Too smart to commit?
Effects of personal characteristics on organisational commitment and job satisfaction: evidence from a high-IQ network

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Reaching to here has been a very demanding yet fulfilling experience. I have learnt much through the process; both about the subject and myself.

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Declaration of Originality

I hereby declare that this thesis has been composed in its entirety by myself and is a result of my own work. To the best of my belief and knowledge this work contains no material previously published or written by another person or persons, except where due reference is made. The work has not been submitted for any other degree or professional qualification other than as specified here to the University of Pecs.

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Abstract

This research project aims to investigate how the personal attribute of intelligence influences the development of individual levels of commitment to the organisation, and how this relationship is affected by overall job satisfaction. How to increase employees' commitment to the organisation is of central importance to the ongoing policy debate on the development and especially the retention of the workforce, which this study aims to contribute to.

The concept of organisational commitment (OC) and its three components, affective commitment, continuance commitment and normative commitment, are presented. The personal characteristic of intelligence is outlined and defined for the purpose of this study. Further, job satisfaction was introduced as a correlate of organisation commitment. The proposed relationship between OC, job satisfaction and intelligence was outlined. To complete the understanding of commitment, motivational aspects that influence the development of OC were presented. Finally, concepts related to organisational commitment were outlined to illustrate how they differ from OC and why OC has been chosen as the concept for analysis in this study.

For the analysis of the data from the online survey, exploratory factor analysis using the principal component method was conducted to test the significance of the four factors that have been used to measure the four underlying concepts (affective commitment, continuance commitment, normative commitment and job satisfaction). Confirmatory factor analysis tested the fitness of the structures and evaluated the discriminant validity of the four latent concepts that developed from the exploratory factor analysis. Stepwise hierarchical multiple regression analyses was then carried out to test the hypotheses and determine interactions among different independent variables. Further, qualitative results drawn from focus group discussions were added to validate the findings from the quantitative research. Secondary data was then analysed to compare findings from previous studies with the expected results of this research project.

The findings suggest that with the given sample, differences between the high-IQ group and the control group have been observed on the levels of commitment that were reported. While these differences could not all be confirmed at a statistical significance of 95%, levels of affective commitment, of continuance commitment and of normative commitment could be found to be lower among employees in the right tail of the IQ bell curve. Higher

self-efficacy among high-IQ members could explain some parts of these differences. A positive relationship between job satisfaction and organisational commitment overall, as well as a positive relationship between high IQ and job satisfaction, indicates that (extrinsic) job satisfaction would have a moderating effect on the (negative) relationship between high IQ and organisational commitment. Further, findings specific to the high IQ group are discussed.

The findings from this research and their interpretations can inform management practitioners and individuals employed in organisations. To the knowledge of the author, this is the first study that tested all three components of organisational commitment for intelligence as a determinant of commitment. Beyond confirming the reliability of the concept of organisational commitment through factor analysis, this study also contributes to the understanding of how individual differences such as cognitive ability, but also age and gender, help develop different components of commitment to the organisation. Additionally, this research project illustrates how theories on motivational states such as self-efficacy and self-determination theory can be linked to the different components of organisational commitment and intelligence. It is also the first study with a comparable sample size to analyse the relationship between intelligence and job satisfaction. Further, the findings expand the existing understanding of the relationship between job satisfaction and the three components of organisational commitment.

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List of Abbreviations

AC -	Affective Commitment
APA -	American Psychological Association
CC -	Continuance Commitment
CIPD -	Chartered Institute of Personnel and Development
GMA -	General Mental Ability
HR -	Human Resources
IQ -	Intelligence Quotient
JS -	Job Satisfaction
MBA -	Master of Business Administration
NC -	Normative Commitment
OC -	Organisational Commitment
OCB -	Organisational Citizenship Behaviour
OI -	Organisational Identification
P-FIT -	Parieto-Frontal Integration Theory
POS -	Perceived Organisational Support
SDT -	Self-Determination Theory
SWOT -	Strength-Weaknesses-Opportunities-Threats
TCM -	Three Component Model
WERS -	Workplace Employment Relations Study

1 INTRODUCTION

This research project aims to investigate how the personal attribute of intelligence influences the development of individual levels of commitment to the organisation, and how this relationship is affected by overall job satisfaction. Twenty years after the landmark McKinsey study (Chambers et al., 1998), the "war for talent" still continues. How to increase employees' commitment to the organisation is of central importance to the ongoing policy debate on the development and especially the retention of the workforce, which this study aims to contribute to.

This chapter provides an introduction to the motivation for and rationale behind this research project. The problem that this research aims to address is defined, and the research questions and hypotheses presented. The organisation of the study and the methodology used in this research project is illustrated briefly. The following section gives an overview of the outline of this dissertation. This chapter closes with an argumentation of the novelty and significance of this study.

1.1 Motivation and rationale

In a time of rapidly changing economic environments, organisations cannot afford to be inefficient and let potential go untapped. Knowledge of how managers can optimise an individual's achievement for ideal performance is highly sought after. Findings such as those of Simonton (2004), which show that individuals who demonstrate achievement excellence proliferate innovations at a widely overproportional rate, illustrate how significant a committed and highly capable workforce is. Equally, individuals strive for job-satisfaction and personal fulfilment. A positive relation between organisational commitment and job performance has been identified in some studies (e.g. Khan, Ziauddin & Ramay, 2010; Imran, Arif, Cheema & Azeem, 2014). How general mental ability contributes to these factors needs further exploration. Beyond the area of management, the results of this research will be beneficial for the underserved discipline of giftedness research with relation to adults, which as Perrone, Jackson, Wright, Ksiazak and Perrone (2007) point out is lacking empirical research.

What motivated this research was a need to empirically explore antecedents of organisational commitment to better understand the conditions in which performance, as well as personal wellbeing, improve. This project strives to make a contribution to the existing knowledge of management research and organisational psychology with a particular focus on the role of intelligence in a professional setting. The findings will help managers to tap the full potential of their employees and co-workers, as well as individuals to better understand their needs to improve their attitudes towards the workplace and their job satisfaction overall. It is of considerable tactical and strategic importance for managers and organisations to establish ideal working conditions in which their employees can thrive, and the findings of this research project will add to this understanding.

This research in the field of organisational commitment contributes to the scientific understanding of effective motivation; its findings will help to increase the welfare of individuals. As a whole, society tends to benefit from high levels of organisational commitment as the cost from absenteeism and turnover is reduced, while the quality of work improves (Mathieu & Zajac, 1990). Understanding what drives higher levels of commitment is therefore of significant relevance to science, management practitioners, and

society as a whole. This research project focuses specifically on how organisational commitment, job satisfaction, and intellectual capabilities relate.

As the impact of intelligence on performance and achievement is contended, this research project aims to contribute to the discourse by comparing the self-reported organisational commitment of gifted and talented adults in a professional environment with a control group of professionals that report not to have tested in the upper 2% of a standardised IQ-test. While gifted and talented people by definition[1] account for a minority of the population, it is widely understood that their potential has to be tapped in the best possible way for the benefit of the wider society. That a small group of talented people has a significant impact is a widely replicated finding in management research (Andriani & McKelvey, 2009). A minority of people in any organisation or group will contribute disproportionately to the collective output. Between 80% and 98% of the output is generated by around 20% of the group or organisation, this Pareto Effect (Lipovetsky, 2009) has been found to apply in any domain measuring performance (Andriani & McKelvey, 2009; Chamorro-Premuzic, 2016). As Chamorro-Premuzic (2016) noted, it is a vital few, the most talented, that are the main drivers of any organisation's success. Consequently, talent is not overrated, but if anything, still underrated, and organisations should dedicate more resources to those minorities that make the biggest difference (Chamorro-Premuzic, 2016). Meta-analysis showed that talented individuals have a number of personality traits in common which are attributed to top performance across fields and industries, one of which is ability (Hogan, Chamorro-Premuzic & Kaiser, 2013). Ability is partially domain-specific, however, a key component is learnability with is influenced by IQ (Chamorro-Premuzic, 2016).

Finding ways to use the potential of the most capable part of society in a more appropriate manner to optimise performance and wellbeing should be a priority for any organisation. It is the aim of this research project to contribute to a better understanding of the relationship between organisational commitment, job satisfaction, and intelligence.

[1] Following Gagné's (2008) differentiated model of giftedness and talent, individuals can be classified as gifted whose natural abilities and potential in one or more of the human domains intellectual, creative, socioaffective and sensorimotor are distinctly above average. Individuals whose developed skills and knowledge in at least one area of human performance are distinctly above average can be classified as talented (Gagné, 2008).

1.2 Problem definition

Organisations are faced with the challenge to attract and retain talent and to keep those talents motivated. The question of how to increase employees' commitment to the organisation is of central importance to the ongoing policy debate on the development and especially the retention of the workforce. For management science and for practitioners, exploring the determinants of a committed and satisfied workforce has a direct and relevant implication.

Findings of large-scale studies on workplace surveys (Bonau, 2018; Brown et al., 2011) showed that workplace human resources influence employee commitment and loyalty. Thus, employers have the opportunity to influence their workforce's commitment and loyalty, and ultimately improve overall performance. By understanding how different HR policies influence employee's attitude towards the organisation, specifically their commitment to and satisfaction with the organisation, managers are enabled to implement specific practices that foster employee's feelings of loyalty.

Employee turnover and absenteeism have been found to be predicted by organisational commitment (Meyer, Stanley, Herscovitch, & Topolnytsky, 2002). Numerous studies have reported on the negative implications of higher absenteeism and turnover rates for organisations. Disruptions through absence and churn rates cost organisations in productivity and morale, as well as in additional hiring and training costs (Koh & Boo, 2004; Hausknecht & Trevor, 2011). Beyond the benefits of job satisfaction and well-being for the employees, from a financial perspective, it is also in the interest of the company to have a loyal and committed workforce.

Linking commitment with leadership, Yahaga and Ebrahim (2016) showed that positive organisational outcomes that have been linked to commitment include job performance (Chen, Silverthorne, & Hung, 2006; Yousef, 2000), employee satisfaction (Chughtai & Zafar, 2006; Meyer et al., 2002; Yousef, 2000), and lower turnover (Angle & Perry, 1981; Meyer et al., 2002; Powell & Meyer, 2004). How commitment to the organisation develops, and which aspects contribute to stronger commitment and higher job satisfaction is what researchers and management practitioners alike continue to strive to understand. Findings of this research project help to identify steps that can be taken on an

organisational level to increase organisational commitment and job satisfaction. Factors that originate within an individual, as well as factors outside the individual, which initiate work-related behaviour have been considered when looking at antecedents of commitment.

1.3 Research questions and Hypotheses

The starting point of this research project is the assumption that high levels of organisational commitment predict qualitative and quantitative better performance, and that higher levels of self-reported job-satisfaction would have more positive attitudes towards the organisation as a consequence. Then, the research question that was tested through empirical research was which role intelligence plays in the development of organisational commitment and of job satisfaction. These relationships were also analysed for motivational aspects that might contribute to positive attitudes towards the workplace. Further, the research objectives were to identify factors that contribute to higher levels of organisation commitment and of job satisfaction among highly intelligent employees.

This current study assumed that the type of organisation (e.g., for-profit, or non-for-profit) which professionals are engaged in does not influence the results of organisational commitment and of job-satisfaction significantly. Instead, it is the working environment as such that would impact these attributes. Thus, participants were not targeted by the type of their employer organisation. Rather, this study included individuals in for-profit as well as in not-for-profit organisations. Participants were asked for their attitudes towards the organisation they work for; the questionnaire does not distinguish between attitudes towards the organisation as a whole and those towards subunits or immediate teams.
The overarching interest for this research is to deepen the understanding of the circumstances in which highly intelligent people reach their full potential. Therefore, research will be based on the following hypotheses:

Hypothesis 1

Intelligence in the sense of intellectual capacity is negatively correlated with organisational commitment, in that highly intelligent employees report lower levels of aspects that together form organisational commitment.

Hypothesis 2

Job satisfaction has a moderating effect between the dimensions of organisational commitment and intelligence.

1.4 Organisation of the study

A brief overview of the organisation of the study and methodology is presented as an introduction, while a more detailed outline will follow in Chapter 3. The scientific method according to Garlach (2015) and Gauch (2003) describes a continuous process for conducting research in social sciences: first, research questions and hypotheses are formulated, then a study is conducted to find answers to the research questions, the results of the study are then analysed, based on this analysis conclusions are drawn about the research questions, and finally the conclusions and results are published to become part of the scientific debate (Figure 1.1).

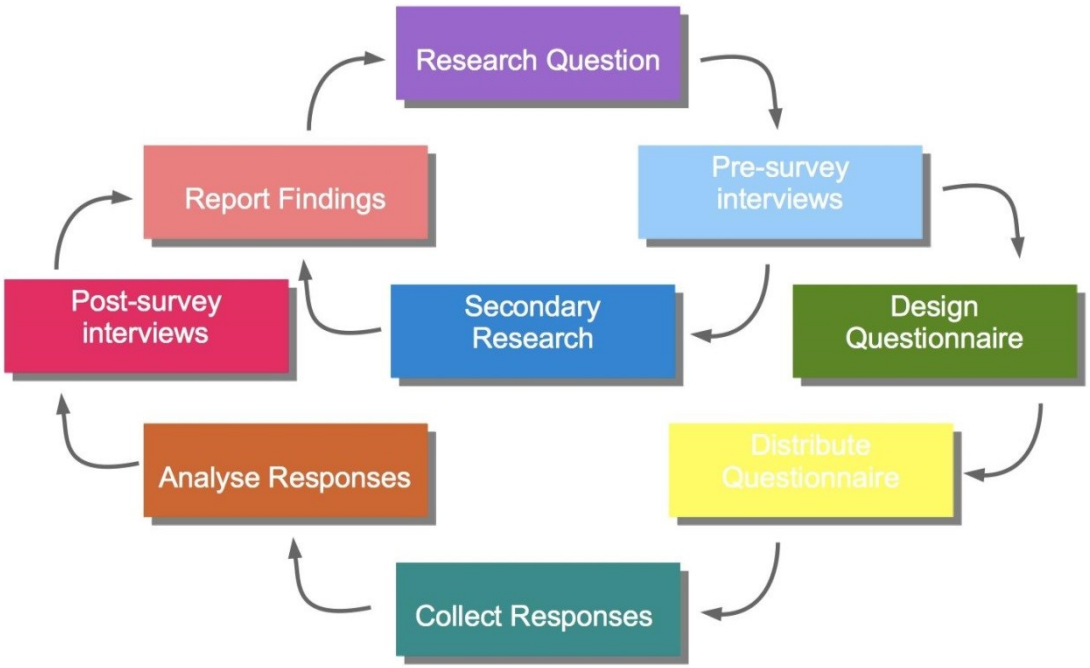


Figure 1.1. The research method (own work).

Initially, extensive secondary research was conducted to analyse existing relevant publications in the domains of organisational commitment, job satisfaction, and the role of intelligence for professional performance. Based on the existing theoretical frameworks, the foundation for primary research was laid as objectives were set out, the problems were defined, and the hypotheses were formulated. Pre-survey interviews, as well as discussions with experts from academia and professional executives, have helped to further refine this foundation and ensure that the survey was designed effectively and would address the most pressing points.

The primary research was then conducted by asking participants for their self-reported organisational commitment and job-satisfaction, as well as for background information about them personally. Detailed questions covered the different aspects of organisational commitment and job-satisfaction. The survey was conducted in form of an online questionnaire which was distributed to the participants in the three focus countries, Germany, the United Kingdom, and the United States, in December 2016. Of the total participants, 2,586 were members of the high-IQ society Mensa in the national groups of Germany, the United Kingdom or the United States. The three focus countries were selected due to the number of members in their respective national groups, these being the three biggest national groups. While Mensa is a global network, and gifted and talented people exist across all cultures and societies, the research focused on cultures which broadly share similar economic systems and hence show comparable working conditions characterised by competition.

As the entry requirement for a membership in the Mensa society is a score in standardised intelligence quotient test within the upper two percentile, the group of participants was considered the “high-IQ group”. The remaining participants were professionals from the participating countries who did not report to be a member of a high-IQ society. This group functioned as the control group.

For the analysis of the data from the online survey, exploratory factor analysis using the principal component method was conducted to test the significance of the four factors of the underlying concepts (affective commitment, continuance commitment, normative commitment and job satisfaction), followed by confirmatory factor analysis to test the fitness of the structures. Stepwise hierarchical multiple regression analyses were then carried out to test the hypotheses and determine interactions among different independent variables.

Further, qualitative results drawn from focus group discussions were added to validate the findings from the quantitative research. Secondary data was then analysed to compare findings from previous studies with the expected results of this research project.

1.5 Outline of the thesis

The thesis is structured into five main chapters, each guiding through the different steps of the research:

The first chapter presents an introduction to the topic and sets the frame for the research project. It outlines why this study is relevant and necessary, and how its findings contribute to the existing knowledge in the field.

The second chapter gives a detailed overview of related work and existing research findings in international literature on organisational commitment, job satisfaction, and giftedness, as well as related topics. It illustrates how the concepts evolved over time and what the current status quo of the academic discourse on the subjects is.

In the third chapter, a comprehensive outline of the methodology of the research conducted is presented. The chapter discusses material and methods of selected, relevant existing studies. The sample and the population of the study are described in detail, as well as the development and design of the study. It also illustrates how data has been collected and which types of analyses have been conducted.

The fourth chapter reviews the findings of the research, incorporating the preliminary review, the primary research and the results of the focus group discussions. The results of the study are presented and analysed, and the results are compared to the findings from relevant previous studies.

The final chapter discusses the results and presents conclusions based on the research findings. Implications of the findings for research and practitioners are discussed. This chapter also addresses limitations of this study and proposes directions for future research.

1.6 Novelty and significance of this research

In this thesis, I will attempt to identify the extent to which individual characteristics contribute to differences in employees' attitudes towards their workplaces. This study aims to explore how individual personal characteristics, such as the intellectual capabilities of employees, affect the development and level of organisational commitment and job satisfaction. Further, the link between organisational commitment and job satisfaction is tested. Additionally, this research project illustrates how theories on motivational states such as self-efficacy and self-determination theory can be linked to workplace attitudes such as organisational commitment and job satisfaction, as well as to intelligence.

This project makes a contribution to the existing knowledge of management research and organisational psychology with a particular focus on highly intelligent individuals in a professional setting. As such, beyond contributing to management science, this research project also adds to the underserved discipline of giftedness research with relation to adults in their workplace. While some argue that social and political pressure on scholars in the field of intelligence research makes them reluctant to share their conclusions freely (Gottfredson, 1997), the significance of understanding the conditions in which capable members of an organisation thrive should be obvious to academia as well as practitioners.

2 LITERATURE REVIEW

2.1 Introduction

That Human Resource (HR) practices are related to an organisation's performance has been widely documented. A number of studies have shown that HR practices are related to various performance measures such as Return on Equity, Market Value, or operational measures (see Wright & Kehoe, 2008).

Considerable interest has risen in the mid-1980s in the idea that companies can improve their performance when they increase their employees' commitment through measures of human resource management (Bryson & White, 2008). Human resource management practices have been linked to both organisational commitment and to improved organisational performance (see Bryson & White, 2008).

Understanding the linkage between different HR measures, employees' job satisfaction, their commitment to the organisation, and organisational outcomes or performance is crucial for managers in the interest of both their staff and their stakeholders.

2.2 Organisational commitment

Organisational commitment (OC) has received increasing attention in the field of organisational behaviour and, more generally, management research particularly over the course of the past five decades. As a psychological aspect of the link between the interests of the individual and the organisation as a whole, OC is considered as an important contributor to the organisation's success. The benefits of having a workforce that is strongly committed to the organisation have been established by a substantial body of evidence (see Meyer and Maltin, 2010, for a review). Several personal variables and states, as well as qualities of the working environment such as job characteristics or organisational structures have been linked to OC. To predict employees' turnover, absenteeism (Meyer et al., 2002), well-being (Meyer & Maltin, 2010) and performance (Cooper-Hakim & Viswesvaran, 2005; Riketta, 2002), OC has been employed as an antecedent (Mathieu & Zajac, 1990).

Organisational commitment has been conceptualised and measured in numerous different ways. One of the early definitions, developed by Mowday, Porter and Steers (1982), has received a fair amount of attention, according to which organisational commitment can be characterised by the three factors: to accept and strongly believe in the organisation's values and goals (commitment), to be willing to dedicate a lot of effort to the organization (absenteeism), and to strongly desire to remain a member of the organisation (turnover) (Mowday et al., 1982).

Meyer and Allen (1991) distinguish three types of commitment as different components of the psychological state: affective, continuance and normative commitment. Affective commitment (AC) would reflect a desire, while continuance commitment (CC) would stem from a need and normative commitment (NC) from an obligation to maintain in an employment relationship with the organisation (Allen & Meyer, 1990). The Three-components model (TCM) of commitment has since gained wide acceptance. It has been developed to account for the difference of the three components in their relations to desirable work behaviours such as performance (Meyer et al., 2002). Hence, one of the most important reasons for distinguishing between three different forms of organisation commitment was that they differ in their implications for the employee's behaviour (Meyer & Allen, 1991):

$$OC = AC + CC + NC$$

Cultural differences in organisational commitment have been tested, with results showing that lower organisational commitment is measured in countries with high job insecurity, which indicates that a country's economic status might influence individual's work commitment (Žižek, Treven, Čič, Dunkl, & Jiménez, 2015).

While the concept is contested and some question its defined meaning, several findings show positive outcomes associated to the concept, and the three component model has received much empirical support (Meyer et al., 2002; Allen, 2016). It has been further extended to account for further complexities, specifically sub-dimensions of continuance commitment as the lack of alternative opportunities (LoAlt) for employment, and the perceived high sacrifice (HiSac) of leaving the organisation (Powell & Meyer, 2004):

$$OC = AC + CC{:}LoAlt + CC{:}HiSac + NC$$

The concept of commitment has become more relevant over time as organisations need a committed workforce more than ever (Klein, 2013). Distinct aspects of commitment help understand, predict, and influence behaviour in organisations, which makes the concept valuable and relevant for organisations (Klein, Molloy, & Brinsfield, 2012). Recent research has included commitment to other targets than the organisation as a whole, such as commitment to teams, projects, goals, career, or values, and the focus of commitment research has recently also expanded to include within-person differences and the between-person level (Klein, 2013; Klein et al., 2012).

To conceptualise the development of commitment, Bergman and colleagues (2013) created a contingency approach according to which micro-events in the workplace and how people react to them would shape commitment. Specifically, person-environment fit and trait activation were the two processes that would drive the development of commitment by building the framework within which the workplace events are evaluated relative to the individual's values (Bergman et al., 2013). Expanding the contingency approach by including the self-concept then takes into account how several individual differences

combined influence the development of commitment (Bergman & Jean, 2016; Bergman et al., 2013)

This research project builds on these latest trends in commitment research, and analyses between-person differences of the three types of commitment. The evolution of organisational commitment and its three components is outlined in the following.

2.2.1 Commitment to what? Social Identification as a starting point

In order to develop an attitude towards a target or focus point, the individual member first has to identify with the group. Social identification is considered in two dimensions: cognitive and affective identification. The cognitive aspect of identification, in particular, has received some attention by organisational researchers in distinguishing organisational commitment from organisational identification (Johnson, Morgeson, & Hekman, 2012). Both concepts have cognitive and affective components (see Johnson et al., 2012), however, the affective component of commitment has received more attention in research than affective components in identification.

Cognitive identification as a self-categorisation of belonging to a group can be considered as a precondition for affective reaction towards the identification, while affective identification then describes how the individual feels about themselves of oneness with relation to a specific group (Johnson et al., 2012). Further, Johnson and colleagues suggest that the actually experienced feelings of identification are generally positive because individuals wish to feel joy and pride in relation to their membership, and as a result of these positive emotions are more likely to identify with the group (Johnson et al., 2012). Hence, cognitive and affective identification would have a reinforcing effect on each other.

Both cognitive and affective identification have been found to contribute to organisational commitment in a statistically significant manner (Johnson et al., 2012). The links between cognitive as well as affective identification and organisation commitment have been studied, and the key argument for the impact commitment has on performance is considered within the concept of social identity theory (cognitive and affective) (Tajfel, 1982). According to social identity theory, the sense of self is greatly influenced by the groups to which the individual belongs, and this self-concept should be distinctive and

positive (Tajfel & Turner, 1979). As such, identification can be considered a basis of commitment, i.e. a process that links commitment to different workplace experiences (Bergman & Jean, 2016).

2.2.2 Affective commitment

Following Meyer and Allen's (1990) three-component model of organisational commitment, Affective commitment is considered as an emotional attachment to the organisation, in that strongly committed individuals identify with, are involved in, and enjoy membership in the organisation (Allen & Meyer, 1990). After job satisfaction, affective commitment is generally considered as the second most widely measured construct in the field of job attitudes (Fisher, 2010).

Carmeli (2003) identified a positive relationship between affective commitment and emotional intelligence. Higher emotional intelligence was linked to higher levels of affective commitment and attachment to the organisation. Emotional intelligence in this context is understood as the ability to place oneself in a state of positive affection in the face of negative experiences. This positive correlation between emotional intelligence and affective commitment is explained by the concept that emotionally intelligent people do not hold the organisation responsible for feelings of frustration which their work might impose on them. Instead, they would focus on the resolution, so that these negative emotions would not have an impact on their attitude towards their employment organisation (Carmeli, 2003).

On the relationship between cognitive and affective identification, Johnson and colleagues (2012) examined whether one of the two dimensions precedes the other. In their data, cognitive identification was found to be more stable over time than affective identification, and they also found that cognitive identification may be a precondition for the development of high levels of affective identification, though the reverse has not been found to apply (Johnson et al., 2012). This can be interpreted as confirming that the individual has to cognitively associate with a group before they can feel oneness with the group.

When testing the long-term influence of five different personal characteristics of employees (gender, level of education, type of employment, job level and service time) on the three components of organisational commitment with over 55,000 employees of a Brazilian oil and gas company, Abreu, Cunha and Rebouças (2013) found that that type of employment - contractor or directly employed by the company - had the greatest impact on affective commitment.

Affective commitment can be influenced by the manner in which organisational policy is communicated (Konovsky & Cropanzano, 1991), and has also been found to be significantly positively related to the perception of fairness of policy (Meyer & Allen, 1997). Specifically, procedural justice rather than outcome fairness has been found to predict affective commitment, as it can create employee loyalty as well as the long-term expectation of fair treatment which contributes to the employees' endorsement of their employer organisation (Konovsky & Cropanzano, 1991). Meyer, Hecht, Gill and Topolnotsky (2010) found that a fit between perceived culture of the organisation and the preferred culture of the individual related positively to affective commitment.

Gender can have an impact, though more modest than often believed, on affective commitment, depending on previous experience and work characteristics (Marsden, Kalleberg & Cook, 1993), with females rather focused on participating in connection, mutuality and interdependence rather than autonomy and independence (McColl-Kennedy & Anderson, 2005). Overall, other antecedents such as leadership style and self-esteem, have been found to have a greater influence on commitment (McColl-Kennedy & Anderson, 2005).

The relationship between age and affective commitment has been found to be significant but weak (Mathieu & Zajac, 1990), while older employees are more likely compared to younger employees to have positive work experience (Meyer & Allen, 1997). Additionally, evidence suggests that employees with higher levels of affective commitment tend to favour later retirement, after the optimal age when it is financially most attractive to do so under their benefit plan (Luchak, Pohler, & Gellatly, 2008).

Further, Meyer and Maltin (2010) found evidence for positive links between affective commitment and employee well-being. Specifically, employees with strong affective

commitment could be better able to withstand stressors, and affective commitment would also relate positively to engagement (Meyer & Maltin, 2010). Additionally, affective commitment has been found to correlate strongly and consistently with employee-reliant outcomes relevant for organisations (Da Camara, Dulewicz, & Higgs, 2015). While a significant correlation between organisational emotional intelligence and affective commitment could not be found, Da Camara and colleagues could provide evidence for the mediating role of organisational commitment and job satisfaction on perceptions of organisational emotional intelligence and turnover intentions, with both affective commitment and job satisfaction combined having a high impact on intentions to leave (Da Camara et al., 2015).

In a meta-analysis of employee commitment across cultures, economic variables were found to strongly influence affective commitment and normative commitment, and affective commitment was found to be stronger in individualistic settings (Fischer & Mansell, 2009).

2.2.3 Continuance commitment

Employees are induced to fulfil the basic requirements of their job out of fear of change and to avoid the potential cost of leaving the organisation, influenced also by the perceived lack of alternatives, which is captured in the concept of continuance commitment (Allen & Meyer, 1990). Following this concept, individuals stay with an organisation due to a perceived lack of viable alternatives; it hence represents rather an avoidance strategy than triggering positive feelings or loyalty (Fisher, 2010).

In their meta-analysis of almost one thousand articles, Cooper-Hakim and Viswesvaran (2005) found that all forms of commitment correlated higher with turnover intentions than with actual turnover. Turnover intentions can significantly be predicted by continuance commitment for a given age, education and job level (Abreu et al., 2013). Continuance commitment was not found to be significantly correlated with job satisfaction or performance (Cooper-Hakim & Viswesvaran, 2005).

Carmeli (2003) theorised that continuance commitment is less strong with people who show high levels of emotional intelligence. Though the relationship between continuance

commitment and emotional intelligence was not found to be significant, the beta coefficient showed the expected direction (Carmeli, 2003).

Of the five different personal characteristics of employees (gender, level of education, type of employment, job level and service time) tested by Abreu and colleagues (2013), level of education and service time were found to have the most significant impact on continuance commitment, with a negative correlation between education and continuance commitment. Age and tenure, however, are not considered to directly predict continuance commitment. It can be concluded that higher education reduces the fear of losing the current employment.

Continuance commitment has been found to increase over time in the organisation, as the personal investment of employees accumulates (Powell & Meyer, 2004). In case the organisation was left, benefits such as seniority rights, pension plans or organisation-specific training would be at risk or constitute a sacrifice. As a result, continuance commitment would increase (Powell & Meyer, 2004).

While procedural justice has been found to be linked to affective commitment, it has not been found to be related to continuance commitment (Konovsky & Cropanzano, 1991). Meyer and Maltin (2010) found a negative association between continuance commitment and employee well-being, as organisations could create a conflict for employees when encouraging retention without taking quality of work life into consideration. The correlation between continuance commitment and performance has also been found to be negative (Cooper-Hakim & Viswesvaran, 2005). Luchak and colleagues (2008) found that employees with moderate to high levels of continuance commitment plan to retire at an age when it is financially most attractive to leave the organisation.

In a cross-cultural comparison, Žižek and colleagues have found that continuance commitment is higher in countries with higher unemployment rates, as the cost of leaving the organisation is comparably higher due to potential risk of not finding employment soon (Žižek et al., 2015). In a meta-analysis of employee commitment across cultures, greater power distance was found to be associated with higher continuance commitment (Fischer & Mansell, 2009), which could be explained by sensitivities to social norms expectations (Meyer & Parfyonova, 2010).

2.2.4 Normative commitment

Normative commitment is considered as the individual's obligation-based belief about their responsibility to the organisation (Allen & Meyer, 1990). Individuals stay with the organisation out of the belief that it would not be "right" to leave the organisation and its people (Fisher, 2010). It is sometimes regarded as a redundant concept that is similar to affective commitment and that does not help to explain behaviours not already associated with other components of commitment (Meyer & Parfyonova, 2010). Cohen (2007) argued that normative commitment would be shaped mostly by socialisation and cultural factors, and therefore would provide only little information about current employees' commitment after entry into the organisation. However, normative commitment and affective commitment define separate factors, though highly correlated, and findings suggest that the mindsets of desire and obligation can co-occur (Meyer & Parfyonova, 2010).

Organisational measure such as specific training can contribute to the development of all three types of commitment, or more than one form - a sense of desire to remain as a reflection of organisational support, the obligation to remain based on a benefit that requires reciprocity, or the need to remain due to the time invested in acquiring the skill - depending of the individual's perception (Meyer & Allen, 1997). For example, a positive work experience could contribute to a perceived obligation towards the organisation as well as a desire to fulfil the company's goals, creating both normative and affective commitment (Meyer et al., 2002). Some studies have also shown unique contributions of normative commitment (e.g. Herscovitch & Meyer, 2002; Lee, Allen, Meyer, & Rhee, 2001), as well as differences in cross-cultural research (Fischer & Mansell, 2009).

Although both continuance commitment and normative commitment reflect perceived cost, only normative commitment has been found to be positively related to job performance and organisational citizenship (Allen & Meyer, 1996; Meyer et al., 2002). A substantial correlation between normative commitment and affective commitment has also been found consistently (Meyer et al., 2002).

Meyer and Parfyonova (2010) argue that normative commitment has a dual nature, and propose two profiles - one with strong affective and normative commitment, the sense of

moral duty, and one with strong continuance and normative commitment, the sense of indebted obligation. The combination of affective and normative commitment has been found to create more positive behavioural outcomes than affective commitment alone, whereas strong continuance commitment combined with normative commitment can have negative consequences on desired organisational behaviours (Meyer & Parfyonova, 2010; Herscovitch & Meyer, 2002). The profile characterised by moral duty is proposed to be associated with positive beliefs and affect like meaningfulness and optimism, whereas the indebted obligation mindset is proposed to be associated with less positive and affectionate beliefs such as inconvenience and guilt (Meyer & Parfyonova, 2010).

When testing the long-term influence of five different personal characteristics of employees (gender, level of education, type of employment, job level and service time), Abreu and colleagues (2013) found that that type of employment - contractor or directly employed by the company - had the greatest impact on normative commitment.

Normative commitment has been found to be associated with greater collectivism as well as greater power distance in a cross-cultural study, and the relationship between normative commitment and turnover intentions was stronger in collectivistic settings (Fischer & Mansell, 2009). This might be explained by the role of social norms and expectations, particularly in cultures with salient social interdependence (Meyer & Parfyonova, 2010).

2.2.5 OC and individual differences

Individual characteristics related to the employee's values and personality are considered antecedents of commitment, which influence the cognitive and affective processes that lead to the degree of the individual's commitment (Klein et al., 2012; Bergman & Jean, 2016). As such individual characteristics, perceptions of control, autonomy needs, regulatory focus and risk aversion are some of the traits that have been considered antecedents of commitment and workplace bonds (see Klein et al., 2012). All five traits of the Big-Five personality traits model (extraversion, conscientiousness, agreeableness, openness and emotional stability) have been found to be positively correlated with affective commitment and normative commitment, while a negative correlation has been found between extraversion, openness, emotional stability and continuance commitment (Choi, Oh & Colbert, 2015). Gender has not been found to have a significant impact on organisational

commitment, and neither has job level (Abreu et al., 2013), hence both aspect will be disregarded in further analysis.

Different commitment profiles have been found to show behavioural differences with employees, these commitment profiles have been found to determine how the individual components of organisational commitment are experienced (Meyer & Morin, 2016; Gellatly, Meyer & Luchak, 2006; Herscovitch & Meyer, 2002). There is merit in testing some aspects of commitment theory with a person-centred approach (Meyer & Morin, 2016). Any one component of commitment can suffice to tie an employee to the organisation, while the three components seem to have additive effects on the intention to remain with the organisation (Gellatly et al., 2006). However, the implications of the three forms of commitment for on-the-job behaviour can differ, and the context created by the other components influences how any single component relates to behaviour (Gellatly et al., 2006).

When normative commitment is combined with strong affective commitment, individuals both want to remain with the organisation and believe it is the right thing to do, which causes them to be more satisfied, more engaged, and more willing to exert effort compared to uncommitted or solely normatively committed employees (Meyer, Stanley & Parfyonova, 2012).

2.2.6 Consequences of OC

Specifically, some practices considered as part of "Perceived Organisational Support" (POS) have been found to be significantly associated with organisational commitment. Bryson and White (2008) found that POS measures that were most strongly related to higher organisational commitment concern the employer's tolerance of sickness absence, and the employer's policies to give employees the prospect of a long-term career within the organisation.

In a number of meta-analytic studies, all three measures of organisational commitment have been found to be negatively correlated with both turnover intention and actual turnover (Gellatly & Hedberg, 2016). Affective commitment has shown the strongest negative correlation. Newer developments in turnover research discuss the potential

connection between withdrawal mindsets and organisational commitment as causes for turnover decisions (Gellatly & Hedberg, 2016; Li et al., 2015).

Kehoe and Wright (2013) found that the effects of management practices on turnover intentions were completely mediated by affective commitment, while the effects on actual attendance were unaffected. These findings are in line with Jiang and colleagues' conclusions that employee attitudes such as commitment mediate the link between HR practices and turnover and operational as well as financial outcomes (Jiang, Lepak, Hu & Baer, 2012).

The negative implications of higher absenteeism and turnover rates for organisations have been widely reported on (Jiang et al., 2012; Glebbeek & Bax, 2004; Morrow & McElroy, 2007). Absence and churn rates cost organisations in productivity and morale through disruptions, as well as in additional hiring and training costs (Koh & Boo, 2004; Hausknecht & Trevor, 2011).

2.2.7 Different conceptualisations

Other conceptualisations than the three-component model by Meyer and Allen (1991) exist, for example, Klein and Park's (2016) conceptualisation as a unidimensional construct. Allen (2016) presents a detailed line of arguments for applying the multidimensional three-component model. She argues that because commitment dimensions do not fluidly and rapidly change in response to workplace events, but rather established commitment profiles across workplace events, a multidimensional construct with corresponding commitment profiles serves better to explain the psychological complexities behind workplace commitment (Allen, 2016). This logic is followed by this research project; hence, the three-component model is used as a theoretical framework and basis for analysis.

The research project focuses mainly on commitment to the organisation, while a variety of targets and foci of commitment have been hypothesised and tested over time (see Becker, 2016 for an overview and a SWOT analysis of current research into multiple foci of commitment).

2.3 Intelligence and measuring intelligence

As antecedents of organisational commitment, special focus is placed on the personal characteristic of intelligence and its role in the workplace. While theories on intelligence, or General Mental Ability (GMA), have been developed and researched for over a century, particularly in recent time the topic has become politically loaded and disputed (see Furnham, 2008, for a review). While certain aspects of the nature and definition of intelligence are disputed, and in particular the question whether different types of intelligence exist has been greatly debated in recent time, most experts fundamentally agree on the basics (Eysenck, 1998).

The Board of Scientific Affairs at the American Psychological Association (APA) has defined intelligence in the following way: "Individuals differ from one another in their ability to understand complex ideas, to adapt effectively to the environment, to learn from experience, to engage in various forms of reasoning, to overcome obstacles by taking thought" (Neisser et al., 1996). The substantial influence of intelligence on all areas of life, including life satisfaction and achievements, has been widely demonstrated in social psychology.

In response to an in part not particularly well-informed controversy on human intelligence in the mid-1990s, over 50 international experts on intelligence signed a statement, "Mainstream Science in Intelligence", which was published as an editorial in the Wall Street Journal (Gottfredson, 1997). With the intention to inform on arguments made which misstate scientific evidence and dismiss firmly supported ideas, the publication's 25-point statement presents conclusions on the origins, nature, and practical consequences of differences in intelligence (Gottfredson, 1997). Along with the aim of Gottfredson's 1997 editorial, to address misconceptions and promote a more reasoned discussion on human intelligence, this summary functions as a foundation of agreed upon concepts and ideas based on which further research questions can be developed.

It should be noted at this point, however, that the brain processes which underlie intelligence are still not thoroughly understood. The Parieto-frontal integration theory (P-FIT), developed by Jung and Haier (2007) based on a review of 37 neuroimaging studies, proposes that a network of brain regions, including regions within the parietal, frontal, and

cingulate cortices, relate to individual differences in intelligence by allowing rapid and efficient transmission of data. The P-FIT has generally been confirmed by subsequent studies, including studies that use a different methodology, and can be considered the best available explanation for the question where in the brain intelligence resides (Deary, Penke & Johnson, 2010).

2.3.1 Different types of intelligence

It has been widely discussed whether there are different types of intelligence, and whether intelligence tests measure all abilities that are relevant for the conclusions drawn from their results when using IQ test as a predictor. McClelland (1973) first proposed competencies as critical in differentiating performance. Boyatzis (2008) defines three clusters of competencies that would differentiate outstanding performers from average: cognitive competencies, emotional intelligence competencies, and social intelligence competencies. He defines cognitive intelligence competency as "an ability to think or analyse information and situations" which leads to superior performance (Boyatzis, 2008). Emotional intelligence competencies, on the other hand, would include abilities in self-awareness and self-control (Goleman, 1995), and social intelligence competencies would include social awareness and relationship management capabilities (Goleman, 2006). This set of competencies an integrated system view of personality which is more holistic in nature (Boyatzis, 2008).

While specific abilities can be considered important for the full understanding of intelligence, research has shown that general mental ability predicts criteria such as job performance and training success relatively strongly, while specific abilities create little incremental validity when a general intelligence factor is controlled for (Judge & Kammeyer-Mueller, 2012).

2.3.2 Reliability and validity of IQ tests

Some of the main critical points raised against the usage of IQ test scores for predicting performance or achievement is related to the test's validity and reliability. These concerns have been proved to be unfounded. Overall, the standard intelligence tests have an adequate validity, they reliably predict academic success (around r = .5) and other social

variables, including job performance (Furnham, 2008). The result of an IQ test is generally very reliable, test-retest correlations are above r = .90 under normal circumstances. As such, intelligence tests are among the most reliable and valid of all psychological assessments and tests (Gottfredson, 1997).

In fact, a review of test validity commissioned by the APA based on more than 125 meta-analyses found IQ tests to compare favourably to the validity of some medical tests, which leads to raise the question whether those opposing IQ tests on the grounds of insufficient validity hold similar concerns against, for example, mammogram screening for breast cancer or home pregnancy tests, which predict expected outcomes less precisely than IQ tests (Nettelbeck & Wilson, 2005).

Additionally, IQ scores have found to be stable over the lifetime, after gradually stabilising during childhood. While environmental aspects may affect the IQ to some extent, it generally does not change significantly over the span of life (Gottfredson, 1997). This attribute has been confirmed by a study with a very large sample of Scottish schoolchildren, whose IQ has been measured at age 11 as well as age 80, with an uncorrected correlation of .7 (Deary et al., 2004). How exactly the environmental influences need to be manipulated to have a positive effect on IQ scores has not been established reliably yet.

Furthermore, a number of studies have shown that IQ scores' validity applies irrespective of the cultural context in which the test is taken. "Being clever" is valued across cultures, regardless of how it might be defined within the culture, and it has been found to be cross-situational and cross-temporal (Nettelbeck & Wilson, 2005). Salgado and colleagues looked at over 250 studies with in total over 25,000 participants from Europe, and came to the conclusion that GMA measures are the best individual predictors of work performance internationally, despite cultural differences, different demographics and tests used (Salgado et al., 2003).

2.3.3 IQ as a predictor of performance

The relationship between intelligence and job performance has been investigated numerous times, and based on the data, Furnham (2008) summarises the findings in the following

conclusions: a) The validity of the relationship between cognitive ability and job performance ranges between the .3 and .5 mark, and is lower for job performance than for training. b) Generally, validity stays unaffected across industries, job positions and countries, while it increases with the complexity of the job. c) Intelligence is the best predictor of overall job and task performance. d) The more complex the job, the higher the predictive validity of IQ tests. e) The incremental advantage of testing very specific abilities is minimal compared to general IQ test scores (Furnham, 2008).

The IQ has been found to be strongly related to many important educational, occupational and social outcomes, where its relation to performance in areas such as education is very strong, moderate in others such as social competences, and modest in some social aspects such as law-abidingness (Gottfredson, 1997). With regards to job performance, a higher IQ is necessary for a good performance in highly complex or fluid jobs like management, can be considered an advantage in somewhat complex professions such as clerical or police work, and less advantageous in professional settings such as unskilled work which require simple problem solving or routines (Gottfredson, 1997). That said, there are of course other factors, beyond individual intelligence, that affect performance in professional settings.

To one school of thought, cognitive ability tests to inform occupational decisions such as selection, assessment and promotion, are the best single predictor of professional and training performance (Hülsheger, Maier & Stumpp, 2007). Others see unfairness and discrimination against races and ethnic groups, although racial differences in measures of job performance are smaller than those in IQ test scores (Furnham, 2008). As a result of their meta-analysis of 238 samples of a total of over 13,000 participants from the United Kingdom, Bertua and colleagues concluded that HR professionals and selection practitioners should be encouraged to use psychometrically proven measures of GMA irrespective of job type, seniority, future changes in the job role composition, or whether for which type of cognitive ability the tests are intended for (Bertua, Anderson, & Salgado, 2005).

Furnham (2008) concludes that intelligence is a more powerful predictor of job performance than personality because more intelligent people would acquire knowledge faster and more efficiently, which would promote a successful career. Gottfredson (2003) argues that knowledge and experience could disguise a lower intelligence level but would

never compensate it, as more intelligent employees would deal with novel problems and apply existing knowledge more efficiently and effectively. Hence the higher value of intelligence would not be levelled out by longer experience. Mussel and Spengler (2015) analysed the correlation between intellect as part of Openness to experience, the sub-dimension of the Big Five personality traits which is the most closely correlated with intelligence (Ackerman & Heggestad, 1997), and job performance as a work-related criterion. They found significant correlation between intellect and job performance, in line with recent research findings that also found intellect as sub-dimension of the personality trait Openness to experience an important influencer of work-related behaviour (see Mussel, 2012). It is worth clarifying at this point that it is the type of job performance that can be objectively measured which is predicted by intelligence; subjectively measured performance is predicted to a lesser extent (Gottfredson, 2003).

2.3.4 Intelligence and OC

Generally, employees' propensity to commit to their organisation is stronger the more congruent they perceive the organisation's values and beliefs with their own. Additionally, the individual's socialisation in their culture, their family and their education, the individual's cultural values overall have an important impact on the individual's propensity to commit to the organisation (Cohen, 2007). Further, expectations about one's work can influence commitment propensity, in that individuals who start into a new job with higher expectations may be more prone to become committed (Mowday et al., 1982).

In their meta-analysis of organisational commitment, Mathieu and Zajac (1990) identified one study with 220 participants which supported with regards to ability a reliability of 61 %. As a personal characteristic, ability is considered an antecedent of organisational commitment, whereas job performance is seen as a consequence of OC. Based on their meta-analysis, Mathieu and Zajac (1990) conclude that it would be premature to speculate on how ability may relate to OC, while they also remark that personal characteristics are generally contextual which would need to be addressed.

As a first study to investigate this relationship, Mussel and Spengler (2015) tested for correlations between the Big-Five sub-dimension of intellect and work-related criteria, and found that the correlation between intellect and organisational commitment would be

moderate at task and organisational level. Additionally to the significant correlation between intellect and job performance, Mussel and Spengler (2015) also found intellect to be a significant predictor of organisational commitment. Among the so-called Big-Five personality traits, the trait Openness to experience has been found to be most closely correlated with intelligence (Ackerman & Heggestad, 1997), as such it can be assumed that intelligence and organisational commitment are also correlated.

Individual studies have explained why particular individual differences such as personality or abilities should be related to particular commitment mindsets (e.g. Brimeyer, Perrucci & Wadsworth, 2010; Coleman, Irving & Cooper, 1999; Wasti, 2005). A general framework on how individual differences influence the development of commitment has been proposed by Bergman and Jean (2016), expanding the concept of Bergman and colleagues (2013) by self-concept as a motivational, self-regulatory, and active factor, to account for individual differences' contribution to the development of commitment.

2.4 Job-satisfaction

A further aspect influencing an employee's behaviour at the workplace is their level of satisfaction with their job. Job satisfaction can be considered as a measure of how an employee evaluates their job, and is often employed as a proxy for the employee's wellbeing at work (Grandey, 2000). Llobet and Fito (2013) describe job satisfaction as the degree of positive emotion of a member of the organisation towards their employment. Both intrinsic job satisfaction and extrinsic job satisfaction (such as pay satisfaction) have been proven to contribute significantly to psychological and behavioural outcomes in the working environment (e.g. Ganzach & Fried, 2012; Gagné & Deci, 2005). Employees need the characteristics of their work to meet their intrinsic motivational needs in order to be satisfied at work (Ganzach & Fried, 2012).

Carmeli (2003) conceptualises that individuals with high emotional intelligence, who experience positive feelings and moods which generate high levels of satisfaction, display a greater wellbeing and overall job-satisfaction than employees with lower emotional intelligence who experience negative moods and feelings. Consequently, overall satisfaction with the workplace is likely to be higher with emotionally intelligent employees. These findings concur with the results identified by Aghdasi, Kiamanesh and Ebrahim (2011).

A positive relationship has been found between job satisfaction and peer support, supervisor support, or pay satisfaction, and negative relationships with aspects such as unclear promotion expectations (role ambiguity) and excessive workload were established (Currivan, 1999). Favourable behaviours from the organisation's perspective have also been positively linked to job satisfaction, such as organisational citizenship behaviour and intention to stay (Meyer et al., 2002).

Further, studying the example of the US retail change Sears, the positive impact of employee satisfaction on revenue has found to be quite significant (Rucci, Kirn & Quinn, 1998). According to the study published in the Havard Business Review, an increase of employee satisfaction by 5% would lead customer satisfaction to increase by 1.3%, which in turn would translate into a revenue increase of 0.5% (Rucci et al., 1998). Following the model of the service profit chain by Heskett and colleagues, employee satisfaction would

drive profitability: satisfied, loyal and productive employees would provide a better value of service, which increases customer satisfaction. Satisfied customers would be more loyal, and customer loyalty would be a primary driver of growth and profit (Heskett et al., 1994).

2.4.1 Measuring job satisfaction

There are different facet-oriented scales of job attitudes and job satisfaction in particular which have been considered in organisational behaviour research. The Jobs satisfaction survey (Spector, 1985) is designed to measure the dimensions of job descriptive index which cover the five areas of satisfaction with work, coworkers, supervision, promotions and pay (Smith, Kendall, & Hulin, 1969), as well as the dimensions regarding communication, operating procedures, benefits and contingent rewards. Most measures of job satisfaction typically focus on broad job satisfaction and ask respondents how they feel about their job most of the time, disregarding specific job characteristics (Judge & Kammeyer-Mueller, 2012). Further, Judge and Kammeyer-Mueller (2012) found that one third to one half of the variation in job satisfaction measure in studies is rooted in within-individual variation, which is often disregarded in studies focussing on between-person analysis.

Overall, Judge and Kammeyer-Mueller (2012) conclude that when general constructs should be measured as opposed to specific constructs depends on the context of the research question.

2.4.2 Intelligence and job satisfaction

Ganzach (2003) analysed the relationship between intelligence and job satisfaction, and found that intelligence has a strong negative effect on intrinsic job satisfaction which is positively associated with the level of desired job complexity. Intrinsic job satisfaction has been found to be primarily influenced by job complexity (Hackman & Oldham, 1976), whereas extrinsic job satisfaction, in particular pay satisfaction, is determined rather by pay and the coherence between expected pay and actual pay (Ganzach, 2003). Equally, intrinsic job satisfaction is determined by the difference between the desired job complexity and actual complexity of the job.

Further, Ganzach and Fried (2012) investigated the role of intelligence on the effects of extrinsic and intrinsic satisfactions on global job satisfaction, specifically its moderating role on well-being. When determining global job satisfaction, intrinsic rewards and satisfaction have been found to be more important the higher the intelligence, while extrinsic satisfaction and rewards become less important (Ganzach & Fried, 2012). Consequently, intelligence may be a factor that could explain why intrinsic satisfaction and extrinsic satisfaction have differing effects on overall job satisfaction among different individuals.

Previous research findings suggest that intelligence would predict not only the attitude individuals have towards their job, but also the type of job they will hold. Individuals with higher levels of intelligence would tend to seek complex, stimulating jobs, while jobs that are less challenging and more monotonous would engage individuals with lower levels of intelligence (Ganzach, 1998). Intelligence is thereby seen as a moderator between rewards as independent variables and overall satisfaction, as well as moderating the relationship between facets' satisfaction as the mediator and global satisfaction (Ganzach & Fried, 2012).

De Haro, Castejón and Gilar (2013) analysed the moderating role of intelligence on personality traits as predictors of early career success, considering the intrinsic indicator of job satisfaction as a measure of career success. Within their study, IQ was not found to be correlated with career satisfaction (de Haro et al., 2013). Given that the impact of general mental ability may increase over time, as indicated by McDaniel, Schmidt and Hunter (1988), and as this study looked specifically into success at early stages of the career, the relevance of intelligence should not be entirely dismissed. Looking specifically at MBA students and alumni, Amdurer and colleagues found evidence that demonstrating cognitive intelligence competencies affects life satisfaction negatively, whereas a relationship between higher levels of cognitive intelligence competencies and career satisfaction could not be confirmed (Amdurer, Boyatzis, Saatcioglu, Smith & Taylor, 2014). Interestingly, the level of intelligence has been found to moderate the effect of the Big-five personality traits (neuroticism, extraversion, openness, agreeableness and conscientiousness) on career satisfaction (de Haro et al., 2013).

Following these findings, one can conclude that highly intelligent employees would be more likely to report lower levels of intrinsic job satisfaction, likely caused by the actual complexity of the job not meeting the desired level.

2.4.3 Job satisfaction and Organisational commitment

Organisational commitment and job satisfaction have traditionally been considered correlated, the question of causality has not been empirically established yet (Llobet & Fito, 2013). It is believed that different aspects of commitment differ in their relationship with job satisfaction.

Job satisfaction as an affective response is considered as correlate of organisational commitment, with the correlation between job satisfaction and organisational commitment being found to be uniformly positive in meta-analysis, while between-study variance remained substantial (Mathieu & Zajac, 1990). However, among the corrected correlates that were analysed, extrinsic job satisfaction was the only one that was categorised as small. It is contested whether job satisfaction causes organisational commitment, or whether organisational commitment may be a cause for job satisfaction, with research findings supporting both arguments (see Mathieu & Zajac, 1990, e.g. Bluedorn, 1982; Bateman & Strasser, 1984). This dissent illustrates the importance of developing theoretical models of causal relations.

Particularly affective commitment has been found to be positively and strongly correlated to job satisfaction, Cooper-Hakim and Viswesvaran (2005) found a correlation of .50 between affective commitment and job satisfaction when conducting a meta-analysis of 997 articles on work commitment. In 879 of the analysed studies, organisational commitment was correlated with job satisfaction (Cooper-Hakim & Viswesvaran, 2005). Cooper-Hakim and Viswesvaran (2005) conclude their analysis with the advice for employers to focus on maintaining and enhancing their employee's work commitment, as this would impact job satisfaction as well as performance and turnover.

Greater job satisfaction is expected to lead to stronger commitment to the organisation, as per definition, the committed employee has a desire to remain in their organisation or is unwilling to leave the organisation for moderate personal advantage (Joseph & Deshpande,

1996). It has consistently been argued that job satisfaction would affect organisational commitment, for example by Porter and colleagues' (1974) interpretation that job satisfaction would be less stable and more specific than organisation commitment, and Steers' (1977) suggestion that employees would be more committed to the organisation when their needs are satisfied. As such, job satisfaction can be considered a determinant of organisational commitment (e.g., Koo & Boh, 2004; Lok & Crawford, 2001).

2.5 Further aspects influencing Organisational Commitment

Above and beyond understanding the different characteristics and manifestations of organisational commitment, further insights into why employees develop those attitudes and how they are established are provided in the following section.

2.5.1 Motivation and OC

Motivation can be defined as energy and direction that drives cognition or behaviour (Deci & Ryan, 1985; Ryan & Deci, 2000). The three-component model of organisational commitment (Allen & Meyer, 1990; Meyer & Allen, 1991) has been enhanced by the integration of motivation theories to emphasise OC's influence on job outcomes (Somers, 2009). In particular, Self-Determination Theory (SDT) has been linked to OC (e.g. Meyer et al., 2012a; Meyer & Maltin, 2010; Žižek et al., 2015; Bonau, 2018). Following SDT, motivation and well-being are driven by three psychological needs: need for autonomy, for competence, and for relatedness (Deci & Ryan, 1985; Ryan & Deci, 2000). The three components of commitment affect the satisfaction of these three needs differently, especially affective commitment and also normative commitment are understood to be positively related to these three needs (Meyer & Maltin, 2010). A working environment that supports the autonomy of the employees, encourages their development, and fosters relatedness strengthens employee's commitment (Žižek et al., 2015; Bonau, 2018).

Affective commitment can be enhanced by tying compensation to work performance, which can create a climate that is perceived as fair and equal when implemented well (Abreu et al., 2013). High-performance work practices, which involve being highly selective, empowering autonomous teams, and also reward based on performance, seem to foster engagement and satisfaction as well as affective commitment (Fisher, 2010).

Need satisfaction can be considered an important factor in the development of affective and normative commitment, and employees with high levels of affective commitment and normative commitment have been found to experience high levels of need satisfaction and autonomy (Meyer et al., 2012a).

A significant body of research has found positive relationships between organisational commitment and leadership behaviour (Yahaya & Ebrahim, 2016). In leadership studies, inspirational leadership has been found to create a workforce that is more engaged and more committed to the organisation (Bonau, 2017; Chen, 2002).

2.5.2 Self-Efficacy and OC

Self-efficacy, based on Bandura's social-cognitive theory (Bandura, 1977, 1986), has become an important concept of organisational psychology and work motivation research. It can be defined as the beliefs in one's capabilities to organise and execute actions that produce the desired outcome, to succeed in attaining a certain level of performance (Bandura, 1977, 1986). A strong relation between self-efficacy and positive work-related outcomes, such as setting more challenging goals (Sitzmann & Ely, 2011), exerting more effort (Sitzmann & Ely, 2011), persisting longer (Multon, Brown & Lent, 1991), and performing better (Stajkovic & Luthans, 1998; Multon et al., 1991) has been found in a number of meta-analytical studies at between-person level of analysis.

According to Judge, Locke, Durham and Kluger (1998), generalised self-efficacy is one of the four main traits of the concept of self-evaluation, together with the more widely examined traits of self-esteem, locus of control and neuroticism. These traits can too be categorised as either cognitively oriented, where locus of control and self-efficacy can be seen, and the more subconscious affective sub-traits like emotional stability or neuroticism (Judge & Kammeyer-Mueller, 2012). Judge and Kammeyer-Mueller conclude in their review, however, that the core traits seemed to be interactive with one another, therefore, separating them into cognitive and affective bases can be seen as problematic.

Judge, Jackson, Shaw, Scott and Rich (2007) have shown that the predictive power of general motivational traits such as general mental ability, and of motivational states such as self-efficacy, depends on the specific context in which they are analysed - general traits were more important across contexts, while motivational states become more important within particular contexts. As a conclusion from their meta-analysis on self-efficacy and performance, Judge and colleagues suggest future research to "integrate individual differences into existing models of motivation and performance" (Judge et al., 2007).

Cognitive ability has been found to significantly influence and positively predict self-efficacy (Judge et al., 2007). Judge and colleagues conclude that individual differences such as cognitive ability are at least as important in predicting work-related performance as self-efficacy (Judge et al., 2007). They suggest that, given its task-specific nature, self-efficacy is likely to predict narrow performance measures like task performance rather than more broad measures such as job performance (Judge et al., 2007).

In their meta-analysis of within-person self-efficacy and performance, Sitzmann and Yeo (2013) came to the conclusion that self-efficacy would primarily be a product of past performance rather than being a driving force for future performance. Analysing 38 within-person studies on self-efficacy, Sitzmann and Yeo (2013) looked at the direction of causality between self-efficacy and performance, based on which they conclude that self-efficacy would have a null effect on performance, and that the effect of self-efficacy on performance is smaller than the effect of past performance on self-efficacy. They suggest that the role of self-efficacy in driving performance has been misinterpreted in the past, as well as the conditions under which the effects of self-efficacy are most powerful (Sitzmann & Yeo, 2013). This misstatement would be due to the fact that little research has focused on past performance's role in guiding the judgement of confidence (Sitzmann & Yeo, 2013) and that the overwhelming majority of studies had been conducted on between-person level of analysis (Yeo & Neal, 2013). Vancouver (2012) emphasises that a negative empirical effect between self-efficacy and performance is not to be interpreted as self-debilitating.

Following on from these findings, Beck and Schmidt (2015) analysed the impact of self-efficacy on resource allocation. They conclude that a thorough understanding of self-efficacy and its complex relationships with performance as well as resource allocation would be essential for practitioners (Beck & Schmidt, 2015). Self-efficacy would play an important role in efficient resource allocation (Vancouver, 2012), and in situations where resources are scarce, allocating resources efficiently can result in higher overall performance: self-efficacy interventions could, for example, be useful to help subordinates to effectively spread their time across multiple tasks and responsibilities (Beck & Schmidt, 2015). As such, negative effects of self-efficacy would be part of this adaptive process. Beck and Schmidt (2015) also sounded a note of caution, pointing out that inaccurate self-

efficacy perceptions can have a number of unintended negative consequences, as they are likely to decrease the efficiency with which resources are allocated.

As a psychological capital, self-efficacy has been found to have a positive relation to desirable attitudes such as commitment and satisfaction (Avey, Reichard, Luthans & Mhatre, 2011). Through increased trust in the organisation as well as the leader, higher self-efficacy is connected to higher commitment to the organisation (Yukl, 2010; Pillai & Williams, 2004). Proving the concept of trait approach as a driver of commitment, Meyer and colleagues found in their meta-analytical review that self-efficacy and internal locus of control are positively correlated with affective commitment (Meyer et al., 2002).

2.5.3 Happiness at work

Recently, a growing body of research analysed the relationship between productivity and happiness at work, with a number of studies linking happiness and individual well-being to higher performance (Fisher, 2010; Oswald, Proto & Sgroi, 2015).

Fisher (2010) considers work engagement, job satisfaction, and affective commitment elements of a comprehensive measure of individual-level happiness. As such, happiness is measured at multiple levels and with regards to multiple foci, such as the job or the organisation (Fisher, 2010). However, happiness has been found to be an antecedent of affective commitment (Field & Buitendach, 2011), and it was found to be positively correlated with job satisfaction (Bowling, Eschleman & Wang, 2010). Consequently, happiness at work has not been included in the study of this research project.

2.6 Related concepts

In the field of organisational behaviour and management studies, a number of concepts partially overlap with the concept of organisational commitment or are connected to it. Presented below are the most important concepts that are related to, but different from, organisational commitment.

2.6.1 Organisational Identification

The idea of organisational identification (OI) is contested and different definitions exist of what is considered to be part of the concept, which becomes obvious in particular regarding the measurement of organisational identification. Organisational commitment and OI are sometimes used synonymously, and some challenge the distinction between the two on theoretical and empirical grounds (see Riketta, 2005). A meta-analysis of research findings on organisational identification found that it can best be defined with relation to organisational commitment as being a part of organisational commitment which describes the psychological or cognitive state of the individual, whereas organisational commitment goes beyond the psychological state and also includes the attitudinal outcomes which are rooted in the state of organisational identification (Edwards, 2005). Further, OI would differ from OC in that it is self-definitional, highly flexible, and develops based on different sources (Gautam, Van Dick & Wagner, 2004).

Stinglhamber and colleagues (2015) analysed how OI and affective organisational commitment are related, and came to the conclusion that OI is positively related to a temporal change in affective commitment, and that OI can mediate the influence of work experiences like job autonomy, high-quality relationship with the supervisor and organisational support, on affective commitment. Overall, Stinglhamber et al. (2015) come to the conclusion that favourable work experience would influence OI which increases the employees' affective commitment.

All in all, there is no consensus among scholars regarding the relation between the concepts of organisational commitment and organisational identification (see Riketta, 2005). As OI can be understood as a concept that is more narrowly focused, the three-

component model of organisational commitment will be used for the purpose of this research.

2.6.2 Organisational Citizenship Behaviour

Organisational Citizenship Behaviour (OCB) can generally be regarded as a set of behaviours in the workplace that support the organisation's members or environment, and that are not related to the employee's work task (Bateman & Organ, 1983; Podsakoff, Whiting, Podsakoff & Blume, 2009). Prosocial behaviours and behaviours oriented towards change have been included, and their influence on organisational variables like job attitudes and work performance have been studied widely (Carpenter, Berry & Houston, 2014).

Chun, Shin, Choi and Kim (2013) consider OC as employee attitudes that materialise in employee behaviours in the form of OCB. Different HR systems that strengthen feelings of solidarity and communal sharing, thereby strengthening prosocial values and affective bonds among members of the organisation, would increase OC which would then lead to collective OCB (Mossholder, Richardson & Settoon, 2011). Consequently, higher levels of OC would cause employees to be more likely to demonstrate OCB (Gong, Chang & Cheung, 2010). This study analyses the underlying attitudes in the form of OC, rather than the behavioural outcomes.

2.6.3 Employee Loyalty

Employee loyalty is sometimes used synonymously for organisational commitment. McCarthy (1997) describes employee loyalty as a feeling of attachment to the employing organisation, which overlaps with the concept of affective commitment. For example, in their study on employee loyalty in the service industry, Yee, Yeung and Cheng (2010) included indicators measuring intention to stay, sense of belonging, and willingness to take up more responsibility and perform extra work.

Loyalty has been defined using many different perspectives, including philosophical and psychological approaches, and can be understood as behaviour, attitude, trait or virtue (Masakure, 2016). While especially the attitudinal approach measures some aspects of

organisational commitment, in particular affective commitment, again the concept of employee loyalty does not encompass all the aspects that are considered in the three component model of OC. Specifically, aspects of normative commitment and also continuance commitment are omitted when the concept of employee loyalty is analysed.

2.6.4 Employee Engagement

Employee engagement could be understood as a positive emotional attitude towards one's work, defined as "passion for work" (Abraham, 2012), "enthusiasm towards the job" (Guy & Newman, 2013), or willingness to "go the extra mile" (Bakker & Hakanen, 2013). Higher employee engagement was found to be an antecedent of higher organisational commitment (Pološki Vokić & Hernaus, 2015; Saks, 2006). Work engagement was also found to be positively related to job satisfaction, and negatively related to turnover intentions (Saks, 2006). Describing the positive affective state, employee engagement differs from organisational commitment in that the latter also incorporates the fear of loss of the workplace (continuance commitment), and the perceived obligation to stay (normative commitment).

2.7 Conclusion

The concept of organisational commitment has been introduced and its three components, affective commitment, continuance commitment and normative commitment, have been presented. The personal characteristic of intelligence has been outlined and defined for the purpose of this study. Further, job satisfaction has been introduced as a correlate of organisation commitment. The relationship between OC, job satisfaction and intelligence has been outlined. To complete the understanding of commitment, motivational aspects that influence the development of OC have been presented. Finally, concepts related to organisational commitment have been outlined to illustrate how they differ from OC and why OC has been chosen as the concept for analysis in this study.

The relationship between the three types of commitment and job satisfaction has been at the heart of management research for some time. Yet, to the author's knowledge, the influence that personal characteristics such as intelligence have on the degree to which employees are committed to their organisation, and the role that job satisfaction has on this relationship, has not been studied before.

3 MATERIALS AND METHODS

3.1 Introduction

The following chapter presents the materials and research methods used in the light of the conceptual frameworks and the research questions proposed in the previous chapter.

The combination of different research methods has become increasingly sought after for the benefit of increased reliability and validity of the research findings. The following outline illustrates the different means taken to increase the reliability of this research project. Specifically, guidelines for the quantitative research in form of an online survey are outlined, for measuring the four different scales of affective commitment, continuance commitment, normative commitment and job satisfaction.

For the analysis of the data from the online survey, exploratory factor analysis using the principal component method was conducted to test the significance of the four factors that have been used to measure the four underlying concepts (affective commitment, continuance commitment, normative commitment and job satisfaction). Confirmatory factor analysis tested the fitness of the structures and evaluated the discriminant validity of the four latent concepts that developed from the exploratory factor analysis. Stepwise hierarchical multiple regression analyses was then carried out to test the hypotheses and determine interactions among different independent variables.

Further, qualitative results drawn from focus group discussions were added to validate the findings from the quantitative research. Secondary data was then analysed to compare findings from previous studies with the expected results of this research project.

3.2 Underlying theoretical models

Klein and colleagues (2012) developed the process model of commitment to any workplace target, according to which there are several individual, target and environmental factors that are antecedents to commitment, including individual characteristics such as personality traits (Figure 3.1). These antecedents would influence how the workplace target and environment are perceived, which describes the cognitive and affective processes that determine a bond with the target along the evaluation criteria of target salience, positive affect, trust and perceived control (Klein et al., 2012). The type and degree of commitment bond then leads to commitment outcomes in form of continuation and motivation, which in turn can lead to action, and they can also influence subsequent perceptions of commitment targets (Klein et al., 2012). At the same time, commitment to other targets might moderate both the creation of a bond and its influence on outcomes.

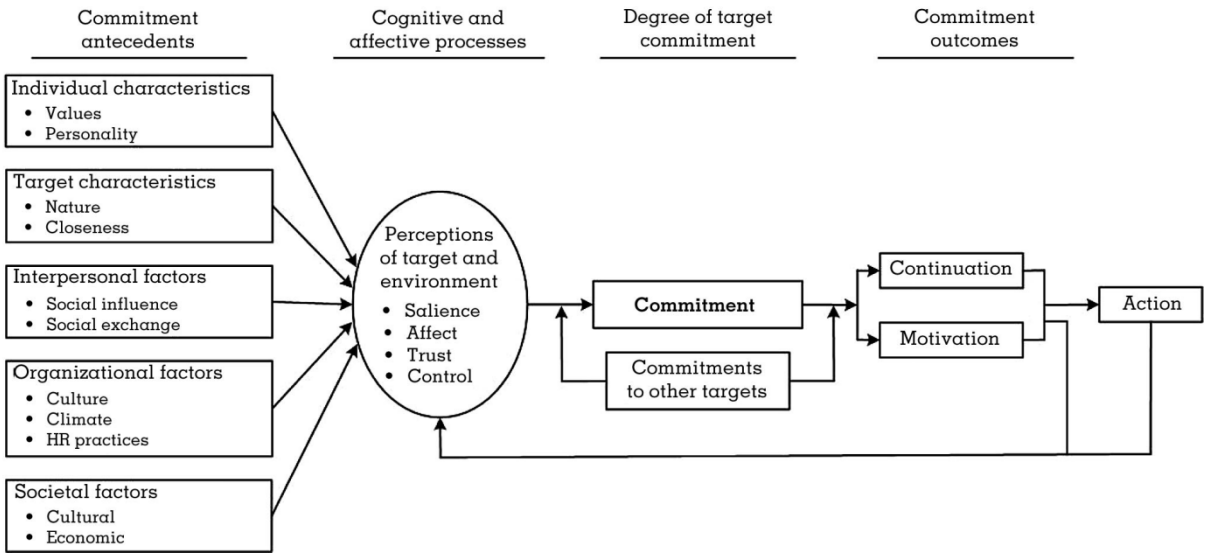


Figure 3.1. Process Model of Commitment to Any Workplace Target (Klein, Molloy, & Brinsfield, 2012)

Klein and colleagues model (2012) has been adapted to include the influence which job satisfaction is expected to have on the creation and development of organisational commitment (Figure 3.2). Further, rather than following Klein et al.'s unidimensional

model of commitment, the three components of commitment according to Meyer and Allen (1990) have been included into the model.

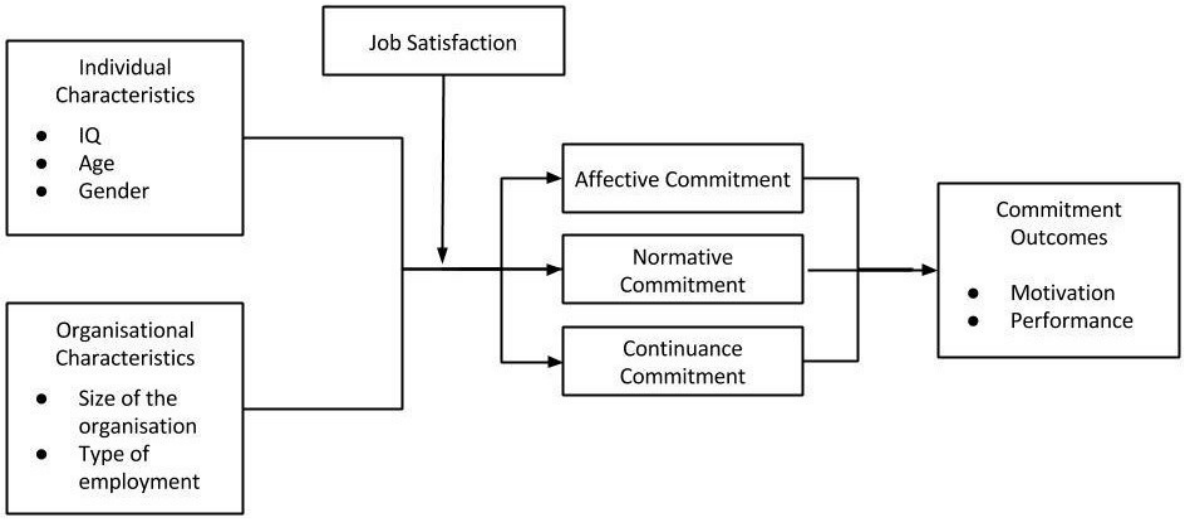


Figure 3.2. Influence of Intelligence and Job Satisfaction on the three dimensions of organisational commitment (own work)

3.2.1 Hypotheses

As outlined in the review of existing literature and studies, the relationship between intelligence and organisational commitment as such has not been tested yet. As has been stated above, previous studies have found a correlation between intellect and commitment to the organisation, while intellect has been found to be closely linked to intelligence. Hence the relation between intelligence and organisational commitment was explored further. Based on the literature discussed, the following proposition were suggested:

Hypothesis 1

Intelligence in the sense of intellectual capacity is negatively correlated with organisational commitment.

As has been discussed in the review of previous studies and corresponding literature, job satisfaction has been found by some studies to be negatively correlated with intelligence, specifically intrinsic job satisfaction (Ganzach, 2003; Ganzach, 1998). Exactly how the

relationship between job satisfaction and organisational commitment is defined has not been unanimously identified (see Mathieu & Zajac, 1990). In this research project, job satisfaction was considered to be a commitment antecedent rather than the outcome of commitment. Therefore, it was assumed that job satisfaction moderates the relation between intelligence and organisational commitment.

The discussion on the role of job satisfaction lead to the following proposition:

Hypothesis 2

Job satisfaction has a moderating effect between the dimensions of organisational commitment and intelligence.

A visual representation of the hypotheses is depicted in Figure 3.3.

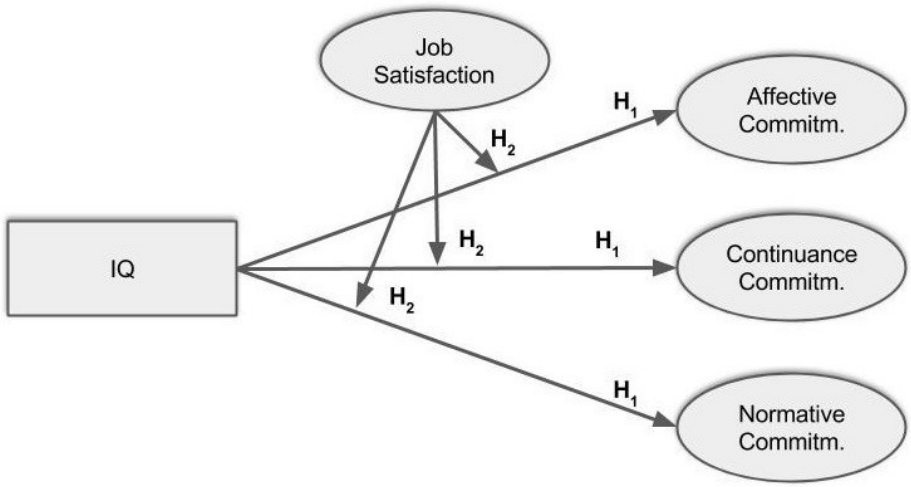


Figure 3.3. Hypotheses, visualised (own work).

3.3 Secondary Research: Studies on attitudes towards the workplace

A selection of previous studies with representative samples from the general population is presented, which did not focus on the participants with high general mental ability. Results of primary research will then be compared with the findings of those previous studies.

3.3.1 UK: Workplace Employment Relations Survey of Employees 2011

Bonau (2018) explored the determinants of three measures of employee commitment - shared values with the organisation, loyalty towards the organisation, and pride in working for the organisation - using self-reported employee data from the 2011 UK Workplace and Employee Relations Survey that covers 21,981 employees. The basic unit of analysis in the survey was the workplace. The stratified random sample of 2,680 workplaces is representative of British workplaces with five or more employees from seventeen industry sectors (UK Data Archive, 2013). As such, this population accounts for around 90% of all employees and 35% of all workplaces in Britain (Wanrooy et al., 2013).

The level of employee commitment was analysed using twelve variables that represent employee's attitudes towards the job, the workplace, and working at the workplace, including satisfaction with management, HR measures, or training. Outcomes of descriptive modelling using ordered probit analysis were contrasted with predictive modelling outcomes in the form of decision tree models using Gini-index and Gain-ratio splitting measures. The determinants were tested for their support of theories on motivation in connection with commitment, specifically Self-Determination Theory (Deci & Ryan, 1985; Ryan & Deci, 2000).

Descriptive and predictive analyses have confirmed a set of drivers of commitment that can be grouped into two types: measures that encourage employee involvement, and aspects that foster further development of the employee's skills (Bonau, 2018). Bonau (2018) found pay satisfaction to be negatively correlated to measures of commitment. A striking finding of Bonau's (2018) analysis indicates that amount of pay erodes employee commitment.

Further, Bonau (2018) found that variables representing the active and autonomous engagement of employees, such as having influence over the job, being involved in decision-making processes, and being given scope for own initiative, had an influence on all three measures of commitment. These findings are in line with theories of motivation, specifically Deci and Ryan's Self-Determination Theory (SDT: Deci & Ryan, 1985; Ryan & Deci, 2000). SDT as a framework has been found to be compatible with the concept of organisational commitment (Meyer, Becker & Vandenberghe, 2004; Meyer & Maltin, 2010). In Bonau's (2018) analysis, specifically the needs for autonomy and for relatedness were driving commitment to the organisation. Satisfaction with the training received, as well as with the options to develop one's skills, and management that is encouraging further development of their employee's skills as predictors for commitment are supported by the SDT component of need for competence.

3.3.2 UK: CIPD Employee Outlook Autumn 2016

The Chartered Institute of Personnel and Development (CIPD) conducts a biannual survey among employees in the UK, analysing their attitudes and opinions towards working life in the current context. In the September 2016 survey, 2,091 employees were interviewed from a sample of 350,000 individuals registered with the YouGov Plc UK panel. The sample was selected and weighted along the dimensions of industry sector and type, size of the organisation, working time (full-/part-time), and gender, to be representative of the British workforce (CIPD, 2016). Participants were selected at random and received an invitation to the survey by email.

The study probed into the attitudes of employees concerning different areas of worklife, including the external context (in this case in particular the implications of the Brexit vote), job satisfaction and employee engagement, senior leaders and line managers, purpose of the organisation and information-sharing, health and well-being, performance and pay, learning and development, financial well-being, and job seeking (CIPD, 2016).

3.3.3 US: Gallup State of the American Workplace 2017

In their study of over 195,000 employees, Gallup (2017) analysed a broad range of US organisations in a variety of industries for aspects of attracting, retaining and engaging

employees. The final sample was weighted to be representative of the US population with regards to gender, age, race, ethnicity, education, and region (Gallup, 2017). The majority of the survey has been conducted between January and September 2016 (Gallup, 2016).

To measure employee engagement, Gallup has developed a set of twelve questions which have been used continuously and without changes over the past twenty years (Gallup, 2017). Those questions probe the respondents' attitude towards the contribution they make towards their organisation's mission or purpose, their feeling of belonging to their team or workplace, opportunities for learning and development, and recognition for the work they do (Gallup, 2017).

3.3.4 Germany: EY Job study 2017

The professional services and consulting firm EY conducted a survey in March 2017, asking 1,400 employees in Germany about their job satisfaction and engagement (EY, 2017). The sample was weighted by gender (50% female, 50% male) and industry (58% private sector, 37% public sector, 6% non-profit and others), and is representative of the German population (EY, 2017).

Further, the international human resource consulting firm ManpowerGroup conducted a study on job satisfaction in Germany in March 2017 with 1,018 participants which were weighted to be representative of the German population (ManpowerGroup, 2017). According to their findings, 46% of the employees in Germany would change jobs within the next twelve months, mainly to seek a position with a higher salary (23%) or because they felt their performance was not adequately appreciated (17%; ManpowerGroup, 2017).

3.4 Primary research: Collecting data using a survey

As an initial step in this research project, data has been collected through an online survey. The development and design of the survey are described in the following section. Further, this section outlines the composition of the population and of the sample. To complement the quantitative process and to verify the results of the survey, post-survey focus group discussions have been conducted.

3.4.1 The research design

The research project has been conducted along the following timeline:

Design of Survey	August 2016 to November 2016
Collecting Responses	December 2016 to April 2017
Focus group discussion	May 2017 to August 2017
Analysing Data	August 2017 to October 2017
Reporting of results	November 2017 to February 2018

3.4.2 Conducting a survey

According to Spector (2013), seven steps need to be undertaken when conducting a survey. How these steps have been applied in this research project is outlined below:

a) Specify population:

The population for the survey was defined as working professionals between 25 and 65 years of age whose intelligence quotient falls in the 98th percentile or higher.

b) Select variables:

The variables that were tested are the three components of organisational commitment according to Allen and Meyer (1990), defined as affective commitment, continuance commitment, and normative commitment. Further, the variables of job satisfaction were measured using Spector's (1997) definition of job satisfaction.

c) Operationalise variables:

The variables were operationalised by using scales that have been established and tested over time, and whose reliability and construct validity has been confirmed by various studies. Specifically, the three components of commitment were measured using Allen and Meyer's (1990) original commitment survey, whereas job satisfaction was measured with a short version of Spector's Job Satisfaction Survey (1997).

d) Assemble questionnaire:

The questionnaire was developed using the existing scales for the three components of organisational commitment as well as items from the job satisfaction survey. Additionally, items were included that ask for information on the personal background of the respondent.

e) Devise sampling procedure:

The sample was recruited from local networks of high-IQ societies in three different countries (the United Kingdom, the United States and Germany), and a control group of adults in a professional environment.

f) Collect data:

Data was collected over a period of five months in which the online questionnaire/computer-assisted web interview has been distributed among the networks of national chapters of the high-IQ society "Mensa". Then the qualitative findings were analysed and complemented by qualitative data from focus group discussions.

g) Disseminate results:

The findings are made available publicly, distributed to participants, and published in academic journals.

3.4.3 Development and design of the survey

It was planned to collect primary data by conducting quantitative research through an online survey. Thus, a first draft of the survey questionnaire had been distributed to a group of five pre-selected expert practitioners for feedback. Their comments have helped to construct the final version of the questionnaire including ease of use and understandability of the questions.

Through an anonymous questionnaire sent to gifted and talented people registered as members of the high-IQ society Mensa in the country chapters of Germany, the United Kingdom and the United States, as well as a control group from the same countries, participants were asked about their attitudes towards their working environment. An English language version of the questionnaire was used in all three countries, to allow for accurate comparability of results. An email containing an electronic link to the online questionnaire was sent out to members by representatives of the respective Mensa organisation. Recipients of the email were asked to voluntarily participate in the completion of the survey, while information about the purpose of the study and about the author of the questionnaire was provided.

The questionnaire consisted of five sections: the first three sections measured the respondent's commitment with questions on the participant's self-reported agreement or disagreement with statements about their affective, normative and continuance commitment with their current organisation. The fourth section, participants were asked about their agreement or disagreement with statements about their satisfaction with their job. In the final section, participants were further asked about their personal background (e.g. age range, country of residence) as well as the type of employment (full-time, part-time, self-employed) and the size of their organisation by number of employees.

Usage of this questionnaire was endorsed by Doctorate School of Business Administration of the University of Pécs, and approved by the research committee of the Mensa Foundation of the American chapter of Mensa. It also complied with the internal criteria for Mensa Germany and Mensa UK research projects.

3.4.3.1 Organisational Commitment Survey

For the questions related to the participant's organisational commitment, the commitment scales developed by Allen and Meyer (1990) were used with a five-point Likert scale. Affective commitment scales require participants to describe to which extent they value, feel attached to and included in the organisation, and consider the organisation's goals similar to their own. Continuance commitment scales require respondents to assess whether or not they are able to leave the organisation in the near future, or if leaving the

job would incur too many costs. Finally, normative commitment asks participants to describe their evaluation of whether or not quitting a job is a negative behaviour (Judge & Kammeyer-Mueller, 2012).

Each of the three components of organisational commitment (affective commitment, normative commitment and continuance commitment) was measured using a set of eight items per scale, according to the original version of the TCM Employee Commitment Survey (Allen & Meyer, 1990). The items included in the survey for each component were chosen based on endorsement proportions associated with each individual item, correlations between item and scale, redundancy of content, and taking into consideration to include both positively and negatively keyed items (Allen & Meyer, 1996). The scale was one-dimensional and assessed the core aspects of the three components of organisational commitment.

The original version of the commitment survey was chosen rather than the revised, shortened version (Powell & Meyer, 2004), as constraints to the length of the questionnaire were not deemed to be a significant concern. The original version of the survey provides insights into the basis for the feeling of obligation to remain with the organisation measured by the normative commitment scale, which the revised version does not offer (Meyer & Allen, 2004).

The responses were measured using a five-point Likert scale, ranging from 1 ("strongly disagree") to 5 ("strongly agree"). While in the original commitment survey a seven-point Likert scale is used, the developers of the original survey point out that the use of a five-point Likert scale would work equally well (Meyer & Allen, 2004). As the endpoints of the survey response categories were given concrete labels, the answers of different respondents can be attached or anchored to the same standard scale (King, Murray, Salomon & Tandon, 2004). Each type of response was keyed with a value from 1 to 5, where the value of 5 stands for a strong agreement with the statement for the item that is measured. Some of the items were worded so that strong agreement with the item actually reflected lower commitment. The affective commitment scale includes four reverse-keyed questions, the continuance commitment scale two, and the normative commitment scale three. See Annex 1 for details. These reverse-keyed items were included to increase response reliability by encouraging participants to think carefully about each statement rather than to

automatically adapt a pattern of responses (Meyer & Allen, 2004). The scores of the reverse-keyed items were then recoded for the analysis of the responses.

3.4.3.2 Job Satisfaction Survey

The participants' self-assessed satisfaction with their job was tested with the use of a shortened version of the Job Satisfaction Survey (Spector, 1997). A total of nine questions enquired both extrinsic and intrinsic job satisfaction, while the overall concept was used as a measure for this survey, rather than the sub-elements.

The questions used for measuring job satisfaction have been taken from Spector's job satisfaction survey. The Job Satisfaction Survey is a nine-facet scale, covering the aspects of pay, promotion, supervision, fringe benefits, contingent rewards, operating procedures, co-workers, the nature of work, and communication (Spector, 2016). For the sake of brevity of the survey, only one question per facet was used. A five-point Likert scale was used to rate the responses, rather than a six-point scale which is used in the original Job Satisfaction Survey, to provide a coherent scale across all attitude related questions in this questionnaire. Given that the Job Satisfaction Survey assesses job satisfaction on a continuum rather than in specific terms of satisfaction versus dissatisfaction (Spector, 2016), it was not expected that changing the scale would have a significant impact on the findings.

Responses ranged again from 1 ("strongly disagree") to 5 ("strongly agree"). Each response to an item was keyed with a value from 1 to 5, with high scores representing strong job satisfaction. Four of the questions were reverse-keyed items. The scores of these items were then recoded before the analysis was conducted, so that a score of 5 representing strongest agreement with a reverse-keyed item was considered equivalent to a score of 1 representing strongest disagreement on a positively worded item (Spector, 2016). The measurement of job satisfaction using the Job Satisfaction Survey is assessed as a continuum. As job satisfaction ranges from low (dissatisfied) to high (satisfied), there is no cutoff line that would determine an individual's dissatisfaction (Spector, 2016).

The internal reliability of the job satisfaction survey has been evaluated in various studies and was found to range between 0.60 and 0.91 (Sehunoe, Viviers & Mayer, 2015).

For sample questionnaires of the organisational commitment scale and the job satisfaction survey, see Annex 1 and Annex 2 respectively. The entire questionnaire of the survey is shown in Annex 3.

3.4.4 Sample and population

Participants were recruited through internal mailing lists and appeals in the international network of Mensa, the oldest and largest society of gifted and talented people with a score in the 98th percentile or higher in a standardised intelligence test (Mensa International, 2016). The three focus countries (Germany, the United Kingdom, and the United States) were selected due the number of members in their respective national groups, these being the three biggest groups. According to their respective websites, there are around 10,000 members in German chapter of Mensa (MinD, 2016), Mensa in the UK has over 20,000 members (British Mensa, 2016), American Mensa over 50,000 members (American Mensa, 2016), and in total, the Mensa network spans over 120,000 members worldwide (Mensa International, 2016). While Mensa is a global network, and gifted and talented people exist across all cultures and societies, the research focuses on cultures which broadly share similar economic systems and hence show comparable working conditions characterised by competition. That said, samples from the United States, the United Kingdom and Germany were used to cross-validate the findings. Approaching the Mensa network gives exposure to a broad range of people with a high intelligence quotient from various types of working environments.

For the control group, participants were recruited online through appeals on the scientific network ResearchGate, through employee engagement focussed groups on the professional platform LinkedIn, and by encouraging Mensa members to share the survey with friends.

A total of 2,660 questionnaire forms were returned, four had to be excluded due to missing data. These four forms were returned empty, with no data recorded for any of the questions, although the questionnaire was designed to required responses to all questions. This is probably due to a technical error by the provider of the online questionnaire, Google forms. Of the remaining 2,656, 86.7% were respondents who reported to be employed in the United States, about 7% from the Germany, and 3.4% from the United

Kingdom. The remaining 3% of the respondents reported to be employed outside of the US, Germany, or the UK, though the respondents might still be based in one of the three countries, or citizens of one of the three countries. 59.3% of the respondents identify with the male gender, 39.3% identified to be female, 1% preferred not to state their gender identification, and the remaining 0.4% stated to neither identify with the male nor the female gender. With regards to their current type of employment, 2,160 respondents stated they were involved in full-time employment. 193 stated they work part-time, while 266 stated that they would be self-employed or freelancing. The majority of respondents (44.2%) reported being employed with an organisation with 1,000 or more employees. 16.8% reported being employed with an organisation that has 100 to 499 employees, and 15.9% in smaller organisations with five to 49 employees.

Age		**Gender**		**High IQ**	
Label	*N*	Label	*N*	Label	*N*
Under 25:	*12*	Female:	*1044*	Yes:	*2586*
25 to 34:	*386*	Male:	*1578*	No:	*70*
35 to 44:	*712*	Non-binary:	*5*		
45 to 54:	*742*				
55 to 64:	*694*				
Over 64:	*89*				
Prefer not to say:	*21*	Prefer not to say:	*29*		
Type of Employment		**Size of Organisation (Number of employees)**		**Country of employment**	
Label	*N*	Label	*N*	Label	*N*
Full-time:	*2160*	Less than 5:	*225*	Germany:	*176*
Part-time:	*193*	5 to 49:	*422*	United Kingdom:	*90*
Self-employed/ free-lancing:	*266*	50 to 99:	*192*	United States:	*2302*
Student:	*5*	100 to 499:	*446*	Other:	*88*
Retired:	*32*	500 to 999:	*199*		
		1000 or more:	*1172*		

Table 3.1. Sample Characteristics (Age, Gender, Membership in high-IQ group, Type of employment, Size of organisation, Country of employment).

The questionnaire included items asking about the personal background of the participant. This allows participants to be filtered by age groups and type of employment (full-time, part-time, self-employed or other) so that the sample can be clearly defined as professionals in a working environment. The age range which was analysed included adult participants from below 25 to over 64 years of age, although only a small group reported being older than 64 years (3.4%) or younger than 25 years (0.5%). The age group most widely represented are 45- to 54-year-olds (27.9%), followed by 35- to 44-year-olds (26.8%) and 55- to 64-year-olds (26.1%). Less than one percent of participants did not want to disclose their age. A summary of the sample characteristics is presented in Table 3.1.

Initially, it was intended that for the analysis the sample was limited to participants in the age range of to 25 to 65 years of age, to exclude participants who are not active in a professional setting. However, after the questionnaire has been returned, it became apparent by the results that a number of respondents were professionally active beyond the age of 65, and participants who were younger than 25 years were also involved in professional employment. It was therefore decided to not limit the age range.

To allow for sufficient variability in the different variables that are being measured, it was essential to use a study design that helped to improve the reliability of the study findings. Hence the sample for the survey had to be recruited from a wide variety of organisations and professions. The survey has also been advertised online in special interest fora for professionals in the areas of human resource management, talent retention and employee engagement. Representative sampling is aimed for by including a comparably balanced gender ratio, and a spread of age groups and types of organisations, to reflect the population in structure.

3.4.5 Analysis of primary data

As an initial step, the data was prepared for analysis. For this, responses with missing values were excluded. The scores of the reverse keyed items were recoded, so that a score of 5 representing strongest agreement with a reverse-keyed item was considered equivalent to a score of 1 representing strongest disagreement on a positively worded item etc. This was applied to questions 4, 5, 6 and 8 of the affective commitment scale; 1 and 4 of the

continuance commitment scale; 2, 3 and 8 of the normative commitment scale; and items 2, 4, 6 and 8 of the job satisfaction scale (see Annex 1 and 2).

Statistical analysis was carried out using the statistical analysis software IBM SPSS v22 and IBM SPSS Amos v22. The scale reliabilities were measured using the Cronbach's alpha measure. The internal consistency of the affective commitment scale was $\alpha = .901$, of the continuance commitment scale $\alpha = .815$, the normative commitment scale $\alpha = .786$, and the job satisfaction survey $\alpha = .808$. This indicates a high level of internal consistency for all four scales.

3.4.5.1 Exploratory Factor Analysis

Exploratory factor analysis using the principal component method was conducted to identify factors that are described by a set of variables (Field, 2009). The four latent variables of affective commitment, continuance commitment and normative commitment as proposed by Meyer and Allen (1991), as well as job satisfaction in the definition of Spector (1997) used in this research project, were validated by combining the data from the items of each of the four scales. Using exploratory factor analysis, a group of interrelated variables is reduced to a smaller set of factors by looking for clusters of large correlation coefficients between subsets of variables (Field, 2009). The smallest number of explanatory constructs is used to explain the maximum amount of common variance in a correlation matrix (Abreu et al., 2013). The varimax rotation method maximises the sum of variances of required loadings of the factor (Hair, Anderson, Tatham, & Black, 1998). The items were factored with rotation to the varimax criterion. An item was assigned to a factor if its loading was .45 or above, and if it did not load highly on any other factor.

Applying the Principal Component Analysis method with varimax rotation, six factors had Eigenvalues greater than one. However, looking at the individual factor loadings of the 32 variables, none of the variables had a factor loading of .45 or higher in factors 5 and 6. Further, none of the variables loaded highest on factor 5 or 6. Therefore, the analysis was rerun with the number of factors to extract fixed to four. As a result of this analysis, factor loadings as well as the scree plot suggest these four factors are interpretable and cumulatively explain 48% of the total variance.

Table 3.2 shows how all questionnaire items loaded on these four factors.

The eight items of the affective commitment scale loaded highly on the first factor, with loadings ranging between .47 and .85, while none of the items loaded highly on any other factor. Consequently, the first factor was considered the affective commitment factor. Seven of the eight items of the continuance commitment scale loaded highly on factor 2, with factor loadings ranging between .59 and .76. One item (question 12 from the questionnaire, asking about the cost for the participant to leave the organisation) had a loading of only .344. However, since it did not load higher than .20 on any other factor, it was still assigned to factor 2, which consequently was considered the continuance commitment factor. All eight items of the normative commitment scale had high factor loadings on factor 3, ranging between .48 and .70, with none of the items loading highly on any other factor. Subsequently, all eight items were assigned to factor 3, which was considered the normative commitment factor. Of the job satisfaction scale, only three items loaded highly on factor 4 and did not simultaneously have high factor loadings on other factors (questions 25, 27 and 28). Another item of the job satisfaction scale (question 26) was assigned to factor 4 as its factor loading was .44 and it did not load highly on any other factor. The other five items of the job satisfaction scale were dropped due to their low factor loadings.

Item	Component			
	1	2	3	4
01AC1	0.7			0.286
02AC2	0.696			
03AC3	0.692		0.203	
04AC4r	0.471			
05AC5r	0.804			
06AC6r	0.847			
07AC7	0.798		0.214	
08AC8r	0.798			
09CC1r		0.588		
10CC2	0.212	0.718		
11CC3		0.739		
12CC4r		0.344		
13CC5		0.72		
14CC6	-0.205	0.757		
15CC7		0.693		
16CC8		0.662		
17NC1			0.663	
18NC2r			0.605	
19NC3r			0.702	
20NC4	0.283		0.651	
21NC5	0.311		0.477	
22NC6			0.656	
23NC7			0.621	
24NC8r			0.533	
25JS1				0.717
26JS2r	0.382	-0.203		0.435
27JS3	0.403			0.483
28JS4r				0.672
29JS5	0.539			0.509
30JS6r	0.478			0.358
31JS7	0.522			0.267
32JS8r	0.553			0.212
33JS9	0.608			0.405

Table 3.2. Rotated Component Matrix, Principal Component Analysis using varimax rotation with Kaiser normalisation.

Subsequently, three commitment scores and a job satisfaction score were computed by summing (after the reverse keyed items had been recoded) across items that loaded on each factor.

The reliability of the survey results was evaluated using Cronbach's alpha measure. The affective commitment scale showed a reliability estimate (alpha) of α = .9. Also, the Cronbach alpha of the continuance commitment scale of α = .82 and of the normative commitment scale of α = .79 can be considered good. The reliability of the job satisfaction factor of α = .60 can be classified as questionable. However, Field (2009) notes that the value of the Cronbach's alpha depends on the number of items that are part of the scale, hence a larger scale can result in a higher alpha without actually signifying a higher reliability. Since this is a short version of the scale with only four items, the job satisfaction factor is included in further consideration despite the comparatively low reliability estimate.

3.4.5.2 Confirmatory Factor Analysis

One way to test the fitness of the structures with factorial components is to apply confirmatory factor analysis. It evaluates psychometric properties of the factors in terms of reliability and validity.

The organisational commitment scale as a measuring instrument is designed to measure three dimensions of organisational commitment - affective commitment, continuance commitment, and normative commitment. As stated by Byrne (2010), it is only then appropriate to apply confirmatory factor analysis to a measuring instrument when it has been fully developed and its factor structure validated. The TCM Employee commitment survey, which was the basis for the organisational commitment scale in this study, has been developed by Allen and Meyer already in 1990, and it has been tested and validated in a plethora of studies and research projects. It is one of the most widely used measures of organisational commitment, and its psychometric properties have undergone substantial testing over the years. Hence it qualifies well for confirmatory factor analysis research.

Confirmatory factor analysis was conducted to evaluate the discriminant validity of the four latent concepts, as well as to address the problem of common method bias which can

be introduced into the data by using a single set of respondents (Podsakoff & Organ, 1986).

Initially, a first-order factor model was fitted with the latent variables AC (affective commitment, CC (continuance commitment) and NC (normative commitment), and the twenty-four questionnaire items as observed variables in groups of eight per each latent variable. The structure is shown in Figure 3.1. The first factor-loading parameter of each congeneric group was fixed to a value of 1.00 for the purpose of model identification (Byrne, 2010). The sample covariance matrix comprises 300 (24 x 25 / 2) sample moments. Of the 78 parameters in the model, 51 were to be freely estimated (21 factor loadings, 24 error variances, three factor variances, and three factor covariances). The other 27 parameters are fixed, i.e. constrained to equal the value of 1.00. Consequently, the model is overidentified with 300 - 51 = 249 degrees of freedom. The threshold for modification indices was stipulated at fifty so that modification index estimates equal to or greater than fifty were shown in the reporting of the results.

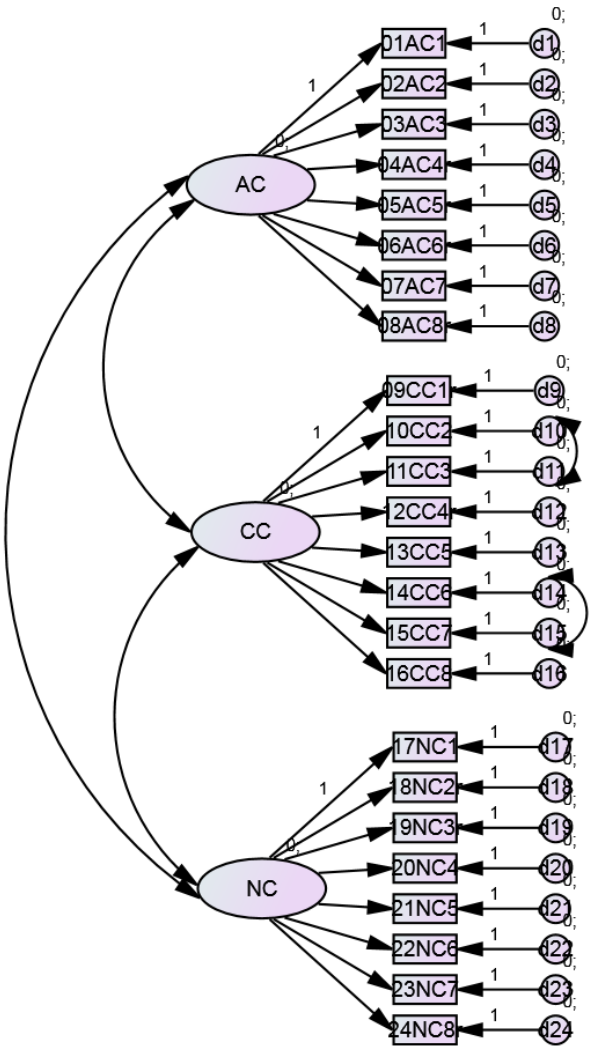


Figure 3.4. First-order factor model of organisational commitment structure.

For comparison, a second order model was tested for factorial validity with the three first-order latent variables from the previous model as formative indicators, and the second-order latent variable OC (organisational commitment) as the construct.

Specifically, with three first-order factors, there were six (3 x 4 / 2) pieces of information; the number of estimable parameters was also six (three factor loadings, three residuals), thereby resulting in a just-identified model. When running the analysis to calculate the estimates, the model was rendered unidentified. Constraints were added in that two residual variances for res1 and res2 were set to be equal.

However, this hypothesised model did not represent an improvement over the first-order confirmatory factor analysis. It can therefore be concluded that the first-order model shown in Figure 3.4 is the most optimal representation of the organisational commitment structure for this data set. As outlined by Byrne (2010), the second-order model is a special case of the first-order model, in which fit statistics would basically be equivalent. In the second-order model, restrictions which impose a structure on the correlational pattern among the first-order factors are added (Byrne, 2010). For the purpose of this study, and the underlying theory, the second-order model would not present substantive meaningfulness.

Next, the job satisfaction score was estimated by fitting a first-order factor model with the latent variable JS (job satisfaction) to the data. The four items identified through exploratory factor analysis (items 25, 26, 26 and 28) were included in the model to load on the JS factor. Again, for the purpose of model identification, the first factor-loading (i.e. 25JS1 <-- JS) was fixed to a value of 1.00. With ten sample moments in the model, and eight parameters to be freely estimated, the model is overidentified with two degrees of freedom.

Once the job satisfaction factor had been confirmed as hypothesised in the theoretical structure, the job satisfaction factor was incorporated into the organisational commitment model to test the measurement model and verify the assumed role of job satisfaction as an antecedent for the three factors of organisational commitment. The latent variable JS (job satisfaction) had again four items loading on this factor as in the previous model, and the first factor-loading parameter in this group fixed to a value of 1.00 (25JS1 <-- JS). The three commitment factors AC (affective commitment), CC (continuance commitment) and NC (normative commitment) are exogenous variables in this model, in that they represent the effects of the latent variable JS (job satisfaction). Consequently, the error term res1 was added to the endogenous JS factor.

For this comprehensive model, the sample covariance matrix comprises 406 (28 x 29 / 2) distinct sample moments. Of the 97 parameters in this model, 64 were to be freely estimated (24 first-order factor loadings, three second-order factor loadings, 28 error variances, four factor variances, three factor covariances, two error covariances), as a consequence, the model is overidentified with 406 - 64 = 342 degrees of freedom. Again,

the threshold for modification indices was set to greater than or equal fifty. An illustration of the comprehensive model is shown in Figure 3.5.

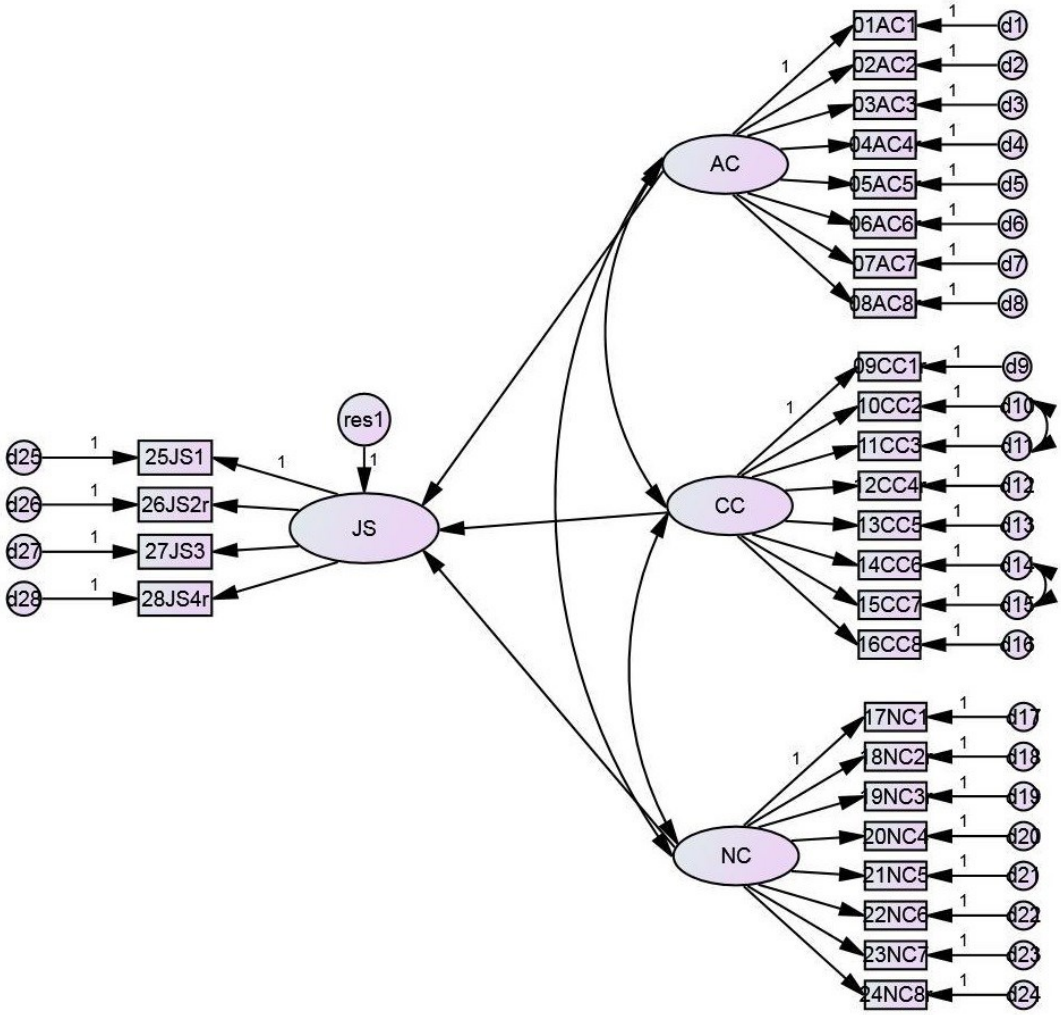


Figure 3.5. Comprehensive model of the hypothesised factors of affective commitment, continuance commitment, normative commitment, and job satisfaction.

Maximum likelihood estimation as the most commonly used approach for confirmatory factor analysis assumes multivariate normality. For categorical or ordinal data, alternative estimators would be more appropriate (Albright, 2008). One approach to model categorical data is based on the use of Bayesian estimation. Specifically, the software package IBM Amos 22 uses the Markov Chain Monte Carlo algorithm to sample random values of

parameters from a probability distribution (Garofalo, 2015). Although Bayesian inference has a long history dating back to the 18th century, it has rarely been applied social-psychological research (Byrne, 2010). The benefit of using Bayesian estimates is that the very restrictive assumptions that alternative approaches for analysing categorical data such as the asymptotic distribution-free methodology require, for example with regards to sample size (Byrne, 2010), do not apply to the Bayesian approach. Thus, a Bayesian estimation was conducted, to allow a comparison between the estimates derived from the maximum likelihood estimation and the Bayesian estimation.

For the Bayesian analysis, the means and intercepts were specified as freely estimated, the tuning parameter was set to 0.5. The convergence cutoff point was set to 1.002. Further, 500 burn-in samples were drawn and discarded before the first sample was retained for analysis. At 60 additional samples, a convergent convergence statistic value of 1.002 was reached. The convergence of the sampling method was further tested by means of a time-series plot as posterior diagnostic. Both indicators suggested that the SEM model was specified correctly.

Based on the final model, a multiple group comparison was conducted to test for differences in the structural model between participants who reported to be a member of a high-IQ society or have tested in the upper two percentile on a standardised IQ test, and those participants who reported not to. Sörbom (1974) showed that across different populations, it is possible to infer about differences in factor means, and test for significance of the difference of the factor means. As such, the factorial measurement of the organisational commitment scale as well as the shortened version of the job satisfaction survey and their underlying latent structure were tested for equivalency across high-IQ members and the control group using maximum likelihood estimation once again. More specifically, measurement invariance was tested by testing the equivalence of the factor loadings, and structural invariance was tested by comparing factor correlations across the two groups. A separate multiple-group analysis was also conducted based on the comprehensive model shown in Figure 3.5, to test for group differences in the organisational commitment structure.

To conduct multigroup analyses, two groups were created in Amos by declaring the variable “IQ” as the grouping variable. The part of the sample that reported to be a member

of a high-IQ society or to have tested in the upper two percentile on a standardised IQ test was assigned to group 1, which was named "IQ" (N = 2,586). The part of the sample that reported not to was assigned to group 2, which was named "control" (N = 70). Measurement invariance was analysed as a prerequisite for the analysis of group differences on a latent level. Measurement invariance tests the extent to which differences found in the analysis can actually be explained by group differences rather than different functioning of the measure (Byrne, 2010).

For the configural model, no constraints have been imposed. To test measurement invariance in the multigroup analyses, only the measurement weights (i.e., factor loadings) were constrained to be equal across both groups. This model was labeled as Model 1. Structural invariance was tested by constraining the measurement weights, as well as structural covariances (i.e., factor variances and covariances), to be equal across both groups. This model was labeled as Model 2. To assess measurement and structural invariance, the difference between the chi square values for the configural model and for the model that includes constraints (model 1 or model 2), as well as the difference of the CFI values were tested. Noninvariance was assumed when the chi square difference value was statistically significant, or the CFI difference exhibited a value lower than 0.01 (Byrne, 2010).

When the first-order respecified model of the organisational commitment structure was estimated with the unconstrained model, minimisation was achieved. The unconstrained model was overidentified with 648 - 154 = 494 degrees of freedom. The final, comprehensive model was estimated with 812 - 132 = 680 degrees of freedom in the unconstrained model, and minimisation was achieved.

In a final step, invariance of the latent mean structure of the models across both groups was tested for the organisational commitment structure (Figure 3.4) as well as for the final comprehensive model. The differences between the two groups in the means of the latent constructs of affective commitment, normative commitment, and continuance commitment, as well as the difference in intercept of job satisfaction, were estimated using model identification and factor identification simultaneously. Following Sörbom's (1974) method, parameters were constrained so that the factor analysis model could be identified and the factor mean differences could be estimated. As the configural model has been

tested already for the previous multigroup analyses, the intercepts were constrained to be equal across both groups, while the latent means of the affective commitment factor AC, the normative commitment factor NC, and the continuance commitment factor CC were fixed to a value of 0.0 for the control group in both tests so that the latent mean values of those three factors could be freely estimated for the high-IQ group. The structural equation model based on the final comprehensive structure was overidentified with 868 - 139 = 729 degrees of freedom for the two groups.

3.4.5.3 Hierarchical multiple regression analysis

The affective commitment score, the continuance commitment score, the normative commitment score, and the job satisfaction score established by exploratory and confirmatory factor analyses were used for subsequent analyses. The first hypothesis states that general mental ability in the form of a high intelligence quotient is negatively correlated with the three different components of organisational commitment. The second hypothesis states that job satisfaction has a moderating effect on the relationship between intelligence and the different components of organisational commitment. The two hypotheses were tested simultaneously using stepwise hierarchical regression. The aim was to determine if high IQ contributed uniquely to the prediction of the respective component of commitment above and beyond other personal characteristics which were included as control variables.

Stepwise hierarchical multiple regression analyses were carried out to determine the proportion of variance in organisational commitment declared by job satisfaction compared to other dispositional aspects. Hence a regression analysis was performed for each of the components of commitment and for job satisfaction. Stepwise criteria using the forward selection method was applied to avoid overfitting and to only include those variables in the model that explain significant additional variance. With the stepwise method, independent variables are included at each step based on the probability of F. Using forward selection, the variable with the smallest probability of F which was not yet in the equation is entered, as long as the probability of F is smaller than .05.

Hierarchical regression was chosen over the simultaneous model because the independent variables can be ordered logically by their causal priority. For example, it can be theorised that the type of the employment relation antedates levels of job satisfaction. The order of

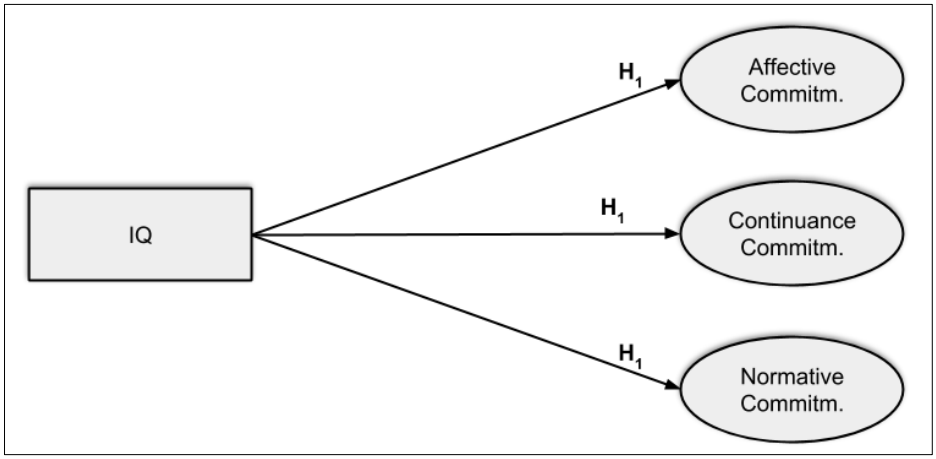
the hierarchy of independent variables is dictated by the theory of the research idea. R^2 and partial coefficients need to be determined at the point at which each variable is added to the model. The independent variables were grouped in terms of their theorised relevance to forming the respective type of commitment. The dependent variable was constant, and the respective remaining two types of commitment were added to the model first. In the next step, demographic control variables (i.e. age group, gender) were entered. At step 3, the characteristics of the working environment were entered (i.e. size of the organisation, type of employment). For the analyses of the three different components of commitment, the job satisfaction score was entered in the following step. Lastly, the variable representing the membership in the high-IQ group was included. The steps are shown in Table 3.3 using the example of the analysis of the affective commitment score.

Stepwise Multiple Regression Analysis (forward)	
Dependant	Affective Commitment Score
Step 1	Normative Commitment Score, Continuance Commitment score
Step 2	Sex, Age
Step 3	Type, Size of Employment
Step 4	Job Satisfaction score
Step 5	Membership in high-IQ group

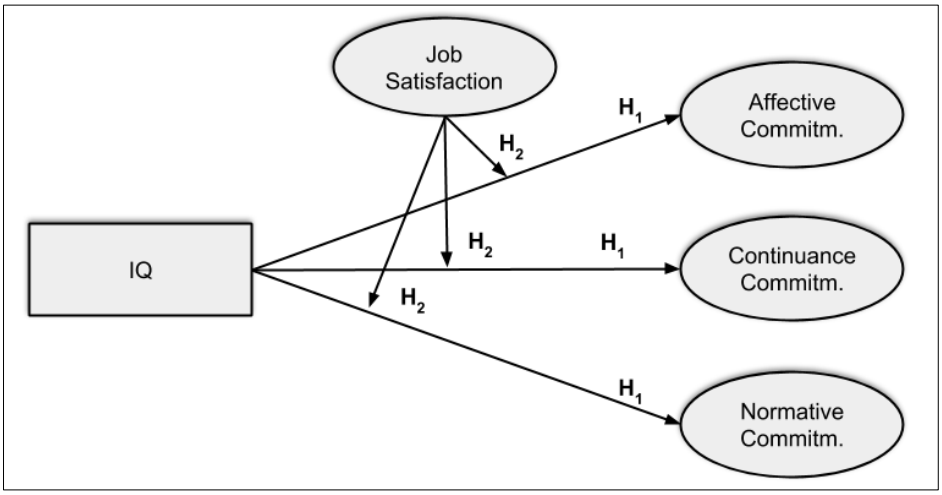
Table 3.3. Order of steps for stepwise hierarchical multiple regression analysis.

As variables were excluded from the model based on the criteria given for removal, further regression analyses were conducted using the enter method to force all variables into the model. For the regression analysis using the enter method, a stepwise approach was taken to test three models in accordance with the hypotheses of the research project: the first model includes the three types of commitment (one being constant) and the variable for membership in the high-IQ group; in the second model the job satisfaction variable was added, and the third model also included the demographic variables. The three models are in graphics in Figure 3.6. The purpose of these analyses was to test whether the criteria used in the forward selection analyses have not been appropriate. The results were compared to those from the analyses using the forward selection method.

Model 1:



Model 2:



Model 3:

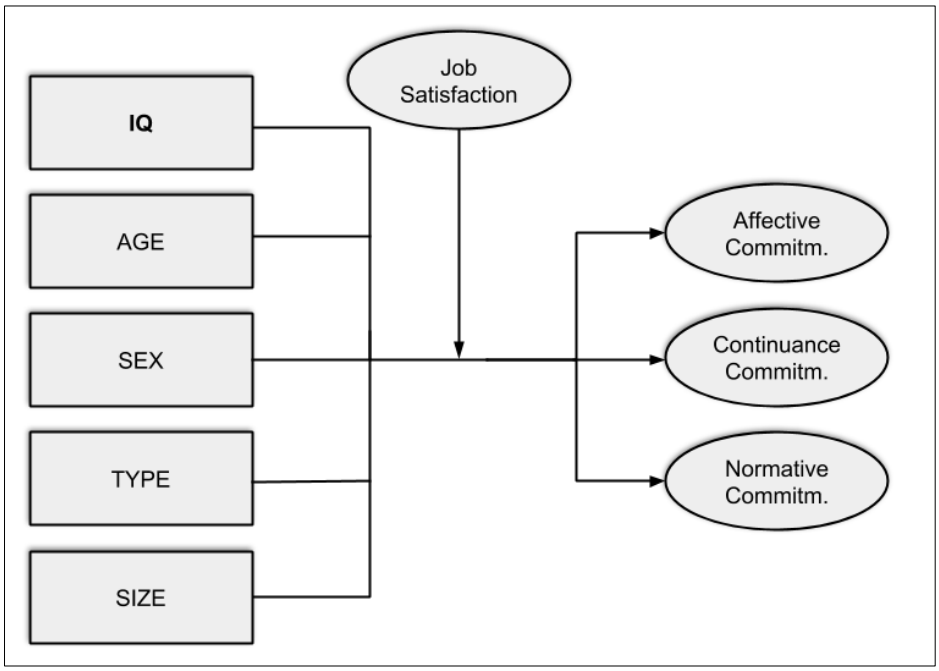


Figure 3.6. Schematic diagram of models tested with multiple regression analysis using the enter method.

A simultaneous model was tested, in which the independent variables were entered simultaneously, on equal footing. This test was conducted to explore whether a different causal structure than that hypothesised would be more appropriate for the data and research goal. Further, the two groups - high-IQ and control - were analysed in separate models for each of the dependent variables (affective commitment, continuance commitment, normative commitment, and job satisfaction) using the backward method, to establish whether predictors specific to each group can be identified.

F-test and p-test were used to assess whether the model should be accepted. The fitness of the model was assessed by the multiple correlation coefficient R as a measure of the quality of the prediction of the dependent variable. Further, the coefficient of determination, R^2, was used to assess the model fit, as it explains the proportion of variation in the dependent variable accounted for by the regression model.

3.4.6 Post-survey focus groups discussions

Qualitative methods were used to complement the quantitative process and to verify the results of the survey. As Powe, Garrod and McMahon (2005) outline, by additionally using qualitative methods, a better understanding of how the respondents conceptualised the measured items can be gained. Further, a better awareness can be achieved of how the respondents decided for their responses, what their thought processes and motivations were. Additionally, the adequacy of the valuation process, as well as the public acceptability of the valuation, can be explored (Powe et al., 2005).

A panel of twelve survey participants - four each from Germany, the United Kingdom and the United States - voluntarily took part in post-survey discussions. The participants had expressed an interest in discussing the survey and the underlying research questions, and were hence invited to provide feedback. Since the survey was conducted online, the discussion took place remotely, too.

As guidelines for post-questionnaire focus groups, a series of open-ended questions were developed to discuss the results of the survey (see Annex 4 for an overview of a list of the questions).

In a first step, the participants of the focus group completed the questionnaire themselves to acquire an understanding of the type of questions that are being analysed in this research project.

In a next step, the participants of the focus group discussed their experience of being an employee with their current organisation, any issues they might have with being a member of the organisation, and their own approach to answering the survey questions.

This way, participants could deliberate and had the chance to ask further questions regarding the subject matter and the survey questions. In-depth discussions allowed for further tests of the adequacy of the survey responses, and for addressing areas of key interest.

The panel participants' impressions were collected and captured in transcripts of the entire discussions. The analysis of the transcripts provided further insights into how the questions have been understood by participants, whether all items of the questionnaire could be answered without difficulty, and whether the concepts analysed in the survey were sufficiently reflected in the questionnaire items. Additionally, the qualitative analysis enabled an understanding of the elements of the survey's concepts that were most relevant to the participants.

3.4.7 Ethical questions

Threats to the internal validity of the testing, in particular, the experimenter bias, are reduced to a minimum by formulating the questions on the questionnaire unambiguously, and by applying appropriate coding for how the answers are evaluated. Multiple choice questions, or in this case Likert scale, as well as closed-ended questions, mitigate the risk of biased interpretation by the experimenter.

Additionally, to avoid biased responses by participants, the background information on why the study is being conducted and what it tries to prove are provided in a general manner, i.e. a study aimed at analysing the commitment and satisfaction of gifted and talented professionals in their working environment, a distinction from deception considered as "discreet silence" by Zikmund and colleagues (2009).

Naturally, as with all types of research, one of the questions that needed to be addressed concerns the ethics of this research. For instance, in the description of the research design, informing participants about the background of the research project was tackled. They are provided with the level of information ethically required for them to give informed consent and decide on their participation, without risking to become biased towards the result of the survey. As Bryman and Bell (2011) pointed out with regards to business research methods, research participants should be enabled to make an informed decision about whether they would like to participate in a study.

Participants have been informed that participation in the study is voluntary and anonymous, that their data will be treated with strict confidentiality and will only be used for the analysis of this research project (see Annex 3 for the consent form at the beginning

of the questionnaire). A contact email address in case respondents have concerns or further questions related to the survey has been provided. By participating in the survey, respondents consented to the use of their data for this research project. No compensation has been provided to the participants. Respondents were informed before starting the survey that one voucher for the online-retailer Amazon worth of €50 would be given away to a participant chosen at random. Email addresses of participants were solely used to send a feedback email to the respondent, in case the respondent expressed an interest in the results, and were deleted thereafter.

3.5 Summary of materials and methods

This outline illustrated how the quantitative and qualitative research methods can be combined to improve the validity and reliability of the survey conducted on self-reported affective, continuance and normative commitment as well as job satisfaction among members of the high-IQ society Mensa.

First, the setup of the survey was described, including the composition of the sample and guidelines for the interview. The steps of the analysis of the primary data have been outlined. Exploratory factor analysis was performed to validate the four factors that are described by the set of variables. Stepwise hierarchical multiple regression analyses were carried out to determine the proportion of variance in commitment that was declared by job satisfaction compared to other dispositional aspects, namely demographic variables and characteristics of the working environment.

Guidelines for a post-survey focus group discussion were outlined to demonstrate how the trustworthiness and reliability of the survey have been further improved. Ethical questions have been discussed, and arguments provided on the measures that have been taken to mitigate the risk of scientific misconduct.

For secondary research, the findings from recent studies conducted in the United Kingdom, the United States and in Germany, which focused on employees' attitudes towards their workplace, without specifically looking at the role intelligence might have on those attitudes, have been presented. This will allow comparing the findings of this study at hand with previous findings from relevant studies from the field.

4 RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

This chapter presents the results from the primary data analysis, and the feedback from the focus group discussion. Specifically, the first part of this chapter describes the characteristics of the responses, as well as the results for the correlation analysis, of the factor analyses, and of the multiple regression analyses. The results are also compared with findings from selected, relevant previous studies. The last part of this chapter discusses the findings and some relevant criticism of the methods and concepts applied in this research project.

The description of the responses shows differences between the mean responses on item level of the high-IQ group and the control group. The results of the correlation analysis provide a first overview over the relationship between items of the four concepts that were measures, and between the independent variables that were included in the study. The confirmatory factor analysis using structural equation modelling has confirmed the fitness of the hypothesised structure of the model including the three factors of commitment and the job satisfaction factor. Multiple regression analysis was applied to test the hypotheses, and to test the effect of further independent variables.

Participants in the post-survey focus group discussion provided relevant feedback on the way the survey was conducted, and also on the theoretical concepts underlying the study. The comparison with the results of previous studies helps to highlight the significance and contribution of this research project. Discussing the findings and addressing common criticism of concepts and methods used provides additional clarification on the results and their generalisability.

4.1 Research findings - Primary data

The survey that has been conducted between December 2016 and April 2017 through an online questionnaire asked for the respondent's sentiments towards their organisation used the commitment scales developed by Allen and Meyer (1990), and a shortened version of the Job Satisfaction Survey (Spector, 1997). The research was aiming to identify whether there were any differences between the responses of members of the high-IQ group and those who reported not to be in the top 2 percentile on a standardised IQ test.

4.1.1 Description of responses

Of the total of 2,656 valid questionnaires, 2,586 respondents stated that they are a member of a High-IQ society (e.g. Mensa), or that they have taken a standardised IQ test with a test result in the upper 2 percentile. These respondents were grouped in the IQ group, while the remaining 70 respondents were grouped into the control group. Comparing the responses to the four scales on item level shows differences between the groups. With few exceptions (AC1 and NC8), the item level mean score was lower for the high-IQ group on the items of the three commitment scales (Table 4.1). For the job satisfaction scale, the mean score of the responses of the IQ group was higher on six of the nine items (except JS5, JS7 and JS9), compared to the control group.

Item	IQ Mean score (SD)	Control Mean score (SD)	Mean Δ
01AC1	3.43 (1.334)	3.29 (1.241)	0.14
02AC2	3.64 (1.189)	3.7 (1.054)	-0.06
03AC3	3.09 (1.361)	3.27 (1.048)	-0.18
04AC4r	2.44 (1.208)	2.59 (1.11)	-0.15
05AC5r	3.35 (1.391)	3.37 (1.276)	-0.02
06AC6r	3.33 (1.387)	3.64 (1.192)	-0.31
07AC7	3.27 (1.339)	3.5 (1.164)	-0.23
08AC8r	3.39 (1.357)	3.64 (1.192)	-0.05
09CC1r	3.39 (1.508)	3.63 (1.276)	-0.24
10CC2	3.07 (1.383)	3.23 (1.276)	-0.16
11CC3	3.21 (1.366)	3.37 (1.218)	-0.16
12CC4r	3.31 (1.316)	3.4 (1.244)	-0.09
13CC5	3.21 (1.315)	3.3 (1.376)	-0.09
14CC6	2.72 (1.376)	2.87 (1.307)	-0.15
15CC7	2.93 (1.415)	3.3 (1.267)	-0.37
16CC8	3.18 (1.366)	3.33 (1.282)	-0.15
17NC1	3 (1.157)	3.01 (1.148)	-0.01
18NC2r	2.53 (1.206)	3.13 (1.048)	-0.6
19NC3r	2.3 (1.126)	2.41 (1)	-0.11
20NC4	2.53 (1.205)	2.63 (1.169)	-0.1
21NC5	1.94 (1.073)	2.43 (1.098)	-0.49
22NC6	2.78 (1.225)	2.81 (1.146)	-0.03
23NC7	2.76 (1.177)	2.44 (1.099)	0.32
24NC8r	2.58 (1.105)	2.69 (0.971)	-0.11
25JS1	3.41 (1.283)	3.11 (1.071)	0.3
26JS2r	2.6 (1.312)	2.56 (1.247)	0.04
27JS3	3.48 (1.307)	3.33 (1.338)	0.15
28JS4r	3.45 (1.282)	3.23 (1.182)	0.22
29JS5	3.19 (1.261)	3.1 (1.092)	0.09
30JS6r	3.01 (1.351)	2.77 (1.144)	0.24
31JS7	4.07 (0.913)	4.09 (1.018)	-0.02
32JS8r	3.65 (1.333)	3.5 (1.305)	0.15
33JS9	2.91 (1.233)	2.96 (1.135)	-0.05

Table 4.1. Means and standard deviation on item level by group.

4.1.2 Results of the Correlation analysis and the Exploratory Factor Analysis

The correlation matrix is shown in Annex 5. Correlation analysis showed that all eight items on of the affective commitment scale correlated significantly with a Pearson correlation coefficient ranging between r = .269 and r = .74. All eight items on the continuance commitment scale correlated significantly, and the correlation coefficient ranged between r = .112 and r = .745; on the normative commitment scale all eight items correlated significantly between r = .165 and r = .444. The correlation analysis of the job satisfaction scale showed that all nine items correlated significantly with a correlation coefficient ranging between r = .197 and r = .555.

Analysing the item-level correlation of demographic variables showed that age of the respondent was positively correlated with four of the eight items on the affective commitment scale (items 1 AC1, 3 AC3, 4 AC4, and 7 AC7), and with three items of the continuance commitment scale (items 10 CC2, 14 CC6, and 15 CC7), while one item correlated negatively (item 9 CC1). Further, age correlated positively with five items of the normative commitment scale (items 17 NC1, 18 NC2, 19 NC3, 22 NC6, and 23 NC7). Of the job satisfaction scale, three items correlated negatively with age (items 26 JS2, 27 JS3, and 29 JS5), while two items correlated positively (items 25 JS1, and 32 JS8) at a confidence level of 95 %.

Flexible working arrangements (part-time, self-employment/freelancing) was found to be positively correlated to five out of the eight items on the affective commitment scale (items 2 AC2, 3 AC3, 4 AC4, 6 AC6, and 7 AC7), while more flexible working settings were found to be negatively correlated with four items of the continuance commitment scale (items 9 CC1, 11 CC3, 13 CC5, and 16 CC8). Only one item of the normative commitment scale correlated with the type of employment arrangement (item 21 NC5), and the direction of the correlation was positive. Three of the job satisfaction scale items correlated negatively with the type of working arrangements (items 25 JS1, 27 JS3, and 28 JS4), while two items correlated positively (items 30 JS6, and 33 JS9).

Size of the organisation correlates significantly and negatively with each of the eight items of the affective commitment scale, as well as with five of the eight items of the normative commitment scale (items 18 NC2, 19 NC3, 20 NC4, 21 NC5, 22 NC6, and 24 NC8). Size

of the organisation was negatively correlated with item 10 on the continuance commitment scale, but positively correlated with items 9, 14, and 16 on the continuance commitment scale. Being employed with bigger organisations by number of employees was also found to correlate with lower levels of five out of the nine items on the job satisfaction scale (items 26 JS2, 29 JS5 to 33 JS9).

Membership in the high-IQ group was found to be negatively correlated to item 15 on the continuance commitment scale, and to items 18 and 21 on the normative commitment scale at a confidence level of 95 %. High IQ correlated positively with item 23 on the normative commitment scale. At a confidence level of 90 %, membership in the high-IQ group correlated negatively with item 6 on the affective commitment scale, and positively with item 25 of the job satisfaction scale.

The exploratory factor analysis resulted in a model with four factors. Alternative models with different numbers of factors showed a lower fit. The affective commitment factor included all eight items of the affective commitment scale. All eight items of the continuance commitment scale loaded on the continuance commitment factor. Further, all eight items of the normative commitment scale loaded on the normative commitment factor. Of the job satisfaction survey, only four items loaded highly on the job satisfaction factor.

Subsequently, three commitment scores and a job satisfaction score were computed by summing (after the reverse keyed items had been recoded) across items that loaded on each factor.

4.1.3 Results of the Confirmatory Factor Analysis

To test the fitness of the hypothesised structure with the factorial components, confirmatory factor analysis using structural equation modelling was conducted. In a first step, the confirmatory factor model for the three components of organisational commitment was estimated with the respective eight items loading on the theoretically assumed corresponding commitment factor. The model was respecified to achieve more appropriate model fit. In the second step, a confirmatory factor model for job satisfaction was estimated with four items loading on the job satisfaction factor. In the final step, the

job satisfaction factor was incorporated into commitment model to test the hypothesised relationship between the concepts.

As measures for model fit, the Comparative Fit Index (CFI), and the Root Mean Square Error of Approximation (RMSEA) is reported, since especially the latter is recognised as one of the most informative criteria in the modelling of covariance structures (Byrne, 2010, MacCallum & Austin, 2000). For the CFI, values of .90 may be interpreted as an acceptable fit of the model (Byrne, 2010). RMSEA values of less than .05 denote a good fit, while values of up to .08 can be considered an acceptable model fit, representing reasonable errors of approximation (Byrne, 2010).

The confirmatory factor analysis for the organisational commitment structure, which was conducted to test for common method variance and to evaluate the discriminant validity of the self-reported measures, showed a good fit for the hypothesised model of the three factors - the three components of commitment: chi-square value of 4418.414, with 249 degrees of freedom and a probability value of .000. The minimum was achieved, i.e. all model parameters could successfully be estimated, resulting in a convergent solution. The model fit data for this model were CFI=.837 and RMSEA=.079, indicating that this model is mediocre fit.

The first-order, three-factor confirmatory factor analysis model of the organisational commitment structure hypothesises a priori that the responses to the organisational commitment scale can be explained by three factors, affective commitment, normative commitment, and continuance commitment. It further hypothesises that each item has a nonzero loading on the commitment factor it is modelled to measure, and zero loadings on all other factors (Byrne, 2010). However, the exploratory factor analysis has shown that all items had loadings other than zero on other factors (see Table 3.2).

Critical for conducting structural equation model analysis in general, and for using the software package AMOS in particular, is the assumption of multivariate normality of the data (Byrne, 2010). Specifically, kurtosis has a severe impact on research tests of variance and covariance (Byrne, 2010). Multivariate kurtosis is known to be exceptionally detrimental in structural equation model analyses (Byrne, 2010).

While there seems to be no clear consensus at which value extreme kurtosis should be concluded, rescaled β_2 values of 7 or above can be considered an indicator of nonnormality of the data (Byrne, 2010). The assessment of univariate normality of the items of the organisational commitment scales has shown that none of the kurtosis values is equal to or greater than 7 (i.e. ranging between -.532 and -1.332 in the negative, and at .341 in the positive). It can, therefore, be concluded that no item on the organisational commitment scale is substantially kurtotic. With regards to multivariate normality, the critical ratio of 50.374 highly suggests that data in this sample are nonnormally distributed, as values higher than 5.00 indicate nonnormality (Byrne, 2010). Consequently, it would be problematic to base interpretations on the usual maximum likelihood estimation, and a different method of estimation could be considered more appropriate.

To identify possible model misspecification, the modification indices were analysed. Here, error covariance terms and factor loadings which had been constrained to a value of 0.0 were of interest (Byrne, 2010). Large modification indices would indicate that error covariances or factor cross-loadings exist.

Looking at the computed modification indices related to covariances, it became apparent that the model is misspecified with regards to the pairing of some error terms. Table 4.2 represents only the model indices for covariances of error terms with a value greater than 100.

Error Term Pairings			M.I.	Par Change
d1	<-->	d2	127.901	0.191
d5	<-->	d7	126.353	-0.162
d5	<-->	d8	170.806	0.194
d10	<-->	d11	**729.075**	0.679
d10	<-->	d14	106.55	-0.217
d10	<-->	d15	179.481	-0.311
d11	<-->	d14	184.089	-0.281
d11	<-->	d15	238.707	-0.354
d14	<-->	d15	**598.588**	0.462
d17	<-->	d23	176.671	0.275
d22	<-->	d23	113.561	0.238

Table 4.2. Modification Indices for covariances (value greater than 100) in the model of three components of organisational commitment.

It can be assumed that these measurement error covariances represent systematic rather than random measurement error in the item responses (Byrne, 2010). These measurement errors could be due to specific characteristics of the items or of the respondents. In the case of item-specific characteristics, it could be that these errors represent a small factor that has been omitted (Aish & Jöreskog, 1990). Error derived from respondent characteristics could reflect biases such as social desirability, general rejection etc. (Byrne, 2010, Aish & Jöreskog, 1990). In these cases here, it is most likely that the item content highly overlaps and therefore causes error covariances. This type of redundancy occurs when items essentially ask the same question although worded differently (Byrne, 2010). For example, item 10 asks whether leaving the organisation right now would be very hard for the respondent even if they wanted to, and item 11 asks whether deciding to leave the organisation now would cause too much disruption in the respondent's life, or item 14, that asks whether the respondent felt that they had too few options to consider leaving the organisation, and item 15, that asks whether the scarcity of alternatives would be one of the few serious consequences of leaving the organisation (Annex 3). It, therefore, seems reasonable to assume that these instances are cases of item overlap.

With regards to the factor loadings, reviewing the modification indices showed that five parameters were indicative of potential cross-loadings (Table 4.3). It is particularly noteworthy that it is again items 10 and 11 that stand out. Further, all five parameters that showed remarkably high modification indices for their regression weights are items of the continuance commitment scale. Misspecifications like this could mean that item 10 also measures affective commitment and normative commitment, in addition to continuance commitment, and that items 11, 14 and 15 measure affective commitment as well as continuance commitment. Further, it could also indicate that these items could load more appropriately on the normative commitment (NC) factor or the affective commitment (AC) factor, respectively, rather than on the continuance commitment (CC) factor they were postulated to load on. Table 3.2, which illustrates the factor loadings of the items in the exploratory factor analysis using varimax rotation, does not indicate that the items have been attributed to the wrong factor.

Relationship			M.I.	Par Change
10CC2	<---	NC	118.778	0.405
10CC2	<---	AC	302.063	0.418
11CC3	<---	AC	269.797	0.389
14CC6	<---	AC	154.57	-0.249
15CC7	<---	AC	101.03	-0.221

Table 4.3. Modification Indices for regression weights (value greater than 100) in the model of three components of organisational commitment.

Consequently, the originally hypothesised model was respecified based on the information provided by the model fit and the possible areas of model misspecification that transpired from reviewing the modification indices. In line with the theoretical considerations already discussed, it seemed reasonable to allow covariances between measurement errors within factors. Allowing covariances between the measurement errors of items 10 and 11, as well as between items 14 and 15, within the continuance commitment factor improved the model fit substantially. Specifically, the overall chi-square decreased from 4418.414 to 3021.949, the RMSEA value from .079 to .065, and the CFI value increased from .837 to .891.This represented an acceptable fit of the model for these data, and as such was the basis for further analyses. The respecified model is illustrated in Figure 4.1.

Turning to the model of the job satisfaction factor now, loading the four items on the job satisfaction (JS) factor resulted in a model that did not fit the data very well (CFI = .941, RMSEA = .109, chi-square of 65.596). The modification indices of error covariance terms and factor loadings did not indicate model misspecification, however. Consequently, the analysis proceeded with combining the respecified model of the three components of organisational commitment and the job satisfaction factor.

The comprehensive model (Figure 3.5) showed inferior model fit, with a chi-square of a value of 4004.589, a CFI value of .870, and an RMSEA value of .064 compared to the respecified model of the three components of organisational commitment. To identify possible misspecification in the comprehensive model, the modification indices for the error covariance terms and factor loadings were analysed.

The modification indices related to covariances showed that this comprehensive model might be misspecified with regards to pairing of some error terms. Specifically, the modification index related to the covariance of the error terms of items 25 and 28, both loading on the JS (job satisfaction) factor, suggest misspecification. Looking at the content of these two items, it became apparent that the error covariance was likely caused by content overlap. While item 25 asks whether the respondent feels they are paid a fair amount for the work they do, item 28 asks whether they are satisfied with the benefits they receive. Further, the modification indices for the covariance of the error terms of items 17 and 23, which were hypothesised to load on the NC (normative commitment) factor, indicated misspecified error covariance. The content of the two items covers related questions. Item 17 asks for the respondent's agreement with the statement that people these days would move from company to company too often. It seemed fair to assume that respondents, who agree with this statement, would also be likely to agree with the statement of item 23, which says that things would have been better in the days when people stayed with one organisation for most of their careers (see Annex 3). As such, the comprehensive model was respecified to allow covariances between the error terms for items 25 and 28 (i.e. d25 <--> d28) and between the error terms for items 17 and 23 (i.e. d17 <--> d23).

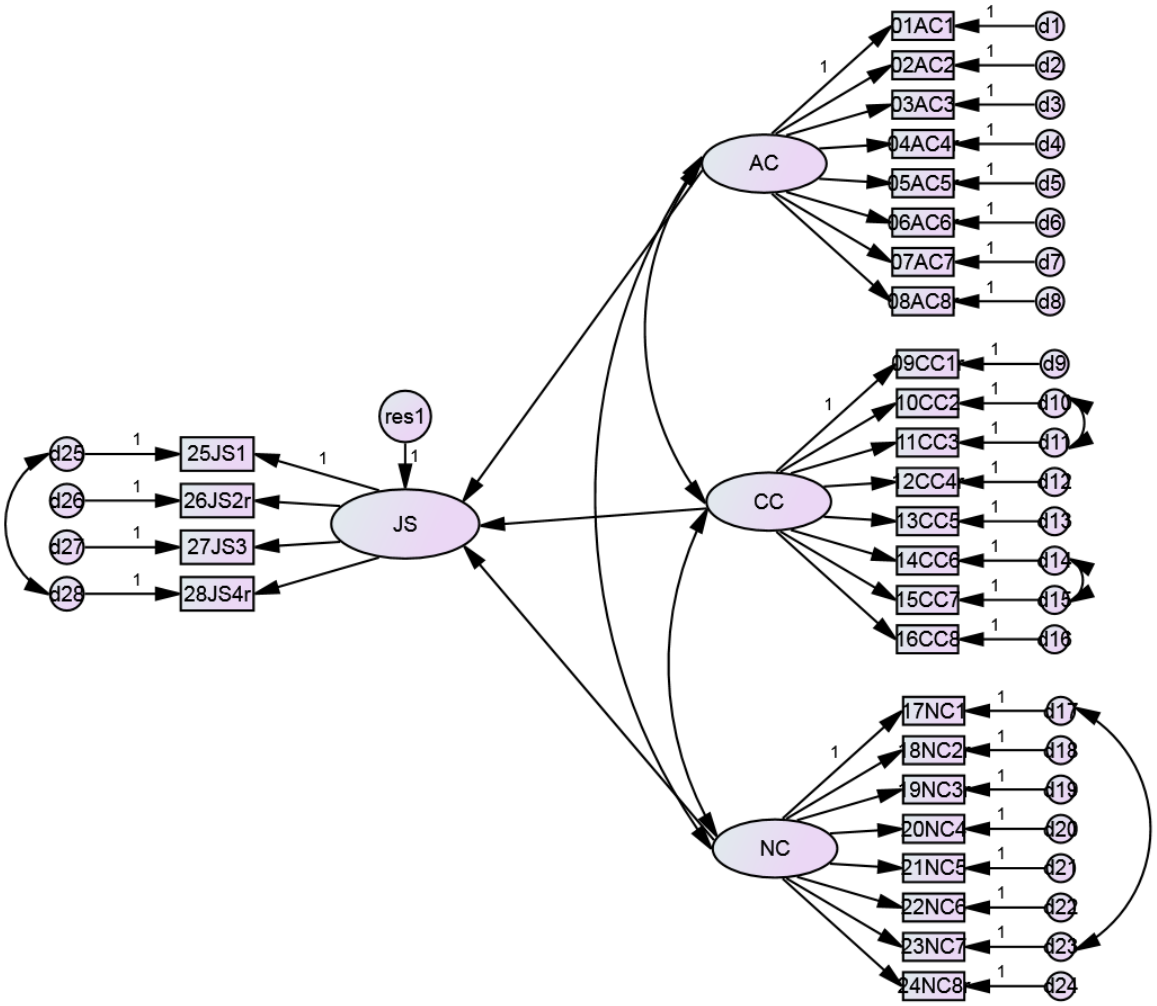


Figure 4.1. Respecified comprehensive model of affective commitment, continuance commitment, normative commitment, and job satisfaction.

The respecification of the comprehensive model improved the model fit values. The chi-square value decreased to 3600.477 at 340 degrees of freedom, the RMSEA value decreased to .06, and the CFI value increased to .884. Hence, the respecified comprehensive model has been accepted as the basic model for further analysis.

Looking at the maximum likelihood estimates, first, the feasibility of the estimates is assessed. Then, the standard errors of the parameter estimates are assessed for their appropriateness, and then the statistical significance of the parameter estimates is evaluated. A first inspection of the estimates gave no indication that the estimated values were not viable. Correlations were $r < 1.00$, and all variances were positive. Covariance and correlation matrices were positive definite except for the covariance and correlation

between AC and CC (affective commitment and continuance commitment), which was negative. The standard errors seemed appropriate. For example, the standard errors for the regression weights ranged between .019 and .094, with only four of the 27 reported values being higher than .055. While it has not been defined what constitutes a "small" or "large" value for standard errors, due to the fact that they are influenced by the units of measurement and the magnitude of the parameter estimate, it can generally be said that small values suggest accurate estimation (Jöreskog & Sörbom, 1989, Byrne, 2010). With regards to the statistical significance of the estimates, based on a probability level of .05, the critical ratio needs to be greater than ±1.96 for the null hypothesis to be rejected in a two-tailed test (Byrne, 2010). All factor loadings were found to have a critical ratio of a value well above > ± 1.96 (only the factor loadings of JS <-- CC and JS <-- NC had negative critical ratios of C.R. = -6.276 and C.R. = -3.052, respectively), while all estimates were statistically significant. The estimated factor loadings for the maximum likelihood estimation are reported in Table 4.4.

The critical ratio for the assessment of multivariate normality in this model of 53.107 strongly suggested multivariate non-normality, unsurprisingly so since the normality assessment for all of the factors had suggested the same.

As has already been established, maximum likelihood estimation is not the most appropriate approach to analyse categorical variables. As an alternative approach, Bayesian estimation has been applied to the same confirmatory factor analysis model (Figure 4.1) to compare the estimated values of both the maximum likelihood method and the Bayesian estimation.

The unstandardised factor-loading estimates from the maximum likelihood estimation and the Bayesian posterior distribution estimates for the respecified comprehensive model are presented in Table 4.4. It is apparent from Table 4.4 that these estimates are very close, which speaks well for the validity of the structure of the model.

Relationship			MLE Estimate	Bayesian Regression weights Mean
JS	<---	AC	0.406	0.407
JS	<---	CC	-0.121	-0.122
JS	<---	NC	-0.079	-0.081
02AC2	<---	AC	0.816	0.817
03AC3	<---	AC	0.92	0.922
04AC4r	<---	AC	0.569	0.57
05AC5r	<---	AC	1.144	1.146
06AC6r	<---	AC	1.223	1.225
07AC7	<---	AC	1.095	1.096
08AC8r	<---	AC	1.116	1.118
10CC2	<---	CC	1.08	1.094
11CC3	<---	CC	1.096	1.108
12CC4r	<---	CC	0.458	0.462
13CC5	<---	CC	1.232	1.243
14CC6	<---	CC	1.252	1.26
15CC7	<---	CC	1.121	1.131
16CC8	<---	CC	1.038	1.045
18NC2r	<---	NC	1.143	1.15
19NC3r	<---	NC	1.151	1.162
20NC4	<---	NC	1.324	1.337
21NC5	<---	NC	0.902	0.909
22NC6	<---	NC	1.034	1.041
23NC7	<---	NC	0.756	0.76
24NC8r	<---	NC	0.902	0.907
28JS4r	<---	JS	0.927	0.93
27JS3	<---	JS	1.299	1.298
26JS2r	<---	JS	1.434	1.442

Table 4.4. Comparison of Maximum Likelihood Estimation (MLE) results and Bayesian regression weight means.

The multiple-group analysis, testing first the organisational commitment structure, was conducted grouping the sample by membership in a high-IQ society/IQ-test results in the upper 2 percentile. The goodness-of-fit statistics for the configural model of the

organisational commitment structure with a CFI value of .889 and an RMSEA value of .047 indicate that the multi-group model is modestly well fitting across highly intelligent employees and the control group. Once the configural invariance was established, measurement and structural invariances were tested.

To test for invariance of the measurement weights (model 1), goodness-of-fit of this test was evaluated first, which provided evidence that the model fits the data modestly well (chi-square = 3366.987, CFI = .889, RMSEA = .046). Then, the difference of the chi-square values and the CFI values between the configural model and the invariance testing model (here, model 1) were evaluated to determine evidence of measurement invariance. The measurement invariance test yielded the following results: the difference in chi-square values is 27.754, and the difference in CFI values is .000. The chi-square difference test argues for evidence of invariance, since a chi-square value of 27.754 with 21 degrees of freedom is statistically significant at a probability level of more than .10 as shown on the chi-square distribution table. The CFI difference test argues for invariance at a cutoff point of less than .01 (Byrne, 2010). Since both tests indicate invariance, it was concluded that the factor loadings operate similarly across the high-IQ group and the control group.

To test structural invariance in this model, all factor loadings, as well as factor variances and the three-factor covariances, were constrained to be equal across both groups. The difference of the chi-square value compared to the configural model of 98.888 at 51 degrees of freedom is shown in the chi-square distribution table to be significant with a probability of less than .001, while the CFI difference of .002 indicates structural invariance across both groups. Unsurprisingly, the chi-square difference test indicates noninvariance due to its statistical stringency. It is at the researcher's discretion which one of the test findings to accept (Byrne, 2010). Here, the CFI test was considered to be more appropriate for this model, hence structural invariance has been assumed.

Then, the multiple-group analysis that included the job satisfaction structure was conducted based on the respecified comprehensive model (Figure 4.1), with the dichotomous variable "IQ" declared as grouping variable. The goodness-of-fit parameters for the configural model of the job satisfaction structure with a chi-square value of 4099.951, CFI value of .879 and RMSEA value of .044 indicate that the model fits the data modestly well. When the factor loadings were constrained to be equal across the groups,

the model testing for measurement invariance indicated that the factor loadings are invariant across both groups (difference in chi-square value of 34.299 with 24 degrees of freedom is statistically significant with a probability level of more than .05, and the difference in CFI values of .000 is below the cutoff of .01). With regards to structural variance in the respecified comprehensive model (Figure 4.1) including the job satisfaction structure, both the chi-square difference test and the CFI difference test indicate structural invariance. The chi-square difference of 45.035 with 33 degrees of freedom is not statistically significant, and the CFI difference is again .000. Consequently, it was assumed that structural covariances are equivalent across both groups. The results of the goodness-of-fit statistics of the invariance tests for the multi-group analyses are reported in Table 4.5.

Model	a) configural model for the OC structure; no equality constraints imposed	1a) measurement model (model 1); all factor loadings constraint equal	2a) structural model (model 2); all factor loadings and covariances constraint equal	b) configural model for comprehensive model including job satisfaction structure; no equality constraints imposed	1b) measurement model (model 1); all factor loadings constraint equal	2b) structural model (model 2); all factor loadings and covariances constraint equal
Comparative Model	-	a versus 1a	a versus 2a	-	b versus 1b	b versus 2b
Chi Square	3339.233	3366.987	3438.121	4099.951	4134.25	4214.823
Degree of Freedom	494	515	545	680	704	741
Delta Chi Square	-	27.754	98.888	-	34.299	114.872
Delta DF	-	21	51	-	24	61
Stat. Significance	-	not significant ($p > .10$)	$p < .001$	-	not significant ($p > .05$)	$p < .001$
CFI	0.889	0.889	0.887	0.879	0.879	0.877
Delta CFI	-	0	-0.002	-	0	-0.002

Table 4.5. Goodness-of-fit statistics of invariance tests for multi-group analyses.

As the model fit results of the multi-group analyses for measurement and structural variance did not differ significantly compared to the configural model, the respecified comprehensive model including job satisfaction was accepted as final structural model as depicted in Figure 4.1.

When the means of the three commitment factors were constrained to 0 for the control group, the mean differences between the two groups could be estimated using model identification and factor identification. The test of the respecified comprehensive model for latent mean differences between the high-IQ group and the control group showed that the model fits the data modestly well (chi-square value of 4198.454 at 729 degrees of freedom, CFI of .877, and RMSEA value of .042). Comparing the latent mean difference model with the configural model showed that although the chi-square difference test was statistically significant ($p < .001$) with a chi-square difference of 98.5 at 49 degrees of freedom, the CFI difference test met the cutoff criteria with a difference of .002. Consequently, the estimates associated with this modelling were interpreted.

The parameter estimates for the high-IQ group are reported in Annex 6. The critical ratios of those reveal that all estimates, apart from the latent mean estimates of affective commitment and continuance commitment, are statistically significant. Given that the factor means of the control group were fixed to zero as it was declared as reference group, the means reported represent the latent mean differences between the two groups. All three estimates are negative, with the latent mean difference in Normative Commitment (NC) showing the most negative value of -0.165. The mean estimates indicate that high-IQ participants show lower levels of affective commitment, continuance commitment, and normative commitment than those participants that did not report to have tested for an IQ in the upper 2 percentile. While the critical ratio associated with the mean difference in affective commitment and that associated with the mean difference in continuance commitment do not meet the cutoff point of ±1.96, and therefore are not statistically significant (C.R. = -1.199 and -1.539, respectively), the critical ratio associated with the mean difference in normative commitment of -2.179 indicates statistical significance with a confidence level of $p = .029$.

Turning now to the results of the control group, it was found that the covariances between affective commitment and continuance commitment, and between normative commitment and continuance commitment, were not statistically significant with critical ratios not meeting the cutoff point (C.R. of -1.167 at a significance level of $p = .243$, and C.R. of 1.461 at a significance level of $p = .144$, respectively).

These findings are interpreted as indicating that individuals with high IQ appear to show lower levels of normative commitment than individuals that do not score within the upper 2 percentile on a standardised IQ test. The findings also suggest that high IQ individuals may experience lower levels of affective commitment and continuance commitment, although these interpretations, while in line with the theory on organisational commitment, were not found to be statistically significant.

The factor score weights for this model report the regression weights, which provide insights into how the observed variables weigh towards the unobserved variables. Since in this model, the factor means were constrained to 0 for the IQ group, the mean of the factor scores is 0 too, i.e. they are centred. Apart from indicating which observed variables contribute strongest to the factor, the group factor score weights also allow a comparison between the two groups. Looking at the differences between the two groups in the factor score weights (reported in Annex 7) shows that for the affective commitment factor, item 3 ("I really feel as if this organisation's problems are my own") has a much higher score weight for the control group than for the high-IQ group (0.093 and 0.065, respectively). With regards to the continuance commitment factor, item 13 ("Right now, staying with my organisation is a matter of necessity as much as desire") weighed significantly higher in the high-IQ group than in the control group (0.179 and 0.129, respectively). On the normative commitment factor, the first item ("I think that people these days move from company to company too often") contributed stronger to the NC factor in the high-IQ group (0.074) than in the control group (0.05). In contrast, the item asking about the satisfaction with the benefits received (item 28) contributed more strongly to the job satisfaction factor in the control group (0.066) than in the high-IQ group (0.041).

For the model with the parameter subset analysing measurement weights, minimisation was achieved and all parameter values could be estimated successfully. The model fit data of a chi-square value of 4373.705, a CFI value of .870, and an RMSEA value of .044 suggest that the data fit the model modestly well.

The confirmatory factor analysis using structural equation modelling has confirmed the fitness of the hypothesised structure of the model including the three factors of commitment and the job satisfaction factor. The multigroup analysis of the structural equation modelling also confirmed that there are differences between the high-IQ group

and the control group with regards to the affective commitment factor, the continuance commitment factor, the normative commitment factor, and the job satisfaction factor.

4.1.4 Results of the Multiple Regression Analysis

To test Hypothesis 1, bivariate Pearson correlation analysis was conducted to test for correlation between membership in the high-IQ group and the three components of commitment and job satisfaction. Membership in the high-IQ group was found to be weakly associated with the affective commitment score in a negative direction, although the linear relationship was not found to be statistically significant ($p > .05$). High IQ was found to have a linear relationship with the continuance commitment score as well as with the normative commitment score that is marginally statistically significant ($p = .056$). In both cases, the direction of this relationship is negative, though the strength of these relationships is weak ($r = -0.031$). The relationship between membership in the high-IQ group and job satisfaction was found to be statistically significant ($p < .05$) and positive, though again the magnitude of this association is rather small ($r = 0.033$).

Highly significant relationships were found between job satisfaction and the three components of organisational commitment ($p < .000$). The relationship between job satisfaction and continuance commitment was found to be negative, i.e. greater continuance commitment is associated with lower job satisfaction, through the strength of this association is small ($r = -0.095$). Affective commitment and normative commitment were both found to be positively correlated with job satisfaction. The relationship between affective commitment and job satisfaction was found to be moderate ($r = 0.498$), and the relationship between normative commitment and job satisfaction weak ($r = 0.131$).

Table 4.6 depicts the correlation coefficients and significance level of correlations between the different predictors and affective commitment, continuance commitment, normative commitment, and job satisfaction.

	Correlation: affective commitment		Correlation: continuance commitment		Correlation: normative commitment		Correlation: job satisfaction	
Variable	**Pearson**	**Sig.**	**Pearson**	**Sig.**	**Pearson**	**Sig.**	**Pearson**	**Sig.**
AC Score	--	--	-0.007	n.s.	0.369	***	0.498	***
CC Score	-0.007	n.s.	--	--	0.138	***	-0.095	***
NC Score	0.369	***	0.138	***	--	--	0.131	***
JS Score	0.498	***	-0.095	***	0.131	***	--	--
Age	0.054	***	0.04	*	0.101	***	-0.016	n.s.
Sex	-0.058	***	-0.045	**	-0.01	n.s.	-0.002	n.s.
Type of Employment	0.063	**	-0.067	***	0.019	n.s.	-0.063	***
Size of organisation	-0.246	***	0.035	*	-0.122	***	0.019	n.s.
IQ	-0.017	n.s.	-0.031	0.056	-0.031	0.056	0.033	*

**** p <.001, ** p <.01, * p <.05, n.s. = not significant*

Table 4.6. Correlation coefficients and significance levels of correlations between dependent variables and predictors.

Multiple regression analyses were conducted to determine the proportion of variance in the three components of organisational commitment declared by job satisfaction compared to other dispositional aspects, especially high-IQ, but also by the participants' gender, age, the size of their employer by number of employees, and the type of their employment (full-time, part-time, self-employed/freelancing).

The regression analysis of the affective commitment score as dependent variable using the forward method showed that the predictors combined explain 39.2% of the variability of the dependent variable, according to the coefficient of determination R^2. All tested regression models showed a good fit of the data, with statistical significance ($F(5, 2650) > 147$, $p < .001$). The job satisfaction score was found to make the largest contribution to explaining the variability of affective commitment. The job satisfaction coefficient was highly significant ($B = 1.082$, $p < .001$), an increase in job satisfaction by one unit would lead to a 1.082 unit increase in affective commitment. Membership in the high-IQ group

was not found to contribute significantly to the included predictors using the forward selection method (probability of F > .10). Both the continuance commitment score as well as the normative commitment score were included in the model, though only the normative commitment coefficient was statistically significant (B = .387, p < .001). With regards to the demographic control variables, gender was found to be a significant predictor of affective commitment (B = -0.41, p < .001), while age was excluded from the model in the forward selection method. It is interesting to note here that male gender was found to lead the affective commitment score to decrease by .41 units of measurement. In the group of variables representing the characteristics of the working environment, size of the employer was found to be a highly significant factor (B = -0.997, p < .001) for explaining the variability of affective commitment, while type of employment was also excluded from the model. The number of employees of the organisation had a significant negative impact on the affective commitment score, as with an increase in employer size the affective commitment score would decrease by 0.997 units.

The analysis of the continuance commitment score using forward multiple regression showed that the predictors combined explained only 4% of the variance of the dependent variable, based on the coefficient of determination R^2. Again, the models using the forward selection method showed good fit of the data (F > 22, p < .001). While both the affective commitment score and the normative commitment score were included in the model, only the coefficient of the normative commitment score was statistically significant (B = .194, p < .001). Membership in the high-IQ group was not found to contribute significantly to the predictors included in the model at the forward selection criteria used (probability of F < .05). Job satisfaction was found to be a highly significant coefficient for continuance commitment (B = -0.249, p < .0001). Interestingly, the negative beta value of -0.249 suggests that an increase in job satisfaction by one unit would actually *decrease* the continuance commitment score by .249 units. Of the demographic variables age and gender, only gender was found to make a statistically significant contribution (probability of F < .05), in that the difference in gender shows that reporting to identify with the male gender would lower the continuance commitment score by .298 units. In the group of characteristics of the employer, only type of employment was found to explain a significant amount of variance (B = -0.512, p < .001), while size of the organisation was excluded from the model. With more flexible working arrangements (part-time, or self-

employment/freelancing), the continuance commitment score would actually *decrease* by .512 units.

The coefficient of determination R^2 for the normative commitment score regression analysis using the forward method showed that the predictors in the model explained 16.3% of the variance of the normative commitment score as a dependent variable. The models showed good fit for the data set ($F(4, 2651) > 129$, $p < .001$). The coefficients of both the affective commitment score and the continuance commitment score showed a statistically significant contribution ($B = .282$, $p < .001$, and $B = .108$, $p < .001$, respectively). Again, membership in the high-IQ group had a small, non-significant impact on this commitment factor (beta = -0.026, $p > .05$). Job satisfaction was found to be a significant coefficient ($B = -0.083$, $p < .05$), with a small negative coefficient of -.083 suggesting that with an increase in job satisfaction by one unit, normative commitment would decrease by .083 units. With regards to the coefficients of the group of demographic variables, only age was found to explain a significant amount of variance ($B = .385$, $p < .001$), while gender was not found to make a significant contribution (probability of F > .05). With increasing age group, normative commitment factor would increase by .358 units. Of the significant coefficients, this is also the highest beta value in the model. Neither size of the organisation nor type of employment fulfilled the criteria to be included in the model.

Multiple regression analysis was also conducted for the job satisfaction score as dependent variable using the forward selection method. All tested models were found to be highly statistically significant ($F > 152$, $p < .05$), with the significant predictors combined explaining 28.7% of the variance in job satisfaction. The Durbin-Watson value of $d = 1.963$ indicates that there is no first order linear correlation in the model. All three commitment factors were found to be significant coefficients ($p < .05$), with the unstandardised beta values showing that an increase in affective commitment would lead to a .237 unit increase of job satisfaction, while an increase in continuance commitment or in normative commitment would lead to a decrease in job satisfaction (-0.045 units and -0.022 units, respectively). Increase in the size of the organisation would lead to an increase in job satisfaction by .263 units ($p < .001$), while with more flexible working arrangements job satisfaction would decrease by .225 units ($p < .001$). The coefficient for membership in the high-IQ group showed the highest beta value of .81 ($p < .05$), indicating that being a

member of the high-IQ group would increase job satisfaction by .81 units. While the gender variable was excluded from the model (probability of F > .05), the coefficient of the age variable was not found to be statistically significant (*B* = -0.084, *p* > .05). Results of the multiple regression analyses using the forward method are presented in Table 4.7.

Coefficients of Regression Analyses using Forward selection								
Variable	**AC**		**CC**		**NC**		**JS**	
	B	**Sig.**	**B**	**Sig.**	**B**	**Sig.**	**B**	**Sig.**
Factor AC	--		-0.003	0.89	0.282	0.000	0.237	0.000
Factor CC	0.004	0.817	--		0.108	0.000	-0.045	0.000
Factor NC	0.387	0.000	0.194	0.000	--		-0.022	0.039
Age	*excluded*		*excluded*		0.358	0.000	-0.084	0.083
Sex	-0.41	0.000	-0.298	0.025	*excluded*		*excluded*	
Type of Employment	*excluded*		-0.512	0.000	*excluded*		-0.225	0.000
Size of organisation	-0.997	0.000	*excluded*		*excluded*		0.263	0.000
JS Factor	1.082	0.000	-0.249	0.000	-0.083	0.017	--	
IQ	*excluded*		*excluded*		*excluded*		0.81	0.024
Model Fitness	*R^2 = .392, F > 341, p = .000*		*R^2 = .04, F > 22, p = .000*		*R^2 = .163, F > 129, p = .000*		*R^2 = .287, F > 152, p = .000*	

Table 4.7. Regression coefficients as a result of regression analyses using forward selection

Multiple regression analyses were then conducted using the enter method, to force the high-IQ variable to be in the model despite not explaining a significant increment in variance. Three models were compared: Model 1 includes the three types of commitment (one being constant) and the variable for membership in the high-IQ group, in Model 2 the job satisfaction variable was added, and in Model 3 the demographic variables were also included. Results of these analyses are shown in Table 4.8

The analysis for affective commitment showed that when the high-IQ variable was included, the associated beta weight was negative (*B* = -0.364), though not significant (*p* > .05), and high IQ alone did not explain a significant increment in variance of affective commitment (R^2 change = 0%, *p* > .05). When the job satisfaction score was added (Model 2), which explained an additional 20.2% (*p* < .001) of the variance, the beta weight of the

high-IQ coefficient actually decreased strongly (B = -1.144) while the p-value decreased to p = .152. This result would indicate that job satisfaction has a moderating effect on the (negative) relationship between high IQ and affective commitment, and that it actually strengthens it rather than weakening it (Hypothesis 2). When the demographic variables (gender, age, type of employment and size of the organisation) were added, the beta coefficient of the IQ variable increased to B = -0.969 (p = .209), and the job satisfaction coefficient increased to B = 1.092 (p < .001), making it the strongest contributor to variance in affective commitment. The model including demographic variables explains 39.5% of variance in affective commitment.

Coefficients of Regression Analysis (Enter method) for Affective Com.						
Variable	**Model 1**		**Model 2**		**Model 3**	
	B	**Sig.**	**B**	**Sig.**	**B**	**Sig.**
Factor CC	-0.066	0.001	-0.008	0.654	0.005	0.758
Factor NC	0.521	0.00	0.427	0.00	0.381	0.00
IQ	-0.364	0.690	-1.144	0.152	-0.969	0.209
JS Factor			1.063	0.00	1.092	0.00
Age					0.209	0.046
Sex					-0.445	0.00
Type of Employment					0.293	0.012
Size of organisation					-0.953	0.00
Model Fitness	*R^2 = .14, F > 143, p = .000*		*R^2 = .342, F > 344, p = .000*		*R^2 = .395, F > 216, p = .000*	

Coefficients of Regression Analysis (Enter method) for Continuance Com.						
Variable	**Model 1**		**Model 2**		**Model 3**	
	B	**Sig.**	**B**	**Sig.**	**B**	**Sig.**
Factor AC	-0.061	0.001	-0.009	0.654	0.007	0.758
Factor NC	0.202	0.00	0.194	0.00	0.19	0.00
IQ	-1.227	0.160	-1.029	0.237	-1.163	0.182
JS Factor			-0.23	0.00	-0.257	0.00
Age					0.253	0.03
Sex					-0.331	0.014
Type of Employment					-0.485	0.00
Size of organisation					0.18	0.03
Model Fitness	*R^2 = .024, F > 21, p = .000*		*R^2 = .033, F > 22, p = .000*		*R^2 = .044, F > 15, p = .000*	
Coefficients of Regression Analysis (Enter method) for Normative Com.						
Variable	**Model 1**		**Model 2**		**Model 3**	
	B	**Sig.**	**B**	**Sig.**	**B**	**Sig.**
Factor AC	0.267	0.00	0.286	0.00	0.276	0.00
Factor CC	0.113	0.00	0.109	0.00	0.108	0.00
IQ	-0.74	0.258	-0.667	0.308	-0.938	0.153
JS Factor			-0.088	0.01	-0.074	0.04
Age					0.369	0.00
Sex					0.046	0.647
Type of Employment					-0.076	0.44
Size of organisation					-0.103	0.10
Model Fitness	*R^2 = .156, F > 163, p = .000*		*R^2 = .158, F > 124, p = .000*		*R^2 = .165, F > 65, p = .000*	

Table 4.8. Regression coefficients as a result of stepwise multiple regression analyses testing for moderating effects of job satisfaction.

The stepwise analysis of the continuance commitment score using the enter method showed that the beta weight of the high-IQ coefficient was B = -1.277 (p = .16), suggesting a negative effect of high IQ on continuance commitment at a confidence level of 80%. When job satisfaction was added to the model, the beta value of the high-IQ coefficient increased to B = -1.029 (p = .237). Although not statistically significant at the

confidence level of 95%, this finding would suggest that job satisfaction could have a slightly moderating (weakening) effect on the (negative) relationship between high IQ and continuance commitment. When the demographic variables were added to the model, the coefficient for the IQ variable decreased to B = -1.163 (p = .182), which made membership in the high-IQ group the strongest contributor to variance of continuance commitment among those variables tested. Overall, the model only explains 4.4% of variance in continuance commitment.

With regards to the normative commitment score, the high-IQ coefficient showed a beta value of B = -0.74 (p = .258) before job satisfaction was added to the model. In the model that included job satisfaction, the beta weight of the high-IQ coefficient increased to B = -0.667 (p = .307). Though again not statistically significant at a confidence interval of 95%, the finding indicates that job satisfaction could have a slightly moderating (weakening) effect on the relationship between high IQ and normative commitment. In the model which included the demographic variables, the coefficient of the high-IQ variable was estimated as B = -.938 (p = .153), which makes membership in the high-IQ group the strongest contributor to variance in normative commitment. The model explains 16.5% of the variance in normative commitment.

The separate analyses of the two groups, the high-IQ and the control group, using the backward method showed that in the high-IQ group, job satisfaction contributed significantly to variance in affective commitment (B = 1.19, p < .001). Among the control group, job satisfaction was found to have a lower positive regression weight (B = .676, p < .05) compared to the high-IQ group. With regards to demographic variables, the size of the organisation was found to have a strong negative influence on affective commitment among the high-IQ group (B = -1.101, p < .001), indicating that affective commitment would decrease among the high-IQ group with bigger organisations. Size of the organisation was found to also have a negative regression weight at a statistically significant level among the control group (B = -.993, p < .05). Gender was found to have a negative regression weight for affective commitment in the high-IQ group (B = -0.508, p < .001), while age was found to have a positive regression weight (B = .448, p < .001), indicating that among the high-IQ group, an increase in age group would lead to an increase in affective commitment of .448 units of measurement. For the control group, the age variable was included in the model though the coefficient was marginally significant (

B = -1.326, p = .058). The negative coefficient would indicate that higher age would decrease affective commitment, contrary to the results of the high-IQ group. The type of employment showed a positive regression weight only among the high-IQ group (B = .276, p = .25).

With regards to continuance commitment, analysing the responses of the members of the high-IQ group showed that job satisfaction has a negative regression weight (B = -.205, p < .000), as did gender (B = -.327, p < .05) and type of employment (B = -.522, p < .001), indicating that continuance commitment would decrease with an increase in the predictors. Age was found to have a positive regression weight (B = .353, p < .01) for continuance commitment among the high-IQ group. For the control group, only gender was included in the model, though the associated beta coefficient had a low significance (B = -1.169, p = .086).

When testing normative commitment for both groups using the backward method, job satisfaction was only fitted into the regression model for the high-IQ group (B = .235, p < .001). Size of the organisation was again found to have a negative regression weight (B = -.369, p < .001), while age had a positive regression weight (B = .513, p < .001). Size of the organisation and gender were the only variables included in the regression model of the control group, and were found to have negative regression weights for the control group. Table 4.9 presents the results of the separate regression analyses for both groups.

Group differences in Coefficients of Backward Regression Analyses												
Variable	**AC**				**CC**				**NC**			
	IQ		**Control**		**IQ**		**Control**		**IQ**		**Control**	
	B	**Sig.**	**B**	**Sig.**	**B**	**Sig.**	**B**	**Sig.**	**B**	**Sig.**	**B**	**Sig.**
JS Factor	1.190	0.00	0.676	0.007	-0.205	0.00	*excluded*		0.235	0.00	*excluded*	
Age	0.448	0.00	-1.326	0.058	0.353	0.004	*excluded*		0.513	0.00	*excluded*	
Sex	-0.508	0.00	*excluded*		-0.327	0.018	-1.169	0.086	*excluded*		-0.739	0.14
Type of Employment	0.276	0.25	*excluded*		-0.522	0.00	*excluded*		*excluded*		*excluded*	
Size of organisation	-1.101	0.00	-0.993	0.018	*excluded*		*excluded*		-0.369	0.00	-1.098	0.001
Model Fitness	$R^2 = .326$, $F > 249$, $p = .000$		$R^2 = .234$, $F > 6$, $p = .000$		$R^2 = .019$, $F > 12$, $p = .000$		$R^2 = .043$, $F > 3$, $p = .086$		$R^2 = .043$, $F > 38$, $p = .000$		$R^2 = .187$, $F > 7$, $p = .001$	

Table 4.9. Results of separate backwards regression analyses for high-IQ group and for control group.

Referring back to the hypotheses of this research project, the results of the hierarchical multiple regression analyses indicate that, at a less conservative confidence level of 80%, membership in the high IQ group was found to be a significant predictor of affective commitment when job satisfaction was included in the model (B = -1.144, p < .2). Membership in the high-IQ group was also found to be a significant predictor of continuance commitment at a confidence level of 80% when job satisfaction as well as the demographic variables gender, age, type of employment and size of the organisation were added to the model (B = -1.163, p < .2). To predict normative commitment, membership in the high-IQ group was found to be statistically significant at 80% when the model included job satisfaction and the demographic variables (B = -.937, p < .2).

Job satisfaction has been found to have a slightly moderating effect on the relationship between high IQ and all three types of commitment. Job satisfaction was found to weaken the relationship between high IQ and continuance commitment, as well as the relationship between high IQ and normative commitment, while job satisfaction was found to strengthen the relationship between high IQ and affective commitment.

4.2 Feedback from focus group discussion

Participants in the post-survey focus group discussion gave relevant feedback on the way the survey was conducted, as well as on the theoretical concepts underlying the study. The set of questions discussed with the focus group participants is presented in Annex 4. A participant from Germany questioned that loyalty towards an organisation, as opposed to being loyal to the supervisor, or to a group, existed at all. They challenged that experienced employees would agree with the concept of being loyal to the organisation. They remarked positively the relevance of the questions in the questionnaire to the research goal, and that the time it took to fill out the questionnaire was accurately estimated. Another participant from Germany commented on the fact that the questionnaire had not been translated into German. Therefore, the responses to the questions from the non-native English-speaking participants from Germany could differ from those responses from UK and US participants for reasons related to language and understanding, rather than actual cultural differences. Further, one German participant raised a concern regarding conducting the survey on the Google platform (i.e. the online application "Google forms") for data protection and privacy concerns. This could have led participants to be hesitant in completing the form.

A participant from the UK also saw a distinction between loyalty to an organisation, and loyalty to a team or mission. The organisation could span many departments, countries, subsidiaries, etc., not all of which would always be uniform. This participant made a distinction for themselves between relating to the mission and work of their organisation, which they would not refer to as "loyalty". Their loyalty would be with their superior and the leadership team. Referring to the set of questions on continuance commitment, the participant stated that they would have fewer reservations about leaving the organisation than leaving their superiors. With regards to question from the set of questions on normative commitment, asking for agreement on the statement "Things were better in the days when people stayed with one organisation for most of their careers", one of the participants from the UK questioned how "better" should be understood here, and how causality would be interpreted. "Better" could refer to the economic situation overall, which could be understood as one of the reasons why people stayed so long with their respective organisation. Therefore, the participant pointed out that the respondents might interpret the question differently with regards to correlation/causality of what "better" would refer to. Further, the participant added for consideration that the wording of item 10

("It would be very hard for me to leave my organisation right now, even if I wanted to") would not specify precisely which aspect would make it hard for the respondent to leave the organisation - for example, the respondent's answer could be driven by the benefits provided by the organisation, loyalty towards people, or economic situation overall. Another participant shared their perception that loyalty to an organisation would have declined and that nowadays, monetary benefits, power, and status would be more decisive factors than loyalty or commitment.

A number of participants from the United States noted that the questions were phrased in a way that would be difficult to respond to for individuals that run their own company or that are self-employed They felt that the wording of the questionnaire would not be relevant or applicable to the situation of company owners or the self-employed. One participant, a business owner themselves, said that their responses reflected their feelings of ownership. Further, two participants commented on the mix of positively and negatively phrased items. They raised the concern that some participants may overlook the requirement of a double-negative in some instances (e.g. replying "I disagree" to a question that states "I do not feel like…"), which could distort the results. The alternating use of positively phrased and negatively phrased items would risk skewed results from respondents missing the negative phrasing. One participant from the US suggested classifying participants by tenure or seniority.

The question whether loyalty to an organisation as opposed to the team or supervisors existed is reflected in the scientific debate on different targets of commitment, as mentioned in the literature review. Commitment to different targets can occur simultaneously and are not mutually exclusive. Rather, they are different forms of commitment. This research project focuses on commitment to the organisation; analysing differences in commitment to other targets such as teams could be the topic of further research outside of the scope of this project.

With regards to translating the questionnaire, it has been considered initially to translate the questionnaire into German for participants from Germany. However, to ensure more reliable comparability between the sample, and given that the pre-survey feedback from German reviewers has not given rise to concern on potential difficulties in gaining a

thorough understanding of the questionnaire, it was decided that the original design of the questionnaire in English will be used for the German participants.
Privacy and data protection concerns can be addressed in that the Google form used for the questionnaire was hosted through a G Suite account managed by an organisation based in the EU, so that EU data protection regulations are addressed.

Positively and negatively phrased items were mixed in the original organisational commitment scales and the job satisfaction survey to increase response reliability. The internal consistency of the survey responses after recoding also does not suggest that participants overlooked the negatively phrased questions.

It has been considered to include tenure in the analysis, but has then been dismissed because the focus of this research project should be on personal characteristics that are immanent in the participant, not related to the organisation.

4.3 Comparison with previous studies

Secondary research results were compared to findings from the primary research study. Recent representative studies with a significantly large sample size were considered for comparison.

4.3.1 UK: Workplace Employment Relations Survey of Employees 2011

A dataset consisting of variables taken from the survey of employees questionnaire of the WERS 2011 study has been used to predict the level of employee loyalty based on five different characteristics of the work environment, using the lazy learning algorithm in form of the k-nearest neighbour method and a decision tree model (Bonau, 2018). The models illustrated that employees who feel that they share many values with their organisation, and whose managers encourage them to develop their skills further, would feel more loyal towards the organisation they work for (Bonau, 2018). Further, employees that feel a sense of achievement from their work, and feel that the relation with their managers is good, were found to develop a stronger loyalty towards their employer, while pay satisfaction has been found to be negatively correlated to commitment (Bonau, 2018). Bonau's findings (2018) support the results from this research on the relationship between affective commitment (shared values) and normative commitment (loyal to the organisation).

4.3.2 UK: CIPD Employee Outlook Autumn 2016

Key findings of the survey of the Chartered Institute of Personnel and Development (CIPD) were that with regards to employee engagement, employees' overall satisfaction with the amount of influence over their work and the scope of using their own initiative in their job has increased (CIPD, 2016). Satisfaction with using one's own knowledge and skills has been found to have increased compared to the last survey, too (CIPD, 2016).

Interestingly, though, the agreement with the item measuring employee motivation was very low (6% more agreeing than disagreeing with feeling motivated to give their best performance). Further, the majority of respondents stated that they would not turn down another job with higher salary. Hence, staying with the organisation seems to have been less important to the majority of respondents than receiving a better pay, despite the fact

that the majority of respondents stated to be satisfied with their current pay (CIPD, 2016). This finding concurs with the (negative) relationship that was found between job satisfaction and continuance commitment.

4.3.3 US: Gallup State of the American Workplace 2017

Looking at the results of employee engagement, Gallup (2017) found that engagement was lowest in the largest organisations in the US, while the highest levels of engagement were found in smallest organisations. Further, Gallup (2017) found that female employees are slightly more engaged than male employees, a finding that would confirm findings from all of Gallup's previous studies into employee engagement. These findings correspond with the results of this research project, which found that affective commitment is lower in larger organisations, and that male employees reported lower levels of affective commitment.

While Gallup (2017) did not look specifically at the participant's level of intelligence, one of the criteria analysed was the respondent's level of education. They found that employee engagement was highest in the group with lowest level of education (high school diploma or less). The lowest level of employee engagement was found among college graduates (Gallup, 2017). As education and intelligence are highly interrelated (Deary & Johnson, 2010), these findings are in line with the findings of this research project, which suggest that high IQ could have a negative impact on commitment.

4.3.4 Germany: EY Job study 2017, ManpowerGroup study 2017

EY found in their survey in Germany that the age group between 50 and 60 years has reported the highest level of satisfaction with their work, whereas young professionals between 21 and 30 years of age reported the lowest level of job satisfaction (EY, 2017). Overall, women reported a slightly higher level of satisfaction with their job than men (70% and 66% respectively; EY, 2017). In contrast, in this research project, neither gender or age was found to influence job satisfaction in a statistically significant manner.

With regards to motivation at work, the EY study found that women reported being more motivated than men, with 44% stating they feel "highly motivated" compared to 39% of

the male respondents (EY, 2017). The majority of respondents stated that a good working culture within their team motivated them at work (58%), followed by having an interesting job (42%), while less than a third (29%) of the respondents mentioned a high salary as a motivating aspect for their work (EY, 2017). Of the respondents, 81% reported that they felt their work was appreciated, and a stark majority (94%) reported that they feel their work is making an important contribution to the organisation's success (EY, 2017).

In comparison, more than half of the respondents in the ManpowerGroup study reported to be satisfied with their working conditions (55%), and 39% of the respondents would recommend their employer to friends (ManpowerGroup, 2017). Almost half of the respondents reported that their job satisfaction could be improved by appreciation for their work from their superior (49%), regular and honest feedback (49%), and showing interest in the employee as a person (48%; ManpowerGroup, 2017). These aspects can all be considered as part of leadership, which was not included in this research project. As a potential determinant of organisational commitment and job satisfaction, leadership could contribute to explaining further variation in job satisfaction.

These findings of these two surveys concur with the conclusions of an earlier survey from 2015 by the global management consulting firm Hay Group, which interviewed 240,000 employees from 75 organisations in Germany (Hay Group, 2015). They found that while the majority of respondents (82%) felt that working collaboratively in teams is a strength of their organisation, more than half (51%) of the participants reported that they do not feel encouraged to share their ideas (Hay Group, 2015). Globally, on average only 35% of respondents did not feel encouraged to share their ideas (Hay Group, 2015).

4.4 Discussion of findings

The execution of this research project and analysis made use of scales and concepts that have been debated and criticised in literature. A review of relevant criticism is presented below.

4.4.1 Criticism of self-ratings

As Carpenter and colleagues (2014) have established when conducting a meta-analysis of self-ratings and other-ratings of organisational citizenship behaviour, that self- and other-ratings are moderately correlated, with the self-other convergence being higher when agreement response scales are used and antithetical/reverse-worded items are avoided. Given the overlap of the concept of OCB with organisational commitment, it can be assumed that the same applies to ratings of organisational commitment. However, as less than half of the items of the questionnaire (14 out of 33) are reverse-worded, no significant divergence between other-ratings and self-ratings is expected for this research project.

As with other self-ratings of desirable behaviour, organisational commitment ratings could be criticised for being inflated relative to other-ratings as employees might wish to portray themselves in a positive light (e.g. Allen et al., 2000) in what has been described as the social desirability bias. However, other-ratings have consistently been found to not yield more accurate responses as they fail to reflect every aspect of employee's behaviours (compare Carpenter et al., 2014). Consequently, it is not expected that the results from this self-rating questionnaire are significantly affected in their representativeness.

Miscalibrated self-efficacy, for example in the form of overconfidence, can be problematic (Vancouver, 2012; Bandura, 1997).

4.4.2 Criticism of commitment scales

To study commitment, a number of studies have used the commitment scales proposed by Allen and Meyer and tested their psychometric properties (see Cohen, 2007). Especially their discriminant validity and the relationship with determinants and outcomes (Allen & Meyer, 1990; Ko, Price & Mueller, 1997; Cohen, 2007) have been scrutinised, with

criticism focussing especially on the scales' discriminant and content validity. Especially Ko and colleagues (1997) argued that the scales would have conceptual problems, which would cause some of the psychometric difficulties that have occurred with the scales. In particular, they argued that the continuance commitment dimension would explain a behaviour rather than an attitude (Ko et al., 1997), in contrast to Meyer and Allen's definition of a "psychological state" (Meyer & Allen, 1991). Further, the relationship between affective commitment and normative commitment would lack discriminant validity (Ko et al., 1997).

O'Brien (1985) argued that the analysis of Likert-scaled data would actually contribute to two types of error: (a) error in categorisation resulting from splitting the continuous scale into a categorical scale, and (b) error in transformation as a result from categories of unequal widths (Byrne, 2010).

4.4.3 Criticism of the Job Satisfaction Survey

The Job Satisfaction Survey has originally been developed for the social services sector, however, Spector (1985) argues that it is applicable to other sectors, too. Van Saane, Sluiter, Verbeck and Frings-Dresen (2003) conquer, as they consider the Job Satisfaction Survey a "multidimensional instrument for jobs in general". Van Saane and colleagues (2003) did not find any evidence of responsiveness to change. While the Job Descriptive Index (Smith et al., 1969) is the most frequently used job satisfaction instrument in organisational science, it did not fulfil the quality criteria for reliability, construct validity, content validity, and responsiveness tested by Van Saane and colleagues (2003). Consequently, the Job Satisfaction Survey was considered most appropriate for this research project.

4.4.4 Determinants of commitment: Leadership

Cohen (2007) proposed that affective commitment is influenced by variables such as transformational leadership. Bonau (2017) suggests that inspirational leadership promotes commitment to the organisation as followers feel engaged and empowered. Uniting employees in a shared vision and collective identity based on common values by employing inspirational leadership has shown to create a more committed workforce

(Bonau, 2017). Leadership style of the respondent's supervisor was not included in the analysis, and it is possible that the superior's leadership style could contribute to explaining variability in the different components of commitment (assumingly mainly affective commitment due to the emotional link) and in job satisfaction.

4.4.5 Big-Five personality traits and commitment

Research into the influence personality has on organisational commitment is still at an early stage. Erdheim, Wang and Zickar (2006) conducted a first study to examine the relationship between the Big-Five personality traits and organisational commitment. Since then, only few studies have analysed dispositional antecedents of commitment. Recently, Choi, Oh and Colbert (2015) provided a meta-analytic examination of personality's role in the prevalence of the three types of commitment. All five traits were found to have positive relationships with affective commitment and with normative commitment, while Emotional Stability, Extraversion, and Openness to Experience were found to have negative relationships with continuance commitment (Choi et al., 2015). Kell and Motowidlo (2012) argue that the commitment scales are deficient in that they do not take into account the cognitive elements of commitment as an attitude towards the job or organisation. The extent to which employees identify with and internalise organisational values, norms and goals would require a cognitive component (Kell & Motowidlo, 2012; Solinger, Van Olffen & Roe, 2008). Openness to Experience is considered most correlated with intelligence (Ackerman & Heggestad, 1997), and is therefore the only trait that has been tested for in this study. Since the other traits have been found to have relationships with the different components of commitment, too, additional variance in commitment could be caused by some of the personality traits that have not been considered in this analysis.

4.4.6 Cultural differences in commitment

The relationship between culture and commitment has been analysed with mixed findings (Cohen, 2007; Meyer et al., 2012b). Cohen (2007) argues that because the commitment scales are strongly related to situational determinants, cultural aspects may have been faultily represented. In their meta-analytic review of the correlation between performance

and commitment, Meyer and colleagues (2014) did not find significant variance across countries.

Choi and colleagues (2015) found that the relation of Big-five sub-dimension Openness to experience, which is most closely related to intelligence, with affective commitment and normative commitment is stronger and more positive in collectivistic cultures. It is not surprising, then, that Openness to experience was found to be stronger related with continuance commitment in individualistic cultures (Choi et al., 2015). For individuals high in Openness to experience, social pressure to stay with the organisation and cost of leaving the organisation are perceived to be lower. According to the Hofstede model of national culture, Germany, the United Kingdom, and the United States are all classified as predominantly individualistic cultures (Hofstede, 2011). However, my findings showed that only 4% in variance of the continuance commitment score was explained by the predictors analysed in this research project. Hence predictors beyond those analysed here, including intelligence, seem to influence variance of continuance commitment.

4.4.7 Outcomes of commitment

The connection between organisation commitment and outcomes such as job performance has been disputed in literature. In their review of 124 studies, Mathieu and Zajac (1990) identified six studies which analysed the correlation between job performance and organisational commitment, with a total of over 1,400 participants. Their findings show at least a 75 % reliability using a conservative assessment, and when analysing the correlation between performance and organisational commitment, they come to the conclusion that in most cases commitment has relatively little influence on performance (Mathieu & Zajac, 1990). Mowday and colleagues (1982) concluded the same when evaluating the consequences of organisational commitment. In their meta-analysis, Cooper-Hakim and Viswesvaran (2005) found that all forms of commitment correlated higher with job satisfaction than with job performance. Further studies have analysed the impact of commitment profiles on job stress and job satisfaction (compare Meyer et al., 2012a).

The implications for on-the-job behaviour differ between the three forms of commitment, and more recent studies have established that the influence any single component of commitment has on behaviour is determined by the context established by the other

components (Meyer et al., 2012a; Gellatly, Meyer & Luchak, 2006). For example, turnover has been found to depend on commitment profile types (Somers, 2009). Further, Pittinsky and Shih (2004) argue that turnover as an HR metric is not particularly informative for measuring commitment, they found that highly mobile knowledge workers would form as strong a commitment as employees who stayed in an organisation longer. Hence, focussing on turnover as measure would be misleading, they argue. Instead, commitment patterns, including elements such as commitment to the goal of the work, their team within the organisation, and to a career, would be more meaningful for leadership to focus on (Pittinsky & Shih, 2004).

Organisational citizenship behaviour compared with job performance has also been found to be determined by commitment profiles (Wasti, 2005). Performance, as well as commitment, can be measured at different levels, whereas task performance should be distinguished from organisational citizenship behaviour (Stanley & Meyer, 2016). Performance behaviour as such would not be a focal behaviour from an organisational commitment perspective (Stanley & Meyer, 2016). To what extent employees view certain performance behaviours non-discretionary as part of their commitment to the organisation (or to the work goal), depends on the employees' mindset underlying the commitment (Stanley & Meyer, 2016). Stanley and Meyer (2016) report a more recent meta-analytical review of the commitment-performance relationship, which included a greater number of studies and a bigger overall sample size than previous meta-analyses. They found a moderate positive correlation between affective commitment and task performance (r = .25), a small positive correlation between normative commitment and task performance (r = .08), while the correlation between continuance commitment and task performance was found to be negligible negative (r = -.04). The low level or sometimes negative direction of the correlation between continuance commitment and task performance can be caused by the cost-benefit analysis that is underlying continuance commitment, which could lead employees to not perform beyond the minimum of what is expected from them. Stanley and Meyer (2016) concluded that continuance commitment is not undesirable anyway, as in combination with affective commitment and normative commitment it can reflect the cost of discontinuing a desirable relationship. Overall, there seems to be stronger evidence suggesting that organisational commitment is positively correlated with task performance. Consequently, a more committed workforce should be in the interest of the organisation also from an output perspective.

4.5 Summary of results and discussion

This outline presented the findings from the primary research, as the results of the exploratory factor analysis, of the confirmatory factor analysis, and of the multiple regression analysis were reported.

The results of the hierarchical multiple regression analyses indicate that, at a less conservative confidence level of 90%, membership in the high IQ group would have a weak negative correlation with affective commitment, with continuance commitment, and with normative commitment (Hypothesis 1). Job satisfaction has been found to have a slightly moderating effect in weakening the relationship between high IQ and continuance commitment, as well as on the relationship between high IQ and normative commitment, while job satisfaction was found to strengthen the relationship between high IQ and affective commitment (Hypothesis 2).

Looking specifically at the high-IQ group, size of organisation was found to have negative regression weights for affective commitment, for normative commitment, and for job satisfaction, while age was found to have a positive regression weight for all three components of commitment. An increase in affective commitment was also found with increasing levels of job satisfaction, and with more flexible working arrangements (part-time employment, self-employment). A decrease in continuance commitment was found with increasing job satisfaction, with a more flexible type of employment, and with male compared to female employees.

Feedback from focus group discussion was presented, and the implications of those comments for the analysis of the survey were discussed. None of the comments made in the focus group discussion gave raise to concerns about the way the survey has been conducted, or about the assumptions that underlie the study.

Further, findings from secondary research were compared to the results from the primary research. The findings from those previous studies that were presented concur with the results of this research project.

Finally, criticism of methods and concepts used in this research project was discussed. Debates in recent publications and findings from recent studies and meta-analyses on commitment and on job satisfaction confirm the underlying theories and assumptions of this research project.

5 CONCLUSIONS

This chapter provides a discussion of the findings from my study and my analysis of these in light of the key theoretical propositions and my research questions.

The aim of this thesis has been to test whether highly intelligent employees report lower levels of aspects that together form organisational commitment, and whether job satisfaction influences the relationship between intelligence and organisational commitment.

5.1 Summary and discussion of findings

This section presents a summary of the findings for each of the two hypothesis, as well as further findings that are relevant to this field of study. Further, the relevance and implications of those findings are discussed.

5.1.1 Hypothesis 1: Intelligence and Organisational Commitment

Hypothesis 1 stated that highly intelligent employees would report lower levels of aspects that together form organisational commitment.

Looking at the means of the responses on item level by groups, high-IQ respondents agreed more with the statement that they would be very happy to spend the rest of their career with their organisation (item 1 AC1) than respondents from the control group. Respondents from the high-IQ group also agreed more with the statement that things were better in the days when people stayed with one organisation for most of their careers (item 23 NC7). On all other items of the three commitment scales, respondents from the high-IQ group agreed less strongly than the control group. The biggest mean difference on the affective commitment score was recorded with regards to feeling emotionally attached to the organisation (item 6), and with regards to the consequences of leaving with scarce alternative options (item 15) on the continuance commitment score. Overall, the biggest difference in means was recorded with regards to loyalty (item 18): among high-IQ respondents, agreement with the statement that a person must always be loyal to their organisation was significantly lower than among the control group.

On item level, the correlation analysis showed with regards to affective commitment that members of the high-IQ group would be less likely to report that they feel emotionally attached to their organisation (item 6), and they would be less likely to say that the organisation has a great deal of meaning for them (item 7), compared to the control group. Often highly intelligent employees do not aspire to classical career paths (Hofert, 2018), rather they prefer to find jobs that are challenging them. Highly intelligent employees might be more mobile, and, consistent with the feedback from the focus discussion group, might consider themselves to be more loyal and emotionally attached to the goal of the work, or the team they are working with, then to their organisation.

Regarding continuance commitment, members of the high-IQ group would be less likely to state that they would be afraid of what might happen if they quit their job without having another one lined up (item 9), and less likely to state that one of the few serious consequences of leaving their organisation would be the scarcity of available alternatives (item 15). These findings point to the role of self-efficacy: this indicates that members of the high-IQ group have stronger beliefs in their capabilities, more confidence in succeeding to find viable alternative options due to their strong mental ability.

Analysis of the normative commitment scale showed that members of the high-IQ group would be less likely to state that they believe that a person must always be loyal to their organisation (item 18), and less likely to express concerns over leaving their organisation if they got another offer for a better job elsewhere (item 21). Members of the high-IQ group were also less likely to agree with the statement that things were better in the days when people stayed with one organisation for most of their careers (item 23). These findings point to the resource allocation aspect of self-efficacy, as highly intelligent employees, knowing about their intellectual strength, would look for jobs and organisations that allowed them to use their abilities, and allocate scarce resources most efficiently. As such, leaving an organisation for a better job would not be viewed negatively.

The correlation analysis of the factors found that at confidence level of 95%, the relationship between membership in the high-IQ group and the affective commitment score was not statistically significant. However, at a confidence level of 80%, the correlation between membership in the high-IQ group and affective commitment was statistically

significant. High IQ was found to have a linear relationship with the continuance commitment score as well as with the normative commitment score, that is marginally statistically significant at a confidence level of 95% ($p = .056$). With regards to all three components of organisational commitment, the direction of this relationship was negative, though the strength of these relationships is weak ($r = -0.017$, $r = -0.031$, and $r = -0.031$, respectively).

Results of the forward regression analysis showed that membership in the high-IQ group was not found to be a statistically significant influence on the three types of commitment at a significance level of 95%. However, the results of the stepwise regression analyses using the enter method indicate that, at a less conservative confidence level of 80%, membership in the high IQ group would be a significant predictor of affective commitment when job satisfaction was included in the model ($B = -1.144$, $p < .2$). Membership in the high-IQ group was also found to be a significant predictor of continuance commitment at a confidence level of 80% when job satisfaction as well as the demographic variables gender, age, type of employment and size of the organisation were added to the model ($B = -1.163$, $p < .2$). To predict normative commitment, membership in the high-IQ group was found to be statistically significant at 80% when the model included job satisfaction and the demographic variables ($B = -.937$, $p < .2$). The respective beta coefficients for membership in the high-IQ group were negative in all three models that predicted the three types of commitment. This indicates that being a member of the high-IQ group predicts lower levels of the three types of commitment, as theorised in hypothesis 1. Figure 5.1 presents a schematic visualisation of the findings for hypothesis 1.

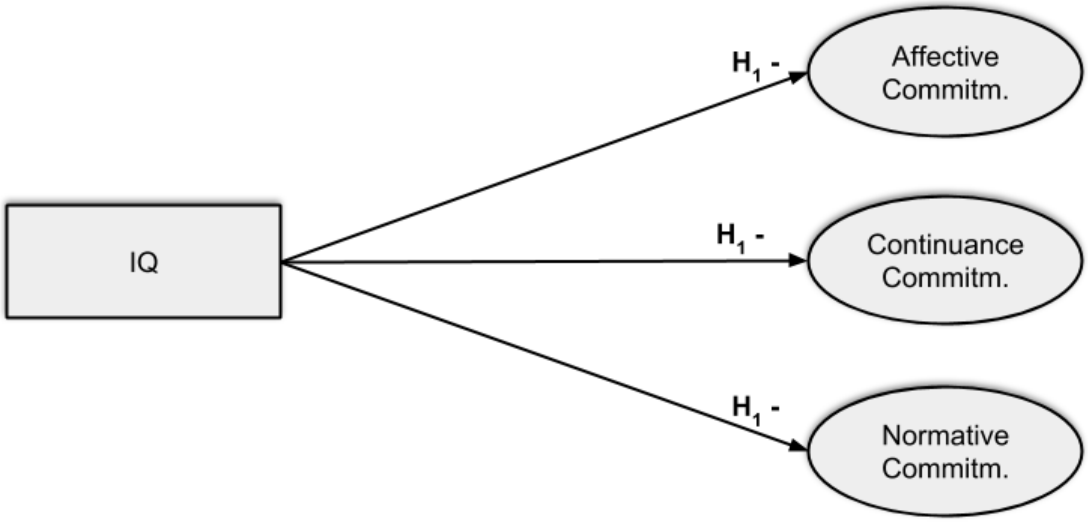


Figure 5.1. Results of hypothesis testing for hypothesis 1 (own work).

These findings suggest that with the given sample, differences between the high-IQ group and the control group have been observed on the levels of commitment that were reported. While these differences could not all be confirmed at a statistical significance of 95%, levels of affective commitment, of continuance commitment and of normative commitment could be found to be lower among employees in the right tail of the IQ bell curve.

5.1.2 Hypothesis 2: The role of Job satisfaction

Hypothesis 2 stated that job satisfaction would have a moderating effect between the dimensions of organisational commitment and intelligence.

On item level by group, the correlation analysis showed that pay satisfaction (item 25) was correlated to membership in the high-IQ group at a confidence level of 90%. Satisfaction with fringe benefits (item 28) was found to correlate weakly with membership in the high-IQ group, so did satisfaction with the operating procedures (item 30). This means that members of the high-IQ group would be more likely to be satisfied with the pay and the fringe benefits they receive, and with the operating procedures they are dealing with.

Using the (shortened) job satisfaction factor, the correlation that was found between job satisfaction and affective commitment of $r = .498$ ($p < .001$) confirms the findings by

Cooper-Hakim and Viswesvaran (2005), who found a correlation of r = .50 between affective commitment and job satisfaction when conducting a meta-analysis of 997 studies on commitment. This correlation can be explained by the nature of job satisfaction as an affective response. Further, the high factor loadings of items from the job satisfaction survey on the affective commitment factor also indicate some overlap between the two concepts. The results of the multiple regression analysis have shown that job satisfaction would contribute positively and in a statistically significant manner to explaining the variance in affective commitment.

The negative, albeit weak, correlation that was found between continuance commitment and job satisfaction of r = -0.095 (p < .001), as well as the results of the multiple regression analysis, which found that with higher job satisfaction, continuance commitment would go down in the overall sample and also in the high-IQ group, can be explained by the nature of continuance commitment as being driven by the perceived lack of viable employment alternatives. Employees who report that for them, necessity, the fear of loss, or the cost associated with leaving the organisation are significant factors for staying with their organisation, would potentially experience higher levels of job satisfaction from their work elsewhere, other than with their current organisation. It can be argued that higher levels of job satisfaction in their current role would lead employees to respond to the questions on continuance commitment differently. Arguably, employees who reported to experience higher levels of job satisfaction potentially would be more inclined to leave their organisation in case their levels of job satisfaction were lower.

The positive correlation between job satisfaction and normative commitment (r = .131, p < .001), though weak, confirms the assumption that there is a relationship between job satisfaction and the feelings of moral obligation to stay with the organisation. The multiple regression analysis found that job satisfaction would contribute negatively to variance in normative commitment, though to a lesser extent than in continuance commitment, in that employees that reported higher on job satisfaction were found to report lower on normative commitment.

Given the very strong (positive) relationship between job satisfaction and affective commitment, and the comparatively weak (negative) relationship between job satisfaction and continuance commitment, and between job satisfaction and normative commitment, it

can be inferred that with higher job satisfaction the overall organisational commitment would go up.

With regards to the relationship between high IQ and job satisfaction, contrary to what has been hypothesised, the correlation between IQ and job satisfaction was actually found to be positive, albeit fairly weak ($r = .033$, $p < .05$). Multiple regression analysis has shown that with membership in the high-IQ group, job satisfaction would increase ($B = .81$, $p < .05$). This can be explained by the shortening of the job satisfaction survey. As a result of the exploratory and confirmatory factor analyses, only four items of the job satisfaction survey were included in the job satisfaction score. Three of the four items measure extrinsic job satisfaction (i.e., satisfaction with pay, supervision, and fringe benefits), while only one item measures intrinsic job satisfaction (satisfaction with promotion). As such, the job satisfaction score was imbalanced towards extrinsic job satisfaction. Intrinsic job satisfaction, though, is assumed to be strongly negatively correlated with intelligence.

A positive relationship between job satisfaction and organisational commitment overall, as well as a positive relationship between high IQ and job satisfaction, indicates that (extrinsic) job satisfaction would have a moderating effect on the (negative) relationship between high IQ and organisational commitment.

Further, the results of the stepwise multiple regression analyses using the enter method, as well as the results of the separate regression analyses of the two groups (high-IQ group and control group) using the backward method, showed that job satisfaction has a moderating effect on the (negative) relationship between high IQ and affective commitment, and that job satisfaction actually strengthens this relationship rather than weakening it. This would indicate that highly intelligent employees who reported high levels of job satisfaction would report lower levels of affective commitment than those highly intelligent employees who reported lower levels of job satisfaction. Findings from the regression analysis suggest that job satisfaction has a slightly moderating (weakening) effect on the relationship between high IQ and continuance commitment. The results suggest that job satisfaction weakens the negative relationship between member ship in the high-IQ group and continuance commitment. Job satisfaction was also found to have a slightly moderating (weakening) effect on the negative relationship between high IQ and normative commitment. Figure 5.1 visualises the results of the hypotheses testing.

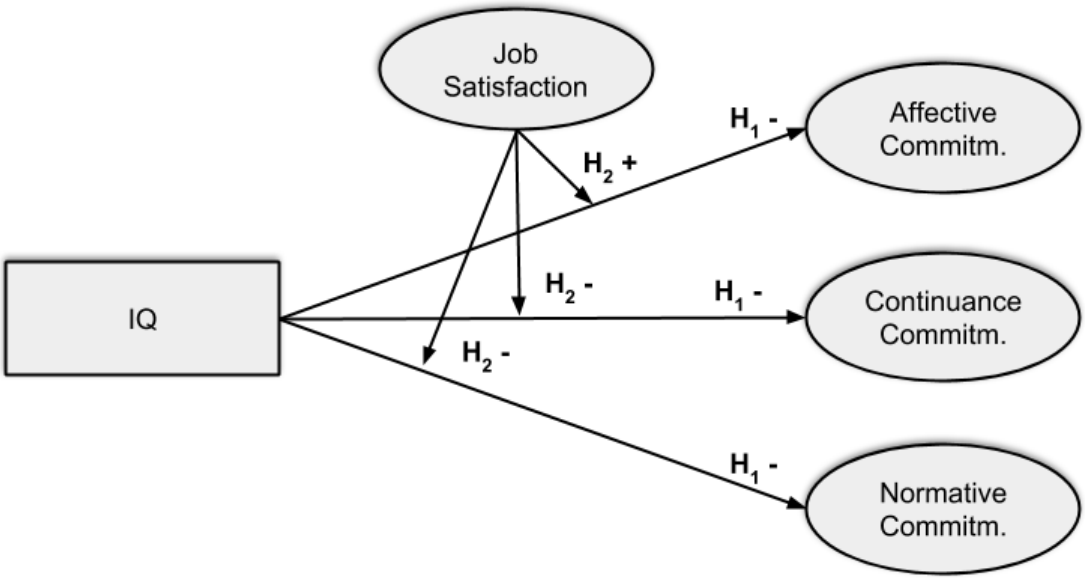


Figure 5.2. Results of hypothesis testing for hypothesis 2 (own work).

5.2.3 Further aspects

The differences between the two groups in the factor score weights of the confirmatory factor analysis showed that for the affective commitment factor, the contribution of item 3 ("I really feel as if this organisation's problems are my own") to the affective commitment factor is less strong in the high-IQ group than in the control group. Item 13 ("Right now, staying with my organisation is a matter of necessity as much as desire") weighed higher on the continuance commitment factor in the high-IQ group than in the control group. On the normative commitment factor, the first item ("I think that people these days move from company to company too often") contributed stronger to the normative commitment factor in the high-IQ group than in the control group. In contrast, the item asking about the satisfaction with the benefits received (item 28) contributed more strongly to the job satisfaction factor in the control group than in the high-IQ group.

When testing which factors contributed to the three types of commitment in the high-IQ group using regression analysis, age was found to contribute positively to affective commitment, continuance commitment, and to normative commitment in the high-IQ

group, suggesting that older employees with high IQ would report higher levels of all three types of commitment than younger employees with high IQ. On the contrary, age was found to have a negative effect on affective commitment among the control group. It is important to note here that tenure of the respondent within the organisation has not been considered in the analysis, although a correlation between age of the respondent and their tenure cannot be ruled out.

In the high-IQ group, the gender of the employee was found to have a significant impact when predicting affective commitment and continuance commitment, in that being male would affect the reported levels of commitment negatively compared to being female and in highly intelligent. Gender was also found to be a predictor for continuance commitment as well as for normative commitment among the control group, though at a lower confidence level. In the control group, being female would also predict higher levels of commitment than being male.

Type of employment was only found to be a predictor of affective commitment and of continuance commitment in the high-IQ group, while it was not found to be a significant predictor in the control group. Among the highly intelligent, affective commitment was found to be positively affected by more flexible working arrangements, whereas continuance commitment would actually be negatively influenced.

Size of the organisation showed the highest negative regression weight among the factors that were tested, indicating that with increase in organisation size by number of employees, affective commitment would decrease among the high IQ employees. Among the control group, size of the organisation was also found to contribute in a statistically significant manner to affective commitment, and the direction of this relationship was found to be negative. This suggests that affective commitment and normative commitment would be lower in larger organisations for both employees in the high-IQ group as well as the control group.

Size of the organisation was also found to contribute negatively to affective commitment and to normative commitment when the high IQ group was analysed individually using regression analysis.

Figures 5.3 and 5.4 illustrate how the tested factors contributed to affective commitment, to continuance commitment, and to normative commitment in the high-IQ group and in the control group, respectively.

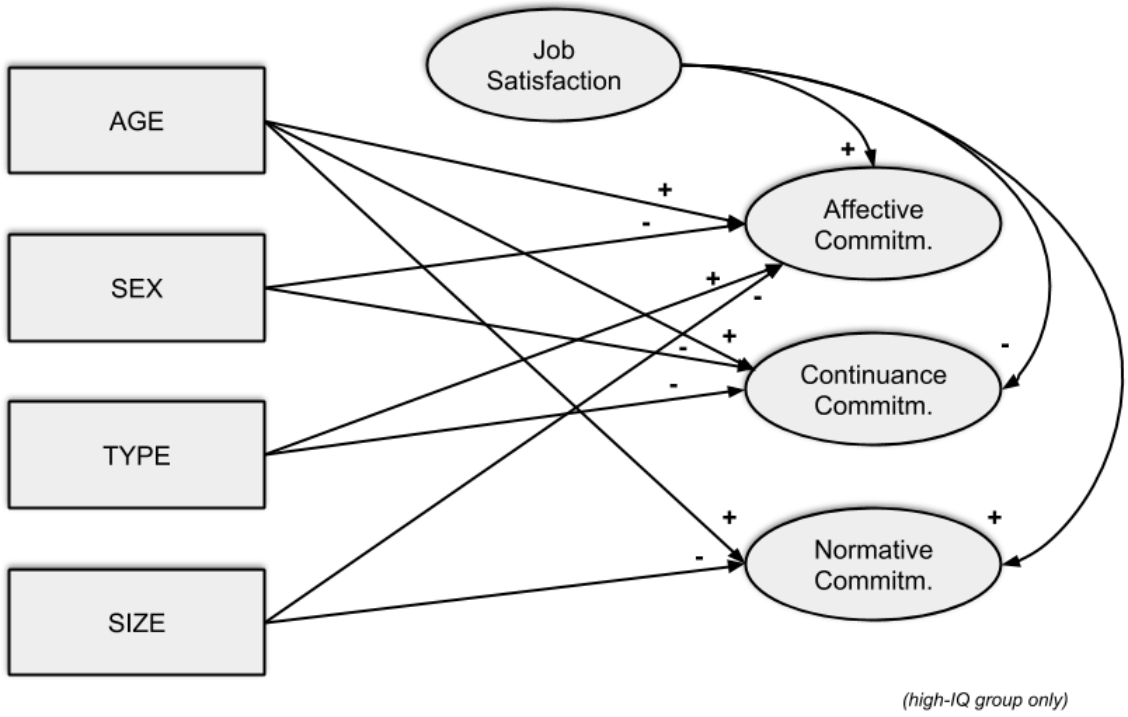


Figure 5.3. Relationship between predictors and independent variables among the high-IQ group.

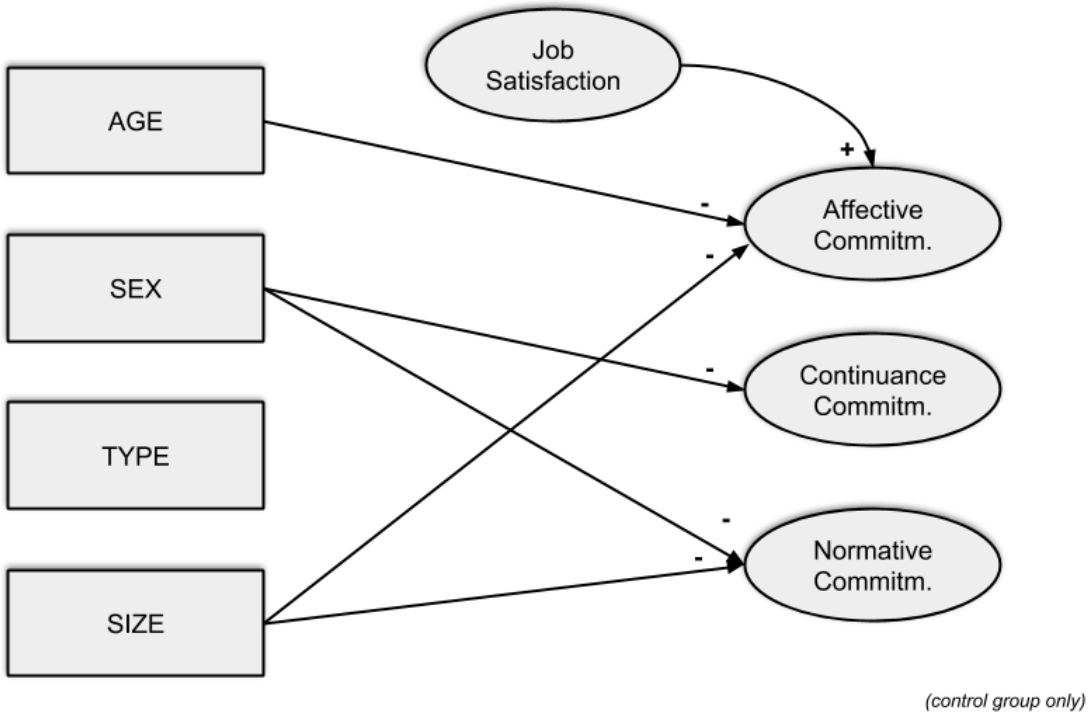


Figure 5.4. Relationship between predictors and independent variables among the control group.

5.2 Recommendations for employers and employees

The findings from this research and their interpretations can inform management practitioners and individuals employed in organisations. Allen (2016) suggests that practitioners could conduct a commitment audit to take stock of the existing and of the desired commitment profiles among their employees, as well as a plan to minimise discrepancies between the two profiles. As a first step, this requires the organisation to identify and define what kind of behaviours, and consequently what kind of commitment profiles, are deemed most desirable.

A recent study with employees at Facebook showed that employees with high capabilities were more likely to stay when they were enabled to do work they enjoy, when they were helped to play to their strengths, and when a path for career development was carved that accommodated their personal priorities (Goler, Gale, Harrington & Grant, 2018). Rather than designing jobs and filling them with people, good leaders find talented people and then create the jobs around them.

However, this requires leaders to be able to recognise talented and capable individuals. A recent survey from the professional services network Deloitte found that leaders actually feel ill prepared to identify and source talent (Stephan, Brown & Erickson, 2017). Rather than recruiting by checking credentials, hiring managers should confirm candidates' skills. Verifying skills as part of the selection process would also counteract the effect known as Dunning-Kruger effect (Kruger & Dunning, 1999), according to which poor performers lack self-evaluative insights into the shortcomings of their performance, while top performers tend to underestimate their own performances (Schlösser et al., 2013). And even when top performers roughly know how well they are doing in an absolute sense, they underestimate how special their performance is compared to their peers, thus underestimating how well they are doing (Schlösser et al., 2013).

In line with the self-determination theory aspects of need for autonomy, need for competence, and need for relatedness (Deci & Ryan, 1985; Ryan & Deci, 2000), a recent study (Wellins, Bernthal, & Phelps, 2015) of more than 1,000 employees found that commitment levels fell significantly when employees did not feel like their work was

challenging them. Wellins and colleagues (2015) recommended managers to show care, concern, and appreciation for employees.

Concerning recommendations for employees, the findings from the factor analysis and from the correlation analysis suggest that size of the organisation correlates negatively with affective commitment, with normative commitment, and with job satisfaction. Thus, highly intelligent employees would report lower levels of affective commitment, normative commitment, and satisfaction with the job in bigger organisations. Consequently, it might be recommendable for highly intelligent employees to choose organisations with fewer employees, to feel more emotionally attached to the organisation, a higher moral obligation towards the organisation, and higher overall job satisfaction.

Typically, highly intelligent employees score highly on Openness to experience in the Big-Five personality traits model (Mussel & Spengler, 2015; Ackerman & Heggestad, 1997). The findings with regards to high-IQ employees' lower levels of organisational commitment seem to confirm, that highly intelligent employees have fewer concerns with leaving their organisation for better alternative offers. Hofert (2018) recommends complex tasks and jobs that provide responsibilities that are changing and challenging to highly intelligent employees. As such, highly intelligent individuals with a high Openness to experience would be particularly suitable for industries that are dynamic and move fast.

Further, as the correlation analysis on item level and the factor analysis of the high-IQ group have shown, more flexible working arrangements such as part-time employment or freelancing are related to higher levels of affective commitment among the high-IQ group. This means that more flexibility in arranging their employment for the employee would actually lead to higher emotional attachment to the organisation.

5.3 Novel contribution to extant literature

As a result of this research, aspects of commitment theory emerged which contribute to extant management literature. To the knowledge of the author, this is the first study that tested all three components of organisational commitment following Meyer and Allen's (1991) model for intelligence as a determinant of commitment. Beyond confirming the reliability of the concept of organisational commitment through factor analysis, this study also contributes to the understanding of how individual differences such as cognitive ability, but also age and gender, help develop different components of commitment to the organisation. Additionally, this research project illustrates how theories on motivational states such as self-efficacy and self-determination theory can be linked to the different components of organisational commitment and intelligence.

It is also the first study with a comparable sample size to analyse the relationship between intelligence and job satisfaction. Further, the findings expand the existing understanding of the relationship between job satisfaction and the three components of organisational commitment. The results show that improving employees' job satisfaction could result in higher levels of commitment among highly intelligent individuals.

This project makes a contribution to the existing knowledge of management research and organisational psychology with a particular focus on the role of intelligence in a professional setting. As such, beyond contributing to management science, this research project also adds to the understudied discipline of giftedness research with relation to adults.

In the practical application of this research project, the findings help managers to tap the full potential of their employees, and it helps individuals to better understand their needs to maximise their job satisfaction.

5.4 Generalisability and Limitations of this study

The applicability of the survey is restrained by different sizes of the groups that were compared. The size of the two groups that were tested was not quite balanced. The control group was smaller than the high-IQ group, which could have affected the results of the analyses. In addressing this issue, special efforts were made to receive more responses from participants that did not state to be a member of a high-IQ network or tested in the upper two percentile in an IQ test. However, the number of respondents from the high-IQ network exceeded the expected response rate by far, which made it difficult to find as many participants for the control group.

For the sake of brevity of the survey, a total of only nine questions measuring job satisfaction have been taken from Spector's job satisfaction survey. The Job Satisfaction Survey is a nine-facet scale, covering the aspects of pay, promotion, supervision, fringe benefits, contingent rewards, operating procedures, co-workers, the nature of work, and communication (Spector, 2016). One question for each facet was included in the questionnaire. As a result of the exploratory factor analysis and the confirmatory factor analysis, four of the items were found to load on the job satisfaction factor, while five items of the nine job satisfaction items had to be dropped. The consistency of the entire job satisfaction model could not be confirmed. Consequently, only the facets of pay satisfaction, promotion, supervision, and fringe benefits were included in further analysis.

As with any correlation analysis, it is important to consider that correlation does not explain causation. While correlations have been identified between different levels of commitment, and membership in the high-IQ group, this cannot automatically be understood as intelligence driving commitment differences.

With regards to the composition of the high IQ group, participants were primarily recruited from the high-IQ network "Mensa". It is possible that people who join the high-IQ network "Mensa" differ from other people in ways other than just IQ. For example, people preoccupied with intellectual pursuits may develop a weaker emotional connection to their organisation of employment, or differ in their beliefs about their responsibility to the organisation from individuals that are less preoccupied with intellectual pursuits. However,

for employers, it would be relevant in any case to understand how to increase the commitment of their most capable employees'.

5.5 Suggestions for future research

Repeating this study with a bigger control group would help to find more statistically reliable results when comparing the high-IQ group with the control group. For a deeper understanding of the role different facets of job satisfaction play for the development of organisational commitment, future studies could include the entire job satisfaction scale rather than a shortened version. Additionally, a bigger overall sample could provide statistically stronger findings.

Further, with different commitment profiles, scholars have mainly considered "high levels" and "low levels", while "moderate levels" have not received much attention. However, Sinclair and colleagues (2005) found that employees are more likely to display average levels of commitment rather than extreme levels. More research on the moderate levels of commitment would contribute to a better understanding of how employees actually commit to their organisation.

While the type of employment accounted for self-employed and freelancing respondents, commitment might develop differently among business owners and respondents who run their own organisation or work on a contractual basis. Future research could explore further how antecedents of commitment differ among this group of the workforce.

This present study did not consider cultural aspects and the impact of socialisation on individual's propensity to commit to an organisation. A stark majority of participants have been socialised in Western cultures. However, normative commitment might be more relevant and distinguishable from affective commitment in non-Western cultures where the mindset of an obligation to be loyal to the organisation might be more pronounced due to collectivistic cultural values (Wasti, 2005; Meyer & Parfyonova, 2010). Future research could analyse differences in organisational commitment and job satisfaction among highly intelligent employees in non-Western cultures.

Beyond cultural differences, this current study did not analyse tenure as factor for organisational commitment or job satisfaction. Future research could explore whether tenure has an impact on the development of organisational commitment among high-IQ employees and individuals who did state to have been tested in the upper two percentile on

a standardised IQ test. Additionally, beyond commitment to the organisation, future research could test different commitment targets among high IQ employees, such as commitment to the team, the manager, or the goal of the work as suggested by the focus group discussion.

As with any research that is context specific, this research is also faced with developments in environment and context. It is important to consider the overall economic and political situation in the three focus countries (Germany, United Kingdom, United States) during the time the survey was conducted.

Unemployment rates in all three countries were declining at the time of the survey (World Bank, 2017). In June 2016, the UK voted for leaving the European Union in the Brexit-referendum (Uberoi, 2016). As a consequence, while EU-citizens living in the UK might have felt uncertainty about their future prospects (Petrongolo, 2016), for UK-born workers the cost of leaving the organisation might have been assessed as lower. In November 2016, Donald Trump was elected 45th president of the United States, after an election campaign that divided the country (Jacobson, 2017). Depending on the respondent's background or perceived social status, the bigoted and populist sentiments that followed Trump's election could have influenced their responses with regards to their views on their chances on the labour market. In Germany, the economy was booming, unemployment rates were on record lows during the time the survey was conducted (Spitz-Oener, 2017). Especially the employee's perceived cost of leaving the organisation should at least in part be affected by the overall economic situation in the country the employee is employed in. In times of higher unemployment rates, when jobs are hard to find, the perceived cost of leaving the organisation should be higher than in times of a stronger economy where more alternative jobs are available. Thus, it would be interesting to see how the responses differed when the survey was taken in more difficult economic times.

5.6 Final words

As we continue to learn how commitment to the organisation develops, and which aspects contribute to stronger commitment and higher job satisfaction, discovering all the facets remains a never ending pursuit since organisational settings always involve people and human interactions, and therefore emotions and pluralities.

This research calls upon other researchers to continue work in pursuit of better understanding how personal characteristics, of which intellectual capabilities is just one example, influence the individual's attitudes towards the workplace, in the endeavour to improve individual, organisation, and societal wellbeing.

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ANNEX

Annex 1 - Items of affective, continuance and normative commitment scales (Allen & Meyer, 1990)

Affective Commitment Scale items

1.	I would be very happy to spend the rest of my career with this organisation
2.	I enjoy discussing my organisation with people outside it
3.	I really feel as if this organisation's problems are my own
4.	I think that I could easily become as attached to another organisation as I am to this one (R)
5.	I do not feel like 'part of the family' at my organisation (R)
6.	I do not feel 'emotionally attached' to this organisation (R)
7.	This organisation has a great deal of personal meaning for me
8.	I do not feel a strong sense of belonging to my organisation (R)

Continuance Commitment Scale items

1.	I am not afraid of what might happen if I quit my job without having another one lined up (R)
2.	It would be very hard for me to leave my organisation right now, even if I wanted to
3.	Too much in my life would be disrupted if I decided I wanted to leave my organisation now
4.	It wouldn't be too costly for me to leave my organisation now (R)
5.	Right now, staying with my organisation is a matter of necessity as much as desire
6.	I feel that I have too few options to consider leaving this organisation

7.	One of the few serious consequences of leaving this organisation would be the scarcity of available alternatives
8.	One of the major reasons I continue to work for this organisation is that leaving would require considerable personal sacrifice - another organisation may not match the overall benefits I have here

Normative Commitment Scale items

1.	I think that people these days move from company to company too often.
2.	I do not believe that a person must always be loyal to his or her organisation (R)
3.	Jumping from organisation to organisation does not seem at all unethical to me (R)
4.	One of the major reasons I continue to work for this organisation is that I believe that
5.	If got another offer for a better job elsewhere I would not feel it was right to leave my organisation
6.	I was taught to believe in the value of remaining loyal to one organisation
7.	Things were better in the days when people stayed with one organisation for most of their careers
8.	I do not think that wanting to be a 'company man' or 'company woman' is sensible anymore (R)

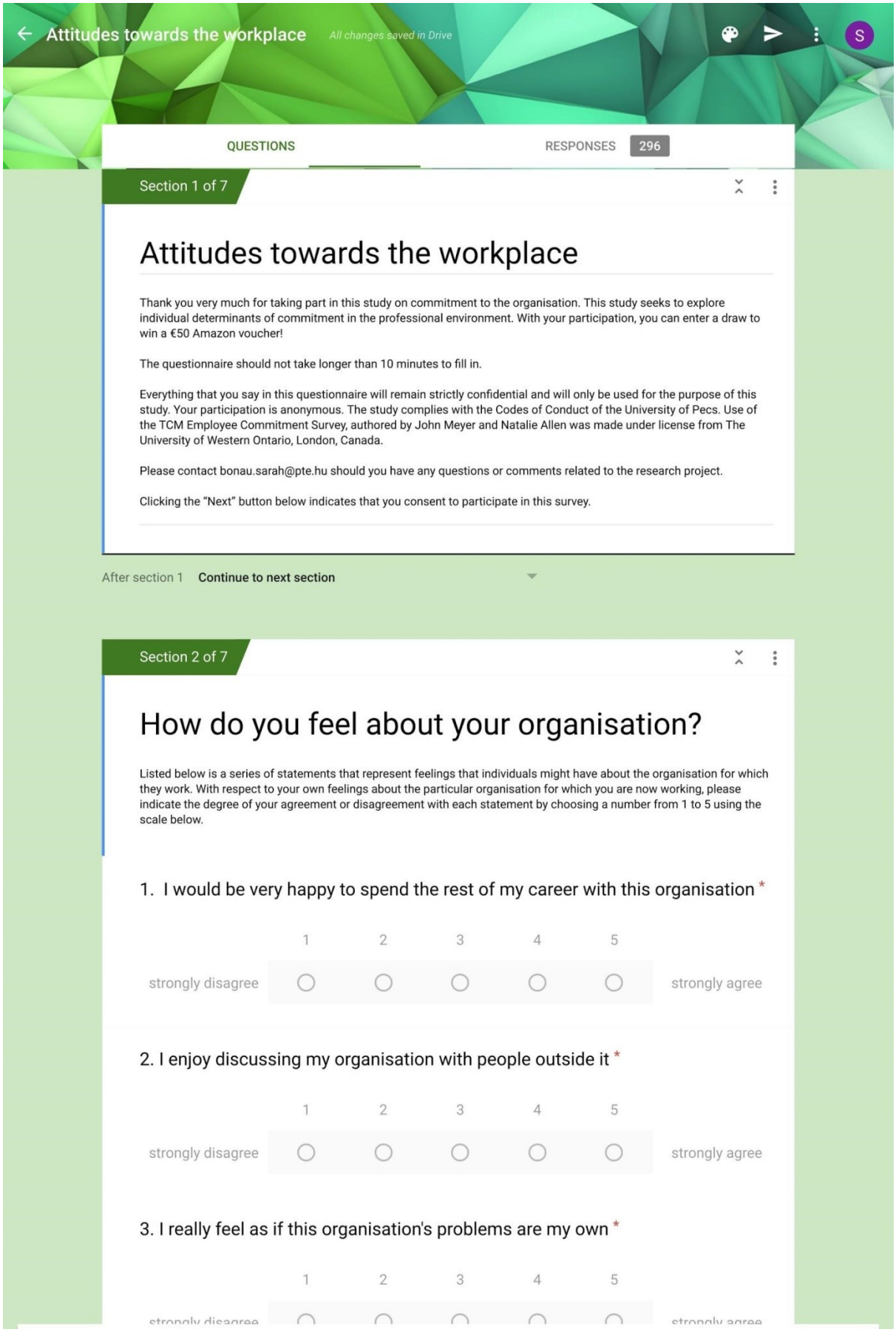
(R) = reverse keyed item.

Annex 2 - Job Satisfaction Survey (Spector, 1994, 1998)

1	I feel I am being paid a fair amount for the work I do.
2	There is really too little chance for promotion on my job. (R)
3	My supervisor is quite competent in doing his/her job.
4	I am not satisfied with the benefits I receive. (R)
5	When I do a good job, I receive the recognition for it that I should receive.
6	Many of our rules and procedures make doing a good job difficult. (R)
7	I like the people I work with.
8	I sometimes feel my job is meaningless. (R)
9	Communications seem good within this organization.
10	Raises are too few and far between. (R)
11	Those who do well on the job stand a fair chance of being promoted.
12	My supervisor is unfair to me. (R)
13	The benefits we receive are as good as most other organizations offer.
14	I do not feel that the work I do is appreciated. (R)
15	My efforts to do a good job are seldom blocked by red tape.
16	I find I have to work harder at my job because of the incompetence of people I work with. (R)
17	I like doing the things I do at work.
18	The goals of this organization are not clear to me. (R)

(R) = reverse keyed item.

Annex 3 - Example survey questionnaire



4. I think that I could easily become as attached to another organisation as I am to this one *

	1	2	3	4	5	
strongly disagree	○	○	○	○	○	strongly agree

5. I do not feel like 'part of the family' at my organisation *

	1	2	3	4	5	
strongly disagree	○	○	○	○	○	strongly agree

6. I do not feel 'emotionally attached' to this organisation *

	1	2	3	4	5	
strongly disagree	○	○	○	○	○	strongly agree

7. This organisation has a great deal of personal meaning for me *

	1	2	3	4	5	
strongly disagree	○	○	○	○	○	strongly agree

8. I do not feel a strong sense of belonging to my organisation *

	1	2	3	4	5	
strongly disagree	○	○	○	○	○	strongly agree

After section 2 **Continue to next section**

Section 3 of 7

How do you feel about staying with your organisation?

Listed below is a series of statements that represent feelings that individuals might have about the organisation for which they work. With respect to your own feelings about the particular organisation for which you are now working, please indicate the degree of your agreement or disagreement with each statement by choosing a number from 1 to 5 using the scale below.

1. I am not afraid of what might happen if I quit my job without having another one lined up *

	1	2	3	4	5	
strongly disagree	○	○	○	○	○	strongly agree

2. It would be very hard for me to leave my organisation right now, even if I wanted to *

	1	2	3	4	5	
strongly disagree	○	○	○	○	○	strongly agree

3. Too much in my life would be disrupted if I decided I wanted to leave my organisation now *

	1	2	3	4	5	
strongly disagree	○	○	○	○	○	strongly agree

4. It wouldn't be too costly for me to leave my organisation now *

	1	2	3	4	5	
strongly disagree	○	○	○	○	○	strongly agree

5. Right now, staying with my organisation is a matter of necessity as much as desire *

	1	2	3	4	5	
strongly disagree	○	○	○	○	○	strongly agree

6. I feel that I have too few options to consider leaving this organisation *

	1	2	3	4	5	
strongly disagree	○	○	○	○	○	strongly agree

7. One of the few serious consequences of leaving this organisation would be the scarcity of available alternatives *

	1	2	3	4	5	
strongly disagree	○	○	○	○	○	strongly agree

8. One of the major reasons I continue to work for this organisation is that leaving would require considerable personal sacrifice - another organisation may not match the overall benefits I have here *

	1	2	3	4	5	
strongly disagree	○	○	○	○	○	strongly agree

After section 3 Continue to next section

Section 4 of 7

How would you feel about moving to another organisation?

Listed below is a series of statements that represent feelings that individuals might have about the organisation for which they work. With respect to your own feelings about the particular organisation for which you are now working, please indicate the degree of your agreement or disagreement with each statement by choosing a number from 1 to 5 using the scale below.

1. I think that people these days move from company to company too often. *

	1	2	3	4	5	
strongly disagree	○	○	○	○	○	strongly agree

2. I do not believe that a person must always be loyal to his or her organisation *

	1	2	3	4	5	
strongly disagree	○	○	○	○	○	strongly agree

3. Jumping from organisation to organisation does not seem at all unethical to me *

	1	2	3	4	5	
strongly disagree	○	○	○	○	○	strongly agree

4. One of the major reasons I continue to work for this organisation is that I believe that loyalty is important and I therefore feel a sense of moral obligation to remain *

	1	2	3	4	5	
strongly disagree	○	○	○	○	○	strongly agree

5. If got another offer for a better job elsewhere I would not feel it was right to leave my organisation *

	1	2	3	4	5	
strongly disagree	○	○	○	○	○	strongly agree

6. I was taught to believe in the value of remaining loyal to one organisation *

	1	2	3	4	5	
strongly disagree	○	○	○	○	○	strongly agree

7. Things were better in the days when people stayed with one organisation for most of their careers *

	1	2	3	4	5	
strongly disagree	○	○	○	○	○	strongly agree

8. I do not think that wanting to be a 'company man' or 'company woman' is sensible anymore *

	1	2	3	4	5	
strongly disagree	○	○	○	○	○	strongly agree

After section 4 **Continue to next section**

Section 5 of 7

How satisfied are you with your work?

Listed below is a series of statements that represent feelings that individuals might have about their work or the organisation for which they work. With respect to your own feelings about your work or the particular organisation for which you are now working, please indicate the degree of your agreement or disagreement with each statement by choosing a number from 1 to 5 using the scale below.

1. I feel I am being paid a fair amount for the work I do. *

	1	2	3	4	5	
strongly disagree	○	○	○	○	○	strongly agree

2. There is really too little chance for promotion on my job. *

	1	2	3	4	5	
strongly disagree	○	○	○	○	○	strongly agree

3. My supervisor is quite competent in doing his/her job. *

	1	2	3	4	5	
strongly disagree	○	○	○	○	○	strongly agree

4. I am not satisfied with the benefits I receive. *

	1	2	3	4	5	
strongly disagree	○	○	○	○	○	strongly agree

5. When I do a good job, I receive the recognition for it that I should receive. *

	1	2	3	4	5	
strongly disagree	○	○	○	○	○	strongly agree

6. Many of our rules and procedures make doing a good job difficult. *

	1	2	3	4	5	
strongly disagree	○	○	○	○	○	strongly agree

7. I like the people I work with. *

	1	2	3	4	5	
strongly disagree	○	○	○	○	○	strongly agree

8. I sometimes feel my job is meaningless. *

	1	2	3	4	5	
strongly disagree	○	○	○	○	○	strongly agree

9. Communications seem good within this organisation. *

	1	2	3	4	5	
strongly disagree	○	○	○	○	○	strongly agree

After section 5 **Continue to next section**

Section 6 of 7

Personal Information

Almost done! Now just a few questions about yourself. (This data will only be used for statistical analysis. Your participation is confidential and anonymous.)

What is your age? *

- ○ Under 25
- ○ 25 to 34
- ○

- 35 to 44
- 45 to 54
- 55 to 64
- Over 64
- prefer not to say

Which gender do you identify with? *

- female
- male
- prefer not to say
- Other...

Are you a member of a High-IQ society (e.g. Mensa), or have you taken a standardised IQ test with a test result in the upper 2 percentile? *

- Yes
- No

What type of employment are you currently involved in? *

- full-time employment
- part-time employment
- self-employed / freelancing
- Other...

How many employees does your organisation have?

- less than 5
- 5 to 49
- 50 to 99
- 100 to 499
- 500 to 999
- 1000 or more

Which country are you employed in? *

1. Afghanistan
2. Albania

3. Algeria
4. Angola
5. Anguilla
6. Antigua and Barbuda
7. Argentina
8. Armenia
9. Australia
10. Austria
11. Azerbaijan
12. Bahamas, The
13. Bahrain
14. Bangladesh
15. Barbados
16. Belarus
17. Belgium
18. Belize
19. Benin
20. Bermuda
21. Bhutan
22. Bolivia
23. Bosnia and Herzegovina
24. Botswana
25. Brazil
26. British Virgin Islands
27. Brunei
28. Bulgaria
29. Burkina Faso
30. Burma
31. Burundi
32. Cambodia
33. Cameroon
34. Canada

35. Cape Verde
36. Cayman Islands
37. Central African Republic
38. Chad
39. Chile
40. China
41. Christmas Island
42. Colombia
43. Comoros
44. Congo, Democratic Republic of the
45. Congo, Republic of the
46. Cook Islands
47. Costa Rica
48. Cote d'Ivoire
49. Croatia
50. Cuba
51. Cyprus
52. Czech Republic
53. Denmark
54. Djibouti
55. Dominican Republic
56. Ecuador
57. Egypt
58. El Salvador
59. Equatorial Guinea
60. Eritrea
61. Estonia
62. Ethiopia
63. Falkland Islands (Islas Malvinas)
64. Faroe Islands
65. Fiji
66. Finland

67. France
68. French Guiana
69. French Polynesia
70. Gabon
71. Gambia, The
72. Gaza Strip
73. Georgia
74. Germany
75. Ghana
76. Gibraltar
77. Greece
78. Greenland
79. Grenada
80. Guadeloupe
81. Guatemala
82. Guernsey
83. Guinea-Bissau
84. Guyana
85. Haiti
86. Holy See (Vatican City)
87. Honduras
88. Hong Kong
89. Hungary
90. Iceland
91. India
92. Indonesia
93. Iran
94. Iraq
95. Ireland
96. Isle of Man
97. Israel
98. Italy

99. Jamaica
100. Japan
101. Jersey
102. Jordan
103. Kazakhstan
104. Kenya
105. Kiribati
106. Korea, North
107. Korea, South
108. Kosovo
109. Kuwait
110. Kyrgyzstan
111. Laos
112. Latvia
113. Lebanon
114. Lesotho
115. Liberia
116. Libya
117. Liechtenstein
118. Lithuania
119. Luxembourg
120. Macau
121. Macedonia
122. Madagascar
123. Malawi
124. Malaysia
125. Maldives
126. Mali
127. Malta
128. Marshall Islands
129. Martinique
130. Mauritania

Mauritania

131. Mauritius
132. Mexico
133. Micronesia, Federated States of
134. Moldova
135. Monaco
136. Mongolia
137. Montserrat
138. Morocco
139. Mozambique
140. Namibia
141. Nepal
142. Netherlands
143. New Caledonia
144. New Zealand
145. Nicaragua
146. Nigeria
147. Norway
148. Oman
149. Pakistan
150. Panama
151. Papua New Guinea
152. Paraguay
153. Philippines
154. Poland
155. Portugal
156. Puerto Rico
157. Qatar
158. Reunion
159. Russia
160. Rwanda
161. Saint Kitts and Nevis

162. Saint Lucia
163. Saint Vincent and the Grenadines
164. Samoa
165. San Marino
166. Sao Tome and Principe
167. Saudi Arabia
168. Senegal
169. Serbia
170. Sierra Leone
171. Singapore
172. Slovakia
173. Solomon Islands
174. Somalia
175. South Africa
176. Spain
177. Sri Lanka
178. Sudan
179. Suriname
180. Swaziland
181. Sweden
182. Switzerland
183. Syria
184. Taiwan
185. Tajikistan
186. Tanzania
187. Thailand
188. Togo
189. Tonga
190. Trinidad and Tobago
191. Tunisia
192. Turkey
193. Turkmenistan

194. Uganda

195. Ukraine

196. United Arab Emirates

197. United Kingdom

198. United States

199. Uruguay

200. Vanuatu

201. Venezuela

202. Vietnam

203. West Bank

204. Western Sahara

205. Yemen

206. Zambia

207. Other

Please enter your email address below if you would be available to answer a few follow-up questions (optional):

Your email address will only be used to contact you with follow-up questions related to this study, and will be deleted afterwards. (Leave blank if you do not wish to be contacted.)

Short-answer text

After section 6 **Continue to next section**

Section 7 of 7

Chance to win

Enter your email address below for a chance to win an Amazon voucher of €50!

Email address (optional):

Your email address will only be used to contact you in case you won, and will be deleted afterwards. (Leave blank if you do not wish to take part in the draw.)

Short-answer text

Annex 4 - Example set of questions for focus group discussion

How difficult was it for you to fill out the questionnaire?

How difficult to understand did you find the questions?

How relevant were the questions for you?

How do you feel about working for your organisation?

How would you feel about leaving your organisation?

How satisfied are you with working for your organisation?

What other comments do you have about the survey?

Annex 5 - Correlation matrix

Correlations

		01AC1	02AC2	03AC3	04AC4r	05AC5r	06AC6r	07AC7	08AC8r	09CC1r	10CC2	11CC3	12CC4r	13CC5	14CC6	15CC7	16CC8	17NC1	18NC2r	19NC3r	20NC4	21NC5	22NC6	23NC7	24NC8r	25IS1	26IS2r	27IS3	28IS4r	29IS5	30IS6r	31IS7	32IS8r	33IS9	34AGE	35SEX	36IQ	37EMPL	38SIZE
01AC1	Pearson Correl	1	,591**	,481**	,399**	,575**	,582**	,593**	,592**	0,002	,205**	,227**	,055**	-,106**	-,105**	-,111**	,133**	,243**	,201**	,162**	,257**	,259**	,125**	,079**	,277**	,320**	,346**	,377**	,295**	,438**	,364**	,392**	,465**	,506**	,147**	-,045*	0,017	0,024	-,092**
	Sig. (2-tailed)		0	0	0	0	0	0	0	0,937	0	0	0,005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,021	0,374	0,211	0
02AC2	Pearson Correlation		1	,494**	,269**	,504**	,549**	,580**	,516**	-0,035	,089**	,083**	-0,006	-,152**	-,189**	-,181**	-0,004	,138**	,137**	,097**	,241**	,222**	,107**	,039*	,184**	,234**	,278**	,314**	,205**	,394**	,311**	,385**	,408**	,444**	0,022	-,047*	-0,008	,048*	-,118**
	Sig. (2-tailed)			0	0	0	0	0	0	0,07	0	0	0,738	0	0	0	0,856	0	0	0	0	0	0	0,042	0	0	0	0	0	0	0	0	0	0	0,254	0,015	0,68	0,013	0
03AC3	Pearson Correlation			1	,289**	,483**	,584**	,604**	,493**	-0,032	,143**	,117**	0,032	-,126**	-,131**	-,151**	0,012	,199**	,213**	,153**	,330**	,288**	,128**	,054**	,214**	,213**	,265**	,253**	,131**	,334**	,301**	,305**	,361**	,405**	,042*	-0,036	-0,021	,082**	-,273**
	Sig. (2-tailed)				0	0	0	0	0	0,096	0	0	0,103	0	0	0	0,531	0	0	0	0	0	0	0,005	0	0	0	0	0	0	0	0	0	0	0,03	0,062	0,279	0	0
04AC4r	Pearson Correlation				1	,338**	,390**	,406**	,363**	-0,068**	,171**	,155**	,060*	-,092**	-,072**	-,083**	,077**	,149**	,165**	,198**	,197**	,270**	,100**	,051**	,155**	,145**	,198**	,178**	,142**	,249**	,252**	,177**	,191**	,308**	,089**	0,003	-0,019	,074**	-,201**
	Sig. (2-tailed)					0	0	0	0	0	0	0	0,01	0	0	0	0	0	0	0	0	0	0	0,009	0	0	0	0	0	0	0	0	0	0	0,873	0,325	0	0
05AC5r	Pearson Correlation					1	,740**	,585**	,725**	-0,025	,142**	,132**	,048*	-,145**	-,192**	-,180**	0,026	,130**	,198**	,124**	,250**	,232**	,072**	-,039*	,213**	,375**	,374**	,246**	,500**	,398**	,455**	,418**	,501**	-0,019	-,039*	-0,003	0,028	-,210**
	Sig. (2-tailed)						0	0	0	0,206	0	0	0,013	0	0	0	0,182	0	0	0	0	0	0	0,045	0	0	0	0	0	0	0	0	0	0	0,328	0,045	0,895	0,153	0
06AC6r	Pearson Correlation						1	,729**	,703**	0,012	,197**	,172**	,057**	-,131**	-,144**	-,137**	,048*	,181**	,262**	,183**	,332**	,296**	,123**	0,014	,268**	,202**	,312**	,305**	,201**	,426**	,366**	,408**	,428**	,445**	0,013	-,065**	-0,036	,043*	-,224**
	Sig. (2-tailed)							0	0	0,526	0	0	0,003	0	0	0	0,014	0	0	0	0	0	0	0,475	0	0	0	0	0	0	0	0	0	0	0,494	0,001	0,06	0,028	0
07AC7	Pearson Correlation							1	,615**	-0,012	,197**	,179**	0,018	-,134**	-,141**	-,125**	,091**	,201**	,237**	,186**	,345**	,304**	,145**	,064**	,240**	,216**	,256**	,263**	,207**	,373**	,308**	,374**	,435**	,426**	,043*	-,069**	-0,028	,069**	-,207**
	Sig. (2-tailed)								0	0,531	0	0	0,363	0	0	0	0	0	0	0	0	0	0	0,001	0	0	0	0	0	0	0	0	0	0	0,028	0	0,149	0	0
08AC8r	Pearson Correlation								1	-0,009	,149**	,152**	,038*	-,125**	-,183**	-,162**	,049*	,170**	,203**	,146**	,247**	,258**	,073**	-0,008	,237**	,231**	,345**	,330**	,234**	,454**	,379**	,428**	,436**	,476**	0,005	-,052**	-0,006	0,026	-,178**
	Sig. (2-tailed)									0,646	0	0	0,049	0	0	0	0,012	0	0	0	0	0	0	0,677	0	0	0	0	0	0	0	0	0	0	0,808	0,007	0,756	0,178	0
09CC1r	Pearson Correlation									1	,327**	,336**	,201**	,350**	,364**	,352**	,281**	,065**	0,034	,060**	0,011	-0,005	-0,029	,070**	0,022	-0,035	-,066**	0,015	0,008	-,044*	-0,019	-0,029	-,069**	-,062**	-,068**	-,040*	-0,026	-,087**	,099**
	Sig. (2-tailed)										0	0	0	0	0	0	0	0,001	0,078	0,002	0,56	0,79	0,13	0	0,266	0,074	0,001	0,438	0,688	0,024	0,319	0,135	0	0,001	0	0,038	0,182	0	0
10CC2	Pearson Correlation										1	,672**	,216**	,434**	,404**	,321**	,379**	,139**	,126**	,122**	,165**	,196**	,100**	,108**	,130**	,045*	-0,036	,052**	,047*	0,027	0,028	,057**	,040*	,076**	,044*	-,062**	-0,019	-0,034	0,084	0
	Sig. (2-tailed)											0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,022	0,066	0,007	0,017	0,166	0,15	0,003	0,038	0	0,023	0,001	0,334	0,084	0
11CC3	Pearson Correlation											1	,249**	,448**	,380**	,303**	,448**	,158**	,086**	,106**	,141**	,170**	,082**	,123**	,128**	,090**	-0,01	,091**	,058**	,063**	0,034	,056**	0,029	,102**	0,003	-0,027	-0,018	,062**	-0,027
	Sig. (2-tailed)												0	0	0	0	0	0	0	0	0	0	0	0	0	0,618	0	0,003	0,001	0,083	0,004	0,134	0	0,88	0,17	0,342	0,001	0,169
12CC4r	Pearson Correlation												1	,179**	,146**	,112**	,126**	0,01	0,023	,043*	0,015	0,004	-0,003	0,016	0,032	0,003	0	0,032	0,027	0,004	0,045*	0,006	0,027	0,004	-0,011	-0,026	0,002
	Sig. (2-tailed)													0	0	0	0	0,611	0,239	0,026	0,444	0,821	0,867	0,415	0,102	0,864	0,999	0,103	0,168	0,836	0,019	0,758	0,164	0,854	0,167	0,852	0,569	0,186	0,898
13CC5	Pearson Correlation													1	,539**	,451**	,396**	0,038	0,011	0,015	0,025	-0,012	0,016	,089**	-0,027	-,078**	-,209**	-,083**	-,071**	-,164**	-,119**	-,121**	-,193**	-,132**	0,024	-0,02	-0,01	-,039*	0,035
	Sig. (2-tailed)														0	0	0	0,05	0,557	0,432	0,198	0,533	0,413	0	0,164	0	0	0	0	0	0	0	0	0,216	0,301	0,592	0,042	0,068
14CC6	Pearson Correlation														1	,745**	,402**	,075**	0	0,029	-0,007	-0,023	0,027	,152**	-0,029	-,147**	-,312**	-,096**	-,136**	-,230**	-,135**	-,160**	-,228**	-,183**	,083**	-0,024	-0,017	-0,03	,040*
	Sig. (2-tailed)															0	0	0	0,983	0,134	0,715	0,228	0,17	0	0,132	0	0	0	0	0	0	0	0	0	0,218	0,375	0,119	0,037
15CC7	Pearson Correlation															1	,393**	,074**	0,005	0,03	-0,007	-,039*	0,037	,142**	-0,008	-,166**	-,288**	-,114**	-,132**	-,188**	-,126**	-,150**	-,212**	-,163**	,087**	-0,019	-,042*	-0,019	0,03
	Sig. (2-tailed)																0	0	0,809	0,122	0,708	0,046	0,056	0	0,662	0	0	0	0	0	0	0	0	0	0,331	0,029	0,321	0,126
16CC8	Pearson Correlation																1	,131**	0,034	,064**	,098**	,078**	,042*	,133**	,067**	,107**	,104**	-0,002	,171**	-,046*	-,063**	-0,007	-,066**	-0,012	0,019	-,049*	-0,017	-,053**	,066**
	Sig. (2-tailed)																	0	0,078	0,001	0	0,031	0	0,001	0	0	0	0,906	0	0,017	0,001	0,726	0,001	0,55	0,318	0,012	0,383	0,006	0,001
17NC1	Pearson Correlation																	1	,313**	,404**	,328**	,237**	,304**	,436**	,302**	,073**	,047*	,051**	,076**	,046*	,038	,103**	,132**	,084**	,075**	-0,012	-0,002	-0,017	-0,013
	Sig. (2-tailed)																		0	0	0	0	0	0	0	0	0,016	0,009	0	0,017	0,052	0	0	0	0,522	0,932	0,392	0,499
18NC2r	Pearson Correlation																		1	,444**	,377**	,272**	,280**	,196**	,353**	,053**	,083**	,079**	,063**	,102**	,105**	,100**	,138**	,083**	-0,025	-,080**	0,022	-,103**
	Sig. (2-tailed)																			0	0	0	0	0	0	0,006	0	0	0	0	0	0	0	0	0,198	0	0,262	0
19NC3r	Pearson Correlation																			1	,410**	,296**	,335**	,273**	,344**	0,026	,042*	0,023	,049*	,043*	,060**	,064**	,081**	,077**	,054**	-,048*	-0,016	-0,007	-,069**
	Sig. (2-tailed)																				0	0	0	0	0	0,176	0,03	0,245	0,011	0,026	0,002	0,001	0	0	0,005	0,013	0,413	0,72	0
20NC4	Pearson Correlation																				1	,435**	,416**	,257**	,307**	,076**	,085**	,099**	,069**	,132**	,085**	,165**	,138**	,176**	0,027	-0,011	-0,013	0,021	-,147**
	Sig. (2-tailed)																					0	0	0	0	0	0	0	0	0	0	0	0	0	0,166	0,583	0,492	0,271	0
21NC5	Pearson Correlation																					1	,260**	,165**	,239**	,100**	,169**	,129**	,060**	,195**	,158**	,163**	,141**	,226**	-0,029	-0,001	-,072**	,044*	-,191**
	Sig. (2-tailed)																						0	0	0	0	0	0	0	0	0	0	0	0	0,13	0,956	0	0,024	0
22NC6	Pearson Correlation																						1	,390**	,215**	0,005	-0,009	0,001	0,022	-0,008	-0,003	0,072**	0,048*	0,029	,123**	0,013	-0,004	0,018	-,044*
	Sig. (2-tailed)																							0	0	0,798	0,627	0,975	0,23	0,669	0,881	0	0,014	0,134	0	0,505	0,819	0,358	0,022
23NC7	Pearson Correlation																							1	,214**	0,01	-,083**	-0,035	-0,005	-,062**	-,068**	-0,001	-0,023	-0,034	,156**	0,02	,044*	0,013	0,013
	Sig. (2-tailed)																								0	0,612	0	0,072	0,785	0,001	0	0,958	0,243	0,081	0	0,296	0,024	0,517	0,496
24NC8r	Pearson Correlation																								1	,114**	,145**	,094**	,117**	,118**	,141**	,090**	,153**	,199**	,153**	0,008	0,012	-0,015	0,004	-,071**
	Sig. (2-tailed)																									0	0	0	0	0	0	0	0	0	0,674	0,532	0,43	0,828	0

Annex 5 (cont.) – Correlation matrix

Correlations

		01AC1	02AC2	03AC3	04AC4r	05AC5r	06AC6r	07AC7	08AC8r	09CC1r	10CC2	11CC3	12CC4r	13CC5	14CC6	15CC7	16CC8	17NC1	18NC2r	19NC3r	20NC4	21NC5	22NC6	23NC7	24NC8r	25IS1	26IS2r	27IS3	28IS4r	29IS5	30IS6r	31IS7	32IS8r	33IS9	34AGE	35SEX	36IQ	37EMPL	38SIZE
25IS1	Pearson Correlation																									1	.240**	.254**	.420**	.358**	.233**	.211**	.204**	.287**	.057**	0,011	0,037	-,050*	0,027
	Sig. (2-tailed)																										0	0	0	0	0	0	0	0	0,003	0,565	0,059	0,01	0,167
26IS2r	Pearson Correlation																									1	.275**	.246**	.434**	.297**	.253**	.299**	.378**	-,073**	0,035	0,005	0,021	-,060**	
	Sig. (2-tailed)																										0	0	0	0	0	0	0	0	0,072	0,805	0,276	0,002	
27IS3	Pearson Correlation																										1	.197**	.494**	.364**	.358**	.255**	.491**	-,051**	-0,009	0,019	-,046*	-0,031	
	Sig. (2-tailed)																											0	0	0	0	0	0	0,009	0,643	0,334	0,018	0,107	
28IS4r	Pearson Correlation																											1	.240**	.179**	.189**	.220**	.201**	0,025	-,043*	0,028	-,095**	.118**	
	Sig. (2-tailed)																												0	0	0	0	0	0,199	0,027	0,145	0	0	
29IS5	Pearson Correlation																												1	.435**	.423**	.367**	.555**	-,053**	-0,033	0,012	0,017	-,156**	
	Sig. (2-tailed)																													0	0	0	0	0,007	0,089	0,538	0,383	0	
30IS6r	Pearson Correlation																													1	.283**	.311**	.520**	-0,009	-0,006	0,029	,060**	-,271**	
	Sig. (2-tailed)																														0	0	0	0,64	0,746	0,14	0,002	0	
31IS7	Pearson Correlation																														1	.337**	.414**	0,015	-,040*	-0,003	-0,027	-,058**	
	Sig. (2-tailed)																															0	0	0,431	0,042	0,893	0,172	0,003	
32IS8r	Pearson Correlation																															1	.379**	.108**	-,039*	0,018	0,011	-,094**	
	Sig. (2-tailed)																																0	0	0,045	0,363	0,569	0	
33IS9	Pearson Correlation																																1	-0,002	-0,001	-0,007	,091**	-,183**	
	Sig. (2-tailed)																																	0,924	0,952	0,732	0	0	
34AGE	Pearson Correlation																																	1	,144**	,097**	,113**	-,041*	
	Sig. (2-tailed)																																		0	0	0	0,033	
35SEX	Pearson Correlation																																		1	0,035	0,018	0,004	
	Sig. (2-tailed)																																			0,073	0,338	0,833	
36IQ	Pearson Correlation																																			1	0	0,026	
	Sig. (2-tailed)																																				0,98	0,178	
37EMPL	Pearson Correlation																																				1	-,217**	
	Sig. (2-tailed)																																					0	
38SIZE	Pearson Correlation																																					1	
	Sig. (2-tailed)																																						

Annex 6 - Parameter estimates (MLE) for high-IQ group and control group

			high-IQ Group				Control Group			
			Estimate	**S.E.**	**C.R.**	**P**	**Estimate**	**S.E.**	**C.R.**	**P**
JS	<---	AC	0.412	0.026	15.692	***	0.288	0.114	2.525	0.012
JS	<---	CC	-0.122	0.020	-6.234	***	-0.065	0.123	-0.530	0.596
JS	<---	NC	-0.077	0.026	-2.925	**	-0.164	0.191	-0.859	0.39
01AC1	<---	AC	1.000				1.000			
02AC2	<---	AC	0.817	0.024	34.407	***	0.817	0.024	34.407	***
03AC3	<---	AC	0.920	0.027	33.919	***	0.920	0.027	33.919	***
04AC4r	<---	AC	0.570	0.025	23.234	***	0.570	0.025	23.234	***
05AC5r	<---	AC	1.145	0.027	41.680	***	1.145	0.027	41.680	***
06AC6r	<---	AC	1.224	0.027	44.928	***	1.224	0.027	44.928	***
07AC7	<---	AC	1.096	0.026	41.501	***	1.096	0.026	41.501	***
08AC8r	<---	AC	1.116	0.027	41.646	***	1.116	0.027	41.646	***
09CC1r	<---	CC	1.000				1.000			
10CC2	<---	CC	1.081	0.052	20.880	***	1.081	0.052	20.880	***
11CC3	<---	CC	1.095	0.052	21.201	***	1.095	0.052	21.201	***
12CC4r	<---	CC	0.457	0.040	11.528	***	0.457	0.040	11.528	***
13CC5	<---	CC	1.233	0.054	22.885	***	1.233	0.054	22.885	***
14CC6	<---	CC	1.257	0.056	22.626	***	1.257	0.056	22.626	***
15CC7	<---	CC	1.126	0.054	20.967	***	1.126	0.054	20.967	***
16CC8	<---	CC	1.039	0.050	20.671	***	1.039	0.050	20.671	***
17NC1	<---	NC	1.000				1.000			
18NC2r	<---	NC	1.142	0.053	21.659	***	1.142	0.053	21.659	***
19NC3r	<---	NC	1.149	0.051	22.653	***	1.149	0.051	22.653	***
20NC4	<---	NC	1.319	0.056	23.497	***	1.319	0.056	23.497	***
21NC5	<---	NC	0.898	0.045	19.981	***	0.898	0.045	19.981	***
22NC6	<---	NC	1.032	0.051	20.103	***	1.032	0.051	20.103	***
23NC7	<---	NC	0.756	0.039	19.245	***	0.756	0.039	19.245	***
24NC8r	<---	NC	0.899	0.046	19.659	***	0.899	0.046	19.659	***
28JS4r	<---	JS	0.920	0.059	15.466	***	0.920	0.059	15.466	***
27JS3	<---	JS	1.292	0.087	14.891	***	1.292	0.087	14.891	***
26JS2r	<---	JS	1.416	0.092	15.384	***	1.416	0.092	15.384	***
25JS1	<---	JS	1.000				1.000			

Means	**Estimate**	**S.E.**	**C.R.**	**P**
AC	-0.124	0.103	-1.199	0.231
CC	-0.151	0.098	-1.539	0.124
NC	-0.165	0.076	-2.179	0.029

**** $p < .001$, ** $p < .01$, * $p < .05$*

Annex 7 - Group differences in factor score weights

	high-IQ Group				Control Group				Delta			
	AC	**CC**	**NC**	**JS**	**AC**	**CC**	**NC**	**JS**	**AC**	**CC**	**NC**	**JS**
01AC1	0.089	0	0.007	0.024	0.083	-0.004	0.008	0.014	0.006	0.004	-0.001	0.01
02AC2	0.077	0	0.006	0.021	0.07	-0.003	0.006	0.012	0.007	0.003	0	0.009
03AC3	0.065	0	0.005	0.017	0.093	-0.004	0.009	0.015	-0.028	0.004	-0.004	0.002
04AC4r	0.036	0	0.003	0.01	0.041	-0.002	0.004	0.007	-0.005	0.002	-0.001	0.003
05AC5r	0.123	0	0.01	0.033	0.13	-0.006	0.012	0.022	-0.007	0.006	-0.002	0.011
06AC6r	0.185	0	0.015	0.05	0.176	-0.008	0.016	0.029	0.009	0.008	-0.001	0.021
07AC7	0.126	0	0.01	0.034	0.113	-0.005	0.01	0.019	0.013	0.005	0	0.015
08AC8r	0.126	0	0.01	0.034	0.106	-0.005	0.01	0.018	0.02	0.005	0	0.016
09CC1r	0	0.072	0.002	-0.006	-0.002	0.079	0.005	-0.004	0.002	-0.007	-0.003	-0.002
10CC2	0	0.07	0.002	-0.006	-0.001	0.045	0.003	-0.002	0.001	0.025	-0.001	-0.004
11CC3	0	0.08	0.002	-0.007	-0.002	0.08	0.005	-0.004	0.002	0	-0.003	-0.003
12CC4r	0	0.034	0.001	-0.003	-0.001	0.03	0.002	-0.001	0.001	0.004	-0.001	-0.002
13CC5	0	0.179	0.006	-0.015	-0.004	0.129	0.009	-0.006	0.004	0.05	-0.003	-0.009
14CC6	0	0.128	0.004	-0.011	-0.005	0.169	0.011	-0.008	0.005	-0.041	-0.007	-0.003
15CC7	0	0.045	0.001	-0.004	-0.002	0.072	0.005	-0.003	0.002	-0.027	-0.004	-0.001
16CC8	0	0.102	0.003	-0.009	-0.003	0.098	0.006	-0.005	0.003	0.004	-0.003	-0.004
17NC1	0.006	0.003	0.074	-0.003	0.005	0.005	0.05	-0.004	0.001	-0.002	0.024	0.001
18NC2r	0.007	0.004	0.095	-0.003	0.008	0.008	0.081	-0.007	-0.001	-0.004	0.014	0.004
19NC3r	0.009	0.006	0.121	-0.004	0.013	0.013	0.135	-0.012	-0.004	-0.007	-0.014	0.008
20NC4	0.01	0.006	0.135	-0.005	0.011	0.011	0.116	-0.01	-0.001	-0.005	0.019	0.005
21NC5	0.006	0.004	0.084	-0.003	0.006	0.006	0.064	-0.006	0	-0.002	0.02	0.003
22NC6	0.006	0.004	0.075	-0.003	0.008	0.008	0.086	-0.008	-0.002	-0.004	-0.011	0.005
23NC7	0.002	0.002	0.033	-0.001	0.002	0.002	0.018	-0.002	0	0	0.015	0.001
24NC8r	0.006	0.004	0.079	-0.003	0.008	0.008	0.083	-0.007	-0.002	-0.004	-0.004	0.004
25JS1	0.011	-0.006	-0.002	0.051	0.01	-0.004	-0.005	0.073	0.001	-0.002	0.003	-0.022
26JS2r	0.024	-0.013	-0.003	0.108	0.014	-0.006	-0.007	0.106	0.01	-0.007	0.004	0.002
27JS3	0.02	-0.011	-0.003	0.091	0.011	-0.005	-0.006	0.085	0.009	-0.006	0.003	0.006
28JS4r	0.009	-0.005	-0.001	0.041	0.009	-0.004	-0.005	0.066	0	-0.001	0.004	-0.025

Annex 8 - Author's publications and scientific work

Journal publications

Bonau, S. (2017). How to become an inspirational leader, and what to avoid. *Journal of Management Development, 36*(5), 614-625. ISSN: 0262-1711 https://doi.org/10.1108/JMD-03-2015-0047

Cited by *Strategic Direction*, a journal that distills "the most topical management issues and relevant implications for senior managers out of the cutting-edge research": "The growth process of treasured inspirational leaders", *Strategic Direction, 33*(8), 20-22. https://doi.org/10.1108/SD-05-2017-0084

Bonau, S. (2017). A Case for Behavioural Game Theory. *Journal of Game Theory, 6*(1), 7-14. ISSN: 2325-0046, e-ISSN: 2325-0054
DOI: 10.5923/j.jgt.20170601.02

Bonau, S. (2018). Drivers of Employee Commitment: Evidence from the 2011 Workplace Employment Relations Survey of Employees. *International Journal of Employment Studies, 26*(1), 40-61. ISSN: 1039-6993

Bonau, S. (2018). Fashion brand Zara as an example of excellence in strategic management. In: Dobrai Katalin, László Gyula, Sipos Norbert (ed.) *Farkas Ferenc Nemzetközi Tudományos Konferencia 2018 [Ferenc Farkas International Scientific Conference 2018]*. University of Pecs, pp. 598-613. ISBN: 978-963-429-238-8

Conferences

Bonau, S. (2018). Fashion brand Zara as an example of excellence in strategic management. 1st Ferenc Farkas International Scientific Conference. Pecs/Hungary. June 2018.

Bonau, S. (2018) Too smart to commit? Effects of personal characteristics on organisational commitment and job satisfaction: Evidence from a high-IQ network. 19th Annual Conference of the International Society for Intelligence Research (Poster presentation), Edinburgh/UK, July 2018.

Reviewing

Manuscript reviewer for *Cogent Social Sciences*, part of Taylor & Francis, p-ISSN: 2331-1886. http://dx.doi.org/10.1080/23311886.2017.1285652

Manuscript reviewer for the *Journal of Management Development*, p-ISSN: 0262-1711.

Abstract reviewer for the *29th International Congress of Applied Psychology*, hosted by the International Association of Applied Psychology. Montreal/Canada. June 2018.