How Leadership Styles and Follower Characteristics Predict Follower Work Outcomes in Libyan Organisations

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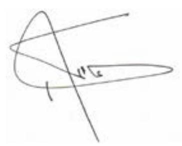
STATEMENT OF ORIGINAL AUTHORSHIP

I certify that the content of this research has not been previously submitted for any degree, and is not currently being submitted for any other degree.

I also certify that to the best of my knowledge, any help received in preparing this work and all sources used have been acknowledged in the thesis.

Signed: 

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Abstract

There is a deficit in the literature of research evaluating the impact of contemporary theories of leadership and followership on follower work outcomes in developing countries in the Middle East (Metcalfe & Murfin, 2011). This research examines the relationships between the three variables pertaining to follower work outcomes (job satisfaction, organisational commitment, and work engagement) and the full range of leadership styles (transformational, transactional, and laissez-faire) (Avolio & Bass, 1995), and associated followership performance and relationship characteristics (Potter III & Rosenbach, 2006) in Libya. It explores to what extent the full range of leadership styles predicts follower work outcomes; to what degree follower characteristics predict follower work outcomes; and to what extent follower relationship and performance characteristics moderate the relationship between each of the transformational and transactional leadership styles and follower work outcomes. A deductive approach is employed, using a questionnaire to collect data from 667 participants, from 141 work groups, from across 24 Libyan public sector organisations (LPSOs). The data was analysed using multi-level modelling analysis to investigate the relationships between dependent and independent variables; moderation analysis was then used to examine the impact of followership on leadership performance.

The findings inform the literature in various ways. Primarily, these suggest that transformational leadership induces positive levels of job satisfaction, organisational commitment and work engagement among LPSOs employees. This is consistent with existing literature (Griffith, 2004; Judge & Piccolo, 2004; Emery & Barker, 2007; Akeel & Subramaniam; 2013). The findings support ongoing, cross-cultural leadership research (House *et al*., 2014) that advocates a universal positive performance of transformational leadership across nations. The findings suggest that transactional leadership is linked with positive job satisfaction and work engagement, which supports current

research (Breevaart *et al.*, 2014). Laissez-faire leaders do not seem to influence their followers' work outcomes, which concurs with Bass (1997). The study also suggests that followers with high levels of performance characteristics demonstrate positive attitudes of job satisfaction and work engagement, while those who have strong relationship characteristics are associated with positive levels of work engagement. This is in line with the emerging literature on followership (Potter III & Rosenbach, 2006; Judge *et al.*, 1998; Kelley, 1988) that suggests positive links between followers' characteristics and work outcomes. It also suggests that followers' relationship characteristics alongside transformational leadership predict follower organisational commitment, expanding the research in this field (Zhu *et al.*, 2009). These results might serve as a basis for future cross-cultural studies to compare LPSOs' leaders' and followers' effectiveness with those in similar regional or international organisations.

The study also has several practical recommendations. Firstly, it suggests that organisations should invest in leadership development to improve employee work outcomes and that organisations such as LPSOs, should capitalise on the existing strength of their transactional managers in order to build a wider base of transformational leaders, enhancing organisational effectiveness. Secondly, organisations should recruit managers with the suitable leadership style for projects with certain desired follower work outcomes. Managers should adopt an appropriate leadership style to achieve the desired follower work outcomes and organisations would benefit from investing in followership development to enhance these work outcomes. Specifically, followers should be educated on how their characteristics might affect not only their own performance, but also that of their leader. Finally, organisations should recruit employees who exhibit positive characteristics that enable them to be more engaged in their work when this behaviour is desired for achieving the job task.

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Introduction

1.1 Introduction

This chapter introduces the research of the relationship between three management constructs: leadership, followership and work outcomes. After this introduction, the chapter outlines the rationale of the study in section 1.2 and then provides the study background in section 1.3, before describing the study context in section 1.4. The purpose of the study and the research questions are provided in sections 1.5 and 1.6 respectively. Finally, the chapter is summarised in section 1.7.

1.2 Rationale for the Study

Leadership has played an important role in human development (Stogdill, 1974), and has been considered the single most important factor in the success or failure of institutions (Bass & Avolio, 1990; Day & Lord, 1988). The theory of transformational leadership provides a full range of leadership styles, classifies leaders as demonstrating transformational, transactional or laissez-faire styles on the basis of the behaviours which they exhibit; and accordingly considers the leader and their followers as existing in a mutually reinforcing relationship (Avolio & Bass, 1995; Avolio, 1999).

The relationship between transformational leadership and followers' work outcomes has long been analysed (e.g. Howell & Avolio, 1993; Bass, Avolio, Jung & Berson, 2003). Empirical research (e.g. Dumdum, Lowe & Avolio 2002; Fuller *et al.*, 1996; Lowe, Kroeck & Sivasubramaniam, 1996) has consistently revealed that transformational leadership has a positive effect on work outcomes, including job satisfaction, organisational commitments and work engagement.

Notably, however, although the effect of transformational leadership on job satisfaction and on organisational commitment has been well documented in the literature (e.g. Griffith, 2004; Judge & Piccolo, 2004; Emery & Barker, 2007; Jung & Avolio, 1999; Braun *et al.* 2013), research on the impact of this style of leadership on the constructs of work engagement (e.g. Zhu, Avolio & Walumbwa, 2009; Babcock-Roberson & Strickland, 2010) remains rather limited. In addition, less attention has thus far been assigned to the impacts of transactional and laissez-faire leadership styles on work outcomes as these two styles are perceived by researchers to lack motivational power and inspirational appeal (Tims, Bakker & Xanthopoulou, 2011).

A number of scholars (e.g. Hollander, 1993; Klein & House, 1995) argue that leadership is a relationship which is jointly produced by both leaders and followers. An emerging trend in leadership literature – role-based approaches (e.g. Shamir, 2007) – advocates the vital role of followership as part of the study and analysis of the leadership phenomenon. Importantly, role-based approaches focus on investigating how follower characteristics and styles influence leaders and leadership outcomes (Uhl-Bien *et al*., 2014). In addition, role-based view researchers (e.g. Kelley, 1992; Chaleff, 1995; Potter III & Rosenbach, 2006; Kellerman, 2007) suggest different followership models, which define followers by their behaviours, and accordingly identify various characteristics of effective followers. However, most of the followership models provide theoretical propositions with little empirical support. Notably, only a few scholars have attempted to theoretically specify and empirically assess the role of followers' characteristics in the leadership-work outcomes relationship (Howell & Shamir, 2005; Jung, Yammarino & Lee, 2009); therefore, additional research is needed in order to examine the role that followers play in terms of being active participants in the leadership process. Further empirical investigation is also needed in order to examine the interaction of various follower characteristics alongside work outcomes, as well as with different leadership frameworks, including the full range leadership model (Avolio & Bass, 1995).

1.3 Study Background

Organisations consider positive employees' work outcomes as key factors in achieving organisational objectives. Amongst the most significant of employee work outcomes are job satisfaction, organisational commitment and work engagement. Many researchers consider leadership style as an important variable in influencing employee work outcomes and organisation performance. In this regard, leadership conceptualisation has evolved through several stages, including the individual traits approach, which emphasises the personality characteristics of the leader (Stogdill, 1974); behaviours approach, which emphasises the style and behaviour of the leader (Blake & Mouton, 1964); and the contingency (Fiedler & Chemers, 1974) and the situational (Hersey & Blanchard, 1969) approaches, which emphasise the importance of matching a leader's style with the demands of a situation. However, most of those theories have been criticised for their focus on the characteristics and actions of the leader without much concern for follower characteristics and behaviours (Yukl, 2006). The dissatisfaction with these approaches has led to the emergence of new theories that extend the emphases to the role of followers in the leadership process. Among those theories, the authentic leadership approach (Luthans & Avolio, 2003; Shamir & Eilam, 2005) conceptualises leadership based on the values and convictions of leaders as well as followers (Shamir & Eilam, 2005); the servant leadership approach (Greenleaf, 1977) primarily focuses on serving followers; and the transformational leadership theory (Burns, 1978; Bass, 1985) focuses on follower performance. These new approaches are moral and inspirational. Moreover, they share the emphasis on the importance of appreciating and valuing people, as well as encourage authenticity in followers.

However, the transformational leadership paradigm embeds the values of authentic leadership through engendering trust, articulating optimistic vision and motivating followers (Gardner *et al*, 2011). Moreover, it entrenches the values of servant leadership through showing high concern for followers' individual needs (Stone *et al*, 2003). In addition to enhancing followers' performance and empowering them to accomplish organisational objectives (Yukl, 2006), the transformational paradigm provides a situational approach of leadership through proposing a full range of leadership styles which leaders can adopt to address various circumstances (Avolio & Bass, 1995). Thus, transformational leadership theories (Burns, 1978; Bass, 1985) have attracted researchers' attention as an effective form of leadership, enabling organisations to transform their performance in order to excel. The full range leadership model (Avolio & Bass, 1995) offers a practical framework of three leadership styles: transformational, transactional and laissez-faire.

Transformational leadership involves engaging the commitment of followers in the context of shared values and a shared vision. It also involves a relationship of mutual trust between leaders and followers (Bass, 1985). Since its emergence, transformational leadership has received intense interest from researchers. Empirical research findings have consistently linked the transformational leadership style to high levels of follower effort, attitude, performance and satisfaction when working with such a leader (Yukl, 2006; Bass & Avolio, 1994). Moreover, during the last three decades, several studies (e.g. Judge & Picolo, 2004; Lowe *et al.*, 1996) have reported positive associations between transformational leadership, follower job satisfaction and organisational commitment. However, only during the last few years has the relationship between transformational leadership and work engagement begun to attract researchers' attention. To date, there have been a limited number of studies which actively examine the relationship between leadership and employees' engagement with their work. Recently, a few researchers (Zhu *et al.*, 2009; Tims *et al.*, 2011) have reported positive relationships between transformational leadership and the level of follower work engagement. Hence, more research is needed in order to verify the findings on the impact of transformational leadership on work engagement.

The underlying processes through which transformational leadership influences the work attitudes and performance of employees has not been fully explored (Kark & Shamir, 2002). Several factors which are considered to be able to either mitigate or moderate the effect of transformational leadership such as organisational culture, leaders' characteristics and followers' attitudes have been investigated in leadership literature (e.g. Walumbwa *et al.*, 2005; Dvir & Shamir, 2003). However, very few studies (Dvir & Shamir, 2003; Jung *et al.*, 2009) have reported a moderating effect of follower attitudes or characteristics on the relationship between transformational leadership and work outcomes. Thus, researchers (e.g. Zhu *et al.*, 2009; Baker, 2006) have encouraged further studies into the effects of follower characteristics on the influence of transformational leadership and followers' work outcomes.

Transactional leadership (Bass, 1985) is more likely to offer some form of need satisfaction in return for something valued by the follower, such as a salary or recognition, when certain objectives are met. Researchers (e.g. Hunt & Schler, 1976; Podsakoff *et al*., 1984) suggest that there is a positive correlation between transactional contingent reward (CR) style leadership and followers' job satisfaction, as well as organisational commitment. By contrast, transactional management-by-exception (MBE) leadership is reported (Emery & Barker, 2007) to have a negative correlation with job satisfaction and organisational commitment. Searching for leadership literature on electronic databases reveals that there are only a few studies (e.g. Breevaart *et al.*, 2014) that deal with the impacts of transactional leadership on follower work engagement. In addition, limited research has thus far examined the impacts of contextual factors on transactional leadership. In this regard, Bono and Judge (2004) report a weak association between personality traits and transactional leadership. This suggests the importance of future research into examining other factors, such as follower characteristics, that might influence transactional leadership effectiveness.

Laissez-faire leadership (Bass, 1990) exercises little control over the group and leaves followers to sort out their own role and tackle their work without direct supervision from the leader. Prior research has found that laissez-faire leadership has an adverse effect on the work outcomes of followers (e.g. Bass, 1990; Yammarino & Bass, 1990). For example, Dubinsky *et al.* (1995) report a negative effect of laissez-faire leadership on a saleperson's job satisfaction and organisational commitment. Others (e.g. Skogstad *et al*, 2007; Hauge, Skogstad & Einarsen, 2007) suggest that the laissez-faire leadership style has a destructive effect; thus, there is need to investigate the findings of previous studies on laissez-faire leadership.

The role of followership in the leadership process has gained some attention over the last three decades. According to Kelley (1988), followers had been under-appreciated owing to the focus on leadership during the past century. Kelley (1992) believes that, in order for people to think of themselves as followers, they need a model of followership which provides options for follower behaviour other than passive or obedient. He further suggests that followers should be considered in respect of two independent performance dimensions: independent critical thinking and being active. In contrast, Chaleff (1995) stresses the importance of the followers' relationship with their leader; he maps followers according to the degree to which they support their leaders, as well as the degree to which they challenge them. A third approach of followership (Potter III & Rosenbach, 2006) argues that effective organisations have partnership relationships between leaders and followers. This approach proposes a two-dimensional space, defined by relationship characteristics and performance characteristics. This followership approach provides a comprehensive and practical framework of followers' measurable characteristics. This enables organisations and leaders to analyse and understand the role of both relationship and performance characteristics in the leader-follower performance relationship. In addition, Rosenbach *et al.* (1996) developed the Performance and

Relationship Questionnaire (PRQ) which seeks to measure the characteristics linked to relationship and performance initiatives.

Only a few empirical studies (e.g. Dvire & Shamire, 2003; Zhu *et al.*, 2009; Jung *et al.*, 2009) have examined the effects of followers' characteristics on the relationship between leadership and follower work outcomes. Zhu *et al.* (2009) suggest that the effectiveness of leadership may, to a certain degree, vary depending on the qualities and characteristics of followers. Moreover, they also suggest that future research is needed that takes into consideration follower characteristics as a potential moderating variable when assessing the impacts of leadership across different work outcomes.

Finally, most of the leadership and followership research that explored the above relationships was premised on Western values and organisational work contexts, and had largely examined those relationships in countries that are developed rather than developing (Metcalfe & Murfin, 2011). However, interest in cross-cultural leadership and research on leadership in non-Western cultures has increased in the past two decades (e.g., House *et al*., 1999; House *et al*., 2014). A major issue is the extent to which leadership theories developed and tested in one culture can be generalised to apply to different cultures. It is, therefore, essential to validate a theory of leadership in cultures that differ from the one in which the theory was developed (Yukl, 2006). For example, the GLOBE studies (House *et al.*, 2014) suggest that people from most cultures view good leadership as based on integrity, charisma and interpersonal ability, hence charismatic and transformational leadership is universally effective across cultures. Similarly, several cross-cultural leadership studies (Judge *et al.*, 2009; House *et al.*, 2004; Spreitzer, Perttula, & Xin, 2005) support the universality of the effectiveness of charismatic and transformational leadership in North America and Asia. Nonetheless, other researchers (Pillai, Scandura, & Williams, 1999) found that transformational leadership does not result in higher levels of satisfaction in Colombia, the Middle East or India. In addition, other studies (Shahin & Wright, 2004) found that the specific elements of transformational leadership in Egypt and other Middle Eastern countries differed from other parts of the world. Thus, there is a need to empirically explore the effectiveness of the transformational leadership paradigm in the context of Middle Eastern countries. Therefore, in order to address this gap in the leadership literature, this research's participants were from public-sector organisations in Libya, examining the impact of contemporary leadership and followership models on follower work outcomes.

1.4 Study Context

For over four decades, Libya had a socialist economy which was dominated by centrally-controlled, Libyan public sector organisations (LPSOs). These institutions were government-owned and employed three quarters of Libya's work force (St John, 2008). Decades of government dominance made these institutions suffer from excessive bureaucratic procedures and mismanagement. Employment was characterised by lifetime engagement, seniority and social cohesiveness. Recruitment was influenced by the tribal system, family relations and network connections (Iles, Almhedie, & Baruch, 2012). Managers were more concerned with establishing social relationships in the workplace than with job performance itself (Iles, *et al.*, 2012), and organisations tended to be change-averse. For example, there were no clear organisational performance targets, performance appraisals were uncommon and, where they did exist, these tended to be ad hoc and informal. Although training was regarded as important, evaluation was rare and there were no links to career development.

Since 2005, Libya has spent tens of millions of US dollars implementing ambitious, organisational transformation plans in various public sector organisations (St John, 2008). These plans have involved organisational restructuring and building initiatives concerned with developing managerial leadership skills and implementing Western-style management best practices, in order to provide world-class services (Porter, 2005). However, these reform efforts have stumbled against the serious inefficiencies of the state (Kawczynski, 2011).

In the wake of the dramatic paradigm change in Libya during the Arab spring of 2011, there was escalating public pressure on LPSOs to introduce radical institutional reform, including the adoption of more transparent governance systems, building institutional capacities and decentralising power by empowering regions. However, LPSOs seem very slow in responding to these calls for change. Although the greatest challenge preventing these organisations from initiating institutional reform has been the lack of political stability in the country, another major challenge is the scarcity of change leadership competencies in LPSOs at all levels. For example, a focus group was organised in Tripoli, in January 2013, for 52 senior managers from 15 public sector organisations (Rathbone, Abidia, and Amgheib, 2013). This focus group revealed that organisational leaders retained their public-sector mind-set. They could be seen focusing on short-term and urgent tasks, instead of strategic long-term goals, preferring to work individually rather than in teams, using command-style leadership, tending to instruct their followers rather than coach and engage with them and focusing more on their rights than on their responsibilities. Thus, the unique context of LPSOs provides a valuable research opportunity to test contemporary leadership and followership models, not only to enrich the literature on organisational leadership in Libya, but also to gain an insight into the nature of the interplay between leadership and followership in predicting work outcomes in LPSOs. Consequently, the findings of this research might inform LPSOs on how to recruit and develop their leaders and followers in order to enhance work outcomes in the emerging new Libya.

1.5 Purpose of the Study

The purpose of this study is to determine the nature of the relationship between the full range of leadership styles, as described by Avolio and Bass (1995) and the associated followership performance and relationship characteristics model, as outlined by Potter III and Rosenbach (2006) on three followers' work outcomes that are key for organisational performance and success within LPSOs: job satisfaction, organisational commitment and work engagement. Consequently, this study aims to achieve the following objectives:

1. Verify the findings of previous research into the relationship between the full range of leadership styles and followers' work-outcomes;

2. Explore the impact of followers' performance and relationship characteristics on followers' work-outcomes; and

3. Examine the role of followers' performance and relationship characteristics on the relationship between transactional and transformational leadership styles respectively, and followers' work-outcomes.

These objectives aim to address several gaps in literature. Firstly, previous research (Almintisir, et al., 2013; Ben Zahari & Shurbagi, 2012; Domoro & Agil, 2012; Shurbagi & Bin Zahari, 2013) examines the impact of one or two types of leadership styles on one or two outcome variables in a few Libyan organisations. However, no study has been conducted to investigate the impact of the full range of leadership styles and a number of important follower work outcomes across a wide range of organisations in Libya. Secondly, there are different views regarding the effectiveness of transformational leadership across cultures. While researchers (Bass, 1997; House *et al.*, 2014) suggest the universality of the positive impact of charismatic and transformational leaders' behaviours across cultures, others (Pillai, *et al.*, 1999; Shahin & Wright, 2004) question the effectiveness of the transformational style in the context of Middle Eastern countries. Thus, more research is needed to clarify those differences. Thirdly, only a limited number of studies (e.g., Dvire & Shamire, 2003; Zhu *et al.*, 2009; Jung *et al.*, 2009) have explored the influence of followership on both work outcomes as well as on leadership effectiveness. Hence, further investigation of follower-leader relationship in LPSOs may help to address the shortage in the emerging followership literature.

Therefore, achieving this study's objectives contributes to the subject knowledge, through documenting the nature of the leader-follower relationship with work outcomes in the unexplored Libyan context; as well as by elucidating how the study findings might be used as a launching base for future research that could compare the effectiveness of LPSO leaders and followers with those in similar regional or international organisations. Finally, achieving the above objectives can also help organisations to develop effective strategies for recruitment and development of leaders, as well as followers that would better fulfil their organisational goals.

As is clear from the discussion in this section, it is not the intention of the study to make a comparison of leadership and followership effectiveness in LPSOs versus those in Western organisations. Firstly, cross-cultural research requires researchers to consider a broader-than-usual range of variables and processes, also paying attention to the possible effects of situational variables (e.g. religion, language, laws, political systems, ethnic subcultures) not usually included in current theories of leadership (Yukl, 2006; House *et al.*, 2014) and which is beyond the scope of this research. This is also due to the methodological issue of difference in meaning of measures (e.g., followership) developed in one country and then used in other countries (Yukl, 2006). For instance, House *et al*. (2014) asserts that new methods are needed to establish the metric equivalence of scales designed to measure culture level phenomena, which is also beyond the scope of the current study.

1.6 Research Questions

The goal of this study is to understand the impact of leadership style and follower characteristics on followers' work outcomes, investigating the role of followers' characteristics on transformational, transactional leadership effectiveness. The lack of current knowledge on this subject and between these elements fundamentally hinders our ability to place a value on leadership impact on work outcomes, as well as on follower behaviours and their importance in the realm of leadership effectiveness and on followers' work outcomes. Therefore, the intention of this study is to answer the following three research questions:

> **Research question one***:* To what extent does the full range of leadership styles predict followers' work-outcomes?
>
> **Research question two***:* To what degree do follower characteristics (performance and relationship) predict followers' work-outcomes?
>
> **Research question three***:* To what extent do follower performance and relationship characteristics moderate the relationship between transactional and transformational leadership respectively, and followers' work-outcomes?

1.7 Summary

This chapter presents the rationale behind the study and provided an overview of the research background, context and purpose. The chapter also presents the three research questions examined by the study. The next chapter reviews relevant literature in order to develop hypotheses for empirical investigations in an attempt to answer the above research questions.

Chapter 2
Literature Review

2.1 Introduction

This chapter reviews the literature on the constructs of leadership, followership and follower work outcomes. Firstly, it outlines various conceptualisations of work outcomes in section 2.2. Secondly, it reviews the major theories of leadership, before going on to explore the dimensions of the full range of leadership styles in sections 2.3 and 2.4 respectively. Then, it discusses the impacts of each leadership style on work outcomes in section 2.5. It provides an overview of followership models in section 2.6, and then goes on to review literature on the relationship between followership and follower work outcomes in section 2.7. Fourthly, it reviews the research investigating the interrelation between followership, leadership and follower work outcomes in section 2.8. Fifthly, it presents the research hypotheses and conceptual framework in sections 2.9 and 2.10 respectively. Finally, a summary is provided in section 2.11.

2.2 Follower Work Outcomes

Most organisations realise that their success or failure is ultimately determined by human beings. Employees' work outcomes are key factors in achieving organisational objectives; thus, organisations ensure that special attention is directed to their employees' work outcomes. According to Robbins and Judge (2009), work attitude is an evaluative judgment, either favourable or unfavourable, that employees hold concerning their work environment.

Most of the research into organisational behaviour has focused on a number of follower work outcomes that are considered important for the success of both leadership and organisations. Three closely-related employee outcomes, which include job satisfaction, organisational commitment and work engagement, have attracted attention from organisations as well as from researchers (Robbins &

Judge, 2009). Research has shown that satisfied employees are more likely to engage in their work and are also more likely to continue working for their organisation (Hughes *et al.,* 2009). Also, scholars have asserted that leadership style (e.g., Griffith, 2004; Judge & Piccolo, 2004; Emery & Barker, 2007; Zhu *et al.*, 2009; Braun *et al.,* 2013; Jackson, Meyer, and Wang, 2013), as well as follower characteristics (Kelley, 1988; Dvir & Shamir, 2003; Baker, 2006; Kellerman, 2008; Carsten *et al.,* 2010) are important determinants of these work outcomes. The next subsections briefly discuss the concepts and theories underpinning the constructs of job satisfaction, organisational commitment and work engagement.

2.2.1 Job Satisfaction

Generally, the term 'job satisfaction' is applied in describing feelings about an individual's job, based on an evaluation of its characteristics (Robbins & Judge, 2009). However, the definition of job satisfaction has evolved over the decades. Locke (1976, p. 1297) defines job satisfaction as 'a pleasurable or positive, emotional state resulting from the appraisal of one's job or job experience'. Schultz (1982) suggests that job satisfaction is essentially the psychological disposition of people toward their work. Similarly, Robbins (2005) defines job satisfaction as a collection of feelings that an individual holds concerning his or her job. These definitions share the belief that job satisfaction is a work-related positive affective reaction. In contrast, there seems to be less consistency amongst researchers relating to the causes and motivations that drive job satisfaction. Wexley and Yukl (1984) suggest that job satisfaction is influenced by many factors, including personality traits, as well as the characteristics of the job. In this regard, Herzberg (1974) suggests the Two-Factor Theory, which attempts to explain satisfaction and motivation in the workplace. According to this theory, satisfaction and dissatisfaction are driven by various factors, namely *motivation* and *hygiene.* Motivation factors are intrinsic factors deriving from individuals attaining personal or organisational goals, such as achievement, recognition, promotion and growth. Hygiene factors are extrinsic variables, including working environment, pay (in some contexts), company policies and interrelationships that need to be met in order to prevent dissatisfaction (Worrell, 2004). According to this theory, efforts are directed towards improving hygiene factors, which will not increase followers' motivation or satisfaction. In the same way, when followers are satisfied with their job, motivators are present, but removing the motivators does not directly lead to dissatisfaction; hence, it is important for working conditions to be adequate, but, when striving to enhance motivation and satisfaction, it is even more important to fulfil followers' higher-level needs of self-actualisation through recognition and responsibility (Maslow, 1954), as well as the possibility for advancement (Hughes *et al.*, 2009).

Given the above discussion, job satisfaction is related to employees' feelings and can be influenced by factors such as their supervisor, the quality of the physical environment in which they work or the degree of fulfilment in their work. Job satisfaction is not the same as job motivation; rather, job satisfaction provides an indication of an employee's attitude and well-being induced by the job (Mullins, 2007). Leaders can effectively enhance their followers' job satisfaction by using a variety of motivational interventions. The two-factor theory (Herzberg, 1974) provides useful insight into what followers find satisfying and dissatisfying about their work. Thus, this study adopts Herzberg's (1974) framework to explain the motivational underpinnings of follower job satisfaction as a result of leadership and followership influence.

2.2.2 Organisational Commitment

Organisational commitment is a psychological state that binds an employee to an organisation. Like many constructs in organisational psychology, commitment has been conceptualised and measured in various ways over the years (Buchanan, 1974; Allen & Meyer, 1990; Porter *et al.*, 1974). With this in mind, researchers have used two approaches to define commitment: a one-dimensional approach and a multi-dimensional approach (Jafri, 2010). According to the one-dimensional approach, organisational commitment is defined as an affective attachment to the organisation (Buchanan, 1974) or, more precisely, the employee's own identification with, and involvement in, a particular organisation (Steers, 1977; Mowday, Steers & Porter, 1979). A multi-dimensional approach views organisational commitment as a concept comprising a moral component (internalisation of values and goals of the organisation) and a calculative component (the desire to remain) (Morrow, 1983). Others, including Porter *et al.* (1974), define organisational commitment as a three-factor construct encompassing a strong belief in, and acceptance of, organisational goals and values, a willingness to exert considerable effort on behalf of the organisation and a strong desire to remain a member of the organisation.

The most frequently used conceptualisation of organisational commitment is that of Allen and Meyer (1990), the three-component model, which views organisational commitment as a psychological state comprising three dimensions: affective, continuance and normative commitment. The first of the three commitments, affective commitment (AC), refers to the individual's positive emotional attachment to the organisation, whereby strongly committed individuals identify with and are involved in the organisation (Mowday *et al.*, 1979; Allen & Meyer, 1990). The continuance commitment (CC) refers to the employee's need to remain within the organisation because he or she has invested a great deal of their life in the organisation and leaving it would therefore be very costly (Kanter, 1968). Finally, normative commitment (NC) refers to the individual's own belief that he or she is obligated to remain within a particular organisation due to personal loyalty or allegiance (Wiener, 1982). Although these forms of commitment increase the likelihood of an individual remaining with an organisation, their reasons for doing so fundamentally differ by dimension. Essentially, those with a strong affective commitment remain because they want to, whereas those with a high continuance commitment remain because they acknowledge the cost of leaving.

Individuals with a high normative commitment remain because they believe they must (Allen & Meyer, 1990). Allen & Meyer (1990) view the three dimensions of commitment as distinguishable components rather than types of attitudinal commitment, whereby one can simultaneously experience all of these psychological states, to varying degrees. According to this view, the 'net sum' of these separable psychological states forms the individual's overall commitment to the organisation. Allen and Meyer (1990) provides and tests three independent measures for the three components of organisational commitment.

The positive outcomes of organisational commitment have been well documented in management literature. Committed employees are less likely to quit and accept other jobs (Porter *et al.*, 1974; Allen & Meyer, 1990; Dale & Fox, 2008) and so the costs associated with high staff turnover and absenteeism are avoided and committed employees also have a purpose and are involved in helping to solve the organisation's problems (Dale & Fox, 2008). Since Allen and Meyer's (1990) three-dimensional model of organisational commitment is well supported by empirical research (Meyer & Allen, 1991; Meyer, Allen, & Smith, 1993; Meyer & Herscovitch, 2001; Meyer & Parfyonova, 2010), the current study uses this model to examine the interplay between organisational commitment, leadership and followership.

2.2.3 Work Engagement

The construct of work engagement or employee engagement is a relatively new concept which refers to one's involvement, satisfaction and enthusiasm for the work one does (Robbins & Judge, 2009). Highly-engaged employees have a passion for their job and feel a deep connection to their organisation. Empirical studies (Kahn, 1990; Levinson, 2007) have established that work engagement is positively related to organisational commitment, as well as employees' performance.

Although several researchers (Kahn, 1990; Maslach, Schaufeli & Leiter, 2001; Schaufeli, *et al.*, 2002) agree on the construct of work engagement, they have defined the concept in different ways. For example, Schaufeli *et al.* (2002) identify work engagement as a positive, affective-motivational, work-related state of mind which is characterised by vigour, dedication and absorption. Kahn (1990) suggests that people have dimensions of themselves which, given appropriate conditions, they prefer to use and express during the course of role performance. Thus, he defines engagement in terms of a psychological state, as 'the simultaneous employment and expression of a person's preferred self in task behaviours that promote connections to work and to others, personal presence and active, full role performances' (Kahn, 1990, p. 700). He further argues that the combination of employing and expressing a person's preferred self subsequently yields behaviours which bring alive the relationship between self and role. He further suggests that people who are personally engaged keep themselves within a role without sacrificing one for the other. In Kahn's (1990) view, people employ and express their preferred selves on the basis of their psychological experience of self-in-role. Rothbard (2001) supports and expands Kahn's definition by suggesting that engagement also reflects being absorbed and intensely focused in one's own work. In a similar way, Maslach *et al.* (2001, p. 417) refer to engagement as a psychological and emotional state – a 'persistent, positive affective-motivational state of fulfilment'.

In addition to the various conceptualisations of engagement, researchers suggest various antecedents to work engagement. For example, Kahn (1990) discusses three psychological conditions – *psychological meaningfulness*, *psychological safety* and *psychological availability* – which are considered to be antecedents to work engagement. *Psychological meaningfulness* refers to the positive feeling that one receives as a return on the investment of one's physical, cognitive or emotional energy in work tasks. *Psychological safety* refers to the extent to which people feel safe in situations when they trust that they would not suffer from their personal engagement. *Psychological* *availability* refers to people's belief that they have the necessary resources – physical, emotional or cognitive – to personally engage them with their work (Kahn, 1990).

Fleming and Asplund (2007) suggest that work engagement has four dimensions, the first of which is *meeting basic needs*, including employees' basic needs or expectations, as well as the materials required to do the job. An organisation which does not meet such basic needs would not be expected to fully enable its employees. The second dimension is *individual contribution*, which addresses the issue of whether or not a job fits an employee's talents, skills and preferences. It is generally recognised that employees perform best if they think that they are able to make a valued contribution to their organisation. The third dimension is *team work*, which addresses the question of employee belonging. When the aforementioned three dimensions are met, employees feel a sense of safety and security, thereby resulting in higher levels of engagement. The fourth dimension is *organic growth*, where employees have positive feelings towards their own identification within the organisation and are accordingly more likely to exhibit a greater sense of confidence, thereby allowing them to grow and perform effectively. Fleming and Asplund (2007) propose a 12-item survey instrument, best known as the Q12, developed by Gallup Inc. This survey instrument seeks to measure the four dimensions of employee engagement. Understanding that researchers have defined work engagement in various ways, this study adopts the conceptual definition of work engagement, as provided by Kahn (1990), in addition to the four-dimensional framework introduced by Fleming and Asplund (2007). In doing so, this study attempts to discuss and develop hypotheses concerning the relationship between leadership, followership and follower work engagement. Having discussed the three work outcomes that are perceived to be important for organisational success, the focus in the next section is on leadership.

2.3 Leadership

Leadership has been considered to be one of the most important factors in the success and failure of organisations (Bass, 1990). Notably, it has been proven to have a significant impact on followers' work outcomes (Griffith, 2004; Judge & Piccolo, 2004). However, despite recognition of the importance of leadership, there remains a certain degree of disagreement concerning what actually constitutes leadership, as well as the type of leadership behaviours that may have a greater impact on followers' work outcomes and how leadership influences those outcomes. Thus, the following subsections review leadership literature in order to shed light on these issues.

2.3.1 Defining Leadership

Following a comprehensive review of the leadership literature, Stogdill (1974, p. 295) concludes that 'there are almost as many definitions of leadership as there are persons who have attempted to define the concept'. According to Bolden (2004), there are two fundamental difficulties at the heart of the problem of defining leadership: first, leadership is a complex construct, much like 'happiness' and 'freedom', and is open to subjective interpretation; and second, the way in which leadership is defined and understood is notably influenced by one's own theoretical stance. This view is supported by Yukl & Lepsinger (2004), who suggest that researchers usually define leadership according to their own individual perspectives and the aspects of the phenomena which most interest them.

One popular approach to defining leadership conceptualises it from a personality or trait perspective (Mann, 1959; Stogdill, 1974; Bryman, 1992), suggesting that leadership is a combination of special traits or characteristics possessed by individuals which enable them to induce others to accomplish tasks. Another common approach defines leadership as an act or behaviour or the things leaders do to bring about change in a group (Blake & Mouton, 1964). Leadership has also been defined as a power relationship (French & Raven, 1959) which exists between leaders and followers, where leaders have power and accordingly wield it to effect change in others. Others (Katz, 1955; Mumford *et al*., 2000) address leadership from a skills perspective, where focus is directed to capabilities (knowledge and skills) which make effective leadership possible. Other scholars (Burns, 1978; Bass, 1985) view leadership as a transformational process, which moves followers to accomplish more than what is usually expected of them.

The diversity in the views on leadership reflects deep disagreement between scholars in their conception of leadership and the overall leadership process. However, despite the disagreement over leadership conceptualisation, four components have been identified as being central to the phenomenon of leadership: (a) leadership as a process; (b) leadership involving influence; (c) leadership occurring in group contexts; and (d) leadership involving goal attainment (Northouse, 2007). Based on these components, this study adopts a broad definition of leadership to include influencing task objectives and strategies, thereby influencing commitment and compliance in task behaviour to achieve such objectives, and to thereby influence group maintenance and identification. Therefore, the following definition is used:

> *'Leadership is the process of influencing others to understand and agree about what needs to be done and how to do it, and the process of facilitating individual and collective efforts to accomplish shared objectives' (Yukl, 2006, p. 8).*

This definition is preferred because it considers all factors implied by the present study. However, this study adopts the position that leadership is a shared social influence process within the group that occurs when leaders and followers interact, performing ethical tasks which are beneficial for the organisation and themselves. In order to comprehend leadership, one first needs to acknowledge and understand various theories that strive to explain the nature of relationships between leaders and followers. This is the overall aim of this study. Thus, the following sub-sections will discuss various theories underlying the leader-follower relationship.

2.3.2 Classic Theories of Leadership

In the preceding section, it mentions that leadership is conceptualised and defined in various ways. One of the earliest approaches in studying leadership is the trait approach (Stogdill, 1974; Bryman, 1992; Kirkpatrick & Locke, 1991). This approach emphasises leaders' attributes, such as personality, motives, values and skills. Theories developed under this approach have been referred to as 'great man' theories or heroic models (Vroom & Jago, 2007). Underlying these theories is the assumption that some individuals are natural leaders, endowed with certain traits not possessed by others (Stogdill, 1974). Some of the important traits that are consistently identified in many of the studies on trait approach are intelligence, self-confidence, determination, integrity and sociability (Northouse, 2007). Although the trait approach was supported by a century of research and is intuitively appealing, the results of trait studies have proven to be inconclusive. The trait approach has also been challenged by research questioning the universality of leadership traits. Particularly, this approach has failed to take various situations into account. People who possess certain traits that make them leaders in one situation may not make them leaders in another. In other words, the situation influences leadership and it is therefore difficult to identify a universal set of leadership traits in isolation from the context in which the leadership occurs (Stogdill, 1974). The trait approach is also criticised for its weakness in describing how leaders' traits affect the outcomes of groups and teams in organisational settings. In addition, this approach does not provide a practical framework for the training and development of leadership. Even if definitive traits could be identified, teaching new traits is not an easy process (Northouse, 2007).

In contrast to the trait approach, the behaviour approach (Blake & Mouton, 1964) focuses on what leaders actually do as opposed to their underlying characteristics. Behavioural approach researchers (Blake & Mouton, 1964; Mumford *et al.*, 2000; Yammarino, 2000) have determined two general kinds of independent leadership behaviours: *task behaviour* and *relationship behaviour*. The former is concerned with facilitating goal accomplishment, whilst the latter is concerned with helping subordinates to feel comfortable with themselves, with each other and with the situation in which they find themselves. Accordingly, the key to being an effective leader often rests on how the leader balances these two behaviours, which together form the core of the leadership process (Blake & Mouton, 1964; Northouse, 2007). This approach also enables leaders to assess their actions and determine how they may want to change to improve their leadership style. However, a major critique against the behaviour approach is that it does not adequately shown how leaders' behaviours are associated with performance outcomes (Bryman, 1992; Yukl, 1994). In addition, in measuring leadership behaviour, this approach focuses on what leaders do most of the time rather than on the context of the behaviour or how context might influence leader's behaviour (Vroom & Jago, 2007). Furthermore, the behaviour approach fails to propose a universal style of leadership which could be effective in the majority of situations (Northouse, 2007). Nonetheless, leader behaviour research was a step in the direction of acknowledging the role of situation or context in leadership. Unlike traits, behaviour is potentially influenced not only by the leaders' dispositions but also by the situations leaders confront (Vroom & Jago, 2007). This led scholars to search for a set of concepts that are capable of dealing with differences in situations and with differences in leaders' behaviours and, hence, the emergence of the contingency approach.

The contingency theory of leadership emerged when researchers concluded that no single leadership style is considered appropriate or applicable to every manager, under all circumstances. This theory represents a shift in leadership research from focusing on only the leader, to looking at the leader in conjunction with the situation in which the leader works. The theory suggests that a leader's effectiveness ultimately depends on how well their style fits the context (Fiedler & Chemers, 1974). It provides a framework for effectively matching a leader's style and the situation. The framework identifies two leadership styles: *task-motivated* and *relationship-motivated*. Task-motivated leaders are concerned primarily with reaching a goal, whereas relationship-motivated leaders are concerned with developing close interpersonal relationships. Furthermore, the contingency theory suggests that situations can be characterised in terms of three factors: *leader-member relations*, *task structure* and *position power*. Collectively, these variables point to the style of leadership that has the best chance of being successful. However, Fiedler (1967) argues that one's leadership motivation is a rather enduring characteristic that is not subject to change or adaptation. Thus it is closer to a trait description than to a behavioural description (Vroom & Jago, 2007). Consequently, the implication of Fiedler's theory is for a leader to be placed in a situation that is favourable to his or her style (Vroom & Jago, 2007). Despite the support of a great deal of empirical research concerning the validity of the contingency theory (Strube & Garcia, 1981), opponents of this approach argue that it fails to explain fully why people with certain leadership styles are more effective in some situations than in others. Moreover, because it is a personality theory, contingency theory does not advocate teaching leaders how to adapt their styles to various situations as a means to improve leadership in an organisation. Rather, this approach advocates that leaders engage in 'situational engineering', which means changing the situation of the job to fit the leader (Northouse, 2007). However, situations are not always easily changed to match the leader's style.

Due to the inconsistent findings and methodological problems resulting in increasing dissatisfaction with trait, behavioural, and contingency-based leadership, in addition to these theories being criticised for their focus on leaders and neglecting followers, researchers set the stage for a paradigm shift in leadership studies. This led to the emergence of new theories of leadership that are follower-centric, values-based and performance-focused. The next section discusses a number of relevant contemporary leadership schools of thought.

2.3.3 Contemporary Leadership Theories

During the past few decades, leadership studies have clearly moved away from focussing only on the leader, towards a strong emphasis on a broader context, including followers, peers, supervisors, work-setting and culture (Avolio, Walumbwa & Weber, 2009). This shift in leadership research offers contemporary theories that appreciate the central role that followers and context play in the leadership process. Many of these theories attempt to explain the leader-follower relationship, the impact of leadership on group and organisational performance and the impact of context on leadership effectiveness. Moreover, the increasing globalisation of organisations encouraged cross-cultural research on leadership in order to learn more about effective leadership within different cultures. There are five leadership approaches that are related and relevant to the objective of this study, namely Neo-charismatic, transformational, situational, servant and authentic leadership. These five leadership aspects have been chosen for examination due to their contribution as pillars within the transformational leadership paradigm – the core focus of this study. These theories are discussed in more detail below.

Neo-charismatic leadership approaches include the newly emergent leadership theories of charismatic and transformational leadership which seek to explain extraordinary leadership, leading to performance beyond expectations (Bryman, 1992). This shift is marked by the seminal works of House (1977) on charismatic leadership, as well as the work of Burns (1978), on transformational and transactional leadership. According to charismatic leadership theory, leaders are able to have an extraordinary influence on their followers and to thereby lead their transformation (House, 1977). Researchers supporting this approach (House, 1977; Shamir, House & Arthur, 1993) have also identified four major characteristics of charismatic leaders: *a dominant personality*; *a desire to influence others and self-confidence*; *strong role-model behaviour and the articulation of ideological goals*; and *high expectations of followers and confidence that they will meet these expectations*. A newer version of charismatic leadership theory (e.g., Conger & Kanungo, 1998; House, 1977; Shamir et al, 1993) has been formulated, during the last three decades, by several social scientists with the aim of addressing charismatic leadership in organisations. However, opponents of this approach such as Bryman (1992) argue that charismatic theory treats leadership as a personality trait or personal predisposition, as opposed to a behaviour in which people can be instructed and trained.

Building on House's work (1977) on charismatic leadership, Burns (1978) conceptualises the difference between two types of leadership: *transactional leadership* and *transformational leadership*. According to Burns (1978), transactional leadership refers to the bulk of leadership models which focus on the exchanges between leaders and their followers to meet their own self-interests. In contrast, transformational leadership is concerned with improving followers' performance and, as a result, developing their fullest potential (Bass & Avolio, 1990). A transformational leader acts as a role model who is admired and respected by followers; they also inspire and motivate followers by providing a compelling vision for the future. Moreover, transformational leaders stimulate their followers' efforts to be creative and innovative; and they pay personal attention to their followers' needs for achievement and growth. The concepts of transformational and transactional leadership are adapted by Bass in his 1988 study and further expanded upon by Bass and Avolio in the early 1990s (e.g. Bass, 1990; Bass & Avolio, 1990; Avolio, 1999). Although the transformational leadership approach has been popular for some time, it has not been free of criticism, and opponents argue that transformational leadership lacks conceptual clarity. For instance, transformational leaders cover a wide range of parameters including developing vision, inspiring followers and acting as a change agent, to name but a few. It is therefore difficult to define the exact parameters of transformational leadership (Northouse, 2007). Other viewpoints (e.g. Bryman, 1992) argue that the transformational approach considers leadership as a personality trait or personal predisposition and therefore training people in this approach becomes problematic. Nonetheless, the transformational approach provides an expanded picture of leadership and incorporates both the leader's needs and the follower's needs; this includes not only the exchange of rewards, but also leaders' attention in relation to the needs and growth of their followers (Avolio, 1999; Bass, 1985). As a result, followers gain a more prominent position in the leadership process, simply owing to their attributes being instrumental in the evolving transformational process (Bryman, 1992). In addition, this approach considers two styles of leadership, transactional and transformational, as a single continuum, rather than mutually independent continua, whereby effective leaders use a combination of both types of leadership to fit the situation (Yukl, 2006). This links transformational theory with the situational approach.

The situational approach (Hersey & Blanchard, 1969) is one of the early theories that extend the leadership research focus to include the situation as well as followers' behaviours. The premise of this theory is that different situations demand different kinds of leadership. Accordingly, leadership is composed of a *directive (task) behaviour* that helps group members to accomplish goals by giving directions, and a *supportive (relationship) behaviour* which helps group members feel comfortable about themselves, their colleagues and the situation. From this perspective, to be an effective leader requires that a person adapts his or her style to the meet the demands of different situations. Most importantly, leaders need to find out about their followers' needs and then adapt their style accordingly, which differentiates the situational approach from the behavioural and contingency approaches. The situational approach, moreover, is practical and can be easily understood and applied. Unlike the trait and contingency theories, this approach sets forth a clear set of prescriptions for how leaders should act if they want to enhance their leadership effectiveness. Furthermore, situational leadership is one of several transactional approaches to leadership (Cacioppe, 1997). For example, in an emergency, the style of leadership is likely to be directive (transactional) by spelling out tasks and requirements, and identifying rewards and consequences, clearly removing the supportive element to meet the situation. In normal conditions, however, situational leadership uses a supportive style to provide followers with a sense of mission, motivation, support and coaching. This relates to inspirational and intellectual stimulation, as well as the individualised influences of transformational leadership. Generally, transformational leaders engage followers using a combination of transactional (directive) or transformational (supportive) styles, aligned to the appropriate situation or competence level of the group or individual. Thus, situational leadership is considered a component of the transformational leadership paradigm and the two are therefore not mutually exclusive (Cacioppe, 1997). Similarly, another component of the transformational leadership paradigm is the servant leadership approach.

The servant leadership approach articulates the role of the leader as a servant that focuses on others rather than one's own self-interests (Greenleaf, 1977). Servant leaders are motivated by something more than the need for power – namely the need to serve (Luthans & Avolio, 2003). Accordingly, a leader's desire to serve people supersedes organisational objectives. However, servant leadership believes that organisational goals will be achieved on a long-term basis and only through first facilitating the growth, development and well-being of the individuals who make up the organisation (Harvey, 2001). Several researchers suggested a wide range of behaviours and attributes of servant leaders including *valuing people, developing people, building community, displaying authenticity, providing leadership* (Laub, 1999) and *vision, honesty, integrity, trust, service, modelling, pioneering* and *empowerment* (Stone *et al*., 2003). However, many of these behaviours of servant leadership correspond to the behaviours of transformational leadership. Both approaches emphasise the importance of appreciating and valuing people, listening, mentoring and empowering followers. In particular, the two theories are similar in their emphasis on individualised consideration and appreciation of followers. Thus, both theories are considered complementary concepts because they both describe ethical and excellent forms of leadership (Stone *et al*., 2003). Nonetheless, there is a principal difference between the two theories. Whilst transformational leaders and servant leaders both show their concern for followers, the overriding focus of the servant leader is on service to their followers. Transformational leaders are greatly concerned with getting followers to engage in and support organisational objectives (Bass & Avolio, 1995). As the organisational contexts in which leadership processes are required become more dynamic and complicated (Yukl, 2006), this in turn requires flexible, dynamic and driven leaders. Both transformational and servant leadership offer the conceptual framework for dynamic (situational) leadership. For example, servant leadership can be effective in not-for-profit, voluntary and religious organisations, these often operating in a more static environment. On the other hand, transformational leadership might be more suited to dynamic, external environments, where employees are empowered with greater responsibility and encouraged to innovate, use their initiative and take risks (Smith, Montagno & Kuzmenko, 2004). Moreover, the ethical underpinnings of both approaches link them to authentic leadership.

Authentic leadership draws on both positive, psychological capacities and a highly-developed organisational context. This results in both *greater self-awareness* and *self-regulated positive* behaviours on the part of leaders and employees, fostering positive self-development (Luthans & Avolio, 2003). Authentic leaders are, therefore, genuine people who are true to themselves and to what they believe in. They are confident, hopeful, optimistic, resilient, transparent, moral/ethical and future-oriented (Luthans & Avolio, 2003). Authentic leaders also engender trust and develop genuine connections with others. Because people trust them, they are able to motivate others to high levels of performance. They are also more concerned about serving others than they are about their own success or recognition (George & Sims, 2007). In contrast to servant leaders, authentic leaders give priority to developing associates into leaders themselves (Luthans & Avolio, 2003). They bring people together around a shared purpose and empower them to step up and lead authentically in order to create value for all shareholders (George & Sims, 2007). In addition, through multiple experiences, authentic leaders understand the situation in which they are operating, as well as the performance imperative. They can then determine the style and power they use to rally people to a cause in that given situation. In doing so, they improve both their effectiveness and the results that their organisation generates (George & Sims, 2007). Therefore, authentic leadership is described as a root construct that serves as the basis for all forms of positive leadership. It incorporates transformational, charismatic, servant, spiritual and other forms of leadership (Avolio & Gardner, 2005). According to Spitzmuller and Illies (2010), relationally authentic leaders were rated as more transformational and produced greater convergence in followers' perceptions of transformational behaviour. Avolio and Gardner (2005) argue that authentic transformational leaders may be more effective than inauthentic transformational leaders. In addition, authentic transformational leadership is also perceived to be universal and effective across cultures (House *et al*., 2014), which is discussed in more detail in the next section.

2.3.4 Cross-Cultural Leadership Research

The increased globalisation of industrial organisations and interdependencies among nations has created a need to comprehend how cultural differences might affect leadership performance. Hence cross-cultural leadership research has increased significantly over the past few decades (Yukl, 2006). Researchers have generally stressed a strong connection between culture and leadership style (House *et al*., 2014). The literature addressing this relationship points to a major divergence of views. Some studies (e.g., Lammers & Hickson, 1979) argue for a direct impact of culture on leadership styles, suggesting that specific cultural traditions, values, ideologies and norms are bound to differentiate equally or to an even greater extent than structural factors between societies. Other scholars (e.g., Child & Tayeb, 1983; House *et al*., 2004) suggest that at least some aspects of leadership may transcend cultural boundaries and hence are universally accepted. Several studies (e.g., House *et al*., 2004; Jung *et al*., 2009) have empirically supported the universality of charismatic and transformational leadership across cultures. Findings from the GLOBE research project (House *et al*., 2014) endorsed the universality of six charismatic/transformational leadership dimensions including *visionary, inspirational, self-sacrificial, integrity, decisive and performance-oriented*. However, the universal preference of those charismatic and transformational qualities and leadership actions does not mean that leadership enactment is identical across cultures or that there aren't meaningful differences in endorsement and effectiveness across cultures. To date, there is insufficient empirical research that supports the effectiveness of the theories of transformational leadership in the context of Middle Eastern countries. For instance, researchers (Pillai *et al*., 1999; Shihan & Wright, 2004) have reported that transformational leadership do not induce high levels of follower outcomes in some countries in the region. Therefore, it would be beneficial to expand the investigation of transformational leadership theories to include other countries within the Middle East. Although the current research does not intend to investigate the direct impact of culture on leadership, it does attempt to address the shortage in our knowledge of how effective the transformational leadership paradigm is, when tested in the context of one of the region's countries – Libya.

From the above discussion, in contrast to the leadership theories so far described, the theory of transformational leadership simultaneously involves dimensions of traits, behaviour and situational approaches; and also embed the values and behaviours of servant and authentic leaderships, thereby providing a broader spectrum of leadership behaviours. Despite its conceptual weaknesses, transformational leadership remains a valuable and widely used leadership approach (Yukl, 2006). Also, transformational leadership involves attempts by leaders to move people to higher standards of moral responsibility (Burns, 1978). This moral dimension of transformational leadership sets this approach apart from all other approaches (Avolio, 1999), supporting the definition of leadership as a process involving the use of ethical influence on followers to achieve ethical goals. Moreover, there is substantial evidence from empirical research, both qualitative and quantitative, that supports transformational leadership as being an effective (Judge & Picolo, 2004; Lowe *et al.*, 1996; Bass, 1990; Stashevsky & Koslowsky, 2006; Yukl, 2006), as well as universal form of leadership (Bass, 1997; House *et al*., 2014). Accordingly, the transformational leadership paradigm focuses on both followers and organisational performance encompassing a wide range of positive leadership behaviours, in addition to being perceived (through its transformational and charismatic dimensions) as effective across cultures. Finally, this paradigm provides a practical framework, the full-range leadership model (Avolio & Bass, 1995; Avolio, 1999), that enables researchers as well as practitioners to understand and enact various styles of leadership. This study therefore adopts the transformational leadership paradigm to examine the impact of organisational leaders on their followers' work outcomes in LPSOs. Consequently, the next section discusses the full range leadership styles model used in this research.

2.4 Full-Range Leadership Model

The theory of transformational and transactional leadership has gone through several revisions (Bass & Avolio, 1990; Avolio & Bass, 1995; Avolio, 1999). An elaboration of the dynamics of transformational and transactional leadership is provided in a revised version of the theory, known as the Full-Range Leadership Model (Avolio & Bass, 1995; Avolio, 1999). This model incorporates three main styles of leadership*: transformational*, *transactional* and *laissez-faire*. These together form a leadership continuum and describe the behaviours that characterise each of the leadership styles discussed below. Further discussion of the underlying influence process of the full range leadership model on followers' work outcomes is also provided below.

2.4.1 Transformational Leadership

Transformational leadership is defined as a process that changes and transforms people, and comprises an exceptional form of influence, resulting in the achievement of higher levels of performance amongst followers than previously thought possible (Bass, 1990). People who exhibit transformational leadership often have a strong idealised influence (charisma), as well as a strong set of internal values and ideas. In addition, they are effective at motivating followers in ways that promote the greater good, as opposed to their own self-interest (Bass, 1990; Bass & Avolio, 1994). Bass and Avolio (2000) identify five components of transformational leadership traits and behaviours, which are theoretically and empirically related (Avolio & Bass, 1995). These components are:

a. *Idealised influence (attributed)*: the degree to which leaders behave in a charismatic way, which subsequently causes followers to admire, respect and trust them. Charismatic leaders excite, arouse and inspire their followers to the point that the relationship between the leader and the follower becomes one based on personal understanding, as opposed to one based on formal rules, regulations, rewards or punishments. The leader shares risk with followers and is consistent in conforming with underlying values and principles. However, Bass (1985) considers charisma a necessary but not sufficient condition for transformational leadership.

b. *Idealised influence (behavioural):* this refers to the charismatic actions of the leader, whereby followers transcend their self-interest for the sake of the organisation and accordingly develop a collective sense of mission and purpose.

c. *Inspirational motivation:* refers to leaders' behaviours to motivate those around them through the provision of meaning and the articulation of appealing visions. Inspirational leaders demonstrate self-determination and commitment to attain objectives and thereby achieve their vision. Such leaders provide an emotional appeal to increase awareness and an understanding of mutually desired goals amongst their followers.

d. *Intellectual stimulation:* the degree to which leaders stimulate their followers to think critically and to be innovative and creative. Such leaders do not criticise individual members' mistakes; rather, they provide followers with challenging new ideas. As a result, followers become critical in their problem-solving and tend to have enhanced thought processes.

e. *Individualised consideration:* the degree to which leaders pay attention to followers' needs, provide support and encouragement, act as mentors or coaches and listen to followers' concerns. A leader displaying individualised consideration enhances followers' confidence in their own ability to respond to any problems facing them and their organisations (Avolio, 1999). By providing mentoring and one-to-one communication, new learning opportunities are created along with a supportive climate in which to grow. Such leaders are able to build a sense of determination and self-confidence in their followers (Bass, 1998).

2.4.2 Transactional Leadership

Transactional leadership, by contrast, does not individualise the needs of followers or focus on their development, but rather exchanges things of value with them in an attempt to advance the leaders' and their followers' respective agendas (Kuhnert, 1994). Importantly, they influence follower compliance to achieve a desired performance for obtaining a tangible reward, or to otherwise avoid punishment. This may take the form of two behaviours: *contingent reward* or *management by exceptions:*

a. *Contingent Reward* (CR) is where follower effort is exchanged for specific rewards. The leader attempts to obtain followers' agreement for achieving agreed objectives and goals, where the leader clarifies for the followers what they need to do to be rewarded for their efforts.

b. *Management by Exception* (MBE) is where leadership behaviour involves corrective criticism, negative feedback and negative reinforcement. Management by exception may take two forms: first, *active management by exception* (MBEA), whereby the leader monitors the follower's performance and takes corrective action if the follower fails to meet the appropriate standards; and *passive management by exception* (MBEP), where the leader waits for problems to arise before taking corrective action.

Notably both active and passive management by exception use more negative reinforcement patterns than the positive pattern of the contingent reward.

2.4.3 Laissez-Faire Leadership

Laissez-faire leadership is an extreme case, which represents the absence of leadership. Leaders who adopt a laissez-faire approach avoid taking any action (Bass, 1990, 1998; Avolio, 1999; Bass & Avolio, 1994). They do not take any responsibility, do not take decisions and do not exchange with followers or otherwise attempt to help followers to satisfy their needs. In essence, laissez-faire leadership entails basic job inactivity (Bass, 1990).

Traditional leadership theories such as trait and behaviour approaches regard the relationship between leaders and followers as between the active and the passive. Contingency theory insists that leaders design proper behaviours in accordance with situational factors, and that followers passively accept such behaviours. Transformational leadership theory maintains that leaders gain trust and respect from followers; thus, leadership is a continuously adjusting process whereby the leader's behaviour changes according to the feedback from their followers. As a result, followers gain a more prominent position in the leadership process, simply because their attitudes and behaviours are instrumental for leadership effectiveness. Therefore, the following section discusses the relationship between the Full-Range of leadership styles and follower work outcomes.

2.5 Leadership and Follower Work Outcomes

Leadership is proven to have a significant impact on employees' work outcomes (Bass, 1985; Judge & Piccolo, 2004). Although the effects of the various styles of the full range leadership model have been the subject of several empirical studies (Dionne *et al.*, 2004; Avolio & Yammarino, 2002), it nevertheless remains the case that the underlying processes through which leadership styles exert their influence on followers' work outcomes are relatively unknown. With this in mind, researchers (Jung *et al.*, 2009) have called for more empirical and systematic research in this area and, in that spirit, this section gives an overview of the mechanism through which the different styles of the full range leadership model impacts followers' work outcomes.

2.5.1 Transformational Leadership and Follower Work Outcomes

The positive effect that transformational leadership has on followers' job satisfaction, organisational commitment and work engagement has been well documented (Griffith, 2004; Judge & Piccolo, 2004; Emery & Barker, 2007; Zhu *et al.*, 2009; Ben Zahari & Shurbagi, 2012; Akeel & Subramaniam; 2013; Braun *et al.*, 2013). Transformational leaders can motivate and inspire followers to perform beyond their expectations and to accordingly transform both individuals and organisations (Bass, 1985). As discussed above, the underlying influence process in transformational leadership involves behaviours including *idealised influence (i.e. attributed and behavioural), inspirational motivation, individualised consideration* and *intellectual stimulation.*

Transformational leaders exhibit charismatic attitudes and behaviours and act as influential role models based on values, beliefs and a sense of mission towards a common goal. Followers view their transformational leaders as extraordinary persons owing to their unconventional charismatic characteristics; thus, followers tend to idolise such leaders and seek to please and imitate them (Conger, 1989). Consequently, followers have a high level of trust and confidence in such leaders and develop a strong sense of loyalty, as well as strong personal identification with them. In addition, followers tend to adopt their leader's vision and to internalise new values and beliefs which are linked to their job objectives (Bass, 1985). The ultimate form of internalisation occurs when followers perceive their job role as being inseparable from their self-concept and self-worth (Yukl, 2006). This leads to increased levels of follower identification with the work being done. As a result, the job tasks provide followers with an increased level of accomplishment and satisfaction. Several empirical studies (Rhoades, Eisenberger & Armeli, 2001; Emery & Barker, 2007; Dubinsky *et al.*, 1995; Bass, 1998) report that the charismatic component of transformational leadership is significantly correlated with both follower job satisfaction and organisational commitment. In addition, follower identification with the work is likely to increase feelings of involvement with his or her job, as well as feelings that he or she is making an important contribution to the organisation and resulting in higher work engagement (Avolio, 1999; Bass, 1998).

Transformational leaders manifest *inspirational motivation* leadership, articulating high expectations to followers, communicating important objectives in simple ways and using symbols to focus their efforts (Bass, 1990). They demonstrate self-determination and commitment to attaining objectives and provide an optimistic and achievable vision of the future. Through this process, transformational leaders help convince followers that they can accomplish more than they initially felt was possible (Avolio, 1999). This leadership behaviour is known to enhance the collective self-identity of followers, strengthen group cohesion and therefore impact group performance (Dionne *et al.*, 2004), whilst stimulating affective commitment to the organisation (Podsakoff, Mackenzie & Bommer, 1996; Rafferty & Griffin, 2004; Kark & Shamir, 2002). *Inspirational motivation* increases the feelings that followers are making a valued contribution to the organisation (Sosik, 2006) and consequently increases the level of their psychological meaningfulness (Kahn, 1990), usually enhancing followers' work engagement (Fleming & Asplund, 2007). Similarly, *inspirational motivation* enhances feelings of general self-efficacy (Conger & Kanungo, 1987) and fulfils the self-actualisation needs of followers, consequently increasing their job satisfaction.

Transformational leaders use *intellectual stimulation* in an attempt to encourage followers to apply new approaches to solving old problems, as a means of exploring innovative ways to achieve tasks and also to accomplish organisational objectives and goals and use intuition. Leaders provide both positive and constructive feedback to their followers and encourage effective conflict management through promoting functional task-oriented conflict within teams (Dionne *et al.*, 2004). Consequently, followers under such leadership may alter their way of thinking, not be hesitant in offering their ideas, become more critical in their problem-solving and tend to have enhanced thought processes (Dubinsky *et al.*, 1995). Such behaviour would therefore improve followers' sense of psychological meaningfulness and psychological safety (Deci & Ryan, 1987; Harter *et al.*, 2002), and would also be expected to positively impact followers' work engagement.

Transformational leaders also treat each follower as an individual; they give followers personal attention and consider their individual development and growth. They provide mentoring, communicate on a one-to-one basis and personalise their interaction with followers. Consequently, followers working under such leaders tend to be coached, feel supported by their leader and have an enhanced sense of self-confidence through leaders' efforts at team-building (Avolio, 1999; Bass, 1998). Transformational leaders pay attention to their followers' self-actualisation needs, such as achievement and growth, in an attempt to make sure that those needs are met, whilst simultaneously encouraging them to take on greater responsibilities (Bass, 1985; Yukl, 2006). This individualised consideration behaviour enhances the self-efficacy of individual followers (Yukl, 2006) and may serve to empower followers and to open and extend lines of communication between them and the leader (Dionne *et al.*, 2004). Therefore, followers working with such leaders will have their higher-order needs considered and will correspondingly feel more competent. Hence, they will be expected to have high feelings of job satisfaction (Judge *et al*., 1998). Followers are also expected to experience higher levels of work engagement (Harter *et al.*, 2002) as they are encouraged to take on greater responsibilities and are provided with the freedom to make increasingly large contributions to organisational performance. Numerous researchers (e.g., Kent & Chelladurai, 2001; Lo, *et al*., 2010) suggest that individualised consideration behaviour has a positive relationship with both followers' affective commitment (AC) and normative commitment (NC) to the organisation.

To summarise, those leaders who are able to articulate an inspiring vision for their organisation and who pay attention to the individual needs of followers, whilst encouraging followers to think critically and creatively, are expected to enhance the levels of job satisfaction, organisational commitment and work engagement of their followers. Therefore, hypothesis H_{1a} is proposed in section 2.9 and is tested to verify the above relationships.

2.5.2 Transactional Leadership and Follower Work Outcomes

According to Yukl (2006), the primary influence process for transactional leadership is instrumental compliance; and the motivation for follower compliance is to gain some tangible benefit from the leader. Transactional leaders emphasise work standards, assignments and task-oriented goals; they determine and define the goals that followers need to achieve, suggest how to execute their task and provide feedback. This should assist followers in becoming more confident about meeting their job targets. Transactional leaders recognise the immediate needs of their followers and communicate to employees how such needs should be met through effective performance and rely heavily on organisational rewards and punishments to influence followers' performance. As a result, followers will presumably be directed and motivated to accomplish their goals (Dubinsky, *et al*., 1995) but the level of effort is likely to be the minimum amount deemed necessary to gain the reward or to avoid the punishment (Yukl, 2006).

Previous research studies (Hunt & Schuler, 1976; Podsakoff *et al*, 1984) highlight the positive relationship between transactional, contingent, reward-style leadership and followers' job satisfaction and organisational commitment. For example, a meta-analysis study carried out by Judge and Piccolo (2004) reports that there is a positive correlation between contingent reward and followers' job satisfaction. Meyer and Allen (1991) suggest that there is a relationship between transactional leadership and continuance commitment; this is supported by other researchers (Al-Hussami, 2008; Jackson *et al.,* 2013) who conclude that there is a positive link between transactional leadership and organisational commitment. Conversely, transactional leaders who adopt the management by exception approach are perceived by followers as being individuals who are actively searching for deviations (Bass, 1985). Thus, transactional leadership (management by exception) might foster reduced levels of positive work attitudes and performance owing to followers seeking to avoid leaders who only appear when things go wrong. For example, Emery & Barker (2007) report a negative correlation between management by exception and each of job satisfaction and organisational commitment. Although some researchers (Tims *et al.*, 2011) argue that transactional leadership does not contribute to followers' work engagement because it lacks motivational power and inspirational appeal, others (e.g., Breevaart *et al*., 2014) reported a positive association between transactional leadership and work engagement.

To summarise, transactional leadership is perceived to have a positive association with followers' job satisfaction, organisational commitment and work engagement. Thus, hypothesis H_{1b} is presented in section 2.9 and investigates the validity of the above relationships.

2.5.3 Laissez-Fair Leadership and Follower Work Outcomes

According to Bass (1990), laissez-faire leaders abandon their responsibilities and avoid taking any decisions. Typically, they avoid clarifying expectations and providing goals and standards to be achieved by their followers (Bass, *et al*., 2003). They are considered to be relatively inattentive, frequently absent and non-influential. Followers working under this kind of leadership would be left to their own devices to execute their jobs and, as a result, may need to seek assistance, direction and supervision from alternative sources, such as other leaders or peers (Dubinsky *et al.*, 1995). Such leadership behaviours can lead to followers' dissatisfaction and subsequently to a lack of commitment and poor performance.

Previous research suggests that laissez-faire leadership has an adverse effect on the work-outcomes of followers (Bass, 1990; Yammarino & Bass, 1990). Dubinsky *et al.* (1995) report a negative effect of laissez-faire leadership on salesperson job satisfaction and organisational commitment; while Tims *et al.* (2011) claim that laissez-faire leadership lacks motivational power and inspirational appeal and does not therefore contribute to followers' work outcomes. Several studies (Skogstad et al., 2007; Hauge *et al*., 2007) provide additional evidence for the destructiveness of the laissez-faire leadership style. Therefore, leaders who adopt laissez-faire leadership behaviour are expected to have a negative impact on job satisfaction and organisational commitment.

To summarise, there appears to be only limited research which actively investigates the effects of this style of leadership on follower work outcomes and this study seeks to fill this gap in the literature through conducting an empirical investigation into the impacts of laissez-faire leadership on job satisfaction and organisational commitment in order to verify the above findings. Therefore, hypothesis H_{1c} in section 2.9 is examined to assess whether laissez-faire leadership influences those two work outcomes.

2.6 Followership

Several scholars (Kelley, 1982; Chaleff, 1995; Howell & Costley, 2001; Dixon, 2003; Dvir & Shamir, 2003; Potter III & Rosenbach; 2006; Shamir 2007) argue that followership is as important as leadership in relation to work outcomes and organisational success. Others (Hollander, 1992; Hollander, 1993; Klein & House, 1995) argue that there is a relational interdependence between leader and follower. There is also growing evidence that followers' traits, characteristics and values may ultimately determine how they respond to leadership behaviours (Dvir & Shamir, 2003; Yukl, 2006). Whilst leadership has received extensive focus from various researchers and practitioners during the past century, followership has received less (Kelley, 1982; Dvir & Shamir, 2003; Baker, 2006; Kellerman, 2008; Carsten *et al.,* 2010; Uhl-Bien *et al.,* 2014) and only a few empirical studies have examined the construct (Dvir & Shamir, 2003; Baker, 2006). It is apparent that, in the past, most people held a very negative view of followership and discounted anything positive that could come from the role (Kelley, 2008; Kellerman, 2007). However, during the last three decades, the view of followers has shifted from one which considered them to be passive, blindly obedient subordinates who unquestioningly obeyed the directive of their superiors, to one which recognises followers as being active and collaborative participants in the leader-follower relationship (Uhl-Bien *et al.,* 2014).

This section reviews different followership definitions and dominant followership conceptual models and subsequently discusses the characteristics of effective followers, considered to affect the leader-follower relationship, thereby impacting leadership results in relation to followers' work outcomes.

2.6.1 Definition of Followership

Like leadership, followership is defined in several ways. The Merriam-Webster Online Dictionary (2010) defines it as 'the capacity or willingness to follow a leader'; whilst suggesting that a 'follower is one in the service of another, one that follows the opinion or teachings of another and one that imitates another.' This definition of the term 'follower' carries a negative connotation and conjures up images of docile, conforming, weak individuals who require constant direction (Chaleff, 1995). Howell and Shamir (2005, p. 98) define a follower as 'a person who acknowledges the focal leader as a continuing source of guidance and inspiration, regardless of whether there is any formal reporting relationship.' Importantly, this definition fails to adequately identify the behaviours necessary to describe the domain of followership (Defee, *et al*., 2009). Adair (2008) suggests a different view of followership, highlighting that followership is a shared influence relationship between followers, leaders and other followers, with the intent of supporting leaders who reflect their mutual purposes.

Howell and Costley (2001) define followership as being an interactive role that individuals play and which complements the leadership role and is equivalent to it in importance in achieving group and organisational performance. Uhl-Bien *et al.* (2014) proposed two approaches to define followership within the leadership process. First, the constructionist approach views followership as a social process where followership and leadership are co-produced in social and relational interactions between people (Fairhurst & Grant, 2010). These relational interactions do not necessarily align with formal follower hierarchical roles but rather with following behaviours (Fairhurst & Uhl-Bien, 2012).

The role-based approach views followership as a rank or position and identifies followers as the causal agents that work with leaders to influence leadership and organisational outcomes (Carsten *et al.*, 2010). This approach investigates how follower characteristics and styles impact leaders and leadership outcomes (Dvir & Shamir, 2003; Howell & Shamir, 2005).

It is apparent that there is no universally-accepted definition of followership. This study examines the role of followership in the leader-follower relationship, as well as the impact of followership on follower work outcomes in an organisational context. It sees followership as an interactive role which individuals (followers) play within the organisational hierarchy and which complements the leadership role to achieve organisational outcomes. Therefore, this study adopts a role-based understanding of followership to explore the relationship between followership and leadership in predicting follower work outcomes. The Howell and Costley (2001) definition of followership is therefore considered to be appropriate for the scope of this study. Howell and Costley (2001) do not provide a framework which articulates followership characteristics or measures followership behaviours and so there is a need to define a followership framework which enables the articulation and measurement of followership characteristics consistent with Howell and Costley's (2001) definition. The following section explores three prominent models of followership.

2.6.2 Conceptualisation of Followership

A few researchers have examined the characteristics of followers in an attempt to pinpoint what distinguishes followers who are effective from those who are ineffective. During the last three decades, three role-based views of followership have introduced frameworks in an attempt to categorise followership characteristics and styles: Kelley (1988) details the most extensive categorisation of followership by basing them on critical thinking and engagement; Chaleff (1995) places greater emphasis on courage in his follower typology; whilst Potter III and Rosenbach (2006) suggest a two-dimensional categorisation based on performance initiative and relationship initiative.

2.6.2.1 Kelley's (1988) Model

Kelley (1988) suggests two behavioural dimensions, namely *critical thinking* and *participation*, in an attempt to define the way that people follow. The first dimension measures the degree to which followers exercise independent, critical thinking; the second dimension, for the concept of participation, measures the extent to which followers are actively engaged in creating positive energy for the organisation. Based on these two dimensions, Kelley (1988; 1992) identifies five basic styles of followership: *passive* followers are those followers who are passive and uncritical, lacking in initiative and sense of responsibility; *conformists* are always on the leader's side but remain dependent on the leader for the thinking, the direction and the vision; *alienated* followers are critical and independent in their thinking but also passive in carrying out their role; *pragmatists* or survivor followers hedge their bets and do not commit until they are sure of the direction of travel; and finally, *exemplary* followers think of themselves and carry out their duties and assignments with energy and assertiveness and do not accept the leader's decision without their own independent evaluation of its soundness. Kelley (1988) also distinguishes an effective follower from an ineffective follower. In his view, effective followers share a number of essential qualities including self-management, commitment to the organisation and to its principles and dedication to persons other than themselves, competence and focus and courage and honesty.

Although the development of Kelley's (1988) model relies on a number of interviews with leaders, there are few empirical studies (Dvir & Shamir, 2003) that support the theoretical propositions of the model. The main focus is on the performance characteristics of followers (i.e. critical thinking and participation) and does not include relationship behaviours. He proposes a followership measurement instrument – the Followership Questionnaire (FQ) – which is built on two behavioural dimensions: active/passive participation and independent critical thinking/dependent uncritical thinking. Despite it having been used widely by Kelley for training and workshops, there has thus far been no attempt to measure the reliability and validity of the instrument (Baker, 2006).

2.6.2.2 Chaleff's (1995) Model

Kelley's articulation of followers' behaviours and styles paved the way for other researchers to explore the concept using different dimensions. Chaleff (1995) furthered the idea of active followership by introducing a different categorisation of followers. He identifies courageous followership as opposed to mute followership. According to him, a mute follower is one without the courage or skill to stand up to their leader in relation to constructive criticism or outright defence when the leader is in the wrong. In contrast, courageous followers voice their constructive criticism, particularly if they believe the leader is not acting in the best interests of the organisation. They challenge leaders' views and decisions whilst displaying integrity, responsibility and a high level of services (Collinson, 2006). Like Kelley, Chaleff (1995) proposes five qualities of courageous followership attitudes and behaviours which followers need in their interactions with leaders. These are: to assume responsibility for themselves and the organisation; to serve their leaders; to challenge the leader or group's behaviours or policies if these threaten the common purpose; to participate in the transformation needed to improve the leader-follower relationship and the organisation's performance; and to take moral action when needed in order to prevent ethical abuses.

Chaleff (1995) expands this model by identifying two crucial characteristics of courageous followership: the *courage to support the leader* and *the courage to challenge the leader's behaviour* or policies. He further develops matrices comprising four styles of followership, namely: *Resource*, *Individualist*, *Implementer* and *Partner*. Similar to Kelley's (1988) framework, Chaleff's model was developed as a theoretical proposition, requiring empirical investigative support. In contrast to Kelley, Chaleff (1995) focuses on the relationship characteristics of followers (i.e. the courage to support the leader and the courage to challenge the leader's behaviour or policies), using an instrument developed by Gene Boccialetti (1995)– the Authority Relations Inventory – to form a picture of the followership style.

2.6.2.3 Performance-Relationship Followership Model

Rosenbach, Pittman and Potter III (1996) argue that effective organisations have a partnership relationship between leaders and followers – a relationship in which follower initiatives are as important as leader initiatives (Rosenbach *et al.*, 1996). They suggest two further elements in organisational culture which are important in the development of partnership: the drive for performance and a commitment to effective relationships. They propose a model based on two dimensions: one is a behavioural dimension – *the relationship characteristics (initiative)* – and the other is performance-related – *the performance characteristics (initiative)*. A follower who demonstrates a great number of performance *characteristics* finds ways, such as improving skills and trying new strategies, of improving his or her own performance within the organisation. *Relationship characteristics* refer to a follower's active attempts to improve his or her working relationship with the leader (Potter III, Rosenbach & Pittman, 1996).

Rosenbach *et al.* (1996), updated in Potter III and Rosenbach (2006), describe eight characteristics as being associated with relationship and performance characteristics. There are four performance characteristics:

a. *Doing the job*. At the higher end of this scale are followers who know what is expected of them and who do their best to shine and derive a sense of fulfilment through applying the highest personal standard. They consider work to be integral to life. At the lower end of the scale are the followers who perform the tasks assigned to them to the minimum standard required in order to keep their jobs.

b. *Working with others*. At one extreme is the follower who cannot work with others and continuously interferes with the performance of others through arguments and disputes. Other followers prefer to work alone and hence their performance is dependent on themselves. However, many followers prefer working with others. Through their effective participation with others in their work, those followers balance their personal interests with the interests of others and discover a common purpose. They coach, lead, mentor and collaborate in an attempt to accomplish the mission, group or organisation.

c. *Self as a resource*. Some followers pay little attention to their well-being, neglecting their physical, emotional and mental health. This might lead to short-term benefits to the organisation but could also lead to burn-out. In contrast, other followers recognise themselves as their own valuable resource, understand their value to the organisation and care for themselves through balancing work and personal lives. This type of follower will be effective in the long-term.

d. *Embracing change.* Followers can sometimes view change as being threatening and confusing and so they ignore or hide from it. Others resist change and instead opt to work hard in order to prevent things from being done differently. In contrast, there are various followers who are committed to continuous quality improvement and see change as an opportunity for improvement for both themselves and the organisation. These followers can be effective change agents through explaining to their co-workers the advantages of doing things differently and through leading by example.

In the relationship characteristics, followers share responsibility with leaders resulting in an effective relationship, working to increase openness and understanding through four behaviours (Potter III & Rosenbach, 2006):

a. *Identifying with the leader*. At one end, there are the followers who consider their leaders to be sufficiently strange and different. They do not try to understand their leaders' perspectives, goals or problems. At the other extreme, there are followers who understand their leaders' perspectives and aspirations completely and who adopt their leaders' aspirations and become loyal to them, taking satisfaction from the leaders' success.

b. *Building trust*. Some followers do not understand the importance of building trust with their leaders, despite this affecting their relationship with them, and therefore do not adopt a position to help their leaders as much as they could. In contrast, other followers take the initiative to perform in a way that will build their leaders' trust in them: they invite honest feedback and share plans and doubts; they demonstrate to their leaders that they are reliable and loyal and thereby gain their leaders' confidence.

c. *Courageous communication*. This aspect of relationship initiative is important in building trust with leaders. When it comes to conveying bad news or disagreement with leaders, followers behave in different ways. For instance, whilst some followers refrain from expressing their views if they include unpleasant truths, as in the case of the classic yes-man, followers who value the importance of the relationship initiative with the leader take the risk of telling unpleasant truths to serve the organisation. They seek the same from others and risk self-exposure.

d. *Negotiating differences.* Followers who are oriented towards improving their relationship with the leader are in a position to negotiate or mediate any differences arising between themselves and their leaders, as opposed to hiding their opposition to the leader's decision.

Building on earlier work, Potter III and Rosenbach (2006) identify four follower typologies based on the relationship and performance dimensions: *contributor, politician, subordinate* and *partner*. They identify an effective follower as being 'a partner' who scores high on performance as well as on relationship initiatives. In their view, followers with a partner style are often leaders-in-waiting. They suggest a broader range of characteristics and behaviours of an effective follower. In their view, a partner is committed to high-performance and to developing effective relationships with partners, including their leaders, whose collaboration is essential to success in their own work. Such followers are accomplishment seekers who strive to master the skills required for their job whilst seeking to understand their leaders' agenda and the strategy for accomplishing such an agenda (Potter III & Rosenbach, 2006).

Potter III and Rosenbach (2006) provide a comprehensive framework which encompasses the essential dimensions of both Kelley's (1992) and Chaleff's (1995) models. These provide a structured approach which enable organisations and leaders to understand a broad range of key variables that are known to impact followers' performance and relationship behaviours and encompasses conceptualisation of followership characteristics which are consistent with Howell and Costley's (2001) definition of followership and which are suitable for the role-based approach (Shamir, 2007; Uhl-Bien *et al.*, 2014) of studying followership. Furthermore, Rosenbach *et al.* (1996) provide an instrument – the Performance and Relationship Questionnaire (PRQ) – which is built on one behavioural dimension (the relationship initiative) and one performance dimension (the performance initiative). This instrument has been widely used by the authors as a training tool, as well as a means of proposing followership styles (Baker, 2006). Notably, it is a more developed instrument than Kelley's FQ instrument, as its two dimensions of performance and relationship each have four sets of characteristics associated with them (Baker, 2006).

Another important aspect of Potter III and Rosenbach's (2006) model is the parallel between followership characteristics suggested by this model and the leadership behaviours of the full range leadership model (Avolio & Bass, 1995). For example, followers' performance characteristics map onto transactional leadership, which is considered to be a performance-focused leadership behaviour. The follower relationship characteristics, on the other hand, map onto transformational leadership, which is perceived to be relationship-focused behaviour (Bass, 1985). Several researchers suggest that the match between follower characteristics and leader characteristics will create a positive synergy between leaders and followers. This could ultimately impact leadership effectiveness and thereby improve work outcomes. Nevertheless, there is limited empirical research supporting the theoretical proposition of Potter III and Rosenbach (2006). Indeed, prior research (Baker, 2006) has examined the effects of followership, as articulated by Potter III and Rosenbach (2006), in the realm of transformational leadership effectiveness. Research into leadership and followership literature indicates that there are no empirical studies which examine, in one study, the impacts of performance and relationship characteristics as described by Potter III and Rosenbach (2006), in consideration of the relationship between the full range leadership of leadership styles and follower work-outcomes; this study aims to address this gap.

Table 2-1: Three Followership Models Compared

Followership Model	Dimensions	Measurement Instrument
Kelley (1988, 1992)	• Critical thinking • Participation	• The Followership Questionnaire (FQ)
Chaleff (1995)	• Courage to support the leader • Courage to challenge the leader's behaviour	• The Authority Relationship Inventory (ARI)
Pittman, Rosenbach & Potter III (1998)	• Performance initiative • Relationship initiative	• Performance Relationship Questionnaire (PRQ)

Despite the fact that, thus far, there is no agreed definition of followership, attempts have been made to conceptualise the construct. Role-based views of followership consider the behaviours and styles individuals use as they enact their follower roles (Table 2-1). One line of thought (Kelley, 1988) views followership as performance behaviour characterised by critical thinking and participation; whereas others (Chaleff, 1995) perceive followership as a relationship behaviour characterised by the courage to support the leader and to challenge the leader's behaviour. Despite being popular amongst practitioners, both approaches lack solid empirical support. A third approach (Rosenbach et al., 1996; Potter III & Rosenbach, 2006) suggests that followership is a multi-dimensional construct. In this view, effective followership is motivated by the drive for high performance and the commitment to effective relationships. This conceptualisation of followership mirrors the full range leadership conceptualisation of leadership and thereby provides a framework as a measuring instrument for understanding followership behaviours. Potter III and Rosenbach's (2006) conceptualisation is appropriate to the role-based approach, which studies follower characteristics and styles as antecedents to followership and leadership outcomes.

The review of the leadership and followership literature indicates that there is a pressing need for empirical investigation into the performance-relationship followership model impact on follower work outcomes, as well as on leadership in the context of the full range leadership model (Avolio & Bass, 1995). This is discussed in the next section.

2.7 Followership and Follower Work Outcomes

Several scholars (Kelley, 1988; Dvir & Shamir, 2003; Chaleff, 1995; Howell & Shamir, 2005; Potter III & Rosenbach, 2006; Shamir, 2007) suggest that follower characteristics have a direct, positive effect on followers' work attitudes, behaviours, and performances. A performance-relationship model of followership (Potter III & Rosenbach, 2006) suggests that an effective follower is committed to high performance and effective relationships with their partners, including their leaders and co-workers. In an attempt to understand the overall effectiveness of this model of followership, this section explores the mechanism through which followers' characteristics of performance-relationship impact followers' work outcomes. This includes job satisfaction, organisational commitment, work engagement and work group performance.

2.7.1 Follower Performance Characteristics and Follower Work Outcomes

Potter III and Rosenbach (2006) suggest that followers who score high on performance characteristics consider work to be an integral part of their lives and make great efforts to do their work to a high standard. In order to improve the quality of their performance, they work hard to develop their own competencies. Thus, they invest time and effort to advance their skills and adopt new strategies to perform their job tasks to a high standard within the organisation (Potter III & Rosenbach, 2006). As a result, those followers are expected to develop increased levels of self-efficacy and to subsequently enhance their job satisfaction (Judge *et al*., 1998). They are also expected to have the basic needs and other necessary resources required to do their job, which will ultimately enhance their psychological availability (Kahn, 1990) and their feelings of work engagement.

Those followers are also expected to demonstrate high levels of organisational commitment. According to the side-bet theory (Becker, 1960), employees who invest considerable time and energy in mastering a job skill which cannot be easily transferred to other organisations are 'betting' that their investment will pay off. Thus, in order to win the bet, they are likely to continue their employment with the organisation. According to this view, the magnitude and number of investments individuals make, combined with a perceived lack of alternatives, are considered to be antecedents of the continuance component of organisational commitment (Allen & Meyer, 1990). Potter III and Rosenbach (2006) advocate that followers who score high on performance characteristics are experts in their fields, are committed to continual improvement and prefer to work with others. Allen & Meyer (1990) recognise that experience in the workplace fulfils followers' psychological needs to feel comfortable within the organisation and to generally feel competent in their role. Followers whose experience within the organisation is consistent with their expectations and satisfies their basic needs, tend to develop a strong affective commitment to the organisation (Meyer *et al*., 1993). Affective commitment has also been found to correlate strongly with normative commitment and to share many of the same antecedents and consequences (Meyer & Parfyonova, 2010). Normative commitment develops as a result of organisational practices which emphasise followers' loyalty to their organisation (Wiener, 1982). This all implies that followers' performance characteristics impact follower job satisfaction, organisational commitment and work engagement. Therefore, hypothesis H_{2a} is proposed in section 2.9, to be examined in order to verify this relationship.

2.7.2 Follower Relationship Characteristics and Follower Work Outcomes

According to Potter III and Rosenbach (2006), followers with high relationship characteristics tend to develop a strong personal identification with the leader. Maintaining a close relationship with the leader is believed to motivate followers to maintain a favourable self-image and to accordingly satisfy their need for acceptance and esteem from other people (Yukl, 2006). Followers whose higher-level needs (e.g. acceptance, esteem, self-image) are satisfied are expected to have feelings of job satisfaction (Maslow, 1954). Those followers also work hard in order to build their leader's trust in them, to attain more recognition from the leader, to take on more responsibilities and to achieve more advancement in their job. Such followers are expected to develop high levels of job satisfaction once their needs for self-actualisation are fulfilled (Hughes *et al.*, 2009).

Furthermore, followers whose self-actualisation needs are satisfied, develop positive feelings towards their identification with their job and accordingly exhibit a sense of confidence that they can grow and perform effectively (Fleming & Asplund, 2007). Hence, they are likely to become more engaged in their work, have increased levels of psychological satisfaction as a result of their leaders' or organisations' recognition of their efforts (Kahn, 1990) and so are more likely to have high levels of work engagement.

Trusted followers have a responsibility to be loyal to the organisation and to therefore support the organisation in the eyes of outsiders (Baker, 2006). Followers' loyalty to the organisation's cause is underpinned by the internalisation of the organisation's values (Morrow, 1983), which is defined as the adoption of, and acting upon, organisational values (Dvir & Shamir, 2003). Thus, those followers are expected to have a strong belief in, and acceptance of, organisational goals and values and are therefore committed to the organisation. Trusted followers will be asked for their opinions and new ideas (Potter III & Rosenbach, 2006). Researchers (Andaleeb, 1996; Ganesan, 1994) argue that trust between parties is the motor of the relationship owing to the fact that it increases both the intention to co-operate and continual expectations. Trust is also considered to be an antecedent of affective organisational commitment (Rogers, 1995). Therefore, such followers are expected to have feelings of affective commitment to the organisation. Followers' relationship characteristics are also expected to have a positive association with followers' job satisfaction, organisational commitment and work engagement. Hence, hypothesis H_{2b} is presented in section 2.9 to assess this connection.

2.8 Moderating Role of Followership

In the original conceptualisation of his model, Bass (1985) suggests that certain contextual factors might moderate the impacts of transformational and transactional leadership on work outcomes. Others (Hogg, 2001; Yukl, 2006) view leader effectiveness as dependent on followers' motivation to cooperate with the leader, as well as the leader's ability to influence followers. The idea that follower characteristics influence the impact of leadership is not new in literature (Diver, 1998). Several authors (e.g. Dvir & Shamir, 2003; Conger & Kanungo, 1998; Zhu *et al.*, 2009; Miao, *et al.*, 2012) suggest that follower characteristics could be an important factor affecting the overall relationship between each of the transformational and transactional leadership types and follower work outcomes. In addition, there is growing evidence that follower traits and characteristics may determine how followers respond to transformational or charismatic behaviours of a leader (Yukl, 2006). In this regard, only limited leadership research has been carried out concerning the effects of specific follower characteristics, as an independent variable, on the follower-leader relationship in light of the full range leadership model. For example, a few empirical studies (Zhu *et al.*, 2009; Dvir & Shmir, 2003) have examined the role of follower characteristics described by Kelley (1988) (being creative, being proactive and taking initiatives) on the relationship between transformational leadership and work engagement. Although Potter III and Rosenbach (2006) have advanced a followership model encompassing relationship as well as performance characteristics, only one empirical study (Baker, 2006) has so far examined this model in the context of transformational leadership. No prior studies have examined whether the performance-relationship followership model interacts with the full range of leadership styles to influence followers' work outcomes. The following subsections investigate a possible moderating role of follower performance, as well as relationship characteristics, on the relationship between transformational and transactional leadership styles and followers' work-outcomes.

2.8.1 Role of Follower Performance Characteristics

According to Potter III and Rosenbach (2006), effective followers are committed to high performance. Thus, they tend to complete the job that they have been assigned to the highest standard and take pride in what they accomplish. They tend to treat themselves as a valuable resource and work hard to be competent and to maintain a balanced life. Additionally, followers who see themselves as having positive characteristics would be expected to have a higher need for growth (Dvir & Shamir, 2003). Al-Gattan (1985) states that subordinates with a high need for growth perform to a higher standard when their leaders apply more active direction, participation or task-oriented leadership (e.g. transactional leadership), whereas subordinates with a low need for growth perform better when their leaders maintain the status quo. Followers who are committed to high performance see their work as being an essential aspect of their lives, define themselves in terms of their individual attainments and are motivated by the creation of a strong link between reward and performance. They are expected to have individualist orientation, are more likely to form a relationship with transactional leadership (Howell & Shmir, 2005) and to be more responsive to such leadership behaviour. Thus followers' performance characteristics are expected to moderate the effects of transactional leadership on followers' work outcomes. Consequently, hypothesis H_{3a} in section 2.9 is used to test this proposition.

2.8.2 Role of Follower Relationship Characteristics

According to Potter III and Rosenbach (2006), effective followers are committed to maintaining an effective relationship with their leaders. Howell and Shamir (2005) claim that follower characteristics may influence the impact of the idealised influence (charisma) component of transformational leadership. For example, followers with *courageous communication* as well *as negotiating differences* characteristics have high self-concept clarity, are likely to have a high motivation for self-expression, can enhance their already-high self-esteem as well as mediate any differences with their leader. Such followers may respond to transformational leaders who link goals to their values and social identities (Howell & Shamir, 2005; Yukl, 2006). Effective followers develop a socialised relationship with the leader through *identifying with the leader* as well as *building trust* behaviours, primarily based on followers' relational-identity with the group or organisation (Brewer & Gardner, 1996). Those followers are expected to apply greater efforts to respond to transformational leaders' high expectations, which may, in turn, positively affect the impact of transformational leader behaviour on followers' work outcomes. Taking all this into consideration, follower relationship characteristics are expected to moderate the influence of transformational leadership on followers' work outcomes. Thus, hypothesis H_{3b} in section 2.9 is developed and hence assesses to substantiate this assumption.

2.9 Research Hypotheses

Based on the above discussions of the full range of leadership styles, follower characteristics and followers' work outcomes, seven hypotheses are proposed in order to be empirically tested and to answer the three research questions presented in section 1.7.

Firstly, to examine research question one, investigating the relationship between the full range of leadership styles and follower work outcomes, the following hypotheses are derived:

> *Hypothesis (H_{1a}): Transformational leadership positively predicts follower work outcomes.*
>
> *Hypothesis (H_{1b}): Transactional leadership positively predicts follower work outcomes.*
>
> *Hypothesis (H_{1c}): Laissez-faire leadership negatively predicts follower job satisfaction and organisational commitment.*

Secondly, to examine research question two, exploring the relationship between follower characteristics and follower work outcomes, the following hypotheses are proposed:

Hypothesis (H_{2a}): Follower performance characteristics positively predict follower work outcomes.

Hypothesis (H_{2b}): Follower relationship characteristics positively predict follower work outcomes.

Thirdly, in examining research question three, exploring the moderating role of follower characteristics on the relationship between leadership and work outcomes, the following hypotheses are proposed:

Hypothesis (H_{3a}): Follower performance characteristics moderate the relationship between the transactional leadership and follower work outcomes such that the relationship is stronger when follower performance characteristics are high.

Hypothesis (H_{3b}): Follower relationship characteristics moderate the relationship between the transformational leadership and follower work outcomes such that the relationship is stronger when follower relationship characteristics are high.

2.10 Research Conceptual Framework

Given the above discussion, a conceptual framework (shown in Figure 2-1) was developed in order to demonstrate the relationships between the full range of leadership styles, followership and followers' work outcomes that are investigated in this study.

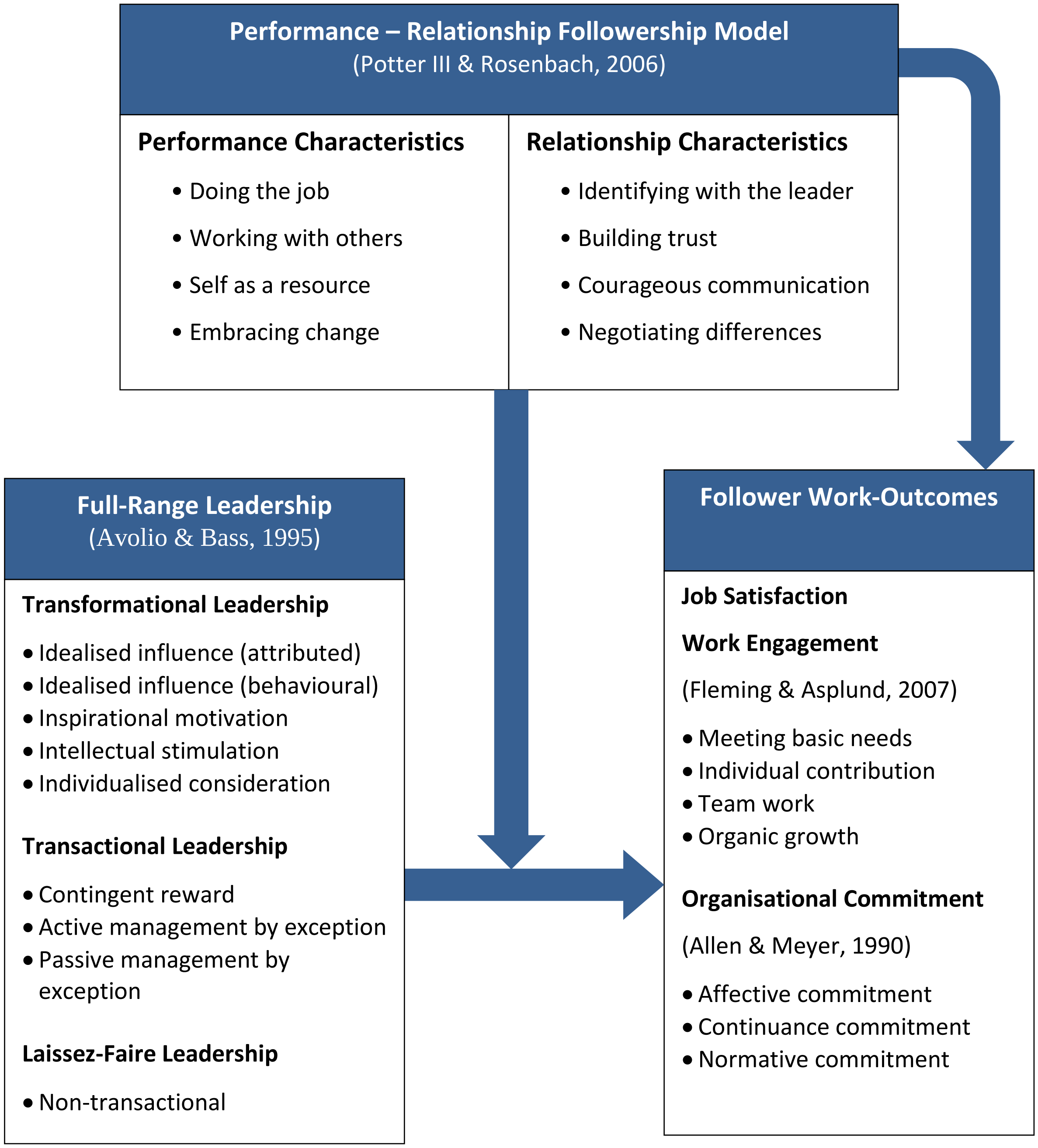

Figure 2-1 - Research Conceptual Framework

2.11 Summary

This chapter reviews existing literature in an attempt to identify the main theories and models underlying leadership, followership and follower work outcomes. It provides a comprehensive overview of the key concepts of follower work outcomes and identifies the significance of the full range of leadership model relevant for the purposes of this study. It also explores various followership frameworks developed over the last three decades. As a result, the Performance-Relationship followership model (Potter III & Rosenbach, 2006) is found to be comprehensive and the most suitable model for the purposes of this study. The review also examines published research, linking leadership, follower characteristics and follower work outcomes, before identifying gaps in the literature. As a result, seven hypotheses are developed in an attempt to address those gaps in the literature and to accordingly enable empirical investigations. Finally, the research conceptual framework is developed. The next chapter explains the methodology used to examine the above research hypotheses.

Chapter 3
Methodology

3.1 Introduction

This chapter discusses the methodology employed in an attempt to examine the research hypotheses presented in the previous chapter. It outlines the research approach and design in section 3.2, and subsequently describes the population and the sample studied in section 3.3. It then sheds light on work groups in LPSOs in section 3.4, before defining the variables used by the study and outlining the data collection instruments employed to measure certain variables in sections 3.5 and 3.6 respectively. It then goes on to clarify the process of translating, testing and administrating the measuring instrument in sections 3.7 and 3.8; explains the data structure and the data analysis techniques in sections 3.9 and 3.10 respectively; before highlighting the research ethical considerations in section 3.11. Finally, the chapter is summarised in section 3.12.

3.2 Research Approach and Design

A quantitative survey strategy adopting cross-sectional design is used to collect data from leaders and followers within Libyan Public Sector Organisations (LPSOs). This strategy is selected as it offers a procedure for collecting data from a relatively large sample of leaders and followers at different levels and sites, rather than being restricted to qualitative analysis based on a small sample of employees. In addition, data collected using a survey might bring to light relationships between variables that could lead to the production of models of such relationships. Surveys also enable researchers to have more control over the research process (Saunders, Lewis & Thornhill, 2007). Additionally, the survey strategy is considered to be appropriate when variables cannot be manipulated (Bryman & Bell, 2007). Outcome variables (dependent variables) such as job satisfaction, organisational commitment and work engagement cannot be manipulated easily and are therefore not ideal for experimental studies.

Although surveys are known to limit researchers to a set number of questions, constraining them to depend on others for further information, this method continues to be perceived in business and management research as the most economical and authoritative approach (Saunders *et al.*, 2007). Hence, the author considers this design to be appropriate for exploring the research objectives of this study. The study uses a structured survey format which draws upon five existing validated instruments for the collection of data. It employs a questionnaire that asks followers to rate their leaders' behaviours, as well as their own followership characteristics, job satisfaction, organisational commitment and work engagement.

3.3 Population and Sample

This study adopts a non-probability sampling technique. Purposive sampling enables researchers to use their judgement to select cases that will best enable them to meet their research objectives. This technique is considered to be suitable when the researcher undertakes an in-depth investigation that focuses on a particular purpose (Saunders *et al.*, 2007). Non-probability is common in the field of business and management studies and is more prominent than probability sampling methods owing to the difficulty and costs involved with random sampling (Bryman & Bell, 2007). Non-probability sampling is also typically used owing to a study's exploratory nature, limited access to the entire population and time and cost constraints. Since this research focuses on investigating the relationship between leadership, followership and work outcomes – particularly in the Libyan public sector context – purposive sampling is perceived to be appropriate for the objectives of this enquiry.

Data is collected from leaders and followers from 141 work groups from 24 LPSOs divided between Libya's two largest cities: the capital, Tripoli, in the west, and the second city, Benghazi, in the east. In order to have an extensive representation of public sector institutions in the study, the surveyed organisations are chosen from a broad spectrum of major industries in the country to which the researcher had access. The organisations that participate in this study are from seven key industries: finance, health, education, utilities, energy, manufacturing and engineering and construction (see Table 3-1).

Table 3-1: Overview of the Organisations and Work Groups that Contribute to the Study

No.	Sector	No. of Organisations	No. of Work Groups	No. of Replies	Types of Organisations
1	Finance	6	22	95	Banks, Investment, Insurance, Regulators
2	Health	2	9	58	Hospital, Health Centre
3	Education	2	7	39	University College, High School
4	Engineering and Construction	5	29	142	Consulting and Construction Firms
5	Utilities	3	36	181	Electricity, Water, and Environmental Services
6	Energy	3	22	87	Oil, Gas and Renewable Energy
7	Manufacturing	3	16	65	Food and Electrical Equipment Factories
Total		**24**	**141**	**667**	

All of the organisations in the study have a similar organisational structure: five to seven hierarchal levels composed of the chairman or CEO at level one and a deputy CEO, general managers, managers, heads of departments, heads of divisions, heads of offices and heads of units at levels two to seven. Appendix A provides a typical organisational structure of LPSOs. The initial sample contains data from 760 respondents out of 1000 questionnaires that were distributed, representing a response rate of 76%. At the analysis stage, 93 of the respondents are excluded from the analyses either due to severe damage to the survey papers, a missing work group identification code or the entire questionnaire being left unanswered. This results in 667 respondents being retained (Table 3-1). Responses with missing data are also retained as the study examines the data using multiple-level modelling (section 3.10), which has been shown by Field (2009) as appropriate for handling missing data. The missing data from some respondents is important to consider and document because it can reduce external validity, statistical power (Newman, 2009) and cause potential bias of substantive hypothesis tests, as well as a potential loss of research credibility (Maloney, Johnson, & Zellmer-Bruhn, 2010). The work groups in the sample include 2 to 12 respondents per group, with an average of 4.9 respondents per work group. There are full responses to the survey from more than 65% of the participants, whereas the rest of the participants answer more than 52% of the survey. Since the data in this study is collected from leaders and followers of work groups across multiple organisational levels, the next section explains the concepts and nature of the work groups in the studied sample.

3.4 Work Groups in LPSOs

Although work teams are increasingly becoming the primary means for organising work in contemporary organisations, simply because teams are better able to provide a direct and collaborative effort to address complex tasks (Robbins & Judge, 2009), LPSOs tend to rely more on work groups (Rathbone *et al*, 2013). The literature differentiates between the two concepts, work teams and work groups. Firstly, a work team is defined as a social group where its members are committed to a common purpose and working approach to which they hold themselves accountable (Guzzo & Shea, 1992). Working in a team generates positive synergies through coordinated efforts. Thus, it is also defined as ‘a group whose individual efforts result in a performance which is greater than the sum of the individual inputs’ (Robbins & Judge, 2009, p. 323). On the other hand, a work group is defined as an aggregation of two or more people who are, to some degree, in dynamic interrelation with one another (McGrath, 1984). Work groups, as compared to work teams, have no need or opportunity to engage in collective work that requires collective effort. Thus their performance is merely the summation of each group member's individual contribution. There is no positive synergy that would create an overall level of performance greater than the sum of the inputs (Senior & Swailes, 2004). Moreover, the literature proposes several features that provide a foundation for a basic definition of work teams and groups. Scholars (e.g., McGrath, 1984; Kozlowski & Bell, 2013; Hackman, 1987) suggest that work teams and groups: (a) are composed of two or more individuals; (b) exist to perform organisationally relevant tasks; (c) share one or more common goals; (d) exhibit task interdependencies; (e) interact socially; (f) maintain and manage boundaries; and (g) are embedded in an organisational context that sets boundaries, constrains the team and influences exchanges with other units in the broader entity (Kozlowski & Bell, 2013).

Work teams and groups can also assume a wide variety of different tasks. McGrath (1984) suggests that group tasks can be distinguished by two dimensions. The first is the behavioural (action) tasks versus conceptual (intellectual) tasks. The second is the cooperation versus conflict tasks. Subsequently, he proposes four general group task processes. Firstly, the *generate* process that involves a group's planning tasks such as generating plans and problem solving. Secondly, the *choose* process that includes group tasks which are either intellective or decision-making. Thirdly, the *negotiate* process that contains cognitive conflict tasks, as well as mixed-motive tasks. Finally, the *execute* process that involves tasks which are either contests or performance tasks that involve striving to meet standards of excellence, with pay-offs tied to such standards rather than to victory over opponents.

Since LPSOs tend to rely on work groups in conducting their activities rather than on work teams (Rathbone *et al*, 2013), they organise their work force into work groups within organisational units. Those organisational units include departments, divisions, offices and other smaller units (APPENDIX A). These conduct a range of routine and bureaucratic activities that generally fall within the range of tasks outlined above by McGrath (1984). The work groups in the studied sample are from various organisational units and each work group is composed of individuals who perform administrative, technical or professional tasks. In light of McGrath's (1984) categorisation of task processes, the activities of the work groups in the sample varies between generating plans, choosing, negotiating and executing tasks. For example, work groups such as in utility, energy and engineering organisational units work to generate technical plans (i.e., generate process) and to execute operational tasks (i.e., execute process). While non-technical work groups such as in financial, human resources and educational organisational units conduct administrative activities that involve intellective or decision-making tasks (i.e., choose process). Other work groups such as in legal services and contracting organisational units conduct tasks that involve negotiating differences and resolving conflicts (i.e., negotiate process). Due to the lack of measurable strategic goals in most of the organisations surveyed, the vast majority of those work groups do not have clear quantifiable objectives. Consequently, they do not have reliable measures of performance. Moreover, although some of the members in the work group have one or more common goals, they largely exhibit weak or no interdependency. Work group leaders include CEOs, general managers, mangers and heads of divisions.

3.5 Dependent, Independent and Control Variables

The research's conceptual framework in Figure 2-1 presents the studies variables which encompass two independent and three dependent variables. The first independent variable is full range leadership, which is defined by three measurable leadership behaviours: transformational, transactional, and laissez-faire (Avolio & Bass, 1995). The second independent variable – followership – is assessed using two measurable follower characteristics, follower performance characteristics and follower relationship characteristics (Potter III & Rosenbach, 2006). Follower characteristics are also considered moderating variables when exploring the impacts of followership on the relationship between leadership and followers' work-outcomes.

The three dependent variables include one item of job satisfaction, three components of organisational commitment (affective commitment, continuance commitment and normative commitment (Allen & Meyer, 1990)) and four dimensions of work engagement (meeting the basic needs, individual contribution, team work and organic growth (Fleming & Asplund, 2007)). There are seven demographic variables: gender, age, work experience, city, tenure in company, job role and education. This demographic data is collected in order to investigate its effect on the relationship between the independent and dependent variables.

3.6 Data Collection Instruments

This study uses a survey (paper and pencil approach) comprising existing and validated scales. A Group Member Survey (GMS; APPENDIXes B&C) is distributed to work group members who are asked to rate their followership characteristics, job satisfaction, organisational commitment and work engagement. The GMS also asks work group members to rate their leaders' leadership behaviours. This survey includes 105 questions drawn from five validated instruments: 36 items of the MLQ-5X short rater form (Avolio & Bass, 1995), 32 items from the Relationship and Performance Questionnaire (RPQ) (Rosenbach, Pittman & Potter III, 1996), 24 items from the organisational commitment scale (Allen & Meyer, 1990), 12 items from the work engagement scale (also known as the Gallup Workplace Audit, or the Q12) (Harter *et al*, 2009) and one item from job satisfaction

(Robbins, 2005). In addition, the researcher develops a hierarchal coding system to ensure respondent anonymity. Numerical codes are used to identify work groups in each organisation. The work group code is given to the GMSs of members within the same work group. The following subsections briefly discuss the contents and validity of each of the six instruments used in this study.

3.6.1 Leadership

Leadership is measured using Avolio and Bass' (1995) MLQ-5X short form. This instrument is one of the few measures available which assesses the full range of leadership using a multifactorial model. Bass (1985) developed the original MLQ with the objective of measuring both transactional and transformational leadership behaviours, as well as to accordingly investigate the nature of the relationship between these leadership styles and work unit effectiveness and satisfaction (Lowe & Kroeck, 1996). The MLQ-5X was introduced in 1991 and incorporates a variety of refinements (Avolio, Bass & Jung, 1999). The MLQ-5X is widely accepted as a valid and reliable tool and has been used in more than 300 studies worldwide between 1995 and 2004 (Avolio & Bass, 2004). Based on a normative database created in 1999, the total-item reliabilities for each leadership factor ranged from α=.74 to α=.94 (Avolio & Bass, 2004).

The current study uses the MLQ-5X short form (Avolio & Bass, 1995) to measure nine leadership components within the full range of leadership model. The five components of transformational leadership are: idealised influence (attributed), idealised influence (behavioural), inspirational motivation, intellectual stimulation and individualised consideration. Three components of transactional leadership are: contingent reward (CR), management by exception active (MBEA) and management by exception passive (MBEP). One component is the laissez-faire leadership style. This study applies the MLQ-5X short rater form which contains 36 five-point items used by followers to describe their managers' leadership skills (Avolio & Bass, 1995). Examples of items from the

MLQ-5X short rater form include: 'articulates a compelling vision of the future' (transformational); 'makes what one can expect to receive when performance goals are met clear' (transactional); and 'avoids making decisions' (laissez-faire). The anchors used to evaluate MLQ-5X short factors are: 1 = not at all; 2 = once in a while; 3 = sometimes; 4 = fairly often; and 5 = frequently, if not always. MLQ-5X short scores are averaged for the items that comprise each scale, with higher scores indicating greater perceptions of specific leadership behaviours (Avolio & Bass, 1995).

Researchers test the nine-factor model across regions and establish strong and consistent support for the full range nine-factor model (Antonakis, Avolio & Sivasubramaniam, 2003; Avolio & Bass, 2004). In all cases, the nine-factor model produces the best fit and is consistent across both the region and rater. These findings provide a relatively sound foundation to examine a broader range of leadership styles – especially with regard to the MLQ-5X short factor structure – using a relatively large and diverse sample (Avolio & Bass, 2004). The researcher obtains the English and Arabic versions of the MLQ-5X short form from Mind Garden, with their permission, using them in this study (APPENDIX D). A specialist reviews the Arabic translation to ensure its consistency with the Arabic spoken in Libya.

3.6.2 Followership

The Performance and Relationship Questionnaire (PRQ) measures followership characteristics (Rosenbach *et al*., 1996). The original PRQ contains 40 items concerned with measuring two dimensions of followership. First, performance characteristics are measured using four five-item scales: doing the job, working with others, self as a resource and embracing change. An example of items for performance initiative is: 'I set clear and challenging performance goals for myself'. Relationship behaviour is measured using four five-item scales: identifying with the leader, building trust, courageous communication and negotiating differences. An example of items for relationship initiative includes: ‘I let people know that I have a different opinion when I don’t agree with my leader’. All eight scales use a five-point Likert scale.

Rosenbach, Pittman and Potter III (1996) validate the PRQ and this measure has acceptable validity and reliability (Baker, 2006). Owing to the limited research interest in followership compared with leadership over the past few decades, researchers are just beginning to use the PRQ and to build its statistical reliability. Baker (2006) calculates the reliability and validity measures of the PRQ in a dataset (N=1001) provided by Rosenbach and colleagues (1996), calculating Cronbach’s Alpha and item-total correlations in such a way so as to measure the reliability of the instrument’s two dimensions and eight scales. However, the findings indicate relatively low reliability coefficients where the Cronbach’s Alpha values of the two dimensions in the questionnaire are; $\alpha = 0.693$ for performance characteristics and $\alpha = 0.577$ for relationship characteristics. Consequently, Baker (2006) suggests that reducing the PRQ from 40 items to 32 could strengthen its overall reliability. In this regard, after removing the item with the lowest item-total correlation from each of the original eight scales, the overall internal reliability of the PRQ is improved ($\alpha = 0.822$ for the two dimensions in the questionnaire, $\alpha = 0.727$ for performance characteristics and $\alpha = 0.732$ for relationship characteristics). Rosenbach and colleagues (1996) adopt the above recommendation and now administer the PRQ as a 32-item instrument (Baker, 2006).

Therefore, the current study uses the 32-item PRQ in which each of its eight scales is measured by four items. This measurement results in a score for each scale. Respondents assess their own followership dimensions using a five-point Likert scale which employs word labels. These labels and their corresponding numeric values are: 5 = Always, 4 = Usually, 3 = Occasionally, 2 = Seldom, and 1 = Almost Never. For the purpose of this research study, the researcher obtains permission from

William Rosenbach (APPENDIX E) to use the original PRQ in the current study and a verified Arabic translation of the modified PRQ is used to measure follower characteristics.

3.6.3 Job Satisfaction

Followers' overall job satisfaction is measured using a single item. Robbins (2005) suggests that job satisfaction can be measured by asking the question, 'All things considered, how satisfied are you with your job?' It has been established that overall job satisfaction has a long history of single-item measures, beginning with the Faces Scale, introduced over 50 years ago (Kunin, 1955). Although the use of single-item measures is typically discouraged for psychological constructs, owing to the fact that they have low reliability (Wanous, Reichers & Hudy, 1997), Sackett and Larson (1990) nevertheless argue that a single-item measure may sufficiently measure a psychological construct if it is sufficiently narrow in scope or unambiguous to the respondent. In this regard, many researchers support the usefulness of single-item measures of global job satisfaction (Scarpello & Campbell, 1983; Wanous *et al.*, 1997). For example, Scarpello and Campbell (1983) conclude that a single-item measure of overall job satisfaction is preferred over a scale, based on the sum of specific job satisfactions. Moreover, a meta-analysis of single-item measures of overall job satisfaction establishes 28 correlations amongst 17 studies across 7,682 people, therefore supporting this conclusion (Wanous *et al.*, 1997). Also, Wanous *et al.* (1997) report that the average correlation between single items and scales is $r = 0.63$. Furthermore, the corrected mean correlation ($r = 0.67$) indicates convergent validity. In addition, these authors report a reasonable range of estimated reliability between $\alpha = 0.70$ and $\alpha = 0.72$ for single-item measures (Wanous *et al.*, 1997). Respondents describe their overall job satisfaction using a five-point Likert scale (1=not satisfied; 5=very satisfied). A higher score indicates higher job satisfaction.

3.6.4 Organisational Commitment

Two widely used instruments are used to measure organisational commitment. Mowday *et al.* (1979) propose the 15-item Organisational Commitment Questionnaire (OCQ) in the assessment of affective orientations towards the organisation. Alternatively, Allen and Meyer (1990) suggest the use of a three-component model to reflect distinct psychological states of organisational commitment (affective, continuance and normative commitment). An eight-item scale measures each of these three components. Owing to organisational commitment being a multidimensional construct, this study uses the three-component model (Allen & Meyer, 1990). The first component is affective commitment, referring to employees' emotional attachment to, identification with or involvement in the organisation (Mowday *et al.*, 1979). This scale is measured using four positively-worded items ('I really feel as if this organisation's problems are my own') and four reverse-worded items ('I do not feel emotionally attached to this organisation'). The second element is the continuance component. This refers to the cost that followers associate with leaving the organisation (Kanter, 1968). It is measured using six positively-worded items ('Too much in my life would be disrupted if I wanted to leave my organisation now,') and two reverse-worded items ('It would not be too costly for me to quit'). The normative component refers to employees' feelings of obligation to remain with the organisation (Wiener, 1982). This scale is measured using five positively-worded items ('I was taught to believe in the value of remaining loyal to one's organisation') and three reverse-worded items ('I do not believe that a person must always be loyal to his or her organisation').

Respondents describe their affective commitment, continuance commitment and normative commitment in respect of their organisations and a five-point Likert scale (1 = not satisfied; 3 = neither satisfied nor dissatisfied; 5 = very satisfied) is used. A higher mean score indicates a higher level of commitment. Furthermore, negative items are reverse-coded prior to data analyses. The reliabilities for the affective commitment scale, continuance commitment scale and normative commitment scale are α = 0.87, α = 0.75 and α = 0.79 respectively (Allen & Meyer, 1990).

3.6.5 Work Engagement

In this study, follower work engagement is measured using the Gallup Workplace Audit (Harter *et al*, 2009), which is widely known as the Q12. Scientists at Gallup Inc. developed this instrument based on 30 years of accumulated qualitative and quantitative research. The Q12 has been extensively studied and validated through prior psychometric studies and practical considerations concerning its overall usefulness in creating workplace change (Harter *et al.*, 2009). It has been administered to more than 15 million people in 65 languages and 169 different countries and is thought to reflect the underlying emotional engagement of its sample participants (Harter *et al.*, 2009; Fleming & Asplunnd, 2007). The 12 items of this survey have Cronbach's Alphas of α = 0.91. On average, items correlate with their broad dimension true values at approximately r = 0.70 (Harter *et al.*, 2009).

The Q12 survey contains 12 items which actively measure issues considered to be actionable at the manager level. These items measure perceptions of the working environment, including four 'engagement conditions', each of which contributes to engagement through the measurement of its causes (Harter *et al.*, 2009). The first engagement condition is basic needs ('I have the material and equipment I need to do my work right'); the second is individual contributions ('My supervisor or someone at work seems to care about me as a person'); the third is teamwork ('My opinions seem to count at work'); and finally, organic growth ('I have had opportunities at work to learn and grow this year' (Fleming & Asplunnd, 2007). In an attempt to measure the aforementioned items, respondents rated their answers on a five-point scale (1 = strongly disagree; 2 = disagree; 3 = neither agree nor disagree; 4 = agree; 5 = strongly agree). A validated Arabic translation of the Q12 questionnaire is used in an attempt to measure levels of follower work engagement in this study.

3.7 Questionnaire Translation and Pilot Testing

The field study for this research is conducted in Libya in Arabic which is the first language of most Libyans and the official national language. Therefore, GMS (APPENDIX B) – is translated into Arabic (APPENDIX C). The translated questionnaire is refined and checked for content validity and to identify important amendments (Saunders *et al.*, 2007) in two stages: questionnaire translation and pilot testing which are explained in the next subsections.

3.7.1 Questionnaire Translation

Firstly, the English version of the questionnaire is translated into Arabic using a professional bilingual expert with specialisation in management studies. The first draft of the Arabic translation of the questionnaire keeps the English text alongside the Arabic text in order to help in the translation comparison and at the validation stage. It is then checked by a panel of two bilingual practitioners, each having more than 30 years of organisational management experience in Libya and abroad. Knowing the spoken and written managerial Arabic in the Libyan organisational context, the panel simplify a few items of Arabic jargon and reword the translation of a few difficult questions in order to make all questions intelligible to managers and team members within any Libyan organisation. The panel also compares the amended Arabic translation of the questionnaire with the original English version to ensure consistency and to determine problems relating to the lexical meaning of individual words, the idiomatic meaning of groups of words, the correct use of grammar and syntax and the experiential meaning of the surveys as a whole (Usunier, 1998). The panel suggests some changes to the scales in the survey translation. Those suggestions include three minor amendments to the translations of the organisational commitment scale (items 4, 15, and 22), one minor amendment to the work engagement scale (item 12), eight minor amendments to the followership scale (items 1, 3, 10, 14, 15, 20, 30 and 32) and thirteen minor amendments to the leadership scale (items 2, 11, 16, 19, 25, 26, 27, 30, 31, 32, 34, 35, and 36). In addition, the translations of the introduction to each scale in the survey is checked and fine-tuned using simple Arabic phrases to enable clear understanding of the aim of each scale. Finally, the Arabic translations of the questionnaire are checked by the author before the English text is removed, leaving the Arabic version ready for distribution.

3.7.2 Pilot Testing

Prior to distributing the final version of the target questionnaire, the instrument is pilot tested to ensure that the Arabic translation of the target questionnaire is clear enough so that respondents have no problems in understanding and answering the questions, and there would be no problem in recording the data. Pilot testing is conducted in each of the two cities where the study is due to take place in order to mitigate any possible misinterpretations of the language, due to possible regional and cultural differences. The first pilot study took place in Tripoli, in the western part of Libya, and the second in Benghazi, in the eastern part of the country. A group of 44 people (23 in Tripoli and 21 in Benghazi) matching the study population complete the survey documents in order to verify the clarity of the Arabic translation and their instructions. All participants in the pilot study – 11 group leaders and 33 followers – are asked to provide their feedback on their relevant surveys. The participants comment that the questionnaire is too long (105 items); some items seem to be repeated in the same scale; and some of the participants mention that they have difficulty responding to negative questions. To address these issues, the translations of negative items are carefully checked for the second time to ensure clarity and the introduction to each scale in the questionnaire is rewritten in order to clarify that, although some questions might look very similar, they are in fact different questions and were designed that way for the purpose of the study. In the end, the pilot study feedback is incorporated into the final versions of the target questionnaire, which is validated by the researcher against the original English version.

3.8 Survey Administration

A survey packet is distributed to the sample. This packet includes a letter from the researcher inviting participation and provides further details about the study (APPENDIX F). The packet also includes the Arabic version of the survey, instructions on how to complete the survey and directions as to where the survey should be returned. Lastly, the packet contains a permission letter from the chairman of the organisation, confirming that the organisation approves of this study. Given the fragility of the Libyan national postal service, a contact person is appointed in each company to collect completed questionnaires via the organisation's internal postal services.

3.9 Data Structure and Preparation

The data used in this study includes replies from respondents that are nested within work groups at two levels. Firstly, the lower level which is the individual level, also referred to as level-1 or micro-level. The data in this level includes three continuous, dependent variables representing the three followers' work outcomes. Additionally, level-1 data includes five independent, continuous variables (predictors), of which three are followers' perception of his/her leader's style, with the other two predictors being followers' perception of his/her own characteristics. The other level of the data is the higher level which represents the work group leader's level, also referred to as level-2 or macro-level. The data in this level includes leader's demographics.

To account for the nested structure of the data, the study conducts multi-level modelling analysis using M-Plus 7 software (Muthén & Muthén, 1998-2010). Prior to entering data into M-plus, data is first entered into the SPSS version 23.0 for Windows where a missing value code (99) is assigned for all missing values of variables in the data set. Descriptive statistics are utilised to describe the sample demographics and the research variables used in the analysis. Frequencies and percentages are also calculated for nominal data, such as gender, while means and standard deviations are calculated for continuous data, such as the subscales and major scales of leadership styles and organisational commitment. Data is then screened for outliers through the examination of standardised value. Standardised values represent the number of standard deviations the value is from the mean. Values +/- 3.65 standard deviations from the mean were considered to be outliers and were removed from the data set (Pallant, 2013). The data is then exported into ASCII format that is acceptable for M-Plus. The next section details the multilevel modelling approach used to analyse the data.

3.10 Multilevel Modelling Analyses

Multilevel models are used to analyse clustered data, that is, data with a hierarchal structure with one response variable measured usually at the lowest level and predictor variables at all existing levels (Hayes, 2006; Field, 2009). A possible issue in the statistical analysis of hierarchically structured data is the dependency on observations from the same cluster at the lower levels, since respondents from that cluster are subject to the same influences (Hox & Maas, 2005). If the hierarchal data is analysed on a single-level, the independence assumption underlying traditional statistical techniques (e.g., multiple-regression, ordinary least squares regression and analysis of variance) is violated, which can affect parameter estimates and result in inaccurate statistical inferences (Hox, 2002). In contrast, multilevel models appropriately account for the hierarchal data structure that causes dependencies in the data and avoids standard error bias due to clustering that leads to inflated Type-1 error rates and incorrect confidence intervals (Hox & Maas, 2005; Field, 2009). In addition, multilevel models allow analysis of variables at different levels, as well as the analysis of cross-level interactions. Multilevel modelling also allows for sample size to vary across levels, which is a regular characteristic of nested data (Tabachnick & Fidell, 2006).

To examine the research hypotheses in section 2.9, the study employs multilevel regression analysis in three stages. First, null models are used to assess the appropriateness of the data for multilevel modelling and to establish a baseline for further model fit testing. Second, random-coefficient regression models are used to explore relationships between level-1 predictors and outcome variables in hypotheses; H_{1a}, H_{1b}, H_{1c}, H_{2a}, and H_{2b}. Finally, random-coefficient regressions are used to examine the moderation effects among level-1 variables of interest in hypotheses H_{3a} and H_{3b}. Each of these analysis stages, along with the formulation of the models relevant to each hypothesis, is explained in the following subsections.

3.10.1 The Null Models

The first stage in the analysis uses the null model (known also as intercept-only or unconditional model) in order to assess the variance in the dependent variables due to clustering, thereby evaluating the appropriateness of multilevel modelling for examining the data in the study. The residual variances from the null model are also used as a baseline for estimating the statistical importance of level-1 predictors in the multilevel models which is discussed in chapter 4. The general multilevel equation form for a null model, for a level-1 work outcome variable (Y), of follower (i) in work group (j) is given as follows (Snijders & Bosker, 2012):

Level 1 (within-group): $Y_{ij} = \beta_{0j} + r_{ij}$ (3.1)

Level 2 (between-groups): $\beta_{0j} = \gamma_{00} + u_{0j}$ (3.2)

A mixed model form is derived by substituting equation 3.2 into equation 3.1:

$$Y_{ij} = \gamma_{00} + u_{0j} + r_{ij} \quad (3.3)$$

By substituting level-1 work outcome variables into equation (3.3), the following three null models (intercept-only models) are obtained and then examined in chapter 4:

$$\text{Job satisfaction}_{ij} = \gamma_{00} + u_{0j} + r_{ij} \quad (3.4)$$

$$\text{Organisational commitment}_{ij} = \gamma_{00} + u_{0j} + r_{ij} \tag{3.5}$$

$$\text{Work engagement}_{ij} = \gamma_{00} + u_{0j} + r_{ij} \tag{3.6}$$

Where the subscript (i) has the values 1,2,….*n*, the subscript (j) has the values 1,2,….,N. Also, n is the number of followers in the group j; N is the number of work groups in the study; β_{0j} is the average work outcome for work group (j); r_{ij} is how a follower (i) in work group (j) differs from his/her work group mean on work outcome; γ_{00} is the unweighted grand mean of work outcome across all work groups; and u_{0j} is the error term representing a unique effect associated with work group (j).

The null models in equations 3.4, 3.5 and 3.6 above do not contain any predictor variables at all; hence the models do not explain any variance in the outcome variables. However, these models are important because they provide the basic distinction in the variability of the data between the two levels (Snijders & Bosker, 2012). The quantity ($\gamma_{00} + u_{0j}$) in the models is the random intercept containing a fixed component (γ_{00}) and a level-2 random component (u_{0j}). The last component (r_{ij}) is the level-1 residual – also a random effect. The assumptions are that the level-2 random component (u_{0j}) is distributed normally with mean zero and variance σ^2_{u0}, and the residuals (r_{ij}) at level-1 are normally distributed with mean zero and variance σ^2_r in all groups, with both components being mutually independent.

The variance terms from the null models are used to compute an intraclass correlation coefficient ICC $_{P1c}$ which is the ratio of the variance between the group level variance to the total variance. This type of ICC is also known as ICC(1) and is defined by the following equation (Shrout & Fleiss, 1979; Snijders & Bosker, 2012):

$$\text{ICC}_{P1c} = \sigma^2_{u0} / (\sigma^2_{u0} + \sigma^2_r) \tag{3.7}$$

The ICC value indicates the proportion of the variance explained by the grouping structure in the population; hence it informs whether the group is important in understanding the individual differences. An ICC of zero indicates that observations are independent of group membership. The larger the ICC, the more individual differences there are due to differences between groups (Bliese & Halverson, 1998). In other words, a high ICC indicates that the between-group variance is larger than the within-group variance; and that the difference across responses is really from group differences, supporting the use of the multilevel analysis. In contrast, a low ICC indicates that variance is likely due to individual differences within a group (Bliese & Halverson, 1998), hence it does not support the use of multilevel regression. Hox (2002) suggests that ICC coefficients can be interpreted as follows: 0.05-0.09 indicates a low effect, 0.10-0.14 a moderate effect and coefficients from 0.15 indicate a large effect. However, Mplus software automatically outputs the ICC as well as the estimated level-1 and level-2 variances for all variables included in the multilevel analysis.

3.10.2 Random-Regression Models

The second stage of the analysis examines the relationship between level-1 outcome and predictor variables as proposed by hypotheses H_{1a}, H_{1b}, H_{1c}, H_{2a} and H_{2b}. Therefore, the study employs random-coefficient regression analysis (Snijders & Bosker, 2012) to examine the random effects of the proposed relationships. One of the primary differences between multilevel modelling and other forms of analysis is the ability to estimate one or more of the coefficients or ‘effects’ in the model as either fixed or random. A fixed effect has only a single value in the model and is applied to each level-1 variable in the analysis, regardless of the level-2 variable under which a case in nested. A random effect, in contrast, is allowed to vary between level-2 units (Hayes, 2006). Although, this study does not explicitly theorise that the relationship between level-1 outcomes and predictors differs between work groups, the researcher decides to test this relationship, first by setting the effect to random intercept and random slopes in the model. This is in order to account for the effects of the clustered data, since accounting for the dependencies between observations leads to more accurate standard errors, test statistics, p-values and confidence intervals (Geiser, 2013). This decision is also consistent with a study conducted by Snijders & Bosker (2012) which suggests that the random-coefficient model is appropriate if N is not small (say $N \geq 20$); if the groups assessed are regarded as a sample from a real population; and the researcher wishes to draw conclusions pertaining to this population, as is the case with this research. Fixed slope models were then used to examine the standardised models in order to estimate the size of the effect of the regression coefficients of the models.

Generally, in order to test the random effects for level-1 work outcome variable (Y) of follower (i) in work group (j) predicted by independent variable (X), the employed random-coefficient regression model consists of random intercept (β_{0j}) and a random slopes (β_{1j}) so that they can both vary across work groups. The random-coefficient regression model is given as follows (Snijders & Bosker, 2012):

Level 1 (within-group): $$Y_{ij} = \beta_{0j} + \beta_{1j} * X_{ij} + r_{ij} \tag{3.8}$$

Level 2 (between-groups): $$\beta_{0j} = \gamma_{00} + u_{0j} \tag{3.9}$$

$$\beta_{1j} = \gamma_{10} + u_{1j} \tag{3.10}$$

Also the random-coefficient regression model can be represented by a mixed form model through substituting equations 3.9 and 3.10 into equation 3.8:

$$Y_{ij} = \gamma_{00} + u_{0j} + \gamma_{10} * X_{ij} + u_{1j} * X_{ij} + r_{ij} \tag{3.11}$$

Where (β_{1j}) is the slope coefficient of level-1 regression and (γ_{10}) is the intercept of the random slope on level-2, by substituting level-1 work outcome variables and predictors into equation 3.11, the following five sets of random-regression models are formulated to examine the effect within group relationships in hypotheses H_{1a}, H_{1b}, H_{1c}, H_{2a} and H_{2b} as follows:

a) Random-Regression Models for Hypothesis H_{1a}:

$$\text{Job satisfaction}_{ij} = \gamma_{00} + u_{0j} + \gamma_{10} * \text{transformational leadership}_{ij} + u_{1j} * \text{transformational leadership}_{ij} + r_{ij} \quad (3.12)$$

$$\text{Organisational commitment}_{ij} = \gamma_{00} + u_{0j} + \gamma_{10} * \text{transformational leadership}_{ij} + u_{1j} * \text{transformational leadership}_{ij} + r_{ij} \quad (3.13)$$

$$\text{Work engagement}_{ij} = \gamma_{00} + u_{0j} + \gamma_{10} * \text{transformational leadership}_{ij} + u_{1j} * \text{transformational leadership}_{ij} + r_{ij} \quad (3.14)$$

b) Random-Regression Models for Hypothesis H_{1b}:

$$\text{Job satisfaction}_{ij} = \gamma_{00} + u_{0j} + \gamma_{10} * \text{transactional leadership}_{ij} + u_{1j} * \text{transactional leadership}_{ij} + r_{ij} \quad (3.15)$$

$$\text{Organisational commitment}_{ij} = \gamma_{00} + u_{0j} + \gamma_{10} * \text{transactional leadership}_{ij} + u_{1j} * \text{transactional leadership}_{ij} + r_{ij} \quad (3.16)$$

$$\text{Work engagement}_{ij} = \gamma_{00} + u_{0j} + \gamma_{10} * \text{transactional leadership}_{ij} + u_{1j} * \text{transactional leadership}_{ij} + r_{ij} \quad (3.17)$$

c) Random-Regression Models for Hypothesis H_{1c}:

$$\text{Job satisfaction}_{ij} = \gamma_{00} + u_{0j} + \gamma_{10} * \text{Laissez-faire leadership}_{ij} + u_{1j} * \text{Laissez-faire leadership}_{ij} + r_{ij} \quad (3.18)$$

$$\text{Organisational commitment}_{ij} = \gamma_{00} + u_{0j} + \gamma_{10} * \text{Laissez-faire leadership}_{ij} + u_{1j} * \text{Laissez-faire leadership}_{ij} + r_{ij} \quad (3.19)$$

d) Random-Regression Models for Hypothesis H_{2a}:

Job $satisfaction_{ij} = \gamma_{00} + u_{0j} + \gamma_{10} * \text{performance characteristics}_{ij} + u_{1j} * \text{performance characteristics}_{ij} + r_{ij}$ (3.20)

Organisational $commitment_{ij} = \gamma_{00} + u_{0j} + \gamma_{10} * \text{performance characteristics}_{ij} + u_{1j} * \text{performance characteristics}_{ij} + r_{ij}$ (3.21)

Work $engagement_{ij} = \gamma_{00} + u_{0j} + \gamma_{10} * \text{performance characteristics}_{ij} + u_{1j} * \text{performance characteristics}_{ij} + r_{ij}$ (3.22)

e) Random-Regression Models for hypothesis H_{2b}:

Job $satisfaction_{ij} = \gamma_{00} + u_{0j} + \gamma_{10} * \text{relationship characteristics}_{ij} + u_{1j} * \text{relationship characteristics}_{ij} + r_{ij}$ (3.23)

Organisational $commitment_{ij} = \gamma_{00} + u_{0j} + \gamma_{10} * \text{relationship characteristics}_{ij} + u_{1j} * \text{relationship characteristics}_{ij} + r_{ij}$ (3.24)

Work $engagement_{ij} = \gamma_{00} + u_{0j} + \gamma_{10} * \text{relationship characteristics}_{ij} + u_{1j} * \text{relationship characteristics}_{ij} + r_{ij}$ (3.25)

3.10.3 Moderation Analysis

The last stage of the analysis uses random coefficient regression to examine hypotheses H_{3a} and H_{3b}. Since these hypotheses predict within group moderation relationships, interaction terms are added to the models by multiplying the predictor variable by the moderator variable. An interaction changes the magnitude of the relationship between a predictor and an outcome through the presence of another variable (the moderator) (Preacher et al., 2006) and the interaction can increase or decrease the relationship. Moderation analysis has three assumptions: a causal assumption (both X and Z must cause Y), understanding the causal direction of X to Y and the moderator and predictor should not be related (Judd et al., 2001). The equation for a multiplicative interaction is as follows (Preacher et al., 2006):

$$Y_{ij} = \gamma_{0j} + \gamma_{1j} * x_{ij} + \gamma_{2j} * z_{ij} + \gamma_{3j} * x_{ij} * z_{ij} + r_{ij} \quad (3.26)$$

In this equation, the ýs are the regression weights and the X and Z are grand mean centred. The interaction is represented by the term $\acute{y}_{3j}$. This general equation can be used to determine the prediction equation, which is the expected value of Y, conditioned on specific values of the predictor X and the moderator Z (Preacher et. al., 2006).

$$E[y|(x,z)]_{ij} = \hat{y}_{0j} + \hat{y}_{1j} * x_{ij} + \hat{y}_{2j} * z_{ij} + \hat{y}_{3j} * x_{ij} * z_{ij} \tag{3.27}$$

Where the carat (ˆ) represents the sample estimate of the corresponding parameter. By substituting the outcome, predictor and moderator variables from level-1 into the above equation, two sets of models are derived for the relevant hypotheses as follows:

a) Moderation Models for Hypothesis H_{3a}:

Job satisfaction$_{ij}$ = $\acute{y}_{0j}$ + $\acute{y}_{1j}$ * transactional leadership + $\acute{y}_{2j}$ * performance characteristics + $\acute{y}_{3j}$ * transactional leadership * performance characteristics + r_{ij} (3.28)

Organizational commitment$_{ij}$ = $\acute{y}_{0j}$ + $\acute{y}_{1j}$ * transactional leadership + $\acute{y}_{2j}$ * performance characteristics + $\acute{y}_{3j}$ * transactional leadership * performance characteristics + r_{ij} (3.29)

Work engagement$_{ij}$ = $\acute{y}_{0j}$ + $\acute{y}_{1j}$ * transactional leadership + $\acute{y}_{2j}$ * performance characteristics + $\acute{y}_{3j}$ * transactional leadership * performance characteristics + r_{ij} (3.30)

b) Moderation Models for Hypothesis H_{3b}:

Job satisfaction$_{ij}$ = $\acute{y}_{0j}$ + $\acute{y}_{1j}$ * transformational leadership + $\acute{y}_{2j}$ * relationship characteristics + $\acute{y}_{3j}$ * transformational leadership * relationship characteristics + r_{ij} (3.31)

Organizational commitment$_{ij}$ = $\acute{y}_{0j}$ + $\acute{y}_{1j}$ * transformational leadership + $\acute{y}_{2j}$ * relationship characteristics + $\acute{y}_{3j}$ * transformational leadership * relationship characteristics + r_{ij} (3.32)

Work engagement$_{ij}$ = $\acute{y}_{0j}$ + $\acute{y}_{1j}$ * transformational leadership + $\acute{y}_{2j}$ * relationship characteristics + $\acute{y}_{3j}$ * transformational leadership * relationship characteristics + r_{ij} (3.33)

Having introduced the multilevel models used in this study, there are however key issues that should be considered prior to testing these models. The issues to be considered are the method of the estimation of regression parameters, sample size and power and centering of predictor variables, which are all discussed in the following subsections.

3.10.4 Estimation of Regression Parameters

The estimation of statistical parameters, regression coefficients and variance components in multilevel modelling is generally done using the maximum likelihood (ML) method (Hox & Maas, 2005). There are two varieties of maximum likelihood estimation commonly used in multilevel regression analysis. The Full Maximum Likelihood (FML) is where both the regression coefficients and the variance components are included in the likelihood function. The other is Restricted Maximum Likelihood (RML) where only the variance components are included in the likelihood function. The difference between the two is that FML treats the estimates for the regression coefficients as known quantities when the variance components are estimated, whilst RML treats them as estimates that carry some amount of uncertainty (Goldstein, 1995; Bryk & Raudenbush, 1992). Since RML is more realistic, it should in theory, lead to better estimates, especially where the number of groups is small (Bryk & Raudenbush, 1992).

The maximum likelihood procedure generates standard errors for most of the parameter estimates. These standard errors can be used in significance testing by computing the test statistics Z: Z = parameter/(standard error parameter). This statistic is referred to the standard normal distribution in order to establish a p-value for the null-model (Hox & Maas, 2005). The Maximum likelihood procedure also produces a statistic called the deviance (the deviance equals -2 times the log-likelihood), which indicates how well the model fits the data. In general, models with a lower deviance fit better than models with a higher deviance. In addition to the standard errors, the deviance can also be used to test parameters for significance. If two models are nested, meaning that a specific model can be derived from a more general model by removing parts of that general model, the deviances of the two models can be used to compare their fit statically. For nested models, the difference in deviance has a chi-square distribution with degrees of freedom equal to the difference in the number of predictors that are in the two models. The deviance test can be used to perform a formal chi-square test, in order to test whether the more general model fits significantly better than the simpler model. The chi-square test of the deviance can also be used to good effect to explore the importance of a set of random effects. This can be achieved by comparing a model that contains these effects against a model that excludes them (Hox, 2010).

The default choice of estimator for multilevel analysis in M-Plus is Robust Maximum Likelihood (MLR), which is preferred when continuous outcome variables are not clearly normally distributed. Likert-type categories, such as the ones used by the current study, are typically best treated using MLR since this estimator adjusts the important inferential elements of the results; hence it is used to estimate the parameters for the models studied. In addition, M-Plus uses full information maximum likelihood (FIML) estimation which includes the missing data points in the analysis, hence there is no need to remove subjects with incomplete subject data (Muthén & Asparouhov, 2002).

3.10.5 Sample Size and Power

In addition to the estimation method, the sample size might affect the accuracy of the estimates in the multilevel model. The maximum likelihood described earlier is asymptotic which translates to the assumption that the sample size must be sufficiently large (Maas & Hox, 2004). In multilevel regression, however, there is a sample size for each level, defined as the total number of units observed for this level. For testing the effect of level-1 variable, this level’s sample is of prime importance; similarly, if we test the effect of level-2 variables, it is this level’s sample size that is of prime importance. The average cluster sizes are not very important for the power of such tests (Snijders, 2005). This implies that the sample size at the highest level is the main limiting characteristics of the design. There are, however, two sample size issues to be concerned about. One issue has to do with the minimum number of cases needed for using multilevel regression to avoid biases. The other issue concerns sufficient statistical power needed for obtaining significance. According to Maas and Hox (2004), a minimum of 30 cases at the group level of analysis is needed for adequate power in multilevel modelling when considering contextual effects; whilst at least 50 cases are needed for the correct estimates of standard errors. Following this rule, the current study has a sufficient amount of cases required for robust estimations.

3.10.6 Centring of Independent Variables

Another important consideration when using multilevel regression analysis is the centering of the independent variables. Centering refers to the process of transforming a variable into deviations around a fixed point. There are two forms of centering that are typically used in multilevel modelling: group mean centering and grand mean centering. Group mean centering means that for a given variable, we take the score and subtract from it the mean of the scores of that variable within a given group; whilst in the grand mean centering we subtract from the variable's score the mean of all scores (Field, 2009). In this study, predictor variables are grand mean centred, where for each independent variable X, the mean of the scores $\overline{X}$ is subtracted from the raw score X_{ij} to produce centred score X^{C}_{ij}. In the analysis, the centred scores X^{C}_{ij} are then used instead of the raw scores. By centring the predictor variables before the analysis, the zero point of these variables becomes more meaningful, especially when predictors do not have a meaningful zero point. Moreover, multilevel models with centred predictors tend to be more stable and estimates from these models can be treated as more or less independent from each other (Field, 2009).

3.11 Ethical Considerations

Research ethics are paramount to the credibility and trustworthiness of a research project and the researcher's own standing. This research ensures research ethics throughout the conduct of the study, the most important of which are individuals' and organisations' rights, safety and confidentiality, which are all respected and considered essential. The more comfortable the participant feels with the process and procedures, the more likely the information provided is reflective of the participant's opinion, subsequently resulting in quality data collected for analysis. Therefore, this study adheres to ethical obligations. Firstly, there is no pressure to participate in the study. It is voluntary and responses are confidential. A covering letter informs participants of all aspects of the research so as to enable them to determine their willing participation and to feel secure in the process. It also assures respondents that their replies are treated as confidential and anonymous. Secondly, participants are approached after obtaining their organisation's written approval. In addition, organisations are assured that they will remain anonymous. Thirdly, organisations are assured that they can request a general report of the findings regarding their organisation when the research is completed and approved. Finally, organisations are made aware that the overall findings are expected to be published in some research and professional journals.

3.12 Summary

This chapter outlines the research methodology applied throughout the study. It details the theoretical rationale and logic underpinning the research approach and design. It also discusses the targeted population and sample, data collection instruments, questionnaires translation and pilot testing and survey administration. The chapter then explains the data analysis techniques used in order to examine research hypotheses, before outlining the ethical aspects of the study. The next chapter discusses the data analysis results.

Chapter 4
Data Analysis and Results

4.1 Introduction

This chapter provides a detailed description and analysis of the data collected in response to the survey, seeking to address the research hypotheses listed in section 2.9. The chapter is divided into eleven sections commencing with this introductory section, followed by sample demographics in section 4.2. The null model testing results are presented in section 4.3, followed by the testing of the results of hypotheses H_{1a}, H_{1b}, H_{1c}, H_{2a}, H_{2b}, H_{3a}, and H_{3b}, presented in sections 4.4, 4.5, 4.6, 4.7, 4.8, 4.9 and 4.10 respectively. Finally, section 4.11 provides the summary.

4.2 Sample Demographics

After removing outliers, a total of 667 participants are included in the analysis. Appendix G shows the sample demographics. The sample is 87% male (581) and ranges in age from younger than 25 to older than 55 years old, with most participants within the 25-55 range. The majority of participants have been with the company for more than 10 years (35%), with most participants having been in their current role for 1 to 3 years (34%). Also, the majority of the individuals have work experience of more than 10 years (59%). Over 50% of participants have a Bachelor's degree and 44% are not managers. Furthermore, there are 141 work group leaders, with most of the leaders male 118 (84%) and 51 (36%) of the leaders aged between 25 and 35 years old; 48 (34%) are aged between 36 and 45 years old. Also, most of the group leaders 76 (54%) are based in Benghazi. Many of the leaders 49 (35%) have been in the company for over 10 years and 54 (39%) of them in their role for 1 to 3 years. The majority of the leaders 74 (53%) have over 10 years of work experience. Almost half of the leaders 69 (49%) have a bachelor's degree and the majority of the leaders 80 (57%) are line managers. A summary of the frequencies and percentages of work group leaders is provided in Appendix H.

4.3 The Null Model Testing

The first analysis stage is to fit the null models (Intercept-only models) for job satisfaction (JSmajor), organisational commitment (OCmajor) and work engagement (VWEmajor) that are proposed in the equations 3.4, 3.5 and 3.6 respectively, in section 3.10.1. The requested analysis is set on M-Plus to TYPE= TWOLEVEL and the estimator command uses robust maximum likelihood command ESTIMATOR= MLR. For the null models there are no model statements, only the three level-1 outcome variables are listed, using variable names in Table 4-1 and under the command USEVARIABLES=OCmajor VWEmajor JSmajor. The cluster variable 'TeamCode' is defined using the subcommand CLUSTER= TeamCode to indicate the relevant cluster variables that represent the work group leader's level; finally missing data is set to the instruction comand; missing are all (99).

Table 4-1: M-Plus Format Variable Names

Variable Name	M-plus Format Variable Name
Job satisfaction	JSmajor
Organisational commitment	OCmajor
Work engagement	VWEmajor
Work group performance	TPmajor
Transformational leadership	Tformmaj
Transactional leadership	Tactmaj
Laissez-fair leadership	LFnotran
Follower performance	FPmajor
Follower relationship	FRmajor

The Intraclass coefficients ICC from the null model testing in Appendix I show that work group membership accounts for variance of 15% for Job Satisfaction (ICC=0.15), 16% for Organizational Commitment (ICC=0.16) and 17% for Work Engagement (ICC=0.17). These ICC values are consistent with research that has shown ICC values between 0.05 and 0.20 to be common in cross-sectional multilevel modelling applications in social research studies (Muthén, 1991; 1994); hence, the use of multilevel modelling for the current study is justified. The model fit was assessed by the fit statistics. The fit statistics for this model are presented in Table 4-2 below. The chi-square should be $p<0.05$, RMSEA<0.08 and CFI and TLI >0.95 (Ryu, 2014). This model is not a good fit, based on the significant chi-square and the RMSEA being >0.08; moreover, the CFI and TLI are not >0.95.

In order to decide which of the models better fits the data, the predictors for relevant hypotheses are included in the subsequent models and the fit indices CFI, RMSEA and SRMR are compared with those of the null model and with the cut-off levels quoted by Hu and Bentler (1999) of 0.95 for CFI, 0.08 for SRMR and 0.06 for RMSEA. In addition, since when comparing two models, a reduction in the Loglikelihood indicates a better fitting model (Ryu, 2014), the change in deviance value between the null model and the model with predictors is calculated using the following formula (Snijders & Bosker, 2012):

$$(-2\ \text{Loglikelihood}_{\text{Null model}}) - (-2\ \text{Loglikelihood}_{\text{Model with predictors}}) = \qquad (4.1)$$

For each hypothesis, regression models were entered into M-Plus. First, the fixed slope effects, using the command ANALYSIS: TYPE=TWOLEVEL and to produce the standardised solution using the command OUTPUT=sampstat STDYX. Then the random slope effects are tested using the command ANALYSIS: TYPE=TWOLEVEL RANDOM to allow the inclusion of random slopes in addition to the random intercepts. Following this, the covariance between random intercepts and random slopes τ_{oj} are tested across work groups for each model. Since, the analysis includes random slopes, the relevant random slopes have to be defined in the MODEL command. M-Plus treats a random slope as if it was a latent variable, such that the random slope automatically has a variance at level-2 (Greise, 2013). Three labels; $BETA_{1j}$, $BETA_{2j}$ and $BETA_{3j}$ are chosen for the random slope coefficients of the regression between each predictor and the three outcome variables: job satisfaction (JSmajor), organisational commitment (OCmajor) and work engagement (VWEmajor) respectively. The random slopes are defined in the model WITHIN command (e.g., $BETA_{1j}$ | JSmajor ON Tformmaj;). Also, at level-2, the estimation of the covariance τ_{oj} between the random intercept and the random slope is conducted using the BETWEEN command (e.g., JSmajor WITH $BETA_{1j}$). For each of the research hypotheses, multilevel regression models are run separately, the results of which are discussed in the following sections.

4.4 Testing of Transformational Leadership Impact on Follower Work Outcomes

Hypothesis H_{1a} proposes a positive association between transformational leadership and follower work outcomes. To investigate this relationship, the random regression models in equations 3.12, 3.13 and 3.14, in section 3.10.2 above, are examined, where the predictor variable transformational leadership (Tformmaj) is defined as level-1 variable, using the subcommand WITHIN= Tformmaj and is entered into the model in grand-mean-centred form (center Tformmaj (grand mean)) to allow for a more straightforward interpretation of the results. Also, control variables such as age, tenure in company, work experience and education were entered into the model in order to account for their effects.

The results from hypothesis H_{1a} testing are given for fixed slope models, random slope models and variance between random intercepts and random slope models in appendices J, K and L respectively. Furthermore, Table 4-2 compares the model fit results of the null model and the random slope models of H_{1a} that include the predictors. In order to fit the model, the difference in the deviance statistics is calculated using equation 4.1 above, as follows:

$$(-2) * (-2257.545) - (-2) * (-1610.714) = 4515.10 - 3221.42 = 1293.68 \qquad (4.2)$$

This shows that the change in deviance has test statistics of around 1294 on 15 degrees of freedom (after adding 15 variables to the null model). This is statistically significant. Additionally, the change in deviance has a chi-square distribution ($\chi^2(15) = 1294$, $p<0.0001$). Moreover, the fit indices CFI, RMSEA and SRMR comfortably satisfy the cut-off levels quoted by Hu and Bentler (1999). This would suggest that the model with the predictors with lower deviance has a better data fit; and that one or more of the independent variables are important predictors of the dependent variables in the model.

Table 4-2: Model Fit Information for the Null Model and Hypotheses H_{1a}, H_{2b} and H_{2c}

	Null model	H_{1a}	H_{1b}	H_{1C}
Loglikelihood	-2257.55	-1610.71	-1803.94	-1134.19
Akaike (AIC)	4590.01	3278.16	3640.22	2286.38
Bayesian (BIC)	4628.31	3384.54	3700.71	2323.89
Chi-Square Test of Model Fit				
Value	48.14	2.74	1.93	0.01
Degrees of Freedom	6	3	3	1
P-value	0.00	0.43	0.59	0.95
RMSEA	0.12	0.00	0.00	0.00
CFI	0.00	1.00	1.00	1.00
TLI	0.00	1.01	1.03	2.16

The results from hypothesis H_{1a} testing in Table 4-3 indicate that none of the control variables have a significant effect. Therefore, they were dropped from the analysis in subsequent models. However, Table 4-3 shows that transformational leadership style has a positive significant relationship with organisational commitment (estimate = 0.032, p<0.05), work engagement (estimate

= 0.32, p<0.001) and job satisfaction (estimate = 0.089, p<0.001). The residual variances in the model with predictors are smaller than the corresponding null model variances. Table 4-3 also shows that the residual variance of job satisfaction is reduced from 0.879 to 0.723 (18%), organizational commitment from 0.694 to 0.623 (10%) and work engagement from 4.789 to 3.455 (28%). This suggests that the variability in outcome variables can be explained by transformational leadership. Since grand mean centring is used, these differences reflect differences both within and between work groups. More details on the size of this effect are provided in the standardised solution in Appendix J. The standardised level-1 regression coefficients for the regression of work outcomes on transformational leadership are: for job satisfaction (estimate=0.369, Z=6.556, P=0.000 and R^2=0.148), organisational commitment (estimate=0.151, Z=2.347, P=0.02 and R^2=0.055) and work engagement (estimate=0.544, Z=9.724, P=0.000 and R^2=0.297). This indicates that followers' perception of their leader's style as transformational may account for almost 15% of their job satisfaction, 6% of their organisational commitment and 30% of their work engagement. Since these findings support hypothesis H_{1a}, it is accepted.

The results of the analysis of the variance between random intercepts and random slopes are presented in Table 4-4 as well as in Appendix L. The variability in intercepts of work outcomes ($\hat{\sigma}^2_{u0j}$) across work groups are: 0.107 for job satisfaction, 0.074 for organisational commitment and 1.033 for work engagement. However, they are all relatively small and statistically non-significant. It can also be seen from Table 4-4 that the variances in the slopes $BETA_{1j}$, $BETA_{2j}$ and $BETA_{3j}$ are 0.007, 0.002 and 0.037 respectively, which are small and statistically non-significant. Similarly, Table 4-4 shows that the estimated covariance τ_{oj} between intercepts and slopes on level-2 are small and statistically non-significant. This suggests that the relationship between transformational leadership and work outcomes are not influenced by work group membership in the studied sample.

Table 4-3: Results of Random Regression Models for Hypothesis H_{1a}

	Estimate	**S.E.**	**Est./S.E.**	**Two-Tailed P-Value**
Within Level				
Job satisfaction ON				
Transformational leadership	0.089	0.014	6.195	0.000
Age	0.011	0.065	0.166	0.868
Tenure in company	-0.017	0.039	-0.442	0.658
Education	-0.096	0.056	-1.716	0.086
Work experience	0.034	0.061	0.557	0.578
Organisational commitment ON				
Transformational leadership	0.032	0.014	2.276	0.023
Age	-0.114	0.077	-1.487	0.137
Tenure in company	-0.011	0.047	-0.226	0.821
Education	-0.136	0.061	-2.215	0.027
Work experience	0.036	0.063	0.582	0.56
Work engagement ON				
Transformational leadership	0.317	0.037	8.671	0.000
Age	0.1	0.14	0.715	0.475
Tenure in company	0.16	0.123	1.299	0.194
Education	-0.037	0.149	-0.247	0.805
Work experience	-0.157	0.146	-1.077	0.281
Work engagement with				
Organizational commitment	0.071	0.106	0.677	0.499
Job satisfaction with				
Organizational commitment	0.066	0.045	1.49	0.136
Work engagement	0.388	0.107	3.62	0.000
Residual Variances				
Organisational commitment	0.623	0.074	8.408	0.000
Work engagement	3.455	0.352	9.81	0.000
Job satisfaction	0.723	0.074	9.796	0.000
Between Level				
Means				
Organisational commitment	9.819	0.268	36.653	0.000
Work engagement	14.058	0.621	22.621	0.000
Job satisfaction	3.924	0.267	14.718	0.000
Variances				
Organisational commitment	0.067	0.04	1.668	0.095
Work engagement	1.085	0.345	3.145	0.002
Job satisfaction	0.093	0.045	2.058	0.04

Table 4-4: Results of Variance between Random Intercepts and Random Slopes Models for Hypothesis H_{1a}

	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
Within Level				
Work engagement WITH				
Organisational commitment	0.054	0.098	0.547	0.584
Job satisfaction WITH				
Organisational commitment	0.056	0.045	1.239	0.215
Work engagement	0.338	0.109	3.104	0.002
Residual Variances				
Organisational commitment	0.623	0.074	8.453	0.000
Work engagement	3.048	0.32	9.517	0.000
Job satisfaction	0.671	0.076	8.875	0.000
Between Level				
Job satisfaction WITH				
BETA1J	-0.01	0.009	-1.105	0.269
Organisational commitment WITH				
BETA2J	0.005	0.005	1.016	0.309
Work engagement WITH				
BETA3J	-0.01	0.057	-0.179	0.858
Means				
Organisational commitment	9.275	0.054	170.957	0.000
Work engagement	14.152	0.139	101.695	0.000
Job satisfaction	3.823	0.057	66.673	0.000
BETA1J	0.073	0.016	4.684	0.000
BETA2J	0.03	0.014	2.156	0.031
BETA3J	0.318	0.035	9.089	0.000
Variances				
Organisational commitment	0.074	0.047	1.589	0.112
Work engagement	1.033	0.392	2.635	0.008
Job satisfaction	0.107	0.05	2.147	0.032
BETA1J	0.007	0.004	1.704	0.088
BETA2J	0.002	0.003	0.71	0.477
BETA3J	0.037	0.023	1.638	0.102

4.5 Testing of Transactional Leadership Impact on Follower Work Outcomes

Hypothesis H_{1b} predicted that transactional leadership style has a positive link with follower work outcomes. In order to test this prediction, the random regression models in equations 3.15, 3.16 and 3.17 in section 3.10.2 were entered into M-Plus where the predictor variable transactional leadership (Tactmaj) is defined as level-1 variable using the WITHIN subcommand WITHIN= Tactmaj and is entered into the model in grand-mean-centred form using (centre Tactmaj (grand mean)). Three tests were conducted: first, the standardised solution for models with fixed slopes were estimated (Appendix M), then models with random slopes were estimated (Appendix N) and finally the variance between random intercepts and random slopes were examined (Appendix O). Subsequently, the model fit information for H_{1b} is compared in Table 4-2 above with the fit statics of the null model. Additionally, the model fit is assessed by calculating the change in deviance values of the model with the predictor variable using equation 4.1 above:

$$(-2) * (-2257.545) - (-2) * (-1803.943) = 4515.10 - 3607.88 = 907.22 \qquad (4.3)$$

Equation 4.3 shows that the difference in the deviance statistics is around 907 at 3 degree of freedom, which is statistically significant; and the change in deviance has a chi-square distribution ($\chi^2(3)=907$, $p<0.001$). The fit indices CFI (1.000), RMSEA (0.000) and SRMR (0.01) are also consistent with Hu and Bentler (1999). This therefore suggests that the model with predictors has a better data fit.

The random regression model results of hypothesis H_{1b} testing, as shown in in Table 4-5, indicate that transactional leadership style positively and significantly predicted work engagement (estimate = 0.53, $p<0.001$) and job satisfaction (estimate = 0.15, $p<0.001$). In contrast transactional leadership does not predict organisational commitment (estimate = 0.054, $p=0.053$). Furthermore, the results show that the residual variances in the model with predictors are smaller than the corresponding null model variances. The residual variance of job satisfaction is reduced from 0.879 to 0.820 (7%) and work engagement from 4.789 to 4.022 (16%). This indicates that the variability in outcome variables can be explained by transactional leadership. Since grand mean centring is used, this is reflective of both within and between work groups.

Table 4-5: Results of Random Regression Models for Hypothesis H_{1b}

	Estimate	S.E	Est./S.E.	Two-Tailed P-value
Within Level				
Job satisfaction ON				
Transactional leadership	0.151	0.027	5.492	0.000
Organisational commitment ON				
Transactional leadership	0.054	0.028	1.935	0.053
Work engagement ON				
Transactional leadership	0.531	0.071	7.433	0.000
Work engagement WITH				
Organizational commitment	0.097	0.102	0.956	0.339
Job satisfaction WITH				
Organizational commitment	0.022	0.046	0.486	0.627
Work engagement	0.568	0.129	4.406	0.000
Residual Variances				
Organisational commandment	0.628	0.063	10.046	0.000
Work engagement	4.022	0.400	10.057	0.000
Job satisfaction	0.820	0.085	9.677	0.000
Between Level				
Means				
Organisational commandment	9.241	0.060	155.172	0.000
Work engagement	14.082	0.142	99.029	0.000
Job satisfaction	3.711	0.057	65.034	0.000
Variances				
Organisational commitment	0.171	0.047	3.650	0.000
Work engagement	0.987	0.338	2.920	0.004
Job satisfaction	0.114	0.057	1.991	0.047

In order to estimate the size of the effect of the transactional leadership behaviour on followers' work outcomes, the standardised solution is examined in Appendix M. The standardised level-1 regression coefficients for transactional leadership is significant with job satisfaction (estimate=0.284, Z=5.605, P=0.000, R^2=0.081), as well as work engagement (estimate=0.427, Z=7.981, P=0.000, R^2=0.182). This suggests that followers' perception of their leader's style as transactional leadership, accounts for almost 8% of their job satisfaction and 18% of their work engagement. Since this result partially supports hypothesis H_{1b}, the hypothesis is therefore accepted.

The analysis of the variance between random intercepts and random slopes is provided in Appendix O while the results are presented in Table 4-6. This shows that the variability in intercepts of work outcomes ($\hat{}\sigma^2_{u0j}$) across work groups are: 0.128 for job satisfaction (p= 0.064) and 0.890 for work engagement (p=0.071). These are statistically insignificant. Also, Table 4-6 shows the variances in the slopes $BETA_{1j}$, $BETA_{2j}$ and $BETA_{3j}$ are 0.010 (p=0.754), 0.014 (p=0.405) and 0.107 (p=0.076) respectively, which are small and statistically not significant. Finally, the estimated covariance τ_{oj} between intercepts and slopes on level-2 in Table 4.6, are negative and statistically non-significant for job satisfaction (estimate= -0.034, p=0.48), as well as for work engagement (estimate=-0.236, p=0.073).

Table 4-6: Results of Variance between Random Intercepts and Random Slopes Models for Hypothesis H_{1b}

	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
Within Level				
Work engagement WITH Organisational commitment	0.117	0.109	1.071	0.284
Job satisfaction WITH				
Organisational commitment	0.017	0.047	0.352	0.725
Work engagement	0.551	0.136	4.047	0.000
Residual Variances				
Organisational commitment	0.605	0.053	11.394	0.000
Work engagement	3.792	0.397	9.545	0.000
Job satisfaction	0.781	0.113	6.890	0.000
Between Level				
Job satisfaction WITH				
BETA1J	-0.034	0.048	-0.707	0.480
Organisational commitment WITH				
BETA2J	-0.041	0.024	-1.682	0.093
Work engagement WITH				
BETA3J	-0.236	0.094	-2.495	0.073
Means				
Organisational commitment	9.247	0.061	152.515	0.000
Work engagement	14.099	0.141	100.295	0.000
Job satisfaction	3.716	0.056	66.149	0.000
BETA1J	0.151	0.034	4.424	0.000
BETA2J	0.046	0.031	1.490	0.136
BETA3J	0.504	0.073	6.868	0.000
Variances				
Organisational commitment	0.154	0.048	3.219	0.001
Work engagement	0.890	0.325	2.736	0.071
Job satisfaction	0.128	0.064	1.998	0.064
BETA1J	0.010	0.033	0.313	0.754
BETA2J	0.014	0.017	0.832	0.405
BETA3J	0.107	0.061	1.774	0.076

4.6 Testing of Laissez-Faire Leadership Impact on Follower Job Satisfaction and Organisational Commitment

Hypothesis H_{1c} anticipates that laissez-faire leadership style has a negative impact on follower job satisfaction as well as organisational commitment. Thus, the models in equations 3.18 and 3.19 above are examined where the predictor laissez-faire leadership (LFnotran) is defined as level-1 variable using the subcommand WITHIN= LFnotran; and is entered into the programme in grand-mean-centred form using (center LFnotran (grand mean)). The results of the model testing for fixed slopes and random slope models are provided in Appendix P and Appendix Q respectively. The model fit information for H_{1c} in Table 4-2 is compared with those of the null model. The fit statistic AIC (2286.38) and BIC (2323.89) for the model with the predictor are smaller than those for the null model, thus indicating a better model fit. In addition, the change in deviance statistics is calculated using equation 4.1 above.

$$(-2) * (-2257.545) - (-2) * (-1134.187) = 4515.10 - 2268.37 = 2246.73 \quad (4.4)$$

The difference in the deviance statistics between the two models is around 2247 with 1 degree of freedom which is statistically significant. The change in deviance has a chi-square distribution ($\chi^2(1)= 2247$, $p<0.001$). In addition, the fit indices CFI (1.000), RMSEA (0.000) and SRMR (0.001) are acceptable, which suggests that the model with the predictor is a better data fit. Nonetheless, the random-regression model results in Table 4-7 indicate that the laissez-faire leadership style is not significantly predictive of any of the examined follower outcomes. The estimates for regression coefficients of laissez-faire leadership with organisational commitment are (estimate = 0.113, p=0.062), job satisfaction (estimate =-0.108, p=0.091). Although laissez-faire leadership style has a negative estimate value with job satisfaction, and is therefore not significantly predictive of job satisfaction since p>0.05. Similarly, laissez-faire leadership style does not predict organisational commitment since p>0.05. The residual variance is 0.654 for organisational commitment and 0.868

for job satisfaction. Moreover, the standardised solution in Appendix P shows that the statistics R^2 for organisational commitment is (R^2=0.013, p=0.355) and for job satisfaction (R^2=0.009, p=0.395). Both are statistically non-significant. Since hypothesis H_{1c} is not supported, it is therefore rejected.

Table 4-7: Results of Random-Regression Models for Hypothesis H_{1c}

	Estimate	S.E.	Est./ S.E.	Two-Tailed P-value
Within Level				
Job satisfaction ON Laisser-faire leadership	-0.108	0.064	-1.690	0.091
Organisational commitment ON Laisser-faire leadership	0.113	0.061	1.865	0.062
Job satisfaction WITH Organizational commitment	0.059	0.045	1.298	0.194
Residual Variances				
Organisational commandment	0.654	0.060	10.985	0.000
Job satisfaction	0.868	0.079	11.050	0.000
Between Level				
Means				
Organisational commandment	9.238	0.055	167.557	0.000
Job satisfaction	3.775	0.056	67.470	0.000
Variances				
Organisational commitment	0.139	0.044	3.155	0.002
Job satisfaction	0.141	0.051	2.763	0.006

4.7 Testing of Follower Performance Characteristics Impact on Follower Work Outcomes

Hypothesis H_{2a} predicts that follower performance characteristics have a positive association with follower work outcomes. Thus, to assess this claim, the random regression models in equations 3.20, 3.21 and 3.22, in section 3.10.2, are examined by setting the predictor variable follower performance characteristics (FPmajor) as level-1 variable using the subcommand WITHIN= FPmajor. It was grand-mean-centred using the subcommand (center FPmajor (grand mean)). The results from the three tests, the standardised fixed slope models, the random slopes models and the testing of variance between random intercepts and random slopes are presented in appendices R, S and T respectively.

The model fit information in Table 4-8 shows that the fit statistics AIC and BIC of the model with the predictor are smaller than the corresponding values for the null model which indicates a better model fit. Also, for fitting the model, the Loglikelihood values in Table 4-8 are used to find the changes in the deviance between the null model and the random regression models of H_{2a} using equation 4.1 above.

$$(-2) * (-2257.545) - (-2) * (-1857.46) = 4515.10 - 3714.92 = 800.18 \quad (4.5)$$

The difference in the deviance statistics is around 800 at a 3 degree freedom which is statistically significant. The change in deviance has a chi-square distribution ($\chi^2(3) = 800$, $p<0.001$). Also, the fit indices CFI (1.000), RMSEA (0.004) and SRMR (0.020) are consistent with Hu and Bentler (1999). This therefore suggests that the model with predictors is a better data fit.

Table 4-8: Models Fit Information for Hypotheses H_{2a} and H_{2b}

	Null Model	H_{2a}	H_{2b}
Loglikelihood	-2257.55	-1857.46	-1840.93
Akaike (AIC)	4590.01	3748.30	3713.32
Bayesian (BIC)	4628.31	3809.25	3773.96
Chi-Square Test of Model Fit			
Value	48.14	3.02	1.39
Degrees of Freedom	6	3	3
P-value	0.00	0.39	0.71
RMSEA	0.12	0.00	0.00
CFI	0.00	1.00	1.00
TLI	0.00	1.00	1.10
Change in Deviance		800.18	833.24

The results also show that there are changes in the residual variances between the model with predictors and the corresponding values of the null model. The residual variance reduction of organizational commitment was from 0.694 to 0.634 (9%) and for work engagement was from 4.789 to 4.594 (4%). This indicates that the variability in outcomes variables can be explained by follower performance characteristics. However, the analysis results of hypothesis H_{2a} in Table 4-9 indicate that follower performance characteristics positively, significantly predicted work engagement (estimate = 0.42, $p<0.001$) and job satisfaction (estimate = 0.07, $p<0.001$). Since two of the outcome variables were predicted by follower performance characteristics, hypothesis H_{2a} was supported and hence accepted. To estimate the size of the effect, the standardised solution was estimated in Appendix R. The standardised regression coefficients for the regression of work outcomes on follower performance characteristics were: for job satisfaction (estimate=0.133, Z=2.464, P=0.001, R^2=0.018) and work engagement (estimate=0.358, Z=7.266, P=0.000, R^2=0.128). These suggest that followers' perception of their own characteristics as performance style, accounts for almost 2% of their job satisfaction and around 13% of their work engagement. Finally, the estimated covariance τ_{oj} between intercepts and slopes on level-2 in Appendix T are for job satisfaction (estimate=-0.023, z=-1.19, p=0.23) and for work engagement (estimate=0.004, z=0.05, p=0.964), which are both small and statistically non-significant.

Table 4-9: Results of Random-Regression Models for Hypothesis H_{2a}

	Estimate	S.E.	Est./S.E.	Two-Tailed P-value
Within Level				
Job satisfaction ON Performance Characteristics	0.066	0.027	2.473	0.000
Organisational Commitment ON Performance Characteristics	0.056	0.030	1.846	0.065
Work Engagement ON Performance Characteristics	0.424	0.062	6.870	0.000
Residual Variances				
Organisational Commitment	0.634	0.063	10.027	0.000
Work Engagement	4.594	0.455	10.102	0.000
Job Satisfaction	0.896	0.094	9.577	0.000
Between Level				
Means				
Organisational Commitment	9.204	0.060	152.785	0.000
Work Engagement	13.952	0.135	103.630	0.000
Job Satisfaction	3.744	0.055	68.377	0.000
Variances				
Organisational Commitment	0.170	0.049	3.442	0.001
Work Engagement	0.665	0.326	2.039	0.041
Job Satisfaction	0.076	0.055	1.384	0.166

4.8 Testing of Follower Relationship Characteristics Impact on Follower Work Outcomes

Hypothesis H_{2b} proposes that follower relationship characteristics predict follower work outcomes. In order to test this relationship, the random regression models in equations 3.23, 3.24 and 3.25 in section 3.10.2 above, are analysed by setting the predictor variable follower relationship characteristics (FRmajor) as level-1 variable using the subcommand WITHIN= FRmajor and is grand-mean-centred (center FRmajor (grand mean)). The analysis results for the standardised fixed slope models, the random slope models and the variance between random intercepts and random slopes are presented in appendices U, V and W respectively. The model fit is assessed by comparing the indices AIC and BIC of the proposed model and null model. Table 4-8 shows that both indices of the proposed model are smaller; hence the model is a better data fit. The reduction in the deviance between the null mode and the model with predictors is also calculated hereunder using the Loglikelihood values in Table 4-8 and equation 4.1:

$$(-2) * (-2257.545) - (-2) * (-1840.93) = 4515.10 - 3681.86 = 833.24 \qquad (4.6)$$

the difference in the deviance statistics is around 833 at a 3 degree of freedom, which is statistically significant. The change in deviance has a chi-square distribution ($\chi^2(3)=833$, $p<0.001$). In addition, the fit indices CFI (1.000), RMSEA (0.000) and SRMR (0.011) satisfy the Hu and Bentler (1999) cut-off values. This therefore suggests that the model with predictors has a better fit.

Furthermore, the values of the residual variances in the model are smaller than those in the null model, suggesting that follower relationship characteristics might predict one or more outcome variables. The reduction in the residual variances for job satisfaction are from 0.879 to 0.864 (2%), for organizational commitment from 0.694 to 0.649 (7%) and for work engagement from 4.789 to

4.687 (2%). However, the analysis results of hypothesis H_{2b} in Table 4.10 indicates that follower relationship characteristics positively, significantly predict work engagement (estimate=0.338, p<0.001). Both job satisfaction (estimate=0.052, p=0.08) and organisational commitment (estimate=0.002, p=0.938) are non-significant. Since one of the outcome variables is predicted by follower relationship characteristics, hypothesis H_{2b} is supported and hence accepted. The standardised regression coefficients for the regression of work engagement with follower relationship characteristics in Appendix W shows that the estimate for work engagement (estimate=0.279, Z=4.952, P=0.000, R^2=0.078, p=0.01) suggests that followers' perception of their own characteristics as relationship style accounts for around 8% of their work engagement behavior. Finally, the estimated variance τ_{oj} between intercepts and slopes (Appendix W), across work groups on level-2, for work engagement with the slopes (estimate= 0.10, z=1.01, p=0.31), suggests that estimated variance is small and statistically non-significant.

Table 4-10: Results of Random-Regression Models for Hypothesis H_{2b}

	Estimate	S.E.	Est./ S.E.	Two-Tailed P-value
Within Level				
Job Satisfaction ON				
Relationship Characteristics	0.052	0.029	1.753	0.080
Organisational Commitment ON				
Relationship Characteristics	0.002	0.030	0.078	0.938
Work Engagement ON				
Relationship Characteristics	0.338	0.074	4.552	0.000
Work Engagement WITH				
Organisational Commitment	0.264	0.112	2.363	0.018
Job Satisfaction WITH				
Organisational Commitment	0.058	0.053	1.094	0.274
Work Engagement	0.631	0.128	4.917	0.000
Residual Variances				
Organisational Commitment	0.649	0.065	9.925	0.000
Work Engagement	4.687	0.408	11.475	0.000
Job Satisfaction	0.864	0.084	10.244	0.000
Between Level				
Means				
Organisational Commitment	9.252	0.058	159.854	0.000
Work Engagement	14.053	0.135	104.448	0.000
Job Satisfaction	3.786	0.055	68.737	0.000
Variances				
Organisational Commitment	0.142	0.047	3.008	0.003
Work Engagement	0.595	0.371	1.603	0.109
Job Satisfaction	0.084	0.051	1.635	0.102

4.9 Testing the Moderating Role of Follower Performance Characteristics

This study proposes in Hypothesis H_{3a} that follower performance characteristics moderate the relationship between the transactional leadership and follower work outcomes. Thus, the models described by equations 3.28, 3.29 and 3.30, in section 3.10.3, were tested where the predictor transactional leadership (Tactmaj) and the moderator variable follower performance (FPmajor) were set as level-1 variables, using the WITHIN subcommand; and both were grand-mean-centred. Also, the interaction term between predictor and moderator is defined using the subcommand INT=Tactmaj * FPmajor. The analysis (Appendix X) examined standardised solution of models with random intercepts and fixed slopes using TYPE=TWOLEVEL and OUTPOUT=standardized sampstat commands. The model fit for hypothesis H_{3a} is shown in Table 4-11. This is a better fitting model than the null model, as indicated by the reduction in the Loglikelihood, which decreases from -2257.55 in the null model to -1600.18 in this model; hence the change in deviance is 1314.74 at 3 degrees of freedom which has chi-distribution. Additionally, the AIC and BIC values are reduced from those of the null model. Also, the indices RMSEA (0.00), CFI (1.00) and TLI (1.05) are all acceptable.

Table 4-11: Model Fit Information for the Null Model, Hypotheses H_{3a} and H_{3b}

		Null Model	H_{3a}	H_{3b}
Loglikelihood		-2257.55	-1600.18	-1485.76
Akaike (AIC)		4590.01	3244.55	3015.82
Bayesian (BIC)		4628.31	3326.96	3096.77
Chi-Square Test of Model Fit				
	Value	48.14	1.99	1.85
	Degrees of Freedom	6.00	3.00	3.00
	p	0.00	0.57	0.60
RMSEA		0.12	0.00	0.00
CFI		0.00	1.00	1.00
TLI		0.00	1.05	1.05
Change in Deviance			1314.74	1543.58

Table 4-12 below shows the estimates from the model. None of the main effects or interaction terms are significant for any of the outcomes. This indicates that transactional leadership and follower performance characteristics are not associated with any of the follower work outcomes in the models. In addition, follower performance characteristics do not moderate the relationship between transactional leadership and follower work outcomes. Therefore, Hypothesis H_{3a} is not supported and hence is rejected.

Table 4-12: Model Results for Hypothesis H_{3a}

	Estimate	S.E.	p	R^2
Organizational Commitment				0.26
Transactional Leadership	0.21	0.25	0.38	
Follower Performance	0.13	0.16	0.41	
Transactional Leadership * Follower Performance	-0.01	0.02	0.53	
Work Engagement				0.08
Transactional Leadership	0.97	0.57	0.09	
Follower Performance	0.60	0.38	0.12	
Transactional Leadership * Follower Performance	-0.03	0.04	0.38	
Job Satisfaction				0.03
Transactional Leadership	0.07	0.24	0.78	
Follower Performance	-0.01	0.15	0.98	
Transactional Leadership * Follower Performance	0.00	0.02	0.78	
Job Satisfaction with				
Work Engagement	0.58	0.13	0.00	
Organizational Commitment with				
Work Engagement	0.07	0.11	0.53	
Job Satisfaction	0.03	0.05	0.55	
Residual Variances				
Work Engagement	3.90	0.43	0.00	
Job Satisfaction	0.84	0.09	0.00	
Organizational Commitment	0.62	0.07	0.00	

4.10 Testing the Moderating Role of Follower Relationship Characteristics

Hypothesis H_{3b} suggests that at the individual level of analysis, follower relationship characteristics moderate the relationship between the transformational leadership and follower work outcomes, such that the relationship is stronger when follower relationship characteristics are high. In order to verify this suggestion, the study tested the equations 3.31, 3.32 and 3.33, in section 3.10.3, where the predictor transformational leadership (Tformmaj) and moderator follower relationship characteristics (FRmajor) are grand-mean-centred and entered into Mplus as level-1 variables, using the WITHIN subcommand. In addition, the interaction term between predictor and moderator is defined using the subcommand INT= Tformmaj * FRmajor. Similar to the previous hypothesis, the analysis examines standardised fixed slope models (Appendix Y).

The statistics in Table 4-11 show that this model has a better fit than the null model. The Loglikelihood is lower than the null model (-1485.76 compared to -2257.55), the reduction in deviance is 1543.58 at 3 degrees of freedom which has chi-distribution. In addition, the AIC and BIC are lower in hypothesis H_{3b} than in both the null model and hypothesis H_{3a}. The fit statistics indicate that this is a good-fitting model; the chi-square shows $p<0.05$ ($p=0.60$) and the RMSEA is 0.00, the CFI is 1.00 and the TLI is 1.05. Table 4-13 shows the estimates for the model from hypothesis H_{3b} testing. In this model, there are significant main effects between transformational leadership and organizational commitment (estimate=0.28, $p<0.001$) and between follower relationship and organizational commitment (estimate=0.31, $p<0.05$). Both of these relationships are positive. The interaction term in this model is also significant, and it is negative (estimate=-0.20, $p<0.001$), this means that the follower relationship moderates the relationship between transformational leadership and organizational commitment. Removal of the interaction term from the model, measuring the relationship between follower relationship, transformational leadership and organizational commitment results in an ICC of 0.13, which does not differ from the ICC when the interaction term is in the model. This means that group membership does not affect the moderating effect. The assumptions of moderation are met: both the predictor (X) and the moderator (M) cause the outcome (Y), the direction of both of these variables is positive and the moderator and predictor are not related (the correlation between the two variables is 0.20, which while significant, indicates a weak relationship). Although the main effect of transformational leadership is positive and significant for work engagement (estimate = 0.48, $p<0.05$), the interaction term is not significant ($p>0.05$). The residual variance is 0.61 for organisational commitment, 3.30 for work engagement and 0.75 for job satisfaction. Since moderation effect is detected in hypothesis H_{3b} it is therefore partially supported.

Table 4-13: Model Results for Hypothesis H_{3b}

	Estimate	S.E.	P-Value	R^2
Organizational commitment				0.05
Transformational leadership	0.28	0.08	0.00	
Follower relationship	0.31	0.13	0.01	
Transformational leadership * Follower relationship	-0.20	0.01	0.00	
Work engagement				0.32
Transformational leadership	0.48	0.23	0.04	
Follower relationship	0.48	0.34	0.15	
Transformational leadership * Follower relationship	-0.01	0.02	0.42	
Job Satisfaction				0.12
Transformational leadership	0.19	0.10	0.07	
Follower relationship	0.17	0.15	0.24	
Transformational leadership * Follower relationship	-0.01	0.01	0.29	
Job satisfaction with				
work engagement	0.31	0.12	0.01	
Organizational commitment with				
work engagement	0.06	0.10	0.57	
Job satisfaction	0.06	0.05	0.25	
Residual variances				
Work engagement	3.30	0.35	0.00	
Job satisfaction	0.75	0.08	0.00	
Organizational commitment	0.61	0.08	0.00	

Figure 4-1 shows the graph of moderating effect of follower relationship on the relationship between transformational leadership and organizational commitment. The graph shows that at low levels of transformational leadership, organizational commitment is higher in the case of subjects who have high follower relationship, compared to those who have low follower relationships. There was a cross-over effect, whereby, at high levels of transformational leadership, organizational commitment is higher for those with low follower relationships, compared to those with high follower relationships. In other words, this suggest that followers who demonstrate strong relationship characteristics tend to exhibit high levels of commitment to their organisation to compensate for weak or absent transformational leadership.

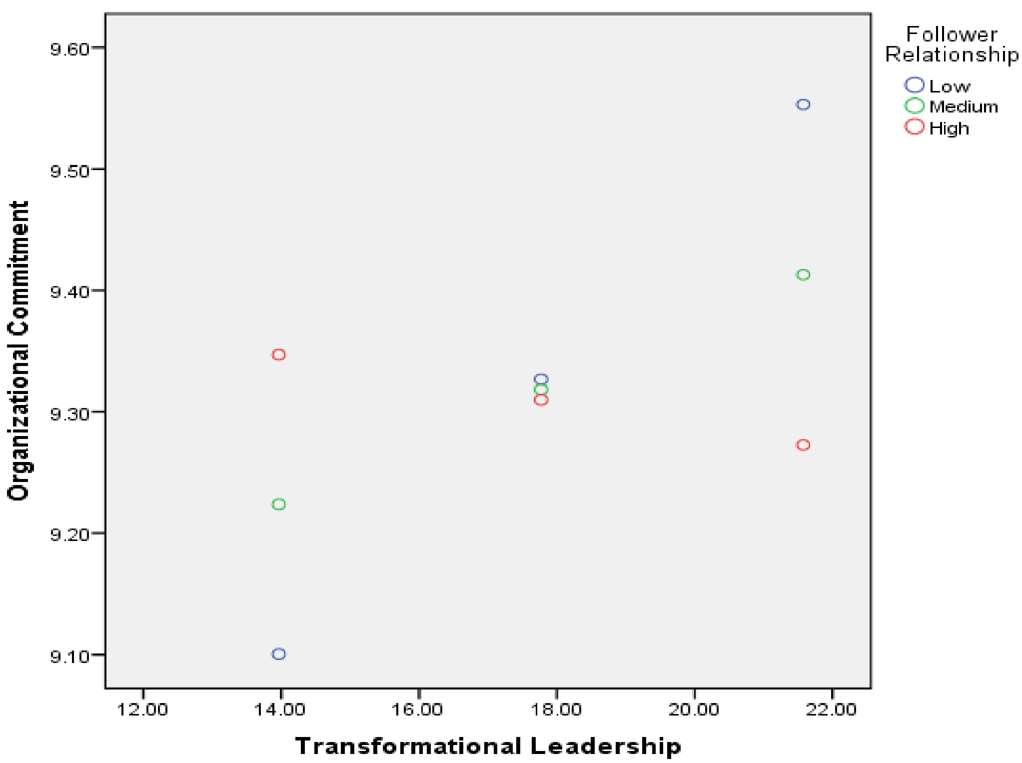

Figure 4.1: Moderation Effect of Follower Relationship on Transformational Leadership and Organizational Commitment

Table 4-14: Summary of Hypotheses Testing Results

Hypothesis	Hypothesis Statement	Findings	Decision
H_{1a}	Transformational leadership positively predicts follower work outcomes.	Transformational leadership style has a positive significant relationship with follower job satisfaction, organisational commitment and work engagement.	Hypothesis is supported
H_{1b}	Transactional leadership positively predicts follower work outcomes.	Transactional leadership style has a positive significant relationship with follower job satisfaction and work engagement.	Hypothesis is partially supported
H_{1c}	Laissez-faire leadership negatively predicts follower job satisfaction and organisational commitment.	Laissez-faire leadership does not predict follower job satisfaction or organisational commitment.	Hypothesis is not supported
H_{2a}	Follower performance characteristics positively predict follower work outcomes.	Follower performance characteristics have a positive significant relationship with follower job satisfaction and work engagement.	Hypothesis is partially supported
H_{2b}	Follower relationship characteristics positively predict follower work outcomes.	Follower relationship characteristics have a positive significant relationship with follower work engagement.	Hypothesis is partially supported
H_{3a}	Follower performance characteristics moderate the relationship between the transactional leadership and follower work outcomes such that the relationship is stronger when follower performance characteristics are high.	The interaction between transactional leadership and follower performance characteristics does not impact follower work outcomes.	Hypothesis is not supported
H_{3b}	Follower relationship characteristics moderate the relationship between the transformational leadership and follower work outcomes such that the relationship is stronger when follower relationship characteristics are high.	Follower relationship characteristics moderate the relationship between transformational leadership and follower organisational commitment.	Hypothesis is partially supported

4.11 Summary

The findings from hypotheses testing are summarised in Table 4-14. The results show that ICC(1) estimates indicate that there is high variability in the assessment of the constructs between members of the work groups which did not support the aggregation of the data. Thus multi-level modelling is the suitable approach to examine the data in this study. The results also suggest that transformational leadership is significantly positively associated with job satisfaction, organisational commitment and work engagement; whilst transactional leadership is significantly, positively associated with job satisfaction and work engagement. Laissez-faire leadership is not associated with any of the outcomes. Furthermore, follower performance characteristic is positively associated with job satisfaction and work engagement while follower relationship characteristic is significantly, positively associated with work engagement. In addition, the follower relationship characteristic moderated the relationship between transformational leadership and organisational commitment. The above results will be discussed in more detail in the next chapter.

Chapter 5
Discussion

5.1 Introduction

This chapter presents and discusses the study's empirical findings in relation to the research questions. The chapter is organised into five sections. Following the introduction, syntheses of the findings of the relationship between follower work outcomes with each of the leadership styles and follower characteristics are provided in sections 5.2 and 5.3 respectively. Section 5.4 goes on to discuss the empirical findings of the moderating role of follower characteristics on the interaction between leadership styles and follower work outcomes. Finally, the chapter is summarised in section 5.5.

5.2 Findings on Leadership Impact on Follower Work Outcomes

The first research question of this study in section 1.7 examines the influence of the full range of leadership styles on follower work outcomes. In order to answer this question, three hypotheses – H_{1a}, H_{1b}, and H_{1c} – were developed in Chapter Two which are subsequently tested in Chapter Four. The findings of each hypothesis testing are discussed below.

5.2.1 Impact of Transformational Leadership on Follower Work Outcomes

The findings from hypothesis H_{1a} testing suggest that managers' transformational leadership style is positively linked with employee job satisfaction, organisational commitment and work engagement. These results are in line with previous research, conducted in a Western organisational context, which advocated significant positive links between transformational leadership and each of job satisfaction (Judge *et al*., 1998; Emery & Barker, 2007; Bass & Riggio, 2006; Braun *et al*., 2013), organisational commitment (Podsakoff *et al*., 1996; Rafferty & Griffin, 2004; Kark & Shamir, 2002; Kent & Chelladurai, 2001; Lo, *et al*., 2010) and work engagement (Zhu *et al*., 2009; Tims *et al*., 2011). The main contribution to knowledge of this finding is that it examines the transformational leadership model in the largely unexplored LPSO context in the emerging new Libya. It suggests that transformational leadership induces positive levels of work outcomes amongst LPSO employees, as it does amongst employees in western organisations. This provides empirical support for the emerging, cross-cultural research (e.g., Bass, 1997; Jung *et al*., 2009; House *et al*., 2004), advocating that transformational leadership is a universally effective form of leadership behaviour. A possible explanation of this result is that the mutual obligation between the leaders and the followers in collectivist cultures such as Libya and other Middle Eastern countries facilitates transformational leaders' individualised consideration effect (Bass, 1997). Leaders in collectivist cultures have a moral responsibility to take care of their followers' well-being and to try to fulfil those followers' job, as well as psychological needs. In other words, leaders demonstrate high levels of authentic and servant leadership behaviours towards their subordinates. In turn, followers have moral obligations to reciprocate with unquestioning loyalty and obedience (Bass, 1997). Consequently, those followers tend to exhibit positive levels of work outcomes.

Furthermore, a practical implication of the above findings is that organisations could significantly benefit from investing in transformational leadership development programmes in order to improve the level of their employees' work outcomes. Also, organisations should consider recruiting managers who have high levels of transformational leadership behaviours to lead projects where employee satisfaction, commitment and work engagement are high priorities.

5.2.2 Impact of Transactional Leadership on Follower Work Outcomes

The results of the hypothesis H_{1b} examination suggests that managers who are perceived to be transactional leaders have a positive influence on their employees' job satisfaction, as well as work engagement. These findings are in agreement with Bass (1985), who suggests that transactional leadership is effective in stable work environments, such as in the bureaucratic public sector context of LPSOs. Moreover, the results empirically support the existing literature on the impact of transactional leadership on job satisfaction (Judge & Piccolo, 2004). Contrary to those of other researchers (e.g., Tims *et al*., 2011), the findings also suggest that LPSOs transactional leaders might induce positive work engagement among their followers which is consistent with (Breevaart *et al*., 2014). While researchers (Zhu *et al*., 2009; Tims *et al*., 2011; Kovjanic, Schuh, & Jonas, 2013) focus on the impact of transformational leadership on follower work engagement, there are only a few studies that report a positive link between transactional leadership and work engagement (e.g., Breevaart *et al*., 2014), mainly in Western organisational contexts. Thus, this study contributes to our knowledge not only through suggesting a positive association between transactional managers and their followers' work engagement behaviours, but also by suggesting that this relationship exists even in a non-Western organisational context.

One possible explanation of how transactional managers of LPSOs influence employee job satisfaction, as well as work engagement, is that these managers might be able to follow their organisation's rules and to use the procedures to obtain rewards and to distribute them in meaningful increments, in spite of systematic constraints which might enhance followers' performance (Lowe *et al*., 1996). In doing so, they recognise the immediate needs of their followers, such as the need for position advancement through the organisational hierarchy (organic growth), the individual's need for a job that fits his or her talents and skills, in order to be able to achieve his or her objectives (individual contribution), and the individual's need for a sense of belonging. Leaders then use their bureaucratic authority and legitimacy within the organisation to fulfil those employees' needs, once those employees have achieved their agreed targets. Consequently, followers might experience positive feelings of psychological meaningfulness (Kahn, 1990) through recognition of their efforts in achieving the work tasks. This may also fulfil followers' higher-level needs and subsequently become more satisfied with their job and more engaged in their work. In addition, transactional leaders emphasise work standards and suggest how followers can execute their task. They therefore tend to improve work hygiene factors by providing the material and basic requirements to their employees in order to do their job properly. When these needs are met, this should assist followers in becoming more confident about meeting their job targets, in turn enhancing their feelings of psychological availability (Kahn, 1990). They also should feel a sense of safety and security, thereby resulting in higher levels of psychological safety (Kahn, 1990) and as a result, positive levels of job satisfaction (Maslow, 1954) and work engagement (Fleming & Asplund, 2007). Finally, transactional leaders also provide constructive feedback to their followers. Previous research shows that constructive feedback is an important predictor of work engagement (Halbsleben, 2010).

The findings of the hypothesis H_{1b} testing have a number of practical implications. They provide LPSOs' management with an insight into how a transactional leadership style might be used to better improve employees' work outcomes. Specifically, the findings can help organisations in two ways: firstly, organisations might consider recruiting managers with effective transactional leadership skills for projects that require high levels of work engagement and job satisfaction; secondly, organisations could design leadership development programmes to educate their transactional managers on how their leadership styles might significantly help them to attain certain employee work outcomes.

5.2.3 Impact of Laissez-Faire Leadership on Follower Work Outcomes

The results of testing hypothesis H_{1c} does not show any significant interaction between leaders who are perceived to demonstrate laissez-faire behaviour and their followers' work outcomes. Although laissez-faire leaders are expected to leave their followers to their own devices to execute their jobs without support, and this can lead to followers' dissatisfaction and, subsequently, to a lack of commitment and poor performance (Bass, *et al.*, 2003; Bass, 1990), the results from this study do not provide empirical support to this claim. The reason why Libyan laissez-faire managers do not seem to influence follower work outcomes can be explained in two ways: the basis for recruitment for top managerial positions in LPSOs is based on seniority in organisational hierarchies or political standing, rather than the individual's leadership competencies or interpersonal skills (Iles, *et al.*, 2012). It is common practice for those who are promoted to managerial positions in this way to maintain good relations with their old colleagues and to try to avoid challenges and conflicts. Followers are therefore left to do what they are used to doing without intervention from the leader. In addition, most LPSOs provide jobs for life for their employees (St. John, 2008). Organisations also do not impose high performance objectives on their employees (Rathbone *et al.,* 2013) and therefore followers' work outcomes are not challenged by performance targets or risk of job loss if their managers adapt a laissez-faire style. Another possible explanation of the finding is that employees who perceive their managers as laissez-faire are competent in their roles and hence become more independent and therefore less in need of intervention from their leaders. The laissez-faire leadership style thus does not have an impact on their work outcomes.

The findings from the hypothesis H_{1c} testing has two contributions. To the best of the author's knowledge, this is one of a handful studies that empirically investigate the relationship between laissez-faire leaders and their followers' work outcomes in LPSOs, using a relatively large sample of leaders and followers. In practice, the findings suggest that LPSOs, in order to particularly improve their employee work outcomes, need to engage laissez-faire managers from all levels in the organisation in leadership development programmes. This would transform their leadership style into the more effective transformational and transactional styles.

5.3 Findings on Follower Characteristics Impact on Follower Work Outcomes

The second research question of this investigation in section 1.7 attempts to explore the influence of followership characteristics on employee work outcomes. In order to answer this question, two hypotheses H_{2a} and H_{2b} are developed in Chapter Two and then tested in Chapter Four. The findings of the hypotheses tests are then discussed below.

5.3.1 Impact of Follower Performance Characteristics on Follower Work Outcomes

The results of the hypothesis H_{2a} testing suggest that follower performance characteristics have a positive impact on follower job satisfaction and work engagement. These findings contribute to the emerging literature on followership. First, to the best of the author's knowledge, this research is one of the first studies that has empirically examined the impact of the performance-relationship model of followership (Potter III & Rosenbach, 2006) on a wide range of follower work outcomes in a non-Western organisational context. Thus, it provides a launch pad for future investigations of this model's performance within other organisational contexts. The findings also provide empirical support to the published research (Potter III & Rosenbach, 2006; Judge *et al*., 1998; Meyer *et al*., 1993; Dvir & Shamir, 2003; Kelley, 1988) that advocates positive association between followers' characteristics and their work attitudes and behaviours. Specifically, the above results shed light on the possible nature of the relationship between followers' performance characteristics and their job satisfaction and work engagement in LPSOs. However, a possible explanation of this relationship is that followers with positive performance characteristics understand that their future depends on the future of the organisation. Thus, they tend to adapt performance behaviours such as doing the job to the highest standard in order to enhance their individual contribution to the organisation and to gain recognition. They also demonstrate collectivist behaviour, since they are expected to take advantage of working with others and engage with like-minded colleagues in order to accomplish common tasks

(Potter III & Rosenbach, 2006). Consequently, these positive performance behaviours are expected to fulfil those followers' high level needs and to also raise their feelings of psychological meaningfulness, resulting in positive levels of job satisfaction (Maslow, 1954) and work engagement (Kahn, 1990). In addition, these followers are expected to realise that they are their own most valuable resource, hence they balance work with their other interests, in order to maintain their own physical, mental and emotional health (Potter III & Rosenbach, 2006). This in turn enhances feelings of safety and psychological availability and they therefore become more satisfied and engaged in their work (Kahn, 1990). However, future research should consider using other analytical methods, such as the qualitative approach, to explore the direct relationship between sub-dimensions of follower performance characteristics and antecedents of work engagement, in order to verify the above understanding, and to establish the underpinning links between the sub-dimensions of the two constructs.

Finally, the above findings also suggest a number of practical implications for organisations. Firstly, followers should understand how their performance characteristics might impact their own attitudes toward their jobs and engagement in their work. Secondly, organisations should recruit employees who demonstrate positive performance attitudes in order to ensure high levels of follower satisfaction and work engagement behaviours – particularly for those who work in projects that require significant levels of engagement. Furthermore, organisations seeking to improve the levels of their employees' work outcomes should invest in followership development programmes to advance their employees' performance attitudes and skills.

5.3.2 Impact of Follower Relationship Characteristics on Follower Work Outcomes

The findings from hypothesis H_{2b} indicate that follower relationship characteristics are positively linked to follower's work engagement. This result is consistent with other studies (e.g., Kelly, 1988;

Dvir & Shamir, 2003) which suggest that follower characteristics have a direct, positive effect on follower work attitudes, behaviours and performance. Explicitly, these findings empirically suggest that followers' work engagement could be influenced by their attitudes and behaviours. This contributes to the emerging research on both work engagement and followership. A possible explanation of these findings is that employment in organisations such as LPSOs is characterised by lifetime engagement, social cohesiveness between leaders and followers, loyalty and the paternalistic nature of the relationships (Iles *et al*., 2012; St John, 2008). Therefore, it is expected that followers who have high levels of relationship attitudes tend to identify and build trust with their leader, as well as with their work colleagues. In addition, they use their communication skills to negotiate any differences that may arise with their co-workers in the workplace (Potter III & Rosenbach, 2006). Consequently, those followers could experience feelings of psychological safety, as well as psychological meaningfulness (Kahn, 1990). This enhances their engagement in the work at hand. Nevertheless, the above findings should be interpreted with some caution since there might be some contextual factors, such as organisational culture, that could influence the results. Therefore, future research should explore whether the interrelationship between followers' relationship behaviours and work engagement is influenced by any contextual factors. In addition, further investigation should also examine the direct impact of the followers' relationship characteristics on the various antecedents of work engagement in order to understand the underlying process that governs the influence of follower's behaviour on their work engagement. Finally, the above findings offer managerial implications for organisations. The findings suggest that organisations and managers should recruit followers who have high levels of relationship behaviours, since these employee characteristics grant the potential for high work engagement.

5.4 Findings on the Moderating Role of Followership

The study's third research question in section 1.7 explores the extent to which follower performance characteristics moderate the relationship between transactional leaders and their followers' work outcomes. It also seeks to identify the extent to which relationship characteristics moderate the relation between transformational leaders and followers work outcomes. In order to answer these questions, the studies develop two hypotheses – H_{3a} and H_{3b} – in section 2.9, which are then examined in Chapter Four. The findings of these hypothesis tests are discussed below.

5.4.1 Impact of Performance Characteristics on Transactional Leadership

The empirical investigation of hypothesis H_{3a} suggests that follower performance characteristics do not affect the relationship between transactional leadership and follower work outcomes. Although this result does not support the initial assumptions of hypothesis H_{3a}, it contributes to the emerging literature on followership in being one of the first empirical enquiries to explore the impact of the performance-relationship followership model (Potter III & Rosenbach, 2006) on leadership effectiveness, in the context of LPSOs. While previous research (e.g. Baker, 2006) explores the interaction between this followership model and the transformational leadership style in predicting team performance in Western organisations, the current study investigates whether the performance dimension of Potter III & Rosenbach's (2006) model interacts with transactional leadership to predict a wider range of work outcomes. Nevertheless, the above findings should be interpreted with some caution since the organisational context might influence the results. Therefore, future research should consider researching the role of context in the followership-leadership interaction.

5.4.2 Impact of Relationship Characteristics on Transformational Leadership

The results of the hypothesis H_{3b} examination suggest that followers' relationship characteristics moderate the influence of transformational leadership on follower work outcomes. This is generally in agreement with the view that a leader's effectiveness is likely to be influenced by his or her followers' characteristics (e.g. Dvir & Shamir, 2003; Conger & Kanungo, 1998; Zhu *et al*., 2009; Miao, *et al*., 2012). However, the results suggest that followers with high levels of relationship behaviours tend to demonstrate positive levels of organisational commitment when their leaders exhibit moderate or low levels of transformational behaviour. In other words, those followers with strong relationship characteristics can compensate for the lack of transformational leadership in LPSOs. A possible explanation of this finding is that effective followers demonstrate strong relationship behaviours as an essential part of their character. They therefore enhance their own organisational commitment through their entrenched positive behaviours of identification and building trust with their leader, as well as their work colleagues (Potter III & Rosenbach, 2006). Thus they are expected to remain positively committed despite the absence of a strong transformational leader.

Nonetheless, one might ask why followers with positive relationship behaviours are not more effective when working with strong transformational leaders, since the latter is a relationship-focused style. A possible answer to this question might be that the specific bureaucratic organisational context of LPSOs, combined with other factors such as corporate culture, have moderated the interaction between followership and transformational leadership in predicting work outcomes within LPSOs. For example, Carsten *et al*. (2010) argue that the context is important in followers performing their role and in being successful as followers. Thus, Carsten *et al*. (2010) suggest that proactive followers with authoritarian leaders report frustration and dissatisfaction from being stifled in bureaucratic climates and procedures. Therefore, it would be beneficial if future research could investigate the role of the LPSO corporate context in moderating the interrelation between transformational leaders and their followers.

In addition to empirically documenting the interplay between follower relationship characteristics and transformational leadership in LPSOs, the current study has a number of practical implications for organisations. Firstly, it recommends that organisations pay attention to the importance of the interrelation between followership and transformational leadership in affecting work outcomes. In particular, the study suggests that LPSOs might consider recruiting employees who demonstrate strong relationship characteristics for projects that desire high levels of commitment, especially when project managers are perceived to have moderate or low transformational capabilities. Also, LPSOs should inform their leaders and followers on how their characteristics might interact together to influence certain work outcomes. Moreover, tailored professional development programmes could develop leaders' as well as followers' skills to work in synergy in order to optimise their impact on work outcomes. Finally, LPSOs should also investigate whether there are any underpinning factors that might affect the moderating influence of relationship characteristics on the leadership process and to deal with those factors if they exist. This is in favour of improving the impact of leadership on followers' work outcomes.

5.5 Summary

This chapter discusses the results from the hypothesis testing in Chapter Four in an attempt to answer each of the three research questions. In particular, the results are compared to the available literature and an indication is provided as to the contribution that this research makes to the wider body of knowledge on the subject. Included is highlighting where previous research is confirmed and new contributions to literature, knowledge and practice are made. A summary of the discussion and implications to knowledge and practice, in addition to the study limitations and suggestions for future research, are provided in the next chapter.

Chapter 6
Implications and Conclusion

6.1 Introduction

This chapter presents the conclusions and implications of this research. It is organised into six sections. Following this introduction, sections 6.2 and 6.3 present the theoretical and practical implications of the research respectively. Furthermore, the recommendations for further research are provided in section 6.4, whilst the conclusions of the study are summarised in section 6.5. Finally, the research limitations are discussed in section 6.6.

6.2 Theoretical Implications

The present study adds to the body of literature by documenting empirical findings that expand our knowledge of the nature of the relationship between leadership, followership and follower work outcomes in several ways. Firstly, this research contributes to the existing leadership literature by extending the empirical investigation into the full range of leadership model (Avolio & Bass, 1995), beyond the Western organisational context. It examines all three styles of the full range of leadership model in the widely-unexplored public sector organisations in Libya, LPSOs. To the best of the author's knowledge, this is the largest study so far. This is in terms of number of participants, sectorial coverage span of industries within the Libyan public sector, geographical coverage within Libya, number of predictors and outcome variables that explore the relationship between the full range of leadership styles, followership and follower work outcomes in LPSOs. Particularly noteworthy is the dramatic changes in Libya since 2011, during the Arab Spring. An extensive search of library electronic databases only indicated a handful of studies (Almintisir, *et al.*, 2013; Ben Zahari & Shurbagi, 2012; Domoro & Agil, 2012; Shurbagi & Bin Zahari, 2013) that examined the impact of one or two types of leadership styles on one or two outcome variables within a few Libyan organisations, and then only using relatively small samples. Therefore, the results of this study not only verify previous research findings on the Avolio and Bass (1995) model using the Libyan context, but also provide a launch pad for future research on the role of leadership and followership in both private as well as public sector organisations in the new emerging Libya.

Secondly, the study contributes to the emerging cross-cultural leadership, particularly to the debate on the universality of transformational leadership behaviours across cultures (e.g., Bass, 1997; Jung *et al*., 2009; House *et al*., 2004). The findings of the study suggest that transformational leadership has a positive effect on job satisfaction, organisational commitment and work engagement amongst LPSO employees, as it does amongst employees in Western organisations. This also supports the research (e.g., Shurbagi & Bin Zahari, 2013; House *et al*., 2014) to address the questions raised by Pillai, *et al*., (1999) and Shihan & Wright (2004), as to whether the transformational leadership is really effective in the context of the Middle East. Therefore, this inquiry, in addition to supporting the view of the universality of transformational leadership, provides a foundation for cross-cultural leadership researchers to re-examine its findings within other similar Middle Eastern organisations, thus establishing a wider assessment of leadership performance in the region.

Thirdly, another contribution of this research is that it is one of few studies that suggest a positive relationship between transactional leadership, job satisfaction and follower work engagement. This adds new support to the recent work engagement research (e.g., Breevaart *et al.*, 2014). The findings therefore extend our knowledge of the potential underpinning of follower work engagement. These suggest that LPSO transactional leaders use their contingent reward power and bureaucratic authority to fulfil their followers' higher level needs (Maslow, 1954), once those followers have achieved the agreed targets. Consequently, the fulfilment of followers needs induces positive feelings of psychological safety, availability and meaningfulness (Kahn, 1990) among those followers and subsequently they become more satisfied with their jobs and more engaged in their work. In contrast, the study suggests that laissez-faire leaders at LPSOs do not seem to have any influence on their followers' work outcomes. This is consistent with Bass (1997) who argues that leaders who frequently avoid responsibilities and shirk duties are perceived as ineffective and dissatisfying by followers.

Fourthly, this research also makes a contribution to the emerging literature on followership. It is one of a few studies to use the performance and relationship questionnaire (PRQ) (Rosenbach *et al*., 1996) in empirical research in a non-Western organisational context. Generally, only a few scholars have so far used the PRQ in empirical research (e.g., Baker, 2006; Potter III, Rosenbach & Pittman, 1996), compared to other followership instruments such as Kelly's (1992) followership questionnaire (FQ). Thus, this study contributes to the efforts to support PRQ as a credible instrument to measure followership.

A fifth finding that emerges from this study is that follower characteristics are important in predicting follower work outcomes. Particularly, the results of this research suggest that a follower's performance characteristic has a positive influence on his or her job satisfaction, as well as work engagement. In addition, it suggests that follower's work engagement is also influenced by his or her relationship characteristics. This provides empirical support to the published research (Potter III & Rosenbach, 2006; Judge *et al*., 1998; Meyer *et al*., 1993; Dvir & Shamir, 2003; Kelley, 1988) that shows a positive association between followers' characteristics and their work attitudes. This generally extends our knowledge on how some followers are more satisfied and engaged in their work than others. However, this finding should encourage future research to explore the underlying process through which dimensions of various follower characteristics impact the antecedents of work engagement in different organisational contexts.

Finally, this research also suggests that the dynamic between leader and followers is critical to work outcomes. This supports the published research (e.g., Dvir & Shamir, 2003; Zhu, *et al.*, 2009; Yukl, 2006). The empirical findings of this study suggest a moderating role of follower characteristics on transformational leadership effectiveness. It demonstrates that followers who exhibit positive relationship characteristics tend to exhibit high levels of organisational commitment when their transformational leader's influence is weak or absent. This is contrary to the expectations that effective followers are more active under strong transformational leaders (Zhu *et al*., 2009). Thus future research should investigate the underpinning factors that influence this relationship.

6.3 Practical Implications

The current study provides information about how leaders' style and followers' behaviour might impact work outcomes, which consequently would affect organisational performance. Thus, it makes several key practical implications for organisations, managers and followers. Firstly, the findings from this research suggest that organisations can substantially improve their followers' work outcomes by investing in the leadership development of their managers. Most importantly, leadership development should be an integral part of the corporate human resources development plans. Since transformational leaders are found to induce positive work outcomes among followers, and also set out to empower followers and to nurture them in change, the study suggests that LPSOs should capitalise on their managers' strong transactional leadership skills and develop them into transformational leaders. This would enhance leadership effectiveness across all levels in the organisation. In addition, it would provide LPSOs with new pools of transformational leaders that enhance a wider range of their follower's work outcomes in order to be able to drive further institutional changes. Bass (1999) argues that developing individuals' willingness and ability to be more transformational is possible. The field experiment using the MLQ verified that transformational leadership can be increased through development (Bass & Riggio, 2006). Willing laissez-faire managers can also be developed into transactional leaders in order to engender high levels of work outcomes among their followers. Thus, LPSOs should implement various strategies to develop their managers' transactional, as well as transformational leadership skills, including mentoring and coaching their executives.

Secondly, it is important that managers are aware of how their leadership style can influence their organisation's performance. This study proposes that managers should consider the full range of leadership styles model (Avolio & Bass, 1995) as an effective situational approach to leading their teams. Bass and Avolio (1993) suggest that the best leaders are both transactional and transformational. Thus, organisations should work with managers to ensure that they adopt an appropriate leadership style that serves to achieve the desired follower work outcomes. Importantly, leaders should avoid a laissez-faire leadership style which does not influence positive follower performance. Leaders also need to know how their leadership style is perceived by others. Thus, organisations might implement appropriate leadership assessment schemes such as MLQ-5X in order to inform leaders as to how their leadership style is perceived by their followers and supervisors. This would help those leaders to discover not only strengths but also areas for improvement in their leadership behaviours and to consequently take the necessary action to develop and improve on them.

Thirdly, this research also suggests that organisational managers need to be aware of their followers' characteristics and attributes in order to be able to understand what might motivate them to perform more effectively, in accomplishing the tasks assigned to those followers. In addition, understanding follower characteristics would help leaders to adopt the appropriate leadership style in order to predict desired outcomes. Therefore, managers are encouraged to use appropriate follower characteristic assessment tools such as PRQ to obtain an overview of their followers' core attitudes and competencies. Assessment results could be used to match followers and leaders when forming project teams. Those results might help managers to assign employees to tasks that suit the employees' characteristics and competences. For example, for a follower who is considered by the leader as performing to a high standard and one who strives to do a good job, the leader may deploy him or her to projects that require high levels of work engagement.

Fourthly, organisations should seriously consider incorporating followership development plans as an essential element of their capacity-building strategies. Follower performance as well as relationship skills and competencies could be enhanced and developed through proper development programmes. Followership development courses should inform followers as to how their characteristics and behaviours might impact their own work outcomes. In addition, followers should be educated on how their own work outcomes might be affected by the interaction between their own characteristics with their leader's style. Corporate professional development programmes should be carefully designed to ensure high synergies between followership and leadership development courses in order to ensure optimum organisational outcomes. Moreover, followership development programmes should help organisations to effectively manage their leadership succession plans for recruiting new leaders from within the organisation. Such programmes should enable competent followers to shine as potential future leaders.

Fifthly, organisations should consider recruiting managers that have the suitable leadership skills for projects that need certain employee work outcomes. For example, this study suggests that leaders can use their style effectively for the benefit of their organisations. Leaders can employ the positive effect of the transactional contingent reward style to boost their followers' work engagement, as well as their job satisfaction, when those behaviours are of high importance for a project deadline. Similarly, managers may use the transformational leadership style to enhance their followers' organisational commitment, work endearment and job satisfaction when any of these attitudes and behaviours is desired for the job task.

Finally, this study empirically indicates a possible moderating role of followership in the leadership process. Organisations should not undervalue the importance of follower characteristics in influencing the effectiveness of transformational leadership. This research suggests that organisations should recruit employees who exhibit characteristics that predict positive work outcomes when working with transformational leaders. Most important LPSOs' transformational managers who interact with followers with high relationship characteristics should be aware of the possible inverse impact of followers' characteristics on work outcomes, specifically employees' organisational commitment. Transformational managers may address this issue through an open and transparent dialogue with their followers. LPSOs should also investigate the root causes of the odd interrelation between their transformational managers and the employees of high relationship initiative, and consequently rectify those causes.

6.4 Recommendations for Future Research

Although several empirical studies explore the interrelationship between the full range of leadership, followership and work outcomes in Western organisational contexts, this research highlights a number of issues that need to be diligently investigated in order to enhance our understanding of how followership would influence leadership effectiveness in non-Western organisational contexts. It is suggested that further research be undertaken in five areas. First, there is strong evidence that the effectiveness of transformational leadership might be influenced by situational factors (Bass, 1985; Howell & Avolio, 1993; Yukl, 2006). It would be interesting for future research to explore the impact of contextual factors, such as organisational culture and national culture, on the interaction between transformational leadership and followership characteristics in predicting work outcomes in LPSOs.

Second, research is also needed to explore the interaction of other approaches of leadership such as the situational approach (Hersey & Blanchard, 1969) and the leader-member-exchange (LMX) (Graen and Uhl-Bien, 1995) with the performance-relationship followership model (Potter III and Rosenbach, 2006) in predicting follower work outcomes. In particular, the correspondence between these approaches and the performance-relationship followership model (Potter III and Rosenbach, 2006) raises the possibility that these two models might converge across a set of common employee work outcomes. Thirdly, this research provides a snapshot of the status of the interrelation between leadership, follower characteristics and employee work outcomes in LPSOs, particularly in the wake of dramatic political changes in Libya in 2011. It would be interesting to repeat this study after a few years to compare how the effectiveness of leadership and followership has evolved in the Libyan public sector. Fourth, future research should also examine the extent to which other models of followership might influence the effects of transactional and transformational leadership on work outcomes in organisations. For example, it would be interesting to assess the effects of the courageous follower model (Chaleff, 1995) on leadership in LPSOs in Libya. Also, it would be useful to know the impact of Kelley's (1992) model of active and independent creative followers on leadership influence in LPSOs. Finally, replication of the present study in the private-sector context in Libya seems to be necessary in understanding the impact of work environment in the private sector on the interaction between leadership and followership, compared with the public-sector work environment. This might help to identify areas in which each sector can learn from other, to enhance leadership effectiveness in the Libyan context.

6.5 Research Limitations

While the present research suggests major relationships between the full range of leadership, followership and work outcomes, it encounters a number of limitations which need to be taken into account. Firstly, the use of cross-sectional design, providing a single 'snap-shot' of the leader-follower relationship, raises concerns about research internal validity. With cross-sectional design, there is ambiguity about the direction of causal influence between the studied variables (Bryman & Bell, 2007), hence no causality can be drawn. This is beneficial for initial investigation, such as this. However, a longitudinal design would allow for the investigation into the direction of the concepts examined.

Secondly, most of the measures in the study rely on self-report data where each follower has to address his or her own attitudes and behaviours, as well as his or her leader's leadership style. This raises concerns of single-source bias. Use of multiple measures for the variables could alleviate some of these concerns. For example, in addition to asking followers to rate their leader's style, leaders can be asked to report their own leadership style using the MLQ-5X leader form (Avolio & Bass, 1995).

Thirdly, the results are predominantly based on questionnaire survey data, which may be subject to common method bias. While this method was used due to time and resource constraints a mixed method employing both survey and qualitative approach, such as focus groups or case studies, can be used to enhance research reliability.

Fourthly, the present research employed MLQ-5X to assess leadership style at the individual level. However, a major challenge for multilevel leadership research is the suitable assessment of leadership and related constructs at multiple levels (Braun *et al*, 2013). Schriesheim *et al.* (2009) criticises the MLQ due to its item structure, which does not differentiate between individual levels and group levels of leader behaviour. Multilevel analyses of leadership and group constructs require more detailed insights into perceptions and behaviours of the individual group members, ensuring the validity of any conclusions drawn about group-level constructs. Thus, qualitative approaches such as behavioural observation of leaders and groups might provide an advanced way of measurement (Braun *et al.*, 2013).

Finally, the majority of the work groups leaders, as well as followers, in the studied sample are male, which may constrain the generalisation of the results. However, research external validity should be tested by replicating the findings from this study with organisations having a higher proportion of female leaders and followers. However, despite these limitations, the study does achieve its stated aims and objectives.

6.6 Conclusion

This research explores the follower-leader relationship with work outcomes in the context of Libyan public sector organisations, LPSOs. It sets out to achieve three objectives. First, to examine the influence of the full range of leadership styles, as theorised by Avolio & Bass (1995), on followers' work outcomes. Second, to investigate how followers work outcomes might be related to followers' own characteristics. Third, to explore the extent to which leaders' styles, alongside followers' characteristics, interact to predict follower work outcomes.

The findings of this inquiry inform theory and literature in several ways. Firstly, it contributes to the emerging cross-cultural leadership research (e.g., House *et al*., 2014) by being one of a limited number of studies, examining the full range of leadership model in the unexplored context of LPSOs. It empirically documents a positive association between leaders' style and their followers' work outcomes in LPSOs and this is consistent with established leadership research (e.g. Griffith, 2004; Judge & Piccolo, 2004; Emery & Barker, 2007; Bass, 1997; Jung & Avolio, 1999; Breevaart *et al*., 2014). This, however, does not only extend our knowledge on the effectiveness of the full range of leadership styles in the Libyan organisational context, but also provides future researchers with the foundations to compare the performance of this leadership model, within the context of other Middle Eastern countries. Secondly, the findings contribute to the emerging literature on followership. This research is also one of a handful of attempts that empirically investigate the impact of the performance-relationship followership model, as proposed by Potter III and Rosenbach (2006), on follower work outcomes. Most importantly, the findings suggest that followership is as important as leadership in predicting employees work outcomes. This supports the view of several scholars who associate follower work outcomes with follower characteristics (e.g. Potter III & Rosenbach, 2006; Judge *et al*., 1998; Meyer *et al*., 1993; Dvir & Shamir, 2003; Kelley, 1988). Finally, the study reveals that followership also has an active role to play in influencing leadership performance. It suggests that the effectiveness of transformational leadership may vary, to a certain degree, depending on the attributes and characteristics of followers, which is consistent with the current research in this field (Zhu *et al.*, 2009; Yukl, 2006; Miao *et al.*, 2012).

The study also makes several recommendations for best practice. Firstly, it suggests that the full range leadership model provides a situational approach to organisational leaders. Thus, leaders should adopt the appropriate style in order to achieve the desired work outcomes. Secondly, it recommends that organisations will considerably benefit from developing their managers' leadership skills in boosting employees' performance and thus achieve organisational objectives. Similarly, organisations should also invest in developing their followers' performance and relationship competencies to enhance those followers' work outcomes. Lastly, organisations should be encouraged to recruit managers and followers who have characteristics, styles and skills suited to projects that desire certain employee work-outcomes.

Taken together, these academic contributions and practical recommendations may do much to improve the efficiency and effectiveness, not only of LPSOs, but of private and public organisations more broadly across the region.

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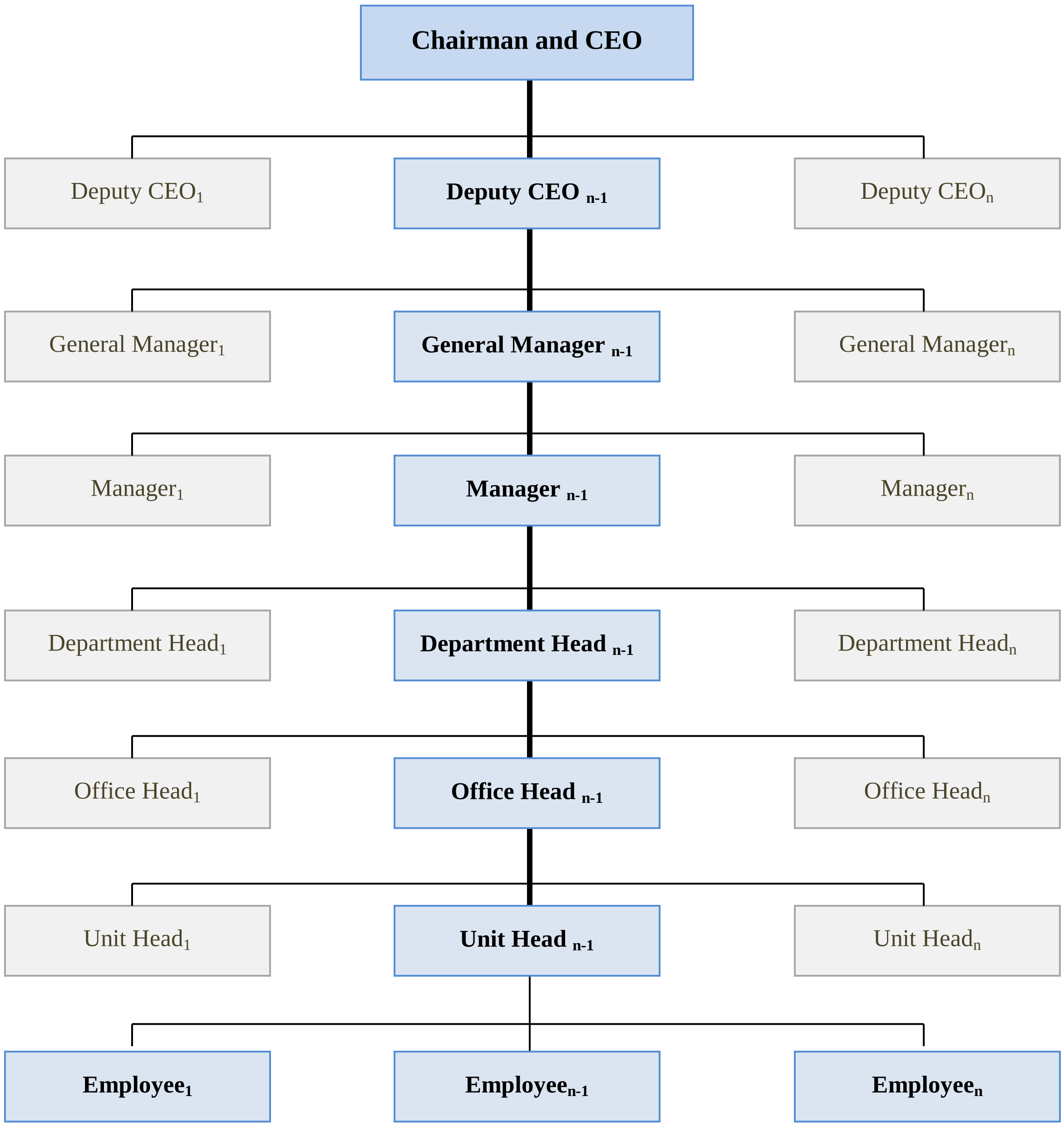
APPENDIX A – A Typical Organisational Structure of a Libyan Public Sector Organisation (LPSO)



APPENDIX B – Group Member Survey (GMS) – English Version

Name of the leader:………………………………..Leader ID:…………………

Please answer all questions; your responses are confidential.

1. Your company's name:………………………………………………
2. In which position/department are you employed?.........................
3. In which region are you employed?……………………………….
4. Years of work experience :(Please mark only one)

   0-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ 21 and over ☐

5. Years of service in the company :(Please mark only one)

   0-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ 21 and over ☐

6. Gender :(Please mark only one)

   Female ☐ Male ☐

7. Age Group: (Mark one)

   18-24 ☐ 25-34 ☐ 35-44 ☐ 45-54 ☐ 55 and over ☐

8. Highest Education Completed: (Please mark only one)

   High School/Vocational High School ☐ Some College ☐

   Bachelor's Degree ☐ Master's Degree ☐ PhD ☐

JOB SATISFACTION

The following statement concern how satisfied with your current job. Please indicate the extent of your agreement or disagreement with the statement by ticking any of the numbers.

No	Item	Not satisfied				Very satisfied
		1	2	3	4	5
1	All the things considered, how satisfied are you with your job					

Organisational Commitment

The following statements concern how you feel about the department where you work. Please indicate the extent of your agreement or disagreement with each statement. Please answer all questions.

AFFECTIVE COMMITMENT SCALE (ACS)

No	Item	Not satisfied		Neither satisfied Nor dissatisfied		Very satisfied
		1	2	3	4	5
1	I would be very happy to spend the rest of my career with this organisation					
2	I enjoy discussing my organisation with people outside it					
3	I really feel as if this organisation's problems are my own					
4	I think that I could easily become as attached to another organisation as this one					
5	I do not feel like 'part of the family' at my organisation					
6	I do not feel 'emotionally attached' to this organisation					
7	This organisation has a great deal of personal meaning for me					
8	I do not feel a strong sense of belonging to my organisation					

CONTINUANCE COMMITMENT SCALE (CCS)

No	Item	Not satisfied		Neither satisfied Nor dissatisfied		Very satisfied
		1	2	3	4	5
1	I am not afraid of what might happen if I quit my job without having another one lined up					
2	It would be very hard for me to leave my organisation right now, even if I wanted to					
3	Too much in my life would be disrupted if I decided I wanted to leave my organisation now					
4	It wouldn't be too costly for me to leave my organisation now					
5	Right now, staying with my organisation is a matter of necessity as much as desire					
6	I feel that I have too few options to consider leaving this organisation					
7	One of the few serious consequences of leaving this organisation would be the scarcity of available alternatives					
8	One of the major reasons I continue to work for this organisation is that leaving would require considerable personal sacrifice – another organisation may not match the overall benefits I have here.					

NORMATIVE COMMITMENT SCALE (NCS)

No	Item	Not satisfied		Neither satisfied Nor dissatisfied		Very satisfied
		1	2	3	4	5
1	I think that people these days move from company to company too often.					
2	I do not believe that a person must always be loyal to his or her organisation					
3	Jumping from organisation to organisation does not seem at all unethical to me					
4	One of the major reasons I continue to work for this organisation is that I believe that loyalty is important and therefore feel a sense of moral obligation to remain					

5	If I got another offer for a better job elsewhere I would not feel it was right to leave my organisation					
6	I was taught to believe in the value of remaining loyal to one organisation					
7	Things were better in the days when people stayed with one organisation for most of their careers					
8	I do not think that wanting to be a 'company man' or 'company woman' is sensible anymore					

WORK ENGAGEMENT

The following statements concern how you feel about your engagement with your work. Please indicate the extent of your agreement or disagreement with each statement. Please answer all questions.

No	**Item**	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
		1	2	3	4	5
1	I know what is expected of me at work.					
2	I have the materials and equipment I need to do my work right					
3	At work, I have the opportunity to do what I do best every day.					
4	In the last seven days, I have received recognition or praise for doing good work.					
5	My supervisor, or someone at work, seems to care about me as a person.					
6	There is someone at work who encourages my development.					
7	At work, my opinions seem to count					
8	The mission or purpose of my company makes me feel my job is important.					
9	My associates or fellow employees are committed to doing quality work.					
10	I have a best friend at work.					
11	In the last six months, someone at work has talked to me about my progress.					
12	This last year, I have had opportunities at work to learn and grow.					

PERFORMANCE AND RELATIONSHIP QUESTIONNAIRE (PRQ)

The Performance and Relationship Questionnaire (PRQ) is designed to help learn how people work in groups and organisations. Below you will find a list of thirty-two statements that describe behaviour, characteristic, or effect you might have on a group or another person. Please indicate how frequently each statement applies to you.

The word 'leader' is used often- please interpret 'leader' as a general term that refers to the person whom you report e.g. boss, manger, supper, supper visor, or team leader.

No	Item	Almost Never	Seldom	Occasionally	Usually	Always
		1	2	3	4	5
1	I speak up when I disagree					
2	I look for opportunities to experience change in order to stay fresh enough to meet new challenges					
3	I complete and follow through on assignments and action items					
4	I tell my leader things he or she doesn't want to hear					
5	I help co-workers solve problems even if they get the credit that I deserve					
6	When my leader succeeds I feel good about it					
7	I measure my performance against objective standards					
8	Adjusting to change consumes too much energy					
9	I take action to ensure balance in my life					
10	I participate in 'gripe sessions' about the leader					
11	I work out conflicts and disagreements with my co-workers					
12	I have a clear sense of what is important from the leader's perspective					
13	I set clear and challenging performance goals for myself					
14	I persist until I think my leader understands my point of view					
15	I complete assignments from my leader even when I have little personal interest in them.					
16	I plan my personal priorities as carefully as my work					
17	My leader questions my judgement					
18	Co-workers treat me as one who will help with problems					
19	When I have a problem I can't solve, I ask the leaders advice					
20	I judge my performance against what the best can do					
21	I speak up if the leader makes a decision that works against our goals					
22	I make suggestions for new initiatives					

23	I keep my commitments to my leader					
24	I know when to say 'enough'					
25	I work to understand my co-workers' points of view					
26	I want to be identified with my leader					
27	I tell my leader when he or she isn't helping us reach our goals					
28	I talk about the benefits of change					
29	I work actively to earn my leader's trust					
30	I take the initiative for my continued growth and development					
31	When my leader and I disagree, I negotiate a compromise acceptable to both of us					
32	My performance is used as a model for how to do the job					

<u>MULTIFACTOR LEADERSHIP QUESTIONNAIRE RATER FORM (MLQ 5x-SHORT)</u>

Leader ID:…………………

This questionnaire is to describe the leadership style of the above mentioned individual as you perceive it. Please answer all items on this answer sheet. **If an item is irrelevant, or if you are unsure or do not know the answer, leave the answer blank**.

Thirty-six descriptive statements are listed on the following pages. Judge how frequently each statement fits the person you are describing.

No	**Item**	Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
		1	2	3	4	5
1	Provides me with assistance in exchange for my efforts					
2	Re-examines critical assumptions to question whether they are appropriate					
3	Fails to interfere until problems become serious					
4	Focuses attention on irregularities, mistakes, exceptions, and deviations from standards					
5	Avoids getting involved when important issues arise					
6	Talks about their most important values and beliefs					
7	Is absent when needed					
8	Seeks differing perspectives when solving problems					
9	Talks optimistically about the future					
10	Instils pride in me for being associated with him/her					
11	Discusses in specific terms who is responsible for					

	achieving performance targets					
12	Waits for things to go wrong before taking action					
13	Talks enthusiastically about what needs to be accomplished					
14	Specifies the importance of having a strong sense of purpose					
15	Spends time teaching and coaching					
16	Makes clear what one can expect to receive when performance goals are achieved					
17	Shows that he/she is a firm believer in 'If it isn't broke, don't fix it.'					
18	Goes beyond self-interest for the good of the group					
19	Treats me as an individual rather than just as a member of a group					
20	Demonstrates that problems must become chronic before taking action					
21	Acts in ways that builds my respect					
22	Concentrates his/her full attention on dealing with mistakes, complaints, and failures					
23	Considers the moral and ethical consequences of decisions					
24	Keeps track of all mistakes					
25	Displays a sense of power and confidence					
26	Articulates a compelling vision of the future.					
27	Directs my attention toward failures to meet standards					
28	Avoids making decisions					
29	Considers me as having different needs, abilities, and aspirations from others					
30	Gets me to look at problems from many different angles					
31	Helps me to develop my strengths					
32	Suggests new ways of looking at how to complete assignments					
33	Delays responding to urgent questions					
34	Emphasizes the importance of having a collective sense of mission					
35	Expresses satisfaction when I meet expectations					
36	Expresses confidence that goals will be achieved					

APPENDIX C – Group Member Survey (GMS)-Arabic Version

بسم الله الرحمن الرحيم

السيد الفاضل ______________

يهدف الاستبيان المرفق إلى دراسة تأثير خصائص شخصية الموظف (الأداء والعلاقات) على العلاقة بين النمط القيادي للرئيس المباشر وبين أداء الموظف من حيث الرضا الوظيفي والالتزام التنظيمي والاندماج في العمل. وهو جزء من دراسة علمية ضمن أطروحة لنيل الدكتوراه في إدارة الأعمال من جامعة كنجستون بلندن بالمملكة المتحدة بعنوان:

تأثيرالعلاقة بين انماط القيادة و خصائص شخصية الموظف على مواقف وأداء المرؤوسين اتجاه العمل في مؤسسات القطاع العام في ليبيا

إن تعاونكم معنا بالإجابة على أسئلة الاستبيان المرفق سيكون له دون شك دور كبير في التوصل إلى نتائج علمية قد يكون لها أثرا هاما في تطوير الأداء بالمؤسسات الوطنية. ونؤكد لكم بان البيانات التي ستقدم بالاستبيان ستحاط بالسرية المطلقة وستستخدم فقط لأغراض البحث العلمي.

شاكرين لكم حسن الاهتمام والمساهمة

والسلام عليكم ورحمة الله

الباحث: علي ادريس أمغيب

بريد الكتروني: **Ali_i_Ali@yahoo.com**

استبيان رأي الموظف

رمز الفريق: .... (يوضع بمعرفة المشرف على الاستبيان)

أسم الرئيس المباشر

القسم الأول: بيانات عامة

يرجى التفضل بتعبئة البيانات المطلوبة أدناه مع تعهدنا باحترامها و إحاطتها بالسرية التامة

1. الجنس ذكر □ أنثى □
2. العمر: ( ) سنة
3. عدد سنوات الخبرة في مجال العمل: ( ) سنة
4. اسم جهة العمل الحالية
5. المدينة التي تعمل بها
6. عدد سنوات الخدمة في جهة العمل الحالية: ( ) سنة
7. المنصب الذي تتقلده أو (الإدارة / القسم) الذي تنتسب إليه في وظيفتك الحالية
8. عدد سنوات الخدمة في المنصب الحالي: ( ) سنة
9. أعلى المؤهلات العلمية التي تحصلت عليها: (ضع علامة (√) أمام إجابتك المختارة)
   - □ ثانوية عامة أو البكالوريا/ثانوية مهنية أو حرفية / معهد متوسط
   - □ معهد أو كلية تخصصية / معهد عالي
   - □ شهادة جامعية - بكالوريوس أو ليسانس أو ما يعادلها
   - □ شهادة ماجستير (التخصص العالي)
   - □ شهادة دكتوراه (التخصص الدقيق)
   - □ أخرى: ____________________

القسم الثاني: استبيان دراسة تأثير خصائص شخصية الموظف على العلاقة بين النمط القيادي للرئيس المباشر وبين أداء الموظف من حيث الرضا الوظيفي والالتزام التنظيمي والاندماج في العمل

الجزء (1): الرضا الوظيفي

تتعلق العبارات التالية بمدى رضاك عن وظيفتك الحالية. الرجاء أن تُبين مدى موافقتك أو مخالفتك لهذه العبارة بوضع علامة (√) في العمود المناسب أدناه.

ت	العبارة	أبعد ما أكون عن الرضا	غير راض	لا اعرف	راض	في غاية الرضا
		1	2	3	4	5
1	ما مدى رضاك عن وظيفتك الحالية بشكل عام؟					

الجزء (2): الالتزام التنظيمي

تتعلق العبارات التالية بشعورك نحو المؤسسة أو الشركة التي تعمل بها. الرجاء أن تُبين مدى موافقتك أو مخالفتك لكل منها بوضع علامة (√) تحت الاختيار المناسب في الأعمدة أدناه.

(الرجاء التعليق على جميع العبارات)

ت	العبارة	لا أوافق بالمرة	غير موافق	لا اعرف	موافق	موافق تماماً
		1	2	3	4	5
1	يسعدني أن اقضي ما تبقى من عمري الوظيفي مع هذه المؤسسة					
2	أستمتع بالحديث عن جهة عملي مع أشخاص لا يعملون بها					
3	أشعر بأن ما تواجهه جهة عملي من مشاكل هي مشاكلي الشخصية					
4	أعتقد أنه يمكنني تحقيق الانتماء إلى جهة عمل أخرى بسهولة كما أنتمي إلى جهة عملي الحالية					
5	لا أشعر بأنني ‘كجزء من الأسرة’ في جهة عملي الحالية					
6	لا أشعر بأنني مرتبط عاطفيا بجهة عملي الحالية					
7	جهة عملي الحالية تعني لي الكثير على المستوى الشخصي					
8	لا أشعر بالانتماء القوي نحو جهة عملي الحالية					
9	لست خائفاً مما قد يقع إذا ما قررتُ أن اترك وظيفتي من غير أن تكون فرصة عمل أخرى في انتظاري					
10	حاليا يصعب عليّ كثيرا ترك جهة عملي حتى وإن أردت ذلك					
11	سوف تضطرب حياتي كثيرا إذا قررت الآن ترك جهة عملي الحالية					

12	لن يكلفني كثيرا أن أترك جهة عملي الآن					
13	أعتبر بأن بقائي في عملي في الوقت الراهن هو قضية ضرورة و رغبة في آن واحد					
14	لا يمكنني التفكير في ترك مكان عملي الحالي لأن الخيارات المتاحة لي قليلة جدا					
15	إذا تركت جهة عملي الحالية فعلي أن أواجه مشكلة ندرة الوظائف البديلة المتاحة في سوق العمل في الوقت الراهن					
16	من الأسباب الرئيسية لإستمراري في هذه المؤسسة أن تركي لها فيه تضحية شخصية كبيرة حيث أن جهات العمل الأخرى قد لا تقدم لي مزايا مماثلة					
17	أعتقد أن الناس في يومنا هذا يكثرون من التنقل من مؤسسة إلى أخرى					
18	لا أعتقد أن على المرء الإلتزام دوما بالولاء إلى جهة عمله					
19	لا أعتبر أن التنقل من جهة عمل إلى أخرى أمر غير أخلاقي					
20	من أسباب استمراري في العمل لمصلحة هذه المؤسسة اعتقادي بأن الولاء شيئ مهم، وهو ما يُملي علي إلتزاماً أدبياً بالبقاء					
21	إن تحصلت على عرض لوظيفة أفضل بجهة عمل أخرى، سأشعر أنه ليس من حقي ترك جهة عملي الحالية					
22	تربيت منذ التحاقي بالعمل لأول مرة على قيم تؤكد أهمية حفظ الولاء لجهة عمل واحدة					
23	كانت الأمور أفضل عندما كان الناس يلتزمون بجهة عمل واحدة طيلة مسارهم الوظيفي					
24	أعتقد أنه لم يعد من المنطقي أن يسعى المرء لأن يكون منتمياً إلى شركة معينة					

الجزء (3): الاندماج في العمل

تتعلق العبارات التالية بمشاعرك نحواندماجك في عملك. الرجاء أن تُبين مدى موافقتك او مخالفتك لكل منها بوضع علامة (√) تحت الاختيار المناسب في الأعمدة أدناه.

(الرجاء التعليق على جميع العبارات)

ت	العبارة	لا أوافق بالمرة	غير موافق	لا اعرف	موافق	موافق تماماً
		1	2	3	4	5
1	أعلم ما هو المطلوب مني في العمل					
2	لدي المواد والمعدات التي أحتاج إليها كي انجز عملي على الوجه الصحيح					
3	أمتلك الفرصة في وظيفتي لأن أقدم أفضل ما أُجيد عمله على الدوام					
4	خلال الأيام السبعة الأخيرة نلت العرفان أو الثناء نظير قيامي بعمل جيد					
5	رئيسي المباشر أو أشخاص آخرون في العمل يُبدون إهتماماً بي على المستوى الشخصي					

					ثمـة شـخص فـي مكـان عملـي يشـجع تطـوري في العمل	6
					يبدو لـي أن رأيي يؤخذ في الإعتبار فـي مكـان عملي	7
					رســالة أو غايــة مؤسســتي تشــعرني بأهميــة الوظيفة التي أقوم بها	8
					رفاقي في العمل ملتزمون بتأدية اعمالهم على أكمل وجه	9
					من بـين زمـلاء العمـل مـن أعتبـره مـن أفضـل أصدقائي	10
					خلال الأشهر الستة الأخيرة هنـاك مـن تـحدث معي بالمؤسسة عن تقدمي في أدائي الوظيفي	11
					خلال السنة الماضية أتيحت لـي الفرصـة فـي مكان عملي كي أتعلم وأتطور	12

القسم الثالث: خصائص شخصية الموظف

يتعلق هذا الاستبيان بدراسة خصائص الأداء و العلاقات مع الآخرين لدى الموظف, وقد تم تصميمه حتى يمكن فهم الكيفية التي يعمل بها الناس في جماعات و تنظيمات. أدناه قائمة من 32 عبارة تصف كل واحدة منها سلوكاً أو خاصية أو أثراً قد تؤثر به أنت على جماعة ما أو شخص آخر.

الرجاء أن تبين مدى مطابقة كل عبارة لك في عملك اليومي بوضع علامة (√) تحت الاختيار المناسب في الأعمدة أدناه .

(الرجاء التعليق على جميع العبارات)

ت	العبارة	أبدًا	نادرًا	أحيانًا	عادةً	دائمًا
		1	2	3	4	5
1	أعبر عن رأيي عندما أختلف مع رئيسي					
2	أبحث عن فرص لأجرب التغيير وذلك لأكون متأهباً لمواجهة التحديات المستجدة					
3	أقوم بإنجاز و متابعة واجباتي و مهام عملي المُكلف بها					
4	أبلغ رئيسي بالأمور التي لا يحب سماعها					
5	أساعد الزملاء في حل المشاكل حتى ولو تحصلوا هم على ما كنت أستحق من الثناء					
6	عندما ينجح رئيسي أشعر بالسرور من أجل ذلك					
7	أقوم بقياس أدائي مقارنة بمعايير موضوعية					
8	إن التكيف مع التغيير يستهلك كثيراً من جهدي					
9	أقوم باتخاذ ما يلزم من أجل أن أحافظ على التوازن في حياتي					
10	أشارك في مناقشات و أحاديث 'تنفيس الغيظ' أو ما يسمى 'تحرير الانفعال' حول رئيسي المباشر					
11	أعمل على حل النزاعات والخلافات مع زملائي في العمل					
12	أمتلك فهماً واضحاً لما يمثل أشياء ذات أهمية من وجهة نظر رئيسي المباشر					
13	أضع لنفسي أهداف أداء واضحة وجريئة					
14	لا أَمَلُ من التوضيح حتى أتأكد من أن رئيسي المباشر قد فهم وجهة نظري					

ت	العبارة	أبدًا	نادرًا	أحيانًا	عادةً	دائمًا
		1	2	3	4	5
15	أنجز مهام العمل التي يكلفني بها رئيسي المباشر حتى إن لم يكن لي مأرب ومصالح شخصي من ورائها					
16	أهتم بالتخطيط لأولوياتي الشخصية بقدر إهتمامي بعملي					
17	رئيسي المباشر يشك في صحة تقديري للأمور					
18	رفاقي في العمل يعاملونني كزميل سيساعدهم على حل المشاكل					
19	عند مواجهة مشكلة لا أستطيع حلها أطلب المشورة من رئيسي المباشر					
20	أقوم بالحكم على أدآئي مقارنة بأحسن ما يفترض أو يتسنى للإنسان أن يعمله					
21	أجاهر برأيي إذا ما إتخذ الرئيس المباشر قراراً ضد أهداف المؤسسة					
22	أقدم اقتراحات لمبادرات جديدة					
23	أحافظ على التزاماتي نحو رئيسي المباشر					
24	أعلم متى أقول 'كفى'					
25	اعمل جاهداً لأتفهم وجهات نظر زملائي في العمل					
26	أحب أن يعرفني الناس مُقترناً برئيسي المباشر					
27	أخبر رئيسي المباشر عندما لا تكون أفعاله داعمة لنا في بلوغ أهدافنا					
28	أتحدث عن منافع التغيير					
29	أعمل جاهدا من أجل كسب ثقة رئيسي المباشر					
30	أبادر من أجل تطوير ذاتي وتنمية قدراتي بشكل متواصل					
31	عندما أختلف مع رئيسي المباشر أقوم بالتفاوض معه للوصول إلى تسوية تكون مُرضية لكلينا					
32	يُنظر إلى أدائي على أنه نموذج لكيفية تأدية العمل على أكمل وجه					

القسم الرابع: أسلوب القيادة

يهدف هذا الاستبيان إلى استقصاء تصورك لأسلوب القيادة الذي يميز رئيسك المباشر. أدناه قائمة من 36 عبارة. الرجاء أن تبين مدى انطباق كل عبارة منها على الشخص الذي تتحدث عن وصفه بوضع علامة (√)-أمام الاختيار المناسب في الأعمدة أدناه.

(الرجاء التعليق على جميع العبارات)

ت	العبارة	أبدًا	من حين إلى آخر	أحيانًا	غالبًا	أغلب الأحيان إن لم يكن دائمًا
		1	2	3	4	5
1	يقدم لي المساعدة و العون مقابل مجهوداتي					
2	يقوم بإعادة النظر في أفكاره و اتجاهاته الأساسية حتى يُقيم مدى وصلاحيتها					
3	لا يتدخل إلا بعد أن تتفاقم المشاكل					
4	يركز جل اهتمامه على المخالفات والأخطاء والاستثناءات والانحراف عن المعايير					
5	يتجنب التدخل في القضايا المهمة عندما تنشأ					
6	يتحدث عن أهم القيم و المعتقدات التي يؤمن بها					
7	يتغيب عند الحاجة إليه					
8	يبحث الأمور من زوايا واتجاهات متعددة عند حل المشاكل والقضايا					
9	يتحدث بتفاؤل عن المستقبل					
10	يبعث الفخر في نفسي لأنني مرتبط به					
11	يناقش المسئول عن تحقيق مستهدفات الآداء بالتفصيل					
12	لا يتخذ إجراء إلا بعد أن تحدث الأخطاء					
13	يتحدث بحماس عما يجب تحقيقه					
14	يوضح أهمية أن نمتلك إحساس قوي اتجاه الأهداف والغايات					
15	يكرس وقتاً في تعليم وتدريب من معه					
16	يوضح ما سنحصل عليه عند تحقيق مستهدفات الآداء					

17	يعزز ويتبنى فكرة 'إذا كان الشيء يعمل لا تصلحه'					
18	يتجاوز مصالحه الشخصية من اجل مصلحة الجماعة					
19	يعاملني باحترام كإنسان و ليس مجرد فرد في ضمن المجموعة					
20	يُبدي لنا بأن المشاكل لابد و أن تصبح مزمنة قبل أن يتخذ إجراء بشأنها					
21	يتصرف بطرائق تجعله يظفر منا بالمزيد من الإحترام والتقدير					
22	يركز جل اهتمامه حول التعامل مع الأخطاء و الشكاوى والإخفاقات					
23	يراعي الجوانب الأدبية والأخلاقية للقرارات التي يتخذها					
24	يقوم بتعقب كل الأخطاء					
25	يُظهر الإحساس بالقوة والثقة					
26	يُعبر عن رؤية مقنعة للمستقبل					
27	يُنبهني عند الإخفاقات في الإلتزام بالمعايير					
28	يتفادى اتخاذ القرارات					
29	يعتبرني صاحب احتياجات وقدرات وتطلعات مختلفة عن الآخرين					
30	يُشجعني على النظر إلى الأمور والمشاكل من عدة زوايا واتجاهات					
31	يُساعدني في تنمية نقاط قوتي					
32	يقترح طرقاً جديدة للنظر إلى كيفية إنجاز مهام العمل					
33	يتأخر في الرد على أسئلة وقضايا ملحة					
34	يُركز على أهمية أن يكون لدينا إحساس جماعي برسالتنا و فهم مشترك لها					
35	يُعبر عن امتنانه من عملي عندما أحقق التوقعات					
36	يُعبر عن ثقته بأن أهدافنا في طريقها الى الإنجاز					

APPENDIX D – Permission to use MLQ-5X Short

To whom it may concern,

This letter is to grant permission for the above named person to use the following copyright material;

Instrument: Multifactor Leadership Questionnaire

Authors: Bruce Avolio and Bernard Bass

Copyright: 1995 by Bruce Avolio and Bernard Bass

For his/her thesis research.

Five sample items from this instrument may be reproduced for inclusion in a proposal, thesis, or dissertation.

The entire instrument may not be included or reproduced at any time in any other published material.

Sincerely,
Vicki Jaimez
Mind Garden, Inc.
www.mindgarden.com

APPENDIX E – Permission to use PRQ

Email received from Dr William E. Rosenbach on Tue, November 30, 2010 2:28:52 AM:

Ali – you have my permission to use the PRQ in your research provided that you cite me in the research and any publications that result from it and provide me copies of those publications as well as your dissertation. Also, please provide me with the Arabic translation of the instrument. For your information, The Leadership Profile (TLP) has been translated into Arabic and used in studies of an Arabic airline, hospital and grocery chain in Saudi Arabia – if you would like a copy of the translated version let me know. You can go to www.leadingandfollowing.com for more information about TLP and PRQ. I have attached a copy of the PRQ participant booklet which should assist you in your research. You will also find the work of Susan Baker helpful – her dissertation was completed at George Washington University some years ago and has published several articles related to that work. I have also attached internet codes for you to access most current version of PRQ. Let me know when you need scoring key and I will email it you – I do not have it here at this time, but can get it from my files at Gettysburg College. Let me know if you need anything else.
Best wishes for success with your research.

William E. Rosenbach, PhD
10 Vista Larga Drive
Gettysburg, PA 17325-8081

APPENDIX F – English Translation of the Survey Covering Letter

Dear Sirs,

You are invited to participate in a research study about leaders, followers, and follower work-outcomes. The purpose of the study is to identify characteristics of leadership and followership and to study their relationship with followers' job satisfaction, organisational commitment, work engagement, and team performance. Although the interaction between leadership, followership and work outcomes have been studied extensively in the West, there is very little research about the impact of followership and leadership on followers' work outcomes in the Middle East and particularly in Libya. Your participation in this study has the potential to make a significant contribution to our understanding of how followers' behaviours are affected by their own characteristics as well as by their leaders' characteristics.

Plans for participation:

Your participation in this study will involve completing the attached survey. It will take approximately 20-30 minutes to complete the survey form carefully, please answer all questions.

Your response will be confidential and will be treated according to ethical research standards. Only aggregate data will be reported for research purpose; no individual responses will be released.

Completing and returning the survey:

After you have answered every question on the survey form, please place the survey in the envelope provided and return to the contact person in your company (*Insert the name, and contact details of the contact person in the company*).

Thank you for your participation in this study. If you have any questions regarding the study or the survey, please feel free to call me on my mobile.

Yours sincerely,

Ali Idris Amgheib

Doctoral Candidate, Kingston University, London

Email:
Ali_i_Ali@yahoo.com

APPENDIX G - Summary of Frequencies and Percentages of Participants

Control Variables		Frequency	%
Gender			
	Male	581	87.2
	Female	85	12.8
	Total	666	100
Age	<25	16	2.5
	25-35	178	27.5
	36-45	247	38.1
	46-55	176	27.2
	>55	31	4.8
	Total	648	100
Tenure in Company	<1	36	5.5
	1y-3y	114	17.3
	3y-5y	140	21.2
	5y-10y	141	21.4
	>10	229	34.7
	Total	660	100
Tenure in Role			
	<1	76	11.7
	1y-3y	222	34.2
	3y-5y	206	31.7
	5y-10y	104	16
	>10	41	6.3
	Total	649	100
Work Experience			
	<1	15	2.3
	1y-2y	38	5.7
	3y-5y	88	13.3
	6y-10y	129	19.5
	>10	392	59.2
	Total	662	100
Education			
	High School	98	14.9
	Some College	155	23.4
	Bachelor's	344	52
	Master's	55	8.3
	Ph.D.	9	1.4
	Total	661	100

APPENDIX H - Summary of Frequencies and Percentages of Work Group Leaders

Demographic	*N(141)*	%
Gender		
Male	118	84
Female	23	16
Age		
25 to 35	51	36
36 to 45	48	34
46 to 55	31	22
City		
Benghazi	76	54
Tripoli	65	46
Tenure (company)		
3 to 5 years	24	17
5 to 10 years	28	20
Over 10 years	49	35
Tenure (role)		
1 to 3 years	54	39
3 to 5 years	36	26
5 to 10 years	22	16
Work experience		
3 to 5 years	21	15
5 to 10 years	27	19
Over 10 years	74	53
Education		
High school	23	16
College	30	21
Bachelor’s degree	69	49
Job		
Line manager	80	57
Middle manager	49	35
Senior manager	11	8

APPENDIX I - Test Results of the Null Model (H_0)

```
Mplus VERSION 7.4
MUTHEN & MUTHEN
06/10/2015   4:01 PM

INPUT INSTRUCTIONS

  Title:
            H0! TESTING THE NULL MODEL.

        Data:
            File=dataclean.dat;

        Variable:
            Names are
                RID   TeamCode Gender  Age   Company    City TenCom
     TenRole    WorkExp    Edu   Job
                Tformatt Tformbeh Tformmot Tformsti Tformcon
Tformmaj   OCac  OCcc
                OCnc OCmajor     VWEbasic VWEcont VWEteam VWEgrow
VWEmajor JSmajor
                TPmajor Tactrew Tactact Tactpass Tactmaj LFnotran
FPjob FPothers FPself  FPch
                FPmajor FRlead   FRtrust    FRcour     FRneg FRmajor;
            Missing are all (99);
            Usevariables = TeamCode OCmajor VWEmajor JSmajor;

            Cluster=TeamCode;

        Analysis: TYPE= twolevel;
                  estimator=MLR;
        MODEL: %WITHIN%

                %BETWEEN%

        OUTPUT: sampstat;

*** WARNING
  Input line exceeded 90 characters. Some input may be truncated.
                TPmajor Tactrew Tactact Tactpass Tactmaj LFnotran
FPjob FPothers FPself  FPcha
*** WARNING in MODEL command
  Variable is uncorrelated with all other variables: OCMAJOR
*** WARNING in MODEL command
  Variable is uncorrelated with all other variables: VWEMAJOR
```

```
*** WARNING in MODEL command
  Variable is uncorrelated with all other variables: JSMAJOR
*** WARNING in MODEL command
  At least one variable is uncorrelated with all other variables in
the model.
  Check that this is what is intended.
*** WARNING
  Data set contains cases with missing on all variables.
  These cases were not included in the analysis.
  Number of cases with missing on all variables:  146
   6 WARNING(S) FOUND IN THE INPUT INSTRUCTIONS

H0! TESTING THE NULL MODEL.

SUMMARY OF ANALYSIS
Number of groups                                                 1
Number of observations                                         521

Number of dependent variables                                    3
Number of independent variables                                  0
Number of continuous latent variables                            0

Observed dependent variables

  Continuous
   OCMAJOR     VWEMAJOR    JSMAJOR

Variables with special functions

  Cluster variable      TEAMCODE

Estimator                                                      MLR
Information matrix                                        OBSERVED
Maximum number of iterations                                   100
Convergence criterion                                    0.100D-05
Maximum number of EM iterations                                500
Convergence criteria for the EM algorithm
  Loglikelihood change                                   0.100D-02
  Relative loglikelihood change                          0.100D-05
  Derivative                                             0.100D-03
Minimum variance                                         0.100D-03
Maximum number of steepest descent iterations                   20
Maximum number of iterations for H1                           2000
Convergence criterion for H1                             0.100D-03
Optimization algorithm                                         EMA

Input data file(s)
  dataclean.dat
```

```
Input data format  FREE


SUMMARY OF DATA

     Number of missing data patterns             7
     Number of clusters                        150
     Average cluster size        3.473

     Estimated Intraclass Correlations for the Y Variables

          Intraclass             Intraclass             Intraclass
Variable  Correlation   Variable  Correlation   Variable
Correlation

    OCMAJOR      0.164      VWEMAJOR     0.172      JSMAJOR
0.150

COVARIANCE COVERAGE OF DATA

Minimum covariance coverage value   0.100

     PROPORTION OF DATA PRESENT

           Covariance Coverage
              OCMAJOR       VWEMAJOR      JSMAJOR
              ________      ________      ________
 OCMAJOR        0.743
 VWEMAJOR       0.697         0.902
 JSMAJOR        0.720         0.866         0.960


SAMPLE STATISTICS

NOTE:  The sample statistics for within and between refer to the
       maximum-likelihood estimated within and between covariance
       matrices, respectively.


     ESTIMATED SAMPLE STATISTICS FOR WITHIN


           Means
              OCMAJOR       VWEMAJOR      JSMAJOR
              ________      ________      ________
 1              0.000         0.000         0.000
```

Covariances

	OCMAJOR	VWEMAJOR	JSMAJOR
OCMAJOR	0.693		
VWEMAJOR	0.240	4.791	
JSMAJOR	0.043	0.654	0.874

Correlations

	OCMAJOR	VWEMAJOR	JSMAJOR
OCMAJOR	1.000		
VWEMAJOR	0.132	1.000	
JSMAJOR	0.055	0.320	1.000

ESTIMATED SAMPLE STATISTICS FOR BETWEEN

Means

	OCMAJOR	VWEMAJOR	JSMAJOR
1	9.220	13.939	3.754

Covariances

	OCMAJOR	VWEMAJOR	JSMAJOR
OCMAJOR	0.136		
VWEMAJOR	0.102	0.993	
JSMAJOR	0.007	0.119	0.154

Correlations

	OCMAJOR	VWEMAJOR	JSMAJOR
OCMAJOR	1.000		
VWEMAJOR	0.278	1.000	
JSMAJOR	0.045	0.304	1.000

MAXIMUM LOG-LIKELIHOOD VALUE FOR THE UNRESTRICTED (H1) MODEL IS -2257.545

UNIVARIATE SAMPLE STATISTICS

UNIVARIATE HIGHER-ORDER MOMENT DESCRIPTIVE STATISTICS

Variable/ Mean/ Skewness/ Minimum/ % with Percentiles
Sample Size Variance Kurtosis Maximum Min/Max 20%/60% 40%/80% Median

```
     OCMAJOR               9.257      -0.248       6.500    0.52%
8.500      9.130      9.250
             387.000       0.835       0.419      12.250    0.26%
9.500     10.000
     VWEMAJOR             13.954      -0.118       7.000    0.21%
11.750     13.500     14.000
             470.000       5.734      -0.184      19.750    0.64%
14.750     15.750
     JSMAJOR               3.756      -0.890       1.000    2.60%
3.000      4.000      4.000
             500.000       1.028       0.156       5.000   20.60%
4.000      5.000

THE MODEL ESTIMATION TERMINATED NORMALLY

MODEL FIT INFORMATION

Number of Free Parameters                        9

Loglikelihood

          H0 Value                       -2286.006
          H0 Scaling Correction Factor      1.0567
            for MLR
          H1 Value                       -2257.545
          H1 Scaling Correction Factor      1.1070
            for MLR

Information Criteria

          Akaike (AIC)                    4590.011
          Bayesian (BIC)                  4628.313
          Sample-Size Adjusted BIC        4599.745
            (n* = (n + 2) / 24)

Chi-Square Test of Model Fit

          Value                             48.137*
          Degrees of Freedom                     6
          P-Value                           0.0000
          Scaling Correction Factor         1.1825
            for MLR

*   The chi-square value for MLM, MLMV, MLR, ULSMV, WLSM and WLSMV
cannot be used
    for chi-square difference testing in the regular way.  MLM, MLR
and WLSM
```

```
    chi-square difference testing is described on the Mplus website.
MLMV, WLSMV,
    and ULSMV difference testing is done using the DIFFTEST option.

RMSEA (Root Mean Square Error Of Approximation)

          Estimate                           0.116

CFI/TLI

          CFI                                0.000
          TLI                               -0.002

Chi-Square Test of Model Fit for the Baseline Model

          Value                             48.055
          Degrees of Freedom                     6
          P-Value                           0.0000

SRMR (Standardized Root Mean Square Residual)

          Value for Within                   0.143
          Value for Between                  0.169

MODEL RESULTS

                                                       Two-Tailed
                    Estimate       S.E.  Est./S.E.    P-Value

Within Level

 Variances
    OCMAJOR            0.694      0.061     11.430      0.000
    VWEMAJOR           4.789      0.379     12.648      0.000
    JSMAJOR            0.879      0.077     11.380      0.000

Between Level

 Means
    OCMAJOR            9.222      0.055    168.703      0.000
    VWEMAJOR          13.948      0.136    102.492      0.000
    JSMAJOR            3.749      0.055     67.596      0.000

 Variances
    OCMAJOR            0.133      0.041      3.224      0.001
    VWEMAJOR           0.996      0.365      2.729      0.006
    JSMAJOR            0.149      0.053      2.814      0.005
```

```
QUALITY OF NUMERICAL RESULTS

     Condition Number for the Information Matrix
0.113E-02
       (ratio of smallest to largest eigenvalue)

DIAGRAM INFORMATION

  Mplus diagrams are currently not available for multilevel
analysis.
  No diagram output was produced.

     Beginning Time:  16:01:00
        Ending Time:  16:01:00
       Elapsed Time:  00:00:00
```

MUTHEN & MUTHEN
3463 Stoner Ave.
Los Angeles, CA 90066
Tel: (310) 391-9971
Fax: (310) 391-8971
Web: www.StatModel.comSupport: Support@StatModel.com

APPENDIX J - Hypothesis H_{1a} Test Results of Standardised Solution with Fixed Slopes Models

```
Mplus VERSION 7.4
MUTHEN & MUTHEN
06/20/2015   5:26 PM

INPUT INSTRUCTIONS
   Title:
          Hypothesis H1a! TRANSFORMATIONAL LEADERSHIP FIXED SLOPE
MODELS. The demographic variables are included

      Data:
          File=dataclean.dat;

      Variable:
          Names are
              RID     TeamCode Gender  Age   Company    City TenCom
     TenRole    WorkExp    Edu   Job
              Tformatt Tformbeh Tformmot Tformsti Tformcon Tformmaj
     OCac  OCcc
              OCnc OCmajor  VWEbasic VWEcont VWEteam VWEgrow
VWEmajor JSmajor
              TPmajor Tactrew Tactact Tactpass Tactmaj LFnotran
FPjob FPothers FPself  FPchan
              FPmajor FRlead     FRtrust    FRcour     FRneg FRmajor;
          Missing are all (99);
          Usevariables = TeamCode Tformmaj OCmajor VWEmajor JSmajor
Age TenCom Edu WorkExp;
          WITHIN = Tformmaj Age TenCom Edu WorkExp;

          Cluster=TeamCode;

      DEFINE: Center Tformmaj (Grandmean);

      Analysis: TYPE= twolevel;
                 estimator=MLR;
      MODEL: %WITHIN%
              JSmajor ON Tformmaj Age TenCom Edu WorkExp;
              OCmajor ON Tformmaj Age TenCom Edu WorkExp;
              VWEmajor ON Tformmaj Age TenCom Edu WorkExp;
              %BETWEEN%

      OUTPUT: sampstat stdyx;
*** WARNING
  Input line exceeded 90 characters. Some input may be truncated.
```

```
              TPmajor Tactrew Tactact Tactpass Tactmaj LFnotran
FPjob FPothers FPself  FPchang
*** WARNING in MODEL command
  A y-variable has been declared on the within level but not
referred to on  the between level.  Please check that this is what
is intended.  If this is not intended,
  specify the variable as a within variable.  Problem with:  OCMAJOR
*** WARNING in MODEL command
  A y-variable has been declared on the within level but not
referred to on
  the between level.  Please check that this is what is intended.
If this is not intended,
  specify the variable as a within variable.  Problem with:
VWEMAJOR
*** WARNING in MODEL command
  A y-variable has been declared on the within level but not
referred to on
  the between level.  Please check that this is what is intended.
If this is not intended,
  specify the variable as a within variable.  Problem with:  JSMAJOR
*** WARNING
  Data set contains cases with missing on x-variables.
  These cases were not included in the analysis.
  Number of cases with missing on x-variables:  287
   5 WARNING(S) FOUND IN THE INPUT INSTRUCTIONS

Hypothesis H1a! TRANSFORMATIONAL LEADERSHIP FIXED SLOPE MODELS. The
demographic variables are included
SUMMARY OF ANALYSIS

Number of groups                                                 1
Number of observations                                         380

Number of dependent variables                                    3
Number of independent variables                                  5
Number of continuous latent variables                            0

Observed dependent variables
  Continuous
   OCMAJOR     VWEMAJOR    JSMAJOR

Observed independent variables
   TFORMMAJ    AGE         TENCOM      EDU         WORKEXP

Variables with special functions

  Cluster variable      TEAMCODE
  Within variables
```

```
   TFORMMAJ    AGE         TENCOM      EDU         WORKEXP

  Centering (GRANDMEAN)
   TFORMMAJ
Estimator                                                      MLR
Information matrix                                        OBSERVED
Maximum number of iterations                                   100
Convergence criterion                                    0.100D-05
Maximum number of EM iterations                                500
Convergence criteria for the EM algorithm
  Loglikelihood change                                   0.100D-02
  Relative loglikelihood change                          0.100D-05
  Derivative                                             0.100D-03
Minimum variance                                         0.100D-03
Maximum number of steepest descent iterations                   20
Maximum number of iterations for H1                           2000
Convergence criterion for H1                             0.100D-03
Optimization algorithm                                         EMA

Input data file(s)
  dataclean.dat
Input data format  FREE
SUMMARY OF DATA

     Number of missing data patterns             7
     Number of clusters                        135

     Average cluster size        2.815

     Estimated Intraclass Correlations for the Y Variables

           Intraclass              Intraclass
Intraclass
     Variable  Correlation   Variable  Correlation   Variable
Correlation

    OCMAJOR      0.107      VWEMAJOR     0.196      JSMAJOR
0.125

COVARIANCE COVERAGE OF DATA

Minimum covariance coverage value   0.100
     PROPORTION OF DATA PRESENT

           Covariance Coverage
           OCMAJOR       VWEMAJOR      JSMAJOR       TFORMMAJ
AGE
              ________      ________      ________      ________
```

```
 ________
 OCMAJOR        0.805
 VWEMAJOR       0.766         0.937
 JSMAJOR        0.787         0.908         0.968
 TFORMMAJ       0.805         0.937         0.968         1.000
 AGE            0.805         0.937         0.968         1.000
1.000
 TENCOM         0.805         0.937         0.968         1.000
1.000
 EDU            0.805         0.937         0.968         1.000
1.000
 WORKEXP        0.805         0.937         0.968         1.000
1.000


 Covariance Coverage
              TENCOM        EDU           WORKEXP
              ________      ________      ________
 TENCOM         1.000
 EDU            1.000         1.000
 WORKEXP        1.000         1.000         1.000

SAMPLE STATISTICS
NOTE:  The sample statistics for within and between refer to the
       maximum-likelihood estimated within and between covariance
       matrices, respectively.

     ESTIMATED SAMPLE STATISTICS FOR WITHIN

           Means
       OCMAJOR       VWEMAJOR      JSMAJOR       TFORMMAJ      AGE
      ________      ________      ________      ________
________
 1     0.000         0.000         0.000         0.000         2.874


           Means
              TENCOM        EDU           WORKEXP
              ________      ________      ________
 1              3.571         2.449         4.179


           Covariances
          OCMAJOR       VWEMAJOR      JSMAJOR       TFORMMAJ
AGE
      ________      ________      ________      ________
________
```

OCMAJOR	0.651				
VWEMAJOR	0.205	4.860			
JSMAJOR	0.100	0.744	0.834		
TFORMMAJ	0.447	4.550	1.322	14.488	
AGE	-0.063	0.079	0.029	0.076	0.758
TENCOM	-0.034	-0.043	-0.039	-0.708	0.380
EDU	-0.113	-0.076	-0.086	-0.076	-0.009
WORKEXP	-0.029	-0.096	0.011	-0.362	0.570

Covariances

	TENCOM	EDU	WORKEXP
TENCOM	1.598		
EDU	-0.121	0.784	
WORKEXP	0.827	-0.068	1.168

Correlations

	OCMAJOR	VWEMAJOR	JSMAJOR	TFORMMAJ	AGE
OCMAJOR	1.000				
VWEMAJOR	0.115	1.000			
JSMAJOR	0.136	0.370	1.000		
TFORMMAJ	0.146	0.542	0.380	1.000	
AGE	-0.090	0.041	0.036	0.023	1.000
TENCOM	-0.033	-0.016	-0.033	-0.147	0.345
EDU	-0.158	-0.039	-0.107	-0.022	-0.012
WORKEXP	-0.033	-0.040	0.011	-0.088	0.606

Correlations

	TENCOM	EDU	WORKEXP
TENCOM	1.000		
EDU	-0.108	1.000	
WORKEXP	0.605	-0.072	1.000

ESTIMATED SAMPLE STATISTICS FOR BETWEEN

Means

OCMAJOR	VWEMAJOR	JSMAJOR	TFORMMAJ	AGE

1	9.271	14.170	3.806	0.000	0.000

Means

	TENCOM	EDU	WORKEXP
1	0.000	0.000	0.000

Covariances

	OCMAJOR	VWEMAJOR	JSMAJOR	TFORMMAJ	AGE
OCMAJOR	0.078				
VWEMAJOR	-0.016	1.188			
JSMAJOR	0.025	0.140	0.119		
TFORMMAJ	0.000	0.000	0.000	0.000	
AGE	0.000	0.000	0.000	0.000	0.000
TENCOM	0.000	0.000	0.000	0.000	0.000
EDU	0.000	0.000	0.000	0.000	0.000
WORKEXP	0.000	0.000	0.000	0.000	0.000

Covariances

	TENCOM	EDU	WORKEXP
TENCOM	0.000		
EDU	0.000	0.000	
WORKEXP	0.000	0.000	0.000

Correlations

	OCMAJOR	VWEMAJOR	JSMAJOR	TFORMMAJ	AGE
OCMAJOR	1.000				
VWEMAJOR	-0.052	1.000			
JSMAJOR	0.263	0.371	1.000		
TFORMMAJ	0.000	0.000	0.000	0.000	
AGE	0.000	0.000	0.000	0.000	0.000
TENCOM	0.000	0.000	0.000	0.000	0.000
EDU	0.000	0.000	0.000	0.000	0.000
WORKEXP	0.000	0.000	0.000	0.000	0.000

Correlations

	TENCOM	EDU	WORKEXP
TENCOM	0.000		
EDU	0.000	0.000	
WORKEXP	0.000	0.000	0.000

MAXIMUM LOG-LIKELIHOOD VALUE FOR THE UNRESTRICTED (H1) MODEL IS -1610.714

UNIVARIATE SAMPLE STATISTICS

UNIVARIATE HIGHER-ORDER MOMENT DESCRIPTIVE STATISTICS

Variable/ Sample Size	Mean/ Variance	Skewness/ Kurtosis	Minimum/ Maximum	% with Min/Max	Percentiles 20%/60%	40%/80%	Median
OCMAJOR	9.288	-0.061	6.500	0.33%	8.500	9.130	9.250
306.000	0.728	0.448	12.250	0.33%	9.500	10.000	
VWEMAJOR	14.094	-0.101	7.000	0.28%	12.000	13.500	14.000
356.000	5.785	-0.211	19.750	0.56%	14.750	16.000	
JSMAJOR	3.793	-0.859	1.000	1.36%	3.000	4.000	4.000
368.000	0.952	0.086	5.000	20.92%	4.000	5.000	
TFORMMAJ	0.000	-0.649	-12.320	0.26%	-3.070	-0.570	0.680
380.000	14.488	0.079	6.930	0.53%	1.430	3.180	
AGE	2.874	0.199	1.000	3.16%	2.000	3.000	3.000
380.000	0.758	-0.454	5.000	2.63%	3.000	4.000	
TENCOM	3.571	-0.336	1.000	5.26%	2.000	3.000	4.000
380.000	1.598	-1.099	5.000	33.16%	4.000	5.000	
EDU	2.449	-0.237	0.500	0.26%	2.000	2.000	3.000
380.000	0.784	-0.556	5.000	0.53%	3.000	3.000	
WORKEXP	4.179	-1.210	1.000	2.89%	3.000	4.000	5.000

```
             380.000       1.168       0.599       5.000   53.95%
5.000      5.000

THE MODEL ESTIMATION TERMINATED NORMALLY
MODEL FIT INFORMATION

Number of Free Parameters                        27

Loglikelihood

          H0 Value                        -1612.078
          H0 Scaling Correction Factor       1.0848
            for MLR
          H1 Value                        -1610.714
          H1 Scaling Correction Factor       1.0759
            for MLR

Information Criteria

          Akaike (AIC)                     3278.157
          Bayesian (BIC)                   3384.541
          Sample-Size Adjusted BIC         3298.876
            (n* = (n + 2) / 24)

Chi-Square Test of Model Fit

          Value                               2.740*
          Degrees of Freedom                      3
          P-Value                            0.4335
          Scaling Correction Factor          0.9956
            for MLR
*   The chi-square value for MLM, MLMV, MLR, ULSMV, WLSM and WLSMV
cannot be used
    for chi-square difference testing in the regular way.  MLM, MLR
and WLSM
    chi-square difference testing is described on the Mplus website.
MLMV, WLSMV,
    and ULSMV difference testing is done using the DIFFTEST option.

RMSEA (Root Mean Square Error Of Approximation)

          Estimate                            0.000

CFI/TLI

          CFI                                 1.000
          TLI                                 1.012
```

Chi-Square Test of Model Fit for the Baseline Model

Value	174.504
Degrees of Freedom	21
P-Value	0.0000

SRMR (Standardized Root Mean Square Residual)

Value for Within	0.006
Value for Between	0.187

MODEL RESULTS

	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
Within Level				
JSMAJOR ON				
TFORMMAJ	0.089	0.014	6.195	0.000
AGE	0.011	0.065	0.166	0.868
TENCOM	-0.017	0.039	-0.442	0.658
EDU	-0.096	0.056	-1.716	0.086
WORKEXP	0.034	0.061	0.557	0.578
OCMAJOR ON				
TFORMMAJ	0.032	0.014	2.276	0.023
AGE	-0.114	0.077	-1.487	0.137
TENCOM	-0.011	0.047	-0.226	0.821
EDU	-0.136	0.061	-2.215	0.027
WORKEXP	0.036	0.063	0.582	0.560
VWEMAJOR ON				
TFORMMAJ	0.317	0.037	8.671	0.000
AGE	0.100	0.140	0.715	0.475
TENCOM	0.160	0.123	1.299	0.194
EDU	-0.037	0.149	-0.247	0.805
WORKEXP	-0.157	0.146	-1.077	0.281
VWEMAJOR WITH				
OCMAJOR	0.071	0.106	0.677	0.499
JSMAJOR WITH				
OCMAJOR	0.066	0.045	1.490	0.136
VWEMAJOR	0.388	0.107	3.620	0.000
Residual Variances				
OCMAJOR	0.623	0.074	8.408	0.000
VWEMAJOR	3.455	0.352	9.810	0.000
JSMAJOR	0.723	0.074	9.796	0.000

Between Level

Means				
OCMAJOR	9.819	0.268	36.653	0.000
VWEMAJOR	14.058	0.621	22.621	0.000
JSMAJOR	3.924	0.267	14.718	0.000
Variances				
OCMAJOR	0.067	0.040	1.668	0.095
VWEMAJOR	1.085	0.345	3.145	0.002
JSMAJOR	0.093	0.045	2.058	0.040

STANDARDIZED MODEL RESULTS
STDYX Standardization

	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
Within Level				
JSMAJOR ON				
TFORMMAJ	0.369	0.056	6.556	0.000
AGE	0.010	0.061	0.167	0.868
TENCOM	-0.023	0.053	-0.443	0.658
EDU	-0.092	0.053	-1.728	0.084
WORKEXP	0.040	0.071	0.556	0.578
OCMAJOR ON				
TFORMMAJ	0.151	0.064	2.347	0.019
AGE	-0.123	0.082	-1.488	0.137
TENCOM	-0.017	0.074	-0.226	0.821
EDU	-0.148	0.069	-2.147	0.032
WORKEXP	0.049	0.083	0.582	0.561
VWEMAJOR ON				
TFORMMAJ	0.544	0.056	9.724	0.000
AGE	0.039	0.055	0.718	0.473
TENCOM	0.091	0.070	1.305	0.192
EDU	-0.015	0.059	-0.247	0.805
WORKEXP	-0.077	0.071	-1.078	0.281
VWEMAJOR WITH				
OCMAJOR	0.049	0.071	0.681	0.496
JSMAJOR WITH				
OCMAJOR	0.099	0.063	1.579	0.114
VWEMAJOR	0.245	0.065	3.761	0.000

```
 Residual Variances
    OCMAJOR            0.945      0.028     33.458      0.000
    VWEMAJOR           0.703      0.059     11.865      0.000
    JSMAJOR            0.852      0.043     19.980      0.000

Between Level

 Means
    OCMAJOR           37.988     11.394      3.334      0.001
    VWEMAJOR          13.498      2.223      6.073      0.000
    JSMAJOR           12.871      3.311      3.888      0.000

 Variances
    OCMAJOR            1.000      0.000    999.000    999.000
    VWEMAJOR           1.000      0.000    999.000    999.000
    JSMAJOR            1.000      0.000    999.000    999.000

R-SQUARE
Within Level

    Observed                                        Two-Tailed
    Variable        Estimate       S.E.  Est./S.E.    P-Value

    OCMAJOR            0.055      0.028      1.957      0.050
    VWEMAJOR           0.297      0.059      5.011      0.000
    JSMAJOR            0.148      0.043      3.468      0.001

Between Level
QUALITY OF NUMERICAL RESULTS

     Condition Number for the Information Matrix
0.228E-03
       (ratio of smallest to largest eigenvalue)
DIAGRAM INFORMATION
  Mplus diagrams are currently not available for multilevel
analysis.
  No diagram output was produced.
     Beginning Time:  17:26:34
        Ending Time:  17:26:36
       Elapsed Time:  00:00:02
```

APPENDIX K - Hypothesis H_{1a} Test Results of Random Slopes Models

```
Mplus VERSION 7.4
MUTHEN & MUTHEN
06/10/2015   3:07 PM

INPUT INSTRUCTIONS

    Title:
           H1a! TESTING TRANSFORMATIONAL LEADERSHIP ON OUTCOMES-
RANDOM SLOPE MODELS.

      Data:
          File=dataclean.dat;

      Variable:
          Names are
              RID     TeamCode Gender  Age   Company    City TenCom
     TenRole    WorkExp    Edu   Job
              Tformatt Tformbeh Tformmot Tformsti Tformcon Tformmaj
     OCac  OCcc
              OCnc OCmajor  VWEbasic VWEcont VWEteam VWEgrow
VWEmajor JSmajor
              TPmajor Tactrew Tactact Tactpass Tactmaj LFnotran
FPjob FPothers FPself  FPchan
              FPmajor FRlead     FRtrust    FRcour     FRneg FRmajor;
          Missing are all (99);
          Usevariables = TeamCode Tformmaj OCmajor VWEmajor JSmajor;
          WITHIN = Tformmaj;

          Cluster=TeamCode;

      DEFINE: Center Tformmaj (Grandmean);

      Analysis: TYPE= twolevel random;
                estimator=MLR;
      MODEL: %WITHIN%
              JSmajor ON Tformmaj;
              OCmajor ON Tformmaj;
              VWEmajor ON Tformmaj;
              %BETWEEN%

      OUTPUT: sampstat;
*** WARNING
  Input line exceeded 90 characters. Some input may be truncated.
              TPmajor Tactrew Tactact Tactpass Tactmaj LFnotran
```

```
FPjob FPothers FPself  FPchang
*** WARNING in MODEL command
  A y-variable has been declared on the within level but not
referred to on
  the between level.  Please check that this is what is intended.
If this is not intended,
  specify the variable as a within variable.  Problem with:  OCMAJOR
*** WARNING in MODEL command
  A y-variable has been declared on the within level but not
referred to on
  the between level.  Please check that this is what is intended.
If this is not intended,
  specify the variable as a within variable.  Problem with:
VWEMAJOR
*** WARNING in MODEL command
  A y-variable has been declared on the within level but not
referred to on
  the between level.  Please check that this is what is intended.
If this is not intended,
  specify the variable as a within variable.  Problem with:  JSMAJOR
*** WARNING
  Data set contains cases with missing on all variables.
  These cases were not included in the analysis.
  Number of cases with missing on all variables:  145
*** WARNING
  Data set contains cases with missing on x-variables.
  These cases were not included in the analysis.
  Number of cases with missing on x-variables:  127
*** WARNING
  Data set contains cases with missing on all variables except
  x-variables.  These cases were not included in the analysis.
  Number of cases with missing on all variables except x-variables:
1
   7 WARNING(S) FOUND IN THE INPUT INSTRUCTIONS

H1a! TESTING TRANSFORMATIONAL LEADERSHIP ON OUTCOMES-RANDOM SLOPE
MODELS.

SUMMARY OF ANALYSIS

Number of groups                                                  1
Number of observations                                          394

Number of dependent variables                                     3
Number of independent variables                                   1
Number of continuous latent variables                             0

Observed dependent variables
```

```
  Continuous
   OCMAJOR     VWEMAJOR    JSMAJOR

Observed independent variables
   TFORMMAJ

Variables with special functions

  Cluster variable      TEAMCODE

  Within variables
   TFORMMAJ

  Centering (GRANDMEAN)
   TFORMMAJ

Estimator                                                      MLR
Information matrix                                        OBSERVED
Maximum number of iterations                                   100
Convergence criterion                                    0.100D-05
Maximum number of EM iterations                                500
Convergence criteria for the EM algorithm
  Loglikelihood change                                   0.100D-02
  Relative loglikelihood change                          0.100D-05
  Derivative                                             0.100D-03
Minimum variance                                         0.100D-03
Maximum number of steepest descent iterations                   20
Maximum number of iterations for H1                           2000
Convergence criterion for H1                             0.100D-03
Optimization algorithm                                         EMA

Input data file(s)
  dataclean.dat
Input data format  FREE

SUMMARY OF DATA

     Number of missing data patterns            7
     Number of clusters                       137

     Average cluster size        2.876

     Estimated Intraclass Correlations for the Y Variables

           Intraclass               Intraclass
Intraclass
 Variable  Correlation   Variable  Correlation   Variable
```

Correlation

OCMAJOR	0.132	VWEMAJOR	0.222	JSMAJOR	0.137

COVARIANCE COVERAGE OF DATA

Minimum covariance coverage value 0.100

PROPORTION OF DATA PRESENT

Covariance Coverage

	OCMAJOR	VWEMAJOR	JSMAJOR	TFORMMAJ
OCMAJOR	0.802			
VWEMAJOR	0.759	0.931		
JSMAJOR	0.784	0.901	0.967	
TFORMMAJ	0.802	0.931	0.967	1.000

SAMPLE STATISTICS

NOTE: The sample statistics for within and between refer to the maximum-likelihood estimated within and between covariance matrices, respectively.

ESTIMATED SAMPLE STATISTICS FOR WITHIN

Means

	OCMAJOR	VWEMAJOR	JSMAJOR	TFORMMAJ
1	0.000	0.000	0.000	0.000

Covariances

	OCMAJOR	VWEMAJOR	JSMAJOR	TFORMMAJ
OCMAJOR	0.648			
VWEMAJOR	0.204	4.757		
JSMAJOR	0.084	0.701	0.842	
TFORMMAJ	0.435	4.534	1.222	14.555

Correlations

	OCMAJOR	VWEMAJOR	JSMAJOR	TFORMMAJ
OCMAJOR	1.000			
VWEMAJOR	0.116	1.000		
JSMAJOR	0.113	0.350	1.000	
TFORMMAJ	0.141	0.545	0.349	1.000

ESTIMATED SAMPLE STATISTICS FOR BETWEEN

Means

	OCMAJOR	VWEMAJOR	JSMAJOR	TFORMMAJ
1	9.284	14.158	3.798	0.000

Covariances

	OCMAJOR	VWEMAJOR	JSMAJOR	TFORMMAJ
OCMAJOR	0.098			
VWEMAJOR	0.019	1.355		
JSMAJOR	0.023	0.116	0.134	
TFORMMAJ	0.000	0.000	0.000	0.000

Correlations

	OCMAJOR	VWEMAJOR	JSMAJOR	TFORMMAJ
OCMAJOR	1.000			
VWEMAJOR	0.052	1.000		
JSMAJOR	0.204	0.273	1.000	
TFORMMAJ	0.000	0.000	0.000	0.000

MAXIMUM LOG-LIKELIHOOD VALUE FOR THE UNRESTRICTED (H1) MODEL IS -1685.474

UNIVARIATE SAMPLE STATISTICS

UNIVARIATE HIGHER-ORDER MOMENT DESCRIPTIVE STATISTICS

Variable/ Sample Size	Mean/ Variance	Skewness/ Kurtosis	Minimum/ Maximum	% with Min/Max	Percentiles 20%/60%	40%/80%	Median
OCMAJOR	9.300	-0.105	6.500	0.32%	8.500	9.130	9.250
316.000	0.750	0.473	12.250	0.32%	9.500	10.000	
VWEMAJOR	14.082	-0.111	7.000	0.27%	12.000	13.500	14.000
367.000	5.828	-0.212	19.750	0.54%	14.750	16.000	
JSMAJOR	3.787	-0.856	1.000	1.57%	3.000	4.000	4.000
381.000	0.976	0.066	5.000	21.26%	4.000	5.000	

```
     TFORMMAJ              0.000      -0.618     -12.298    0.25%
-3.048     -0.798      0.702
             394.000      14.555       0.022       6.952    0.51%
1.452      3.202
THE MODEL ESTIMATION TERMINATED NORMALLY

MODEL FIT INFORMATION
Number of Free Parameters                       15
Loglikelihood

          H0 Value                       -1686.191
          H0 Scaling Correction Factor      1.1796
            for MLR
          H1 Value                       -1685.474
          H1 Scaling Correction Factor      1.1838
            for MLR
Information Criteria
          Akaike (AIC)                    3402.381
          Bayesian (BIC)                  3462.026
          Sample-Size Adjusted BIC        3414.432
            (n* = (n + 2) / 24)

Chi-Square Test of Model Fit

          Value                              1.189*
          Degrees of Freedom                     3
          P-Value                           0.7557
          Scaling Correction Factor         1.2050
            for MLR
*   The chi-square value for MLM, MLMV, MLR, ULSMV, WLSM and WLSMV
cannot be used
    for chi-square difference testing in the regular way.  MLM, MLR
and WLSM
    chi-square difference testing is described on the Mplus website.
MLMV, WLSMV,
    and ULSMV difference testing is done using the DIFFTEST option.

RMSEA (Root Mean Square Error Of Approximation)

          Estimate                           0.000

CFI/TLI

          CFI                                1.000
          TLI                                1.046

Chi-Square Test of Model Fit for the Baseline Model
```

```
          Value                              126.337
          Degrees of Freedom                       9
          P-Value                             0.0000

SRMR (Standardized Root Mean Square Residual)

          Value for Within                     0.009
          Value for Between                    0.141

MODEL RESULTS

                                                    Two-Tailed
                    Estimate       S.E.  Est./S.E.    P-Value

Within Level

 JSMAJOR    ON
    TFORMMAJ           0.083      0.015      5.635      0.000

 OCMAJOR    ON
    TFORMMAJ           0.030      0.014      2.153      0.031

 VWEMAJOR   ON
    TFORMMAJ           0.311      0.035      8.859      0.000

 VWEMAJOR WITH
    OCMAJOR            0.084      0.101      0.829      0.407

 JSMAJOR  WITH
    OCMAJOR            0.062      0.047      1.327      0.185
    VWEMAJOR           0.370      0.113      3.268      0.001

 Residual Variances
    OCMAJOR            0.641      0.070      9.171      0.000
    VWEMAJOR           3.393      0.335     10.123      0.000
    JSMAJOR            0.752      0.077      9.711      0.000

Between Level

 Means
    OCMAJOR            9.283      0.054    171.819      0.000
    VWEMAJOR          14.161      0.146     97.313      0.000
    JSMAJOR            3.795      0.056     68.101      0.000

 Variances
    OCMAJOR            0.090      0.046      1.957      0.050
    VWEMAJOR           1.265      0.395      3.198      0.001
    JSMAJOR            0.116      0.053      2.171      0.030
```

```
QUALITY OF NUMERICAL RESULTS

     Condition Number for the Information Matrix
0.714E-03
       (ratio of smallest to largest eigenvalue)

DIAGRAM INFORMATION
  Mplus diagrams are currently not available for multilevel
analysis.
  No diagram output was produced.
     Beginning Time:  15:07:04
        Ending Time:  15:07:05
       Elapsed Time:  00:00:01
MUTHEN & MUTHEN
3463 Stoner Ave.
Los Angeles, CA  90066

Tel: (310) 391-9971
Fax: (310) 391-8971
Web: www.StatModel.com
Support: Support@StatModel.com.
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```

APPENDIX L - Hypothesis H_{1a} Test Results of the Variance between Random Intercepts and Random Slopes Models

```
Mplus VERSION 7.4
MUTHEN & MUTHEN
06/10/2015   1:20 PM

INPUT INSTRUCTIONS

    Title:
        Testing hypothesis H1a! Covariance between random intercepts
and random slopes models.

    Data:
        File=dataclean.dat;

    Variable:
        Names are
            RID  TeamCode Gender  Age   Company    City TenCom
      TenRole    WorkExp    Edu   Job
            Tformatt Tformbeh Tformmot Tformsti Tformcon Tformmaj
      OCac  OCcc
            OCnc OCmajor   VWEbasic VWEcont VWEteam VWEgrow
VWEmajor JSmajor
            TPmajor Tactrew Tactact Tactpass Tactmaj LFnotran FPjob
      FPothers FPself  FPchange
            FPmajor FRlead FRtrust    FRcour     FRneg FRmajor;
        Missing are all (99);
        Usevariables = TeamCode Tformmaj OCmajor VWEmajor JSmajor;
        WITHIN = Tformmaj;

        Cluster=TeamCode;

    DEFINE: Center Tformmaj (Grandmean);

    Analysis: TYPE= twolevel random;
              estimator=MLR;
    MODEL: %WITHIN%
            beta1j | JSmajor ON Tformmaj;
            beta2j | OCmajor ON Tformmaj;
            beta3j | VWEmajor ON Tformmaj;
            %BETWEEN%
            JSmajor with beta1j;
            OCmajor with beta2j;
            VWEmajor with beta3j;
```

```
    OUTPUT: sampstat;
*** WARNING
  Data set contains cases with missing on all variables.
  These cases were not included in the analysis.
  Number of cases with missing on all variables:  145
*** WARNING
  Data set contains cases with missing on x-variables.
  These cases were not included in the analysis.
  Number of cases with missing on x-variables:  127
*** WARNING
  Data set contains cases with missing on all variables except
  x-variables.  These cases were not included in the analysis.
  Number of cases with missing on all variables except x-variables:
1
   3 WARNING(S) FOUND IN THE INPUT INSTRUCTIONS
Testing hypothesis H1a! Covariance between random intercepts and
random slopes

SUMMARY OF ANALYSIS

Number of groups                                                 1
Number of observations                                         394

Number of dependent variables                                    3
Number of independent variables                                  1
Number of continuous latent variables                            3

Observed dependent variables

  Continuous
   OCMAJOR     VWEMAJOR    JSMAJOR

Observed independent variables
   TFORMMAJ

Continuous latent variables
   BETA1J      BETA2J      BETA3J

Variables with special functions

  Cluster variable      TEAMCODE

  Within variables
   TFORMMAJ

  Centering (GRANDMEAN)
   TFORMMAJ
```

```
Estimator                                                  MLR
Information matrix                                    OBSERVED
Maximum number of iterations                               100
Convergence criterion                                0.100D-05
Maximum number of EM iterations                            500
Convergence criteria for the EM algorithm
  Loglikelihood change                               0.100D-02
  Relative loglikelihood change                      0.100D-05
  Derivative                                         0.100D-03
Minimum variance                                     0.100D-03
Maximum number of steepest descent iterations               20
Maximum number of iterations for H1                       2000
Convergence criterion for H1                         0.100D-03
Optimization algorithm                                     EMA

Input data file(s)
  dataclean.dat
Input data format  FREE

SUMMARY OF DATA

     Number of missing data patterns            7
     Number of clusters                       137

     Average cluster size        2.876

     Estimated Intraclass Correlations for the Y Variables

          Intraclass              Intraclass              Intraclass
 Variable  Correlation   Variable  Correlation   Variable
Correlation

 OCMAJOR      0.132      VWEMAJOR     0.222      JSMAJOR      0.137
COVARIANCE COVERAGE OF DATA

Minimum covariance coverage value   0.100

     PROPORTION OF DATA PRESENT

           Covariance Coverage
              OCMAJOR       VWEMAJOR      JSMAJOR       TFORMMAJ
              ________      ________      ________      ________
 OCMAJOR        0.802
 VWEMAJOR       0.759         0.931
 JSMAJOR        0.784         0.901         0.967
 TFORMMAJ       0.802         0.931         0.967         1.000

SAMPLE STATISTICS
```

NOTE: The sample statistics for within and between refer to the maximum-likelihood estimated within and between covariance matrices, respectively.

ESTIMATED SAMPLE STATISTICS FOR WITHIN

Means

	OCMAJOR	VWEMAJOR	JSMAJOR	TFORMMAJ
1	0.000	0.000	0.000	0.000

Covariances

	OCMAJOR	VWEMAJOR	JSMAJOR	TFORMMAJ
OCMAJOR	0.648			
VWEMAJOR	0.204	4.757		
JSMAJOR	0.084	0.701	0.842	
TFORMMAJ	0.435	4.534	1.222	14.555

Correlations

	OCMAJOR	VWEMAJOR	JSMAJOR	TFORMMAJ
OCMAJOR	1.000			
VWEMAJOR	0.116	1.000		
JSMAJOR	0.113	0.350	1.000	
TFORMMAJ	0.141	0.545	0.349	1.000

ESTIMATED SAMPLE STATISTICS FOR BETWEEN

Means

	OCMAJOR	VWEMAJOR	JSMAJOR	TFORMMAJ
1	9.284	14.158	3.798	0.000

Covariances

	OCMAJOR	VWEMAJOR	JSMAJOR	TFORMMAJ
OCMAJOR	0.098			
VWEMAJOR	0.019	1.355		
JSMAJOR	0.023	0.116	0.134	
TFORMMAJ	0.000	0.000	0.000	0.000

Correlations

	OCMAJOR	VWEMAJOR	JSMAJOR	TFORMMAJ

```
                 _________    _________    _________    _________
 OCMAJOR           1.000
 VWEMAJOR          0.052        1.000
 JSMAJOR           0.204        0.273        1.000
 TFORMMAJ          0.000        0.000        0.000        0.000

     MAXIMUM LOG-LIKELIHOOD VALUE FOR THE UNRESTRICTED (H1) MODEL IS
-1685.474

UNIVARIATE SAMPLE STATISTICS
     UNIVARIATE HIGHER-ORDER MOMENT DESCRIPTIVE STATISTICS

         Variable/         Mean/     Skewness/   Minimum/ % with
Percentiles
        Sample Size      Variance    Kurtosis    Maximum  Min/Max
20%/60%    40%/80%    Median

     OCMAJOR                9.300      -0.105       6.500    0.32%
8.500      9.130      9.250
             316.000        0.750       0.473      12.250    0.32%
9.500     10.000
     VWEMAJOR              14.082      -0.111       7.000    0.27%
12.000     13.500     14.000
             367.000        5.828      -0.212      19.750    0.54%
14.750     16.000
     JSMAJOR                3.787      -0.856       1.000    1.57%
3.000      4.000      4.000
             381.000        0.976       0.066       5.000   21.26%
4.000      5.000
     TFORMMAJ               0.000      -0.618     -12.298    0.25%
-3.048     -0.798      0.702
             394.000       14.555       0.022       6.952    0.51%
1.452      3.202

THE MODEL ESTIMATION TERMINATED NORMALLY
MODEL FIT INFORMATION

Number of Free Parameters                       21

Loglikelihood

          H0 Value                       -1678.953
          H0 Scaling Correction Factor      1.1184
            for MLR

Information Criteria

          Akaike (AIC)                    3399.906
```

```
          Bayesian (BIC)                    3483.409
          Sample-Size Adjusted BIC          3416.777
            (n* = (n + 2) / 24)

MODEL RESULTS
                                                    Two-Tailed
                    Estimate       S.E.  Est./S.E.    P-Value

Within Level

 VWEMAJOR WITH
    OCMAJOR            0.054      0.098      0.547      0.584

 JSMAJOR  WITH
    OCMAJOR            0.056      0.045      1.239      0.215
    VWEMAJOR           0.338      0.109      3.104      0.002

 Residual Variances
    OCMAJOR            0.623      0.074      8.453      0.000
    VWEMAJOR           3.048      0.320      9.517      0.000
    JSMAJOR            0.671      0.076      8.875      0.000

Between Level

 JSMAJOR  WITH
    BETA1J            -0.010      0.009     -1.105      0.269

 OCMAJOR  WITH
    BETA2J             0.005      0.005      1.016      0.309

 VWEMAJOR WITH
    BETA3J            -0.010      0.057     -0.179      0.858

 Means
    OCMAJOR            9.275      0.054    170.957      0.000
    VWEMAJOR          14.152      0.139    101.695      0.000
    JSMAJOR            3.823      0.057     66.673      0.000
    BETA1J             0.073      0.016      4.684      0.000
    BETA2J             0.030      0.014      2.156      0.031
    BETA3J             0.318      0.035      9.089      0.000

 Variances
    OCMAJOR            0.074      0.047      1.589      0.112
    VWEMAJOR           1.033      0.392      2.635      0.008
    JSMAJOR            0.107      0.050      2.147      0.032
    BETA1J             0.007      0.004      1.704      0.088
    BETA2J             0.002      0.003      0.710      0.477
    BETA3J             0.037      0.023      1.638      0.102
```

```
QUALITY OF NUMERICAL RESULTS

     Condition Number for the Information Matrix
0.903E-03
       (ratio of smallest to largest eigenvalue)
DIAGRAM INFORMATION
  Mplus diagrams are currently not available for multilevel
analysis.
  No diagram output was produced.
     Beginning Time:  13:20:08
        Ending Time:  13:20:09
       Elapsed Time:  00:00:01
MUTHEN & MUTHEN
3463 Stoner Ave.
Los Angeles, CA  90066
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Fax: (310) 391-8971
Web: www.StatModel.com
Support: Support@StatModel.com

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```

APPENDIX M - Hypothesis H_{1b} Test Results of Standardised Solution with Fixed Slope Models

```
Mplus VERSION 7.4
MUTHEN & MUTHEN
06/21/2015   2:21 PM
INPUT INSTRUCTIONS
   Title:
             H1b! TRANSACTIONAL LEADERSHIP STANDERDISED SOLUTION
WITH FIXED SLOPE

        Data:
            File=dataclean.dat;

        Variable:
            Names are
                RID   TeamCode Gender  Age   Company    City TenCom
     TenRole    WorkExp    Edu   Job
                Tformatt Tformbeh Tformmot Tformsti Tformcon
Tformmaj   OCac  OCcc
                OCnc OCmajor     VWEbasic VWEcont VWEteam VWEgrow
VWEmajor JSmajor
                TPmajor Tactrew Tactact Tactpass Tactmaj LFnotran
FPjob FPothers FPself  FPch
                FPmajor FRlead   FRtrust    FRcour     FRneg FRmajor;
            Missing are all (99);
            Usevariables = TeamCode Tactmaj OCmajor VWEmajor
JSmajor;
            WITHIN = Tactmaj;

            Cluster=TeamCode;

        DEFINE: Center Tactmaj (Grandmean);

        Analysis: TYPE= twolevel;
                  estimator=MLR;
        MODEL: %WITHIN%
                JSmajor ON Tactmaj;
                OCmajor ON Tactmaj;
                VWEmajor ON Tactmaj;
                %BETWEEN%

        OUTPUT: samp stdyx;
*** WARNING
  Input line exceeded 90 characters. Some input may be truncated.
```

```
                TPmajor Tactrew Tactact Tactpass Tactmaj LFnotran
FPjob FPothers FPself  FPcha
*** WARNING in MODEL command
  A y-variable has been declared on the within level but not
referred to on
  the between level.  Please check that this is what is intended.
If this is not intended,
  specify the variable as a within variable.  Problem with:  OCMAJOR
*** WARNING in MODEL command
  A y-variable has been declared on the within level but not
referred to on
  the between level.  Please check that this is what is intended.
If this is not intended,
  specify the variable as a within variable.  Problem with:
VWEMAJOR
*** WARNING in MODEL command
  A y-variable has been declared on the within level but not
referred to on
  the between level.  Please check that this is what is intended.
If this is not intended,
  specify the variable as a within variable.  Problem with:  JSMAJOR
*** WARNING
  Data set contains cases with missing on all variables.
  These cases were not included in the analysis.
  Number of cases with missing on all variables:  146
*** WARNING
  Data set contains cases with missing on x-variables.
  These cases were not included in the analysis.
  Number of cases with missing on x-variables:  104
   6 WARNING(S) FOUND IN THE INPUT INSTRUCTIONS

H1b! TRANSACTIONAL LEADERSHIP STANDERDISED SOLUTION WITH FIXED SLOPE

SUMMARY OF ANALYSIS

Number of groups                                                 1
Number of observations                                         417

Number of dependent variables                                    3
Number of independent variables                                  1
Number of continuous latent variables                            0

Observed dependent variables

  Continuous
   OCMAJOR     VWEMAJOR    JSMAJOR

Observed independent variables
```

```
   TACTMAJ

Variables with special functions

  Cluster variable      TEAMCODE

  Within variables
   TACTMAJ

  Centering (GRANDMEAN)
   TACTMAJ
Estimator                                                      MLR
Information matrix                                        OBSERVED
Maximum number of iterations                                   100
Convergence criterion                                    0.100D-05
Maximum number of EM iterations                                500
Convergence criteria for the EM algorithm
  Loglikelihood change                                   0.100D-02
  Relative loglikelihood change                          0.100D-05
  Derivative                                             0.100D-03
Minimum variance                                         0.100D-03
Maximum number of steepest descent iterations                   20
Maximum number of iterations for H1                           2000
Convergence criterion for H1                             0.100D-03
Optimization algorithm                                         EMA

Input data file(s)
  dataclean.dat
Input data format  FREE

SUMMARY OF DATA

     Number of missing data patterns             7
     Number of clusters                        142

     Average cluster size        2.937

     Estimated Intraclass Correlations for the Y Variables

            Intraclass              Intraclass
Intraclass
 Variable  Correlation   Variable  Correlation   Variable
Correlation

  OCMAJOR      0.214      VWEMAJOR     0.193      JSMAJOR      0.135
COVARIANCE COVERAGE OF DATA

Minimum covariance coverage value   0.100
```

PROPORTION OF DATA PRESENT

Covariance Coverage

	OCMAJOR	VWEMAJOR	JSMAJOR	TACTMAJ
OCMAJOR	0.782			
VWEMAJOR	0.741	0.928		
JSMAJOR	0.763	0.890	0.959	
TACTMAJ	0.782	0.928	0.959	1.000

SAMPLE STATISTICS

NOTE: The sample statistics for within and between refer to the maximum-likelihood estimated within and between covariance matrices, respectively.

ESTIMATED SAMPLE STATISTICS FOR WITHIN

Means

	OCMAJOR	VWEMAJOR	JSMAJOR	TACTMAJ
1	0.000	0.000	0.000	0.000

Covariances

	OCMAJOR	VWEMAJOR	JSMAJOR	TACTMAJ
OCMAJOR	0.637			
VWEMAJOR	0.156	4.800		
JSMAJOR	0.049	0.750	0.874	
TACTMAJ	0.174	1.670	0.474	3.172

Correlations

	OCMAJOR	VWEMAJOR	JSMAJOR	TACTMAJ
OCMAJOR	1.000			
VWEMAJOR	0.089	1.000		
JSMAJOR	0.066	0.366	1.000	
TACTMAJ	0.123	0.428	0.285	1.000

ESTIMATED SAMPLE STATISTICS FOR BETWEEN

Means

	OCMAJOR	VWEMAJOR	JSMAJOR	TACTMAJ
1	9.242	14.070	3.713	0.000

Covariances

	OCMAJOR	VWEMAJOR	JSMAJOR	TACTMAJ
OCMAJOR	0.173			
VWEMAJOR	0.087	1.149		
JSMAJOR	-0.010	0.129	0.136	
TACTMAJ	0.000	0.000	0.000	0.000

Correlations

	OCMAJOR	VWEMAJOR	JSMAJOR	TACTMAJ
OCMAJOR	1.000			
VWEMAJOR	0.195	1.000		
JSMAJOR	-0.067	0.326	1.000	
TACTMAJ	0.000	0.000	0.000	0.000

MAXIMUM LOG-LIKELIHOOD VALUE FOR THE UNRESTRICTED (H1) MODEL IS -1803.943

UNIVARIATE SAMPLE STATISTICS

UNIVARIATE HIGHER-ORDER MOMENT DESCRIPTIVE STATISTICS

Variable/ Sample Size	Mean/ Variance	Skewness/ Kurtosis	Minimum/ Maximum	% with Min/Max	Percentiles 20%/60%	40%/80%	Median
OCMAJOR	9.270	-0.156	6.500	0.61%	8.500	9.000	9.250
326.000	0.817	0.451	12.250	0.31%	9.500	10.000	
VWEMAJOR	14.037	-0.149	7.000	0.26%	12.000	13.500	14.000
387.000	5.890	-0.154	19.750	0.52%	14.750	16.000	
JSMAJOR	3.710	-0.817	1.000	2.25%	3.000	4.000	4.000
400.000	1.016	-0.035	5.000	18.50%	4.000	4.000	
TACTMAJ	0.000	-0.019	-5.399	0.24%	-1.649	-0.399	0.101
417.000	3.172	-0.055	4.851	0.48%	0.351	1.601	

```
THE MODEL ESTIMATION TERMINATED NORMALLY
MODEL FIT INFORMATION

Number of Free Parameters                         15

Loglikelihood

          H0 Value                           -1805.108
          H0 Scaling Correction Factor          1.1194
            for MLR
          H1 Value                           -1803.943
          H1 Scaling Correction Factor          1.1338
            for MLR

Information Criteria

          Akaike (AIC)                        3640.217
          Bayesian (BIC)                      3700.713
          Sample-Size Adjusted BIC            3653.114
            (n* = (n + 2) / 24)

Chi-Square Test of Model Fit

          Value                                  1.933*
          Degrees of Freedom                         3
          P-Value                               0.5864
          Scaling Correction Factor             1.2059
            for MLR

*   The chi-square value for MLM, MLMV, MLR, ULSMV, WLSM and WLSMV
cannot be used
    for chi-square difference testing in the regular way.  MLM, MLR
and WLSM
    chi-square difference testing is described on the Mplus website.
MLMV, WLSMV,
    and ULSMV difference testing is done using the DIFFTEST option.

RMSEA (Root Mean Square Error Of Approximation)

          Estimate                               0.000

CFI/TLI

          CFI                                    1.000
          TLI                                    1.033

Chi-Square Test of Model Fit for the Baseline Model
```

```
          Value                                 104.908
          Degrees of Freedom                          9
          P-Value                                0.0000

SRMR (Standardized Root Mean Square Residual)

          Value for Within                        0.010
          Value for Between                       0.157

MODEL RESULTS

                                                           Two-Tailed
                    Estimate       S.E.  Est./S.E.    P-Value

Within Level

 JSMAJOR    ON
    TACTMAJ            0.151      0.027      5.492      0.000

 OCMAJOR    ON
    TACTMAJ            0.054      0.028      1.935      0.053

 VWEMAJOR   ON
    TACTMAJ            0.531      0.071      7.433      0.000

 VWEMAJOR WITH
    OCMAJOR            0.097      0.102      0.956      0.339

 JSMAJOR  WITH
    OCMAJOR            0.022      0.046      0.486      0.627
    VWEMAJOR           0.568      0.129      4.406      0.000

 Residual Variances
    OCMAJOR            0.628      0.063     10.046      0.000
    VWEMAJOR           4.022      0.400     10.057      0.000
    JSMAJOR            0.820      0.085      9.677      0.000

Between Level
 Means
    OCMAJOR            9.241      0.060    155.172      0.000
    VWEMAJOR          14.082      0.142     99.029      0.000
    JSMAJOR            3.711      0.057     65.034      0.000

 Variances
    OCMAJOR            0.171      0.047      3.650      0.000
    VWEMAJOR           0.987      0.338      2.920      0.004
    JSMAJOR            0.114      0.057      1.991      0.047

STANDARDIZED MODEL RESULTS
```

STDYX Standardization

	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
Within Level				
JSMAJOR ON				
TACTMAJ	0.284	0.051	5.605	0.000
OCMAJOR ON				
TACTMAJ	0.120	0.061	1.949	0.051
VWEMAJOR ON				
TACTMAJ	0.427	0.053	7.981	0.000
VWEMAJOR WITH				
OCMAJOR	0.061	0.064	0.958	0.338
JSMAJOR WITH				
OCMAJOR	0.031	0.063	0.489	0.625
VWEMAJOR	0.313	0.065	4.829	0.000
Residual Variances				
OCMAJOR	0.986	0.015	66.890	0.000
VWEMAJOR	0.818	0.046	17.943	0.000
JSMAJOR	0.919	0.029	31.979	0.000
Between Level				
Means				
OCMAJOR	22.323	3.054	7.309	0.000
VWEMAJOR	14.173	2.399	5.909	0.000
JSMAJOR	10.987	2.815	3.903	0.000
Variances				
OCMAJOR	1.000	0.000	999.000	999.000
VWEMAJOR	1.000	0.000	999.000	999.000
JSMAJOR	1.000	0.000	999.000	999.000

R-SQUARE
Within Level

Observed Variable	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
OCMAJOR	0.014	0.015	0.974	0.330
VWEMAJOR	0.182	0.046	3.990	0.000

```
    JSMAJOR            0.081      0.029      2.803      0.005

Between Level


QUALITY OF NUMERICAL RESULTS

     Condition Number for the Information Matrix
0.124E-02
       (ratio of smallest to largest eigenvalue)
DIAGRAM INFORMATION
  Mplus diagrams are currently not available for multilevel
analysis.
  No diagram output was produced.
     Beginning Time:  14:21:35
        Ending Time:  14:21:37
       Elapsed Time:  00:00:02
MUTHEN & MUTHEN
3463 Stoner Ave.
Los Angeles, CA  90066
Tel: (310) 391-9971
Fax: (310) 391-8971
Web: www.StatModel.com
Support: Support@StatModel.com

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```

APPENDIX N - Hypothesis H_{1b} Test Results of Random Slopes Models

```
Mplus VERSION 7.4
MUTHEN & MUTHEN
06/10/2015   3:20 PM

INPUT INSTRUCTIONS

    Title:
           H1b! TRANSACTIONAL LEADERSHIP RANDOM SLOPE MODELS

      Data:
          File=dataclean.dat;

      Variable:
          Names are
              RID     TeamCode Gender  Age   Company    City TenCom
     TenRole    WorkExp    Edu   Job
              Tformatt Tformbeh Tformmot Tformsti Tformcon Tformmaj
     OCac  OCcc
              OCnc OCmajor  VWEbasic VWEcont VWEteam VWEgrow
VWEmajor JSmajor
              TPmajor Tactrew Tactact Tactpass Tactmaj LFnotran
FPjob FPothers FPself  FPchan
              FPmajor FRlead     FRtrust    FRcour     FRneg FRmajor;
          Missing are all (99);
          Usevariables = TeamCode Tactmaj OCmajor VWEmajor JSmajor;
          WITHIN = Tactmaj;

          Cluster=TeamCode;

      DEFINE: Center Tactmaj (Grandmean);

      Analysis: TYPE= twolevel random;
                estimator=MLR;
      MODEL: %WITHIN%
              JSmajor ON Tactmaj;
              OCmajor ON Tactmaj;
              VWEmajor ON Tactmaj;
              %BETWEEN%

      OUTPUT: sampstat;

*** WARNING
  Input line exceeded 90 characters. Some input may be truncated.
              TPmajor Tactrew Tactact Tactpass Tactmaj LFnotran
```

```
FPjob FPothers FPself  FPchang
*** WARNING in MODEL command
  A y-variable has been declared on the within level but not
referred to on
  the between level.  Please check that this is what is intended.
If this is not intended,
  specify the variable as a within variable.  Problem with:  OCMAJOR
*** WARNING in MODEL command
  A y-variable has been declared on the within level but not
referred to on
  the between level.  Please check that this is what is intended.
If this is not intended,
  specify the variable as a within variable.  Problem with:
VWEMAJOR
*** WARNING in MODEL command
  A y-variable has been declared on the within level but not
referred to on
  the between level.  Please check that this is what is intended.
If this is not intended,
  specify the variable as a within variable.  Problem with:  JSMAJOR
*** WARNING
  Data set contains cases with missing on all variables.
  These cases were not included in the analysis.
  Number of cases with missing on all variables:  146
*** WARNING
  Data set contains cases with missing on x-variables.
  These cases were not included in the analysis.
  Number of cases with missing on x-variables:  104
   6 WARNING(S) FOUND IN THE INPUT INSTRUCTIONS

H1b! TRANSACTIONAL LEADERSHIP RANDOM SLOPE MODELS

SUMMARY OF ANALYSIS

Number of groups                                                 1
Number of observations                                         417

Number of dependent variables                                    3
Number of independent variables                                  1
Number of continuous latent variables                            0

Observed dependent variables

  Continuous
   OCMAJOR     VWEMAJOR    JSMAJOR

Observed independent variables
   TACTMAJ
```

```
Variables with special functions

  Cluster variable      TEAMCODE

  Within variables
   TACTMAJ

  Centering (GRANDMEAN)
   TACTMAJ

Estimator                                                      MLR
Information matrix                                        OBSERVED
Maximum number of iterations                                   100
Convergence criterion                                    0.100D-05
Maximum number of EM iterations                                500
Convergence criteria for the EM algorithm
  Loglikelihood change                                   0.100D-02
  Relative loglikelihood change                          0.100D-05
  Derivative                                             0.100D-03
Minimum variance                                         0.100D-03
Maximum number of steepest descent iterations                   20
Maximum number of iterations for H1                           2000
Convergence criterion for H1                             0.100D-03
Optimization algorithm                                         EMA

Input data file(s)
  dataclean.dat
Input data format  FREE

SUMMARY OF DATA

     Number of missing data patterns             7
     Number of clusters                        142

     Average cluster size        2.937

     Estimated Intraclass Correlations for the Y Variables

           Intraclass             Intraclass
Intraclass
 Variable  Correlation   Variable  Correlation   Variable
Correlation

 OCMAJOR      0.214      VWEMAJOR     0.193      JSMAJOR      0.135

COVARIANCE COVERAGE OF DATA
```

Minimum covariance coverage value 0.100

PROPORTION OF DATA PRESENT

Covariance Coverage

	OCMAJOR	VWEMAJOR	JSMAJOR	TACTMAJ
OCMAJOR	0.782			
VWEMAJOR	0.741	0.928		
JSMAJOR	0.763	0.890	0.959	
TACTMAJ	0.782	0.928	0.959	1.000

SAMPLE STATISTICS

NOTE: The sample statistics for within and between refer to the maximum-likelihood estimated within and between covariance matrices, respectively.

ESTIMATED SAMPLE STATISTICS FOR WITHIN

Means

	OCMAJOR	VWEMAJOR	JSMAJOR	TACTMAJ
1	0.000	0.000	0.000	0.000

Covariances

	OCMAJOR	VWEMAJOR	JSMAJOR	TACTMAJ
OCMAJOR	0.637			
VWEMAJOR	0.156	4.800		
JSMAJOR	0.049	0.750	0.874	
TACTMAJ	0.174	1.670	0.474	3.172

Correlations

	OCMAJOR	VWEMAJOR	JSMAJOR	TACTMAJ
OCMAJOR	1.000			
VWEMAJOR	0.089	1.000		
JSMAJOR	0.066	0.366	1.000	
TACTMAJ	0.123	0.428	0.285	1.000

ESTIMATED SAMPLE STATISTICS FOR BETWEEN

Means

OCMAJOR	VWEMAJOR	JSMAJOR	TACTMAJ

1	9.242	14.070	3.713	0.000

Covariances

	OCMAJOR	VWEMAJOR	JSMAJOR	TACTMAJ
OCMAJOR	0.173			
VWEMAJOR	0.087	1.149		
JSMAJOR	-0.010	0.129	0.136	
TACTMAJ	0.000	0.000	0.000	0.000

Correlations

	OCMAJOR	VWEMAJOR	JSMAJOR	TACTMAJ
OCMAJOR	1.000			
VWEMAJOR	0.195	1.000		
JSMAJOR	-0.067	0.326	1.000	
TACTMAJ	0.000	0.000	0.000	0.000

MAXIMUM LOG-LIKELIHOOD VALUE FOR THE UNRESTRICTED (H1) MODEL IS
-1803.943

UNIVARIATE SAMPLE STATISTICS

UNIVARIATE HIGHER-ORDER MOMENT DESCRIPTIVE STATISTICS

Variable/ Mean/ Skewness/ Minimum/ % with
Percentiles
Sample Size Variance Kurtosis Maximum Min/Max
20%/60% 40%/80% Median

OCMAJOR 9.270 -0.156 6.500 0.61%
8.500 9.000 9.250
326.000 0.817 0.451 12.250 0.31%
9.500 10.000
VWEMAJOR 14.037 -0.149 7.000 0.26%
12.000 13.500 14.000
387.000 5.890 -0.154 19.750 0.52%
14.750 16.000
JSMAJOR 3.710 -0.817 1.000 2.25%
3.000 4.000 4.000
400.000 1.016 -0.035 5.000 18.50%
4.000 4.000
TACTMAJ 0.000 -0.019 -5.399 0.24%

```
-1.649     -0.399      0.101
             417.000       3.172      -0.055       4.851    0.48%
0.351      1.601


THE MODEL ESTIMATION TERMINATED NORMALLY
MODEL FIT INFORMATION

Number of Free Parameters                      15

Loglikelihood

          H0 Value                      -1805.108
          H0 Scaling Correction Factor     1.1194
            for MLR
          H1 Value                      -1803.943
          H1 Scaling Correction Factor     1.1338
            for MLR

Information Criteria

          Akaike (AIC)                   3640.217
          Bayesian (BIC)                 3700.713
          Sample-Size Adjusted BIC       3653.114
            (n* = (n + 2) / 24)

Chi-Square Test of Model Fit

          Value                             1.933*
          Degrees of Freedom                    3
          P-Value                          0.5864
          Scaling Correction Factor        1.2059
            for MLR
*   The chi-square value for MLM, MLMV, MLR, ULSMV, WLSM and WLSMV
cannot be used
    for chi-square difference testing in the regular way.  MLM, MLR
and WLSM
    chi-square difference testing is described on the Mplus website.
MLMV, WLSMV,
    and ULSMV difference testing is done using the DIFFTEST option.

RMSEA (Root Mean Square Error Of Approximation)

          Estimate                          0.000

CFI/TLI

          CFI                               1.000
```

```
          TLI                                    1.033

Chi-Square Test of Model Fit for the Baseline Model

          Value                                104.908
          Degrees of Freedom                         9
          P-Value                               0.0000

SRMR (Standardized Root Mean Square Residual)

          Value for Within                       0.010
          Value for Between                      0.157

MODEL RESULTS
                                                            Two-Tailed
                    Estimate       S.E.  Est./S.E.    P-Value

Within Level

 JSMAJOR    ON
    TACTMAJ            0.151      0.027      5.492      0.000

 OCMAJOR    ON
    TACTMAJ            0.054      0.028      1.935      0.053

 VWEMAJOR   ON
    TACTMAJ            0.531      0.071      7.433      0.000

 VWEMAJOR WITH
    OCMAJOR            0.097      0.102      0.956      0.339

 JSMAJOR  WITH
    OCMAJOR            0.022      0.046      0.486      0.627
    VWEMAJOR           0.568      0.129      4.406      0.000

 Residual Variances
    OCMAJOR            0.628      0.063     10.046      0.000
    VWEMAJOR           4.022      0.400     10.057      0.000
    JSMAJOR            0.820      0.085      9.677      0.000

Between Level

 Means
    OCMAJOR            9.241      0.060    155.172      0.000
    VWEMAJOR          14.082      0.142     99.029      0.000
    JSMAJOR            3.711      0.057     65.034      0.000

 Variances
```

OCMAJOR	0.171	0.047	3.650	0.000
VWEMAJOR	0.987	0.338	2.920	0.004
JSMAJOR	0.114	0.057	1.991	0.047

QUALITY OF NUMERICAL RESULTS

Condition Number for the Information Matrix
0.124E-02
(ratio of smallest to largest eigenvalue)

DIAGRAM INFORMATION

Mplus diagrams are currently not available for multilevel analysis.
No diagram output was produced.

```
     Beginning Time:  15:20:37
        Ending Time:  15:20:38
       Elapsed Time:  00:00:01
```

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Los Angeles, CA 90066

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Web: www.StatModel.com
Support: Support@StatModel.com

APPENDIX O - Hypothesis H_{1b} Test Results of the Variance between Random Intercepts and Random Slopes Models

```
Mplus VERSION 7.4
MUTHEN & MUTHEN
06/10/2015   2:41 PM

INPUT INSTRUCTIONS
    Title:
        H1b! Testing covariance between random intercepts and random
slopes.

    Data:
        File=dataclean.dat;
    Variable:
        Names are
            RID  TeamCode Gender  Age   Company    City TenCom
     TenRole    WorkExp    Edu   Job
            Tformatt Tformbeh Tformmot Tformsti Tformcon Tformmaj
     OCac  OCcc
            OCnc OCmajor   VWEbasic VWEcont VWEteam VWEgrow
VWEmajor JSmajor
            TPmajor Tactrew Tactact Tactpass Tactmaj LFnotran FPjob
     FPothers FPself  FPchange
            FPmajor FRlead FRtrust    FRcour     FRneg FRmajor;
        Missing are all (99);
        Usevariables = TeamCode Tactmaj OCmajor VWEmajor JSmajor;
        WITHIN = Tactmaj;

        Cluster=TeamCode;

    DEFINE: Center Tactmaj (Grandmean);

    Analysis: TYPE= twolevel random;
              estimator=MLR;
    MODEL: %WITHIN%
            beta1j | JSmajor ON Tactmaj;
            beta2j | OCmajor ON Tactmaj;
            beta3j | VWEmajor ON Tactmaj;
            %BETWEEN%
            JSmajor with beta1j;
            OCmajor with beta2j;
            VWEmajor with beta3j;

    OUTPUT: sampstat;
```

```
*** WARNING
  Data set contains cases with missing on all variables.
  These cases were not included in the analysis.
  Number of cases with missing on all variables:  146
*** WARNING
  Data set contains cases with missing on x-variables.
  These cases were not included in the analysis.
  Number of cases with missing on x-variables:  104
   2 WARNING(S) FOUND IN THE INPUT INSTRUCTIONS
H1b! Testing covariance between random intercepts and random slopes.

SUMMARY OF ANALYSIS

Number of groups                                                 1
Number of observations                                         417

Number of dependent variables                                    3
Number of independent variables                                  1
Number of continuous latent variables                            3

Observed dependent variables

  Continuous
   OCMAJOR     VWEMAJOR    JSMAJOR

Observed independent variables
   TACTMAJ

Continuous latent variables
   BETA1J      BETA2J      BETA3J

Variables with special functions

  Cluster variable      TEAMCODE

  Within variables
   TACTMAJ

  Centering (GRANDMEAN)
   TACTMAJ

Estimator                                                      MLR
Information matrix                                        OBSERVED
Maximum number of iterations                                   100
Convergence criterion                                    0.100D-05
Maximum number of EM iterations                                500
Convergence criteria for the EM algorithm
  Loglikelihood change                                   0.100D-02
```

```
  Relative loglikelihood change                              0.100D-05
  Derivative                                                 0.100D-03
Minimum variance                                             0.100D-03
Maximum number of steepest descent iterations                       20
Maximum number of iterations for H1                               2000
Convergence criterion for H1                                 0.100D-03
Optimization algorithm                                             EMA
Input data file(s)
  dataclean.dat
Input data format  FREE
SUMMARY OF DATA

     Number of missing data patterns             7
     Number of clusters                        142

     Average cluster size        2.937

     Estimated Intraclass Correlations for the Y Variables

           Intraclass              Intraclass
Intraclass
 Variable  Correlation   Variable  Correlation   Variable
Correlation

OCMAJOR      0.214      VWEMAJOR     0.193      JSMAJOR      0.135

COVARIANCE COVERAGE OF DATA

Minimum covariance coverage value   0.100

     PROPORTION OF DATA PRESENT
           Covariance Coverage
              OCMAJOR       VWEMAJOR      JSMAJOR       TACTMAJ
              ________      ________      ________      ________
 OCMAJOR        0.782
 VWEMAJOR       0.741         0.928
 JSMAJOR        0.763         0.890         0.959
 TACTMAJ        0.782         0.928         0.959         1.000

SAMPLE STATISTICS

NOTE:  The sample statistics for within and between refer to the
       maximum-likelihood estimated within and between covariance
       matrices, respectively.

     ESTIMATED SAMPLE STATISTICS FOR WITHIN

           Means
```

	OCMAJOR	VWEMAJOR	JSMAJOR	TACTMAJ
1	0.000	0.000	0.000	0.000

Covariances

	OCMAJOR	VWEMAJOR	JSMAJOR	TACTMAJ
OCMAJOR	0.637			
VWEMAJOR	0.156	4.800		
JSMAJOR	0.049	0.750	0.874	
TACTMAJ	0.174	1.670	0.474	3.172

Correlations

	OCMAJOR	VWEMAJOR	JSMAJOR	TACTMAJ
OCMAJOR	1.000			
VWEMAJOR	0.089	1.000		
JSMAJOR	0.066	0.366	1.000	
TACTMAJ	0.123	0.428	0.285	1.000

ESTIMATED SAMPLE STATISTICS FOR BETWEEN

Means

	OCMAJOR	VWEMAJOR	JSMAJOR	TACTMAJ
1	9.242	14.070	3.713	0.000

Covariances

	OCMAJOR	VWEMAJOR	JSMAJOR	TACTMAJ
OCMAJOR	0.173			
VWEMAJOR	0.087	1.149		
JSMAJOR	-0.010	0.129	0.136	
TACTMAJ	0.000	0.000	0.000	0.000

Correlations

	OCMAJOR	VWEMAJOR	JSMAJOR	TACTMAJ
OCMAJOR	1.000			
VWEMAJOR	0.195	1.000		
JSMAJOR	-0.067	0.326	1.000	
TACTMAJ	0.000	0.000	0.000	0.000

MAXIMUM LOG-LIKELIHOOD VALUE FOR THE UNRESTRICTED (H1) MODEL IS -1803.943

UNIVARIATE SAMPLE STATISTICS

```
     UNIVARIATE HIGHER-ORDER MOMENT DESCRIPTIVE STATISTICS

         Variable/         Mean/     Skewness/   Minimum/ % with
Percentiles
        Sample Size      Variance    Kurtosis    Maximum  Min/Max
20%/60%    40%/80%    Median

     OCMAJOR                9.270      -0.156       6.500    0.61%
8.500      9.000      9.250
             326.000        0.817       0.451      12.250    0.31%
9.500     10.000
     VWEMAJOR              14.037      -0.149       7.000    0.26%
12.000     13.500     14.000
             387.000        5.890      -0.154      19.750    0.52%
14.750     16.000
     JSMAJOR                3.710      -0.817       1.000    2.25%
3.000      4.000      4.000
             400.000        1.016      -0.035       5.000   18.50%
4.000      4.000
     TACTMAJ                0.000      -0.019      -5.399    0.24%
-1.649     -0.399      0.101
             417.000        3.172      -0.055       4.851    0.48%
0.351      1.601

     WARNING: THE MODEL ESTIMATION HAS REACHED A SADDLE POINT OR A
POINT WHERE THE
     OBSERVED AND THE EXPECTED INFORMATION MATRICES DO NOT MATCH.
     AN ADJUSTMENT TO THE ESTIMATION OF THE INFORMATION MATRIX HAS
BEEN MADE.
     THE CONDITION NUMBER IS      -0.233D-01.
     THE PROBLEM MAY ALSO BE RESOLVED BY DECREASING THE VALUE OF THE
     MCONVERGENCE OR LOGCRITERION OPTIONS OR BY CHANGING THE
STARTING VALUES
     OR BY USING THE MLF ESTIMATOR.

THE MODEL ESTIMATION TERMINATED NORMALLY

MODEL FIT INFORMATION

Number of Free Parameters                        21

Loglikelihood

          H0 Value                        -1795.399
          H0 Scaling Correction Factor       1.2167
            for MLR

Information Criteria
```

```
          Akaike (AIC)                        3632.798
          Bayesian (BIC)                      3717.493
          Sample-Size Adjusted BIC            3650.854
            (n* = (n + 2) / 24)

MODEL RESULTS

                                                    Two-Tailed
                    Estimate       S.E.  Est./S.E.    P-Value

Within Level

 VWEMAJOR WITH
    OCMAJOR            0.117      0.109      1.071      0.284

 JSMAJOR  WITH
    OCMAJOR            0.017      0.047      0.352      0.725
    VWEMAJOR           0.551      0.136      4.047      0.000

 Residual Variances
    OCMAJOR            0.605      0.053     11.394      0.000
    VWEMAJOR           3.792      0.397      9.545      0.000
    JSMAJOR            0.781      0.113      6.890      0.000

Between Level

 JSMAJOR  WITH
    BETA1J            -0.034      0.048     -0.707      0.480

 OCMAJOR  WITH
    BETA2J            -0.041      0.024     -1.682      0.093

 VWEMAJOR WITH
    BETA3J            -0.236      0.094     -2.495      0.073

 Means
    OCMAJOR            9.247      0.061    152.515      0.000
    VWEMAJOR          14.099      0.141    100.295      0.000
    JSMAJOR            3.716      0.056     66.149      0.000
    BETA1J             0.151      0.034      4.424      0.000
    BETA2J             0.046      0.031      1.490      0.136
    BETA3J             0.504      0.073      6.868      0.000

 Variances
    OCMAJOR            0.154      0.048      3.219      0.001
    VWEMAJOR           0.890      0.325      2.736      0.071
    JSMAJOR            0.128      0.064      1.998      0.064
```

```
    BETA1J              0.010       0.033       0.313       0.754
    BETA2J              0.014       0.017       0.832       0.405
    BETA3J              0.107       0.061       1.774       0.076

QUALITY OF NUMERICAL RESULTS
     Condition Number for the Information Matrix             -
0.233E-01
       (ratio of smallest to largest eigenvalue)
DIAGRAM INFORMATION
  Mplus diagrams are currently not available for multilevel
analysis.
  No diagram output was produced.
     Beginning Time:  14:41:33
        Ending Time:  14:41:37
       Elapsed Time:  00:00:04
MUTHEN & MUTHEN
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```

APPENDIX P - Hypothesis H_{1c} Test Results of Standardised Solution with Fixed Slope Models

```
Mplus VERSION 7.4
MUTHEN & MUTHEN
06/21/2015   6:46 PM

INPUT INSTRUCTIONS
   Title:
          H1c! Testing laissez-faire leadership FIXED slopes Models.

      Data:
          File=dataclean.dat;
      Variable:
          Names are
              RID     TeamCode Gender  Age   Company    City TenCom
     TenRole    WorkExp    Edu   Job
              Tformatt Tformbeh Tformmot Tformsti Tformcon Tformmaj
     OCac  OCcc
              OCnc OCmajor  VWEbasic VWEcont VWEteam VWEgrow
VWEmajor JSmajor
              TPmajor Tactrew Tactact Tactpass Tactmaj LFnotran
FPjob FPothers FPself  FPchan
              FPmajor FRlead     FRtrust    FRcour     FRneg FRmajor;
          Missing are all (99);
          Usevariables = TeamCode LFnotran OCmajor JSmajor;
          WITHIN = LFnotran;

          Cluster=TeamCode;

      DEFINE: Center LFnotran (Grandmean);

      Analysis: TYPE= twolevel;
                estimator=MLR;
      MODEL: %WITHIN%
              JSmajor ON LFnotran;
              OCmajor ON LFnotran;

              %BETWEEN%

      OUTPUT: samp stdyx;

*** WARNING
  Input line exceeded 90 characters. Some input may be truncated.
              TPmajor Tactrew Tactact Tactpass Tactmaj LFnotran
FPjob FPothers FPself  FPchang
```

```
*** WARNING in MODEL command
  A y-variable has been declared on the within level but not
referred to on
  the between level.  Please check that this is what is intended.
If this is not intended,
  specify the variable as a within variable.  Problem with:  OCMAJOR
*** WARNING in MODEL command
  A y-variable has been declared on the within level but not
referred to on
  the between level.  Please check that this is what is intended.
If this is not intended,
  specify the variable as a within variable.  Problem with:  JSMAJOR
*** WARNING
  Data set contains cases with missing on all variables.
  These cases were not included in the analysis.
  Number of cases with missing on all variables:  147
*** WARNING
  Data set contains cases with missing on x-variables.
  These cases were not included in the analysis.
  Number of cases with missing on x-variables:  35
*** WARNING
  Data set contains cases with missing on all variables except
  x-variables.  These cases were not included in the analysis.
  Number of cases with missing on all variables except x-variables:
8
   6 WARNING(S) FOUND IN THE INPUT INSTRUCTIONS

H1c! Testing laissez-faire leadership FIXED slopes Models.

SUMMARY OF ANALYSIS

Number of groups                                                 1
Number of observations                                         477

Number of dependent variables                                    2
Number of independent variables                                  1
Number of continuous latent variables                            0

Observed dependent variables
  Continuous
   OCMAJOR     JSMAJOR

Observed independent variables
   LFNOTRAN

Variables with special functions

  Cluster variable      TEAMCODE
```

```
  Within variables
   LFNOTRAN

  Centering (GRANDMEAN)
   LFNOTRAN

Estimator                                                      MLR
Information matrix                                        OBSERVED
Maximum number of iterations                                   100
Convergence criterion                                    0.100D-05
Maximum number of EM iterations                                500
Convergence criteria for the EM algorithm
  Loglikelihood change                                   0.100D-02
  Relative loglikelihood change                          0.100D-05
  Derivative                                             0.100D-03
Minimum variance                                         0.100D-03
Maximum number of steepest descent iterations                   20
Maximum number of iterations for H1                           2000
Convergence criterion for H1                             0.100D-03
Optimization algorithm                                         EMA

Input data file(s)
  dataclean.dat
Input data format  FREE

SUMMARY OF DATA

     Number of missing data patterns             3
     Number of clusters                        148

     Average cluster size        3.223

     Estimated Intraclass Correlations for the Y Variables

          Intraclass             Intraclass
  Variable  Correlation   Variable  Correlation

  OCMAJOR      0.175      JSMAJOR      0.140


COVARIANCE COVERAGE OF DATA

Minimum covariance coverage value   0.100

     PROPORTION OF DATA PRESENT

           Covariance Coverage
```

	OCMAJOR	JSMAJOR	LFNOTRAN
OCMAJOR	0.780		
JSMAJOR	0.757	0.977	
LFNOTRAN	0.780	0.977	1.000

SAMPLE STATISTICS

NOTE: The sample statistics for within and between refer to the maximum-likelihood estimated within and between covariance matrices, respectively.

ESTIMATED SAMPLE STATISTICS FOR WITHIN

Means

	OCMAJOR	JSMAJOR	LFNOTRAN
1	0.000	0.000	0.000

Covariances

	OCMAJOR	JSMAJOR	LFNOTRAN
OCMAJOR	0.661		
JSMAJOR	0.049	0.875	
LFNOTRAN	0.075	-0.071	0.660

Correlations

	OCMAJOR	JSMAJOR	LFNOTRAN
OCMAJOR	1.000		
JSMAJOR	0.064	1.000	
LFNOTRAN	0.113	-0.094	1.000

ESTIMATED SAMPLE STATISTICS FOR BETWEEN

Means

	OCMAJOR	JSMAJOR	LFNOTRAN
1	9.237	3.774	0.000

Covariances

	OCMAJOR	JSMAJOR	LFNOTRAN
OCMAJOR	0.140		
JSMAJOR	0.004	0.143	
LFNOTRAN	0.000	0.000	0.000

Correlations

	OCMAJOR	JSMAJOR	LFNOTRAN
OCMAJOR	1.000		
JSMAJOR	0.028	1.000	
LFNOTRAN	0.000	0.000	0.000

MAXIMUM LOG-LIKELIHOOD VALUE FOR THE UNRESTRICTED (H1) MODEL IS -1134.187

UNIVARIATE SAMPLE STATISTICS

UNIVARIATE HIGHER-ORDER MOMENT DESCRIPTIVE STATISTICS

Variable/ Sample Size	Mean/ Variance	Skewness/ Kurtosis	Minimum/ Maximum	% with Min/Max	Percentiles 20%/60%	40%/80%	Median
OCMAJOR	9.278	-0.169	6.500	0.54%	8.500	9.130	9.250
372.000	0.807	0.339	12.250	0.27%	9.500	10.000	
JSMAJOR	3.777	-0.933	1.000	2.58%	3.000	4.000	4.000
466.000	1.019	0.258	5.000	21.03%	4.000	5.000	
LFNOTRAN	0.000	0.900	-0.976	16.35%	-0.726	-0.226	-0.226
477.000	0.660	0.443	2.524	1.47%	0.024	0.524	

THE MODEL ESTIMATION TERMINATED NORMALLY

MODEL FIT INFORMATION

Number of Free Parameters 9

Loglikelihood

H0 Value	-1134.190
H0 Scaling Correction Factor for MLR	1.1097
H1 Value	-1134.187
H1 Scaling Correction Factor for MLR	1.1441

Information Criteria

Akaike (AIC)	2286.380
Bayesian (BIC)	2323.888

```
          Sample-Size Adjusted BIC        2295.323
            (n* = (n + 2) / 24)

Chi-Square Test of Model Fit

          Value                              0.005*
          Degrees of Freedom                     1
          P-Value                           0.9447
          Scaling Correction Factor         1.4534
            for MLR
*   The chi-square value for MLM, MLMV, MLR, ULSMV, WLSM and WLSMV
cannot be used
    for chi-square difference testing in the regular way.  MLM, MLR
and WLSM
    chi-square difference testing is described on the Mplus website.
MLMV, WLSMV,
    and ULSMV difference testing is done using the DIFFTEST option.

RMSEA (Root Mean Square Error Of Approximation)

          Estimate                           0.000

CFI/TLI

          CFI                                1.000
          TLI                                2.162

Chi-Square Test of Model Fit for the Baseline Model

          Value                              7.427
          Degrees of Freedom                     4
          P-Value                           0.1150

SRMR (Standardized Root Mean Square Residual)

          Value for Within                   0.001
          Value for Between                  0.016
MODEL RESULTS
                                                    Two-Tailed
                    Estimate       S.E.  Est./S.E.    P-Value

Within Level

 JSMAJOR    ON
    LFNOTRAN          -0.108      0.064     -1.690      0.091

 OCMAJOR    ON
    LFNOTRAN           0.113      0.061      1.865      0.062
```

```
 JSMAJOR  WITH
    OCMAJOR            0.059      0.045      1.298      0.194

 Residual Variances
    OCMAJOR            0.654      0.060     10.985      0.000
    JSMAJOR            0.868      0.079     11.050      0.000

Between Level

 Means
    OCMAJOR            9.238      0.055    167.557      0.000
    JSMAJOR            3.775      0.056     67.470      0.000

 Variances
    OCMAJOR            0.139      0.044      3.155      0.002
    JSMAJOR            0.141      0.051      2.763      0.006

STANDARDIZED MODEL RESULTS
STDYX Standardization
                                                    Two-Tailed
                    Estimate       S.E.  Est./S.E.    P-Value
Within Level

 JSMAJOR    ON
    LFNOTRAN          -0.094      0.055     -1.701      0.089

 OCMAJOR    ON
    LFNOTRAN           0.113      0.061      1.849      0.065

 JSMAJOR  WITH
    OCMAJOR            0.078      0.059      1.313      0.189

 Residual Variances
    OCMAJOR            0.987      0.014     71.323      0.000
    JSMAJOR            0.991      0.010     95.881      0.000

Between Level

 Means
    OCMAJOR           24.799      3.938      6.298      0.000
    JSMAJOR           10.068      1.876      5.368      0.000

 Variances
    OCMAJOR            1.000      0.000    999.000    999.000
    JSMAJOR            1.000      0.000    999.000    999.000
R-SQUARE
Within Level
```

```
    Observed                                                      Two-Tailed
    Variable        Estimate       S.E.  Est./S.E.    P-Value

    OCMAJOR            0.013      0.014      0.924      0.355
    JSMAJOR            0.009      0.010      0.851      0.395
Between Level
QUALITY OF NUMERICAL RESULTS
     Condition Number for the Information Matrix
0.255E-01
       (ratio of smallest to largest eigenvalue)
DIAGRAM INFORMATION
  Mplus diagrams are currently not available for multilevel
analysis.
  No diagram output was produced.
     Beginning Time:  18:46:15
        Ending Time:  18:46:16
       Elapsed Time:  00:00:01
MUTHEN & MUTHEN
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Web: www.StatModel.com
Support: Support@StatModel.com

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```

APPENDIX Q - Hypothesis H_{1c} Test Results of Random Slopes Models

```
Mplus VERSION 7.4
MUTHEN & MUTHEN
06/10/2015   2:57 PM
INPUT INSTRUCTIONS
    Title:
        H1c! Testing laissez-faire leadership random slope models.

    Data:
        File=dataclean.dat;

    Variable:
        Names are
            RID  TeamCode Gender  Age   Company    City TenCom
     TenRole    WorkExp    Edu   Job
            Tformatt Tformbeh Tformmot Tformsti Tformcon Tformmaj
     OCac  OCcc
            OCnc OCmajor    VWEbasic VWEcont VWEteam VWEgrow
VWEmajor JSmajor
            TPmajor Tactrew Tactact Tactpass Tactmaj LFnotran FPjob
     FPothers FPself  FPchange
            FPmajor FRlead FRtrust    FRcour     FRneg FRmajor;
        Missing are all (99);
        Usevariables = TeamCode LFnotran OCmajor JSmajor;
        WITHIN = LFnotran;

        Cluster=TeamCode;

    DEFINE: Center LFnotran (Grandmean);

    Analysis: TYPE= twolevel random;
              estimator=MLR;
    MODEL: %WITHIN%
            JSmajor ON LFnotran;
            OCmajor ON LFnotran;

            %BETWEEN%

    OUTPUT: sampstat;
*** WARNING in MODEL command
  A y-variable has been declared on the within level but not
referred to on
  the between level.  Please check that this is what is intended.
If this is not intended,
```

```
  specify the variable as a within variable.  Problem with:  OCMAJOR
*** WARNING in MODEL command
  A y-variable has been declared on the within level but not
referred to on
  the between level.  Please check that this is what is intended.
If this is not intended,
  specify the variable as a within variable.  Problem with:  JSMAJOR
*** WARNING
  Data set contains cases with missing on all variables.
  These cases were not included in the analysis.
  Number of cases with missing on all variables:  147
*** WARNING
  Data set contains cases with missing on x-variables.
  These cases were not included in the analysis.
  Number of cases with missing on x-variables:  35
*** WARNING
  Data set contains cases with missing on all variables except
  x-variables.  These cases were not included in the analysis.
  Number of cases with missing on all variables except x-variables:
8
   5 WARNING(S) FOUND IN THE INPUT INSTRUCTIONS
H1c! Testing laissez-faire leadership random slope models.

SUMMARY OF ANALYSIS
Number of groups                                                 1
Number of observations                                         477

Number of dependent variables                                    2
Number of independent variables                                  1
Number of continuous latent variables                            0

Observed dependent variables

  Continuous
   OCMAJOR     JSMAJOR

Observed independent variables
   LFNOTRAN

Variables with special functions

  Cluster variable      TEAMCODE

  Within variables
   LFNOTRAN

  Centering (GRANDMEAN)
   LFNOTRAN
```

```
Estimator                                                    MLR
Information matrix                                      OBSERVED
Maximum number of iterations                                 100
Convergence criterion                                  0.100D-05
Maximum number of EM iterations                              500
Convergence criteria for the EM algorithm
  Loglikelihood change                                 0.100D-02
  Relative loglikelihood change                        0.100D-05
  Derivative                                           0.100D-03
Minimum variance                                       0.100D-03
Maximum number of steepest descent iterations                 20
Maximum number of iterations for H1                         2000
Convergence criterion for H1                           0.100D-03
Optimization algorithm                                       EMA

Input data file(s)
  dataclean.dat
Input data format  FREE
SUMMARY OF DATA

     Number of missing data patterns             3
     Number of clusters                        148

     Average cluster size        3.223

     Estimated Intraclass Correlations for the Y Variables

           Intraclass              Intraclass
   Variable  Correlation   Variable  Correlation

   OCMAJOR      0.175      JSMAJOR      0.140
COVARIANCE COVERAGE OF DATA

Minimum covariance coverage value   0.100


     PROPORTION OF DATA PRESENT

           Covariance Coverage
              OCMAJOR       JSMAJOR       LFNOTRAN
              ________      ________      ________
 OCMAJOR        0.780
 JSMAJOR        0.757         0.977
 LFNOTRAN       0.780         0.977         1.000

SAMPLE STATISTICS
```

```
NOTE:  The sample statistics for within and between refer to the
       maximum-likelihood estimated within and between covariance
       matrices, respectively.

     ESTIMATED SAMPLE STATISTICS FOR WITHIN

           Means
              OCMAJOR       JSMAJOR       LFNOTRAN
              ________      ________      ________
 1              0.000         0.000         0.000


           Covariances
              OCMAJOR       JSMAJOR       LFNOTRAN
              ________      ________      ________
 OCMAJOR        0.661
 JSMAJOR        0.049         0.875
 LFNOTRAN       0.075        -0.071         0.660


           Correlations
              OCMAJOR       JSMAJOR       LFNOTRAN
              ________      ________      ________
 OCMAJOR        1.000
 JSMAJOR        0.064         1.000
 LFNOTRAN       0.113        -0.094         1.000

     ESTIMATED SAMPLE STATISTICS FOR BETWEEN
           Means
              OCMAJOR       JSMAJOR       LFNOTRAN
              ________      ________      ________
 1              9.237         3.774         0.000

           Covariances
              OCMAJOR       JSMAJOR       LFNOTRAN
              ________      ________      ________
 OCMAJOR        0.140
 JSMAJOR        0.004         0.143
 LFNOTRAN       0.000         0.000         0.000

           Correlations
              OCMAJOR       JSMAJOR       LFNOTRAN
              ________      ________      ________
 OCMAJOR        1.000
 JSMAJOR        0.028         1.000
 LFNOTRAN       0.000         0.000         0.000 MAXIMUM LOG-
LIKELIHOOD VALUE FOR THE UNRESTRICTED (H1) MODEL IS -1134.187
UNIVARIATE SAMPLE STATISTICS
```

UNIVARIATE HIGHER-ORDER MOMENT DESCRIPTIVE STATISTICS

```
     Variable/         Mean/     Skewness/   Minimum/ % with
Percentiles
        Sample Size      Variance    Kurtosis    Maximum  Min/Max
20%/60%    40%/80%    Median

     OCMAJOR               9.278      -0.169       6.500    0.54%
8.500      9.130      9.250
              372.000      0.807       0.339      12.250    0.27%
9.500     10.000
     JSMAJOR               3.777      -0.933       1.000    2.58%
3.000      4.000      4.000
              466.000      1.019       0.258       5.000   21.03%
4.000      5.000
     LFNOTRAN              0.000       0.900      -0.976   16.35%
-0.726     -0.226     -0.226
              477.000      0.660       0.443       2.524    1.47%
0.024      0.524
```

THE MODEL ESTIMATION TERMINATED NORMALLY

MODEL FIT INFORMATION

```
Number of Free Parameters                        9

Loglikelihood

          H0 Value                       -1134.190
          H0 Scaling Correction Factor      1.1097
            for MLR
          H1 Value                       -1134.187
          H1 Scaling Correction Factor      1.1441
            for MLR

Information Criteria

          Akaike (AIC)                    2286.380
          Bayesian (BIC)                  2323.888
          Sample-Size Adjusted BIC        2295.323
            (n* = (n + 2) / 24)

Chi-Square Test of Model Fit

          Value                              0.005*
          Degrees of Freedom                     1
          P-Value                           0.9447
          Scaling Correction Factor         1.4534
```

```
            for MLR
*   The chi-square value for MLM, MLMV, MLR, ULSMV, WLSM and WLSMV
cannot be used
    for chi-square difference testing in the regular way.  MLM, MLR
and WLSM
    chi-square difference testing is described on the Mplus website.
MLMV, WLSMV,
    and ULSMV difference testing is done using the DIFFTEST option.

RMSEA (Root Mean Square Error Of Approximation)

          Estimate                           0.000

CFI/TLI

          CFI                                1.000
          TLI                                2.162
Chi-Square Test of Model Fit for the Baseline Model

          Value                              7.427
          Degrees of Freedom                     4
          P-Value                           0.1150
SRMR (Standardized Root Mean Square Residual)

          Value for Within                   0.001
          Value for Between                  0.016

MODEL RESULTS
                                                    Two-Tailed
                    Estimate       S.E.  Est./S.E.    P-Value
Within Level

 JSMAJOR    ON
    LFNOTRAN          -0.108      0.064     -1.690      0.091

 OCMAJOR    ON
    LFNOTRAN           0.113      0.061      1.865      0.062

 JSMAJOR  WITH
    OCMAJOR            0.059      0.045      1.298      0.194

 Residual Variances
    OCMAJOR            0.654      0.060     10.985      0.000
    JSMAJOR            0.868      0.079     11.050      0.000
Between Level
 Means
    OCMAJOR            9.238      0.055    167.557      0.000
    JSMAJOR            3.775      0.056     67.470      0.000
```

```
 Variances
    OCMAJOR            0.139      0.044      3.155      0.002
    JSMAJOR            0.141      0.051      2.763      0.006
QUALITY OF NUMERICAL RESULTS

     Condition Number for the Information Matrix
0.255E-01
       (ratio of smallest to largest eigenvalue)
DIAGRAM INFORMATION
  Mplus diagrams are currently not available for multilevel
analysis.
  No diagram output was produced.
     Beginning Time:  14:57:50
        Ending Time:  14:57:50
       Elapsed Time:  00:00:00
MUTHEN & MUTHEN
3463 Stoner Ave.
Los Angeles, CA  90066
Tel: (310) 391-9971
Fax: (310) 391-8971
Web: www.StatModel.com. Support: Support@StatModel.com. Copyright
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```

APPENDIX R - Hypothesis H_{2a}Test Results of Standardised Solution with Fixed Slope Models

```
Mplus VERSION 7.4
MUTHEN & MUTHEN
06/22/2015   5:06 PM

INPUT INSTRUCTIONS
  Title:
            H2a! TESTING FOLLWER PERFORMANCE
CHARACTARISTICS.STANDERDISED.SOLUTION.FIXED.SLOPE

        Data:
            File=dataclean.dat;

        Variable:
            Names are
                RID   TeamCode Gender  Age   Company    City TenCom
     TenRole    WorkExp    Edu   Job
                Tformatt Tformbeh Tformmot Tformsti Tformcon
Tformmaj   OCac  OCcc
                OCnc OCmajor     VWEbasic VWEcont VWEteam VWEgrow
VWEmajor JSmajor
                TPmajor Tactrew Tactact Tactpass Tactmaj LFnotran
FPjob FPothers FPself  FPch
                FPmajor FRlead   FRtrust    FRcour     FRneg FRmajor;
            Missing are all (99);
            Usevariables = TeamCode FPmajor OCmajor VWEmajor
JSmajor;
            WITHIN = FPmajor;

            Cluster=TeamCode;

        DEFINE: Center FPmajor (Grandmean);

        Analysis: TYPE= twolevel;
                  estimator=MLR;
        MODEL: %WITHIN%
                JSmajor ON FPmajor;
                OCmajor ON FPmajor;
                VWEmajor ON FPmajor;
                %BETWEEN%
        OUTPUT: samp STDYX;

*** WARNING
  Input line exceeded 90 characters. Some input may be truncated.
```

```
            H2a! TESTING FOLLWER PERFORMANCE
CHARACTARISTICS.STANDERDISED.SOLUTION.FIXED.SLOP
*** WARNING
  Input line exceeded 90 characters. Some input may be truncated.
                TPmajor Tactrew Tactact Tactpass Tactmaj LFnotran
FPjob FPothers FPself FPcha
*** WARNING in MODEL command
  A y-variable has been declared on the within level but not
referred to on
  the between level.  Please check that this is what is intended.
If this is not intended,
  specify the variable as a within variable.  Problem with:  OCMAJOR
*** WARNING in MODEL command
  A y-variable has been declared on the within level but not
referred to on
  the between level.  Please check that this is what is intended.
If this is not intended,
  specify the variable as a within variable.  Problem with:
VWEMAJOR
*** WARNING in MODEL command
  A y-variable has been declared on the within level but not
referred to on
  the between level.  Please check that this is what is intended.
If this is not intended,
  specify the variable as a within variable.  Problem with:  JSMAJOR
*** WARNING
  Data set contains cases with missing on all variables.
  These cases were not included in the analysis.
  Number of cases with missing on all variables:  145
*** WARNING
  Data set contains cases with missing on x-variables.
  These cases were not included in the analysis.
  Number of cases with missing on x-variables:  91
*** WARNING
  Data set contains cases with missing on all variables except
  x-variables.  These cases were not included in the analysis.
  Number of cases with missing on all variables except x-variables:
1
   8 WARNING(S) FOUND IN THE INPUT INSTRUCTIONS
H2a! TESTING FOLLWER PERFORMANCE
CHARACTARISTICS.STANDERDISED.SOLUTION.FIXED.SLOPE

SUMMARY OF ANALYSIS

Number of groups                                                 1
Number of observations                                         430

Number of dependent variables                                    3
```

```
Number of independent variables                                  1
Number of continuous latent variables                            0

Observed dependent variables

  Continuous
   OCMAJOR     VWEMAJOR    JSMAJOR

Observed independent variables
   FPMAJOR

Variables with special functions
  Cluster variable      TEAMCODE

  Within variables
   FPMAJOR

  Centering (GRANDMEAN)
   FPMAJOR

Estimator                                                      MLR
Information matrix                                        OBSERVED
Maximum number of iterations                                   100
Convergence criterion                                    0.100D-05
Maximum number of EM iterations                                500
Convergence criteria for the EM algorithm
  Loglikelihood change                                   0.100D-02
  Relative loglikelihood change                          0.100D-05
  Derivative                                             0.100D-03
Minimum variance                                         0.100D-03
Maximum number of steepest descent iterations                   20
Maximum number of iterations for H1                           2000
Convergence criterion for H1                             0.100D-03
Optimization algorithm                                         EMA

Input data file(s)
  dataclean.dat
Input data format  FREE
SUMMARY OF DATA

     Number of missing data patterns             7
     Number of clusters                        146

     Average cluster size        2.945

     Estimated Intraclass Correlations for the Y Variables

        Intraclass              Intraclass              Intraclass
```

Variable Correlation Variable Correlation Variable
Correlation

OCMAJOR	0.227	VWEMAJOR	0.156	JSMAJOR	0.123

COVARIANCE COVERAGE OF DATA

Minimum covariance coverage value 0.100

PROPORTION OF DATA PRESENT

Covariance Coverage

	OCMAJOR	VWEMAJOR	JSMAJOR	FPMAJOR
OCMAJOR	0.756			
VWEMAJOR	0.714	0.919		
JSMAJOR	0.730	0.877	0.953	
FPMAJOR	0.756	0.919	0.953	1.000

SAMPLE STATISTICS

NOTE: The sample statistics for within and between refer to the maximum-likelihood estimated within and between covariance matrices, respectively.

ESTIMATED SAMPLE STATISTICS FOR WITHIN

Means

	OCMAJOR	VWEMAJOR	JSMAJOR	FPMAJOR
1	0.000	0.000	0.000	0.000

Covariances

	OCMAJOR	VWEMAJOR	JSMAJOR	FPMAJOR
OCMAJOR	0.635			
VWEMAJOR	0.175	5.097		
JSMAJOR	0.020	0.634	0.877	
FPMAJOR	0.205	1.615	0.246	3.743

Correlations

	OCMAJOR	VWEMAJOR	JSMAJOR	FPMAJOR
OCMAJOR	1.000			
VWEMAJOR	0.097	1.000		
JSMAJOR	0.027	0.300	1.000	
FPMAJOR	0.133	0.370	0.136	1.000

ESTIMATED SAMPLE STATISTICS FOR BETWEEN

Means

	OCMAJOR	VWEMAJOR	JSMAJOR	FPMAJOR
1	9.203	13.933	3.741	0.000

Covariances

	OCMAJOR	VWEMAJOR	JSMAJOR	FPMAJOR
OCMAJOR	0.186			
VWEMAJOR	0.148	0.942		
JSMAJOR	0.033	0.166	0.123	
FPMAJOR	0.000	0.000	0.000	0.000

Correlations

	OCMAJOR	VWEMAJOR	JSMAJOR	FPMAJOR
OCMAJOR	1.000			
VWEMAJOR	0.353	1.000		
JSMAJOR	0.219	0.487	1.000	
FPMAJOR	0.000	0.000	0.000	0.000

MAXIMUM LOG-LIKELIHOOD VALUE FOR THE UNRESTRICTED (H1) MODEL IS -1857.456

UNIVARIATE SAMPLE STATISTICS

UNIVARIATE HIGHER-ORDER MOMENT DESCRIPTIVE STATISTICS

Variable/ Sample Size	Mean/ Variance	Skewness/ Kurtosis	Minimum/ Maximum	% with Min/Max	Percentiles 20%/60%	40%/80%	Median
OCMAJOR	9.244	-0.130	6.500	0.31%	8.500	9.130	9.250
325.000	0.814	0.288	12.250	0.31%	9.500	10.000	
VWEMAJOR	13.982	-0.109	7.000	0.25%	11.750	13.500	14.000
395.000	5.989	-0.145	19.750	0.76%	14.500	16.000	
JSMAJOR	3.739	-0.895	1.000	2.44%	3.000	4.000	4.000
410.000	0.993	0.196	5.000	18.78%	4.000	4.000	
FPMAJOR	0.000	-0.193	-6.394	0.23%			

```
-1.644     -0.394      0.106
             430.000       3.743      -0.016       4.356    0.23%
0.356      1.606

THE MODEL ESTIMATION TERMINATED NORMALLY
MODEL FIT INFORMATION

Number of Free Parameters                        15

Loglikelihood

          H0 Value                        -1859.148
          H0 Scaling Correction Factor      1.1518
            for MLR
          H1 Value                        -1857.456
          H1 Scaling Correction Factor      1.1464
            for MLR

Information Criteria

          Akaike (AIC)                     3748.295
          Bayesian (BIC)                   3809.252
          Sample-Size Adjusted BIC         3761.651
            (n* = (n + 2) / 24)

Chi-Square Test of Model Fit

          Value                               3.024*
          Degrees of Freedom                      3
          P-Value                            0.3879
          Scaling Correction Factor          1.1190
            for MLR

*   The chi-square value for MLM, MLMV, MLR, ULSMV, WLSM and WLSMV
cannot be used
    for chi-square difference testing in the regular way.  MLM, MLR
and WLSM
    chi-square difference testing is described on the Mplus website.
MLMV, WLSMV,
    and ULSMV difference testing is done using the DIFFTEST option.

RMSEA (Root Mean Square Error Of Approximation)

          Estimate                            0.004

CFI/TLI

          CFI                                 1.000
```

TLI 0.999

Chi-Square Test of Model Fit for the Baseline Model

Value	78.635
Degrees of Freedom	9
P-Value	0.0000

SRMR (Standardized Root Mean Square Residual)

Value for Within	0.020
Value for Between	0.261

MODEL RESULTS

	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
Within Level				
JSMAJOR ON				
FPMAJOR	0.066	0.027	2.473	0.013
OCMAJOR ON				
FPMAJOR	0.056	0.030	1.846	0.065
VWEMAJOR ON				
FPMAJOR	0.424	0.062	6.870	0.000
VWEMAJOR WITH				
OCMAJOR	0.166	0.107	1.552	0.121
JSMAJOR WITH				
OCMAJOR	0.027	0.052	0.522	0.602
VWEMAJOR	0.636	0.133	4.776	0.000
Residual Variances				
OCMAJOR	0.634	0.063	10.027	0.000
VWEMAJOR	4.594	0.455	10.102	0.000
JSMAJOR	0.896	0.094	9.577	0.000
Between Level				
Means				
OCMAJOR	9.204	0.060	152.785	0.000
VWEMAJOR	13.952	0.135	103.630	0.000
JSMAJOR	3.744	0.055	68.377	0.000
Variances				
OCMAJOR	0.170	0.049	3.442	0.001

```
    VWEMAJOR           0.665      0.326      2.039      0.041
    JSMAJOR            0.076      0.055      1.384      0.166
STANDARDIZED MODEL RESULTS
STDYX Standardization

                                                    Two-Tailed
                    Estimate       S.E.  Est./S.E.    P-Value
Within Level

 JSMAJOR    ON
    FPMAJOR            0.133      0.054      2.464      0.014

 OCMAJOR    ON
    FPMAJOR            0.134      0.073      1.833      0.067

 VWEMAJOR   ON
    FPMAJOR            0.358      0.049      7.266      0.000

 VWEMAJOR WITH
    OCMAJOR            0.097      0.062      1.558      0.119

 JSMAJOR  WITH
    OCMAJOR            0.036      0.069      0.523      0.601
    VWEMAJOR           0.314      0.059      5.290      0.000

 Residual Variances
    OCMAJOR            0.982      0.020     50.032      0.000
    VWEMAJOR           0.872      0.035     24.772      0.000
    JSMAJOR            0.982      0.014     68.113      0.000

Between Level

 Means
    OCMAJOR           22.352      3.254      6.869      0.000
    VWEMAJOR          17.109      4.211      4.063      0.000
    JSMAJOR           13.607      4.950      2.749      0.006

 Variances
    OCMAJOR            1.000      0.000    999.000    999.000
    VWEMAJOR           1.000      0.000    999.000    999.000
    JSMAJOR            1.000      0.000    999.000    999.000
R-SQUARE
Within Level
    Observed                                        Two-Tailed
    Variable        Estimate       S.E.  Est./S.E.    P-Value

    OCMAJOR            0.018      0.020      0.916      0.359
    VWEMAJOR           0.128      0.035      3.633      0.000
```

```
    JSMAJOR             0.018       0.014       1.232       0.001

Between Level
QUALITY OF NUMERICAL RESULTS

     Condition Number for the Information Matrix
0.135E-02
       (ratio of smallest to largest eigenvalue)
DIAGRAM INFORMATION

  Mplus diagrams are currently not available for multilevel
analysis.
  No diagram output was produced.
     Beginning Time:  17:06:59
        Ending Time:  17:07:01
       Elapsed Time:  00:00:02
MUTHEN & MUTHEN
3463 Stoner Ave.
Los Angeles, CA  90066

Tel: (310) 391-9971
Fax: (310) 391-8971
Web: www.StatModel.com
Support: Support@StatModel.com

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```

APPENDIX S - Hypothesis H_{2a}Test Results of Random Slopes Models

```
Mplus VERSION 7.4
MUTHEN & MUTHEN
06/10/2015   3:24 PM

INPUT INSTRUCTIONS
   Title:
          H2a! TESTING FOLLWER PERFORMANCE CHARACTERISTICS RANDOM
SLOPES MODELS.

      Data:
          File=dataclean.dat;

      Variable:
          Names are
              RID     TeamCode Gender  Age   Company    City TenCom
      TenRole    WorkExp    Edu   Job
              Tformatt Tformbeh Tformmot Tformsti Tformcon Tformmaj
      OCac  OCcc
              OCnc OCmajor  VWEbasic VWEcont VWEteam VWEgrow
VWEmajor JSmajor
              TPmajor Tactrew Tactact Tactpass Tactmaj LFnotran
FPjob FPothers FPself  FPchan
              FPmajor FRlead     FRtrust    FRcour     FRneg FRmajor;
          Missing are all (99);
          Usevariables = TeamCode FPmajor OCmajor VWEmajor JSmajor;
          WITHIN = FPmajor;

          Cluster=TeamCode;

      DEFINE: Center FPmajor (Grandmean);

      Analysis: TYPE= twolevel random;
                estimator=MLR;
      MODEL: %WITHIN%
              JSmajor ON FPmajor;
              OCmajor ON FPmajor;
              VWEmajor ON FPmajor;
              %BETWEEN%

      OUTPUT: sampstat;
*** WARNING
  Input line exceeded 90 characters. Some input may be truncated.
```

```
              TPmajor Tactrew Tactact Tactpass Tactmaj LFnotran
FPjob FPothers FPself  FPchang
*** WARNING in MODEL command
  A y-variable has been declared on the within level but not
referred to on
  the between level.  Please check that this is what is intended.
If this is not intended,
  specify the variable as a within variable.  Problem with:  OCMAJOR
*** WARNING in MODEL command
  A y-variable has been declared on the within level but not
referred to on
  the between level.  Please check that this is what is intended.
If this is not intended,
  specify the variable as a within variable.  Problem with:
VWEMAJOR
*** WARNING in MODEL command
  A y-variable has been declared on the within level but not
referred to on
  the between level.  Please check that this is what is intended.
If this is not intended,
  specify the variable as a within variable.  Problem with:  JSMAJOR
*** WARNING
  Data set contains cases with missing on all variables.
  These cases were not included in the analysis.
  Number of cases with missing on all variables:  145
*** WARNING
  Data set contains cases with missing on x-variables.
  These cases were not included in the analysis.
  Number of cases with missing on x-variables:  91
*** WARNING
  Data set contains cases with missing on all variables except
  x-variables.  These cases were not included in the analysis.
  Number of cases with missing on all variables except x-variables:
1
   7 WARNING(S) FOUND IN THE INPUT INSTRUCTIONS
H2a! TESTING FOLLWER PERFORMANCE CHARACTERISTICS RANDOM SLOPES
MODELS.
SUMMARY OF ANALYSIS
Number of groups                                                 1
Number of observations                                         430

Number of dependent variables                                    3
Number of independent variables                                  1
Number of continuous latent variables                            0

Observed dependent variables

  Continuous
```

```
   OCMAJOR     VWEMAJOR    JSMAJOR

Observed independent variables
   FPMAJOR

Variables with special functions
  Cluster variable      TEAMCODE

  Within variables
   FPMAJOR
  Centering (GRANDMEAN)
   FPMAJOR

Estimator                                                      MLR
Information matrix                                        OBSERVED
Maximum number of iterations                                   100
Convergence criterion                                    0.100D-05
Maximum number of EM iterations                                500
Convergence criteria for the EM algorithm
  Loglikelihood change                                   0.100D-02
  Relative loglikelihood change                          0.100D-05
  Derivative                                             0.100D-03
Minimum variance                                         0.100D-03
Maximum number of steepest descent iterations                   20
Maximum number of iterations for H1                           2000
Convergence criterion for H1                             0.100D-03
Optimization algorithm                                         EMA

Input data file(s)
  dataclean.dat
Input data format  FREE
SUMMARY OF DATA

     Number of missing data patterns            7
     Number of clusters                       146

     Average cluster size        2.945

     Estimated Intraclass Correlations for the Y Variables

         Intraclass                Intraclass                Intraclass
 Variable  Correlation   Variable  Correlation   Variable
Correlation

 OCMAJOR      0.227      VWEMAJOR     0.156      JSMAJOR      0.123
COVARIANCE COVERAGE OF DATA

Minimum covariance coverage value   0.100
```

PROPORTION OF DATA PRESENT

Covariance Coverage

	OCMAJOR	VWEMAJOR	JSMAJOR	FPMAJOR
OCMAJOR	0.756			
VWEMAJOR	0.714	0.919		
JSMAJOR	0.730	0.877	0.953	
FPMAJOR	0.756	0.919	0.953	1.000

SAMPLE STATISTICS

NOTE: The sample statistics for within and between refer to the maximum-likelihood estimated within and between covariance matrices, respectively.

ESTIMATED SAMPLE STATISTICS FOR WITHIN

Means

	OCMAJOR	VWEMAJOR	JSMAJOR	FPMAJOR
1	0.000	0.000	0.000	0.000

Covariances

	OCMAJOR	VWEMAJOR	JSMAJOR	FPMAJOR
OCMAJOR	0.635			
VWEMAJOR	0.175	5.097		
JSMAJOR	0.020	0.634	0.877	
FPMAJOR	0.205	1.615	0.246	3.743

Correlations

	OCMAJOR	VWEMAJOR	JSMAJOR	FPMAJOR
OCMAJOR	1.000			
VWEMAJOR	0.097	1.000		
JSMAJOR	0.027	0.300	1.000	
FPMAJOR	0.133	0.370	0.136	1.000

ESTIMATED SAMPLE STATISTICS FOR BETWEEN

Means

	OCMAJOR	VWEMAJOR	JSMAJOR	FPMAJOR
1	9.203	13.933	3.741	0.000

```
           Covariances
              OCMAJOR       VWEMAJOR      JSMAJOR       FPMAJOR
              ________      ________      ________      ________
 OCMAJOR        0.186
 VWEMAJOR       0.148         0.942
 JSMAJOR        0.033         0.166         0.123
 FPMAJOR        0.000         0.000         0.000         0.000


           Correlations
              OCMAJOR       VWEMAJOR      JSMAJOR       FPMAJOR
              ________      ________      ________      ________
 OCMAJOR        1.000
 VWEMAJOR       0.353         1.000
 JSMAJOR        0.219         0.487         1.000
 FPMAJOR        0.000         0.000         0.000         0.000

     MAXIMUM LOG-LIKELIHOOD VALUE FOR THE UNRESTRICTED (H1) MODEL IS
-1857.456

UNIVARIATE SAMPLE STATISTICS

     UNIVARIATE HIGHER-ORDER MOMENT DESCRIPTIVE STATISTICS

         Variable/         Mean/     Skewness/   Minimum/ % with
Percentiles
        Sample Size      Variance    Kurtosis    Maximum  Min/Max
20%/60%    40%/80%    Median

     OCMAJOR               9.244      -0.130       6.500    0.31%
8.500      9.130      9.250
             325.000       0.814       0.288      12.250    0.31%
9.500     10.000
     VWEMAJOR             13.982      -0.109       7.000    0.25%
11.750     13.500     14.000
             395.000       5.989      -0.145      19.750    0.76%
14.500     16.000
     JSMAJOR               3.739      -0.895       1.000    2.44%
3.000      4.000      4.000
             410.000       0.993       0.196       5.000   18.78%
4.000      4.000
     FPMAJOR               0.000      -0.193      -6.394    0.23%
-1.644     -0.394      0.106
             430.000       3.743      -0.016       4.356    0.23%
0.356      1.606

THE MODEL ESTIMATION TERMINATED NORMALLY
```

```
MODEL FIT INFORMATION

Number of Free Parameters                       15

Loglikelihood

          H0 Value                       -1859.148
          H0 Scaling Correction Factor      1.1518
            for MLR
          H1 Value                       -1857.456
          H1 Scaling Correction Factor      1.1464
            for MLR

Information Criteria

          Akaike (AIC)                    3748.295
          Bayesian (BIC)                  3809.252
          Sample-Size Adjusted BIC        3761.651
            (n* = (n + 2) / 24)

Chi-Square Test of Model Fit

          Value                              3.024*
          Degrees of Freedom                     3
          P-Value                           0.3879
          Scaling Correction Factor         1.1190
            for MLR
*   The chi-square value for MLM, MLMV, MLR, ULSMV, WLSM and WLSMV
cannot be used
    for chi-square difference testing in the regular way.  MLM, MLR
and WLSM
    chi-square difference testing is described on the Mplus website.
MLMV, WLSMV,
    and ULSMV difference testing is done using the DIFFTEST option.

RMSEA (Root Mean Square Error Of Approximation)

          Estimate                           0.004

CFI/TLI

          CFI                                1.000
          TLI                                0.999

Chi-Square Test of Model Fit for the Baseline Model

          Value                             78.635
```

```
          Degrees of Freedom                        9
          P-Value                              0.0000

SRMR (Standardized Root Mean Square Residual)

          Value for Within                      0.020
          Value for Between                     0.261

MODEL RESULTS
                                                        Two-Tailed
                    Estimate       S.E.  Est./S.E.    P-Value

Within Level

 JSMAJOR    ON
    FPMAJOR            0.066      0.027      2.473      0.000

 OCMAJOR    ON
    FPMAJOR            0.056      0.030      1.846      0.065

 VWEMAJOR   ON
    FPMAJOR            0.424      0.062      6.870      0.000

 VWEMAJOR WITH
    OCMAJOR            0.166      0.107      1.552      0.121

 JSMAJOR  WITH
    OCMAJOR            0.027      0.052      0.522      0.602
    VWEMAJOR           0.636      0.133      4.776      0.000

 Residual Variances
    OCMAJOR            0.634      0.063     10.027      0.000
    VWEMAJOR           4.594      0.455     10.102      0.000
    JSMAJOR            0.896      0.094      9.577      0.000

Between Level
 Means
    OCMAJOR            9.204      0.060    152.785      0.000
    VWEMAJOR          13.952      0.135    103.630      0.000
    JSMAJOR            3.744      0.055     68.377      0.000

 Variances
    OCMAJOR            0.170      0.049      3.442      0.001
    VWEMAJOR           0.665      0.326      2.039      0.041
    JSMAJOR            0.076      0.055      1.384      0.166

QUALITY OF NUMERICAL RESULTS
```

```
     Condition Number for the Information Matrix
0.135E-02
       (ratio of smallest to largest eigenvalue)


DIAGRAM INFORMATION

  Mplus diagrams are currently not available for multilevel
analysis.
  No diagram output was produced.


     Beginning Time:  15:24:22
        Ending Time:  15:24:23
       Elapsed Time:  00:00:01
```


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APPENDIX T - Hypothesis H_{2a} Test Results of the Variance between Random Intercepts and Random Slopes Models

```
Mplus VERSION 7.4
MUTHEN & MUTHEN
06/10/2015   2:50 PM

INPUT INSTRUCTIONS
    Title:
        H2a! Testing Follower Performance covariance between random
intercepts and random slopes models.

    Data:
        File=dataclean.dat;

    Variable:
        Names are
            RID  TeamCode Gender  Age   Company    City TenCom
     TenRole    WorkExp    Edu   Job
            Tformatt Tformbeh Tformmot Tformsti Tformcon Tformmaj
     OCac  OCcc
            OCnc OCmajor   VWEbasic VWEcont VWEteam VWEgrow
VWEmajor JSmajor
            TPmajor Tactrew Tactact Tactpass Tactmaj LFnotran FPjob
     FPothers FPself  FPchange
            FPmajor FRlead FRtrust    FRcour     FRneg FRmajor;
        Missing are all (99);
        Usevariables = TeamCode FPmajor OCmajor VWEmajor JSmajor;
        WITHIN = FPmajor;

        Cluster=TeamCode;

    DEFINE: Center FPmajor (Grandmean);

    Analysis: TYPE= twolevel random;
              estimator=MLR;
    MODEL: %WITHIN%
            beta1j | JSmajor ON FPmajor;
            beta2j | OCmajor ON FPmajor;
            beta3j | VWEmajor ON FPmajor;
            %BETWEEN%
            JSmajor with beta1j;
            OCmajor with beta2j;
            VWEmajor with beta3j;
```

```
    OUTPUT: sampstat;
*** WARNING
  Data set contains cases with missing on all variables.
  These cases were not included in the analysis.
  Number of cases with missing on all variables:  145
*** WARNING
  Data set contains cases with missing on x-variables.
  These cases were not included in the analysis.
  Number of cases with missing on x-variables:  91
*** WARNING
  Data set contains cases with missing on all variables except
  x-variables.  These cases were not included in the analysis.
  Number of cases with missing on all variables except x-variables:
1
   3 WARNING(S) FOUND IN THE INPUT INSTRUCTIONS
H2a! Testing Follower Performance covariance between random
intercepts and random slopes models
SUMMARY OF ANALYSIS

Number of groups                                                 1
Number of observations                                         430

Number of dependent variables                                    3
Number of independent variables                                  1
Number of continuous latent variables                            3

Observed dependent variables

  Continuous
   OCMAJOR     VWEMAJOR    JSMAJOR

Observed independent variables
   FPMAJOR

Continuous latent variables
   BETA1J      BETA2J      BETA3J

Variables with special functions

  Cluster variable      TEAMCODE

  Within variables
   FPMAJOR
  Centering (GRANDMEAN)
   FPMAJOR

Estimator                                                      MLR
Information matrix                                        OBSERVED
```

```
Maximum number of iterations                                    100
Convergence criterion                                     0.100D-05
Maximum number of EM iterations                                 500
Convergence criteria for the EM algorithm
  Loglikelihood change                                    0.100D-02
  Relative loglikelihood change                           0.100D-05
  Derivative                                              0.100D-03
Minimum variance                                          0.100D-03
Maximum number of steepest descent iterations                    20
Maximum number of iterations for H1                            2000
Convergence criterion for H1                              0.100D-03
Optimization algorithm                                          EMA

Input data file(s)
  dataclean.dat
Input data format  FREE

SUMMARY OF DATA
     Number of missing data patterns             7
     Number of clusters                        146

     Average cluster size        2.945

     Estimated Intraclass Correlations for the Y Variables

      Intraclass                Intraclass              Intraclass
Variable  Correlation   Variable  Correlation   Variable
Correlation

OCMAJOR      0.227      VWEMAJOR     0.156      JSMAJOR      0.123

COVARIANCE COVERAGE OF DATA

Minimum covariance coverage value   0.100

     PROPORTION OF DATA PRESENT
           Covariance Coverage
              OCMAJOR       VWEMAJOR      JSMAJOR       FPMAJOR
              ________      ________      ________      ________
 OCMAJOR        0.756
 VWEMAJOR       0.714         0.919
 JSMAJOR        0.730         0.877         0.953
 FPMAJOR        0.756         0.919         0.953         1.000

SAMPLE STATISTICS

NOTE:  The sample statistics for within and between refer to the
       maximum-likelihood estimated within and between covariance
```

matrices, respectively.

ESTIMATED SAMPLE STATISTICS FOR WITHIN

Means

	OCMAJOR	VWEMAJOR	JSMAJOR	FPMAJOR
1	0.000	0.000	0.000	0.000

Covariances

	OCMAJOR	VWEMAJOR	JSMAJOR	FPMAJOR
OCMAJOR	0.635			
VWEMAJOR	0.175	5.097		
JSMAJOR	0.020	0.634	0.877	
FPMAJOR	0.205	1.615	0.246	3.743

Correlations

	OCMAJOR	VWEMAJOR	JSMAJOR	FPMAJOR
OCMAJOR	1.000			
VWEMAJOR	0.097	1.000		
JSMAJOR	0.027	0.300	1.000	
FPMAJOR	0.133	0.370	0.136	1.000

ESTIMATED SAMPLE STATISTICS FOR BETWEEN

Means

	OCMAJOR	VWEMAJOR	JSMAJOR	FPMAJOR
1	9.203	13.933	3.741	0.000

Covariances

	OCMAJOR	VWEMAJOR	JSMAJOR	FPMAJOR
OCMAJOR	0.186			
VWEMAJOR	0.148	0.942		
JSMAJOR	0.033	0.166	0.123	
FPMAJOR	0.000	0.000	0.000	0.000

Correlations

	OCMAJOR	VWEMAJOR	JSMAJOR	FPMAJOR
OCMAJOR	1.000			
VWEMAJOR	0.353	1.000		
JSMAJOR	0.219	0.487	1.000	

```
 FPMAJOR        0.000         0.000         0.000         0.000

  MAXIMUM LOG-LIKELIHOOD VALUE FOR THE UNRESTRICTED (H1) MODEL IS -
1857.456
UNIVARIATE SAMPLE STATISTICS

     UNIVARIATE HIGHER-ORDER MOMENT DESCRIPTIVE STATISTICS

         Variable/         Mean/     Skewness/   Minimum/ % with
Percentiles
        Sample Size      Variance    Kurtosis    Maximum  Min/Max
20%/60%    40%/80%    Median

     OCMAJOR                9.244      -0.130       6.500    0.31%
8.500      9.130      9.250
             325.000        0.814       0.288      12.250    0.31%
9.500     10.000
     VWEMAJOR              13.982      -0.109       7.000    0.25%
11.750     13.500     14.000
             395.000        5.989      -0.145      19.750    0.76%
14.500     16.000
     JSMAJOR                3.739      -0.895       1.000    2.44%
3.000      4.000      4.000
             410.000        0.993       0.196       5.000   18.78%
4.000      4.000
     FPMAJOR                0.000      -0.193      -6.394    0.23%
-1.644     -0.394      0.106
             430.000        3.743      -0.016       4.356    0.23%
0.356      1.606

THE MODEL ESTIMATION TERMINATED NORMALLY
MODEL FIT INFORMATION

Number of Free Parameters                       21

Loglikelihood

          H0 Value                       -1852.104
          H0 Scaling Correction Factor      1.1571
            for MLR

Information Criteria

          Akaike (AIC)                    3746.207
          Bayesian (BIC)                  3831.547
          Sample-Size Adjusted BIC        3764.905
            (n* = (n + 2) / 24)
```

MODEL RESULTS

	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
Within Level				
VWEMAJOR WITH				
OCMAJOR	0.129	0.102	1.276	0.202
JSMAJOR WITH				
OCMAJOR	0.047	0.052	0.912	0.362
VWEMAJOR	0.656	0.138	4.750	0.000
Residual Variances				
OCMAJOR	0.603	0.069	8.777	0.000
VWEMAJOR	4.481	0.515	8.708	0.000
JSMAJOR	0.870	0.098	8.919	0.000
Between Level				
JSMAJOR WITH				
BETA1J	-0.023	0.019	-1.189	0.234
OCMAJOR WITH				
BETA2J	-0.026	0.015	-1.761	0.078
VWEMAJOR WITH				
BETA3J	0.004	0.087	0.045	0.964
Means				
OCMAJOR	9.207	0.058	157.761	0.000
VWEMAJOR	13.940	0.139	100.592	0.000
JSMAJOR	3.747	0.056	67.296	0.000
BETA1J	0.074	0.027	2.777	0.005
BETA2J	0.042	0.033	1.273	0.203
BETA3J	0.430	0.067	6.408	0.000
Variances				
OCMAJOR	0.120	0.056	2.133	0.033
VWEMAJOR	0.634	0.322	1.970	0.049
JSMAJOR	0.074	0.075	0.986	0.324
BETA1J	0.010	0.015	0.645	0.519
BETA2J	0.018	0.013	1.381	0.167
BETA3J	0.038	0.075	0.500	0.617

QUALITY OF NUMERICAL RESULTS

```
     Condition Number for the Information Matrix
0.221E-04
       (ratio of smallest to largest eigenvalue)

DIAGRAM INFORMATION
  Mplus diagrams are currently not available for multilevel
analysis.
  No diagram output was produced.
     Beginning Time:  14:50:27
        Ending Time:  14:50:31
       Elapsed Time:  00:00:04


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```

APPENDIX U - Hypothesis H_{2b} Test Results of Standardised Solution with Fixed Slope Models

```
INPUT INSTRUCTIONS
  Title:
            H2b! TESTING FOLLWER RELATIONSHIP CHARACTARISTICS
STANDERDISED SOLUTION WITH FIXED SLOPES MODELS.

        Data:
            File=dataclean.dat;

        Variable:
            Names are
                RID   TeamCode Gender  Age   Company    City TenCom
      TenRole    WorkExp    Edu   Job
                Tformatt Tformbeh Tformmot Tformsti Tformcon
Tformmaj   OCac  OCcc
                OCnc OCmajor     VWEbasic VWEcont VWEteam VWEgrow
VWEmajor JSmajor
                TPmajor Tactrew Tactact Tactpass Tactmaj LFnotran
FPjob FPothers FPself  FPch
                FPmajor FRlead   FRtrust    FRcour     FRneg FRmajor;
            Missing are all (99);
            Usevariables = TeamCode FRmajor OCmajor VWEmajor
JSmajor;
            WITHIN = FRmajor;

            Cluster=TeamCode;

        DEFINE: Center FRmajor (Grandmean);

        Analysis: TYPE= twolevel;
                  estimator=MLR;
        MODEL: %WITHIN%
                JSmajor ON FRmajor;
                OCmajor ON FRmajor;
                VWEmajor ON FRmajor;
                %BETWEEN%

        OUTPUT: samp STDYX;

*** WARNING
  Input line exceeded 90 characters. Some input may be truncated.
            H2a! TESTING FOLLWER PERFORMANCE
CHARACTARISTICS.STANDERDISED.SOLUTION.FIXED.SLOP
```

```
*** WARNING
  Input line exceeded 90 characters. Some input may be truncated.
              TPmajor Tactrew Tactact Tactpass Tactmaj LFnotran
FPjob FPothers FPself  FPcha
*** WARNING in MODEL command
  A y-variable has been declared on the within level but not
referred to on
  the between level.  Please check that this is what is intended.
If this is not intended,
  specify the variable as a within variable.  Problem with:  OCMAJOR
*** WARNING in MODEL command
  A y-variable has been declared on the within level but not
referred to on
  the between level.  Please check that this is what is intended.
If this is not intended,
  specify the variable as a within variable.  Problem with:
VWEMAJOR
*** WARNING in MODEL command
  A y-variable has been declared on the within level but not
referred to on
  the between level.  Please check that this is what is intended.
If this is not intended,
  specify the variable as a within variable.  Problem with:  JSMAJOR
*** WARNING
  Data set contains cases with missing on all variables.
  These cases were not included in the analysis.
  Number of cases with missing on all variables:  145
*** WARNING
  Data set contains cases with missing on x-variables.
  These cases were not included in the analysis.
  Number of cases with missing on x-variables:  100
*** WARNING
  Data set contains cases with missing on all variables except
  x-variables.  These cases were not included in the analysis.
  Number of cases with missing on all variables except x-variables:
1
   8 WARNING(S) FOUND IN THE INPUT INSTRUCTIONS
H2b! TESTING FOLLWER RELATIONSHIP CHARACTARISTICS STANDERDISED
SOLUTION WITH FIXED SLOPES MODELS.SUMMARY OF ANALYSIS

Number of groups                                                 1
Number of observations                                         421

Number of dependent variables                                    3
Number of independent variables                                  1
Number of continuous latent variables                            0

Observed dependent variables
```

```
  Continuous
   OCMAJOR     VWEMAJOR    JSMAJOR

Observed independent variables
   FRMAJOR

Variables with special functions

  Cluster variable      TEAMCODE

  Within variables
   FRMAJOR

  Centering (GRANDMEAN)
   FRMAJOR

Estimator                                                      MLR
Information matrix                                        OBSERVED
Maximum number of iterations                                   100
Convergence criterion                                    0.100D-05
Maximum number of EM iterations                                500
Convergence criteria for the EM algorithm
  Loglikelihood change                                   0.100D-02
  Relative loglikelihood change                          0.100D-05
  Derivative                                             0.100D-03
Minimum variance                                         0.100D-03
Maximum number of steepest descent iterations                   20
Maximum number of iterations for H1                           2000
Convergence criterion for H1                             0.100D-03
Optimization algorithm                                         EMA
Input data file(s)
  dataclean.dat
Input data format  FREE
SUMMARY OF DATA

     Number of missing data patterns            7
     Number of clusters                       142

     Average cluster size        2.965

     Estimated Intraclass Correlations for the Y Variables

       Intraclass              Intraclass              Intraclass
 Variable  Correlation   Variable  Correlation   Variable
Correlation

 OCMAJOR      0.186      VWEMAJOR     0.127      JSMAJOR      0.113
```

COVARIANCE COVERAGE OF DATA

Minimum covariance coverage value 0.100

PROPORTION OF DATA PRESENT

Covariance Coverage

	OCMAJOR	VWEMAJOR	JSMAJOR	FRMAJOR
OCMAJOR	0.789			
VWEMAJOR	0.751	0.929		
JSMAJOR	0.762	0.888	0.955	
FRMAJOR	0.789	0.929	0.955	1.000

SAMPLE STATISTICS

NOTE: The sample statistics for within and between refer to the maximum-likelihood estimated within and between covariance matrices, respectively.

ESTIMATED SAMPLE STATISTICS FOR WITHIN

Means

	OCMAJOR	VWEMAJOR	JSMAJOR	FRMAJOR
1	0.000	0.000	0.000	0.000

Covariances

	OCMAJOR	VWEMAJOR	JSMAJOR	FRMAJOR
OCMAJOR	0.645			
VWEMAJOR	0.249	4.977		
JSMAJOR	0.047	0.616	0.853	
FRMAJOR	0.005	1.150	0.169	3.446

Correlations

	OCMAJOR	VWEMAJOR	JSMAJOR	FRMAJOR
OCMAJOR	1.000			
VWEMAJOR	0.139	1.000		
JSMAJOR	0.063	0.299	1.000	
FRMAJOR	0.003	0.278	0.099	1.000

ESTIMATED SAMPLE STATISTICS FOR BETWEEN

Means

	OCMAJOR	VWEMAJOR	JSMAJOR	FRMAJOR
1	9.251	14.045	3.786	0.000

Covariances

	OCMAJOR	VWEMAJOR	JSMAJOR	FRMAJOR
OCMAJOR	0.148			
VWEMAJOR	0.019	0.725		
JSMAJOR	0.018	0.114	0.109	
FRMAJOR	0.000	0.000	0.000	0.000

Correlations

	OCMAJOR	VWEMAJOR	JSMAJOR	FRMAJOR
OCMAJOR	1.000			
VWEMAJOR	0.059	1.000		
JSMAJOR	0.146	0.407	1.000	
FRMAJOR	0.000	0.000	0.000	0.000

MAXIMUM LOG-LIKELIHOOD VALUE FOR THE UNRESTRICTED (H1) MODEL IS -1840.934

UNIVARIATE SAMPLE STATISTICS

UNIVARIATE HIGHER-ORDER MOMENT DESCRIPTIVE STATISTICS

Variable/ Sample Size	Mean/ Variance	Skewness/ Kurtosis	Minimum/ Maximum	% with Min/Max	Percentiles 20%/60%	40%/80%	Median
OCMAJOR	9.277	-0.208	6.500	0.30%	8.500	9.130	9.380
332.000	0.792	0.222	12.250	0.30%	9.500	10.000	
VWEMAJOR	14.027	-0.154	7.000	0.26%	12.000	13.500	14.000
391.000	5.727	-0.137	19.750	0.51%	14.750	16.000	
JSMAJOR	3.784	-0.904	1.000	1.99%	3.000	4.000	4.000
402.000	0.961	0.265	5.000	20.40%	4.000	5.000	
FRMAJOR	0.000	-0.443	-5.421	1.66%			

```
-1.421     -0.421      0.079
            421.000       3.446       0.328       4.079    0.71%
0.579      1.579

THE MODEL ESTIMATION TERMINATED NORMALLY
MODEL FIT INFORMATION
Number of Free Parameters                        15

Loglikelihood

          H0 Value                        -1841.661
          H0 Scaling Correction Factor       1.1871
            for MLR
          H1 Value                        -1840.934
          H1 Scaling Correction Factor       1.1636
            for MLR
Information Criteria

          Akaike (AIC)                     3713.323
          Bayesian (BIC)                   3773.962
          Sample-Size Adjusted BIC         3726.363
            (n* = (n + 2) / 24)
Chi-Square Test of Model Fit

          Value                               1.390*
          Degrees of Freedom                      3
          P-Value                            0.7079
          Scaling Correction Factor          1.0460
            for MLR
*   The chi-square value for MLM, MLMV, MLR, ULSMV, WLSM and WLSMV
cannot be used
    for chi-square difference testing in the regular way.  MLM, MLR
and WLSM
    chi-square difference testing is described on the Mplus website.
MLMV, WLSMV,
    and ULSMV difference testing is done using the DIFFTEST option.

RMSEA (Root Mean Square Error Of Approximation)

          Estimate                            0.000
CFI/TLI

          CFI                                 1.000
          TLI                                 1.102

Chi-Square Test of Model Fit for the Baseline Model

          Value                              56.524
```

```
          Degrees of Freedom                        9
          P-Value                              0.0000

SRMR (Standardized Root Mean Square Residual)

          Value for Within                      0.011
          Value for Between                     0.178
MODEL RESULTS
                                                           Two-Tailed
                    Estimate       S.E.  Est./S.E.    P-Value
Within Level

 JSMAJOR    ON
    FRMAJOR            0.052      0.029      1.753      0.080

 OCMAJOR    ON
    FRMAJOR            0.002      0.030      0.078      0.938

 VWEMAJOR   ON
    FRMAJOR            0.338      0.074      4.552      0.000

 VWEMAJOR WITH
    OCMAJOR            0.264      0.112      2.363      0.018

 JSMAJOR  WITH
    OCMAJOR            0.058      0.053      1.094      0.274
    VWEMAJOR           0.631      0.128      4.917      0.000

 Residual Variances
    OCMAJOR            0.649      0.065      9.925      0.000
    VWEMAJOR           4.687      0.408     11.475      0.000
    JSMAJOR            0.864      0.084     10.244      0.000
Between Level
 Means
    OCMAJOR            9.252      0.058    159.854      0.000
    VWEMAJOR          14.053      0.135    104.448      0.000
    JSMAJOR            3.786      0.055     68.737      0.000

 Variances
    OCMAJOR            0.142      0.047      3.008      0.003
    VWEMAJOR           0.595      0.371      1.603      0.109
    JSMAJOR            0.084      0.051      1.635      0.102

STANDARDIZED MODEL RESULTS
STDYX Standardization
                                                           Two-Tailed
                    Estimate       S.E.  Est./S.E.    P-Value
```

```
Within Level

 JSMAJOR    ON
    FRMAJOR            0.103      0.059      1.744      0.081

 OCMAJOR    ON
    FRMAJOR            0.005      0.069      0.078      0.938

 VWEMAJOR   ON
    FRMAJOR            0.279      0.056      4.952      0.000

 VWEMAJOR WITH
    OCMAJOR            0.151      0.063      2.389      0.017

 JSMAJOR  WITH
    OCMAJOR            0.077      0.070      1.114      0.265
    VWEMAJOR           0.314      0.058      5.444      0.000

 Residual Variances
    OCMAJOR            1.000      0.001   1357.888      0.000
    VWEMAJOR           0.922      0.031     29.411      0.000
    JSMAJOR            0.989      0.012     81.987      0.000

Between Level

 Means
    OCMAJOR           24.529      4.113      5.963      0.000
    VWEMAJOR          18.222      5.678      3.209      0.001
    JSMAJOR           13.087      4.051      3.231      0.001

 Variances
    OCMAJOR            1.000      0.000    999.000    999.000
    VWEMAJOR           1.000      0.000    999.000    999.000
    JSMAJOR            1.000      0.000    999.000    999.000

R-SQUARE
Within Level

    Observed                                        Two-Tailed
    Variable        Estimate       S.E.  Est./S.E.    P-Value

    OCMAJOR            0.000      0.001      0.039      0.969
    VWEMAJOR           0.078      0.031      2.476      0.013
    JSMAJOR            0.011      0.012      0.872      0.383
Between Level
QUALITY OF NUMERICAL RESULTS

     Condition Number for the Information Matrix
```

```
0.472E-03
       (ratio of smallest to largest eigenvalue)
DIAGRAM INFORMATION
  Mplus diagrams are currently not available for multilevel
analysis.
  No diagram output was produced.
     Beginning Time:  17:53:29
        Ending Time:  17:53:31
       Elapsed Time:  00:00:02



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```

APPENDIX V - Hypothesis H_{2b} Test Results of Random Slopes Models

```
Mplus VERSION 7.4
MUTHEN & MUTHEN
06/10/2015   3:33 PM
INPUT INSTRUCTIONS
   Title:
          H2b! TESTING FOLLOWER RELATIONSHIP RANDOM SLOPES MODELS.

      Data:
          File=dataclean.dat;

      Variable:
          Names are
              RID     TeamCode Gender  Age   Company    City TenCom
     TenRole    WorkExp    Edu   Job
              Tformatt Tformbeh Tformmot Tformsti Tformcon Tformmaj
     OCac  OCcc
              OCnc OCmajor  VWEbasic VWEcont VWEteam VWEgrow
VWEmajor JSmajor
              TPmajor Tactrew Tactact Tactpass Tactmaj LFnotran
FPjob FPothers FPself  FPchan
              FPmajor FRlead     FRtrust    FRcour     FRneg FRmajor;
          Missing are all (99);
          Usevariables = TeamCode FRmajor OCmajor VWEmajor JSmajor;
          WITHIN = FRmajor;

          Cluster=TeamCode;

      DEFINE: Center FRmajor (Grandmean);

      Analysis: TYPE= twolevel random;
                estimator=MLR;
      MODEL: %WITHIN%
              JSmajor ON FRmajor;
              OCmajor ON FRmajor;
              VWEmajor ON FRmajor;
              %BETWEEN%

      OUTPUT: sampstat;
*** WARNING
  Input line exceeded 90 characters. Some input may be truncated.
              TPmajor Tactrew Tactact Tactpass Tactmaj LFnotran
FPjob FPothers FPself  FPchang
*** WARNING in MODEL command
```

```
  A y-variable has been declared on the within level but not
referred to on
  the between level.  Please check that this is what is intended.
If this is not intended,
  specify the variable as a within variable.  Problem with:  OCMAJOR
*** WARNING in MODEL command
  A y-variable has been declared on the within level but not
referred to on
  the between level.  Please check that this is what is intended.
If this is not intended,
  specify the variable as a within variable.  Problem with:
VWEMAJOR
*** WARNING in MODEL command
  A y-variable has been declared on the within level but not
referred to on
  the between level.  Please check that this is what is intended.
If this is not intended,
  specify the variable as a within variable.  Problem with:  JSMAJOR
*** WARNING
  Data set contains cases with missing on all variables.
  These cases were not included in the analysis.
  Number of cases with missing on all variables:  145
*** WARNING
  Data set contains cases with missing on x-variables.
  These cases were not included in the analysis.
  Number of cases with missing on x-variables:  100
*** WARNING
  Data set contains cases with missing on all variables except
  x-variables.  These cases were not included in the analysis.
  Number of cases with missing on all variables except x-variables:
1
   7 WARNING(S) FOUND IN THE INPUT INSTRUCTIONS
H2b! TESTING FOLLOWER RELATIONSHIP RANDOM SLOPES MODELS.
SUMMARY OF ANALYSIS

Number of groups                                                 1
Number of observations                                         421

Number of dependent variables                                    3
Number of independent variables                                  1
Number of continuous latent variables                            0
Observed dependent variables
  Continuous
   OCMAJOR     VWEMAJOR    JSMAJOR

Observed independent variables
   FRMAJOR
```

```
Variables with special functions

  Cluster variable      TEAMCODE
  Within variables
   FRMAJOR
  Centering (GRANDMEAN)
   FRMAJOR

Estimator                                                        MLR
Information matrix                                          OBSERVED
Maximum number of iterations                                     100
Convergence criterion                                      0.100D-05
Maximum number of EM iterations                                  500
Convergence criteria for the EM algorithm
  Loglikelihood change                                     0.100D-02
  Relative loglikelihood change                            0.100D-05
  Derivative                                               0.100D-03
Minimum variance                                           0.100D-03
Maximum number of steepest descent iterations                     20
Maximum number of iterations for H1                             2000
Convergence criterion for H1                               0.100D-03
Optimization algorithm                                           EMA

Input data file(s)
  dataclean.dat
Input data format  FREE

SUMMARY OF DATA

     Number of missing data patterns            7
     Number of clusters                       142

     Average cluster size        2.965

     Estimated Intraclass Correlations for the Y Variables

      Intraclass              Intraclass              Intraclass
Variable  Correlation   Variable  Correlation   Variable
Correlation OCMAJOR      0.186      VWEMAJOR     0.127      JSMAJOR
0.113

COVARIANCE COVERAGE OF DATA

Minimum covariance coverage value   0.100

     PROPORTION OF DATA PRESENT
           Covariance Coverage
              OCMAJOR       VWEMAJOR      JSMAJOR       FRMAJOR
```

OCMAJOR	0.789			
VWEMAJOR	0.751	0.929		
JSMAJOR	0.762	0.888	0.955	
FRMAJOR	0.789	0.929	0.955	1.000

SAMPLE STATISTICS

NOTE: The sample statistics for within and between refer to the maximum-likelihood estimated within and between covariance matrices, respectively.

ESTIMATED SAMPLE STATISTICS FOR WITHIN

Means

	OCMAJOR	VWEMAJOR	JSMAJOR	FRMAJOR
1	0.000	0.000	0.000	0.000

Covariances

	OCMAJOR	VWEMAJOR	JSMAJOR	FRMAJOR
OCMAJOR	0.645			
VWEMAJOR	0.249	4.977		
JSMAJOR	0.047	0.616	0.853	
FRMAJOR	0.005	1.150	0.169	3.446

Correlations

	OCMAJOR	VWEMAJOR	JSMAJOR	FRMAJOR
OCMAJOR	1.000			
VWEMAJOR	0.139	1.000		
JSMAJOR	0.063	0.299	1.000	
FRMAJOR	0.003	0.278	0.099	1.000

ESTIMATED SAMPLE STATISTICS FOR BETWEEN

Means

	OCMAJOR	VWEMAJOR	JSMAJOR	FRMAJOR
1	9.251	14.045	3.786	0.000

Covariances

	OCMAJOR	VWEMAJOR	JSMAJOR	FRMAJOR
OCMAJOR	0.148			
VWEMAJOR	0.019	0.725		
JSMAJOR	0.018	0.114	0.109	

```
 FRMAJOR        0.000         0.000         0.000         0.000

           Correlations
              OCMAJOR       VWEMAJOR      JSMAJOR       FRMAJOR
              ________      ________      ________      ________
 OCMAJOR        1.000
 VWEMAJOR       0.059         1.000
 JSMAJOR        0.146         0.407         1.000
 FRMAJOR        0.000         0.000         0.000         0.000


     MAXIMUM LOG-LIKELIHOOD VALUE FOR THE UNRESTRICTED (H1) MODEL IS
-1840.934

UNIVARIATE SAMPLE STATISTICS
     UNIVARIATE HIGHER-ORDER MOMENT DESCRIPTIVE STATISTICS

         Variable/         Mean/     Skewness/   Minimum/ % with
Percentiles
        Sample Size      Variance    Kurtosis    Maximum  Min/Max
20%/60%    40%/80%    Median

     OCMAJOR               9.277      -0.208       6.500    0.30%
8.500      9.130      9.380
             332.000       0.792       0.222      12.250    0.30%
9.500     10.000
     VWEMAJOR             14.027      -0.154       7.000    0.26%
12.000     13.500     14.000
             391.000       5.727      -0.137      19.750    0.51%
14.750     16.000
     JSMAJOR               3.784      -0.904       1.000    1.99%
3.000      4.000      4.000
             402.000       0.961       0.265       5.000   20.40%
4.000      5.000
     FRMAJOR               0.000      -0.443      -5.421    1.66%
-1.421     -0.421      0.079
             421.000       3.446       0.328       4.079    0.71%
0.579      1.579

THE MODEL ESTIMATION TERMINATED NORMALLY

MODEL FIT INFORMATION
Number of Free Parameters                       15
Loglikelihood

          H0 Value                       -1841.661
          H0 Scaling Correction Factor      1.1871
            for MLR
```

```
          H1 Value                       -1840.934
          H1 Scaling Correction Factor      1.1636
            for MLR

Information Criteria

          Akaike (AIC)                    3713.323
          Bayesian (BIC)                  3773.962
          Sample-Size Adjusted BIC        3726.363
            (n* = (n + 2) / 24)

Chi-Square Test of Model Fit

          Value                              1.390*
          Degrees of Freedom                     3
          P-Value                           0.7079
          Scaling Correction Factor         1.0460
            for MLR

*   The chi-square value for MLM, MLMV, MLR, ULSMV, WLSM and WLSMV
cannot be used
    for chi-square difference testing in the regular way.  MLM, MLR
and WLSM
    chi-square difference testing is described on the Mplus website.
MLMV, WLSMV,
    and ULSMV difference testing is done using the DIFFTEST option.

RMSEA (Root Mean Square Error Of Approximation)

          Estimate                           0.000

CFI/TLI

          CFI                                1.000
          TLI                                1.102

Chi-Square Test of Model Fit for the Baseline Model

          Value                             56.524
          Degrees of Freedom                     9
          P-Value                           0.0000

SRMR (Standardized Root Mean Square Residual)

          Value for Within                   0.011
          Value for Between                  0.178
MODEL RESULTS
```

	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
Within Level				
JSMAJOR ON				
FRMAJOR	0.052	0.029	1.753	0.080
OCMAJOR ON				
FRMAJOR	0.002	0.030	0.078	0.938
VWEMAJOR ON				
FRMAJOR	0.338	0.074	4.552	0.000
VWEMAJOR WITH				
OCMAJOR	0.264	0.112	2.363	0.018
JSMAJOR WITH				
OCMAJOR	0.058	0.053	1.094	0.274
VWEMAJOR	0.631	0.128	4.917	0.000
Residual Variances				
OCMAJOR	0.649	0.065	9.925	0.000
VWEMAJOR	4.687	0.408	11.475	0.000
JSMAJOR	0.864	0.084	10.244	0.000
Between Level				
Means				
OCMAJOR	9.252	0.058	159.854	0.000
VWEMAJOR	14.053	0.135	104.448	0.000
JSMAJOR	3.786	0.055	68.737	0.000
Variances				
OCMAJOR	0.142	0.047	3.008	0.003
VWEMAJOR	0.595	0.371	1.603	0.109
JSMAJOR	0.084	0.051	1.635	0.102

QUALITY OF NUMERICAL RESULTS

Condition Number for the Information Matrix
0.472E-03
(ratio of smallest to largest eigenvalue)

DIAGRAM INFORMATION

Mplus diagrams are currently not available for multilevel analysis.
No diagram output was produced.

```
     Beginning Time:  15:33:17
        Ending Time:  15:33:18
       Elapsed Time:  00:00:01
```


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APPENDIX W - Hypothesis H_{2b} Test Results of the Variance between Random Intercepts and Random Slopes Models

```
Mplus VERSION 7.4
MUTHEN & MUTHEN
06/10/2015   2:45 PM
INPUT INSTRUCTIONS
    Title:
        H2b! testing Follower Relationship characteristics
covariance between random intercepts and random slopes models.
    Data:
        File=dataclean.dat;

    Variable:
        Names are
            RID  TeamCode Gender  Age   Company    City TenCom
     TenRole    WorkExp    Edu   Job
            Tformatt Tformbeh Tformmot Tformsti Tformcon Tformmaj
     OCac  OCcc
            OCnc OCmajor   VWEbasic VWEcont VWEteam VWEgrow
VWEmajor JSmajor
            TPmajor Tactrew Tactact Tactpass Tactmaj LFnotran FPjob
     FPothers FPself  FPchange
            FPmajor FRlead FRtrust    FRcour     FRneg FRmajor;
        Missing are all (99);
        Usevariables = TeamCode FRmajor OCmajor VWEmajor JSmajor;
        WITHIN = FRmajor;

        Cluster=TeamCode;

    DEFINE: Center FRmajor (Grandmean);

    Analysis: TYPE= twolevel random;
              estimator=MLR;
    MODEL: %WITHIN%
            beta1j | JSmajor ON FRmajor;
            beta2j | OCmajor ON FRmajor;
            beta3j | VWEmajor ON FRmajor;
            %BETWEEN%
            JSmajor with beta1j;
            OCmajor with beta2j;
            VWEmajor with beta3j;

    OUTPUT: sampstat;
```

```
*** WARNING
  Data set contains cases with missing on all variables.
  These cases were not included in the analysis.
  Number of cases with missing on all variables:  145
*** WARNING
  Data set contains cases with missing on x-variables.
  These cases were not included in the analysis.
  Number of cases with missing on x-variables:  100
*** WARNING
  Data set contains cases with missing on all variables except
  x-variables.  These cases were not included in the analysis.
  Number of cases with missing on all variables except x-variables:
1
   3 WARNING(S) FOUND IN THE INPUT INSTRUCTIONS
H2b! testing Follower Relationship characteristics covariance
between random intercepts and random slopes models.

SUMMARY OF ANALYSIS

Number of groups                                                 1
Number of observations                                         421

Number of dependent variables                                    3
Number of independent variables                                  1
Number of continuous latent variables                            3

Observed dependent variables
  Continuous
   OCMAJOR     VWEMAJOR    JSMAJOR

Observed independent variables
   FRMAJOR

Continuous latent variables
   BETA1J      BETA2J      BETA3J

Variables with special functions

  Cluster variable      TEAMCODE

  Within variables
   FRMAJOR

  Centering (GRANDMEAN)
   FRMAJOR

Estimator                                                      MLR
Information matrix                                        OBSERVED
```

```
Maximum number of iterations                                   100
Convergence criterion                                    0.100D-05
Maximum number of EM iterations                                500
Convergence criteria for the EM algorithm
  Loglikelihood change                                   0.100D-02
  Relative loglikelihood change                          0.100D-05
  Derivative                                             0.100D-03
Minimum variance                                         0.100D-03
Maximum number of steepest descent iterations                   20
Maximum number of iterations for H1                           2000
Convergence criterion for H1                             0.100D-03
Optimization algorithm                                         EMA

Input data file(s)
  dataclean.dat
Input data format  FREE

SUMMARY OF DATA

     Number of missing data patterns             7
     Number of clusters                        142

     Average cluster size        2.965

     Estimated Intraclass Correlations for the Y Variables

    Intraclass              Intraclass              Intraclass
 Variable  Correlation   Variable  Correlation   Variable
Correlation

  OCMAJOR      0.186      VWEMAJOR     0.127      JSMAJOR      0.113
COVARIANCE COVERAGE OF DATA

Minimum covariance coverage value   0.100

     PROPORTION OF DATA PRESENT

           Covariance Coverage
              OCMAJOR       VWEMAJOR      JSMAJOR       FRMAJOR
              ________      ________      ________      ________
 OCMAJOR        0.789
 VWEMAJOR       0.751         0.929
 JSMAJOR        0.762         0.888         0.955
 FRMAJOR        0.789         0.929         0.955         1.000

SAMPLE STATISTICS

NOTE:  The sample statistics for within and between refer to the
```

maximum-likelihood estimated within and between covariance matrices, respectively.

ESTIMATED SAMPLE STATISTICS FOR WITHIN

Means

	OCMAJOR	VWEMAJOR	JSMAJOR	FRMAJOR
1	0.000	0.000	0.000	0.000

Covariances

	OCMAJOR	VWEMAJOR	JSMAJOR	FRMAJOR
OCMAJOR	0.645			
VWEMAJOR	0.249	4.977		
JSMAJOR	0.047	0.616	0.853	
FRMAJOR	0.005	1.150	0.169	3.446

Correlations

	OCMAJOR	VWEMAJOR	JSMAJOR	FRMAJOR
OCMAJOR	1.000			
VWEMAJOR	0.139	1.000		
JSMAJOR	0.063	0.299	1.000	
FRMAJOR	0.003	0.278	0.099	1.000

ESTIMATED SAMPLE STATISTICS FOR BETWEEN

Means

	OCMAJOR	VWEMAJOR	JSMAJOR	FRMAJOR
1	9.251	14.045	3.786	0.000

Covariances

	OCMAJOR	VWEMAJOR	JSMAJOR	FRMAJOR
OCMAJOR	0.148			
VWEMAJOR	0.019	0.725		
JSMAJOR	0.018	0.114	0.109	
FRMAJOR	0.000	0.000	0.000	0.000

Correlations

	OCMAJOR	VWEMAJOR	JSMAJOR	FRMAJOR

```
 OCMAJOR        1.000
 VWEMAJOR       0.059         1.000
 JSMAJOR        0.146         0.407         1.000
 FRMAJOR        0.000         0.000         0.000         0.000


  MAXIMUM LOG-LIKELIHOOD VALUE FOR THE UNRESTRICTED (H1) MODEL IS -
1840.934

UNIVARIATE SAMPLE STATISTICS

     UNIVARIATE HIGHER-ORDER MOMENT DESCRIPTIVE STATISTICS

         Variable/         Mean/     Skewness/   Minimum/ % with
Percentiles
        Sample Size      Variance    Kurtosis    Maximum  Min/Max
20%/60%    40%/80%    Median

     OCMAJOR               9.277      -0.208       6.500    0.30%
8.500      9.130      9.380
             332.000       0.792       0.222      12.250    0.30%
9.500     10.000
     VWEMAJOR             14.027      -0.154       7.000    0.26%
12.000     13.500     14.000
             391.000       5.727      -0.137      19.750    0.51%
14.750     16.000
     JSMAJOR               3.784      -0.904       1.000    1.99%
3.000      4.000      4.000
             402.000       0.961       0.265       5.000   20.40%
4.000      5.000
     FRMAJOR               0.000      -0.443      -5.421    1.66%
-1.421     -0.421      0.079
             421.000       3.446       0.328       4.079    0.71%
0.579      1.579


THE MODEL ESTIMATION TERMINATED NORMALLY
MODEL FIT INFORMATION

Number of Free Parameters                      21

Loglikelihood

          H0 Value                      -1835.760
          H0 Scaling Correction Factor      1.1824
            for MLR

Information Criteria
```

```
          Akaike (AIC)                        3713.521
          Bayesian (BIC)                      3798.416
          Sample-Size Adjusted BIC            3731.776
            (n* = (n + 2) / 24)

MODEL RESULTS
                                                   Two-Tailed
                    Estimate       S.E.  Est./S.E.    P-Value

Within Level

 VWEMAJOR WITH
    OCMAJOR            0.180      0.111      1.627      0.104

 JSMAJOR  WITH
    OCMAJOR            0.051      0.052      0.997      0.319
    VWEMAJOR           0.623      0.129      4.843      0.000

 Residual Variances
    OCMAJOR            0.614      0.072      8.547      0.000
    VWEMAJOR           4.511      0.437     10.317      0.000
    JSMAJOR            0.833      0.093      8.985      0.000

Between Level

 JSMAJOR  WITH
    BETA1J            -0.023      0.021     -1.123      0.261

 OCMAJOR  WITH
    BETA2J            -0.017      0.019     -0.923      0.356

 VWEMAJOR WITH
    BETA3J             0.100      0.099      1.007      0.314
 Means
    OCMAJOR            9.247      0.061    152.213      0.000
    VWEMAJOR          14.001      0.134    104.463      0.000
    JSMAJOR            3.790      0.053     72.042      0.000
    BETA1J             0.059      0.032      1.868      0.062
    BETA2J             0.014      0.032      0.430      0.667
    BETA3J             0.371      0.075      4.973      0.000

 Variances
    OCMAJOR            0.133      0.047      2.804      0.005
    VWEMAJOR           0.426      0.296      1.441      0.150
    JSMAJOR            0.054      0.055      0.988      0.323
    BETA1J             0.016      0.018      0.868      0.386
    BETA2J             0.011      0.008      1.415      0.157
```

```
    BETA3J              0.090      0.070      1.298      0.194

QUALITY OF NUMERICAL RESULTS

     Condition Number for the Information Matrix
0.571E-03
       (ratio of smallest to largest eigenvalue)

DIAGRAM INFORMATION
  Mplus diagrams are currently not available for multilevel
analysis.
  No diagram output was produced.
    Beginning Time:  14:45:47
        Ending Time:  14:46:00
       Elapsed Time:  00:00:13
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```

APPENDIX X - Hypothesis H_{3a} Test Results of Moderation Analysis

```
Mplus VERSION 7
MUTHEN & MUTHEN
05/14/2015   7:46 PM

INPUT INSTRUCTIONS
  Title:
      Hypothesis H3a Testing Moderation Role of Follower Performance
Characteristics on Transactional leadership major scales

  Data:
      File is "C:/Users/Ali/Documents/Stats
methods/Ali/dataclean.dat";

  Variable:
      Names are
          RID    TeamCode Gender  Age   Company    City TenCom
      TenRole    WorkExp    Edu   Job
          Tformatt Tformbeh Tformmot Tformsti Tformcon Tformmaj
      OCac  OCcc
          OCnc OCmajor     VWEbasic VWEcont VWEteam VWEgrow
VWEmajor JSmajor
          TPmajor Tactrew Tactact Tactpass Tactmaj LFnotran FPjob
      FPothers FPself  FPchange
          FPmajor FRlead   FRtrust    FRcour     FRneg FRmajor;
      Missing are all (99);
      Usevariables = TeamCode Tactmaj VWEmajor JSmajor OCmajor
FPmajor int;
      WITHIN = Tactmaj FPmajor int;

      Cluster=TeamCode;

  DEFINE: Center Tactmaj FPmajor int(Grandmean);
  DEFINE: int=Tactmaj*FPmajor;

  Analysis: TYPE= twolevel;
            estimator=MLR;
  MODEL: %WITHIN%
          OCmajor ON Tactmaj FPmajor int;
          VWEmajor ON Tactmaj FPmajor int;
          JSmajor ON Tactmaj FPmajor int;
          %BETWEEN%

  OUTPUT: standardized sampstat;
```

```
*** WARNING in DEFINE command
  The CENTER transformation is done after all other DEFINE
transformations
  have been completed.
*** WARNING
  Data set contains cases with missing on all variables.
  These cases were not included in the analysis.
  Number of cases with missing on all variables:  145
*** WARNING
  Data set contains cases with missing on x-variables.
  These cases were not included in the analysis.
  Number of cases with missing on x-variables:  148
   3 WARNING(S) FOUND IN THE INPUT INSTRUCTIONS

Hypothesis H3a Testing Moderation Role of Follower Performance
Characteristics on Transactional leadership major scales
SUMMARY OF ANALYSIS

Number of groups                                                 1
Number of observations                                         374

Number of dependent variables                                    3
Number of independent variables                                  3
Number of continuous latent variables                            0

Observed dependent variables

  Continuous
   VWEMAJOR    JSMAJOR     OCMAJOR

Observed independent variables
   TACTMAJ     FPMAJOR     INT

Variables with special functions

  Cluster variable      TEAMCODE

  Within variables
   TACTMAJ     FPMAJOR     INT

  Centering (GRANDMEAN)
   TACTMAJ     FPMAJOR     INT

Estimator                                                      MLR
Information matrix                                        OBSERVED
Maximum number of iterations                                   100
Convergence criterion                                    0.100D-05
Maximum number of EM iterations                                500
```

```
Convergence criteria for the EM algorithm
  Loglikelihood change                                   0.100D-02
  Relative loglikelihood change                          0.100D-05
  Derivative                                             0.100D-03
Minimum variance                                         0.100D-03
Maximum number of steepest descent iterations                   20
Maximum number of iterations for H1                           2000
Convergence criterion for H1                             0.100D-03
Optimization algorithm                                         EMA
Input data file(s)
  C:/Users/Ali/Documents/Stats methods/Ali/dataclean.dat
Input data format  FREE
SUMMARY OF DATA
     Number of missing data patterns             7
     Number of clusters                        138

     Average cluster size        2.710

     Estimated Intraclass Correlations for the Y Variables

    Intraclass              Intraclass              Intraclass
Variable  Correlation   Variable  Correlation   Variable
Correlation

VWEMAJOR     0.169      JSMAJOR      0.111      OCMAJOR      0.237

COVARIANCE COVERAGE OF DATA

Minimum covariance coverage value   0.100

     PROPORTION OF DATA PRESENT

           Covariance Coverage
           VWEMAJOR      JSMAJOR       OCMAJOR     TACTMAJ   FPMAJOR
              ________      ________      ________      ________
________
 VWEMAJOR        0.925
 JSMAJOR         0.882         0.955
 OCMAJOR         0.733         0.754       0.775
 TACTMAJ         0.925         0.955       0.775    1.000
 FPMAJOR         0.925         0.955       0.775    1.000
1.000
 INT             0.925         0.955       0.775    1.000
1.000
           Covariance Coverage
              INT
              ________
 INT             1.000
```

SAMPLE STATISTICS

NOTE: The sample statistics for within and between refer to the maximum-likelihood estimated within and between covariance matrices, respectively.

ESTIMATED SAMPLE STATISTICS FOR WITHIN

Means

VWEMAJOR	JSMAJOR	OCMAJOR	TACTMAJ	FPMAJOR
0.000	0.000	0.000	0.000	0.000

Means

	INT
1	0.000

Covariances

	VWEMAJOR	JSMAJOR	OCMAJOR	TACTMAJ	FPMAJOR
VWEMAJOR	5.112				
JSMAJOR	0.794	0.881			
OCMAJOR	0.179	0.061	0.636		
TACTMAJ	1.836	0.475	0.214	3.256	
FPMAJOR	1.591	0.270	0.171	0.997	3.842
INT	42.953	9.911	4.787	59.255	52.274

Covariances

	INT
INT	1419.856

Correlations

VWEMAJOR	JSMAJOR	OCMAJOR	TACTMAJ	FPMAJOR

VWEMAJOR	1.000				
JSMAJOR	0.374	1.000			
OCMAJOR	0.099	0.081	1.000		
TACTMAJ	0.450	0.280	0.149	1.000	
FPMAJOR	0.359	0.147	0.109	0.282	1.000
INT	0.504	0.280	0.159	0.872	0.708

Correlations

	INT
INT	1.000

ESTIMATED SAMPLE STATISTICS FOR BETWEEN

Means

	VWEMAJOR	JSMAJOR	OCMAJOR	TACTMAJ	FPMAJOR
1	14.075	3.736	9.240	0.000	0.000

Means

	INT
1	0.000

Covariances

	VWEMAJOR	JSMAJOR	OCMAJOR	TACTMAJ	FPMAJOR
VWEMAJOR	1.038				
JSMAJOR	0.141	0.110			
OCMAJOR	0.095	0.002	0.197		
TACTMAJ	0.000	0.000	0.000	0.000	
FPMAJOR	0.000	0.000	0.000	0.000	0.000
INT	0.000	0.000	0.000	0.000	0.000

Covariances

	INT
INT	0.000

```
           Correlations
           VWEMAJOR      JSMAJOR     OCMAJOR    TACTMAJ
FPMAJOR
      _________     _________     _________     _________
_________
 VWEMAJOR       1.000
 JSMAJOR        0.417      1.000
 OCMAJOR        0.209      0.014       1.000
 TACTMAJ        0.000      0.000       0.000       0.000
 FPMAJOR        0.000      0.000       0.000       0.000
0.000
 INT            0.000      0.000       0.000       0.000
0.000


           Correlations
              INT
              _________
 INT            0.000


  MAXIMUM LOG-LIKELIHOOD VALUE FOR THE UNRESTRICTED (H1) MODEL IS -
1600.178
THE MODEL ESTIMATION TERMINATED NORMALLY

MODEL FIT INFORMATION
Number of Free Parameters                        21
Loglikelihood

          H0 Value                           -1601.275
          H0 Scaling Correction Factor          1.1453
            for MLR
          H1 Value                           -1600.178
          H1 Scaling Correction Factor          1.1399
            for MLR

Information Criteria

          Akaike (AIC)                        3244.550
          Bayesian (BIC)                      3326.959
          Sample-Size Adjusted BIC            3260.332
            (n* = (n + 2) / 24)

Chi-Square Test of Model Fit

          Value                                  1.991*
          Degrees of Freedom                         3
```

```
          P-Value                            0.5743
          Scaling Correction Factor          1.1016
            for MLR
*   The chi-square value for MLM, MLMV, MLR, ULSMV, WLSM and WLSMV
cannot be used
    for chi-square difference testing in the regular way.  MLM, MLR
and WLSM
    chi-square difference testing is described on the Mplus website.
MLMV, WLSMV,
    and ULSMV difference testing is done using the DIFFTEST option.

RMSEA (Root Mean Square Error Of Approximation)

          Estimate                            0.000

CFI/TLI

          CFI                                 1.000
          TLI                                 1.046

Chi-Square Test of Model Fit for the Baseline Model

          Value                             125.854
          Degrees of Freedom                     15
          P-Value                            0.0000

SRMR (Standardized Root Mean Square Residual)

          Value for Within                    0.009
          Value for Between                   0.190
MODEL RESULTS

                                                        Two-Tailed
                    Estimate       S.E.  Est./S.E.    P-Value



Within Level

 OCMAJOR    ON
    TACTMAJ            0.214      0.245      0.875      0.382
    FPMAJOR            0.131      0.159      0.821      0.412
    INT               -0.010      0.016     -0.636      0.525

 VWEMAJOR   ON
    TACTMAJ            0.973      0.569      1.711      0.087
    FPMAJOR            0.599      0.381      1.574      0.115
    INT               -0.032      0.037     -0.874      0.382
```

JSMAJOR ON				
TACTMAJ	0.068	0.242	0.283	0.778
FPMAJOR	-0.005	0.153	-0.030	0.976
INT	0.004	0.015	0.282	0.778
JSMAJOR WITH				
VWEMAJOR	0.580	0.133	4.351	0.000
OCMAJOR WITH				
VWEMAJOR	0.067	0.107	0.628	0.530
JSMAJOR	0.031	0.051	0.604	0.546
Residual Variances				
VWEMAJOR	3.897	0.429	9.073	0.000
JSMAJOR	0.836	0.094	8.937	0.000
OCMAJOR	0.620	0.068	9.068	0.000
Between Level				
Means				
VWEMAJOR	14.087	0.140	100.681	0.000
JSMAJOR	3.735	0.057	65.584	0.000
OCMAJOR	9.239	0.064	143.996	0.000
Variances				
VWEMAJOR	0.843	0.303	2.785	0.005
JSMAJOR	0.074	0.057	1.281	0.200
OCMAJOR	0.194	0.053	3.644	0.000

STANDARDIZED MODEL RESULTS
STDYX Standardization

	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
Within Level				
OCMAJOR ON				
TACTMAJ	0.484	0.549	0.882	0.378
FPMAJOR	0.321	0.389	0.825	0.409
INT	-0.491	0.769	-0.639	0.523
VWEMAJOR ON				
TACTMAJ	0.767	0.443	1.730	0.084
FPMAJOR	0.513	0.323	1.590	0.112
INT	-0.535	0.608	-0.879	0.379

```
 JSMAJOR    ON
    TACTMAJ           0.129      0.458      0.282      0.778
    FPMAJOR          -0.010      0.314     -0.030      0.976
    INT               0.172      0.611      0.282      0.778

 JSMAJOR  WITH
    VWEMAJOR          0.321      0.067      4.774      0.000

 OCMAJOR  WITH
    VWEMAJOR          0.043      0.068      0.630      0.529
    JSMAJOR           0.043      0.070      0.607      0.544

 Residual Variances
    VWEMAJOR          0.744      0.043     17.262      0.000
    JSMAJOR           0.918      0.029     31.570      0.000
    OCMAJOR           0.971      0.022     43.278      0.000

Between Level

 Means
    VWEMAJOR         15.343      2.741      5.597      0.000
    JSMAJOR          13.764      5.412      2.543      0.011
    OCMAJOR          20.984      2.890      7.260      0.000

 Variances
    VWEMAJOR          1.000      0.000    999.000    999.000
    JSMAJOR           1.000      0.000    999.000    999.000
    OCMAJOR           1.000      0.000    999.000    999.000

STDY Standardization
                                                    Two-Tailed
                   Estimate       S.E.  Est./S.E.    P-Value

Within Level

 OCMAJOR    ON
    TACTMAJ           0.268      0.304      0.882      0.378
    FPMAJOR           0.164      0.198      0.826      0.409
    INT              -0.013      0.020     -0.639      0.523

 VWEMAJOR   ON
    TACTMAJ           0.425      0.245      1.732      0.083
    FPMAJOR           0.262      0.164      1.592      0.111
    INT              -0.014      0.016     -0.879      0.379

 JSMAJOR    ON
    TACTMAJ           0.072      0.254      0.282      0.778
    FPMAJOR          -0.005      0.160     -0.030      0.976
```

```
    INT                0.005      0.016      0.282      0.778

 JSMAJOR  WITH
    VWEMAJOR           0.321      0.067      4.774      0.000

 OCMAJOR  WITH
    VWEMAJOR           0.043      0.068      0.630      0.529
    JSMAJOR            0.043      0.070      0.607      0.544

 Residual Variances
    VWEMAJOR           0.744      0.043     17.262      0.000
    JSMAJOR            0.918      0.029     31.570      0.000
    OCMAJOR            0.971      0.022     43.278      0.000

Between Level

 Means
    VWEMAJOR          15.343      2.741      5.597      0.000
    JSMAJOR           13.764      5.412      2.543      0.011
    OCMAJOR           20.984      2.890      7.260      0.000

 Variances
    VWEMAJOR           1.000      0.000    999.000    999.000
    JSMAJOR            1.000      0.000    999.000    999.000
    OCMAJOR            1.000      0.000    999.000    999.000

STD Standardization

                                                    Two-Tailed
                    Estimate       S.E.  Est./S.E.    P-Value

Within Level

 OCMAJOR    ON
    TACTMAJ            0.214      0.245      0.875      0.382
    FPMAJOR            0.131      0.159      0.821      0.412
    INT               -0.010      0.016     -0.636      0.525

 VWEMAJOR   ON
    TACTMAJ            0.973      0.569      1.711      0.087
    FPMAJOR            0.599      0.381      1.574      0.115
    INT               -0.032      0.037     -0.874      0.382

 JSMAJOR    ON
    TACTMAJ            0.068      0.242      0.283      0.778
    FPMAJOR           -0.005      0.153     -0.030      0.976
    INT                0.004      0.015      0.282      0.778

 JSMAJOR  WITH
```

```
    VWEMAJOR           0.580      0.133      4.351      0.000

 OCMAJOR  WITH
    VWEMAJOR           0.067      0.107      0.628      0.530
    JSMAJOR            0.031      0.051      0.604      0.546

 Residual Variances
    VWEMAJOR           3.897      0.429      9.073      0.000
    JSMAJOR            0.836      0.094      8.937      0.000
    OCMAJOR            0.620      0.068      9.068      0.000

Between Level

 Means
    VWEMAJOR          14.087      0.140    100.681      0.000
    JSMAJOR            3.735      0.057     65.584      0.000
    OCMAJOR            9.239      0.064    143.996      0.000

 Variances
    VWEMAJOR           0.843      0.303      2.785      0.005
    JSMAJOR            0.074      0.057      1.281      0.200
    OCMAJOR            0.194      0.053      3.644      0.000

R-SQUARE

Within Level

    Observed                                        Two-Tailed
    Variable        Estimate       S.E.  Est./S.E.    P-Value

    VWEMAJOR           0.256      0.043      5.952      0.000
    JSMAJOR            0.082      0.029      2.831      0.005
    OCMAJOR            0.029      0.022      1.276      0.202

Between Level
QUALITY OF NUMERICAL RESULTS
     Condition Number for the Information Matrix
0.182E-06
       (ratio of smallest to largest eigenvalue)
DIAGRAM INFORMATION
  Mplus diagrams are currently not available for multilevel
analysis.
  No diagram output was produced.
     Beginning Time:  19:46:18
        Ending Time:  19:46:21
       Elapsed Time:  00:00:03
MUTHEN & MUTHEN
3463 Stoner Ave.
```

Los Angeles, CA 90066
Tel: (310) 391-9971
Fax: (310) 391-8971
Web: www.StatModel.com
Support: Support@StatModel.com

APPENDIX Y - Hypothesis H_{3b} Test Results of Moderation Analysis

```
Mplus VERSION 7
MUTHEN & MUTHEN
05/14/2015   7:33 PM

INPUT INSTRUCTIONS

  Title:
      Hypothesis H3b Testing Moderation Role of Follower
Relationship Characteristics on Transformational leadership major
scales

  Data:
      File is "C:/Users/Ali/Documents/Stats
methods/Ali/dataclean.dat";

  Variable:
      Names are
          RID    TeamCode Gender  Age   Company    City TenCom
      TenRole    WorkExp    Edu   Job
          Tformatt Tformbeh Tformmot Tformsti Tformcon Tformmaj
      OCac  OCcc
          OCnc OCmajor     VWEbasic VWEcont VWEteam VWEgrow
VWEmajor JSmajor
          TPmajor Tactrew Tactact Tactpass Tactmaj LFnotran FPjob
      FPothers FPself  FPchange
          FPmajor FRlead    FRtrust    FRcour     FRneg FRmajor;
      Missing are all (99);
      Usevariables = TeamCode Tformmaj VWEmajor JSmajor OCmajor
FRmajor int;
      WITHIN = Tformmaj FRmajor int;

      Cluster=TeamCode;

  DEFINE: Center Tformmaj FRmajor int(Grandmean);
  DEFINE: int=Tformmaj*FRmajor;

  Analysis: TYPE= twolevel;
            estimator=MLR;
  MODEL: %WITHIN%
          OCmajor ON Tformmaj FRmajor int;
          VWEmajor ON Tformmaj FRmajor int;
          JSmajor ON Tformmaj FRmajor int;
          %BETWEEN%
```

```
  OUTPUT: sampstat;
  stand;



*** WARNING in DEFINE command
  The CENTER transformation is done after all other DEFINE
transformations
  have been completed.
*** WARNING
  Data set contains cases with missing on all variables.
  These cases were not included in the analysis.
  Number of cases with missing on all variables:  145
*** WARNING
  Data set contains cases with missing on x-variables.
  These cases were not included in the analysis.
  Number of cases with missing on x-variables:  172
*** WARNING
  Data set contains cases with missing on all variables except
  x-variables.  These cases were not included in the analysis.
  Number of cases with missing on all variables except x-variables:
1
   4 WARNING(S) FOUND IN THE INPUT INSTRUCTIONS
Hypothesis H3b Testing Moderation Role of Follower Relationship
Characteristics on Transformational leadership major scales

SUMMARY OF ANALYSIS

Number of groups                                                 1
Number of observations                                         349

Number of dependent variables                                    3
Number of independent variables                                  3
Number of continuous latent variables                            0

Observed dependent variables

  Continuous
   VWEMAJOR    JSMAJOR     OCMAJOR

Observed independent variables
   TFORMMAJ    FRMAJOR     INT

Variables with special functions

  Cluster variable      TEAMCODE

  Within variables
```

```
   TFORMMAJ    FRMAJOR     INT

  Centering (GRANDMEAN)
   TFORMMAJ    FRMAJOR     INT


Estimator                                                  MLR
Information matrix                                    OBSERVED
Maximum number of iterations                               100
Convergence criterion                                0.100D-05
Maximum number of EM iterations                            500
Convergence criteria for the EM algorithm
  Loglikelihood change                               0.100D-02
  Relative loglikelihood change                      0.100D-05
  Derivative                                         0.100D-03
Minimum variance                                     0.100D-03
Maximum number of steepest descent iterations               20
Maximum number of iterations for H1                       2000
Convergence criterion for H1                         0.100D-03
Optimization algorithm                                     EMA

Input data file(s)
  C:/Users/Ali/Documents/Stats methods/Ali/dataclean.dat
Input data format  FREE

SUMMARY OF DATA

     Number of missing data patterns            7
     Number of clusters                       133

     Average cluster size        2.624

     Estimated Intraclass Correlations for the Y Variables

        Intraclass                Intraclass                Intraclass
 Variable  Correlation   Variable  Correlation   Variable
Correlation

 VWEMAJOR     0.207      JSMAJOR      0.113      OCMAJOR      0.127

COVARIANCE COVERAGE OF DATA

Minimum covariance coverage value   0.100

     PROPORTION OF DATA PRESENT
           Covariance Coverage
              VWEMAJOR      JSMAJOR       OCMAJOR       TFORMMAJ
FRMAJOR
```

```
              ________      ________      ________      ________
 ________
 VWEMAJOR       0.940
 JSMAJOR        0.908         0.966
 OCMAJOR        0.777         0.791         0.811
 TFORMMAJ       0.940         0.966         0.811         1.000
 FRMAJOR        0.940         0.966         0.811         1.000
1.000
 INT            0.940         0.966         0.811         1.000
1.000

           Covariance Coverage
              INT
              ________
 INT            1.000
SAMPLE STATISTICS

NOTE:  The sample statistics for within and between refer to the
       maximum-likelihood estimated within and between covariance
       matrices, respectively.

     ESTIMATED SAMPLE STATISTICS FOR WITHIN

           Means
      VWEMAJOR      JSMAJOR       OCMAJOR      TFORMMAJ    FRMAJOR
     ________      ________      ________      ________
 ________
 1    0.000         0.000         0.000         0.000         0.000

           Means
              INT
              ________
 1              0.000

           Covariances
      VWEMAJOR      JSMAJOR       OCMAJOR       TFORMMAJ
FRMAJOR
     ________      ________      ________      ________
 ________
 VWEMAJOR    4.805
 JSMAJOR     0.629      0.845
 OCMAJOR     0.158      0.083      0.629
 TFORMMAJ    4.478      1.202      0.404        14.479
 FRMAJOR     1.197      0.207      -0.023       1.383         3.498
 INT         84.388     20.222      4.118       229.338       84.091

           Covariances
              INT
```

INT	4847.163

Correlations

	VWEMAJOR	JSMAJOR	OCMAJOR	FORMMAJ	FRMAJOR
VWEMAJOR	1.000				
JSMAJOR	0.312	1.000			
OCMAJOR	0.091	0.114	1.000		
TFORMMAJ	0.537	0.344	0.134	1.000	
FRMAJOR	0.292	0.121	-0.015	0.194	1.000
INT	0.553	0.316	0.075	0.866	0.646

Correlations

	INT
INT	1.000

ESTIMATED SAMPLE STATISTICS FOR BETWEEN

Means

	VWEMAJOR	JSMAJOR	OCMAJOR	TFORMMAJ	FRMAJOR
1	14.193	3.811	9.286	0.000	0.000

Means

	INT
1	0.000

Covariances

	VWEMAJOR	JSMAJOR	OCMAJOR	TFORMMAJ	FRMAJOR
VWEMAJOR	1.254				
JSMAJOR	0.157	0.107			
OCMAJOR	0.037	0.021	0.092		
TFORMMAJ	0.000	0.000	0.000	0.000	
FRMAJOR	0.000	0.000	0.000	0.000	0.000
INT	0.000	0.000	0.000	0.000	0.000

Covariances

	INT
INT	0.000

Correlations

	VWEMAJOR	JSMAJOR	OCMAJOR	TFORMMAJ	FRMAJOR
VWEMAJOR	1.000				
JSMAJOR	0.428	1.000			
OCMAJOR	0.109	0.210	1.000		
TFORMMAJ	0.000	0.000	0.000	0.000	
FRMAJOR	0.000	0.000	0.000	0.000	0.000
INT	0.000	0.000	0.000	0.000	0.000

Correlations

	INT
INT	0.000

MAXIMUM LOG-LIKELIHOOD VALUE FOR THE UNRESTRICTED (H1) MODEL IS -1485.756

THE MODEL ESTIMATION TERMINATED NORMALLY

MODEL FIT INFORMATION

Number of Free Parameters 21

Loglikelihood

H0 Value	-1486.908
H0 Scaling Correction Factor for MLR	1.2022
H1 Value	-1485.756
H1 Scaling Correction Factor for MLR	1.2079

Information Criteria

Akaike (AIC)	3015.817
Bayesian (BIC)	3096.773
Sample-Size Adjusted BIC (n* = (n + 2) / 24)	3030.154

```
Chi-Square Test of Model Fit

          Value                              1.848*
          Degrees of Freedom                      3
          P-Value                            0.6046
          Scaling Correction Factor          1.2478
            for MLR
*   The chi-square value for MLM, MLMV, MLR, ULSMV, WLSM and WLSMV
cannot be used
    for chi-square difference testing in the regular way.  MLM, MLR
and WLSM
    chi-square difference testing is described on the Mplus website.
MLMV, WLSMV,
    and ULSMV difference testing is done using the DIFFTEST option.

RMSEA (Root Mean Square Error Of Approximation)

          Estimate                           0.000

CFI/TLI

          CFI                                1.000
          TLI                                1.049

Chi-Square Test of Model Fit for the Baseline Model

          Value                            131.546
          Degrees of Freedom                     15
          P-Value                            0.0000

SRMR (Standardized Root Mean Square Residual)

          Value for Within                   0.008
          Value for Between                  0.200
MODEL RESULTS
                                                    Two-Tailed
                    Estimate       S.E.  Est./S.E.    P-Value

Within Level

 OCMAJOR    ON
    TFORMMAJ           0.279      0.083      3.349      0.001
    FRMAJOR            0.310      0.125      2.493      0.013
    INT               -0.203      0.006     -2.872      0.004

 VWEMAJOR   ON
    TFORMMAJ           0.475      0.227      2.090      0.037
```

```
   FRMAJOR              0.481        0.337        1.426        0.154
   INT                 -0.013        0.017       -0.811        0.418

 JSMAJOR    ON
   TFORMMAJ             0.186        0.101        1.838        0.066
   FRMAJOR              0.172        0.147        1.170        0.242
   INT                 -0.008        0.007       -1.055        0.291

 JSMAJOR  WITH
   VWEMAJOR             0.305        0.121        2.518        0.012

 OCMAJOR  WITH
   VWEMAJOR             0.057        0.099        0.574        0.566
   JSMAJOR              0.057        0.049        1.163        0.245

 Residual Variances
   VWEMAJOR             3.301        0.348        9.491        0.000
   JSMAJOR              0.754        0.082        9.219        0.000
   OCMAJOR              0.605        0.080        7.577        0.000

Between Level

 Means
   VWEMAJOR            14.195        0.146       97.338        0.000
   JSMAJOR              3.804        0.056       68.321        0.000
   OCMAJOR              9.284        0.055      167.825        0.000

 Variances
   VWEMAJOR             1.137        0.464        2.450        0.014
   JSMAJOR              0.086        0.054        1.587        0.113
   OCMAJOR              0.080        0.059        1.355        0.175

STANDARDIZED MODEL RESULTS
STDYX Standardization

                                                           Two-Tailed
                    Estimate       S.E.  Est./S.E.    P-Value

Within Level

 OCMAJOR    ON
   TFORMMAJ             1.328        0.401        3.312        0.001
   FRMAJOR              0.727        0.294        2.477        0.013
   INT                 -1.546        0.545       -2.839        0.005

 VWEMAJOR   ON
   TFORMMAJ             0.819        0.389        2.105        0.035
   FRMAJOR              0.408        0.284        1.436        0.151
```

```
   INT                  -0.426       0.524      -0.812       0.417

 JSMAJOR    ON
   TFORMMAJ              0.763       0.417       1.831       0.067
   FRMAJOR               0.348       0.298       1.165       0.244
   INT                  -0.577       0.549      -1.051       0.293

 JSMAJOR  WITH
   VWEMAJOR              0.193       0.074       2.619       0.009

 OCMAJOR  WITH
   VWEMAJOR              0.040       0.070       0.574       0.566
   JSMAJOR               0.084       0.070       1.210       0.226

 Residual Variances
   VWEMAJOR              0.679       0.057      12.008       0.000
   JSMAJOR               0.882       0.040      21.785       0.000
   OCMAJOR               0.949       0.023      41.029       0.000

Between Level

 Means
   VWEMAJOR             13.314       2.699       4.933       0.000
   JSMAJOR              13.001       4.144       3.138       0.002
   OCMAJOR              32.812      12.167       2.697       0.007

 Variances
   VWEMAJOR              1.000       0.000     999.000     999.000
   JSMAJOR               1.000       0.000     999.000     999.000
   OCMAJOR               1.000       0.000     999.000     999.000

STDY Standardization
                                                          Two-Tailed
                    Estimate       S.E.  Est./S.E.    P-Value

Within Level

 OCMAJOR    ON
   TFORMMAJ              0.349       0.105       3.338       0.001
   FRMAJOR               0.389       0.156       2.488       0.013
   INT                  -0.203       0.008      -2.855       0.004

 VWEMAJOR   ON
   TFORMMAJ              0.215       0.102       2.108       0.035
   FRMAJOR               0.218       0.152       1.438       0.151
   INT                  -0.006       0.008      -0.812       0.417

 JSMAJOR    ON
```

```
    TFORMMAJ           0.201      0.109      1.835      0.067
    FRMAJOR            0.186      0.159      1.166      0.244
    INT               -0.008      0.008     -1.052      0.293

 JSMAJOR  WITH
    VWEMAJOR           0.193      0.074      2.619      0.009

 OCMAJOR  WITH
    VWEMAJOR           0.040      0.070      0.574      0.566
    JSMAJOR            0.084      0.070      1.210      0.226

 Residual Variances
    VWEMAJOR           0.679      0.057     12.008      0.000
    JSMAJOR            0.882      0.040     21.785      0.000
    OCMAJOR            0.949      0.023     41.029      0.000

Between Level

 Means
    VWEMAJOR          13.314      2.699      4.933      0.000
    JSMAJOR           13.001      4.144      3.138      0.002
    OCMAJOR           32.812     12.167      2.697      0.007

 Variances
    VWEMAJOR           1.000      0.000    999.000    999.000
    JSMAJOR            1.000      0.000    999.000    999.000
    OCMAJOR            1.000      0.000    999.000    999.000

STD Standardization

                                                    Two-Tailed
                    Estimate       S.E.  Est./S.E.    P-Value

Within Level

 OCMAJOR    ON
    TFORMMAJ           0.279      0.083      3.349      0.001
    FRMAJOR            0.310      0.125      2.493      0.013
    INT               -0.203      0.006     -2.872      0.004

 VWEMAJOR   ON
    TFORMMAJ           0.475      0.227      2.090      0.037
    FRMAJOR            0.481      0.337      1.426      0.154
    INT               -0.013      0.017     -0.811      0.418

 JSMAJOR    ON
    TFORMMAJ           0.186      0.101      1.838      0.066
    FRMAJOR            0.172      0.147      1.170      0.242
    INT               -0.008      0.007     -1.055      0.291
```

```
 JSMAJOR  WITH
    VWEMAJOR           0.305      0.121      2.518      0.012

 OCMAJOR  WITH
    VWEMAJOR           0.057      0.099      0.574      0.566
    JSMAJOR            0.057      0.049      1.163      0.245

 Residual Variances
    VWEMAJOR           3.301      0.348      9.491      0.000
    JSMAJOR            0.754      0.082      9.219      0.000
    OCMAJOR            0.605      0.080      7.577      0.000

Between Level
 Means
    VWEMAJOR          14.195      0.146     97.338      0.000
    JSMAJOR            3.804      0.056     68.321      0.000
    OCMAJOR            9.284      0.055    167.825      0.000

 Variances
    VWEMAJOR           1.137      0.464      2.450      0.014
    JSMAJOR            0.086      0.054      1.587      0.113
    OCMAJOR            0.080      0.059      1.355      0.175

R-SQUARE
Within Level

    Observed                                        Two-Tailed
    Variable        Estimate       S.E.  Est./S.E.    P-Value

    VWEMAJOR           0.321      0.057      5.669      0.000
    JSMAJOR            0.118      0.040      2.911      0.004
    OCMAJOR            0.051      0.023      2.209      0.027
Between Level
QUALITY OF NUMERICAL RESULTS
     Condition Number for the Information Matrix
0.292E-05
       (ratio of smallest to largest eigenvalue)
DIAGRAM INFORMATION
  Mplus diagrams are currently not available for multilevel
analysis.
  No diagram output was produced.
     Beginning Time:  19:33:21
        Ending Time:  19:33:24
       Elapsed Time:  00:00:03
MUTHEN & MUTHEN
3463 Stoner Ave.
Los Angeles, CA  90066
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END OF THE THESIS