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**RELATIONSHIPS BETWEEN SUPERVISOR BEHAVIOUR
AND SUBORDINATES' WORK ATTITUDES:
THE ROLE OF LMX**

A thesis submitted in partial fulfilment
of the requirements for the degree

of

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ABSTRACT

This study investigated the relationship between supervisor behaviour and the work experience of subordinate employees and assessed the role of the interpersonal exchange relationship between supervisor and subordinate. Participants completed a questionnaire asking them to rate their supervisor's behaviour (initiating structure, tolerance of subordinate independence, perceived support, integration and consideration of subordinates), the quality of their leader-member exchange relationship (LMX) with their supervisor, perceived job autonomy, and role ambiguity. To assess subordinates' work experience, respondents were also asked to report on their level of work engagement, citizenship behaviour, job motivation, commitment to the organisation, and team commitment. Two hundred and fifteen responses were collected and, following a factor analysis, mediation analyses were conducted using the supervisor behaviours as predictors, LMX, autonomy, and ambiguity as mediators and subordinate attitudes and behaviour as outcomes.

The results provided support for the proposed mediated relationships with 30 out of 36 indirect relationships being significant. The findings confirmed that 1) supervisory behaviour had indirect effects on subordinate attitudes and behaviour. 2) LMX, job autonomy, and role ambiguity significantly predicted subordinate employees' work attitudes and behaviour. 3) The behaviours of supervisors helped determine LMX, job autonomy and role ambiguity. These results confirmed that there is a strong relationship between the behaviour of supervisors and the work experience of subordinate employees.

Although causation cannot be inferred based on the results of this study, the findings indicate that the supervisor may contribute to the work experience of subordinates. The findings may suggest that if supervisors were to change their role behaviour by the way they deal with subordinates and introduce structure in the

workplace this may help reduce subordinates' role ambiguity, raise perceived job autonomy, lead to a higher quality exchange relationship, and positively influence work outcomes. This would enhance employee work engagement, organisation-directed citizenship behaviour, intrinsic motivation, commitment to organisation and work team benefiting both the organisation and the employees.

Longitudinal research into an integrated model of supervisor behaviour and LMX using experimental or observational study designs is recommended in order to develop a model of causal relationships between supervisor behaviour, LMX, and subordinate outcomes. Further investigation of the measurement of supervisor behaviour may be appropriate in order to validate or revise the LBDQ scales, since factor analyses on these scales prompted substantial changes. Additionally, the results of this study indicated that perceived supervisor support and LMX may not be distinct constructs. Further research into the measurement and theoretical grounding of these measures is recommended.

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“All things excellent are as difficult as they are rare.”

Baruch Spinoza (1632-1677)

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CHAPTER 1

INTRODUCTION

The work relationship people have with their supervisor is one of the major factors affecting workers' attitudes toward their jobs and employers. Work forms a major part of people's lives and, in turn, a supervisor can be seen as a major part of people's work. The prominence of the issues surrounding the influence of supervisors on their subordinates is exemplified by the interest of researchers in studying the implications of the supervisor-subordinate relationship over the last century (e.g. Graen, 1976; Jaques 1951; Katz & Kahn 1966; Lewin, Lippitt, & White, 1939; Reis, 2002; Schafer, 2010; Schyns & Day, 2010; Vroom & Mann, 1960).

The existing body of literature suggests that the impact of supervisors on subordinates can be substantial and of considerable scope. For instance, O'Driscoll and Beehr (1994) argued that "In many respects, the supervisor is the most immediate and salient person in an individual's work context...as well as having a direct influence on subordinate behaviour" (p. 141). These impacts include instrumental implications such as: task performance (Alexander, Helms, & Wilkins, 1989); organisational fit (Gregory, Albritton, & Osmonbekov, 2010); counterproductive workplace behaviours (Liu, Kwong, Wu, & Wu, 2010); organisational commitment (Brown, 2003); interpersonal workplace conflict (Xin & Pelled, 2003); innovativeness and creativity (Janssen, 2005; McElvaney, 2006); strain and turnover intentions (Michela, 2007); retention and perceived organisational support (Eisenberger, Stiegelhamber & Vandenberghe et al., 2002). Other implications relating to the qualitative work experience include stress, physical and psychological wellbeing (Gilbreath & Benson, 2004; O'Driscoll & Beehr, 1994), work satisfaction (Watson, 2009), feelings of energy and job involvement (Atwater & Carmeli, 2009). The literature suggests that the influence of supervisors can

be beneficial (Eisenberger et al., 2002) and damaging (Liu et al., 2010) to the attitudes, behaviours and work outcomes of subordinates.

Leadership style theories have traditionally been a popular way of viewing the influence of a supervisor on subordinates in workplace settings. However, the assessment of leadership traits and styles has been argued to be problematic and the construct validity of these models has been questioned (Barge & Schlueter, 1991; Leithwood & Jantzi, 2000). Graen, Liden and Hoel (1982) have also questioned the practical implications of leadership styles in terms of producing measurable influences on subordinates. Leader-member exchange theory (LMX) has largely taken over from leadership style and trait-based approaches to describing the influence of leaders on members in contemporary research (Lyons & Schneider, 2009; Mannheim & Halamish, 2008; Walumbwa, Cropanzano & Goldman, 2011).

LMX describes the workings of ‘leadership’ in terms of the exchange processes that shape the quality of leader-subordinate relationships. LMX is founded on the principles of social exchange theory, which suggests that people seek to attain a sense of equity in interpersonal relationships by means of an on-going process of reciprocation. In the context of the supervisor – subordinate relationship this exchange process can be described as the supervisor extending a favour to a subordinate and then expecting tangible returns, like commitment and discretionary effort (Hershen, 2004). If the subordinate reciprocates, s/he will in turn expect to receive favourable treatment from the supervisor. These exchange relationships are seen as varying in quality from member to member (Moideenkutty, 2006).

Although a ‘leader’ need not be in a formal position of power per se (Huges, Ginnett & Curphy, 1993), the concept of leadership in the context of organisational settings has been described as the behaviours of a supervisor targeted at influencing “attitudes, beliefs, behaviors, and feelings” of subordinates (Spector, 2008, p. 334).

More broadly, the term ‘leadership’ is often invoked to describe a method or means to influencing followers or subordinates (e.g. by adopting a leadership style). As a term, ‘leadership’ appears ambiguous: there are many descriptions of what a leader might be and there is no single clear-cut definition of the term leadership (Spector 2008; Yukl, 1989). Given the fact that leadership remains an ambiguous term used to describe a host of processes, in the present study the influencing behaviour of supervisors will be referred to simply as ‘supervisor behaviour’. Spector (2008) described a leader as “the one in charge, or the boss of other people” and, within an organisational context, leaders are “often associated with supervisory positions” (Spector 2008, p. 334). Finally, according to Stogdill (1962a), leadership behaviour is a way of describing the behaviour of formal supervisors or group leaders. Keeping this in mind, in this study the leader-member exchange model will be applied to supervisors and subordinates, while ‘supervisor behaviour’ will be used to describe ‘leadership behaviour’ in order to avoid unnecessary confusion over ambiguous terminology.

LMX has become a popular and important model for viewing and understanding the superior-subordinate relationship (Wayne, Shore & Liden, 1997). It could be argued, however, that LMX does not explicitly identify or describe the particular exchange processes and behaviours that either encourage, or reduce the development of quality leader-member relationships (Schriesheim, Castro, & Cogliser, 1999). In fact, Walumbwa et al. (2011) pointed out that in spite of LMX’s prominence in contemporary research, little is known about how and why these relationships develop the way in which they appear to do. With restricted contributions in this area (e.g. Dockery & Steiner, 1990; Liden, Sparrowe, & Wayne, 1997), this limitation has been taken into account in the construction of the present study by introducing the supervisor’s behaviour as a predictor of the quality of the exchange relationship between supervisor and subordinate.

The Present Study

Sousa-Poza and Sousa-Poza (2000) showed that relations with management were ranked among the most important issues of what mattered most to workers. The current research is founded on the notion that the immediate supervisors (i.e. managers or team leaders) are a major influence on the work experience of employees. The aims of the present study are 1) to provide support for this notion by assessing the relationship between supervisors' behaviour and subordinates' work outcomes, and 2) to determine if the relationship between the perceived behaviour of supervisors and the work experience of subordinates is mediated by the interpersonal exchange relationship between both parties. According to Walumbwa et al. (2011), other researchers have often introduced LMX as a variable mediating the relationship between predictors and outcomes. In addition, Walumbwa et al. (2011) identified the link between workplace behaviour and LMX (the 'hows' and 'whys' of LMX) as a research gap in the literature. The present study aims to address this research gap.

The models proposed in this study (Figures 1-3, p. 6, 7) depict supervisor behaviours as predictors. These behaviours include: recognition of subordinates' independence (tolerance of freedom), social organising (integration), consideration of staff members (consideration), structuring of the workplace (initiating structure), and perceived supervisor supportiveness (PSS). These supervisor behaviours were entered into the model because 1) existing research has established the validity of these methods of measuring the role behaviour of supervisors (Schriesheim & Eisenbach, 1995; Stogdill, 1969; Yunker & Hunt, 1976) and 2) because these seemed most relevant to the manner in which subordinate employees experience work. Integration and initiating structure both describe how the supervisor organises the workplace. Tolerance of subordinates' freedom of action, consideration and PSS all involve a positive level of supervisor involvement with the subordinate's job. For example, it is expected that a

supervisor who has a high tolerance of freedom will have a higher quality LMX relationship with subordinates, and those subordinates with a high quality LMX relationship have higher engagement.

Several subordinate attitudes and behaviours were entered into the model as criterion variables. They are: work engagement, intrinsic motivation, organisational citizenship behaviour targeted at individuals (OCBI) and at the organisation (OCBO), affective organisational commitment, and team commitment. These subordinate attitudes and behaviours were selected to give a broad representation of workers' experience at work by measuring work attitudes (work engagement, team commitment and affective organisational commitment) and behaviour at work (organisational citizenship behaviour).

Alongside LMX (Figure 1), this study also sought to examine whether the relationships between two of the leadership behaviours included in model 1 are mediated by two additional variables. Job autonomy (Figure 2) was expected to mediate the relationship between tolerance of freedom and subordinate attitudes and behaviour. Similarly, role ambiguity (Figure 3) was expected to mediate the relationship between initiating structure and subordinate attitudes and behaviour. Ambiguity and autonomy give a representation of subordinates' work situation or context and are suggested to be related to the behaviour of supervisors.

Theoretical Models

The following figures present the models proposed by this study. Figures 1, 2, and 3 show the expected relationships between the supervisor behaviour(s) on the left, which are expected to be indirectly related to the subordinate attitudes as outcome variables on the right, and mediated by LMX, job autonomy, and role ambiguity, which can be found in the centre of the respective models. Each variable will be introduced

and described following the outline of the theoretical models. An overview of the hypotheses which were tested in this study will conclude this chapter.

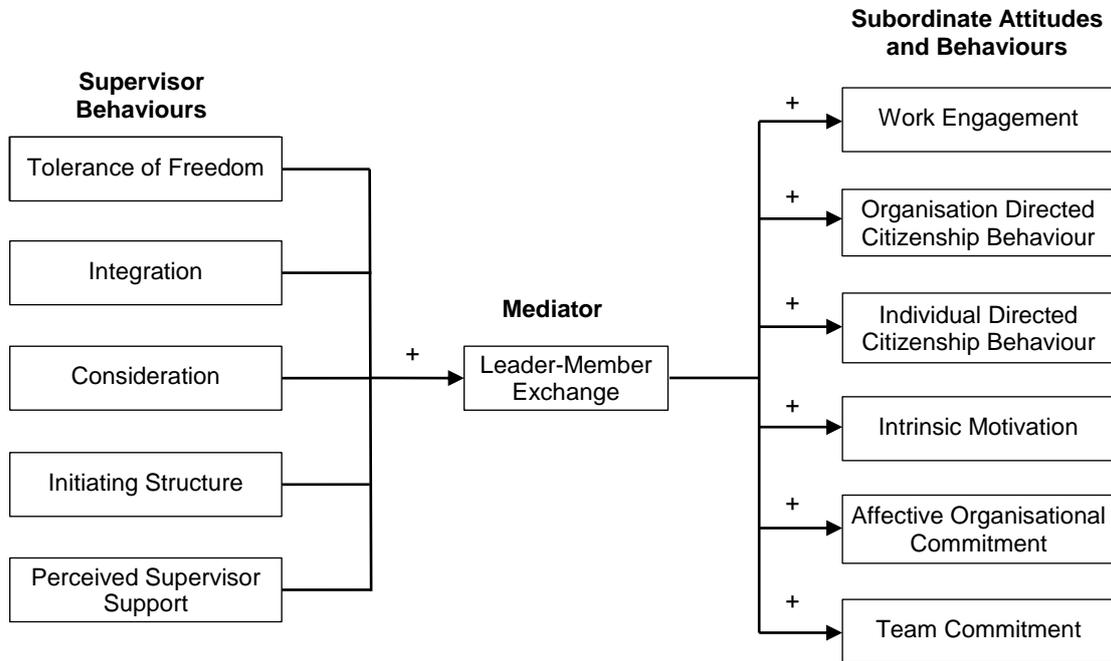


Figure 1. LMX mediates the relationship between supervisor behaviours and subordinate behaviours and attitudes.

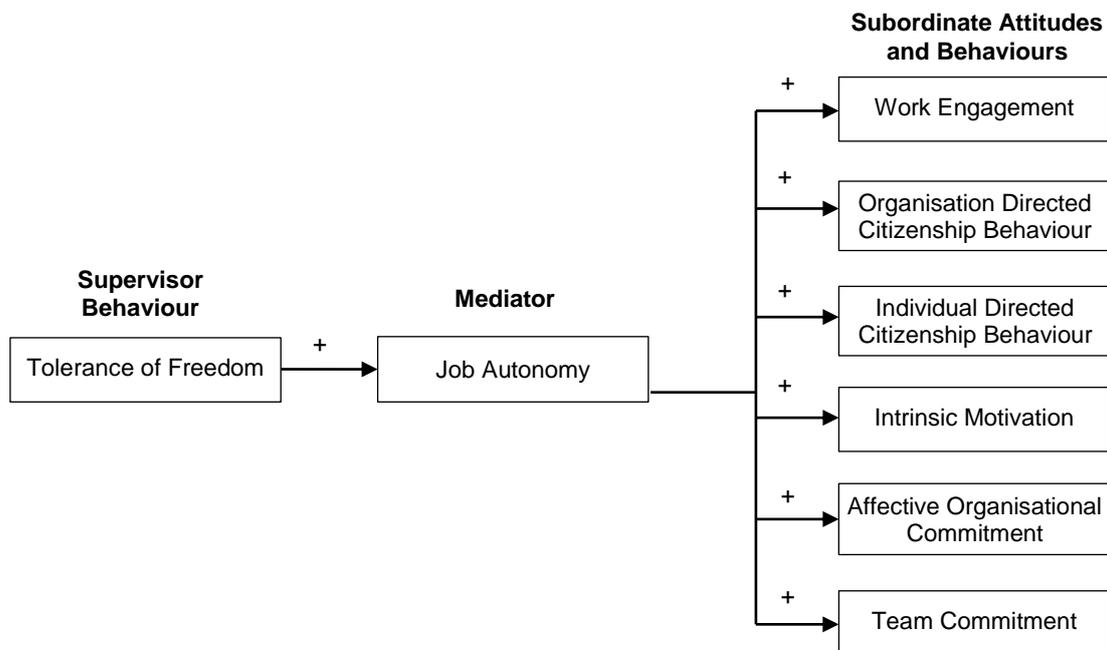


Figure 2. Job autonomy mediates the relationship between tolerance of freedom and subordinate behaviours and attitudes.

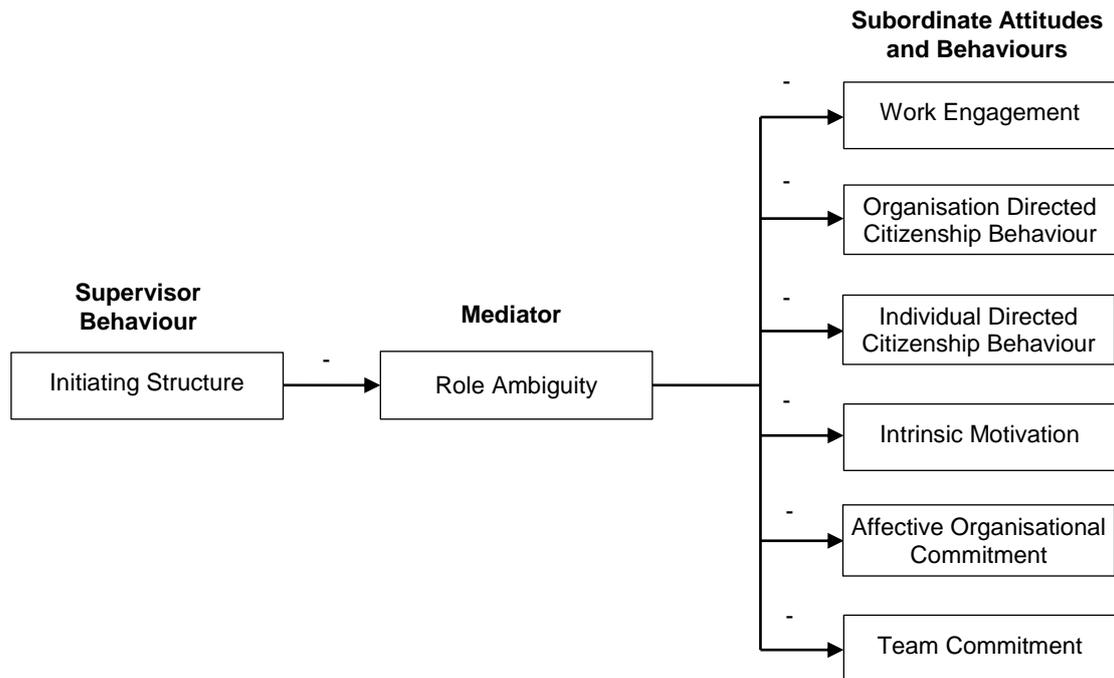


Figure 3. Role ambiguity mediates the relationship between initiating structure and subordinate behaviours and attitudes.

Supervisor Behaviour

Hemphill (1950; 1955) and McGregor (1960) were among the first to critique the then traditional ways of viewing and assessing the influence of a supervisor on subordinates, and instead began developing behavioural approaches of measurement. The behaviour of supervisors has been shown to impact on subordinate attitudes, such as job satisfaction and intentions to quit, strain and in-role performance (Dubinsky, Childers, Skinner & Gencturk, 1988; O’Driscoll & Beehr, 1994). Furthermore, supervisor behaviour has been found to predict the efficacy of supervisors in initiating planned change, and mitigating the negative effects associated with organisational change, such as resistance to change (Higgs & Rowland, 2011). Supervisor behaviour has also been found to influence cognitive and emotional appraisals of trust in the supervisor (Schaubroek, Lam & Peng, 2011). This indicates that subordinates appraise their supervisors’ role competency by assessing the supervisors’ task behaviours.

Methods of quantifying supervisor behaviour have been in development since the early 1950's. Stogdill (1957; 1962a) constructed a standardised measurement tool of supervisor behaviour: the Leader Behaviour Description Questionnaire (LBDQ). This measurement tool of supervisor behaviour has been widely used in research to measure the behaviour of supervisors (Bass & Bass, 2008; Burns, 2005; Chang & Lin, 2008; DeCaro, DeCaro & Bowen-Thomson, 2010; Littrell, 2002; Schneider & Littrell, 2003). These behaviours (as outlined in models 1-3) are: tolerance of member freedom of action (termed 'tolerance of freedom' in short (Stogdill, 1969)), integration, consideration and initiating structure. Tolerance of freedom may be described as: "Allows followers scope for initiative, decision and action" (Stogdill, 1962a, p. 3). Consideration is defined as: "Maintains a closely-knit organization; resolves inter-member conflicts" (Stogdill, 1962a, p. 3). Integration is referred to as "Regards the comfort, well-being, status, and contributions of followers" (Stogdill, 1962a, p. 3). Finally, initiating structure is defined as "Clearly defines own role, and lets followers know what is expected" (Stogdill, 1962a, p. 3). These supervisor behaviours are expected to affect work-related outcomes of subordinates through the exchange relationship with the supervisor.

Perceived Supervisor Support

In addition to the aforementioned four supervisor behaviours a fifth behavioural factor has been identified which was not included in the LBDQ, namely perceived supervisor support (PSS). PSS was developed by building on the earlier perceived organisational support measure (Eisenberger, Huntington, Hutchinson & Sowa, 1986; Eisenberger et al., 2002). PSS involves subordinates' perceptions of the supervisor's valuation of their contributions, concern for their wellbeing, and commitment to them (Eisenberger et al, 2002).

Although PSS may not be strictly regarded as a specific behaviour, it can be seen as the culmination of supportive behaviour. PSS has been shown to contribute to perceived organisational support and reduced employee turnover (Dawley, Andrews & Bucklew, 2008; Eisenberger et al, 2002). PSS has been found to reflect perceived trust in subordinates (DeConinck, 2010). Additionally, according to Yoon and Thye (2000) a supervisor's perceived supportiveness can be viewed by subordinate employees as being representative of the organisation as a whole. Since it is arguably the supervisor's role to support and give direction, PSS can be used to measure supervisors' supportive behaviour. Liden and Mashlyn (1998) have indicated that a high quality exchange relationship can be characterised by higher levels of support and resources. The supportiveness of supervisors' behaviour is expected to be a major contributor to the leader-member exchange relationship with subordinates.

Leader-Member Exchange

The LMX model of supervisor-subordinate interaction has advanced from vertical dyad linkage theory, which was constructed to describe the relationship between supervisors and subordinates in terms of exchange processes (Dansereau, Chashman & Graen, 1973). LMX is founded on the principles of social exchange theory, which suggest that in a relationship each member has to offer something that is seen as having value to the other member in order to attain an equitable outcome for both parties (Blau, 1964). Graen and Uhl-Bien (1995) explain LMX to be a social exchange-based approach to understanding the dynamics of the supervisor-subordinate relationship.

The foundational LMX research has suggested that the relationships supervisors have with group members are not equal in nature and exist along a continuum, which is the basis for the development of in-groups and out-groups (Dansereau, Graen & Haga, 1975). The in-group typically comprises comparatively few members who have a high

quality relationship with the leader and receive favourable treatment, attention and resources. The out-group usually contains a higher number of members who have a lesser value relationship with the leader. As social exchange theory suggests, in-group members are expected to respond by increasing performance, commitment and output. Violating these expectations can lead to being demoted to the out-group (Wayne et al., 1997). Spector (2008) argued that, according to LMX theory, “supervisors do not act the same way with all subordinates” (p. 349).

The strong organisational benefits of higher quality LMX relationships, including task performance, have been noted by Deluga (1998). This finding is unsurprising, since while an employee can be contractually obliged to fulfil the minimum standard of job performance, contextual performance and discretionary effort cannot be ensured in the same way. Loyalty and commitment are not obligatory, but appear to be increased in the presence of a high quality LMX relationship. Settoon, Bennet, and Liden (1996) have argued that LMX influences the perceptions of organisational justice. This may be explained with findings of DeConinck (2010), which indicate that the supervisor can be seen as an agent representing the organisation as a whole. This suggests that the agent is seen as being procedurally unfair because the organisation is set up to function in a certain way.

The evidence certainly suggests that LMX, and the supervisor by implication, plays a major part in shaping the work experience of members. A meta-analysis by Gerstner and Day (1997) indicated that a high quality LMX relationship can predict job satisfaction, organisational commitment and reduced stress in subordinates. Furthermore, Graen et al. (1982) have argued that the exchanges between supervisors and subordinates are important and consistent antecedents to subordinates’ role behaviour. Moreover, behavioural changes (on the supervisor’s part) in the exchange

relationship have been associated with enhancing subordinate outcomes such as performance and satisfaction (Mayfield & Mayfield, 1998).

Supervisor behaviour is suggested to be a central component of the exchange processes, and as such helps determine the quality of LMX, which impacts on crucial subordinate attitudes and behaviours such as work engagement, motivation, citizenship behaviour, commitment and integration with co-workers in team environments. Graen Scandura and Graen (1986), and Mayfield and Mayfield (1998) have found that educating supervisors about the impact of their exchanges with subordinates can produce positive changes in subordinate team members. The present research could be useful in this regard since it may indicate how supervisors might direct their behaviour in order to improve the exchange relationship.

The present study introduces LMX as a mediating variable between supervisor behaviour and subordinate behaviour and attitudes. LMX is suggested to mediate the relationship between the five supervisor behaviours and the six subordinate 'outcomes'. Though Bauer and Green (1996) have hypothesised that supervisor behaviour is a likely cause of performance, current research indicates that the development of the leader-member exchange relationship is often not explicitly traced to specific antecedents and has not been related to supervisor behaviour, at least in the way that this study proposes. The present study is intended to explore some of the antecedents of LMX.

Figure 1 suggests that various supervisor behaviours will be related to the quality of LMX, and LMX in turn will affect specific subordinate attitudes and behaviour. This proposed relationship suggests that the way supervisors deal with, and intend to influence subordinates forms a strong input into the quality of the LMX relationship. The relationship between supervisor behaviours and subordinate attitudes and behaviours will be mediated by the quality of LMX. This, for instance, means that when 'integration' is high, LMX is expected to be high. In addition, if LMX is high,

'work engagement' is also expected to be high. As such there is expected to be an indirect relationship between supervisor behaviours and subordinate attitudes and behaviour via LMX (refer to Figure 1, p. 6).

Work Engagement

Work engagement is a construct describing an energizing state of enthusiasm derived from and applied to one's work. According to Kahn (1990) this personal investment in work consists of emotional, cognitive, and physical components. Work engagement is a relatively recent construct, which may be traced to the development of job involvement and studies on stress and burnout (Schauei, Slanova, Gonzalez-Roma, & Bakker, 2001). According to Rich, Lepine and Crawford (2010) work engagement more accurately and directly relates to in-role performance than do either job involvement and satisfaction.

High levels of work engagement are associated with vigour, dedication and engrossment in one's work (Schauei et al., 2001). Others have argued that work engagement can be seen as being the direct opposite of burnout (Bakker & Demerouti, 2007). Work engagement has been noted for its strong contribution to workers' personal lives and may predict wellbeing and satisfaction in life (Vella-Brodrick, Park, & Peterson, 2009). This relationship may be explained by the spillover effect between personal and professional life (O'Driscoll, 1996). Rich, Lepine and Crawford (2010) also found that perceived organisational support relates to work engagement, while a study by Farmer and Aguinis (2005) indicates a relationship between low quality LMX and low work engagement. In the present study it is hypothesised that supervisor behaviours can indirectly predict subordinate work engagement. LMX is expected to mediate the relationships.

Hypothesis 1: LMX will mediate the relationship between:

- 1a. tolerance of freedom and engagement;
- 1b. integration and engagement;
- 1c. consideration and engagement;
- 1d. initiating structure and engagement;
- 1e. perceived supervisor support and engagement.

Organisational Citizenship Behaviour

Organisational citizenship behaviour (OCB) is a construct that describes the extra role behaviours of workers. This involves anything someone does to contribute to aspects of the organisation or in assistance of co-workers, which does not fall within the confines of one's job description (role), and is usually not explicitly recognised by a reward system (Organ, 1988; 1997). In other words OCB describes any extra-role behaviour within the employment context that is pro-social (Werner, 2000). OCB can be task-related behaviour, like helping a co-worker catch up with work after having been away, but can also be non-task, like attempting to resolve conflict in order to enhance climate (Dalal, 2007; Motowildo & Van Scotter, 1994). OCBs are generally viewed as being virtually always beneficial to the organisation and, in many cases, invaluable to a functional workplace (Nielsen, Hrivnak, & Shaw, 2009). Williams and Anderson (1991) made the distinction between citizenship behaviours directed at the organisation as a whole (OCBO) and citizenship behaviours directed at benefiting any particular member (OCBI).

Nonetheless, in line with Williams and Anderson (1991), in this study OCBI and OCBO will be studied as distinct constructs. Organ and Ryan (1995) have argued that, although job satisfaction seems to be the single best predictor of OCBs, perceived support was also found to be a relevant determining factor. Indeed, more recent research

by Djibo, et al. (2010) showed that perceived supervisor behaviour can predict increased contextual performance in subordinate employees. In addition to this Yun et al. (2007) found that both leadership and satisfaction were related to OCBs. Settoon, et al. (1996) have found that the quality of the LMX relationship can help predict OCB in subordinates. This finding has been replicated in a study by Zhong, Lam and Chen (2011), who found the ‘empowerment’ dimension of leadership to mediate the relationship between LMX and OCBs. Finally, Illies, Nahrgang and Morgeson (2007) have shown a strong relationship between LMX and OCBI and OCBO. As indicated in past research it is expected that supervisor behaviour will positively relate to OCBI and OCBO, and that LMX will mediate this relationship.

Hypothesis 2: LMX will mediate the relationship between:

- 2a. tolerance of freedom and organisational targeted organisational citizenship behaviour;
- 2b. integration and organisational targeted organisational citizenship behaviour;
- 2c. consideration and organisational targeted organisational citizenship behaviour;
- 2d. initiating structure and organisational targeted organisational citizenship behaviour;
- 2e. perceived supervisor support and organisational targeted organisational citizenship behaviour.

Hypothesis 3: LMX will mediate the relationship between:

- 3a. tolerance of freedom and individual targeted organisational citizenship behaviour;
- 3b. integration and individual targeted organisational citizenship behaviour;

- 3c. consideration and individual targeted organisational citizenship behaviour;
- 3d. initiating structure and individual targeted organisational citizenship behaviour;
- 3e. perceived supervisor support and individual targeted organisational citizenship behaviour.

Intrinsic Motivation

Motivation is a drive that promotes, alters or increases a particular (set of) behaviour(s) to achieve goals. Green (1995) defined motivation as the initiation, direction and intensity of human behaviour. Intrinsic motivation, specifically, was developed as a concept from self-determination theory (SDT) (Ambrose & Kulik 1999). SDT suggests that people can be motivated to engage in an activity without being prompted by external stimuli or influences (Deci, 1971). Intrinsic motivation has been described by Warr, Cook and Wall (1979) as the degree to which a person is “driven to perform in his or her job in order to derive intrinsic satisfaction” (p. 133). Ryan (1995) added that intrinsic motivation is distinct from extrinsic motivation by virtue of intrinsic motivation being self-driven, whereas extrinsic motivation can be traced to a variable external to the activity or behaviour itself.

It has been argued that intrinsic motivation may be explained by three psychological ‘needs’: a need to relate (kinship), a need for independence (autonomy) and a need to exert competence (Deci & Vansteenkiste, 2007). However, the causal link between intrinsic motivation and job performance has been found to be relatively weak (Rich et al., 2010). A study by Ferner, Guay and Senecal (2004) indicated that, as job demands increase, intrinsic motivation becomes much more relevant in coping with said demands, which is characterized by maintaining performance while avoiding burnout. Furthermore, high intrinsic motivation has been associated with increased job

involvement and satisfaction (Warr et al. 1979). A higher quality LMX relationship is expected to enable, or stimulate subordinates' internal drive to excel in their job for its own sake.

Hypothesis 4: LMX will mediate the relationship between:

- 4a. tolerance of freedom and intrinsic motivation;
- 4b. integration and intrinsic motivation;
- 4c. consideration and intrinsic motivation;
- 4d. initiating structure and intrinsic motivation;
- 4e. perceived supervisor support and intrinsic motivation.

Affective Organisational Commitment

Organisational commitment involves the strength of motivation of an employee to remain in an organisation, and may include the acceptance of its goals and a willingness to extend oneself for the organisation (Mowday, Steers & Porter, 1979). Bateman and Strasser (1984) defined organisational commitment as being “multidimensional in nature, involving an employee's loyalty to the organization, willingness to exert effort on behalf of the organization, degree of goal and value congruency with the organization, and desire to maintain membership” (p. 95). Affective organisational commitment is a particular type of commitment characterised by a positive emotional attachment to the organisation, where the employee is committed to the organisation because they desire to be (Meyer & Allen, 1991; 1993). The issue of wanting to be committed is the key distinguishing factor between affective and other forms of organisational commitment.

The other forms of commitment include continuance and normative commitment, describing ‘need,’ and ‘ought’ as motivations to commit, respectively. Meyer and Allen

(1997) have argued that affective organisational commitment is the most desirable form of commitment as it can be seen as relating to job performance. Furthermore, Meyer and Allen (1997) found that employees' affective organisational commitment relates to the quality of the work relationship with their manager. Djibo, Desiderio and Price (2010) indicated that supervisory support and perceived leadership ability related positively to affective organisational commitment. It is therefore expected that the leadership behaviours of the supervisor will be positively related to the level of affective organisational commitment of subordinates. This relationship is expected to be mediated by LMX.

Hypothesis 5: LMX will mediate the relationship between:

- 5a. tolerance of freedom and affective organisational commitment;
- 5b. integration and affective organisational commitment;
- 5c. consideration and affective organisational commitment;
- 5d. initiating structure and affective organisational commitment;
- 5e. perceived supervisor support and affective organisational commitment.

Team Commitment

A team is frequently described as a group of people brought together through a common purpose. At some stage in one's career, many people are part of a team, whether formally or otherwise. One's attitude toward teamwork, including involvement and cooperation with the team as well as the acceptance of one's role within the team, is a likely indication of cohesion and the synergistic benefits teamwork is purported to have (Bianey, Ulloa & Adams, 2004). Seibert, Sparrowe and Liden (2003) have argued that quality leader-member exchange relationship is vital to the effective functioning of teams. Furthermore, the supervisor's exchange relationships with team members may be

facilitative or impeding, depending on the consistency of high-quality LMX exchange relationships with members. Seibert et al. (2003) did not mention the potential bearing of supervisory behaviour, though a study by Barrasa (2006) did present findings indicating a relationship between ‘integrating’ leadership behaviour and team performance and climate. In addition to this, Schaubroek et al. (2011) found that leaders can influence team performance and trust by their behaviour. Similarly Yun, Cox and Sims (2007) found that team leaders’ behaviour could predict citizenship behaviour within teams, and citizenship behaviour is closely associated with commitment (Van Scotter, 2000). It is hypothesised that supervisor behaviour indirectly influences members’ commitment to the team they are part of, and that LMX will mediate this relationship.

Hypothesis 6: LMX will mediate the relationship between:

- 6a. tolerance of freedom and team commitment;
- 6b. integration and team commitment;
- 6c. consideration and team commitment;
- 6d. initiating structure and team commitment;
- 6e. perceived supervisor support and team commitment.

Job Autonomy

Job autonomy (refer to Figure 2, p. 6) was defined by Hackman and Oldham (1976) as “the degree to which the job provides substantial freedom, independence, and discretion to the individual in scheduling the work and in determining the procedures to be used in carrying it out” (p. 258). Autonomy is considered to be a measure of actual or perceived control over efforts, initiatives, and decisions concerning the way in which tasks and duties are carried out (Hackman & Oldham, 1976). According to an analysis

by Bowie (1998), workers' discretion to exercise autonomy and independence is an important characteristic of meaningful work. This notion seems to find support in findings by Sousa-Poza and Sousa-Poza (2000), which indicated that workers typically rank job autonomy among the most important factors in a job. Akin to issues such as support and direction (PSS), the immediate supervisor largely determines the independence and autonomy of subordinate employees. Though some positions have a higher level of job autonomy than others, in most jobs (perceived) autonomy and the level of monitoring and control, are largely at the discretion of the immediate supervisor.

Grawich (2006) argued that ensuring job autonomy is a healthy workplace practice, because it is a key component of involvement and psychological ownership. It should be noted that job autonomy is regarded as a measure of the perceived degree of trust the supervisor has in the subordinate (Sgro, Worchel & Pence et al., 1980). It stands to reason that feeling trusted by one's supervisor is an important aspect of one's work experience. This notion finds support in two studies, which indicated that the supervisor's tolerance of subordinate freedom of action is regarded as highly important to subordinate employees (Littrell, 2002; Lucas, Messner, Ryan & Sturm, 1992). Job autonomy has also been found to be related to job satisfaction and involvement, according to findings by Bradly, Taylor and Nguyen (2003).

According to a study by Morgeson, Delaney-Kliner, and Hemingway (2005), the extrinsic advantages related to autonomy, such as job performance, indicate that the relevance of job autonomy appears to be substantial to both individual and organisational outcomes. Only tolerance of freedom is expected to relate to job autonomy because this supervisor behaviour in particular refers to the degree to which a supervisor allows subordinates room for independence in their work. It is expected that supervisors' tolerance of freedom will be related to the perceived job autonomy of subordinates. Given the importance of job autonomy (Sousa-Poza & Sousa-Poza, 2000),

it is proposed that job autonomy will act as a mediator between tolerance of freedom and the six subordinate outcomes.

Hypothesis 7: Job autonomy will mediate the relationship between tolerance of freedom and:

- 7a. work engagement;
- 7b. organisation targeted organisational citizenship behaviour;
- 7c. individual targeted organisational citizenship behaviour;
- 7d. intrinsic motivation;
- 7e. affective organisational commitment;
- 7f. team commitment.

Role Ambiguity

Role ambiguity (refer to Figure 3, p. 7) describes a lack of clarity and vagueness about the expectations for a worker's job. Duties, objectives and boundaries are left ill-defined, which is associated with strain and workplace conflict. Role ambiguity has also been described as "the degree of uncertainty which personnel have to contend with in their work environment" (O'Driscoll & Beehr, 1994, p. 142). The relationships between role ambiguity and role conflict, and work-related strain have been fairly well established in the literature (Beehr, 1995; Quah & Campbell, 1994). Role ambiguity and conflict have been strongly associated with negative outcomes for individual workers (Beehr & Glazer 2005). Role strain in turn has been associated with lower satisfaction, commitment, creativity and performance (Jackson & Schuler, 1985; Johnston, Parasuraman, Futrell, & Black, 1990; Tang & Chang, 2010). The relevance and role of the supervisor determining work norms, boundaries and indeed 'structure' have been noted by House and Mitchell (1974). O'Driscoll and Beehr (1994) found that supervisor

behaviours (including initiating structure) negatively related to role ambiguity, which, in turn, related to strain and job satisfaction.

In line with this model, it is hypothesised that the supervisor behaviour 'initiating structure' will be a predictor of reduced role ambiguity. Tolerance of freedom is expected to relate to role ambiguity because this supervisor behaviour in particular refers to the degree to which a supervisor implements organisation and defines roles in the workplace. It is expected that initiating structure will indicate whether the supervisor has the capacity to assist in reducing the role ambiguity of subordinates. Role ambiguity is thought to act as a mediator between relationship of 'initiating structure' and the six subordinate behaviours and attitudes. In this case higher initiating structure is expected to reduce role ambiguity and lower role ambiguity is predicted to be associated with higher subordinate work outcomes.

Hypothesis 8: Role ambiguity will mediate the relationship between initiating structure and:

- 8a. work engagement;
- 8b. organisation targeted organisational citizenship behaviour;
- 8c. individual targeted organisational citizenship behaviour;
- 8d. intrinsic motivation;
- 8e. affective organisational commitment;
- 8f. team commitment.

In summary, three mediated models with different paths have been presented describing the ways in which supervisor behaviour is expected to be indirectly related to the work experience and outcomes of subordinates. The methodology applied to measure the variables and test these relationships is outlined in Chapter 2.

Summary of Hypotheses

Hypothesis 1: LMX will mediate the relationship between:

- 1a. tolerance of freedom and engagement;
- 1b. integration and engagement;
- 1c. consideration and engagement;
- 1d. initiating structure and engagement;
- 1e. perceived supervisor support and engagement.

Hypothesis 2: LMX will mediate the relationship between:

- 2a. tolerance of freedom and organisational targeted organisational citizenship behaviour;
- 2b. integration and organisational targeted organisational citizenship behaviour;
- 2c. consideration and organisational targeted organisational citizenship behaviour;
- 2d. initiating structure and organisational targeted organisational citizenship behaviour;
- 2e. perceived supervisor support and organisational targeted organisational citizenship behaviour.

Hypothesis 3: LMX will mediate the relationship between:

- 3a. tolerance of freedom and individual targeted organisational citizenship behaviour;
- 3b. integration and individual targeted organisational citizenship behaviour;
- 3c. consideration and individual targeted organisational citizenship behaviour;

- 3d. initiating structure and individual targeted organisational citizenship behaviour;
- 3e. perceived supervisor support and individual targeted organisational citizenship behaviour.

Hypothesis 4: LMX will mediate the relationship between:

- 4a. tolerance of freedom and intrinsic motivation;
- 4b. integration and intrinsic motivation;
- 4c. consideration and intrinsic motivation;
- 4d. initiating structure and intrinsic motivation;
- 4e. perceived supervisor support and intrinsic motivation.

Hypothesis 5: LMX will mediate the relationship between:

- 5a. tolerance of freedom and affective organisational commitment;
- 5b. integration and affective organisational commitment;
- 5c. consideration and affective organisational commitment;
- 5d. initiating structure and affective organisational commitment;
- 5e. perceived supervisor support and affective organisational commitment.

Hypothesis 6: LMX will mediate the relationship between:

- 6a. tolerance of freedom and team commitment;
- 6b. integration and team commitment;
- 6c. consideration and team commitment;
- 6d. initiating structure and team commitment;
- 6e. perceived supervisor support and team commitment.

Hypothesis 7: Job autonomy will mediate the relationship between tolerance of freedom and:

- 7a. work engagement;
- 7b. organisation targeted organisational citizenship behaviour;
- 7c. individual targeted organisational citizenship behaviour;
- 7d. intrinsic motivation;
- 7e. affective organisational commitment;
- 7f. team commitment.

Hypothesis 8: Role ambiguity will mediate the relationship between the tolerance of freedom and:

- 8a. work engagement;
- 8b. organisation targeted organisational citizenship behaviour;
- 8c. individual targeted organisational citizenship behaviour;
- 8d. intrinsic motivation;
- 8e. affective organisational commitment;
- 8f. team commitment.

CHAPTER 2

METHOD

Participants

The participants in this study were largely drawn from three organisations. One organisation operated in the field of regional government ($n = 67$), and two organisations in the industries of social support and health services ($n = 87$). A number of participants were also drawn from the general New Zealand working population by means of the online service 'Get Participants' ($n = 32$) and were employed in a variety of industries. Several respondents ($n = 101$) did not indicate which organisation they worked for. In total 287 questionnaires were submitted, 72 of which had less than 50% of items completed and were not included in the final sample for analysis. Approximately 950 invitations to participate in the study were distributed to the employees of the three participating organisations of which a total of 255 were returned, representing a response rate of 26.8%. The final sample consisted of $N = 215$ participants.

A demographic analysis of the sample indicated that 71.2% of participants were female. This represents the approximate 2:3 male to female ratio of employees reported by two of the participating organisations. Respondents' ages ranged from 19 to 69, with an average age of 44 ($SD = 12.26$). The distribution of respondents' ethnicity was as follows: 72.5% of the participants identified as being of New Zealand European descent, 10% as New Zealand Māori, 9% of other European descent, and the remaining 8.5% comprised all other ethnicities (including Asian and Pacific peoples). Participants had been with their current employer between 1 month and 30.2 years, with a mean of 5.6 years ($SD = 5.82$), and in their current job for 3.8 years on average ($SD = 4.6$).

Respondents' annual wage was distributed as follows: <\$25,000 13.9%, \$25,001-\$40,000 28.7%, \$40,001-\$60,000 31.7%, \$60,001-\$80,000 14.4%,

and >\$80,000 11.4%. At 49.8% approximately half of the respondents identified as supervising others in some capacity. However, the majority of respondents regarded their position as ‘non-manager’ or ‘non-supervisor’, at 66%, while 19.7% described their position as ‘first line supervisor’, 8.9% as ‘middle manager’, and 5.4% as ‘senior manager’. All respondents indicated that they themselves reported to a supervisor.

Procedure

This research received ethical approval from The School of Psychology Research and Ethics Committee at The University of Waikato (Appendix C, p. 95). In order to recruit participants for this study, several organisations were approached by letter, and were extended the offer to be a part of this study (Appendices D, E, p. 96-98). Additionally, a proportion of participants (14.8%) was recruited through the online service ‘Get Participants’. Information (Appendix A, p. 85-86) about this study was made available to the members who met the requirement of being currently employed; these members could then apply to participate in this study. The online questionnaire (Appendix B, p. 87-94) used for the current research was pre-tested by a sample of volunteers ($N = 3$) prior to distribution.

Potential participants from participating organisations were recruited by means of an email invitation to participate in the study (Appendix F, p. 99). These emails were sent out by a representative of the participating organisations. The questionnaire was hosted online and accessible to participants via a hyperlink provided in the email invitation. Members from the Get Participants community received access to a hyperlink redirecting them to the survey upon application. An information sheet was provided to participants when the link was accessed (Appendix A, p. 85-86).

The respondents from the three participating organisations were provided a summary of the study’s findings via an email sent out by representatives of the

organisations. However, since this study guaranteed anonymity to all participants, the participants recruited through ‘Get Participants’ could not receive this information by the same means. These participants were given the opportunity to receive information about the study’s findings by sending a request for a summary to a provided contact email address. Two participants made this request.

Measures

The questionnaire recorded demographics and measured participants’ perceptions of their supervisors’ behaviour and support. In addition to this, participants’ perceptions of their own job autonomy, ambiguity, and LMX relationship were assessed. Furthermore participants’ level of work engagement, affective organisational commitment, intrinsic motivation, citizenship behaviour, and team commitment were measured.

Supervisor Behaviour

Perceived supervisor behaviour was measured using Form XII of Stogdill’s (1962b) Leader Behaviour Descriptive Questionnaire. ‘Leadership behaviour’ is defined as a description of specific types of behaviour of a supervisor (Stogdill, 1962a). The LBDQ was constructed as a tool to map the overall variance observed in supervisor behaviour and proficiency (Stogdill, 1974). Based on the theoretical models, four of the subscales from the LBDQ were included in this study (refer to p. 6, 7 for a description). These were Tolerance of Member Freedom of Action (Appendix B, A11-A20, p. 88), Integration (Appendix B, A31-A35, p. 89), Consideration (Appendix B, A21-A30, p. 88-89), and Initiating Structure (Appendix B, A1-A10, p88). The items were all scored using a 5-point frequency scale on which participants were asked to rate how often their supervisor would engage in actions (1 = *Never* – 5 = *Always*). The LBDQ used 5 items

to measure integration, while the remaining three subscales (tolerance of freedom, consideration and initiating structure) were all measured on 10 items each. Four of these items were negatively-keyed (A17, A26, A29, A30) and were recoded by inverting the scores after all the data were in. Stogdill's (1962b) reliability analyses of these scales returned coefficients ranging between .58 and .86 for Tolerance of Freedom, .73 to .79 for Integration, .38 to .87 for Consideration and .64 to .80 for Initiating Structure. Cronbach's alpha coefficients of reliability of .93 for Tolerance of Freedom, .93 for Integration, .93 for Consideration, and .86 for Initiating Structure were obtained in the present study.

Perceived Supervisor Support

The measurement of perceived supervisor support was based on Eisenberger et al.'s (1986) eight-item scale of perceived organisational support (SPOS-8). Following Eisenberger et al.'s (2002) recommendation, the items were modified to say "supervisor" rather than "organisation." For example "The organisation values my contribution" from SPOS-8 (1986) was altered to read "My supervisor values my contribution." PSS was measured using 8 items on a 7-point Likert-type scale (1 = *Strongly Disagree* – 7 = *Strongly Agree*) (Appendix B, D8-D15, p. 92). Four out of eight of the items measuring PSS were negatively keyed and recoded accordingly prior to analysis. Previous reliability analyses of this scale returned Cronbach's alpha coefficients between .74 and .95 (Eisenberger et al. 1990). A Cronbach's alpha coefficient of .94 was obtained for PSS in the present study.

Leader-Member Exchange

Participants' perceptions of the quality of LMX relationship with supervisors were measured using Graen and Uhl-Bien's (1995) seven-item leader-member exchange

scale (LMX-7). LMX is an assessment of the working relationship between supervisors and subordinates, measuring “trust, respect and mutual obligation” resulting from “assessments of each other in terms of their professional capabilities and behaviours” (Graen & Uhl-Bien, 1995, p. 237-238). This measure was rated on a 5-point response scale (Appendix B, D1-D7, p. 91-92). Previous research has obtained Cronbach’s alpha coefficients between .80 and .97 (Graen, Hui & Taylor, 2006; Graen & Uhl-Bien, 1995). A Cronbach’s alpha coefficient of .93 was obtained for LMX in the present study.

Work Engagement

The three-item Utrecht work engagement scale (UWES-3) was used to measure participants’ on-going “work-related state of mind that is characterized by vigor, dedication, and absorption” (Schaufeli & Bakker, 2003, p. 4). The UWES-3 is scored according to a 7-point frequency scale (1 = *Never* – 7 = *Everyday*) (Appendix B, E1-E3, 93). Previous research has obtained alpha coefficients between .80 and .90 (Schaufeli & Bakker, 2003). A Cronbach’s alpha coefficient of .92 was obtained for work engagement in the present study.

Organisational Citizenship Behaviour

Following the trend in the literature to separate citizenship behaviour directed at the individual (OCBI) from that directed at the organisation (OCBO) (Coleman & Borman, 2000), this study adopted measurement scales by Lee and Allen (2002). Having taken measurement issues into consideration, Lee and Allen (2002) developed a measurement tool based on several earlier scales (i.e. Farh, Podsakoff, & Organ, 1990; Smith, Organ, & Near, 1983; Williams & Anderson, 1991). Both OCBI (Appendix B, C15-22) and OCBO (Appendix B, C-23-C30, p. 91) scales comprised eight items each (16 in total). The items were rated on a 7-point frequency scale on which participants

were asked to rate how often they would typically engage in specific behaviour along a continuum (1 = *Never* – 7 = *Always*). A study by Gilbert, Laschinger and Leiter (2010) obtained Cronbach's alpha coefficients of .77 for OCBI and .81 for OCBO. Cronbach's alpha coefficients of .88 for OCBI, and .89 for OCBO were obtained in the present study.

Intrinsic Motivation

Participants' degree of motivation derived from and applied to engaging in the work itself was measured using Warr et al.'s (1979) intrinsic motivation scale. The six items for this measure were scored on a 7-point Likert-type scale (1 = *Strongly Disagree* – 7 = *Strongly Agree*) (Appendix B, E4-9). Warr et al. (1979) obtained a reliability coefficient of .82. A Cronbach's alpha coefficient of .76 was obtained for intrinsic motivation in the present study.

Affective Organisational Commitment

Affective organisational commitment was measured using a revision of the affective organisational commitment scale (AOCS) (Allen & Meyer, 1990; Meyer & Allen, 1997; Meyer, Allen & Smith, 1993) by Vandenberghe and Bentein (2009). The affective organisational commitment scale used in this study consisted of six items; two of these were reverse-scored (Appendix B, C9-C14, p. 90-91). The items were measured using a 6-point Likert-type scale (1 = *Strongly Disagree* – 6 = *Strongly Agree*). Vandenberghe and Bentein (2009) obtained Cronbach's alpha reliability coefficients between .81 and .83. A Cronbach's alpha coefficient of .85 was obtained for affective organisational commitment in the present study.

Team Commitment

Bishop and Scott's (2000) team commitment scale was used to assess participants' personal commitment to their work team. It was assumed that respondents would be part of a team in some capacity. The team commitment scale by Bishop and Scott (2000) measured 6 items rated on a 6-point Likert-type scale (1 = *Strongly Disagree* – 6 = *Strongly Agree*) (Appendix B, C1-C8, p. 90). Bishop and Scott (2000) obtained a reliability coefficient of .89 for team commitment. A Cronbach's alpha coefficient of .95 was obtained for team commitment in the present study.

Job Autonomy

In order to assess the degree of participants' perceived job autonomy Breugh's (1999) scales were adopted. Breugh (1999) tested and revised earlier autonomy scales by Breugh (1985) and Hackman and Oldham (1975). Breugh's (1985; 1999) scales measure autonomy in three facets, method (how work is done), scheduling (when work is done) and criteria (what work is done). Job autonomy was measured using 9 items (Appendix B, B1-B9, 89-90), rated on a 7-point Likert-type scale (*Disagree* – *Agree*). Breugh (1999) obtained a Cronbach's alpha coefficient of .87. A Cronbach's alpha coefficient of .91 was obtained for job autonomy in the present study.

Role Ambiguity

Rizzo, House and Litzman's (1970) role ambiguity scale was employed to measure participants' perceptions of role ambiguity. This scale has been widely used in research and has been noted in particular for high construct validity (House, Schuler, & Levanoni, 1983; Gonzalez-Roma & Lioret, 1998; Smith, Tisak & Schmider, 1993). This scale contains 6 items and is rated on a 7-point Likert-type scale (*Disagree* – *Agree*) (Appendix B, B10-B15, p90). Previous studies obtained Cronbach's alpha values

between .78 and .82 (Gonzalez-Roma & Lioret, 1998). A Cronbach's alpha coefficient of .90 was obtained for role ambiguity in the present study.

Factor analyses were run for all measures included in this study. The results of these analyses will be reported in Chapter 3.

Mediation Analysis

A mediation analysis tests for the indirect effect of a predictor variable on a criterion variable through a mediating variable. Figure 4, illustrates a comparison of a direct effect (A) and mediated effect (B) (Preacher & Hayes 2008, p 880). The indirect effect (X on Y through M) comprises a and b paths (ab) while controlling for the explained variance of c' (i.e. $c - c'$). In turn c' measures the remaining explained variance of X on Y while controlling for the variance explained by ab (i.e. $c - ab$).

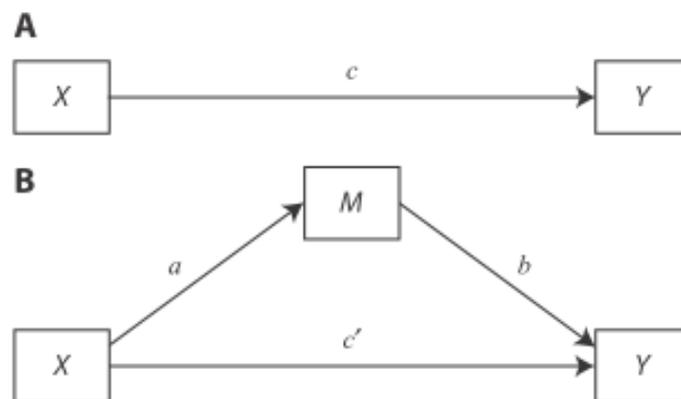


Figure 4. (A) Illustration of a direct effect. X affects Y. (B) Illustrates a mediated design. X is hypothesised to exert an indirect effect on Y through M (Preacher & Hayes, 2008, p. 880)

Baron and Kenny's (1986) causal steps method has been used extensively in research. It involves four regression analyses which can be followed by a Sobel test if several requirements are met. These steps (refer to Figure 4) are listed below:

1. Regress X on Y (c path must be significant).
2. Regress X on M (a path must be significant).
3. Regress X and M on Y, since both the predictor and the mediator may have a correlation with the criterion, the predictor must be controlled for (b path).
4. To establish complete mediation the effect of X on Y when controlling for M must be close to 0 (c' path). Step 3 and 4 are determined in the same equation (Kenny, 2011).

If steps 1, 2 and 3 are significant, but step 4 is insignificant, full mediation is said to have occurred. The ab path represents the indirect effect of the predictor on the criterion, while the c' path represents the direct effect (refer to Figure 4). If both direct and an indirect effects are reported (i.e. both steps 3 and 4 are significant) then partial mediation is said to have occurred. In either case, the ab path (indirect effect) + the c' path (direct effect) together form the total effect of the mediation model. It has been argued that only steps 2 and 3 are required to be significant, and that the requirements of step 1 (though not irrelevant) is not necessary, that is to say that there need not be a measureable direct effect between the IV and DV for mediation to be supported by a Sobel test.

It has been suggested that in the presence of a non-significant c path, the term 'indirect effect' ought to be used, rather than mediation (Preacher & Hayes, 2004). Recent publications deviated from this slightly, and several authors have advised that mediation analysis focus on measuring and reporting the indirect effect size to describe and interpret a mediated relationship. Indirect-effect-only mediation (absence of a significant c path) is sometimes alternatively referred to as 'inconsistent mediation' (MacKinnon, Fairchild & Fritz, 2007). However, 'full' and 'partial' mediation and 'indirect effect' all involve a mediated (indirect) relationship (MacKinnon et al. 2007; Preacher & Kelley, 2011, Rucker et al. 2011; 2008; Zhao et al, 2010).

Some authors have advised against the use of the causal steps approach to mediation testing because of some of the limitations, which include low power, a higher probability of Type-I errors and the lack of a measure for the indirect effect size (Bullock, Green, & Ha, 2008; Hayes 2009, Preacher & Hayes, 2004, 2008; Zhao et al, 2010). The Sobel test does not necessarily carry the same requirements for mediation and instead divides the *ab* coefficient for the indirect relationship (of the IV on the DV through M) by the standard errors of *a* and *b*. Preacher and Hayes' (2004) SPSS 19/20 macro "SOBEL" was used in the current study in order to estimate the significance of mediation and the magnitude of indirect effects. This method of mediation analysis has been recommended by Kenny (2011). Although similar, this method of mediation analysis is methodologically different from the Baron and Kenny's causal steps approach. Although this method still runs the same regressions as the causal steps approach, it does not use the causal steps approach to determine whether mediation is supported. Instead the Sobel test is used to measure the presence of an indirect effect, while the regression coefficients are used to assess whether the indirect effect involves partial or full mediation, and to calculate the magnitude of the indirect effect.

The magnitude of the indirect effect (*ab*-path) involves the size of the change in Y expected from a change in M for a change in X. According to Kenny (2011) the effect size of an indirect effect can be interpreted as rr or r^2 , since it is the combined product of two effects. This means that an indirect effect of .3 involves an expected proportional unit change of .3 in Y for a unit of change in X, indirectly through M (Preacher & Kelley, 2011). If both predictor and criterion are rated on the same scale (e.g. 1-5), 1 unit change in X is expected to produce .3 units of change in Y (through a change in M). Kenny (2011) suggested that the criteria for a small indirect effect size would be $>.01$, medium would be $>.09$ and large would be $>.25$.

CHAPTER 3

RESULTS

The results are introduced in the following order: (a) factor analyses, (b) descriptive statistics, (c) correlation matrix, (d) hypothesis testing. This chapter will also discuss various changes made to the theoretical models (refer to Figures 1-3, p. 6, 7) and the variables prior to the mediation analysis, based on the factor analyses carried out. A summary of the results will conclude this chapter.

Factor Analysis

Exploratory factor analyses were run using principal axis factoring for extraction with the direct oblimin (oblique) rotation method. Judgements about the factor structure and number of retained items and factors were based on the eigenvalue (must exceed 1.0), the shape of the scree plot, and the factor loadings on the pattern matrix. Bartlett's test of sphericity and the Kaiser-Meyer-Olkin measure of sampling adequacy (KMO-MSA) were used to determine appropriateness of carrying out each factor analysis. Bartlett's test estimates the homogeneity of variance between the items. If significant it can be assumed that the items included in the factor analysis meet the requirement of equality of variances.

The KMO-MSA value indicates whether the data can support the use of a factor analysis based on partial correlations. The KMO-MSA value will vary between 0 and 1; values above .6 indicate that the data support the use of a factor analysis. The factor analyses were run with cross-loading suppression set at .32 (or 10% shared variance), the recommended cut-off point by Costello and Osborne (2005). Primary loadings above .5 are considered to be strong (Costello & Osborne, 2005). It should be noted that the Cronbach's alpha coefficients were re-calculated following any changes to measures

based on factor analyses. All reliability coefficients remained $>.7$ and are reported in the descriptive statistics table (refer to Table 7, p 44).

Leader-Member Exchange, Integration, Consideration, and Perceived Supervisor Support

Leader-member exchange (LMX), integration, consideration, and perceived supervisor support (PSS), returned very high inter-correlations (ranging $r = .72$ to $.83$). To resolve the high inter-correlations an exploratory factor analysis was first conducted for LMX, PSS, and integration and consideration before conducting subsequent analyses. This would verify the integrity of the data and determine the factorial distinctiveness of these constructs.

This factor analysis (KMO-MSA = $.97$; Bartlett $p < .001$) revealed two factors. LMX and PSS items loaded on to factor 1 with an eigenvalue of 18.20 and 60.78% of variance explained. Consideration and integration items mostly loaded on to factor 2 with an eigenvalue of 1.64 and 5.48% of variance explained (Appendix G1, p. 100-101). However, consideration items 1, 6 and 9 produced problematic loadings. The factor analysis was run a second time after removing these items, which returned two factors with low cross-loadings (Appendix G2, p. 102-103)

The factor analysis indicated that PSS and LMX were one factor, and although a degree of overlap between the perceived supportiveness of the supervisor and the quality of the leader-member exchange relationship might be expected, these variables are conceptually distinct. Perceived supervisor support is a unidirectional measure of perceived supportiveness, while LMX measures the quality of the two-way relationship. Combining PSS and LMX was deemed problematic from a theoretical viewpoint. Because PSS could not be determined to be distinct from the mediator (LMX), it was decided to remove PSS from Model 1. A factor analysis for LMX was run, and revealed

one factor (KMO-MSA = .93; Bartlett $p < .001$), returning an eigenvalue of 5.02 with 71.82% of variance explained. The scree plot confirmed the retention of a single factor (Appendix G3, p. 103). All LMX items were retained.

Based on the factor loadings of the integration and consideration items, a decision also needed to be made to remove one or both of the constructs, or to combine the items under a single variable. Given the conceptual similarity of the predictors ‘consideration’ and ‘integration’, it was decided that there was a theoretical basis to retain the constructs as a unitary variable. For example consideration item 7 “Looks out for the personal welfare of group members” and integration item 5 “maintains a closely knit group” are not dissimilar, and as both assess the behaviour of a supervisor, these might be expected to be measuring the same underlying construct. Hence, consideration and integration were combined for further analyses

Leader Behaviour Descriptive Questionnaire

Two of the leader behaviour descriptive questionnaire (LBDQ) measures were entered in a previous analysis (above) to resolve the high inter-correlations. The factor analysis for LBDQ is on the shortened version. The factor analysis for LBDQ (consideration, integration, initiating structure and tolerance of freedom) initially returned 4 factors with eigenvalues greater than 1 (Appendix G4, p. 104-105). Integration and consideration still emerged as one factor, and loaded on to factor 1. Initiating structure (IS) largely loaded on to factor 2. However, initiating structure item 3 (IS3) loaded on to factor 4, while IS1, IS4, and IS9 showed high cross loadings and were consequently removed. Tolerance of freedom (TF) loaded on to factor 3, except for TF7, which was removed. The factor analysis was run for a second time after removing cross-loading items, and returned 3 factors (Appendix G5, p. 106-107). IS7 and TF3 both returned cross-loadings exceeding .32, so these were removed. The factor

analysis was run a third time, and returned three factors with high primary factor loadings and low cross-loadings (Appendix G6, p. 108). Integration and consideration loaded on to factor 1, returning an eigenvalue of 11.54 and 48.08% of variance explained. Initiating structure loaded on to factor 2, returning an eigenvalue of 2.93 and accounting for 12.19% of variance. Tolerance of freedom loaded on to factor 3, with an eigenvalue of 1.56 and 6.48% of variance explained. The scree plot confirmed the retention of three factors (Appendix G6, p. 109). The retained and removed items for the three final LBDQ measures are listed in tables 1-3.

Table 1

Consideration and Integration

Items retained

Cons2	Does little things to make it pleasant to be a member of the group
Cons3	Puts suggestions made by the group into operation
Cons4	Treats all group members as his/her equals
Cons5	Gives advance notice of changes
Cons7	Looks out for the personal welfare of group members
Cons8	Is willing to make changes
Cons10	Acts without consulting the group
Int1	Keeps the group working together as a team
Int2	Settles conflicts when they occur in the group
Int3	Sees to it that the work of the group is coordinated
Int4	Helps group members settle their differences
Int5	Maintains a closely knit group

Items removed

Cons1	Is friendly and approachable
Cons6	Keeps to himself/herself
Cons9	Refuses to explain his/her actions

Note. Cons = consideration; Int = integration.

Table 2

Initiating Structure

Items retained	
IS5	Decides what shall be done and how it shall be done
IS6	Assigns group members to particular tasks
IS8	Schedules the work to be done
IS10	Asks that group members follow standard rules and regulations
Items removed	
IS1	Lets group members know what is expected of them
IS2	Encourages the use of uniform (standardized) procedures
IS3	Tries out his/her ideas in the group
IS4	Makes his/her attitudes clear to the group
IS7	Makes sure that his/her part in the group is understood by the group members
IS9	Maintains definite standards of performance

Note. IS = initiating structure.

Table 3

Tolerance of Freedom

Items retained	
TF1	Allows the members complete freedom in their work
TF2	Permits the members to use their own judgment in solving problems
TF4	Lets the members do their work the way they think best
TF5	Assigns a task, then lets the members handle it
TF6	Turns the members loose on a job, and lets them go to it
TF8	Allows the group a high degree of initiative
TF9	Trusts members to exercise good judgment
TF10	Permits the group to set its own pace
Items removed	
TF3	Encourages initiative in the group members.
TF7	Is reluctant to allow the members any freedom of action.

Note. TF = tolerance of freedom.

Work Engagement

The factor analysis for work engagement confirmed the retention of a unitary construct (KMO-MSA = .73; Bartlett $p < .001$). A single factor was extracted for work engagement, returning an eigenvalue of 2.63 and 87.59% of variance explained. The scree plot confirmed the retention of a single factor (Appendix G7, p. 109). All items were retained.

Organisational Citizenship Behaviour

The factor analysis for organisational citizenship behaviour (OCB) confirmed the retention of a two distinct factors for OCBO and OCBI (KMO-MSA = .89; Bartlett $p < .001$). OCBO items loaded on to factor 1, returning an eigenvalue of 6.74 and 42.10% of variance explained. OCBI loaded on to factor 2 with an eigenvalue of 2.33 and 14.57% of variance explained (Appendix G8, p. 110). All items were retained (OCBI, 8; OCBO, 8).

Intrinsic Motivation

The factor analysis for intrinsic motivation revealed two factors with eigenvalues higher than 1 (Appendix G9, p. 111) (KMO-MSA = .77; Bartlett $p < .001$). The pattern matrix indicated that items 2 and 4 loaded on to factor 2, the scree plot confirmed two factors. Given the lack of a conceptual reason to split intrinsic motivation in to two factors, the decision was made to remove items 2 and 4 and to rerun the factor analysis (Appendix G10, p. 112). A single factor was extracted for intrinsic motivation, returning an eigenvalue of 2.49 and 62.20% of variance explained. The retained and removed items for intrinsic motivation are listed in Table 4.

Table 4

Intrinsic motivation

Items retained	
IM1	I feel a sense of personal satisfaction when I do this job well
IM3	I take pride in doing my job as well as I can
IM5	I like to look back on the day's work with a sense of a job well done
IM6	I try to think of ways of doing my job effectively
Items removed	
IM2	My opinion of myself goes down when I do this job badly
IM4	I feel unhappy when my work is not up to my usual standard

Note. IM = intrinsic motivation.

Affective Organisational Commitment

The factor analysis for affective organisational commitment (AOC) confirmed the retention of a unitary construct (KMO-MSA = .85; Bartlett $p < .001$). A single factor was extracted for AOC, returning an eigenvalue of 3.57 and 59.56% of variance explained (Appendix G11, p. 112). All items were retained.

Team Commitment

The factor analysis for team commitment confirmed the retention of a unitary construct (KMO-MSA = .94; Bartlett $p < .001$). A single factor was extracted for team commitment, returning an eigenvalue of 5.96 and 74.47% of variance explained (Appendix G12, p. 113). All items were retained.

Job Autonomy

The factor analysis for intrinsic motivation revealed two factors with eigenvalues higher than 1 (KMO-MSA = .88; Bartlett $p < .001$). The pattern matrix

indicated that method and scheduling autonomy items loaded on to factor 1, with high cross loadings for items 2 and 3 for method autonomy. Criteria autonomy loaded on to factor 2, the scree plot confirmed two factors (Appendix G13, p. 113-114). Given high cross-loadings of method autonomy items 2 and 3 these items were dropped and the factor analysis was re-run (Appendix G14, p. 114-115).

Factor 1 comprised scheduling and method autonomy, which describes the freedom to choose how (method) and when (scheduling) work is carried out with. Factor 1 returned an eigenvalue of 4.12 and 58.91% of explained variance. Criteria autonomy describes freedom to choose the type of work one engages in. The criteria autonomy items were retained as factor 2, with an eigenvalue of 1.12, and 15.94% of variance accounted for. The factor analysis indicated that freedom to choose how and when work is carried out is distinct from freedom to choose the type of work that is engaged in. The retained and removed items for the two job autonomy factors are listed in Tables 5 and 6.

Table 5

Scheduling and Method Autonomy

Items retained

SA1	I have control over the scheduling of my work
SA2	I have some control over the sequencing of my work activities (when I do what)
SA3	My job is such that I can decide when to do particular work activities
MA1	I am allowed to decide how to go about getting my job done (the methods to use)

Items removed

MA2	I am able to choose the way to go about my job (the procedures to utilize)
MA3	I am free to choose the method(s) to use in carrying out my work

Note. SA = scheduling autonomy; MA = method autonomy.

Table 6

Criteria Autonomy

Items retained

- | | |
|-----|--|
| CA1 | My job allows me to modify the normal way we are evaluated so that I can emphasize some aspects of my job and play down others |
| CA2 | I am able to modify what my job objectives are (what I am supposed to accomplish) |
| CA3 | I have some control over what I am supposed to accomplish (what my supervisor sees as my job objectives) |
-

Note. CA = criteria autonomy.

Role Ambiguity

The factor analysis for role ambiguity confirmed the retention of a unitary construct (KMO-MSA = .85; Bartlett $p < .001$). A single factor was extracted for role ambiguity, returning an eigenvalue of 3.99 and 66.51% of variance explained (Appendix G15, p. 115). All items were retained.

Descriptive Statistics

Table 7 presents the descriptive information for each of the measures included in the analysis after factor adjustments based on the results of the factor analyses. Table 7 shows the number of participants, mean, standard deviation, skew, kurtosis and Cronbach's alpha coefficient of reliability for each scale. Both skew and kurtosis were within acceptable levels (< 3) for all measures (Kline, 2005).

Note that the Cronbach's coefficients of reliability reported in this table in certain instances differ slightly from the original measures reported in the previous chapter as per adjustments based on the factor analyses (refer to Tables 1-6). Note also that the variable of perceived supervisor support has been removed from further analyses, while integration and consideration have been combined as a single construct,

and job autonomy has been split in to scheduling and method autonomy (SMA), and criteria autonomy (CA).

Table 7

Descriptive Statistics

Variable	Mean	SD	Skew	Kurtosis	Alpha
Tolerance of Freedom ^a	3.75	.76	-.90	.86	.92
Integration and Consideration ^a	3.58	.84	-.56	-.42	.96
Initiating Structure ^a	3.59	.75	-.18	-.07	.73
Leader-Member Exchange ^a	3.67	.97	-.76	-.17	.93
Engagement ^c	5.60	1.30	-1.40	1.75	.92
OCBO ^c	4.94	1.13	-.34	-.35	.89
OCBI ^c	5.40	.95	-.40	.04	.88
Intrinsic Motivation ^c	4.50	.53	-1.26	1.54	.79
Affective Org Commitment ^b	3.92	1.06	-.27	-.09	.85
Team Commitment ^b	4.15	1.20	-.60	-.19	.95
SM Autonomy ^c	5.51	1.13	-.77	-.21	.88
Criteria Autonomy ^c	4.48	1.42	-.36	-.52	.83
Role Ambiguity ^c	2.65	1.20	.93	.20	.90

Note. Affective Org Comitment = affective organisational commitment; SM Autonomy = scheduling and method autonomy; *M* = Mean; *SD* = Standard Deviation; Alpha = Cronbach's α coefficient of reliability. a = measured on a 5-point scale; b = measured on a 6-point scale; c = measured on a 7-point scale.

N = 208-215.

Correlations

Table 8 shows the Pearson product-moment correlation coefficients (Pearson's r) between all variables. Correlations between most variables were significant, and many correlations were moderately strong, exceeding $r = .32$. Initiating structure was related to the lowest number of variables (6 out of 12). The strongest correlation between two variables was for LMX with integration and consideration ($r = .83, p < .001$).

Table 8

Correlation Matrix

Construct	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. TF												
2. IN&CO	.68***											
3. IS	.02	.28***										
4. LMX	.70***	.83***	.21***									
5. WE	.39***	.35***	.15*	.43***								
6. OCBO	.24***	.29***	.07	.33***	.56***							
7. OCBI	.16*	.17*	.24**	.17*	.34***	.50***						
8. IM	.20**	.18*	.13	.24***	.41***	.56***	.32***					
9. AOC	.34***	.40***	.11	.40***	.53***	.65***	.29***	.41***				
10. TC	.63***	.61***	.14*	.68***	.55***	.43***	.37***	.31***	.57***			
11. SMA	.54***	.42***	-.11	.52***	.48***	.41***	.18**	.31***	.42***	.51***		
12. CA	.45***	.38***	-.07	.43***	.33***	.32***	.28***	.08	.33***	.42***	.58***	
13. RA	-.58***	-.62***	-.27***	-.65***	-.50***	-.35***	-.14*	-.28***	-.46***	-.60***	-.43***	-.34***

Note. TF = Tolerance and Freedom; IN&CO = integration and consideration; IS = initiating structure; LMX = leader-member exchange; WE = work engagement; OCBO = organisation targeted citizenship behaviour; OCBI = individual targeted citizenship behaviour; IM = intrinsic motivation; AOC = affective organisational commitment; TC = team commitment; SMA = scheduling and method autonomy; CA = criteria autonomy; RA = role ambiguity.

N = 208-215. * $p < .05$. ** $p < .01$. *** $p < .001$.

Hypothesis Testing

All hypotheses were tested with linear regressions and Sobel mediation analyses (Preacher & Hayes, 2004). Refer to pages 25-27 for a description of the methodology for analysis. The results for hypothesis testing will be broken down by theoretical model. Model 1 involved LMX as mediator, and is outlined in Figure 1 (p. 6). Model 2 involved job autonomy as mediator, and is outlined in Figure 2 (p. 6). Model 3 involved role ambiguity as mediator, and is outlined in Figure 3 (p. 7).

Model 1

Following the factor analyses some changes to the model were made. PSS was removed from the model altogether, while the predictor variables 'integration' and 'consideration' were combined into a unitary construct 'integration and consideration'. This meant that hypotheses 1-6 b and c were combined under the labels H1-6b. Hypotheses 1e through 6e (PSS) were removed from the model. The results tested for model 1 (refer to Figure 1, p. 6) are listed in Table 9.

Hypothesis 1

Hypothesis 1 involved the indirect effect of three supervisory behaviours on subordinate work engagement through the LMX relationship. The Sobel test confirmed that mediation had occurred for all three sub-hypotheses (Hypothesis 1 a, b, d). Hypothesis 1a stated that the effect of tolerance of freedom on work engagement would be mediated by LMX. While the *b* path (mediator to criterion, controlling for predictor) was significant ($\beta = .40$), the effect of TF on work engagement also remained significant ($\beta = .29$) when controlling for the indirect effect of LMX (Table H1 contains the results for this analysis, p. 116). This indicates that the indirect effect (.37) illustrates partial mediation, supporting Hypothesis 1a.

Table 9

Mediated Regression Equation Hypothesis Testing for Model 1

Hypothesis	Predictor	Mediator	Criterion	<i>Indirect Effect</i>	Z	<i>Mediation</i>
1a	Tolerance	LMX	Engagement	.35***	3.36	Partial
1b	Int&Cons			.52***	3.76	Full
1d	Initiating			.15**	2.69	Full
2a	Tolerance	LMX	OCBO	.33***	3.42	Full
2b	Int&Cons			.33**	2.66	Full
2d	Initiating			.10***	2.56	Indirect
3a	Tolerance	LMX	OCBI	.10	1.29	None
3b	Int&Cons			.11	1.01	None
3d	Initiating			.04	1.55	None
4a	Tolerance	LMX	Intr Motiv	.09*	2.02	Full
4b	Int&Cons			.14*	2.35	Full
4d	Initiating			.03*	2.12	Indirect
5a	Tolerance	LMX	Aff Org Com	.31***	3.58	Full
5b	Int&Cons			.24*	2.15	Full
5d	Initiating			.12**	2.70	Indirect
6a	Tolerance	LMX	Team Com	.51***	6.22	Partial
6b	Int&Cons			.63***	6.04	Full
6d	Initiating			.22**	2.96	Full

Note. Tolerance = tolerance of freedom; Int+Cons = Integration and consideration; Initiating = initiating structure; Intr Motiv = intrinsic motivation; Aff Org Com = affective organisational commitment. Z = Sobel test Z-score.

N = 208-215. * $p < .05$. ** $p < .01$. *** $p < .001$.

Hypothesis 1b stated that the effect of integration and consideration on work engagement would be mediated by LMX. The effect of integration and consideration on work engagement decreased from significant ($\beta = .50$) to insignificant when controlling for the indirect effect of LMX ($\beta = -.02$) (Table H2 contains the results for this analysis, p. 116). This indicates that the indirect effect (.52) indicates full mediation, supporting Hypothesis 1b.

Hypothesis 1d stated that the effect of initiating structure on work engagement would be mediated by LMX. The effect of initiating structure on work engagement decreased from significant ($\beta = .59$) to insignificant when controlling for the indirect effect of LMX ($\beta = .24$) (Table H3 contains the results for this analysis, p. 117). This indicates that the indirect effect (.34) involves full mediation, supporting Hypothesis 1d.

Hypothesis 2

Hypothesis 2 involved the indirect effect of three supervisory behaviours on subordinate OCBO through the LMX relationship. The Sobel test confirmed that mediation had occurred for all three sub-hypotheses (Hypothesis 2 a, b, d). Hypothesis 2a stated that the effect of tolerance of freedom on OCBO would be mediated by LMX. The effect of TF on OCBO decreased from significant ($\beta = .35$) to insignificant when controlling for the indirect effect of LMX ($\beta = .03$) (Table H4 contains the results for this analysis, p. 117). This indicates that the indirect effect (.33) involves full mediation, supporting Hypothesis 2a.

Hypothesis 2b stated that the effect of integration and consideration on OCBO would be mediated by LMX. The effect of integration and consideration on OCBO decreased from significant ($\beta = .36$) to insignificant when controlling for the indirect effect of LMX ($\beta = .03$) (Table H5 contains the results for this analysis, p. 117). This indicates that the indirect effect (.33) involves full mediation, supporting Hypothesis 2b.

Hypothesis 2d stated that the effect of initiating structure on OCBO would be mediated by LMX. The direct effect of initiating structure on OCBO was insignificant ($\beta = .13$) (Table H6 contains the results for this analysis, p. 118). However, the effect of initiating structure on LMX was significant ($\beta = .27$), as was the effect of LMX on OCBO when controlling for initiating structure ($\beta = .38$). The indirect effect was calculated to be significant (.10) thus involving inconsistent mediation. Following

recommendations by Rucker et al. (2011) and Zhao et al. (2010), the indirect effect (.10) supports Hypothesis 2d.

Hypothesis 3

Hypothesis 3 involved the indirect effect of three supervisory behaviours on subordinate OCBO through the LMX relationship. The Sobel test did not confirm that mediation had occurred for any of the three sub-hypotheses (Hypothesis 3 a, b, d) (Tables H7, H8, H9 contain the results for this analysis, p. 118-119). Hypothesis 3 was rejected; neither tolerance of freedom, nor consideration and integration, nor initiating structure had an indirect effect on OCBI through LMX. Hypothesis 3 was not supported.

Hypothesis 4

Hypothesis 4 involved the indirect effect of three supervisory behaviours on subordinate intrinsic motivation through the LMX relationship. The Sobel test confirmed that mediation had occurred for all three sub-hypotheses (Hypothesis 4 a, b, d). H4a stated that the effect of tolerance of freedom on intrinsic motivation would be mediated by LMX. The effect of TF on intrinsic motivation decreased from significant ($\beta = .13$) to insignificant when controlling for the indirect effect of LMX ($\beta = .04$) (Table H10 contains the results for this analysis, p. 119). This indicates that the indirect effect (.09) involves full mediation, supporting Hypothesis 4a.

H4b stated that the effect of integration and consideration on intrinsic motivation would be mediated by LMX. The effect of integration and consideration on intrinsic motivation decreased from significant ($\beta = .10$) to insignificant when controlling for the indirect effect of LMX ($\beta = -.04$) (Table H11 contains the results for this analysis, p. 119). This indicates that the indirect effect (.14) involves full mediation, supporting Hypothesis 4b.

Hypothesis 4d stated that the effect of initiating structure on intrinsic motivation would be mediated by LMX. The direct effect of initiating structure on intrinsic motivation was insignificant ($\beta = .13$) (Table H12 contains the results for this analysis, p. 120). However, the effect of initiating structure on LMX was significant ($\beta = .27$), as was the effect of LMX on intrinsic motivation when controlling for initiating structure ($\beta = .12$). Following recommendations by Rucker et al. (2011) and Zhao et al. (2010), the indirect effect (.03) supports Hypothesis 4d.

Hypothesis 5

Hypothesis 5 involved the indirect effect of three supervisory behaviours on subordinate affective organisational commitment through the LMX relationship. The Sobel test confirmed that mediation had occurred for all three sub-hypotheses (Hypothesis 5 a, b, d). Hypothesis 5a stated that the effect of tolerance of freedom on AOC would be mediated by LMX. The effect of TF on intrinsic motivation decreased from significant ($\beta = .46$) to insignificant when controlling for the indirect effect of LMX ($\beta = .16$) (Table H13 contains the results for this analysis, p. 120). This indicates that the indirect effect (.31) involves full mediation, supporting Hypothesis 5a.

Hypothesis 5b stated that the effect of integration and consideration on AOC would be mediated by LMX. The effect of integration and consideration on AOC decreased from significant ($\beta = .47$) to insignificant when controlling for the indirect effect of LMX ($\beta = .23$) (Table H14 contains the results for this analysis, p. 120). This indicates that the indirect effect (.24) indicates full mediation, supporting Hypothesis 5b.

Hypothesis 5d stated that the effect of initiating structure on AOC would be mediated by LMX. The direct effect of initiating structure on intrinsic motivation was insignificant ($\beta = .15$) (Table H15 contains the results for this analysis, p. 121). However the effect of initiating structure on LMX was significant ($\beta = .27$), as was the

effect of LMX on AOC when controlling for initiating structure ($\beta = .43$). Following recommendations by Rucker et al. (2011) and Zhao et al. (2010), the indirect effect (.12) supports Hypothesis 5d.

Hypothesis 6

Hypothesis 6 involved the indirect effect of three supervisory behaviours on subordinate work engagement through the LMX relationship. The Sobel test confirmed that mediation had occurred for all three sub-hypotheses (Hypothesis 6 a, b, d). Hypothesis 6a stated that the effect of tolerance of freedom on team commitment would be mediated by LMX. While the *b* path was significant ($\beta = .57$), the effect of TF on team commitment also remained significant ($\beta = .48$) when controlling for the indirect effect of LMX (Table H16 contains the results for this analysis, p. 121). This indicates that the indirect effect (.51) indicates partial mediation, supporting Hypothesis 6a.

Hypothesis 6b stated that the effect of integration and consideration on team commitment would be mediated by LMX. The effect of integration and consideration on team commitment decreased from significant ($\beta = .88$) to insignificant when controlling for the indirect effect of LMX ($\beta = .19$) (Table H17 contains the results for this analysis, p. 121). This indicates that the indirect effect (.63) indicates full mediation, supporting Hypothesis 6b.

Hypothesis 6d stated that the effect of initiating structure on team commitment would be mediated by LMX. The effect of initiating structure on team commitment decreased from significant ($\beta = .24$) to insignificant when controlling for the indirect effect of LMX ($\beta = .01$) (Table H18 contains the results for this analysis, p. 122). This indicates that the indirect effect (.22) involves full mediation, supporting Hypothesis 6d.

Model 2

The hypotheses tested for model 2 (refer to Figure 2, p. 6) are listed in Table 10. Note that hypothesis 7 has been split into two series of sub hypotheses to accommodate for the two distinct facets of job autonomy (refer to Table 5, p. 42). H7a-f(SMA) now involves scheduling and method autonomy as a mediator, while H7a-f(CA) involves criteria autonomy (freedom to choose the type of work to engage in).

Hypothesis 7

Hypothesis 7 involved the indirect effect of the supervisor behaviour ‘tolerance of freedom’ on subordinate work outcomes (work engagement, OCBO, OCBI, intrinsic motivation, AOC and TC) through subordinates’ perceived job autonomy.

Table 10

Mediated Regression Equation Hypothesis Testing for Model 2

Hypothesis	Predictor	Mediator	Criterion	Indirect Effect	Z	Mediation
7a(SMA)	Tolerance	SMA	Engagement	.34***	4.52	Partial
7b(SMA)			OCBO	.32***	4.63	Full
7c(SMA)			OCBI	.09	1.65	None
7d(SMA)			Intr Motiv	.11***	3.34	Full
7e(SMA)			AOC	.25***	4.08	Partial
7f(SMA)			TC	.20***	3.48	Partial
7a(CA)	Tolerance	CA	Engagement	.15*	2.49	Partial
7b(CA)			OCBO	.17**	3.18	Full
7c(CA)			OCBI	.18***	3.18	Full
7d(CA)			IM	-.01	-.19	None
7e(CA)			AOC	.14**	2.83	Partial
7f(CA)			TC	.12**	2.64	Partial

Note. Tolerance = tolerance of freedom; OCBO = organisation-directed citizenship behaviour; OCBI = individual-directed citizenship behaviour; SMA = scheduling and method autonomy; CA = criteria autonomy; Intr Motiv = intrinsic motivation AOC = affective organisational commitment; TC = team commitment. Z = Sobel test Z-score.

N = 208-215. * $p < .05$. ** $p < .01$. *** $p < .001$.

Hypothesis 7a(SMA) stated that the effect of tolerance of freedom on work engagement would be mediated by scheduling and method autonomy. While the *b* path was significant ($\beta = .44$), the effect of TF on work engagement also remained significant ($\beta = .30$) when controlling for the indirect effect of SMA (Table H19 contains the results for this analysis, p. 122). This indicates that the indirect effect (.34) involves partial mediation, supporting Hypothesis 7a(SMA).

Hypothesis 7b(SMA) stated that the effect of tolerance of freedom on OCBO would be mediated by scheduling and method autonomy. The effect of TF on OCBO decreased from significant ($\beta = .36$) to insignificant when controlling for the indirect effect of SMA ($\beta = .04$) (Table H20 contains the results for this analysis, p. 122). This indicates that the indirect effect (.32) involves full mediation, supporting Hypothesis 7b(SMA).

Hypothesis 7c(SMA) stated that the effect of tolerance of freedom on OCBI would be mediated by scheduling and method autonomy. TF did not have an indirect effect on OCBI through SMA (Table H21 contains the results for this analysis, p. 123). Hypothesis 7c(SMA) was not supported.

Hypothesis 7d(SMA) stated that the effect of tolerance of freedom on intrinsic motivation would be mediated by SMA. The effect of TF on IM decreased from significant ($\beta = .13$) to insignificant when controlling for the indirect effect of SMA ($\beta = .03$) (Table H22 contains the results for this analysis, p. 123). This indicates that the indirect effect (.11) involves full mediation, supporting Hypothesis 7d(SMA).

Hypothesis 7e(SMA) stated that the effect of tolerance of freedom on affective organisational commitment would be mediated by scheduling and method autonomy. While the *b* path was significant ($\beta = .79$), the effect of TF on AOC also remained significant ($\beta = .22$) when controlling for the indirect effect of SMA (Table H23

contains the results for this analysis, p. 123). This indicates that the indirect effect (.25) involves partial mediation, supporting Hypothesis 7e(SMA).

Hypothesis 7f(SMA) stated that the effect of tolerance of freedom on team commitment would be mediated by scheduling and method autonomy. While the *b* path was significant ($\beta = .24$), the effect of TF on TC also remained significant ($\beta = .79$) when controlling for the indirect effect of SMA (Table H24 contains the results for this analysis, p. 124). This indicates that the indirect effect (.20) involves partial mediation, supporting Hypothesis 7f(SMA).

Hypothesis 7a(CA) stated that the effect of tolerance of freedom on work engagement would be mediated by criteria autonomy. While the *ab* path was significant ($\beta = .17$), the effect of TF on work engagement also remained significant ($\beta = .50$) when controlling for the indirect effect of CA (Table H25 contains the results for this analysis, p. 124). This indicates that the indirect effect (.15) involves partial mediation, supporting Hypothesis 7a(CA).

Hypothesis 7b(CA) stated that the effect of tolerance of freedom on OCBO would be mediated by criteria autonomy. The effect of TF on OCBO decreased from significant ($\beta = .36$) to insignificant when controlling for the indirect effect of CA ($\beta = .18$) (Table H26 contains the results for this analysis, p. 124). This indicates that the indirect effect (.17) involves full mediation, supporting Hypothesis 7b(CA).

Hypothesis 7c(CA) stated that the effect of tolerance of freedom on OCBI would be mediated by criteria autonomy. The effect of TF on OCBI decreased from significant ($\beta = .20$) to insignificant when controlling for the indirect effect of CA ($\beta = .05$) (Table H27 contains the results for this analysis, p. 125). This indicates that the indirect effect (.15) involves full mediation, supporting Hypothesis 7c(CA).

Hypothesis 7d(CA) stated that the effect of tolerance of freedom on intrinsic motivation would be mediated by criteria autonomy. TF did not have an indirect effect

on intrinsic motivation through CA (Table H28 contains the results for this analysis, p. 125). Hypothesis 7d(CA) was not supported.

Hypothesis 7e(CA) stated that the effect of tolerance of freedom on affective organisational commitment would be mediated by criteria autonomy. While the *b* path was significant ($\beta = .16$), the effect of TF on AOC also remained significant ($\beta = .33$) when controlling for the indirect effect of CA (Table H29 contains the results for this analysis, p. 125). This indicates that the indirect effect (.14) involves partial mediation, supporting Hypothesis 7e(CA).

Hypothesis 7f(CA) stated that the effect of tolerance of freedom on team commitment would be mediated by CA. While the *b* path was significant ($\beta = .14$), the effect of TF on TC also remained significant ($\beta = .87$) when controlling for the indirect effect of CA (Table H30 contains the results for this analysis, p. 126). This indicates that the indirect effect (.12) involves partial mediation, supporting Hypothesis 7f(CA).

Model 3

The hypotheses tested for model 3 (refer to Figure 3, p. 7) are listed in Table 11. Model 3 was tested as it appeared in Figure 3.

Hypothesis 8

Hypothesis 8 involved the indirect effect of the supervisor behaviour 'initiating structure' on subordinate work outcomes (work engagement, OCBO, OCBI, intrinsic motivation, AOC and TC) through subordinates' perceived role ambiguity. Since higher role ambiguity is expected to be associated with lower initiating structure and subordinate work outcomes, negative beta weights for equations 2 (*a* path) and 3 (*b* path) will support the hypothesis.

Table 11

Mediated Regression Equation Hypothesis Testing for Model 3

Hypothesis	Predictor	Mediator	Criterion	Indirect Effect	Z	Mediation
8a	Initiating	Role Amb	Engagement	.24***	5.30	Full
8b			OCBO	.14**	3.18	Indirect
8c			OCBI	.03	1.12	None
8d			IM	.05**	2.76	Indirect
8e			AOC	.18***	3.50	Indirect
8f			TC	.26***	3.74	Full

Note. Initiating = initiating structure; OCBO = organisation-directed citizenship behaviour; OCBI = individual-directed citizenship behaviour; Role Amb = role ambiguity. Intr Motiv = intrinsic motivation; AOC = affective organisational commitment; TC = team commitment. Z = Sobel test Z-score.

N = 208-215. * $p < .05$. ** $p < .01$. *** $p < .001$.

Hypothesis 8a stated that the effect of initiating structure on work engagement would be negatively mediated by role ambiguity. The effect of IS on work engagement decreased from significant ($\beta = .24$) to insignificant when controlling for the indirect effect of RA ($\beta = .01$) (Table H31 contains the results for this analysis, p. 126). The negative beta weights of a ($\beta = -.45$) and b ($\beta = -.53$) signify that the indirect effect (.24) indicates full mediation, supporting Hypothesis 8a.

Hypothesis 8b stated that the effect of initiating structure on OCBO would be negatively mediated by role ambiguity. The direct effect of initiating structure on OCBO was insignificant ($\beta = .10$) (Table H32 contains the results for this analysis, p. 126). However the effect of initiating structure on RA was significant ($\beta = -.43$), as was the effect of RA on OCBO when controlling for initiating structure ($\beta = -.34$). Following recommendations by Rucker et al. (2011) and Zhao et al. (2010), the indirect effect (.14) supports Hypothesis 8b.

Hypothesis 8c stated that the effect of initiating structure on OCBI would be negatively mediated by role ambiguity (Tables H33 contains the results for this analysis,

p. 127). IS did not have an indirect effect on OCBI through RA. Hypothesis 8c was **not** supported.

Hypothesis 8d stated that the effect of initiating structure on intrinsic motivation would be negatively mediated by role ambiguity. The direct effect of initiating structure on intrinsic motivation was insignificant ($\beta = .08$) (Table H34 contains the results for this analysis, p. 127). However, the effect of initiating structure on RA was significant ($\beta = -.45$), as was the effect of RA on IM when controlling for initiating structure ($\beta = -.11$). Following recommendations by Rucker et al. (2011) and Zhao et al. (2010), the indirect effect (.05) supports Hypothesis 8d.

Hypothesis 8e stated that the effect of initiating structure on affective organisational commitment would be negatively mediated by role ambiguity. The direct effect of initiating structure on AOC was insignificant ($\beta = .16$) (Table H35 contains the results for this analysis, p. 127). However the effect of initiating structure on RA was significant ($\beta = -.43$), as was the effect of RA on AOC when controlling for initiating structure ($\beta = -.41$). Following recommendations by Rucker et al. (2011) and Zhao et al. (2010), the indirect effect (.18) supports Hypothesis 8e.

Hypothesis 8f stated that the effect of initiating structure on team commitment would be negatively mediated by role ambiguity. The effect of IS on TC decreased from significant ($\beta = .22$) to insignificant when controlling for the indirect effect of RA ($\beta = .01$) (Table H36 contains the results for this analysis, p. 128). The negative beta weights of a ($\beta = -.43$) and b ($\beta = -.61$) signify that the indirect effect (.26) indicates full mediation, supporting Hypothesis 8e.

Summary of Results

Table 2 showed consistently strong correlations between the variables tested in this study, though initiating structure is a notable exception in this regard. The

mediation analyses were mostly significant, including those for initiating structure. Initiating structure more often than not involved inconsistent mediation, being only indirectly (through the mediator) related to the criterion variables with no significant direct relationship. LMX emerged as the strongest mediator, showing very strong associations in certain instances (β between .70 and .99).

Model 1 included LMX as mediator. All mediation hypotheses were supported except for Hypotheses 3a, b, and c. OCBI was the only subordinate outcome which could not be predicted by any of the predictors. In two sub-hypotheses (1a and 6a) a ‘partial’ mediated relationship was found, where the c' path remained significant alongside a significant ab path. In these cases tolerance of freedom retained a significant effect on work engagement, and on team commitment, respectively, when controlling for the effect of the mediator, LMX. In other instances no direct effect between the predictor initiating structure and the criterion was attained. In these cases an indirect effect was obtained.

Model 2 included job autonomy as mediator, was less consistently supported and returned many partially mediated relationships. Some notable differences were observed between the two individual job autonomy mediators, reinforcing the distinctiveness of the two autonomy measures. Criteria autonomy was the only significant mediator between a predictor (tolerance of freedom in this case) and OCBI. Conversely, criteria autonomy was the only variable not able to mediate the relationship between a predictor and intrinsic motivation. Only two sub hypotheses were rejected, Hypothesis 7b(SMA) and Hypothesis 7d(CA).

Model 3 included role ambiguity as mediator. All sub-hypotheses were supported and mediation was observed in all cases except for OCBI. Hypothesis 8b was the only sub-hypothesis for model 3 which was rejected. Many significant indirect effects were returned in the absence of a direct effect of initiating structure and the

criterion variables. These findings and resulting implications will be discussed in more detail in the following chapter.

CHAPTER 4

DISCUSSION

The purpose of this study was to assess the relationship between a supervisor's behaviour and the work experience of subordinate employees. Specifically, the relationship between supervisor behaviour (as perceived by the subordinate) and subordinate work attitudes and behaviour was measured. This relationship was predicted to be indirect and mediated by the LMX relationship between the supervisor and subordinate. Although a causal link cannot be made, the findings suggest that there is a relationship between the behaviour of supervisors, the quality of the leader-member exchange relationship, and the work attitudes and behaviour of subordinate employees. The relationship between supervisor behaviour and subordinates' work attitudes and behaviour was also expected to be mediated by job autonomy and role ambiguity. The results indicated that these indirect relationships were similarly supported by the data. This chapter will discuss the main findings of the study, the practical implications of the findings, the strengths and limitations of the research, followed by suggestions for future research. Finally a conclusion will summarise the study and its results.

Main Findings

Previous research has indicated both the supervisor's behaviour and the quality of the LMX relationship with the supervisor have an impact on the work context, behaviour and attitudes of the subordinate (Eisenberger et al., 2002; O'Driscoll and Beehr, 1994; Walumbwa et al., 2011). The results of this study suggest the presence of a strong relationship between the behaviour of a supervisor and work-related outcomes of subordinates. The results presented in this study provide new evidence for the future development of an integrated (causal) model of LMX and supervisor behaviour to describe the way in which relationships between the supervisor and the subordinate

affect the work experience of subordinates. The results further indicate that supervisor behaviour was related to subordinates' job autonomy and role ambiguity, which were in turn associated with the subordinates' work-related attitudes and behaviour.

This study relied on mediation analysis to test the hypotheses. The means to determining mediation have been briefly discussed on pages 25-27. However, before discussing the results from the mediation tests, some context around the interpretation of a significant mediated relationship will be provided. It should be noted that although the results from mediation testing (See: Tables 8-10; p. 47, 52, 56) were presented using the terms 'full' and 'partial', if significant, this does not imply full or partial support for the hypothesis. While the results of the regression equations are useful information, the terms 'full' and 'partial' mediation might lead to the wrong interpretation according to Rucker et al. (2011).

Partial mediation merely involves residual explained variance of the predictor after accounting for the variance explained by the mediator. However, Zhao et al. (2010) argued that partial mediation may not at all involve a direct effect of x on y, as might be presumed, but rather the presence of an unaccounted for additional mediator. Although relevant, it may therefore not be helpful to focus on interpreting a mediated relationship in terms of whether it concerns full or partial mediation. Indeed a relationship involving full mediation may have a far weaker predictive effect than partial mediation (Rucker et al., 2011). Compare for example the results obtained for H1a and H1d, and H6a and H6d (refer to Table 9, p. 47). Following the recommendations of Rucker et al. (2011), rather than having a focus on partial or full mediation in discussing the results, the focus will be on "examining the magnitude of indirect effects" (p. 368).

Work Engagement

All three hypotheses predicting that the relationship between supervisor behaviour and work engagement would be mediated by LMX were confirmed. A very strong indirect effect was returned for integration and consideration. A strong effect was also returned for tolerance of freedom, and a medium effect for initiating structure. In the case of tolerance of freedom, LMX partially mediated the relationship, indicating that there was residual explained variance for tolerance of freedom not accounted for by LMX. Previous research found a relationship between the quality of the LMX relationship and work engagement.

The mediated relationships suggest that supervisor behaviour may help to determine the quality of the LMX relationship and additionally that workers' engagement can be predicted by the behaviour of supervisors. Scheduling and method as well as criteria autonomy partially mediated the relationship between tolerance of freedom and engagement, scheduling and method autonomy having a substantially larger indirect effect. Perhaps this is due to the fact that a freedom to determine the type of work that is engaged in is mainly relevant to fewer positions, and when it is relevant it may be intrinsically linked to the position. Scheduling and method had a higher mean and may be more relevant to how people experience their work – and how engaged they are. Freedom to choose how work is done may be associated with psychological 'ownership' of the job, which is related to work engagement (Ghafoor, Qureshi, Kahn, & Hijazi, 2011).

In addition, role ambiguity significantly mediated the relationship between initiating structure and engagement, with a moderate indirect effect. These findings suggest that supervisor behaviour relates to subordinates' role ambiguity and perceived freedom to choose the type of work engaged in, and how and when the work is carried out; all of which in turn relates to work engagement. Work engagement has been argued

to be very important to both workers and employers, given the relevance to worker wellbeing, performance, and the negative association with burnout (Bakker & Demerouti; Rich et al., 2010; Vella-Brodrick et al., 2009). The findings of this study provide strong support for the notion that supervisor behaviour relates to how engaged employees are in the workplace. Furthermore this relationship could be explained by the quality of the LMX relationship, role ambiguity, and job autonomy.

Organisational Citizenship Behaviour

All three hypotheses predicting that the relationship between supervisor behaviour and organisation-directed organisational citizenship (OCBO) would be mediated by LMX were significant. Conversely, LMX did not mediate the relationship between supervisor behaviour and individual-directed organisational citizenship behaviour (OCBI). Therefore, the hypotheses which predicted that the supervisor behaviours would have an impact on individual-directed citizenship behaviour through the LMX relationship were rejected. Organisation-directed citizenship behaviour on the other hand, could be predicted by tolerance of freedom, integration and consideration, and initiating structure. Integration and consideration, and tolerance of freedom had considerable indirect effect sizes through LMX.

Previous research indicated that supervisor behaviour and supportiveness of the supervisor could predict OCBs in subordinates (Djibo, et al., 2010, Organ & Ryan, 1995). Previous research also found a relationship between LMX and OCBO in addition to OCBI (Illies et al., 2007; Settoon et al., 1996). Although a weak correlation was found between LMX and OCBI, the results of this research do not support the hypothesis that OCBI can be predicted by leader behaviour through the LMX relationship. Instead, the results indicated that supervisor behaviour can predict organisation-directed citizenship behaviour specifically. Although it cannot be inferred

by interpretation of the results, this finding could suggest that, while members of the organisation can be influenced by the supervisor as to how they direct behaviour toward the organisation, this influence does not extend to the behaviour directed to benefiting individual members.

The findings additionally showed that while OCBI could not be predicted by initiating structure through the mediator role ambiguity, but OCBO could be predicted in this fashion with a moderate effect size. The mediated relationship between tolerance of freedom and OCB through job autonomy returned some unexpected results. Scheduling and method autonomy returned a result similar to those of other mediators, supporting an indirect relationship with OCBO, but not with OCBI. Criteria autonomy was shown to mediate the relationship between tolerance of freedom and OCBO as well as OCBI.

These findings indicate that supervisor behaviour can predict OCBO through reducing role ambiguity and increasing members perceived freedom to exercise discretion over what work they do as well as how and when they do it. Conversely supervisor behaviour could only predict OCBI (by a medium amount) through subordinates' perceived freedom to choose the type of work they do. It would seem that the supervisor has little to do with the individual-directed citizenship behaviour workers engage in in the workplace. McNeely and Meglino (1994) found that prosocial behaviour toward the organisation could be predicted by perceived recognition and likelihood of extrinsic reward, whereas pro-social behaviour toward individuals could not. OCBI also had weak correlations with supervisor behaviours and LMX, indicating the supervisor may not be very relevant in determining individual-directed citizenship behaviour. This may indicate, as McNeely and Meglino have argued, that different psychological processes underlie individual directed citizenship behaviour.

Intrinsic Motivation

All three hypotheses predicting that the relationship between supervisor behaviour and intrinsic motivation would be mediated by LMX were confirmed. Fairly weak indirect effects were returned for tolerance and freedom, integration and consideration, and initiating structure. In addition, the relationship between tolerance of freedom and intrinsic motivation was found to be mediated by scheduling and method autonomy, but not by criteria autonomy. Lastly the relationship between initiating structure and intrinsic motivation was found to be mediated by role ambiguity.

These findings provide evidence for the fact that motivation to do well in work, and apply oneself for its own sake is indirectly related to the supervisor's behaviour and mediated by the LMX relationship, perceived autonomy, and role ambiguity. Although these relationships were significant (except for the mediator criteria autonomy), the effect sizes were small. This finding may not be surprising, since although the results show that the supervisor may have a role in determining the context of subordinates' work, intrinsic motivation comes from within the individuals themselves. The findings show that the supervisor's behaviour does have a relationship with the level of a subordinate's intrinsic motivation.

Affective Organisational Commitment

All three hypotheses predicting that the relationship between supervisor behaviour and affective organisational commitment (AOC) would be mediated by LMX were confirmed. A strong effect was found for tolerance of freedom, followed by a moderately strong effect for integration and consideration, and a somewhat weaker effect for initiating structure. Meyer and Allen (1997) found that a higher quality LMX relationship was associated with higher affective organisational commitment to the organisation. Scheduling and method autonomy (SMA), and criteria autonomy (CA)

mediated the relationship between tolerance of freedom, and subordinates' commitment to the organisation. Although in the cases of both mediators partial mediation was supported, there was a substantial difference in the effect sizes, SMA having a stronger indirect relationship compared with CA. The partially mediated relationships suggest that job autonomy could not account for all the explained variance. Finally, a strong indirect effect was returned for the relationship between initiating structure and AOC mediated by role ambiguity.

As was previously argued by Yoon and Thye (2000), the results indicate that the supervisor may be viewed by subordinate employees as an agent representing the organisation as a whole. The commitment of subordinates could be predicted by the way in which supervisor behaviour affects the LMX relationship and contextual factors (role ambiguity and job autonomy).

Team Commitment

All three hypotheses predicting that the relationship between supervisor behaviour and team commitment (TC) would be mediated by LMX were confirmed. An exceptionally strong indirect effect was returned for LMX as the mediator between integration and consideration and TC. The indirect effect size for the predictor tolerance of freedom indicated a strong mediated relationship. Initiating structure returned a lower, but still moderate effect. Although the indirect effect of tolerance of freedom was very strong, there was still residual explained variance after accounting for LMX resulting in partial mediation. Both criteria, and scheduling and method autonomy partially mediated the relationship between tolerance of freedom and team commitment, with smaller respective effect sizes. Finally, a moderate indirect effect was returned for initiating structure mediated by role ambiguity.

Team commitment had the strongest relationship with supervisor behaviour. LMX was a strong mediator in this relationship, returning large effect sizes. This finding supports the notion that LMX is especially relevant to the success of a team, as Seibert et al. (2003) previously argued. These findings additionally provide more context for Barrasa's (2006) findings, which reported on the relationship between team performance and the team leader's integration behaviour. The findings of the present study may suggest that supervisor behaviour indirectly impacts on members' commitment to the team through the LMX relationship and work context. It appears that there is a strong relationship between supervisor behaviour and the commitment of team members and by extension team work and performance (Bianey et al, 2004).

Practical Implications

The results of this study provide support for the development of a model of LMX and supervisor behaviour to predict subordinate employees' work attitudes and behaviour. From a theoretical point of view these findings promote further understanding of the underpinnings and functioning of the LMX relationship. The results provide evidence for the ways in which supervisor behaviour is related to the work behaviour and attitudes of employees through the LMX relationship. For instance, while supervisor behaviour mediated by LMX only has a small predictive effect on intrinsic motivation, OCBI could not be predicted in this fashion at all.

On the other hand, the behaviour of supervisors, through the LMX relationship, had more substantial relationships with OCBO, affective organisational commitment to the organisation, and particularly related strongly to work engagement (and job performance by extension), as well as commitment to the work team. The results also provide evidence for the relevance of specific supervisor behaviour in predicting the work context of subordinate employees measured by perceived job autonomy, and role

ambiguity. The results additionally indicated that, job autonomy and role ambiguity were also related to subordinates' work attitudes and behaviours. Since job autonomy and role ambiguity could be predicted by supervisor behaviour, these findings may indicate that the supervisor has a role in determining work-related outcomes for subordinates.

A meta-analysis identifying the antecedents and consequences of LMX identified a large gap in the literature surrounding the antecedents of LMX in general, and specifically 'leader behaviours' (Dulebohn, Bommer, & Liden et al. 2011). Dulebohn et al. (2011) argued that "these results highlight the importance of rethinking how leadership scholars explore and measure the relationship between leader behaviors and LMX" (p. 25). The results of this research specifically address the research gap proposed by Dulebohn (2011), and indicate that the supervisor behaviours included in this study did indeed have strong relationships with LMX.

By purposefully shifting the focus from more general antecedents like 'supervisor effectiveness' to LMX (Deluga, 1998), and taking a behavioural approach, the implications for practice should be enhanced if a causal link can be established in future research. The presence of a causal relationship would have implications for how supervisors might adjust their behaviour in order to improve subordinates' work attitudes and behaviour. Previous research has indicated that creating awareness among supervisors of the implications of LMX and supervisor behaviour on subordinates produced significant changes in subordinate outcomes (Graen et al., 1986; Mayfield & Mayfield, 1998).

The findings of this study may be used to direct training and develop initiatives for supervisors with a view to improving the LMX relationship, raising job autonomy, and reducing role ambiguity by targeting specific supervisor behaviours. By organising the structure of the workplace through being clear about boundaries and protocol and

defining their own role as well as the roles of subordinates, supervisors may limit the degree of uncertainty subordinates may hold with respect to what is expected of them.

Strengths and Limitations

Evidenced by both the beta weights and the correlations, there were strong relationships between the theorised antecedents ‘integration and consideration’, ‘initiating structure’, ‘tolerance of freedom’, and LMX. This suggests that the theoretical model introduced in this study could propose a way of viewing both the development of the LMX relationship, as well as the relevance of supervisor behaviour to influencing subordinate outcomes. The focus taken in this study on the behaviour of the supervisor in predicting the quality of LMX has also been recommended “there is a power difference in the leader’s favor, leaders likely play a dominant role in LMX relationship quality” (Dulebohn et al., 2011, p 27). This study introduced LMX as a mediator, which was argued to be “central to explaining the ultimate relationship between the antecedents and the outcomes” (Dulebohn et al., 2011, p. 25).

Thirty of the 36 hypotheses tested in this study were supported providing strong evidence for the theoretical models. Moreover, out of 30 supported mediated relationships, 11 returned a strong indirect effect size, 17 returned a medium indirect effect size, and only 2 returned a weak indirect effect size. According to Rucker et al. (2011) the bigger the sample size of a study the less likely it becomes for indirect relationships to be significant. Rucker et al. (2011) demonstrated that false positives (or Type-1 errors) were greatly reduced in a sample size of $N = 200$, a condition which was met in this study.

The factorial similarity or lack of distinctiveness between LMX and PSS was a limitation of this study. Although it was argued that combining PSS and LMX lacked a theoretical basis, the high correlation and factor analyses indicated that the items

underpinning these constructs may be measuring the same domain. This finding needs to be addressed as this indicates that there is considerable overlap in the items for LMX and PSS. Similarly consideration and integration were identified as belonging to the same factor. It was argued that from a theoretical point of view it was justified to combine the two constructs as a single variable. However, no previous research that followed the same course was found.

The initiating structure measure proved problematic, since six of its items had to be removed because they returned high cross-loadings on the factors that emerged. Although 3-4 items may be sufficient to successfully measure a construct (Costello & Osborne, 2004), making significant changes to the original scale may be problematic. Furthermore, intrinsic motivation and job autonomy loaded on to two factors when they were expected to be unitary constructs. In the case of job autonomy a justification could be made for separating the items into two variables since they were descriptively distinct. For instance, employees may see themselves as having the discretion to choose when and how to work, but not the type of work they do. Conversely, it is expected that the aspects of how and when work is done are more closely aligned. The same case could not be made for intrinsic motivation. Another potential limitation is the strong correlation between LMX, and integration and consideration. Although a factor analysis indicated that these were two distinct factors, a correlation of above .7 may indicate that these scales are measuring the same domain.

It should be noted that, although it may be suggested that the supervisor determines his/her behaviour and in this way impacts on subordinates' work outcomes, this is not necessarily so according to Spector (2008). Spector (2008) instead argued that supervisory behaviour can be equally influenced by subordinates' workplace behaviour. Spector (2008) argued that "a supervisor whose subordinates are filing many grievances might become angry and reduce consideration behaviour" (p. 343). Similarly,

poor performing and unengaged subordinates may be seen as equally contributing to the development of a lower quality LMX relationship, and lead to lower levels of supervisor consideration.

This study comprised cross-sectional research, the assessment was taken at only one point in time and the results may not be stable over a longer period of time. A longitudinal study with a larger sample size should produce more robust findings. The mediated relationships tested in this model cannot be used as evidence of causal relationships because the independent variables were not manipulated (Bullock et al., 2008). It is also important to note that the entire study focused on the perceptions and experiences of subordinates. The inclusion of an assessment of supervisors may give a better representation of the variables measured in this study.

Future Research

As mentioned previously, the reliance on subordinate perceptions of supervisor behaviour and the quality of the LMX relationship forms a limitation. The inclusion of 360-degree assessments of supervisor behaviour will not only present a more complete picture, but will provide the possibility to compare ratings from multiple stakeholders. The paths tested in this research indicate the level of association, but not the direction of the relationship; experimental or observational approaches will allow causal inferences to be made (Bullock et al. 2008).

Given the extent of changes induced by factor analyses involving LBDQ measures, further research of these scales is recommended to verify the construct validity and revise any items. Furthermore, although the structural distinctiveness for LMX and POS (perceived organisational support) has been established (Wayne et al., 1997), no studies were found that performed a factor analysis to justify the factorial distinctiveness of LMX and PSS. However, a study by Dieguez (2011) also reported

that PSS and LMX load on to one factor. Further study to ground the distinctiveness of PSS and LMX is recommended, both in theoretical terms and in terms of the measurement of these constructs. Alternatively, research to combine the two in a theoretical model may be appropriate. Both constructs are used extensively in research, and the results of this study do not support the continued use of both in parallel.

Conclusions

The major rationale for the research was supported in the results. Supervisor behaviour could in many cases predict the work attitudes and behaviours of subordinate employees. The LMX relationship between supervisor and subordinate was an important mediator, and LMX is crucial to the successful functioning of the workplace (Mayfield & Mayfield, 1998). This research reveals significant connections between how employees act at work and how they feel about their job, their organisation and work team—and the role of the supervisor.

This research has contributed to the understanding of how the quality of the LMX relationship can be established and is maintained, providing a model for future LMX research. Furthermore, this research established the relevance of role ambiguity and job autonomy as mediators between supervisor behaviour and subordinate attitudes and behaviour. The findings additionally indicated that the relationship one has with the supervisor is important across the organisational hierarchy, and not limited to workers of a certain level of seniority. It is important for organisations to recognise the implications of how supervisors' actions are related to work experience and work outcomes of subordinate employees as well as the importance of the LMX relationship between these parties.

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APPENDIX A

PARTICIPANT INFORMATION SHEET

Work Relations Survey

Dear staff member,

I am a Masters student in organisational psychology at the University of Waikato. I am conducting research for my thesis on the relationship between supervisors and subordinates, what contributes to forming this relationship, and how this relationship impacts on the work experience of employees. My primary supervisor is Professor Michael O'Driscoll, should you wish to discuss any aspect of this research with him.

The purpose of my research is to assess the impact which supervisors can have on employees. This will be measured by assessing whether the behaviours of your immediate supervisor contribute to the quality of the relationship you have with him or her, and whether this relationship with your supervisor contributes to or detracts from your work experience. I invite you to complete my questionnaire, which identifies leadership behaviours that supervisors are perceived to engage in, the quality of the relationship between supervisors and others, and how this influences how people feel about their work.

Your participation in this survey is voluntary and will be supporting research. My research has implications for identifying the impact (both positive and/or negative) that supervisors may have on their relationship with others and the work experience of employees. The results will give insight into how employees are affected by their relationship with their supervisor, and what might be done to improve this. Partaking in this study will give you the opportunity to think about your job and what your work means to you.

I have been granted approval by the University of Waikato's School of Psychology Ethics Committee to conduct this survey, which will take you about 15 minutes to complete. Dr. Lewis Bizo (chair of the committee) may be contacted via email at: lbizo@waikato.ac.nz. This survey will be entirely anonymous, and you will not be identified in any publication or report pertaining to this research. The answers from all participating staff will be analysed as a group, not individually. Your responses will be kept entirely confidential.

Upon completion, a summary of the research findings will be presented to the company. However, these will only be the overall results and no individual responses will be identified. Additionally, you will also be updated on the findings of this research once it has been completed.

Please read the instructions carefully and answer the questions in the order they are presented. If you encounter any problems or would like to discuss any aspect of the study, please email me. My contact details are below and I am happy to answer any questions you may have.

Yours faithfully,

Nils Van Lamoen

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APPENDIX B

EMPLOYEE QUESTIONNAIRE

(*Note:* the questionnaire was formatted for online completion).

Work Relations Survey

Completing the Questionnaire

To complete the attached questionnaire please follow these instructions:

- a) Please do not include your name on the questionnaire.
- b) Please complete the survey yourself.
- c) Please complete all sections taking care not to skip any pages or questions.
- d) It is recommended that you complete the questionnaire in one sitting.

Please note: In this questionnaire the term 'supervisor' is taken to be the person with whom you have a direct reporting relationship, meaning your most immediate supervisor. This person may be a department or divisional manager, a team leader or a floor supervisor.

Remember that you will not be personally identified, and that your responses will not be disclosed to the company. There are no right or wrong answers; just answer the questions as accurately and honestly as possible.

Thank you for your time and effort, your participation is greatly appreciated.

Section A. Your Supervisor.

Think about how frequently your supervisor engages in each behaviour described below. The term ‘member’ may be taken as department/team colleagues and yourself.

(a) Never	(b) Seldom	(c) Occasionally	(d) Often	(e) Always
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- A1. Lets group members know what is expected of them.
- A2. Encourages the use of uniform (standardized) procedures.
- A3. Tries out his/her ideas in the group.
- A4. Makes his/her attitudes clear to the group.
- A5. Decides what shall be done and how it shall be done.
- A6. Assigns group members to particular tasks.
- A7. Makes sure that his/her part in the group is understood by the group members.
- A8. Schedules the work to be done.
- A9. Maintains definite standards of performance.
- A10. Asks that group members follow standard rules and regulations.
- A11. Allows the members complete freedom in their work.
- A12. Permits the members to use their own judgment in solving problems.
- A13. Encourages initiative in the group members.
- A14. Lets the members do their work the way they think best.
- A15. Assigns a task, then lets the members handle it.
- A16. Turns the members loose on a job, and lets them go to it.
- A17. Is reluctant to allow the members any freedom of action.
- A18. Allows the group a high degree of initiative.
- A19. Trusts members to exercise good judgment.
- A20. Permits the group to set its own pace.
- A21. Is friendly and approachable.
- A22. Does little things to make it pleasant to be a member of the group.

- A23. Puts suggestions made by the group into operation.
- A24. Treats all group members as his/her equals.
- A25. Gives advance notice of changes.
- A26. Keeps to himself/herself.
- A27. Looks out for the personal welfare of group members.
- A28. Is willing to make changes.
- A29. Refuses to explain his/her actions.
- A30. Acts without consulting the group.
- A31. Keeps the group working together as a team.
- A32. Settles conflicts when they occur in the group.
- A33. Sees to it that the work of the group is coordinated.
- A34. Helps group members settle their differences.
- A35. Maintains a closely knit group.

Section B. Your work situation

Please indicate your own work experiences below.

(a) Strongly Disagree	(b) Disagree	(c) Disagree Slightly	(d) Neither Agree Nor Disagree	(e) Slightly Agree	(f) Agree	(g) Strongly Agree
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- B1. I have control over the scheduling of my work.
- B2. I have some control over the sequencing of my work activities (when I do what).
- B3. My job is such that I can decide when to do particular work activities.
- B4. I am allowed to decide how to go about getting my job done (the methods to use).
- B5. I am able to choose the way to go about my job (the procedures to utilize).
- B6. I am free to choose the method(s) to use in carrying out my work.
- B7. My job allows me to modify the normal way we are evaluated so that I can emphasize some aspects of my job and play down others.
- B8. I am able to modify what my job objectives are (what I am supposed to accomplish).

B9. I have some control over what I am supposed to accomplish (what my supervisor sees as my job objectives).

B10. I feel certain about how much authority I have.

B11. I have clear planned goals and objectives in my job.

B12. I know that I have divided my time properly.

B13. I know what my responsibilities are.

B14. I know exactly what is expected of me.

B15. What has to be done is clearly explained to me.

Section C. You and your workplace.

How much do you agree/disagree with each of the following statements about you and your team?

(a) Strongly Disagree	(b) Disagree	(c) Disagree Slightly	(d) Agree Slightly	(e) Agree	(f) Strongly Agree
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C1. I talk up (brag about) this team to my friends as a great team to work in.

C2. I would accept almost any job in order to keep working with this team.

C3. I find that my values and the team's values are very similar.

C4. I am proud to tell others that I am part of this team.

C5. This team really inspires the very best in me in the way of job performance

C6. I am extremely glad that I chose this team to work with over other teams.

C7. I really care about the fate of this team.

C8. For me this is the best of all possible teams with which to work.

How much do you agree/disagree with each of the following statements about you and the organisation?

(a) Strongly Disagree	(b) Disagree	(c) Disagree Slightly	(d) Agree Slightly	(e) Agree	(f) Strongly Agree
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C9. This organization has a great deal of personal meaning for me.

C10. I really feel a sense of 'belonging' to my organization.

C11. I am proud to belong to this organization.

C12. I do not feel emotionally attached to my organization.

C13. I really feel as if my organization's problems are my own.

C14. I do not feel like 'part of the family' at my organization.

**For the following questions consider how often you engage in the listed activities.
How often do you...**

(a) Never	(b) Rarely	(c) Occasionally	(d) Sometimes	(e) Fairly Often	(f) Very Often	(g) Always
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C15. Help others who have been absent.

C16. Willingly give your time to help others who have work-related problems.

C17. Adjust your work schedule to accommodate other employees' requests for time off.

C18. Go out of the way to make newer employees feel welcome in the work group.

C19. Show genuine concern and courtesy toward co-workers, even under the most trying business or personal situations.

C20. Give up time to help others who have work or non-work problems.

C21. Assist others with their duties.

C22. Share personal property with others to help their work.

C23. Attend functions that are not required but that help the organizational image.

C24. Keep up with developments in the organization.

C25. Defend the organization when other employees criticize it.

C26. Show pride when representing the organization in public.

C27. Offer ideas to improve the functioning of the organization.

C28. Express loyalty toward the organization.

C29. Take action to protect the organization from potential problems.

C30. Demonstrate concern about the image of the organization.

Section D. You and your supervisor.

For the following questions please indicate which answer best describes your relationship with your direct supervisor.

D1. Do you know where you stand with your supervisor?

(a) Rarely	(b) Occasionally	(c) Sometimes	(d) Fairly Often	(e) Very Often
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D2. How well does your supervisor understand your job problems and needs?

(a) Not a Bit	(b) A Little	(c) A Fair Amount	(d) Quite a Bit	(e) A Great Deal
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D3. How well does your supervisor recognize your potential?

(a) Not at All	(b) A Little	(c) Moderately	(d) Mostly	(e) Fully
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D4. Regardless of how much formal authority he/she has built into his/her position, what are the chances that your supervisor would use his/her power to help you solve problems in your work?

(a) None	(b) Small	(c) Moderate	(d) High	(e) Very High
----------	-----------	--------------	----------	---------------

D5. Again, regardless of the amount of formal authority your supervisor has, what are the chances that he/she would “bail you out,” at his/her expense?

(a) None	(b) Small	(c) Moderate	(d) High	(e) Very High
----------	-----------	--------------	----------	---------------

D6. I have enough confidence in my supervisor that I would defend and justify his/her decisions if he/she were not present to do so?

(a) Strongly Disagree	(b) Disagree	(c) Neutral	(d) Agree	(e) Strongly Agree
-----------------------	--------------	-------------	-----------	--------------------

D7. How would you characterize your working relationship with your supervisor?

(a) Extremely Ineffective	(b) Worse Than Average	(c) Average	(d) Better Than Average	(e) Extremely Effective
---------------------------	------------------------	-------------	-------------------------	-------------------------

How much do you agree/disagree with each of the following statements about your supervisor?

(a) Strongly Disagree	(b) Disagree	(c) Disagree Slightly	(d) Neither Agree Nor Disagree	(e) Slightly Agree	(f) Agree	(g) Strongly Agree
-----------------------	--------------	-----------------------	--------------------------------	--------------------	-----------	--------------------

D8. My supervisor values my contribution.

D9. My supervisor fails to appreciate any extra effort from me.

D10. My supervisor would ignore any complaint from me.

D11. My supervisor really cares about my well-being.

D12. Even if I did the best job possible, my supervisor would fail to notice.

D13. My supervisor cares about my general satisfaction at work.

D14. My supervisor shows very little concern for me.

D15. My supervisor takes pride in my accomplishments at work.

Section E. Work Experiences.

(a) Never	(b) A few times a year or less	(c) Once a month or less	(d) A few times a month	(e) Once a week	(f) A few times a week	(g) Every day
-----------	--------------------------------	--------------------------	-------------------------	-----------------	------------------------	---------------

E1. At my work, I feel bursting with energy.

E2. At my job, I feel strong and vigorous.

E3. When I get up in the morning, I feel like going to work.

How much do you agree/disagree with each of the following statements about your job?

(a) Strongly Disagree	(b) Disagree	(c) Disagree Slightly	(d) Neither Agree Nor Disagree	(e) Slightly Agree	(f) Agree	(g) Strongly Agree
-----------------------	--------------	-----------------------	--------------------------------	--------------------	-----------	--------------------

E4. I feel a sense of personal satisfaction when I do this job well.

E5. My opinion of myself goes down when I do this job badly.

E6. I take pride in doing my job as well as I can.

E7. I feel unhappy when my work is not up to my usual standard.

E8. I like to look back on the day's work with a sense of a job well done.

E9. I try to think of ways of doing my job effectively.

Section F. Demographics.

This section is to measure the diversity of the sample group and is included to ensure that this study roughly encompasses a slice of the overall population and is not limited to describing any particular demographic group.

F1. Gender

Male	Female
------	--------

F2. Age (in years)

F4. Ethnicity

NZ European	Other European	Maori	Pacific peoples	Asian	Other
-------------	----------------	-------	-----------------	-------	-------

F5. Annual Income derived from your job at this organisation before tax in \$NZ.

< 25,000	25,001-40,000	40,001-60,000	60,001-80,000	> 80,000
----------	---------------	---------------	---------------	----------

F6. How many years/months have you been with your current employer?

Years Months

--	--

F7. How many years/months have you been in your current job?

Years Months

--	--

F8. As part of your job, do you supervise other people?

Yes	No
-----	----

F9. Which best describes your job role?

(a) Non manager/supervisor	(b) Supervisor (first line)	(c) Middle manager	(d) Senior manager/Executive
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F10. Which organisation do you work for?

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APPENDIX C

RESEARCH ETHICS APPROVAL

School of Psychology
The University of Waikato
Private Bag 3105
Hamilton 3240,
New Zealand

Phone 64-7-856 2889
Facsimile 64-7-858 5132
www.waikato.ac.nz/psychology



THE UNIVERSITY OF
WAIKATO
Te Whare Wānanga o Waikato

22 June 2011

Nils Van Lamoen
3 Helmsdale Court
Hamilton 3210

Dear Nils

Ethics Approval Application – # 11/19

**Title: LMX: The Relationships between Perceived Leadership Behaviours,
and Subordinate Attitudes and Behaviours**

Thank you for your ethics application which has been fully considered and approved by the Psychology Research and Ethics Committee.

Please note that approval is for three years. If this project has not been completed within three years from the date of this letter, you must request reapproval.

If any modifications are required to your application, e.g., nature, content, location, procedures or personnel these will need to be submitted to the Convenor of the Committee.

I wish you success with your research.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Lewis Bizo'.

Dr Lewis Bizo
Convenor
Psychology Research and Ethics Committee
School of Psychology
University of Waikato

APPENDIX D

INVITATION LETTER SENT TO ORGANISATIONS

Dear [contact person],

I am contacting you to present an opportunity for <organisation> to participate in a workplace study. This study will potentially be of interest to you because of your strong commitment to staff development and wellbeing. This study will provide you with detailed insight into the underpinnings of the attitudes and behaviours of your staff – and how these may be improved. The research is being conducted as part of a master's thesis in organisational psychology at Waikato University. Your support for my research would be greatly appreciated, and I would be happy to discuss this further.

The research will establish to what extent workers' attitudes and behaviour (such as motivation and engagement) are influenced by their supervisor's behaviour. This will help us determine how the work experience of employees can be affected by their supervisor, and more importantly, how this may be enhanced. The study is explained in greater detail in the attached document.

Upon conclusion of the study your organisation will be handed a report explaining the findings of the research as they relate to this organisation. All that is required to be a part of this research project from your organisation's perspective is for your employees to fill in an online survey which takes about 15 minutes to complete. Participation will be voluntary and anonymous; the survey has received ethical approval and will not reveal any personal or otherwise sensitive information about your organisation. I will be commencing my survey in 4 weeks' time.

Please contact me if you require further information to support your decision over participation, otherwise I will give you a call to follow up in a week or so.

Thank you for your time.

Kind regards,

Nils Van Lamoen
School of Psychology
University of Waikato

APPENDIX E

INITIAL INFORMATION SENT TO ORGANISATIONS

The University of Waikato

School of Psychology Thesis Research

Researcher: Nils Van Lamoen

Research Project: Leader-Member Exchange (LMX): The Relationships between Perceived Leadership Behaviours, and Subordinate Attitudes

This study will determine whether an employee's direct supervisor can be seen as influencing their working experience of subordinate employees. My primary research question is whether or not an employee's direct supervisor's leadership behaviours is related to issues as motivation, citizenship behaviour, engagement etc. in the subordinate, quantifiable

A survey is being conducted to assess to what extent leaders affect subordinates' work experience by relating the behaviour of the supervisor with the attitudes and behaviours of the subordinates. This relationship will be assessed by measuring

- 1) How the behaviours of the direct supervisor (as perceived by the subordinate) relate to a set of behaviours and attitudes of the subordinate, and if this relationship can be better explained by the interpersonal exchange relationship between leader and subordinate (LMX).
- 2) Whether the relationships between leadership behaviours and subordinate outcomes can be explained by two individual intervening factors (job autonomy and ambiguity). Accordingly, this research intends to produce findings that can aid understanding of the formation of the leader-member relationship, and the implications of this relationship on the working life of employees - and what this ultimately means this organisation.

This research will provide insight in to which managerial behaviours lead to a positive or negative development of the relationship between supervisors and subordinates; and if these behaviours can predict positive and negative outcomes in the subordinate (such as: engagement, motivation, teamwork). The results of this research can be practically employed to understand and increase the quality of the work experience of employees, and to improve outcomes relevant to the workplace and the business (such as engagement, motivation, commitment, and citizenship behaviour).

Relevant Details:

This study requires a questionnaire containing multiple choice items to be filled out by approximately 200 workers. For this reason more than one organisation will be included in the study to in order to maximise the potential to produce a total of at least 200 participants.

The questionnaire is in electronic format and can be accessed and completed from any computer with internet access. The questionnaire will take about 15 minutes to complete. The questionnaire and results will be anonymous and confidential, and will not identify any persons, departments, or positions. Participation is by invitation and voluntary.

Your organisation will be provided with a summary report containing the research findings as they relate to the business, as well as to practice in general upon completion of the thesis. Since more than one organisation will be partaking, the results for this organisation will be independently analysed and presented in a unique report. As such the research findings will provide unique insight into the impact of leaders on workers' outcomes and work experience for this organisation as well as overall climate metrics.

Due to the nature of this study it is not essential that your organisation is identified in any publications relating to this research; any decisions pertaining to non-disclosure of information that may identify your organisation will remain at the discretion of your organisation.

Further information if required is available from:

The researcher: [nkvl@waikato.ac.nz](mailto:nkv1@waikato.ac.nz), or 027 338 1808.

Research supervisor: Prof. Michael O'Driscoll - psyc0181@waikato.ac.nz, or 07 856 2889 xtn.8899.

This study has been granted ethics approval by the School of Psychology Ethics Committee, Dr. Lewis Bizo (chair) who may be contacted via lbizo@waikato.ac.nz.

APPENDIX F

INVITATION EMAIL SENT TO STAFF

Dear [Organisation] staff member,

This is your invitation for you to participate in a study about your work experience at [organisation]. In partnership with [organisation] this survey will be supporting research on workplace relations. Please note that the survey will be entirely confidential and anonymous, when you access the questionnaire your rights in regards to participation will be explained further. You will be notified of the study's findings in a few months' time. If you follow the link provided, you will find a more detailed description of what this study involves.

Thank you for your time, your support is greatly appreciated!

Yours faithfully,

Nils Van Lamoen
Researcher
School of Psychology
University of Waikato

[Organisation's representative]
[Position title]

To access the survey please click the following link, or copy into your internet browser:

http://waikatopsych.qualtrics.com/SE/?SID=SV_8GQIP7XtatGkocI

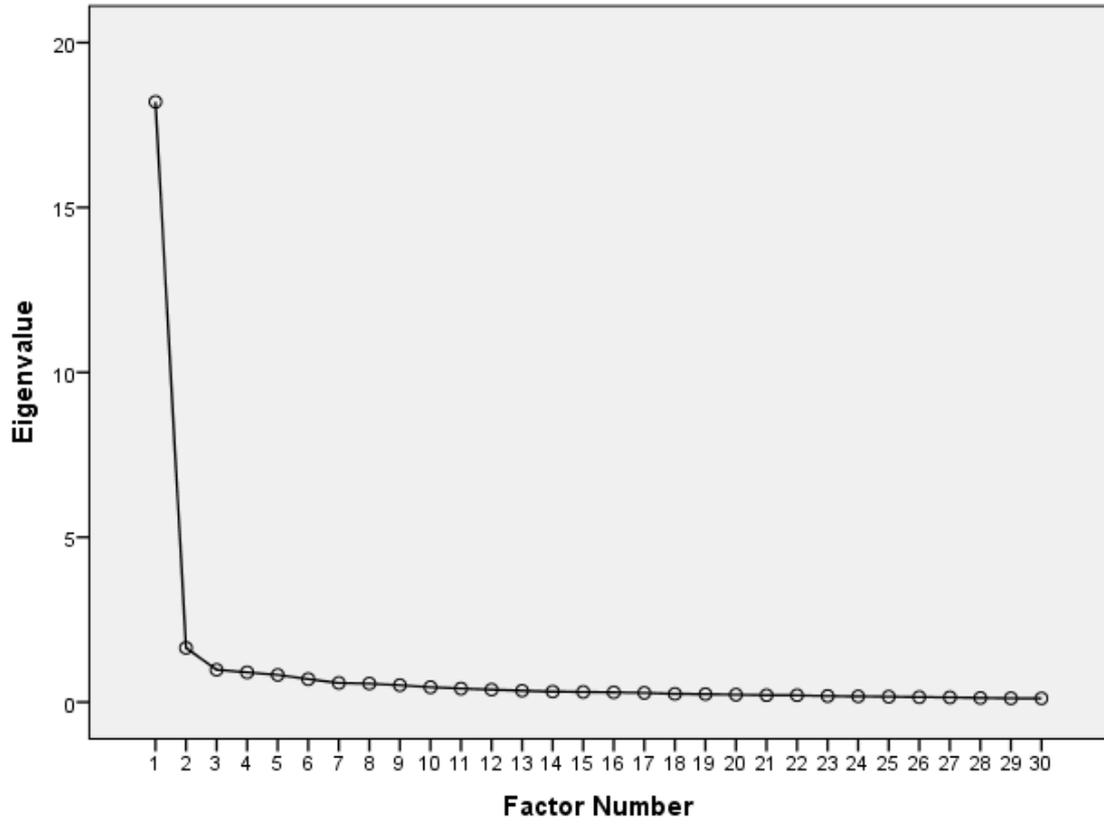
APPENDIX G

FACTOR ANALYSES

G1. Pattern matrix and scree plot 1 for: consideration, integration, LMX and PSS

Pattern Matrix		
	Factor	
	1	2
PSS Q1	1.021	
PSS Q7	.878	
PSS Q8	.874	
PSS Q2	.858	
PSS Q6	.854	
LMX Q3	.823	
PSS Q5	.816	
LMX Q7	.801	
PSS Q3	.781	
LMX Q6	.686	
LMX Q4	.669	
LMX Q1	.660	
PSS Q4	.651	
Consideration Q9	.600	
LMX Q2	.596	
LMX Q5	.504	
Consideration Q6		
Integration Q2		.870
Integration Q3		.865
Integration Q1		.857
Integration Q5		.837
Integration Q4		.815
Consideration Q2		.770
Consideration Q3		.760
Consideration Q5		.746
Consideration Q7		.682
Consideration Q4		.631
Consideration Q10		.573
Consideration Q8		.478
Consideration Q1	.412	.447

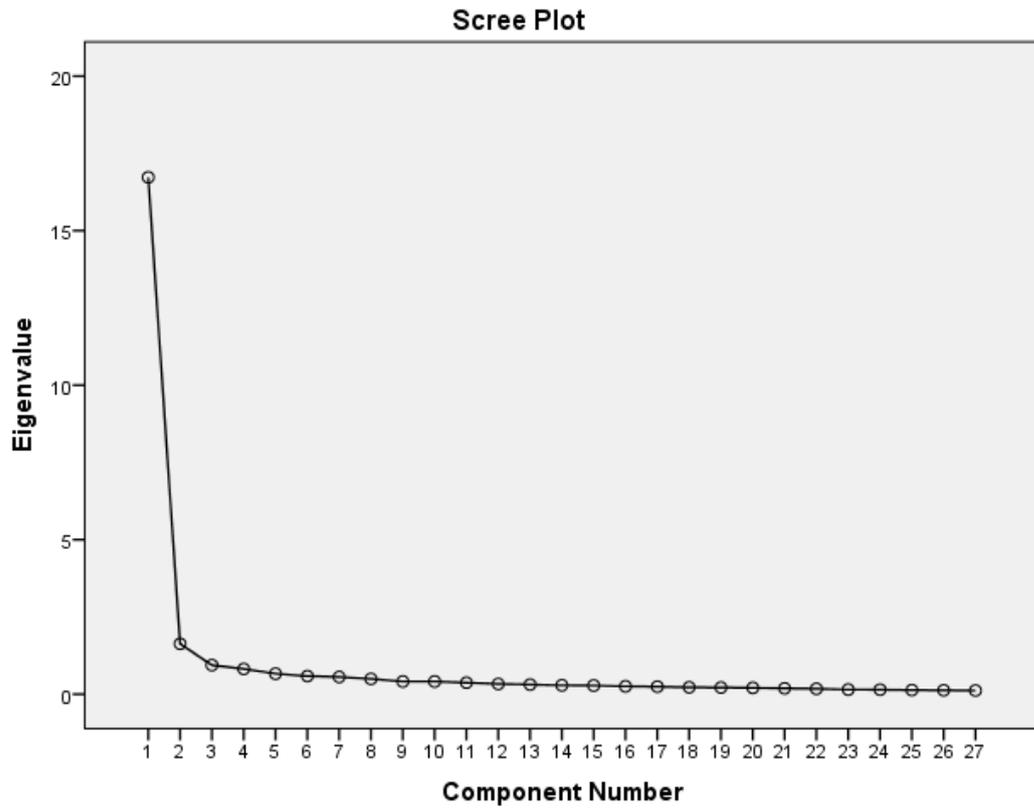
Scree Plot



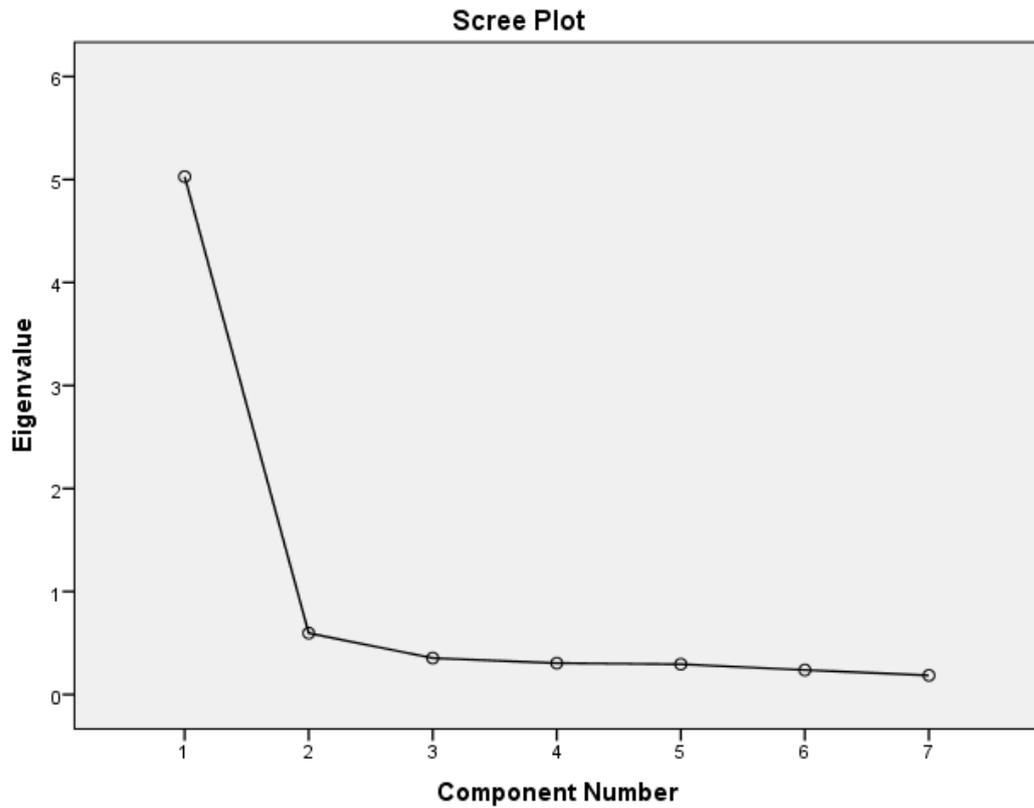
G2. Pattern matrix and scree plot for: tolerance of freedom, consideration and integration, and initiating structure

Pattern Matrix^a

	Component	
	1	2
PSS Q1	.985	
PSS Q8	.882	
PSS Q7	.879	
PSS Q2	.874	
PSS Q5	.847	
PSS Q6	.846	
LMX Q3	.816	
LMX Q7	.788	
PSS Q3	.780	
PSS Q4	.727	
LMX Q6	.696	
LMX Q4	.688	
LMX Q1	.671	
LMX Q2	.606	
LMX Q5	.549	
Integration Q3		.906
Integration Q2		.902
Integration Q4		.861
Integration Q1		.852
Integration Q5		.805
Consideration Q5		.795
Consideration Q3		.779
Consideration Q2		.777
Consideration Q7		.679
Consideration Q4		.638
Consideration Q10		.636
Consideration Q8		.512



G3. Scree plot for: LMX

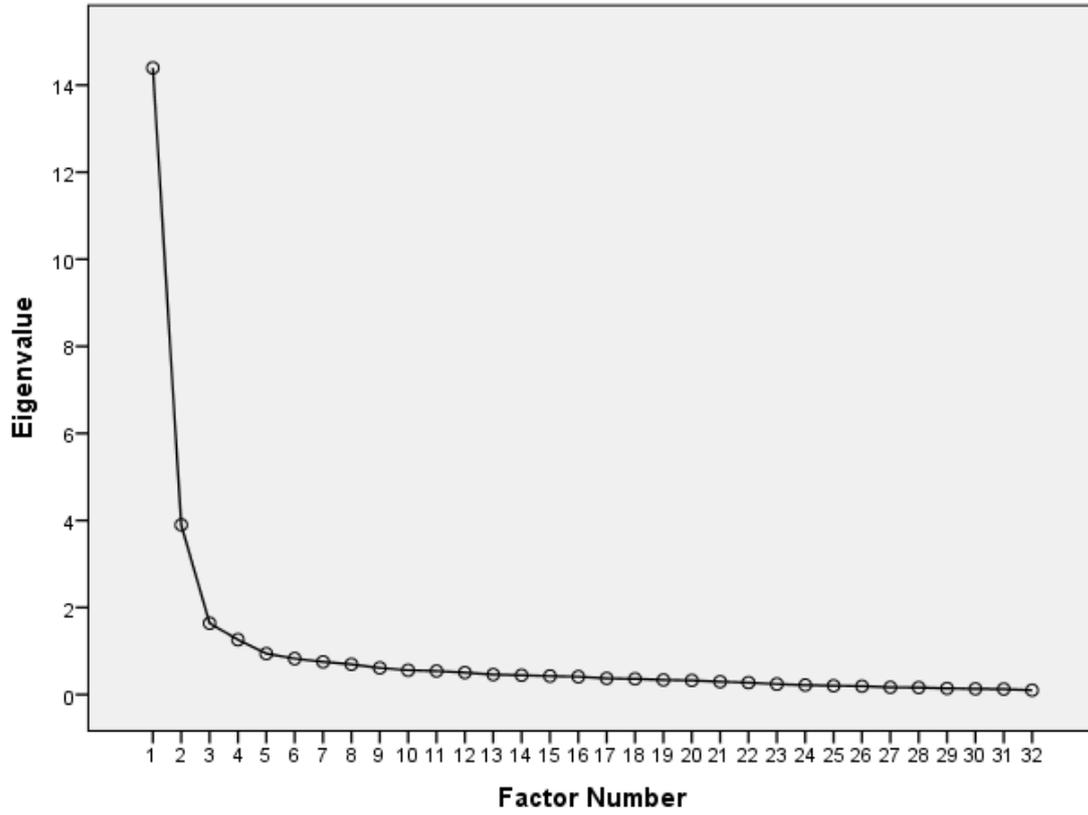


G4. Pattern matrix and scree plot 1 for: tolerance of freedom, consideration, integration, and initiating structure

Pattern Matrix

	Factor			
	1	2	3	4
Integration Q2	.866			
Integration Q4	.802			
Consideration Q7	.765			
Consideration Q2	.757			
Integration Q5	.739			
Consideration Q10	.701			
Integration Q3	.697			
Integration Q1	.680			
Consideration Q3	.676			
Consideration Q4	.658			
Consideration Q5	.610			
Consideration Q8	.532			
Tolerance and Freedom Q7	.449		.333	
Initiating Structure Q8		.681		
Initiating Structure Q6		.678		
Initiating Structure Q10		.612		
Initiating Structure Q5		.609		
Initiating Structure Q9	.396	.529		
Initiating Structure Q4		.457		-.421
Initiating Structure Q7		.440		
Initiating Structure Q1	.309	.414		-.308
Initiating Structure Q2		.316		
Tolerance and Freedom Q4			.857	
Tolerance and Freedom Q2			.805	
Tolerance and Freedom Q1			.777	
Tolerance and Freedom Q6			.728	
Tolerance and Freedom Q8			.696	
Tolerance and Freedom Q9			.673	
Tolerance and Freedom Q5			.646	
Tolerance and Freedom Q3			.612	
Tolerance and Freedom Q10			.565	
Initiating Structure Q3				-.566

Scree Plot

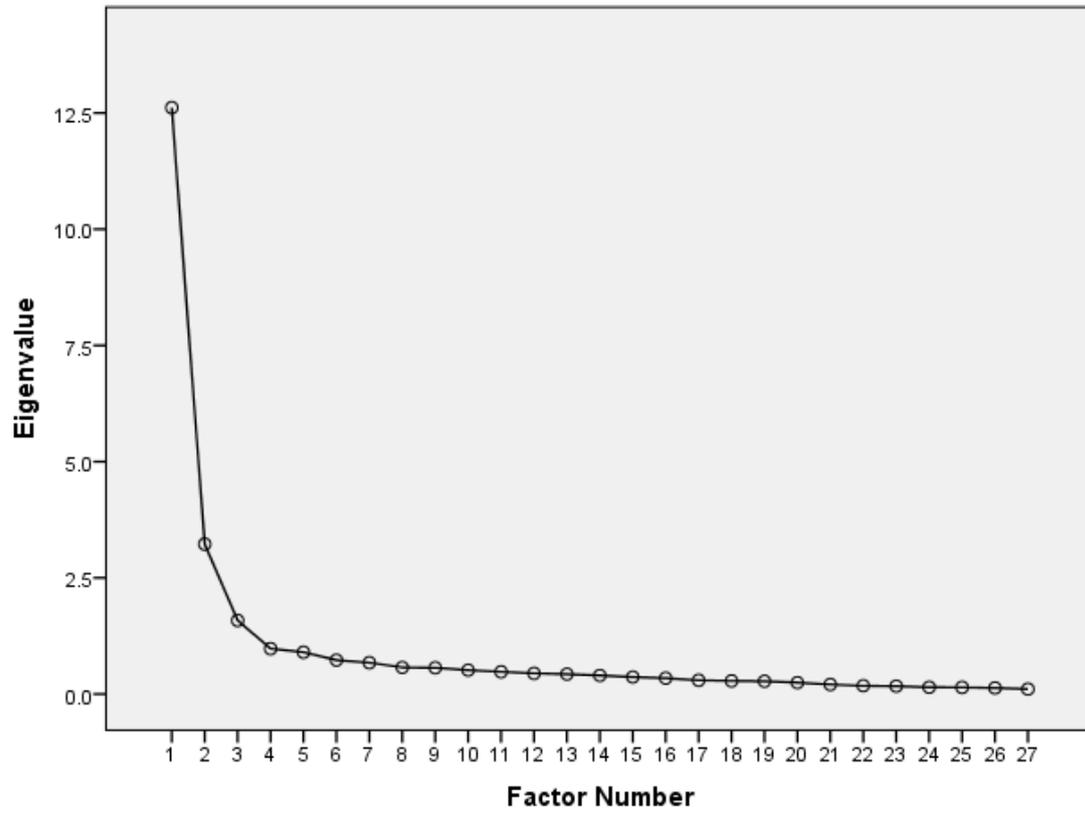


G5. Pattern matrix and scree plot 2 for: tolerance of freedom, consideration, integration, and initiating structure

Pattern Matrix

	Factor		
	1	2	3
Consideration Q2	.861		
Consideration Q7	.800		
Integration Q2	.794		
Consideration Q3	.791		
Integration Q5	.785		
Integration Q4	.776		
Consideration Q4	.763		
Consideration Q10	.755		
Integration Q1	.737		
Integration Q3	.698		
Consideration Q5	.683		
Consideration Q8	.630		
Initiating Structure Q6		.735	
Initiating Structure Q8		.681	
Initiating Structure Q5		.639	
Initiating Structure Q10		.554	
Initiating Structure Q7	.424	.426	
Initiating Structure Q2		.292	
Tolerance and Freedom Q4			.844
Tolerance and Freedom Q2			.785
Tolerance and Freedom Q1			.774
Tolerance and Freedom Q6			.713
Tolerance and Freedom Q8			.679
Tolerance and Freedom Q9			.654
Tolerance and Freedom Q5			.625
Tolerance and Freedom Q3	.361		.591
Tolerance and Freedom Q10			.544

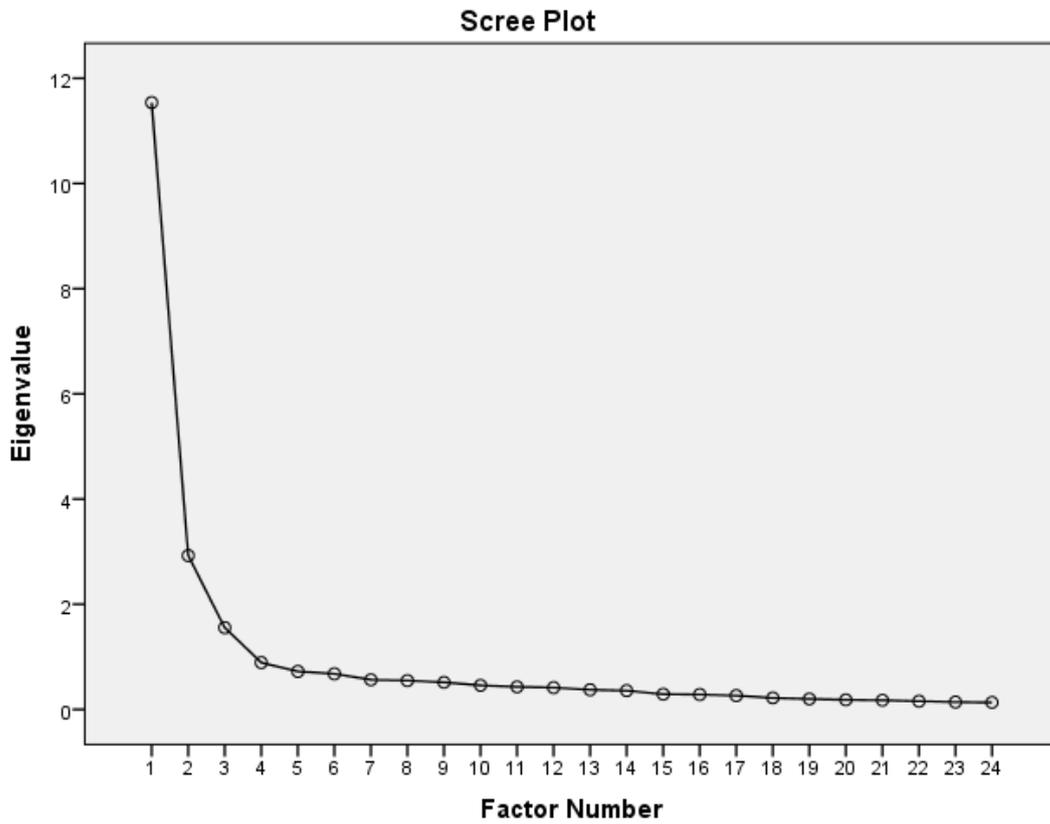
Scree Plot



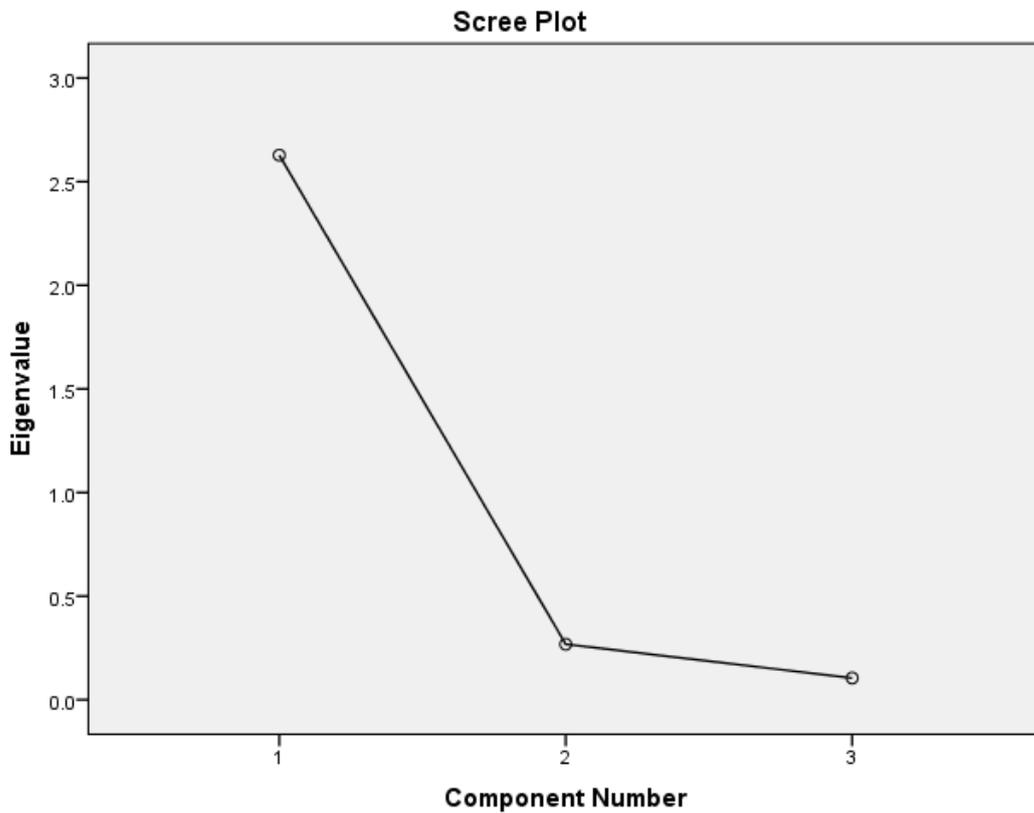
G6. Pattern matrix and scree plot 3 for: tolerance of freedom, consideration, integration, and initiating structure

Pattern Matrix

	Factor		
	1	2	3
Consideration Q2	.865		
Consideration Q7	.810		
Integration Q2	.805		
Consideration Q3	.805		
Integration Q5	.805		
Integration Q4	.788		
Consideration Q4	.764		
Consideration Q10	.756		
Integration Q1	.756		
Integration Q3	.727		
Consideration Q5	.704		
Consideration Q8	.638		
Initiating Structure Q6		.710	
Initiating Structure Q8		.663	
Initiating Structure Q5		.639	
Initiating Structure Q10		.526	
Tolerance and Freedom Q4			.834
Tolerance and Freedom Q2			.778
Tolerance and Freedom Q1			.769
Tolerance and Freedom Q6			.729
Tolerance and Freedom Q8			.640
Tolerance and Freedom Q9			.630
Tolerance and Freedom Q5			.619
Tolerance and Freedom Q10			.550



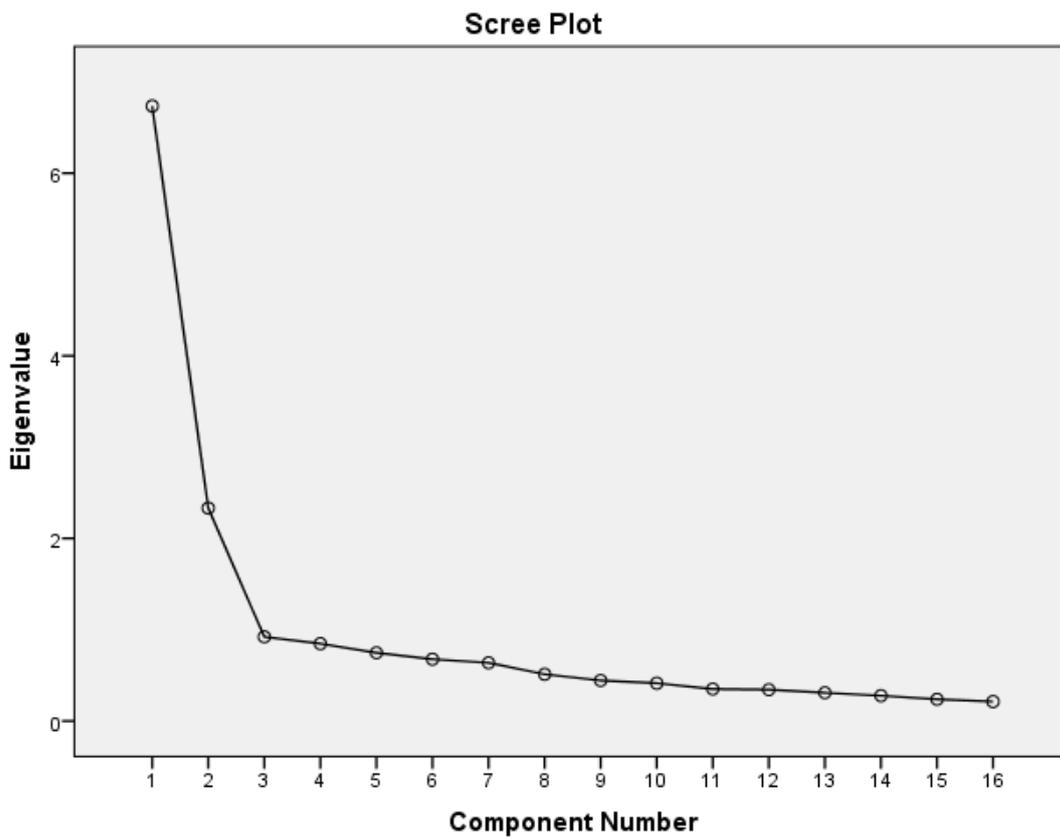
G7. Scree plot for: work engagement



G8. Pattern matrix and scree plot for: OCBO and OCBI

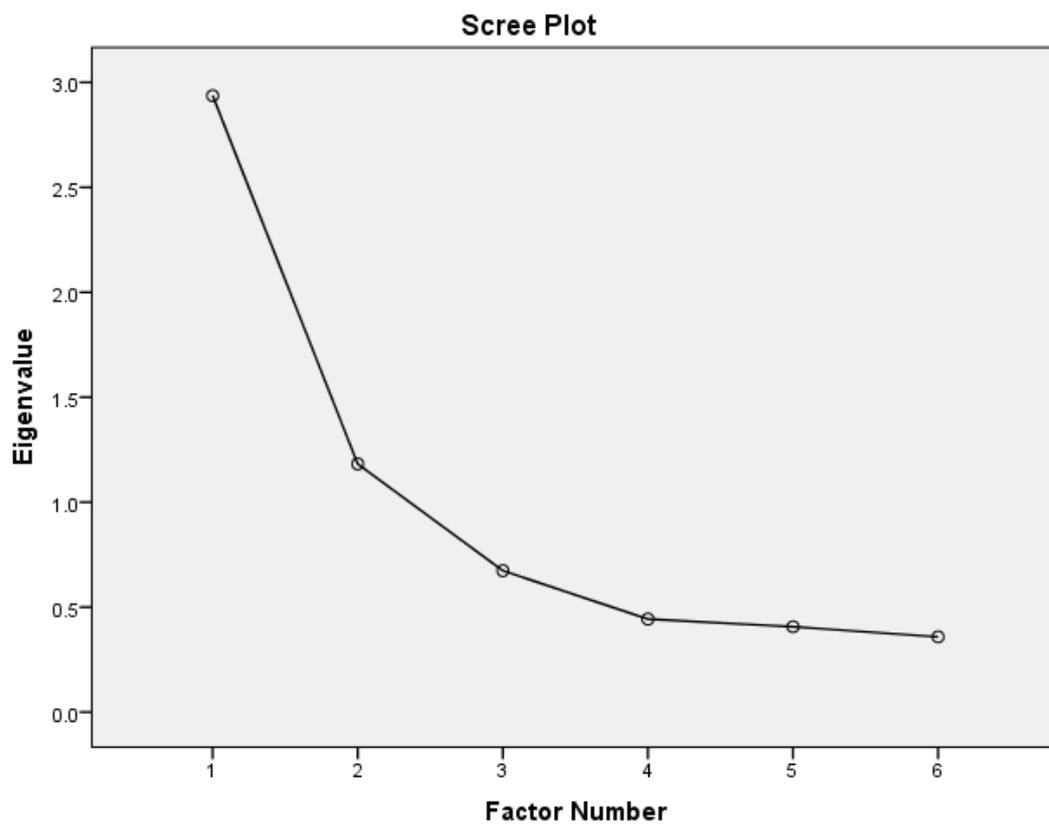
Pattern Matrix

	Component	
	1	2
OCBO Q6	.857	
OCBO Q4	.826	
OCBO Q3	.816	
OCBO Q8	.782	
OCBO Q2	.723	
OCBO Q7	.721	
OCBO Q5	.597	
OCBO Q1	.569	
OCBI Q7		.827
OCBI Q3		.795
OCBI Q6		.778
OCBI Q2		.775
OCBI Q8		.725
OCBI Q4		.720
OCBI Q1		.699
OCBI Q5		.558



G9. Pattern matrix and scree plot 1 for intrinsic motivation

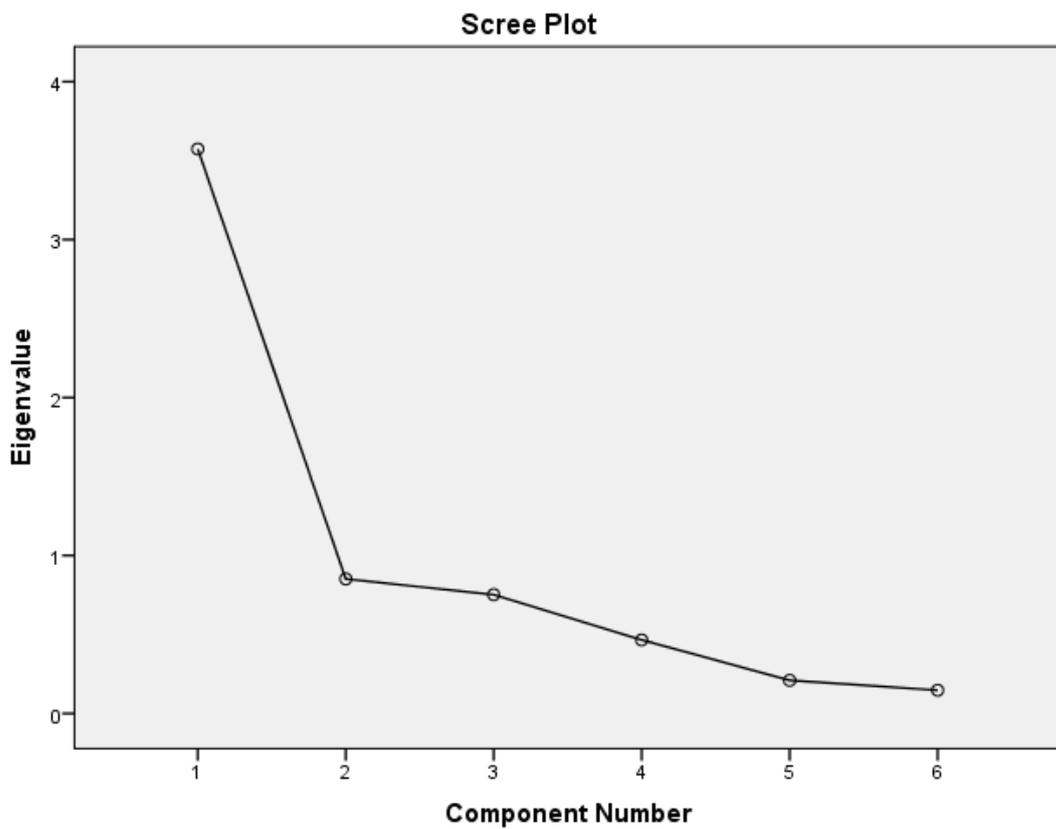
	Factor	
	1	2
Intrinsic Motivation Q1	.601	
Intrinsic Motivation Q2		.772
Intrinsic Motivation Q3	.685	
Intrinsic Motivation Q4		.652
Intrinsic Motivation Q5	.828	
Intrinsic Motivation Q6	.679	



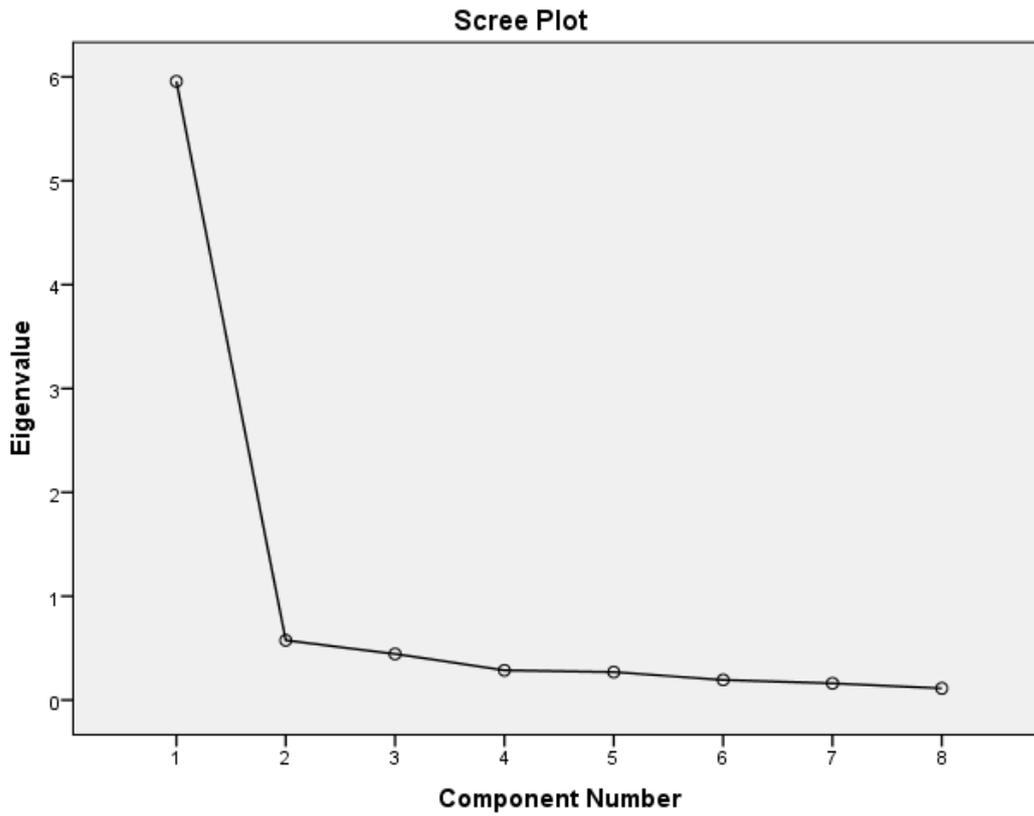
G10. Scree plot 2 for: intrinsic motivation.



G11. Scree plot for: affective organisational commitment.



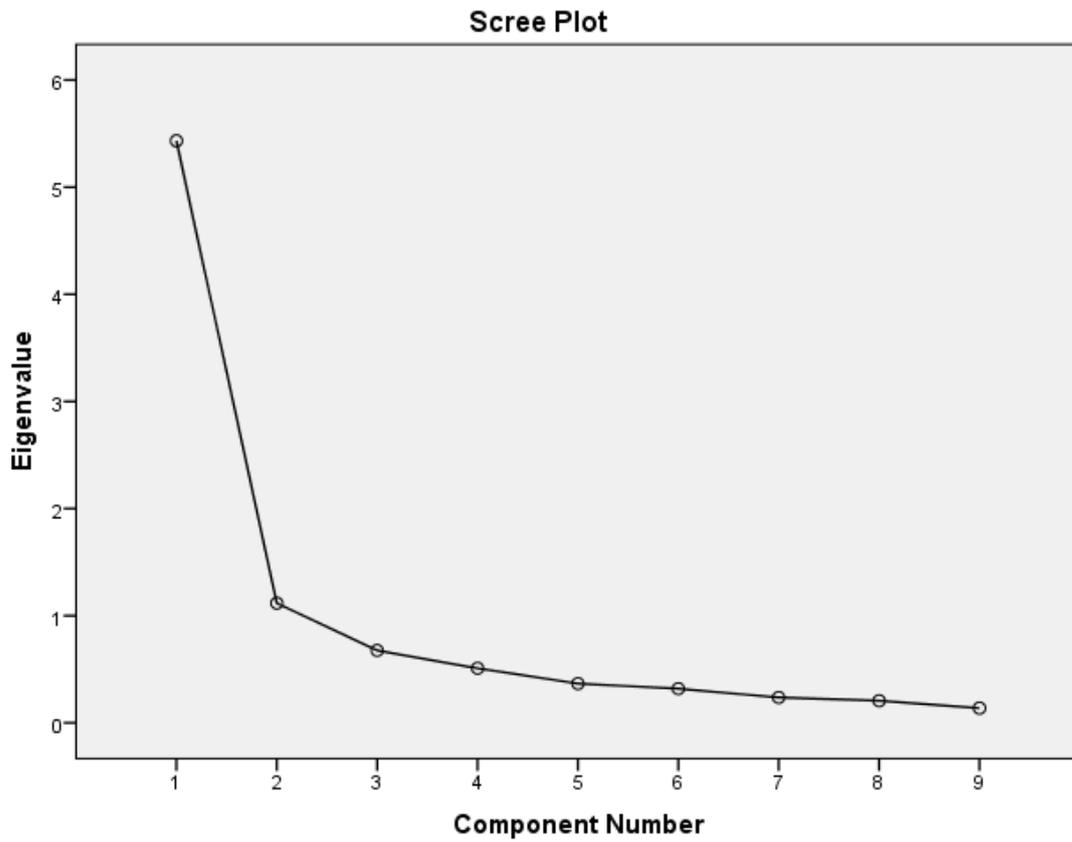
G12. Scree plot for: team commitment.



G13. Pattern matrix and scree plot 1 for: job autonomy

Pattern Matrix

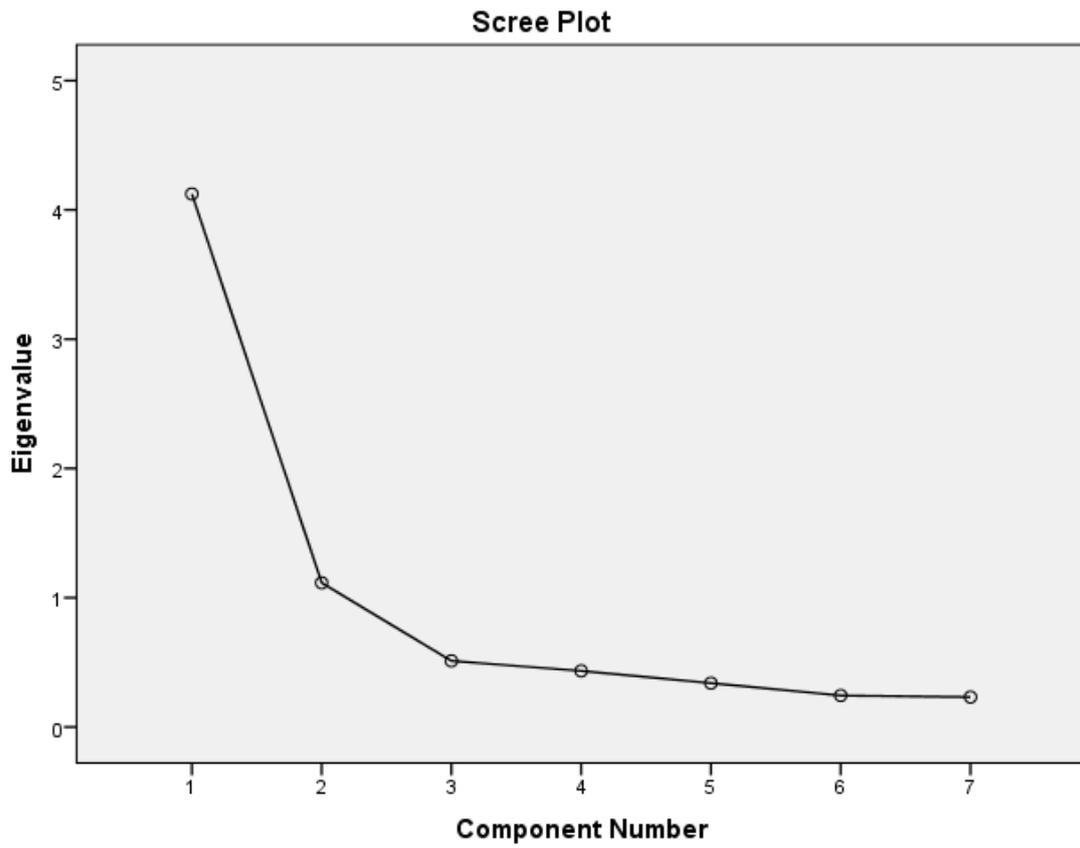
	Component	
	1	2
Scheduling Automomy Q1	.926	
Scheduling Automomy Q2	.919	
Scheduling Automomy Q3	.817	
Method Automomy Q1	.665	
Method Automomy Q3	.605	.357
Method Automomy Q2	.562	.414
Criteria Automomy Q2		.901
Criteria Automomy Q1		.846
Criteria Automomy Q3		.734



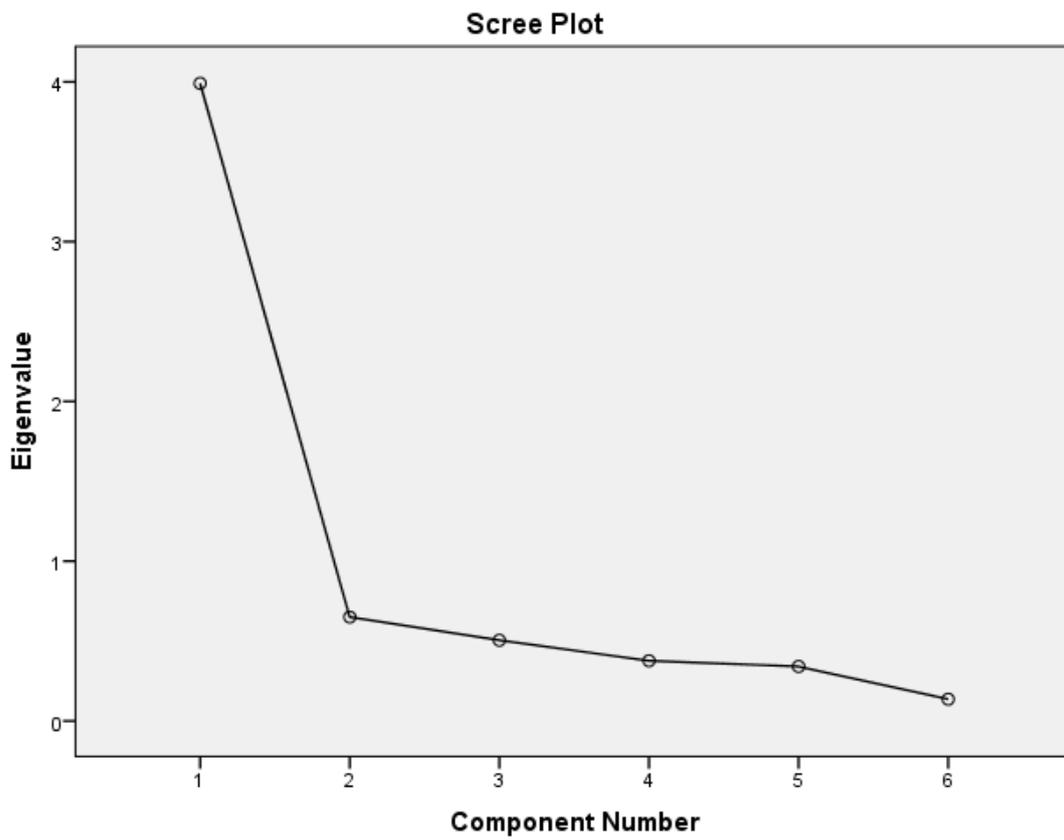
G14. Pattern matrix and scree plot 2 for: job autonomy

Pattern Matrix

	Component	
	1	2
Scheduling Automomy Q2	.924	
Scheduling Automomy Q1	.923	
Scheduling Automomy Q3	.817	
Method Automomy Q1	.629	
Criteria Automomy Q2		.918
Criteria Automomy Q1		.852
Criteria Automomy Q3		.754



G15. Scree plot for: role ambiguity



APPENDIX H

MEDIATION ANALYSES

Table H1

Mediated Regression Equation Testing Hypothesis 1a

Eq	Criterion Variables	Predictor Variables	Beta Coefficient	t	Indirect Effect	Z
1	Work Engagement	Tolerance of Freedom	.65***	6.02		
2	LMX	Tolerance of Freedom	.89***	13.94		
3	Work Engagement	Tolerance of Freedom	.29*	2.01		
		LMX	.40***	3.47	.35***	3.36

Note. LMX = leader-member exchange; Indirect effect = *ab* path coefficient. Eq = regression equation; Z = Sobel Z-score.

N = 212. **p* < .05. ***p* < .01. ****p* < .001.

Table H2

Mediated Regression Equation Testing Hypothesis 1b

Eq	Criterion Variables	Predictor Variables	Beta Coefficient	t	Indirect Effect	Z
1	Work Engagement	Integration Consider	.50***	5.36		
2	LMX	Integration Consider	.91***	21.68		
3	Work Engagement	Integration Consider	-.02	-.13		
		LMX	.58***	3.83	.52***	3.76

Note. LMX = leader-member exchange; Indirect effect = *ab* path coefficient. Eq = regression equation; Z = Sobel Z-score.

N = 212. **p* < .05. ***p* < .01. ****p* < .001

Table H3

Mediated Regression Equation Testing Hypothesis 1d

Eq	Criterion Variables	Predictor Variables	Beta Coefficient	t	Indirect Effect	Z
1	Work Engagement	Initiating Structure	.25*	2.11		
2	LMX	Initiating Structure	.27**	3.00		
3	Work Engagement	Initiating Structure	.10	.94		
		LMX	.54***	6.41	.15**	2.69

Note. LMX = leader-member exchange; Indirect effect = *ab* path coefficient. Eq = regression equation; Z = Sobel Z-score.

N = 208. * $p < .05$. ** $p < .01$. *** $p < .001$

Table H4

Mediated Regression Equation Testing Hypothesis 2a

Eq	Criterion Variables	Predictor Variables	Beta Coefficient	t	Indirect Effect	Z
1	OCBO	Tolerance of Freedom	.35***	3.60		
2	LMX	Tolerance of Freedom	.88***	14.04		
3	OCBO	Tolerance of Freedom	.03	.20		
		LMX	.37***	3.54	.33***	3.42

Note. LMX = leader-member exchange; Indirect effect = *ab* path coefficient. Eq = regression equation; Z = Sobel Z-score.

N = 213. * $p < .05$. ** $p < .01$. *** $p < .001$

Table H5.

Mediated Regression Equation Testing Hypothesis 2b

Eq	Criterion Variables	Predictor Variables	Beta Coefficient	t	Indirect Effect	Z
1	OCBO	Integration Consider	.36***	4.30		
2	LMX	Integration Consider	.90***	21.48		
3	OCBO	Integration Consider	.03	.22		
		LMX	.36**	2.69	.33**	2.66

Note. LMX = leader-member exchange; Indirect effect = *ab* path coefficient. Eq = regression equation; Z = Sobel Z-score.

N = 213. * $p < .05$. ** $p < .01$. *** $p < .001$

Table H6

Mediated Regression Equation Testing Hypothesis 2d

Eq	Criterion Variables	Predictor Variables	Beta Coefficient	t	Indirect Effect	Z
1	OCBO	Initiating Structure	.13	1.21		
2	LMX	Initiating Structure	.27**	3.05		
3	OCBO	Initiating Structure	.02	.23		
		LMX	.38***	4.96	.10*	2.56

Note. LMX = leader-member exchange; Indirect effect = *ab* path coefficient. Eq = regression equation; Z = Sobel Z-score.

N = 213. **p* < .05. ***p* < .01. ****p* < .001

Table H7

Mediated Regression Equation Testing Hypothesis 3a

Eq	Criterion Variables	Predictor Variables	Beta Coefficient	t	Indirect Effect	Z
1	OCBI	Tolerance of Freedom	.20*	2.32		
2	LMX	Tolerance of Freedom	.87***	13.93		
3	OCBI	Tolerance of Freedom	.09	.77		
		LMX	.12	1.30	.11	1.29

Note. LMX = leader-member exchange; Indirect effect = *ab* path coefficient. Eq = regression equation; Z = Sobel Z-score.

N = 212. **p* < .05. ***p* < .01. ****p* < .001

Table H8

Mediated Regression Equation Testing Hypothesis 3b

Eq	Criterion Variables	Predictor Variables	Beta Coefficient	t	Indirect Effect	Z
1	OCBI	Integration Consider	.17*	2.39		
2	LMX	Integration Consider	.90***	21.69		
3	OCBI	Integration Consider	.06	.48		
		LMX	.12	1.01	.11	1.01

Note. LMX = leader-member exchange; Indirect effect = *ab* path coefficient. Eq = regression equation; Z = Sobel Z-score.

N = 212. **p* < .05. ***p* < .01. ****p* < .001

Table H9

Mediated Regression Equation Testing Hypothesis 3d

Eq	Criterion Variables	Predictor Variables	Beta Coefficient	t	Indirect Effect	Z
1	OCBI	Initiating Structure	.31***	3.69		
2	LMX	Initiating Structure	.29**	3.26		
3	OCBI	Initiating Structure	.28**	3.21		
		LMX	.12	1.84	.04	1.55

Note. LMX = leader-member exchange; Indirect effect = *ab* path coefficient. Eq = regression equation; Z = Sobel Z-score.

N = 212. **p* < .05. ***p* < .01. ****p* < .001

Table H10

Mediated Regression Equation Testing Hypothesis 4a

Eq	Criterion Variables	Predictor Variables	Beta Coefficient	t	Indirect Effect	Z
1	Intrinsic Motivation	Tolerance of Freedom	.13*	2.9		
2	LMX	Tolerance of Freedom	.89***	13.94		
3	Intrinsic Motivation	Tolerance of Freedom	.04	.64		
		LMX	.10*	2.05	.09*	2.02

Note. LMX = leader-member exchange; Indirect effect = *ab* path coefficient. Eq = regression equation; Z = Sobel Z-score.

N = 208. **p* < .05. ***p* < .01. ****p* < .001

Table H11

Mediated Regression Equation Testing Hypothesis 4b

Eq	Criterion Variables	Predictor Variables	Beta Coefficient	t	Indirect Effect	Z
1	Intrinsic Motivation	Integration Consider	.10*	2.58		
2	LMX	Integration Consider	.91***	21.68		
3	Intrinsic Motivation	Integration Consider	-.04	-.53		
		LMX	.16*	2.36	.14*	2.35

Note. LMX = leader-member exchange; Indirect effect = *ab* path coefficient. Eq = regression equation; Z = Sobel Z-score.

N = 208. **p* < .05. ***p* < .01. ****p* < .001

Table H12

Mediated Regression Equation Testing Hypothesis 4d

Eq	Criterion Variables	Predictor Variables	Beta Coefficient	t	Indirect Effect	Z
1	Intrinsic Motivation	Initiating Structure	.09	1.88		
2	LMX	Initiating Structure	.27**	3.00		
3	Intrinsic Motivation	Initiating Structure	.06	1.24		
		LMX	.12*	3.16	.03*	2.12

Note. LMX = leader-member exchange; Indirect effect = *ab* path coefficient. Eq = regression equation; Z = Sobel Z-score.

N = 208. **p* < .05. ***p* < .01. ****p* < .001

Table H13

Mediated Regression Equation Testing Hypothesis 5a

Eq	Criterion Variables	Predictor Variables	Beta Coefficient	t	Indirect Effect	Z
1	Affective Commitment	Tolerance of Freedom	.46***	5.24		
2	LMX	Tolerance of Freedom	.88***	14.04		
3	Affective Commitment	Tolerance of Freedom	.16	1.3		
		LMX	.35***	3.71	.31***	3.58

Note. LMX = leader-member exchange; Indirect effect = *ab* path coefficient. Eq = regression equation; Z = Sobel Z-score.

N = 213. **p* < .05. ***p* < .01. ****p* < .001

Table H14

Mediated Regression Equation Testing Hypothesis 5b

Eq	Criterion Variables	Predictor Variables	Beta Coefficient	t	Indirect Effect	Z
1	Affective Commitment	Integration Consider	.47***	6.26		
2	LMX	Integration Consider	.90***	21.48		
3	Affective Commitment	Integration Consider	.23	1.75		
		LMX	.26*	2.16	.24*	2.15

Note. LMX = leader-member exchange; Indirect effect = *ab* path coefficient. Eq = regression equation; Z = Sobel Z-score.

N = 213. **p* < .05. ***p* < .01. ****p* < .001

Table H15

Mediated Regression Equation Testing Hypothesis 5d

Eq	Criterion Variables	Predictor Variables	Beta Coefficient	t	Indirect Effect	Z
1	Affective Commitment	Initiating Structure	.15	1.54		
2	LMX	Initiating Structure	.27**	3.05		
3	Affective Commitment	Initiating Structure	.03	.37		
		LMX	.43***	6.19	.12**	2.70

Note. LMX = leader-member exchange; Indirect effect = *ab* path coefficient. Eq = regression equation; Z = Sobel Z-score.

N = 213. **p* < .05. ***p* < .01. ****p* < .001

Table H16

Mediated Regression Equation Testing Hypothesis 6a

Eq	Criterion Variables	Predictor Variables	Beta Coefficient	t	Indirect Effect	Z
1	Team Commitment	Tolerance of Freedom	.99***	11.88		
2	LMX	Tolerance of Freedom	.88***	14.04		
3	Team Commitment	Tolerance of Freedom	.48***	4.62		
		LMX	.57***	6.95	.51***	6.22

Note. LMX = leader-member exchange; Indirect effect = *ab* path coefficient. Eq = regression equation; Z = Sobel Z-score.

N = 213. **p* < .05. ***p* < .01. ****p* < .001

Table H17

Mediated Regression Equation Testing Hypothesis 6b

Eq	Criterion Variables	Predictor Variables	Beta Coefficient	t	Indirect Effect	Z
1	Team Commitment	Integration Consider	.82***	11.11		
2	LMX	Integration Consider	.90***	21.48		
3	Team Commitment	Integration Consider	.19	1.55		
		LMX	.70***	6.30	.63***	6.04

Note. LMX = leader-member exchange; Indirect effect = *ab* path coefficient. Eq = regression equation; Z = Sobel Z-score.

N = 213. **p* < .05. ***p* < .01. ****p* < .001

Table H18

Mediated Regression Equation Testing Hypothesis 6c

Eq	Criterion Variables	Predictor Variables	Beta Coefficient	t	Indirect Effect	Z
1	Team Commitment	Initiating Structure	.24*	2.18		
2	LMX	Initiating Structure	.27**	3.05		
3	Team Commitment	Initiating Structure	.01	.18		
		LMX	.84***	13.15	.22**	2.96

Note. LMX = leader-member exchange; Indirect effect = *ab* path coefficient. Eq = regression equation; Z = Sobel Z-score.

N = 213. **p* < .05. ***p* < .01. ****p* < .001

Table H19

Mediated Regression Equation Testing Hypothesis 7a(SMA)

Eq	Criterion Variables	Predictor Variables	Beta Coefficient	t	Indirect Effect	Z
1	Engagement	Tolerance of Freedom	.65***	6.02		
2	SMA	Tolerance of Freedom	.79***	9.37		
3	Engagement	Tolerance of Freedom	.30*	2.51		
		SMA	.44***	5.20	.34***	4.52

Note. SMA = scheduling and method autonomy; Indirect effect = *ab* path coefficient. Eq = regression equation; Z = Sobel Z-score.

N = 208. **p* < .05. ***p* < .01. ****p* < .001

Table H20

Mediated Regression Equation Testing Hypothesis 7b(SMA)

Eq	Criterion Variables	Predictor Variables	Beta Coefficient	t	Indirect Effect	Z
1	OCBO	Tolerance of Freedom	.36***	3.63		
2	SMA	Tolerance of Freedom	.80***	9.38		
3	OCBO	Tolerance of Freedom	.04	.35		
		SMA	.40***	5.36	.32***	4.63

Note. SMA = scheduling and method autonomy; Indirect effect = *ab* path coefficient. Eq = regression equation; Z = Sobel Z-score.

N = 215. **p* < .05. ***p* < .01. ****p* < .001

Table H21

Mediated Regression Equation Testing Hypothesis 7c(SMA)

Eq	Criterion Variables	Predictor Variables	Beta Coefficient	t	Indirect Effect	Z
1	OCBI	Tolerance of Freedom	.20*	2.35		
2	SMA	Tolerance of Freedom	.79***	9.26		
3	OCBI	Tolerance of Freedom	.11	1.09		
		SMA	.11	1.68	.09	1.65

Note. SMA = scheduling and method autonomy; Indirect effect = *ab* path coefficient. Eq = regression equation; Z = Sobel Z-score.

N = 214. **p* < .05. ***p* < .01. ****p* < .001

Table H22

Mediated Regression Equation Testing Hypothesis 7d(SMA)

Eq	Criterion Variables	Predictor Variables	Beta Coefficient	t	Indirect Effect	Z
1	Intrinsic Motivation	Tolerance of Freedom	.13**	2.86		
2	SMA	Tolerance of Freedom	.79***	9.37		
3	Intrinsic Motivation	Tolerance of Freedom	.027	.50		
		SMA	.13***	3.60	.11***	3.34

Note. SMA = scheduling and method autonomy; Indirect effect = *ab* path coefficient. Eq = regression equation; Z = Sobel Z-score.

N = 208. **p* < .05. ***p* < .01. ****p* < .001

Table H23

Mediated Regression Equation Testing Hypothesis 7e(SMA)

Eq	Criterion Variables	Predictor Variables	Beta Coefficient	t	Indirect Effect	Z
1	Affective Commitment	Tolerance of Freedom	.47***	5.25		
2	SMA	Tolerance of Freedom	.80***	9.38		
3	Affective Commitment	Tolerance of Freedom	.22*	2.15		
		SMA	.31***	4.56	.25***	4.08

Note. SMA = scheduling and method autonomy; Indirect effect = *ab* path coefficient. Eq = regression equation; Z = Sobel Z-score.

N = 215. **p* < .05. ***p* < .01. ****p* < .001

Table H24

Mediated Regression Equation Testing Hypothesis 7f(SMA)

Eq	Criterion Variables	Predictor Variables	Beta Coefficient	t	Indirect Effect	Z
1	Team Commitment	Tolerance of Freedom	.99***	11.88		
2	SMA	Tolerance of Freedom	.80***	6.38		
3	Team Commitment	Tolerance of Freedom	.79***	8.27		
		SMA	.24***	3.76	.20***	3.48

Note. SMA = scheduling and method autonomy; Indirect effect = *ab* path coefficient. Eq = regression equation; Z = Sobel Z-score.

N = 215. **p* < .05. ***p* < .01. ****p* < .001

Table H25

Mediated Regression Equation Testing Hypothesis 7a(CA)

Eq	Criterion Variables	Predictor Variables	Beta Coefficient	t	Indirect Effect	Z
1	Work Engagement	Tolerance of Freedom	.65***	6.02		
2	CA	Tolerance of Freedom	.84***	7.40		
3	Work Engagement	Tolerance of Freedom	.50***	4.20		
		CA	.17**	2.67	.15*	2.49

Note. CA = criteria autonomy; Indirect effect = *ab* path coefficient. Eq = regression equation; Z = Sobel Z-score.

N = 208. **p* < .05. ***p* < .01. ****p* < .001

Table H26

Mediated Regression Equation Testing Hypothesis 7b(CA)

Eq	Criterion Variables	Predictor Variables	Beta Coefficient	t	Indirect Effect	Z
1	OCBO	Tolerance of Freedom	.36***	3.63		
2	CA	Tolerance of Freedom	.84***	7.43		
3	OCBO	Tolerance of Freedom	.18	1.71		
		CA	.21***	3.55	.17**	3.18

Note. CA = criteria autonomy; Indirect effect = *ab* path coefficient. Eq = regression equation; Z = Sobel Z-score.

N = 215. **p* < .05. ***p* < .01. ****p* < .001

Table H27

Mediated Regression Equation Testing Hypothesis 7c(CA)

Eq	Criterion Variables	Predictor Variables	Beta Coefficient	t	Indirect Effect	Z
1	OCBI	Tolerance of Freedom	.20*	2.35		
2	CA	Tolerance of Freedom	.82***	7.30		
3	OCBI	Tolerance of Freedom	.05	.56		
		CA	.18***	3.57	.15**	3.18

Note. CA = criteria autonomy; Indirect effect = *ab* path coefficient. Eq = regression equation; Z = Sobel Z-score.

N = 214. **p* < .05. ***p* < .01. ****p* < .001

Table H28

Mediated Regression Equation Testing Hypothesis 7d(CA)

Eq	Criterion Variables	Predictor Variables	Beta Coefficient	t	Indirect Effect	Z
1	Intrinsic Motivation	Tolerance of Freedom	.13**	2.86		
2	CA	Tolerance of Freedom	.84***	7.40		
3	Intrinsic Motivation	Tolerance of Freedom	.14**	2.62		
		CA	-.01	-.19	-.01	-.19

Note. CA = criteria autonomy; Indirect effect = *ab* path coefficient. Eq = regression equation; Z = Sobel Z-score.

N = 208. **p* < .05. ***p* < .01. ****p* < .001

Table H29

Mediated Regression Equation Testing Hypothesis 7e(CA)

Eq	Criterion Variables	Predictor Variables	Beta Coefficient	t	Indirect Effect	Z
1	Affective Commitment	Tolerance of Freedom	.47***	5.25		
2	CA	Tolerance of Freedom	.84***	7.43		
3	Affective Commitment	Tolerance of Freedom	.33***	3.37		
		CA	.16**	3.10	.14**	2.83

Note. CA = criteria autonomy; Indirect effect = *ab* path coefficient. Eq = regression equation; Z = Sobel Z-score.

N = 215. **p* < .05. ***p* < .01. ****p* < .001

Table H30

Mediated Regression Equation Testing Hypothesis 7f(CA)

Eq	Criterion Variables	Predictor Variables	Beta Coefficient	t	Indirect Effect	Z
1	Team Commitment	Tolerance of Freedom	.99***	11.88		
2	CA	Tolerance of Freedom	.84***	7.43		
3	Team Commitment	Tolerance of Freedom	.87***	9.48		
		CA	.14**	2.85	.12**	2.64

Note. CA = criteria autonomy; Indirect effect = *ab* path coefficient. Eq = regression equation; Z = Sobel Z-score.

N = 215. **p* < .05. ***p* < .01. ****p* < .001

Table H31

Mediated Regression Equation Testing Hypothesis 8a

Eq	Criterion Variables	Predictor Variables	Beta Coefficient	t	Indirect Effect	Z
1	Work Engagement	Initiating Structure	.24*	2.04		
2	RA	Initiating Structure	-.45***	-4.12		
3	Work Engagement	Initiating Structure	.01	.04		
		RA	-.53***	-7.97	.24***	3.64

Note. RA = role ambiguity; Indirect effect = *ab* path coefficient. Eq = regression equation; Z = Sobel Z-score.

N = 207. **p* < .05. ***p* < .01. ****p* < .001

Table H32

Mediated Regression Equation Testing Hypothesis 8b

Eq	Criterion Variables	Predictor Variables	Beta Coefficient	t	Indirect Effect	Z
1	OCBO	Initiating Structure	.10			
2	RA	Initiating Structure	-.43***	-4.01		
3	OCBO	Initiating Structure	-.04	-.42		
		RA	-.34***	-5.37	.14**	3.18

Note. RA = role ambiguity; Indirect effect = *ab* path coefficient. Eq = regression equation; Z = Sobel Z-score.

N = 214. **p* < .05. ***p* < .01. ****p* < .001

Table H33

Mediated Regression Equation Testing Hypothesis 8c

Eq	Criterion Variables	Predictor Variables	Beta Coefficient	t	Indirect Effect	Z
1	OCBI	Initiating Structure	.29***	3.44		
2	RA	Initiating Structure	-.43***	-4.00		
3	OCBI	Initiating Structure	.26**	3.00		
		RA	-.07	-1.21	.03	1.12

Note. RA = role ambiguity; Indirect effect = *ab* path coefficient. Eq = regression equation; Z = Sobel Z-score.

N = 213. **p* < .05. ***p* < .01. ****p* < .001

Table H34

Mediated Regression Equation Testing Hypothesis 8d

Eq	Criterion Variables	Predictor Variables	Beta Coefficient	t	Indirect Effect	Z
1	Intrinsic Motivation	Initiating Structure	.08	1.76		
2	RA	Initiating Structure	-.45	-4.12		
3	Intrinsic Motivation	Initiating Structure	.03	.69		
		RA	-.11***	-3.82	.05**	2.76

Note. RA = role ambiguity; Indirect effect = *ab* path coefficient. Eq = regression equation; Z = Sobel Z-score.

N = 207. **p* < .05. ***p* < .01. ****p* < .001

Table H35

Mediated Regression Equation Testing Hypothesis 8e

Eq	Criterion Variables	Predictor Variables	Beta Coefficient	t	Indirect Effect	Z
1	Affective Commitment	Initiating Structure	.16	1.62		
2	RA	Initiating Structure	-.43***	-4.01		
3	Affective Commitment	Initiating Structure	-.02	-.21		
		RA	.41***	-7.36	.18***	3.50

Note. RA = role ambiguity; Indirect effect = *ab* path coefficient. Eq = regression equation; Z = Sobel Z-score.

N = 214. **p* < .05. ***p* < .01. ****p* < .001

Table H36

Mediated Regression Equation Testing Hypothesis 8f

Eq	Criterion Variables	Predictor Variables	Beta Coefficient	t	Indirect Effect	Z
1	Team Commitment	Initiating Structure	.22*	1.98		
2	RA	Initiating Structure	-.43***	-4.01		
3	Team Commitment	Initiating Structure	-.04	-.48		
		RA	-.61***	-10.73	.26***	3.74

Note. RA = role ambiguity; Indirect effect = *ab* path coefficient. Eq = regression equation; Z = Sobel Z-score.

N = 214. **p* < .05. ***p* < .01. ****p* < .001