevent an individual from making an informed decision to participate. Deception can cause harm to both the participant and the researcher and information gained under false measures could be considered invalid by other academic researchers (Beauchamp *et al.*, 1982).

Issues around deception are debated more often in qualitative research where full disclosure of the researcher's role or goals could affect how the participants act. In quantitative projects, questions should be straightforward and researchers must accept the answers provided by the participants (Easterby-Smith, Thorpe, & Lowe, 2002).

There was no intention to deceive in this project. The pilot study of both the informed consent and survey questionnaire helped tailor a clear and concise instrument that was free of purposeful deception. Additionally, the analysis of the data was free of manipulation or false reports regarding the significance of findings.

4.5.3 Coercion

Coercion is the act of causing a person to act in a way that is involuntary. This can be done through deception, where the participant does not know the full truth to respond accordingly, or it can occur through force, threat, bribery, or offering a substantial reward (Beauchamp *et al.*, 1982). In this age of social networking, coercion can also take place by threatening firms with posting negative comments on social media outlets, or vice versa, a promise to write positive reviews for participation.

The informed consent letter outlined the goals and methods of the research project. It explained who the targeted audience was, but did not try to pressure companies to participate by suggesting negative repercussions would happen if they did not. Nor were any promises to a reward if they did. Additionally, by collecting responses anonymously, no threat could be made to the companies by the researcher and readers of the findings.

4.5.4 Privacy

Pinkard described privacy as “being let alone” (Beauchamp *et al.*, 1982, p.248) and that the invasion of privacy can occur in three basic ways: intrusion, making private knowledge public, and damaging a reputation by falsifying facts. Privacy is important to both individuals and organizations. Businesses may have different reasons for not wanting to disclose company information, such as, fear of competition, fear of disclosing information that could result in increased government regulation, and fear of employee’s gaining leverage over management (Bryman, 1998).

While the inherent nature of research includes a level of intrusion, excessive intrusion should be avoided. In this project, the company information was extracted from the public websites Inc. and MANTA. The contact emails were then extracted from the company's website. Owners, managers and HR staff were not contacted through their personal email, or social networking sites, unless indicated to do so by the company. Three attempts were made to each email address. If a company requested to be removed from the study they were placed on the do not contact list and did not receive the follow up reminders. This approach helped minimize the amount of intrusion to the company.

To further maintain privacy, issues of confidentiality and anonymity were also addressed.

4.5.4.a Confidentiality

Confidentiality is maintaining that certain known facts regarding the participants remain private between the researcher and the participant (Saunders, 2008). This project used public sources to create a sample population, but the exact companies contacted remain confidential to the researcher only. At the completion of the project the list containing email addresses will be destroyed. Additionally, care was taken so the identification on any one company cannot be deduced through the research findings.

4.5.4.b Anonymity

Anonymous responses are those not known to even the researcher. The informed consent and survey link were distributed through email as a blind copy to fifty email addresses at one time, with a total of one hundred per day. The company could respond at their convenience. In this way, the researcher was unable to allocate any given response to a particular company which allowed for responses to be collected anonymously.

4.6 Summary

The aim of this chapter was to outline the research methods of this project, which involved the creation of a self-administered survey questionnaire, and review ethical research practices. The chapter identified three sample groups, high impact SMEs in all states except Massachusetts, high impact SMEs in Massachusetts only, and non-high impact SMEs. The survey was hosted on SurveyMonkey and a link along with an informed consent letter was distributed to the sample groups through email. Data was collected and analyzed through SPSS® to create descriptive statistics in the form of frequency tables which can be compared to previous research. The findings of this process will be reviewed in the following chapter.

Chapter Five Research Findings

5.1 Introduction

This chapter provides an overview of the research findings from the self-administered survey questionnaire. The chapter first reviews the survey response rate per targeted group and provides an overview of the size and industries that were represented. It then reviews the findings in comparison to the hypotheses. The chapter concludes with reviewing additional findings that help add to the literature regarding size, growth, and selection techniques.

5.2 The Sample Population

The overall response rate for the survey was 73 out of 751 companies, which resulted in a response rate of 9.7%. In comparison, researchers Celuch & Murphy (2010) conducted a recent survey on American SMEs and Internet usage and obtained a 12.3% response rate and indicated this was the norm for self-administered survey research on SMEs in that region.

5.2.1 High Impact SMEs minus Massachusetts

403 companies from the Inc. 500 fit the parameter of 10 to 250 employees. 70 of these companies had embedded email accounts which were not accessible which reduced the sample size to 331. 43 usable responses were collected with a result of 12.9% response rate.

5.2.2 High Impact SMEs in Massachusetts

2009, 2010, and 2011 Inc. top 500 lists were used to create a sample size of 138 companies registered in Massachusetts. 10 responses were collected which provided a 7.2% response rate for this group.

5.2.3 Non-high impact SMEs

282 non-high impact SMEs were contacted and 20 responses were collected. This provided a 7.1% response rate for this group.

5.3 Overview of the participating SMEs

5.3.1 Firms per Size

The smallest firms, ranging from ten to thirty employees, were represented the most in both the Inc. listings, and the participant responses. Figure 5.1a represents the firms by employee size according to the top 500 Inc. listing, and figure 5.1b represents the firms by employee size as represented by the responses to the survey. These figures demonstrate that those who participated were closely aligned to the sample population.

Figure 5.1a Employee size per Inc. listing

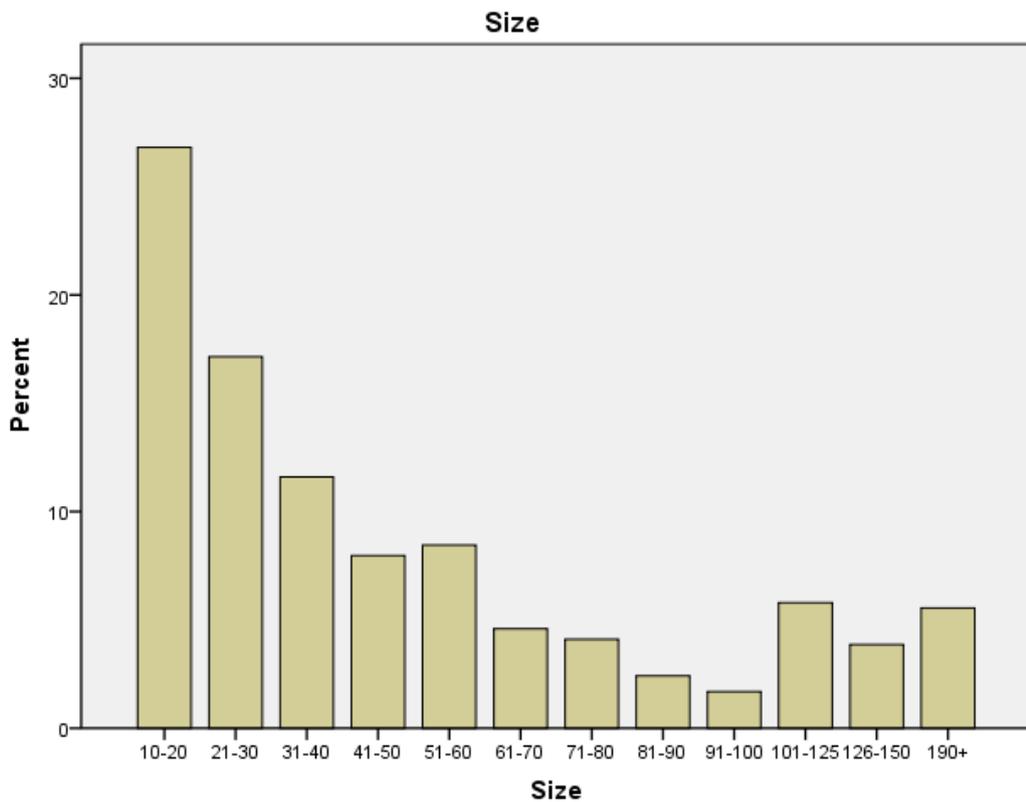
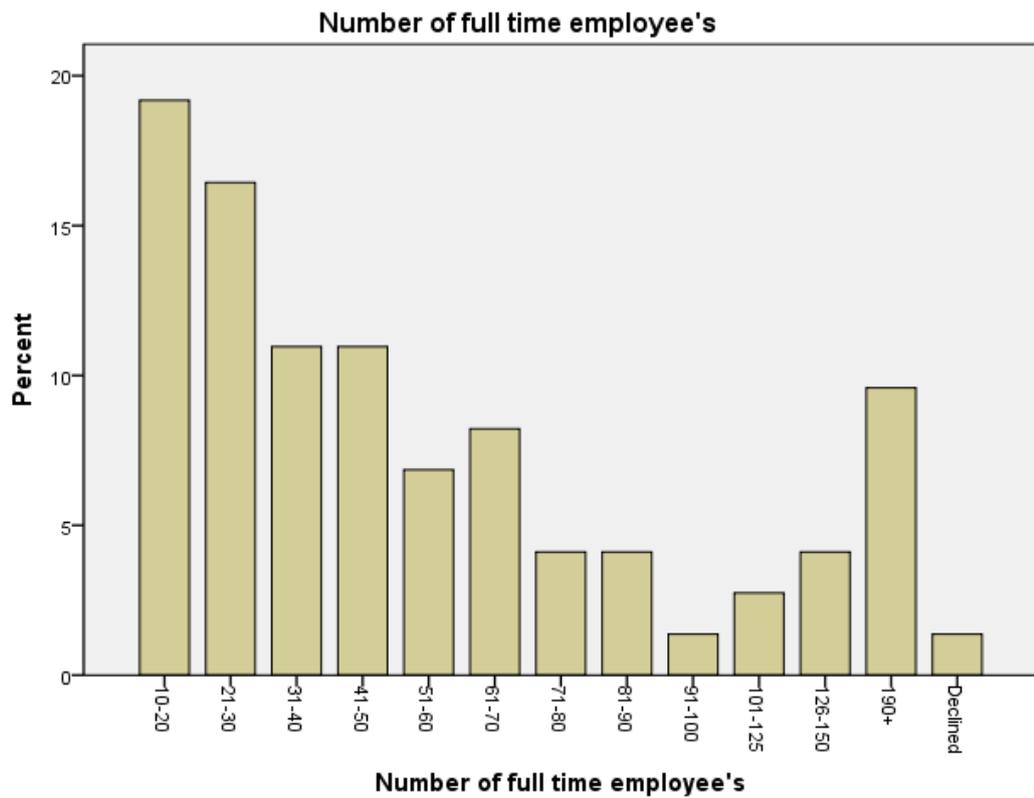


Figure 5.1b Employee size per participant responses



5.3.2 Firms per Industry

Where possible, non-high impact firms were selected that mirrored those of the high impact firms. Figure 5.2a provides the industry breakdown according to the Inc. top 500. Figure 5.2b provides the industry breakdown according to the participant responses.

Figure 5.2a Frequency of firms per industry according to Inc.

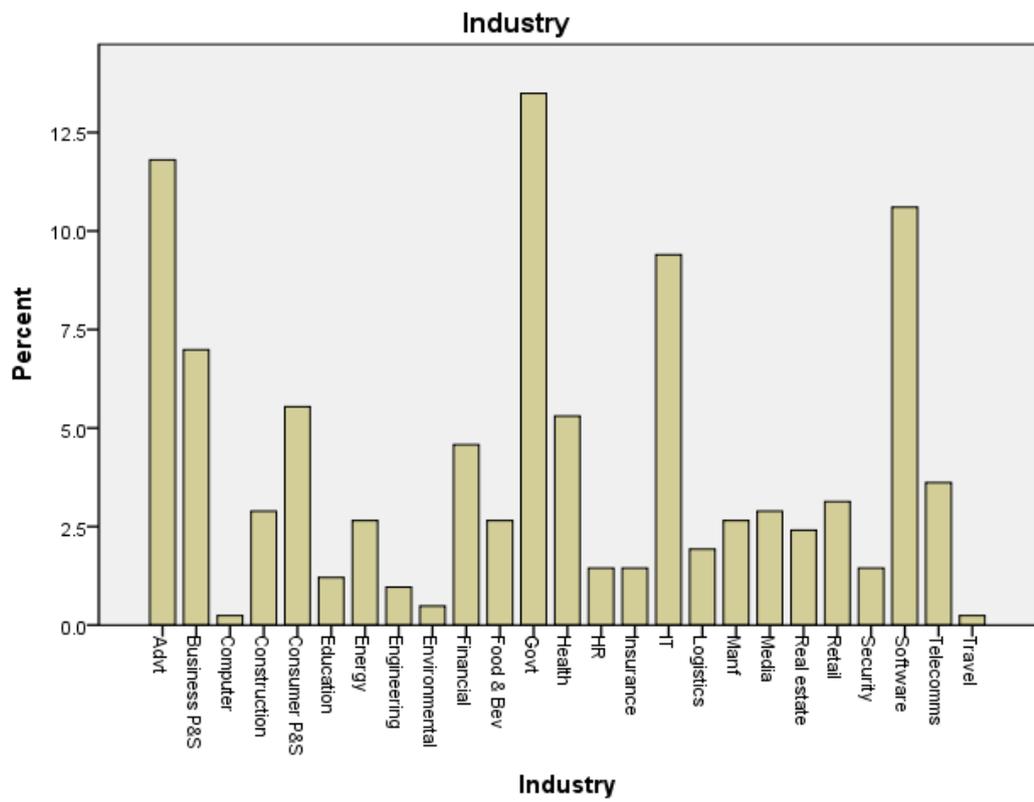
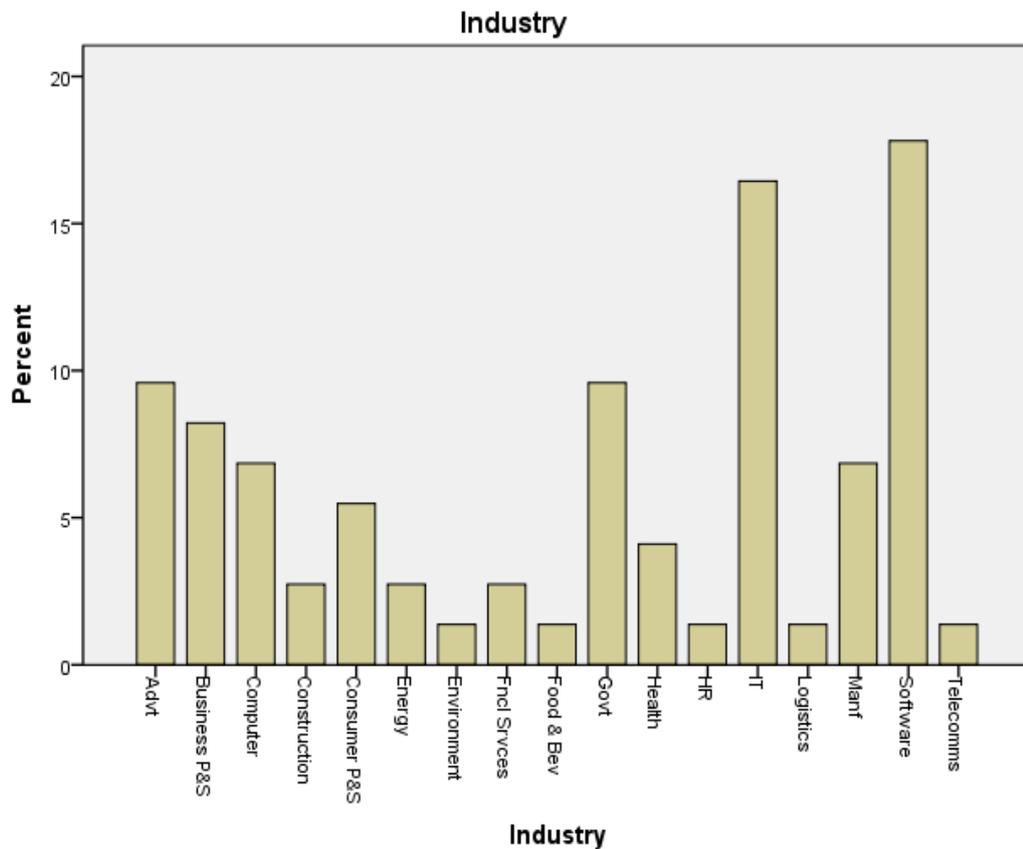


Figure 5.2b Frequency of firms per industry according to participant responses



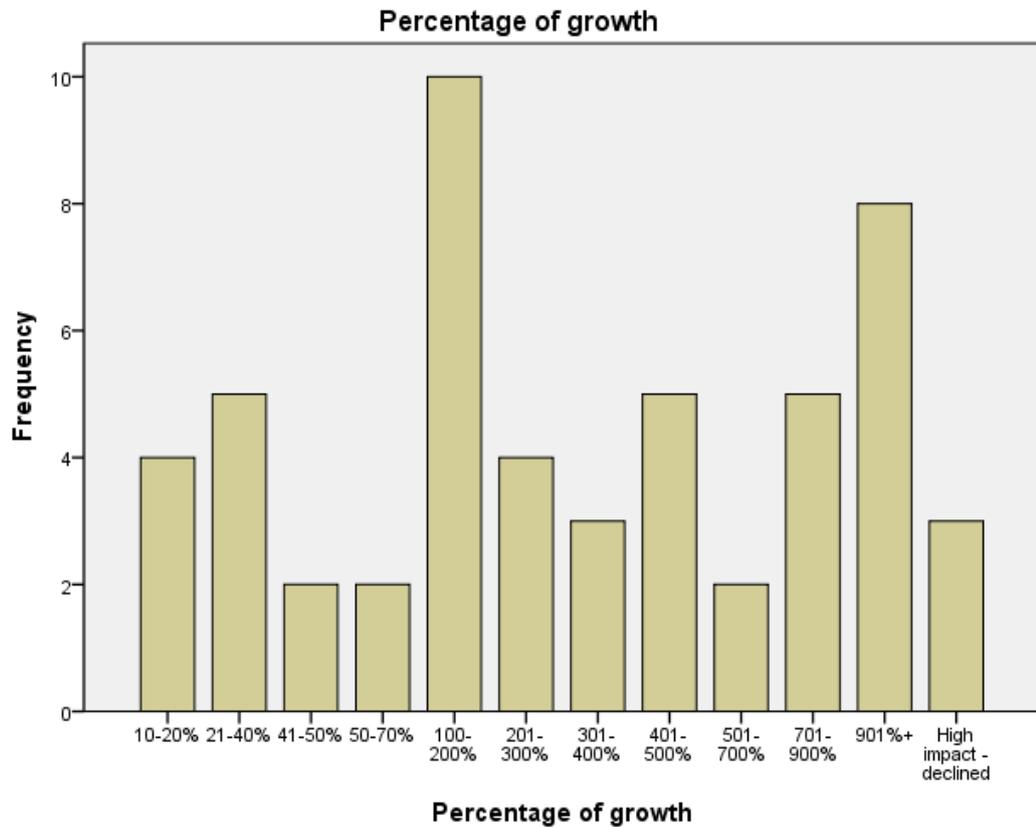
There were twenty-five industries represented in Inc. The four most common were government services, advertising, software, and IT. Seventeen industries were represented in the participant responses with the top four being software, IT, government, and advertising: very similar to the Inc. list. Certain industries in the Inc. list were difficult to contact, such as retail services. Many of these firms did not have an email contact available and were not included in this project. Other industries from the Inc list not represented chose not to participate.

5.3.3 Growth Rate

Continuous growth is the differentiating measure between high impact and non-high impact firms. Figure 5.3 below demonstrates the growth rate of the high impact firms that responded to the survey. Four high impact firms declined to report their growth and there were twenty non-high impact companies. As

discussed in chapter four, the question regarding growth was removed from the non-high impact SMEs survey list.

Figure 5.3 Growth rate



There were six firms reporting a 100% return and two firms reporting a 200% return, with no firms reporting in between those extremes. There were several companies that achieved between 2,000% and 6,000% three-year growth. These are reflected in the 901%+ category.

5.4 Hypotheses testing

This section will review the hypotheses stated in chapter two, and briefly review the outcome of the results. Detailed discussion regarding the implications and suggestions will be reviewed in chapter six.

Chi-square analysis on personality and integrity variables indicated responses could have been a result of chance. However, chi-square tests run on the other

Likert rated ordinal variables demonstrated significance in responses. When appropriate, chi-square values will be provided in this chapter. A result of all other chi-square values can be found in the appendix.

5.4.1 Hypothesis One

H₁ Employers in Massachusetts will be less likely to use personality assessments of any kind during the selection process due to the legality of testing for honesty / integrity.

One hundred and thirty-eight high impact SMEs registered in Massachusetts were contacted with only ten responding. The responses were too low to obtain a statistically significant chi-square value. If the assumption that the responses were not random, the research hypothesis still cannot be accepted. Five companies responded they did use both personality and integrity assessments for all positions, and two indicated they used both assessments for some positions.

Table 5.1 Frequency of MA responses to integrity / personality questionnaire

| State: MA | All positions | Some positions | Never | Declined | Total |
|-------------------------------|---------------|----------------|-------|----------|-----------|
| Use of integrity assessment | 5 | 2 | 2 | 1 | 10 |
| Use of personality assessment | 5 | 2 | 2 | 1 | 10 |

5.4.2 Hypothesis Two

H₂ SMEs in the U.S. will be less likely to use personality / integrity assessments than large firms as indicated by Piotrowski and Armstrong (2006).

Chi-square test results indicate the integrity and personality variables are significant at the ALL level, meaning, both high impact and non-high impact groups combined. Integrity equalled 11.219 and personality 14.178 against the p<.05 level. Divided into their subgroups, high impact and non-high impact, the chi-square values were not significant enough to reject the null hypotheses.

Table 5.2 Chi-square of the integrity assessment variable

| | DF | two-tailed p value | Statistical significance | Probability level | |
|------------------|----|--------------------|--------------------------|-------------------|-------|
| | | | | 0.10 | 0.05 |
| High Impact | 3 | 0.063 | 7.302 | 6.251 | 7.815 |
| *Non-high impact | 3 | 0.221 | 4.400 | 6.251 | 7.815 |
| All | 3 | 0.011 | 11.219 | 6.251 | 7.815 |

* Less than 5 counts

Table 5.3 Chi-square of the personality assessment variable

| | DF | two-tailed p value | Statistical significance | Probability level | |
|------------------|----|--------------------|--------------------------|-------------------|-------|
| | | | | 0.10 | 0.05 |
| High Impact | 3 | 0.072 | 7.000 | 6.251 | 7.815 |
| *Non-high impact | 2 | 0.074 | 5.200 | 4.605 | 5.991 |
| All | 3 | 0.003 | 14.178 | 6.251 | 7.815 |

* Less than 5 counts

Similar to hypothesis one, if the assumption is that the responses were not random, the research hypothesis still cannot be accepted. According to these findings, SMES are more than 50% likely to incorporate personality / integrity assessments than the Fortune 1000 as outlined by Piotrowski & Armstrong (2006). Table 5.4 below compares the results from this research to Piotrowski & Armstrong.

Table 5.4 Personality and integrity use in all SMEs (n=70) compared to Piotrowski & Armstrong (n=151) (2006)

| | <i>n</i> | Yes (%) |
|----------------------|----------|---------|
| P&A Integrity | 42 | 28 |
| P&A Personality | 29 | 19 |
| All SMEs integrity | 43 | 59 |
| All SMEs personality | 49 | 67 |

Additionally, this research provides a full comparison of selection techniques captured by this survey, in comparison to Piotrowski & Armstrong's study. Not all

criteria were equally measured by each study and N/A indicates the measures captured here, but not in the 2006 research.

Table 5.5 Comparison of selection techniques between SMEs and Fortune 1000

| | <i>P&A</i> | US SMEs |
|------------------------|----------------|---------|
| Application Resume | 98% | 96% |
| References | 97% | 93% |
| Skills assessment | 50% | 79% |
| Integrity | 28% | 59% |
| Biodata | 25% | 43% |
| Personality | 19% | 67% |
| Structured interview | N/A | 94% |
| Job description | N/A | 91% |
| Unstructured interview | N/A | 70% |
| GMA | N/A | 56% |

5.4.3 Hypothesis Three

H₃ High impact SMEs will be more likely than non-high impact SMEs to adopt personality / integrity assessments in the selection process.

The chi-square values outlined in the section above indicate the high impact responses were not significant enough to accept the results, and the non-high impact responses were less than 5 in certain fields which further decrease the accuracy of the chi-square analysis. The null hypothesis must be accepted. However, with the understanding that the responses may be a result of chance, this project will continue to evaluate the information in the context they are not.

According to these findings non-high impact firms were more likely to use integrity assessments overall than high impact firms. Non-high impact firms were 10.6% more likely to use personality assessments for all jobs than high impact firms, and 19.8% more likely to use them for some jobs, which in all, accounts for non-high impact firms using personality assessments 30% more often than high impact firms.

Table 5.6 Use of personality / integrity differences between high impact and non-high impact companies in %

| | Yes, all jobs | Yes, some jobs |
|-----------------------------|---------------|----------------|
| High impact integrity | 28.3% | 28.3% |
| Non-high impact integrity | 30.0% | 35.0% |
| High impact personality | 28.3% | 30.2% |
| Non-high impact personality | 40.0% | 50.0% |

5.5 Additional Findings

In addition to testing the three research hypotheses, the findings for this project have provided additional information regarding selection tools, a few HRM practices as they relate to selection, and how SMEs view the importance of fit. In many of the constructs, non-high impact firms showed little difference to high impact firms.

Table 5.7 below provides a full comparison of selection techniques reported between high impact and non-high impact SMEs. Surprisingly, non-high impact firms were more likely to conduct GMA assessments over integrity assessments, and 20% more likely to use them than high impact firms.

Table 5.7 Selection techniques between high impact and non-high impact SMEs

| | High impact | | Non-high impact | |
|------------------------|-------------|---------|-----------------|---------|
| | <i>n</i> | Yes (%) | <i>n</i> | Yes (%) |
| Application / resume | 50 | 94 | 20 | 100 |
| Structured interview | 50 | 94 | 19 | 95 |
| References | 49 | 92 | 19 | 95 |
| Job description | 48 | 91 | 19 | 95 |
| Skills assessment | 40 | 76 | 18 | 90 |
| Unstructured interview | 38 | 72 | 13 | 65 |
| Personality assessment | 31 | 59 | 18 | 90 |
| Integrity | 30 | 57 | 13 | 65 |
| GMA | 27 | 51 | 14 | 70 |
| Biodata | 19 | 36 | 13 | 65 |

The literature suggested that knowledge intensive industries may be more involved with the selection process and this research expected the high impact firms to use more of these techniques. A comparison of industry's between high impact and non-high impact firms was drawn to see if one industry was more represented in the non-high impact firm that might shed some light on why non-high impact firms were more likely to use personality, integrity, and GMA assessments than high impact firms. The most represented industries in both groups were knowledge intensive, such as software, and would not explain the differences.

Table 5.8 Comparison of industry per high impact and non-high impact firms

| | High impact | Non-high impact |
|----------------|-------------|-----------------|
| Advt | 4 | 3 |
| Business P&S | 5 | 1 |
| Computer | 3 | 2 |
| Construction | 1 | 1 |
| Consumer P&S | 3 | 1 |
| Energy | 1 | 1 |
| Environment | 1 | None |
| Fnc'l Services | 2 | None |
| Food & Bev | 1 | None |
| Govt | 6 | 1 |
| Health | 3 | None |
| HR | 1 | None |
| IT | 10 | 1 |
| Logistics | 1 | None |
| Manf | 3 | 2 |
| Software | 7 | 7 |
| Telecomms | 1 | None |

The one major difference between the two groups was having a designated full time HR group or person. As the differences seemed significant, chi-square analysis was applied to each group to assure the responses were not random. The high impact group was statistically significant while the non-high impact had less than five counts in some fields and therefore is more difficult to measure the significance.

Table 5.9 Chi-square values of designated HR person or group

| | DF | two-tailed p value | Statistical significance | Probability level | |
|------------------|----|--------------------|--------------------------|-------------------|-------|
| | | | | 0.10 | 0.05 |
| High Impact | 2 | 0.000 | 21.774 | 4.605 | 5.991 |
| *Non-high impact | 2 | 0.047 | 6.100 | 4.605 | 5.991 |
| All | 2 | 0.0001 | 21.068 | 4.605 | 5.991 |

* less than 5 counts

Accepting that responses are not random, the high impact firms were almost 30% more likely to have a full time HR person or group, and non-high impact firms were 55% less likely to have any HR person at all.

Table 5.10 Designated HR person among high impact and non-high impact firms

| | Designated HR person | | |
|-----------------|----------------------|----------------|-------|
| | Yes, full time | Yes, part time | No |
| High Impact | 62.3% | 11.3% | 26.4% |
| Non-high impact | 35% | 10% | 55% |

Reviewing ten specific answers extracted from the non-high impact group, size had more bearing on HR group than industry, but not evenly so. Company A and B are both smaller software firms and do not have an HR person. Company I and J are also software firms, larger in size, and do have an HR person. However, company G, a manufacturing company, only reported eleven employees, yet has a full time HR person.

Table 5.11 Designated HR person in non-high impact SMEs

| Industry | EE | HR Person/Department | | |
|-----------------------|----|----------------------|----------------|----|
| | | Yes, full time | Yes, part time | No |
| A - Software | 12 | | | x |
| B - Software | 3 | | | x |
| C - Construction | 25 | | | x |
| D - Computer | 16 | | | x |
| E - Computer | 90 | x | | |
| F - Business Products | 7 | | | x |
| G - Manf | 11 | x | | |
| H - Gvt services | 25 | | | x |
| I - Software | 49 | x | | |
| J - Software | 25 | x | | |

In addition to looking at the frequency of a designated HR person, the project also looked at how often companies outsourced the recruitment and selection process. This was important to measure insofar as companies that outsource the selection process would be less likely to know what selection tools were used. The chi-square values for these variables proved statistically significant, with high impact firms equalling 44.593 for outsourcing recruitment and 63.827 for outsourcing selection.

Only a small portion of either group outsourced recruitment and selection for all positions. However, high impact firms were significantly more likely to outsource recruitment and selection for some positions, in relation to non-high impact firms.

Table 5.12 Outsourced recruitment and selection functions

| | Yes, for all | Yes, for some jobs | No | Declined |
|-----------------------------|--------------|--------------------|-----|----------|
| High impact recruitment | 4% | 36% | 57% | 4% |
| Non-high impact recruitment | 5% | 35% | 60% | |
| High impact selection | 4% | 13% | 83% | |
| Non-high impact selection | 5% | | 95% | |

The survey was also designed to capture the importance of fit for each organization. Both high impact and non-high impact firms felt P-O fit was more important than P-J fit.

Table 5.13 P-O versus P-J fit

| | P - O fit | P - J fit |
|-----------------|-----------|-----------|
| High impact | 62% | 38% |
| Non-high impact | 65% | 35% |

5.6 Conclusion

These findings did not support the research hypotheses. The state of company registration did not affect the rate of use of personality assessments nor integrity assessments. The findings also showed that these SMEs were more likely to use personality and integrity assessments than the large companies from the 2006 study.

In many respects, high impact and non-high impact firms use similar practices of the variables measured for this project. The most significant difference between high impact and non-high impact firms was having a designated HR person or group. The implications of these findings will be discussed in the following chapter.

Chapter Six Discussion

6.1 Introduction

The purpose of this study was to determine if high impact SMEs in the U.S. used personality and integrity assessments as part of the selection process, more often than the Fortune 1000 reported in 2006. The literature reviewed in chapter two showed that personality and integrity assessments can provide an increase in predictive validity to job success measured by supervisor ratings and turnover rates. Personality and integrity assessments combined with other techniques can also help increase fair and ethical hiring practices which may help decrease adverse hiring practices on protected classes. (Arvey & Renz, 1992; De Meijer, Born, Terlous, & van de Molen, 2006; Nga & Sears, 2010, Ones *et al.*, 1993).

Three research hypotheses were generated to respond to the purpose of the study and were tested through the use of an eight question self-administered survey. While the results did not support the hypotheses, the findings do help provide discussion points in the current knowledge regarding selection techniques and SMEs.

This chapter will first discuss chi-square values of the data as they relate to accepting the research or null hypotheses. The chapter will then discuss the implications of the findings for the hypotheses and additional findings.

6.2 Chi-Square

Due to the low response rate for the non-high impact group, there were less than five counts for some measurements. As mentioned in chapter four, chi-square tests are ideal for using on either Likert scales or when responses are less than 30, however, there is an assumption that responses will be greater than five. With twenty non-high impact responses, divided into three scales, 6.66 would be the equal random response for each scale which does not allow for great variance in either random or significant responses.

Personality and integrity were the two most important variables of the survey, however, chi-square tests indicated the responses were statistically insignificant for each sub-group, or in other words, there is a possibility the responses were due to chance. However, chi-square tests on other variables did demonstrate statistical significance. While one has to accept the possibility of chance, one can also consider that participants are unlikely to randomly answer some questions but be thorough in answering others.

6.3 Hypothesis One

H₁ Employers in Massachusetts will be less likely to use personality assessments of any kind during the selection process due to the legality of testing for honesty / integrity.

The literature reviewed Massachusetts general labour laws that prohibit any device used to measure honesty or intentions towards deception from current or future employees with the assumption that integrity assessments violate this law, and furthermore, many personality assessments used for similar purposes would also violate this law (Woods & Savino, 2007). It was posited that SMEs registered in Massachusetts would be unlikely to use personality assessments, however, the results from the data indicate that some firms in Massachusetts use both personality and integrity assessments.

An issue with using exploratory short surveys is the inability to find a causal relationship between criteria, or to use follow up questions to understand more fully the kind of assessments that are being used or how the employer is using them. In situations such as this, where practices seem to be in opposition of the law, the researcher should question the authority of the responses.

One suggestion could be that firms are using subjective methods of 'assessing' candidates during the interview process rather than issuing a paper and pencil, or computer proctored assessment. However, two firms indicated they used personality and integrity assessments for some positions, and two indicated they never used either assessment. If subjective assessment was occurring, one would think more firms would report "yes, for all positions".

Another suggestion is that SMEs either use external consultants or purchase HR software systems directly from vendors (Greer, Youngblood, & Gray, 1999; Khanna & New, 2005). Finding vendor services that fit the firm's needs can take time and managers may not be aware of state and federal regulations regarding integrity assessments. Managers may select the assessments during the request for proposal (Zappe, 2009) or the assessments may be pitched during the sales process. Saari (2007) cautioned HR practitioners to look out for "consultants selling poorly developed and legally vulnerable selection methods" (p.1043). For some vendors, the initial sale of a product is more lucrative than maintaining an ongoing relationship with a company (Bill, 2009; Greer, Youngblood, & Gray, 1999). As such, the vendors may be less concerned about the legality of the products they are selling to firms.

Additionally, not all assessments are equal in predictive validity, or based on empirical research. Personality assessments are more predictive if they are based on job analysis. Off the shelf assessments are only telling what the personality trait is, not how it relates to a specific job. Conversely, some companies do try to measure personality trait to skill set needed, but may be using assessments that have not been empirically tested. The financial company outlined in section 2.4.4.e.4 uses an assessment software package that categorized people into four personality types similar to those outlined by Bolton & Bolton (1996) which are analytical, driver, amiable, and expressive, which similar to the MBTI, may be useful in development programs for existing staff, but less effective for predicting job success.

SME owners and HR practitioners should make sure to contract with reputable vendors and consultants who understand not only the needs of the firm, but also state and federal legislation. The U.S. Small Business Administration is a resource for both guidance and company directory's for SMEs.

6.3 Hypothesis Two

H₂ SMEs in the U.S. will be less likely to use personality / integrity assessments than large firms as indicated by Piotrowski and Armstrong (2006).

The SMEs who participated in this project reported to use integrity assessments 30% more and personality assessments 46% more than those from Fortune 1000 comparison study. The findings from this study do correlate more to the literature regarding the assessment market. Trade publications estimate the pre-employment assessment industry to be upwards of \$2 billion globally, with more than 2/3 of companies using one form of assessment or another, with psychological assessments such as personality and GMA being used most frequently (Fraunheim, 2011). As discussed in section 6.2 above, SMEs may be more likely to purchase recruitment and selection packages from vendors which may have more selection techniques as the standard programmes. Large companies may also use vendor software but have the economy of scale to customize the tools offered.

6.4 Hypothesis Three

H₃ High impact SMEs will be more likely than non-high impact SMEs to adopt personality / integrity assessments in the selection process.

The findings of this project suggest non-high impact firms are 30% more likely to use personality assessments and almost 10% more likely to use integrity assessments than high impact firms. Two possible scenarios could account for the reverse findings. First, non-high impact firms may be even more reliant on off the shelf recruitment and selection software packages than high impact firms. However, that would not explain while personality assessments are used much more than integrity. A second scenario could be related to confounding terminology. Over 55% of the non-high impact firms lacked an HR person. As discussed in the literature review, integrity and personality assessments can appear to be the same. It may be that those companies without an HR person

may not be aware of the distinction between the two assessments and may think they are only using personality assessments when they are using both.

6.5 Additional Findings

In addition to testing the hypotheses, the survey data provided findings that can be compared to previous research and helps aid the conversation regarding SMEs in the U.S.

6.5.1 Sample Size

The sample size was lower than hoped for and will be discussed in chapter seven regarding limitations.

Not surprisingly, the response rate for the high impact group was higher than that of the non-high impact group. First, the sample size was higher for the high impact group, with 341 over 282 for the non-high impact group. Additionally, the cover letter to the high impact firm may have been appealed more to business owner's sense of pride. As these firms were identified through their success and Inc. award, the cover letter was able to congratulate them on their success and also provide a context for how they were located. The cover letter to the non-high impact group could not make such claims and locating current and legitimate non-high impact firms was more difficult.

6.5.2 Selection Techniques

Similar to Cook's (2004) findings, the 'classic trio' was the most used selection approach of all the SMEs in this project. 96% reviewed applications or resumes, 94% conducted a form of interview, and 93% contacted references. However, the use of other selection techniques was higher than anticipation compared to Piotrowski & Armstrong (2006), Harris & Dworkin (1990) and Terpestra (1996). As suggested earlier, the increased accessibility to the Internet and software applications, coupled with increased HR consulting firms, may have resulted in an increase in technique applications.

When separating out the high impact responses from the non-high impact firms, personality, integrity, GMA, and biodata use drops considerably for the high impact group. This suggests that high impact SMEs may be more similar to larger firms in their need for more complex and custom designed selection techniques than non-high impact firms.

6.5.3 Designated HR

Many smaller firms do not have the resources, financial, knowledge, or human capital, to allocate a full time HR person or group. Indeed, not all small firms need such a position. However, as firms become more complex, either in product offering, expanding locations, or employee growth, the need for strategic management and HR practices grows (De Kok, Uhlaner, and Thurik, 2006; Hendry & Pettigrew, 1992; Stacey, 1996). Behrends (2007) suggested developing HR functions is not about size, or lack of experience, but about “growth-induced adaptive behavior” (p.59) and that professional services and knowledge-intensive firms were more likely to incorporate HR functions due to complexity of product and human capital. The findings from this project match this theory.

The findings in this project demonstrate that over 62% of the high impact firms have a full time HR person or group, and 11% have a part-time HR person, while only 33% of the non-high impact firms had a full time, and 11% had a part-time HR person. The firms in both groups are similar in both size and industry, therefore, employee size alone does not correlate to increased HR practices. While a growing employee base may increase recruitment practices, the complexity of the organization is what demands strategic change (Hendry & Pettigrew, 1992). Carlson, Upton, & Seaman, 2006) indicated the difference in HR need wasn't size or age, but whether the firm was high performing or low performing. According to the literature high impact firms are more complex in both product and human capital needs and outperform other SMEs in their industry.

These researchers do indicate it is difficult to tell if increased HR practices help firms to grow, or if growth demands increased HR functions, though De Grip & Sieben (2009) indicated that it is the employees that benefit more from advanced HR functions, not necessarily the company itself.

6.5.4 Outsourcing

Not all companies conducted the recruitment and selection process in house. Oranini & Silvestri (2008) indicated that more knowledge intensive firms would conduct more recruitment and selection process in house, but this project demonstrated the opposite. 40% of high impact firms outsourced either all or a portion of services, and 36% of non-high impact firms did. 17% of high impact firms also outsourced either all or a portion of the selection process, while no non-high impact firm did.

The decision to outsource HR functions can be a cost saving measure, especially for smaller firms that may not need a fully integrated HR person. Additionally, small firms may outsource functions to obtain best practices where the skill set for HR processes within the firm is limited (Woodall, Scott-Jackson, Newham, & Gurney, 2007). However, Krisof-Brown, Zimmerman, & Johnson (2005) warned that recruiters can sometimes select candidates based on the recruiter's personality rather than the needs of the organization.

Interestingly, the human resource industry represents 2.5% of the Inc. 500. This seems insignificant until one considers there are 1,700 industries in the U.S. (NCAIS). These HR firms are divided between those that specialize in outsourcing payroll, administration of retirement and pension plans, employee benefits, and training, and firms that specialize in recruitment and job placement services including conducting the selection process. Many of those listed on Inc. indicate their particular services are tailored towards other small and mid-size companies.

6.5.5. Fit

One issue with outsourcing HR functions, especially recruitment and selection, is finding a consultant that understands the culture of the organization. The majority of participants, both high impact and non-high impact firms, indicated that P-O fit was more important than P-J fit.

6.5.6 Intentions and Web Presence

All companies in the Inc. 500 list had a current web page and either used an embedded contact form, or provided an email address with the company name such as info@company.com. Hausdorf & Duncan (2004) indicated that small firms used the Internet to the same degree that large companies did. This seems true for high impact firms. However, it is a different story with the non-high impact firms. Even after applying the filter 'has been claimed by a company representative' to the MANTA website, which served to verify the company listing as legitimate and current, approximately 31% of the companies in the MANTA population did not have an active Internet site. Of the companies that did have a current web presence, 11% used personal email accounts such as yahoo, gmail, and AOL. These two factors suggest non-high impact firms do not utilize the Internet as part of their business strategy.

Websites can be an inexpensive way for companies to communicate with clients and run a business without heavy investments in real estate such as office and storage facilities (NSGA, 2011). Customers also feel a company offers more value if there is a website (Saeed, Grover, & Yujong, 200%). Using websites for communication is important to market orientation, or the way in which a company meets customer's needs (Celuch & Murphy, 2010). Social media such as Twitter or Facebook have not been around long enough for empirical research to be conducted regarding their ability to boost firm growth.

6.6 Conclusion

In many of the variables measured for this project, high impact and non-high impact firms seemed similar to each other. The most noticeable difference being

more high impact firms have a designated HR staff and web presence. Many of the participants in this project indicated that P-O fit was more important than P-J fit and not surprisingly, the 'classic trio' was the most dominant method of the selection process. Applications, references, and subjective interviews have a lower degree of validity in predicting job success and can have a negative impact on minorities.

Six firms had less than fifteen employees and not governed by the Civil Rights Act and the American with Disabilities Act. All other firms are governed by these acts and should embrace fair and ethical selection practices such as using quantified and objective techniques. Both personality and integrity assessments can be used as providing predictive validity and are quantified and objective, though states such as Massachusetts prohibit the use of integrity assessments. The U.S. SMEs in this project report to use personality and integrity assessments more often than the 2006 comparison study of large U.S. companies. Surprisingly, firms in Massachusetts also responded to using both personality and integrity assessments, despite state's general labour laws.

The next and concluding chapter of this thesis will discuss possible future research aimed at understanding why the research findings were contrary to the hypotheses.

Chapter Seven Conclusion

7.1 Introduction

This chapter will review limitations of this project and suggestions for possible future research. It will also offer reflection for the researcher in context with the aims of the Master of Research degree and the future for academic progression.

7.2 Limitations

7.2.1 Sample Size

The greatest limitation to this research was the low response rate. The overall response rate was 9.9% which as discussed in chapter five, is only marginally lower than similar response rates for this demographic and region. The low response rate could be attributed to numerous factors such as origin of request, time of year, spam filters and personal email accounts.

A research article (Teagarden, Von Glinow, Bowen, Frayne, *et al.*, 1995) uncovered in the final stages of this project discussed the methodology and sampling issues of an international project. The article indicated that countries tend to be nation-centric when it comes to academic research. UK, Canada and Mexico firms more fully cooperated when the research appeared to originate from their country. The study also found that North American firms were less likely to respond to questions regarding their “internal workings and strategy”. As this research was conducted through a British university, American firms may have been less interested in participating in a study that seemed removed from them. Future research that crosses national boundaries should consider the suggestion of Teagarden *et al.*, (1995) to use regional cover letters and a local address. Qualitative research, where the researcher can build trust with the participants, may be a way to more fully understand the ‘internal workings’ of a firm.

The timing of the survey may have impacted the response rate as well. U.S. companies can adopt any consecutive 12 months as their fiscal year (IRS

publication 538) though the U.S. government operates from October 1st to September 30th. Over 10% of the firms in this project are directly related to government services and may also follow that fiscal year. In addition to the fiscal year, most companies follow a traditional January through December calendar year for operation and project management.

The Master of Research degree began 1st February, 2011. The final survey questionnaire and sample population was finalized at the end of August with the first round of distribution occurring in September. This time frame falls within both the end of the government's fiscal year and the beginning of the 4th quarter for operations. A final attempt was made to secure more responses from the non-high impact firms during November with little impact. One company responded indicating they were interested in participating in the project but was in the middle of the 4th quarter and would be unable to take the time to complete the survey. The timing of the survey would mostly likely impact most of the firms in the sample.

Future projects regarding U.S. companies should take into account tax and operating deadlines. Even though the survey questionnaire was short it was non-essential to the participants and therefore not a high priority.

Spam filters and embedded contact forms and personal email accounts may have also contributed to low sample size and low response rate. A test was conducted on twenty embedded contact forms which resulted in a zero response rate. Firms with embedded contact forms were removed from the sample. However, as technology advances, more firms move to embedded contact forms as it cuts down on spam. Future email survey projects may have to look at a two pronged process where a request is made through the embedded form asking for contact to a gatekeeper to the company. While this may slow down the initial process it may increase the validity of responses as those firms who are more committed to the research will provide better access.

The sample size was also limited to finding legitimate and current listings. Future researchers on this subject should consider benefits of subscription listings such as Dunn & Bradstreet despite the cost.

7.2.2 Self-administered Questionnaire

Self-administered questionnaires limit the researcher from responding to questions participants may have regarding the questions or to clarify what is being asked. The researcher also cannot confirm who participated in the survey. This survey was addressed to either the owner / manager of the firm, or an HR person. Both of these positions would know what selection techniques are used for the firm, and what HR functions are performed in-house or outsourced. However, as an email survey, anyone who clicked on the hyperlink would be able to respond to the questionnaire. This may be an executive assistant who will be more connected to the practices of the firm, or a customer service person assigned to email who may be less knowledgeable regarding the firm's practices.

The limitations of this method are most apparent regarding H_1 where the researcher is prevented from fully understanding if Massachusetts firms are using integrity assessments, and if so, why, despite general labour laws.

Future research could follow deductive reasoning, which is formulating a new hypothesis based on the fallacy of the original hypothesis. In this manner a more in-depth survey could be designed based on this one specific issue. In person, or over the phone interviews could also be conducted which would allow the researcher the ability to clarify responses. In person interviews would also allow the researcher to validate the position of the participant within the firm.

7.2.3 SurveyMonkey

The pilot test on SurveyMonkey was distributed to a small sample of colleagues. As each test came in and was discussed, the survey was cleared. However, a limitation to SurveyMonkey's reporting capabilities became apparent once the questionnaire went live. Depending on the question type (text, multiple choice, and drop down menu) responses are either separated out with a time stamp in the order the response comes in, or responses are tabulated together.

Below is an example of three responses to an open text question such as 'what state is the company registered in?'

CA – 11:45 a.m.

WI – 10:17 a.m.

TX – 9:56 a.m.

The next sample demonstrates three responses from the same participants to a multiple choice question, which represents the majority of questions in the survey:

P-O Fit = 2 (66%) P-J Fit = 1(33%).

For the purpose of this project, and in most correlation analysis, the tabulation of responses is adequate, however, extracting multiple responses at once limits the ability to see the exact relationship between variables for any given firm. Additionally, this could have been an issue if the MA sample group had been sent the same survey link as all other high impact firms.

Pilot studies are best conducted in an exact formation that the project will be conducted.

7.3 Future Research

Building on the research findings and subjective interpretations developed reviewing the sample size, future research could help build out the knowledge of U.S. SMEs. Some high impact firms have expanded to include international offices. Future research could try to see if these firms use the same selection techniques for their international offices, and if so, what impact that may have on international candidates.

Chapter six discussed the possibility of SMEs using off the shelf personality and integrity assessments. Future research could delve deeper to find out what are the more common assessments, or vendors, being used by these firms and try to get more of a sense of how closely the assessments measure the skills

needed for a specific job. Additionally, some firms used personality and integrity assessments for some of the positions, not all. Further research could look at which positions the assessments are used for, whether they were entry level, more knowledge and skill intensive, or if they were leadership positions.

Table 5.11 in chapter five pointed out the non-high impact manufacturing firm that had a small employee head count but had a full time HR person. While this was an outlier in the responses for this project, it suggests that future research could look into transactional versus strategic HR groups in SMEs.

7.4 Reflections on the purpose of the study

Interest in HRM practices and the selection process for SMEs was sparked and propelled by two main factors. First, as briefly mentioned in the introduction of the thesis, I worked as a manager in a large multinational firm for almost fifteen years where I was responsible for selecting new staff. The hiring process primarily involved either an informal meeting with the candidate, or a semi-structured interview based on my own experience of the position, but not on any formal PBJA or direction from HR. My own experience as an interviewee within the company was similar; very informal and based on impression management more than personality and behavioural traits needed for a specific role.

Due to relocating I resigned from the multinational firm. As I was finishing my MBA and knew I would be entering a graduate programme in one year I began looking for service positions that would not entail too much training or commitment on mine or the employer's part. I found that applying for these types of positions had greatly changed in the past 15-20 years. All applications had to be submitted via the internet and they all included a personality or integrity assessment. I wondered if this new method for selecting employees helped reduce staff turnover. I ended up being offered a contract position with a small organisation.

The interview process was the most difficult I had encountered, with a highly structured format in a panel discussion. The focus of the interview was to find best-fit to the organisation, not necessarily the position itself. As I discovered

through my own progress, and interviewing new employees, ad-hoc jobs were created based on the experience and skill of the employee rather than selecting employees who had skills needed for a specific position. The organisation has a high turnover rate and so I still questioned the effectiveness of hiring based on fit.

The second factor, as mentioned in section 2.5.1, is a growing interest in the U.S. on how to leverage SMEs to increase the employment rate. This is more difficult to reflect on as the interest may be a reflection of my culture and not just employment need. Independence and financial wealth seem to be part of the American dream. This drives many people towards entrepreneurship and small business. Working in cities such as Boston and D.C., many of my clients were small business owners and personal acquaintances were involved in start-ups and venture capitalism. The most common periodicals for me to read were those tailored towards small businesses, such as INC., Entrepreneurship, and Fast Company.

These two factors initiated my literature search. The literature search indicated there is a current gap in the knowledge regarding U.S. SME employee selection practices and employee fit. The scope of the MRes prevented thorough investigation into both selection practices and fit. I chose to focus on creating research hypotheses based on selection practices because I feel it has a more immediate impact on helping to develop process and training initiatives for SME employers. Additionally, my interest in exploring fit would have involved a more in-depth qualitative study which would have exceeded the time frame, scope, and participant access of this present study.

The goal for embarking on the MRes degree was to lay a foundation of research practices and knowledge in anticipation of pursuing a PhD. Part of this process was detaching myself from a previous corporate career and learning how to set and measure goals that are different to the corporate world. Success is not measured by a merit review, quarterly bonus, or positive customer feedback. Instead, success is measured by the ability to communicate analytical interpretations of existing knowledge, and the ability to contribute to knowledge.

The empirical knowledge gained in this study can hopefully be used by the academic community, as well as potentially help develop training programmes for organisations involved in developing small business owners and creating job opportunities.

Another important goal was to understand the different philosophical approaches to the social sciences, including each paradigms limitations and criticism. As mentioned at the conclusion of chapter three, using multiple paradigms can help provide deeper meaning to research, however, I am also aware that as an American citizen who will most likely have an academic career in the U.S., publication and statistical significance is valued more than lengthy qualitative approaches. Hopefully by understanding what the contributions of a constructionist approach can bring, such as helping develop new theory, I will be able to better justify occasional deviation from the positivist paradigm.

Many of these skills were developed by conducting a self-designed research project. Another lesson learned through the project was looking at companies from the outside, instead of the inside, and realizing that as an outside academic, certain initial barriers from the firms may arise. Understanding the causes of this, such as limited trust, helps me know how to better prepare for future research by being more realistic about the approach and time it takes to gather quality data.

Working on the Master of Research project also helped me develop organized and systematic note taking such as keeping a research journal. Learning how to do this during a one year project will serve me well as I prepare to undertake a PhD where the span of time can erode both memory and momentum. The Master of Research program has served me well in preparing me to continue my development as an academic researcher.

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Appendix

Appendix A: First ten questions of international fast food chain personality questionnaire

1. How were you evaluated by your supervisor in your current or most recent job?
 - Outstanding
 - Above average
 - Average
 - Somewhat below average
 - I have not been employed or evaluated

2. During the middle of a shift, you notice that your coworker Jim looks really upset. What action would you take?
 - Volunteer to work during your break so Jim can have extra time to cool off
 - Ask Jim if he's having family problems
 - Leave Jim alone and give him time to cool off
 - Let your supervisor know that Jim might not be okay
 - Ask Jim if there is anything you can do to help

3. People say I always do things correctly and accurately
 - Strongly agree
 - Agree
 - Neither agree nor disagree
 - Disagree
 - Strongly disagree

4. In school, how many of your teachers didn't like you or gave you a difficult time?
 - Most
 - About half
 - Some
 - Very few
 - None

5. While on a break, a customer spills a large drink in a busy area of the restaurant. Cleaning the floors is the job another team member but he is taking a customer's order. What would you do?
 - Tell the other team member about the spilled drink
 - Ask the manager who should clean up the spill
 - Clean up the spill as quickly as possible
 - Talk to the team member and agree on a plan to clean up the spill
 - Warn the customers about the spill until the team member has a chance to clean it up

6. If asked, my most recent manager (or teacher) would say that I can work longer and harder than most of my coworkers.
 - Strongly agree
 - Agree
 - Neither agree nor disagree
 - Disagree
 - Strongly disagree

7. If you do not get this job, how easy will it be for you to get another one?

- Very easy
- Easy
- Difficult
- Very difficult
- I don't know

8. How do you respond to a new team member?

- Immediately get them involved in team activities
- I have never been in this situation
- Ask them to socialize with the team outside of work
- Ask them to take a leadership role
- Talk with them about the team's needs

9. How would you describe your grades in high school?

- I got mostly A's
- I got mostly B's
- I got mostly C's
- I got mostly D's & F's
- My school didn't give grades

10. I dislike having several things to do on the same day.

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

September 9, 2011

To Whom It May Concern:

I am a graduate student with the University of Gloucestershire specializing in work place organizations. I am currently working on a research project regarding the selection techniques that high impact small and medium-sized enterprises in the United States use to hire future employees.

This study is aimed at reviewing the different selection techniques that small and quickly growing firms use in the different regions throughout the United States. The results of this study will be compared to recent research by Piotrowski & Armstrong (2007) regarding selection techniques in large U.S. enterprises. Persons participating in this study can expect to spend 10 – 15 minutes completing an eight question survey. The study will compare the size, location and expansion rate of firms and the first four questions pertain to the current nature of your organization. The remaining four questions pertain to human resource functions, including selection techniques, within the company. It is ideal that either the owner, head of human resources, or person responsible for hiring decisions complete the survey.

The participant contact list will remain confidential and will be destroyed once the study is completed. The survey link is hosted on SurveyMonkey. Responses will not be linked to the contact list and will remain anonymous. The anonymous results will be published in a year-end dissertation, requirements for obtaining a Masters of Research degree.

Your participation in this study is strictly voluntary. For answers to your question regarding this research you may contact me directly at heidihughes@connect.glos.ac.uk, or phone at 07527209403. You may also contact my supervisor, Dr. Lynn Nichol at lnichol@glos.ac.uk.

If you would like an electronic copy of the dissertation, available February 1, 2012, you may email me your interest and a copy will be emailed to you.

I appreciate your willingness to participate in this study.

Sincerely,

Heidi Hughes

Appendix C: Self administered questionnaire

| Question / Variable | Choice 1 | Choice 2 | Choice 3 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|----------------|----------|
| 1. What state is the company organized in? | Open response | n/a | n/a |
| 2. Please select the company's industry: | Forced drop down menu | n/a | n/a |
| 3. How many full time employees do you currently have on pay roll? | Open response | n/a | n/a |
| 4. In percentages, what has been the organization's three year growth? (If the company is less than three years old, provide last full fiscal year.) | Open response | n/a | n/a |
| 5. Does your company have a designated HR person / department? | Yes, full time | Yes, part time | No |
| 6a. Does your company outsource any of the recruitment functions? | Yes, for all jobs | Yes, for some | No |
| 6b. Does your company outsource any of the selection functions? | Yes, for all jobs | Yes, for some | No |
| 7. Does your company use the following selection techniques for hiring new employees? | | | |
| Application / resume | Yes, for all jobs | Yes, for some | No |
| Biographical data | Yes, for all jobs | Yes, for some | No |
| General mental / cognitive assessment | Yes, for all jobs | Yes, for some | No |
| Integrity / honesty assessment | Yes, for all jobs | Yes, for some | No |
| Job description | Yes, for all jobs | Yes, for some | No |
| Personality assessment | Yes, for all jobs | Yes, for some | No |
| Reference checks | Yes, for all jobs | Yes, for some | No |
| Skills testing | Yes, for all jobs | Yes, for some | No |
| Structured interview | Yes, for all jobs | Yes, for some | No |
| Unstructured interview | Yes, for all jobs | Yes, for some | No |
| Person – organization fit is described as employees matching the culture and temperament of the organization. Person – job fit is described as an employee matching skill set and knowledge as it pertains to a specific job. In your organization, which is more important? | P – O fit | P – J fit | n/a |

Appendix D: Chi-square values

| Non-high impact firms | | | |
|------------------------|----|--------------------|--------------------------|
| | DF | two-tailed p value | Statistical significance |
| Outsource | | | |
| Recruitment | 3 | 0.011 | 9.100 |
| Outsource Selection | 2 | 0.000 | 16.200 |
| Biodata | 3 | 0.157 | 3.700 |
| GMA | 3 | 0.522 | 1.300 |
| Job Description | 3 | 0.000 | 24.100 |
| References | 3 | 0.011 | 9.100 |
| Skills Assessment | 3 | 0.086 | 4.900 |
| Structured Interview | 3 | 0.011 | 9.100 |
| Unstructured Interview | 3 | 0.157 | 3.700 |
| All | 1 | 0.180 | 1.800 |
| High impact firms | | | |
| | DF | two-tailed p value | Statistical significance |
| Outsource | | | |
| Recruitment | 2 | 0.000 | 42.774 |
| Outsource Selection | 3 | 0.000 | 59.585 |
| Application | 2 | 0.000 | 96.208 |
| Biodata | 3 | 0.000 | 26.925 |
| GMA | 3 | 0.001 | 16.057 |
| Job Description | 3 | 0.000 | 41.415 |
| References | 3 | 0.000 | 30.547 |
| Skills Assessment | 3 | 0.000 | 47.151 |
| Structured Interview | 3 | 0.000 | 47.151 |
| Unstructured Interview | 3 | 0.001 | 16.811 |
| All | 1 | 0.039 | 4.245 |
| ALL | | | |
| | DF | two-tailed p value | Statistical significance |
| Outsource | | | |
| Recruitment | 3 | 0.000 | 61.411 |
| Outsource Selection | 2 | 0.000 | 92.904 |
| Application | 3 | 0.000 | 153.685 |
| Biodata | 3 | 0.000 | 27.548 |
| GMA | 3 | 0.001 | 19.658 |
| Job Description | 3 | 0.000 | 106.890 |
| References | 3 | 0.000 | 59.986 |
| Skills Assessment | 3 | 0.000 | 38.836 |
| Structured Interview | 3 | 0.000 | 65.904 |
| Unstructured Interview | 3 | 0.001 | 26.452 |
| All | 1 | 0.014 | 6.041 |