

**Bangor University**

## **DOCTOR OF PHILOSOPHY**

### **Conceptualisation, measurement, and impact of transformational leadership in military recruit training**

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*Award date:*  
2008

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**Conceptualisation, measurement, and impact of  
transformational leadership in military recruit training**

**Ph.D. Thesis**

**Calum Alexander Arthur**

**Thesis submitted to Bangor University in fulfilment of the  
requirements for the degree of Doctor of Philosophy at the  
School of Sport, Health, and Exercise Sciences, Bangor  
University.**

**2008**



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## **Acknowledgements**

I would first like to acknowledge and thank the Army Recruitment and Training Division for partly funding this PhD. I would also like to formally thank and acknowledge Adie Sharrif, Izzy Isaacs, Clive Gill, and Kathy Munoch for their role in Chapter 2.

I would also like to thank all the members of the Training and Leadership Advisory Team at ITC(C) for their courage in taking on and embracing such a project.

Where do I start? So many people have been a great inspiration, provided me with support and challenged me when necessary. When reflecting on this PhD I look back to the early days up in Edinburgh, seems such a long time ago... Those early days living at 13 St. Bernards Crescent with the boys: Fergus; Roddy; and Diarmid. I feel immensely privileged to have lived with you guys, I have learned more about strength and courage from the three of you than I have in any book, thank you! And of course not withstanding Johnny and Nick, *The London Saints*, whose enormous generosity and compassion still leaves me speechless.

I feel very privileged to have such a loving and supportive family (and extended family) who have provided me with the support to extend myself and achieve far more than I ever dared to dream, safe in the knowledge that you will always be there no matter what, thank you mum and dad!

The wee felly (Gav), I can remember sitting in my room (3 Mountain View) when you suggested I do a PhD, your contagious enthusiasm and spirit instilled in me a sense of belief that it might just be possible.

Lew, you have supported and challenged me to achieve much more than I ever imagined possible. Your ability to cut through the irrelevances and see the important things is truly phenomenal. Not only have you have you provided me with expert academic guidance but you have also been there as a friend and a sailing companion, many an adventure lies ahead. I wrote this 8 years ago about you Lew, and it remains just as true today, if not more so, "an the hour with the man is worth 4 with any other...."



## **Summary**

This thesis examines some of the measurement, conceptual, predictive, and intervention issues surrounding transformational leadership theory. Chapter 1 reviews the research literature on transformational leadership as it relates to the above issues. This review identifies several questions worthy of future investigation: (1) How should transformational leadership be conceptualised and measured? (2) What exactly do transformational leaders provide their followers with? (3) To what extent are the different transformational leader behaviours modifiable? and (4) Do transformational leadership interventions result in high levels of follower and organizational outcomes?

Chapter 2 contains two studies that explore a differentiated conceptualisation of transformational leadership, the predictive qualities of the different transformational behaviours, and the extent to which the different transformational leader behaviours are malleable. A total of 636 participants (Royal Marine Commando recruits undergoing basic training) took part in these studies. Specifically, Study 1 used a correlational design to identify an appropriate measurement model and what the important transformational leader behaviours were, i.e., the behaviours that were significant predictors of successful completion of training (contingent reward, fosters acceptance of group goals, appropriate role modelling, inspirational motivation, and individual consideration). This information (as well as the level of use of the different behaviours) was then used to inform the intervention in Study 2. Study 2 used a mixed model design to assess the efficacy of a differentiated transformational leadership intervention. The results revealed that, in comparison to the control group, the intervention group's followers rated their leader as being higher in three of the four behaviours that were identified in Study 1 as being

important (fosters acceptance of group goals, individual consideration, and contingent reward). The recruit self-report variables of self-confidence, resilience, and satisfaction were also higher in the experimental group compared to the control group. Unfortunately, for various reasons objective performance data was not available.

Chapter 3 describes a large scale longitudinal experimental study that included objective performance/outcome data. A total of 3468 participants (Infantry recruits undergoing basic training) took part in this study. Chapter 3 was an organisation wide study where approximately half the organisation formed the intervention group and the other half formed the control group. Study 1 identified the important leader behaviours in Infantry recruit training (contingent reward, inspirational motivation, fostering acceptance of group goals, and individual consideration). Study 2 then sought to increase the important behaviours that were identified in Study 1. The results of the intervention study revealed that six of the seven leadership behaviours examined were positively affected by the intervention (high performance expectations was not targeted or impacted by the intervention). Follower outcomes (self-confidence, resilience, satisfaction, and group cohesion) and organizational outcomes (1<sup>st</sup> time pass rates, total pass rates, and remedial pass rates) were also positively affected by the intervention.

Chapter 4 contained three studies that examined the proposition that transformational leaders provide their followers with vision, support, and challenge. A total of 1212 participants (Infantry recruits undergoing basic training) took part in this study. Studies 1 and 2 explored the theoretical rationale and internal validity of the proposed model. Study 3 then tested the predictive validity of the vision, support, and challenge model. The results revealed that vision, support, and challenge demonstrated

acceptable levels of internal consistency and differentially predicted the outcomes included in the study (leader inspires extra effort, satisfaction, self-confidence, and performance).

The final chapter discusses the findings of the thesis and provides suggestions for future research.

## Chapter 1

### General Introduction

The ability to lead, inspire and motivate people is an important human characteristic. It has been suggested that leadership is vital for effective organizational and societal functioning (Antonakis, Cianciolo, & Sternberg, 2004). Frequently, great or poor organisational, military, or sport performances have been accredited to great leadership or lack thereof. It is not surprising therefore that leadership is claimed to be one of the most studied domains in the social sciences (Antonakis et al., 2004). Leadership has been studied from a number of different perspectives; e.g., trait based approaches, behaviour based approaches, contingency based approaches, relational based approaches, skeptic based approaches, and information-processing based approaches etc. This has resulted in a large number of different theories and models of leadership. Indeed, as long ago as 1971, Fiedler (1971) stated that, "There are almost as many definitions of leadership as there are theories of leadership - and there almost as many theories of leadership as there are psychologists working in the field." (p.1). One such theory of leadership that offers much promise is Bass's (1985) transformational leadership theory.

### *Transformational Leadership*

Transformational leadership has been shown to positively impact a wide range of individual and organizational outcomes in a variety of contexts, including military (e.g., Bass, Avolio, Jung, & Berson, 2003; Dvir, Eden, Avolio, & Shamir, 2002), sport (e.g., Charbonneau, Barling, & Kelloway, 2001), business (e.g., Barling, Weber, & Kelloway, 1996; Howell & Avolio, 1993; Jung, Chow, & Wu, 2003; Podsakoff, Mackenzie, Moorman, & Fetter, 1990), the public sector (e.g., Rafferty & Griffin, 2004), and education (e.g., Koh, Steers, & Terborg, 1995).

Bass's (1985) theory of transformational leadership extended the work of theorists such as Weber (1924/1947), Berlew (1974), Downtown (1973), House (1977) and Burns (1978). A common factor of these theorists was that they all referred to, or explicitly delineated, a distinct component of leadership that involved inspiring followers via charismatic or emotional appeals, and normally included some sort of vision component. Bass (1985) integrated these theories (and others) to create transformational leadership theory. Essentially, transformational leadership theory states that transformational leaders inspire followers via emotional appeals to achieve their full potential by transcending their own self-interest for the better of the team or organization. This is in contrast to the earlier behavioural approaches that described leadership as a transactional process whereby incentives and punishments were used to gain compliance. In developing transformational leadership theory, Bass integrated Burns's work on political leadership into the organizational domain. However, Bass modified Burn's theory by stating that transactional and transformational leadership were not bipolar constructs (as Burns had proposed); rather, transformational leaders inspire followers to invest extra effort beyond that required for the realisation of the transactional contract (i.e., a leader can display both transactional and transformational behaviours). Moreover, Bass argued that transactional behaviour is an essential requirement upon which transformational leadership builds (Bass, 1985).

Bass's (1985) transformational leadership theory was the first to integrate the earlier behavioural approaches with what Bryman (1992) called that "new paradigm" of leadership (cf. Sashkin, 2004). The "new paradigm" of leadership essentially refers to the emotional component of leadership and includes the charismatic approaches.

Subsequently, there was an abundance of research on numerous related but distinct theories and models that emerged from, or were associated with, the “new paradigm”, for example: Leadership and power motivation (House & Shamir, 1993; Shamir, House, & Arthur, 1993); exceptional chief executives (Bennis & Nanus, 1985); charismatic leadership (Conger & Kanungo, 1988, 1994, 1998); stratified systems theory (Jaques, 1986); best leadership behaviours (Kouzes & Posner, 1987); and visionary leadership (Sashkin, 1984). Whilst there is wide agreement about the potential positive effects of transformational leadership, there is no such agreement regarding exactly what the specific behaviours are that make up transformational leadership or how these behaviours should be measured.

Although our knowledge of transformational leadership has been greatly enhanced there are four fundamental issues about transformational leadership that will be addressed in this PhD. Broadly, the current thesis will seek to address the following issues: (1) The conceptualisation and measurement of transformational leadership; (2) Exploration of the underlying mechanisms by which transformational leadership exerts its influence; (3) The extent to which different transformational leader behaviours are modifiable; and (4) The extent to which high levels of transformational leadership result in high levels of follower and organizational outcomes.

## **Conceptualisation and measurement**

### *Multifactor Leadership Questionnaire (MLQ)*

The most widely used measure of transformational leadership is the Multifactor Leadership Questionnaire (MLQ) and its variant forms (e.g., Avolio, Bass, & Jung, 1995;

Bass & Avolio, 1995; 2000). Indeed, the development of this measure is probably one of the factors that have contributed to the increased research interest in transformational leadership, and perhaps leadership research as a whole. The MLQ has undergone many developments since its conception in 1985. The early versions of the MLQ (Bass, 1985) consisted of three behaviours that were considered transformational, Bass (1985):

*Charismatic leadership* – leadership that instils pride, faith, and respect, shows a special gift for seeing what is really important, and demonstrates a sense of mission; *intellectual stimulation* – leadership that provide ideas which result in a rethinking of issues that had never been questioned before and that enables subordinates to think about old problems in new ways; and *individualized consideration* – leadership that delegates assignments to provide learning opportunities, gives personal attention to neglected members, and treats each subordinate as an individual. Bass (1985) also identified a cluster of items that emerged from the charismatic item pool that he referred to as *inspirational leadership*. These items were: Is an inspiration to us; Inspires loyalty to him/her; and inspires loyalty to the organization. The above factors formed the basis of the behaviours measured in the early versions of the MLQ. However, the operationalisation of the factors often varied from study to study. Frequently, inspiration was combined with charisma or all the scales were combined to form a global construct.

It is important to note that the MLQ and its variant forms include a measure of transactional leadership that has also undergone many revisions. However, the current thesis is primarily concerned with transformational leadership and does not intend to examine transactional leadership in any depth. Therefore, the measurement of



transactional leadership will only be discussed when it is directly relevant to issues raised in the thesis.

The early versions of the MLQ have been criticised on both theoretical and empirical grounds. Hunt (1991) and Yukl (1998) suggested that the early versions of the MLQ bundled together leader behaviours, leader attributions, and leader outcomes, and Yukl (1999) suggested that the separate leader behaviours often contained more than one conceptually distinct construct. For example, Yukl (1999) suggested that individualized consideration contained two main behaviours that were theoretically distinct, namely, supportive leadership and developmental leadership. More recently, Rafferty and Griffin (2006) found empirical evidence that supported this criticism. Furthermore, the conceptualisation of intellectual stimulation has also been criticised on a number of grounds including it being a diverse and ambiguous construct, some aspects of intellectual stimulation may overlap with other transformational behaviours (e.g., inspirational motivation and individualized support), and there being no clear explanation of precisely what the leader does to be intellectually stimulating (Yukl, 1999). However, the most serious conceptual criticism that has been levelled at early versions of the MLQ relates to the conceptualisation of charisma. Charisma is suggested to lump together behaviours, impact and outcomes, and attributed characteristics (Yukl, 1999).

The early versions of the MLQ underwent many revisions resulting in a large number of different forms being used. For example, Bass (1985) referred to at least four different forms, Hater and Bass (1988) referred to Form 5, Waldman, Bass, and Yammarino (1990) referred to Form 11R, and Howell and Avolio (1993) referred to Form 10. These early versions of the MLQ have displayed questionable psychometric

properties. For example, Bycio, Hackett, and Allen (1995) explicitly tested the factor structure of one of the early versions of the MLQ (MLQ-1). Their results questioned the factor structure leading them to suggest that a two factor representation was most appropriate with one factor representing a global construct of transformational leadership and the other representing transactional leadership.

In response to these criticisms and shortcomings, Bass and his colleagues further developed the MLQ resulting in the MLQ-5X (Bass & Avolio, 1995; 2000). Essentially, the major conceptual and measurement changes Bass and Avolio (1995) made to the MLQ was to delineate the charisma scale into idealized influence (behaviour), idealized influence (attributed) and inspirational motivation. The transformational leader behaviours included in the MLQ-5X (Bass & Avolio, 1995) are: *idealized influence (attributed)* – refers to the socialised charisma of the leader, whether the leader is perceived as being confident and powerful, and whether the leader is focussed on higher order ideals and ethics; *idealized influence (behaviours)* – refers to charismatic actions of the leader that are centred on values, beliefs, and a sense of mission; *inspirational motivation* – refers to the ways in which the leader energises his/her followers by viewing the future with optimism, stressing ambitious goals, projecting an idealized vision, and communicating to followers that the vision is achievable; *intellectual stimulation* – Gets followers to question the tried and true ways of solving problems, encourages them to question the methods they use to improve upon them; and *individualized consideration* – Focuses on understanding the needs of each follower and works continuously to get them to develop to their full potential.

Many alternative factor structures of the MLQ5-X have been purported. For example, in Bass and Avolio's (1995) original testing of the MLQ5-X idealized influence (behaviour), idealized influence (attributed) and inspirational motivation were kept as distinct constructs. However, in Bass and Avolio's (2000) version of the MLQ-5X, they merged idealized influence (behaviour), idealized influence (attributed) and inspirational motivation to create a factor which they labelled charisma/inspirational. Bass and Avolio (2000) suggested that a six factor representation (containing 3 transformational factors: charisma/inspirational; intellectual stimulation; and individualized consideration) of the MLQ-5X was the most parsimonious representation. They also proposed a hierarchical model of transformational leadership that consisted of charisma, inspirational and intellectual stimulation as one factor with individualized consideration and contingent reward as the second factor. Whilst Bass and Avolio (1995, 2000) provide evidence for varying factor representations of the MLQ5-X, no clear evidence in favour of any of the factor structures was offered.

Avolio, Bass, and Jung (1999) re-examined the structural properties of the MLQ-5X. They first examined the original six factor model proposed by Bass (1985) (charisma/inspirational; intellectual stimulation; individualized consideration; contingent reward; active management-by-exception; and passive-avoidant leadership). This six factor structure was revealed to have inadequate structural properties. Subsequently, Avolio and colleagues used the Modification Indices to trim the scales to produce an acceptable fit (the original 80 items were reduced to 36 items). In an endeavour to establish the optimal factor structure of the MLQ5-X, Avolio and colleagues then examined the six factor model against nine alternative factor structures (only using the 36

items that were identified in the earlier scale modifications). The six factor structure was revealed to be a better fit than the alternative factor structures tested except for a seven factor model that consisted of: Charisma/inspirational; intellectual stimulation; individualized consideration; contingent reward; laissez-faire; active management-by-exception; and passive-avoidant leadership. However, the inter-factor correlations between the transformational leader scales were high, .82 in some cases, and the average correlation between contingent reward and the transformational leader behaviours was also high, .75.

Whilst the MLQ5-X did answer some of the criticisms that were levelled against the earlier versions of the MLQ, this version was not without its own criticisms. For example, Tejeda, Scandura, and Pillai (2001) failed to replicate the factor structure of the MLQ-5X as proposed by Avolio et al. (1999). Tejeda et al. (2001) then re-analyzed the data using a modified version that contained 3-items for each of the scales. This new measure was claimed to have adequate psychometric and predictive properties. However, the scales were shown to have high inter-factor correlations (inter-factor correlations ranged from .72 to .83). Tejeda and colleagues did acknowledge this by stating that the measure needed further theoretical development and psychometric testing. Furthermore, the exact process by which the 3 items for each scale were derived at was not provided by the authors, except that the scales were trimmed to maximise internal consistency. Consequently, the item selection might have been a data driven process and there may not have been any theoretical underpinnings to item selection (this argument can also be levelled at the apparent process by which Avolio et al. (1999) refined the MLQ-5X). This is a problematic approach to scale development as serious questions

have been raised about the practice of post hoc model adjustments being made purely on data driven grounds (see for example, Biddle, Markland, Chatzisarantis, & Sparkes, 2001; Markland, 2007).

In another study, Carless (1998) suggested that the MLQ-5X does not measure distinct transformational behaviours, rather it taps one higher order factor of transformational leadership. Bono and Anderson (2005) supported this claim, noting that the correlations between the separate behaviours were very high leading them to collapse the separate behaviours into one higher order factor representing transformational leadership. This approach has also been adopted by many other authors (e.g., Bass et al., 2003; Bono & Anderson, 2005; Dvir et al., 2002; Judge & Piccolo, 2004; Jung et al., 2003; Pillai, Schriesheim, & Williams, 1999; Ployhart, Lim, & Chan, 2001; Shin & Zhou, 2003; Whittington, Goodwin, & Murray, 2004).

The high inter-factor correlations between the sub-dimensions of the MLQ-5X has led researchers to adopt alternative approaches to the conceptualisation and measurement of transformational leadership. For example, as reported above, some authors have collapsed the transformational factors in the MLQ to create a global construct (e.g., Bono & Anderson, 2005; Dvir et al., 2002; Judge & Piccolo, 2004; Pillai et al., 1999; Jung et al., 2003). Others have collapsed the MLQ into a reduced set of factors (e.g., Barling, et al., 1996; Beauchamp, Welch, & Huley, 2007; Charbonneau, et al., 2001), and still others have retained a fuller factor structure (e.g., Antonakis et al., 2003; Brown & Keeping, 2005; Dumdum, Lowe, & Avolio, 2002). Some researchers have argued that differentiation is pointless because of the high inter-factor correlations (e.g., Carless, 1998; Judge & Bono, 2000) and, in recent years, the most common

approach to conceptualising transformational leadership when using the MLQ and its variant forms has been to create a global representation of the construct. A review of the transformational leadership papers that have been published in *The Leadership Quarterly* and *The Journal of Applied Psychology* since 2000 reveals that the vast majority of the articles that have used the MLQ-5X to examine transformational leadership have used a global representation of transformational leadership. Of a total of 17 articles published in *The Leadership Quarterly* only four reported a differentiated model in their main analyses, whilst of a total of 15 articles published in *The Journal of Applied Psychology* the current author failed to find any articles that used a differentiated representation of transformational leadership in their main analyses. Of course, the motive for adopting a global conceptualization of transformational leadership may not just have been data or theoretically driven, but might also be the fact that analyzing one global construct leads to less complex data analysis and leads to fewer problems with type I errors than analyses involving differentiated models. However, were one to try and adopt a differentiated conceptualisation of transformational leadership, the MLQ and its variant forms is perhaps not best suited to measure that differentiated model. The differentiation versus global conceptualisation of transformational leadership is elaborated on later in the introduction.

### *Transformational Leadership Inventory*

The Transformational Leadership Inventory (TLI) (Podsakoff et al., 1990) was developed to try and alleviate some of the theoretical (c.f. House & Podsakoff, 1994; Podsakoff et al., 1990; Yukl, 1998) and psychometric problems (Bycio et al., 1995; Carless, 1998; Tepper & Percy, 1994; Tjeda et al., 2001) associated with the MLQ. Podsakoff et al.

(1990) sought to include as wide a range of behaviours as possible in their measure so as to ensure that as much of the transformational leadership domain as possible was tapped. As a result, six transformational leader behaviours are included in the TLI: *Identifying and articulating a vision* – behaviour on the part of the leader aimed at identifying new opportunities for his or her unit/division/company, and developing, articulating, and inspiring others with his or her vision of the future; *provides an appropriate role model* – behaviour on the part of the leader that sets an example for employees to follow that is consistent with the values espoused by the leader; *high performance expectations* – behaviour that demonstrates the leaders' expectations for excellence, quality, and/or high performance on the part of the follower; *fostering acceptance of group goals* – behaviour on the part of the leader aimed at promoting cooperation among employees and getting them to work together for the same goal; *intellectual stimulation* – behaviour on the part of the leader that challenges followers to re-examine some of their assumptions about their work and rethink how it can be performed; and *providing individualized support* – behaviour on the part of the leader that indicates that he/she respects followers and is concerned about their personal feelings and needs. The TLI also included the transactional behaviour of *contingent reward* – behaviour on the part of the leader that praises followers for appropriate follower behaviour. Despite the resultant TLI demonstrating adequate factor structure, internal reliability and predictive validity (Podsakoff et al., 1990; Podsakoff et al., 1996; Schriesheim, Castro, Zhou, & DeChurch, 2006), the TLI has received relatively little attention in the research literature.

There at least two theoretical and measurement problems that can be identified with some of the behaviours measured in the TLI: Firstly, whilst the TLI was developed

to tap as broad a range of potential transformational behaviours as possible, the measurement of the vision construct in the TLI is relatively narrow. The conceptualisation of vision in the TLI includes creating, articulating and inspiring followers with a positive vision of the future. However, the items developed to measure vision do not appear to tap the full range of this conceptualisation. The present author would argue that part of inspiring followers will include expressing confidence or instilling a belief in followers that they can achieve the vision. The measure of vision created by Podsakoff and colleagues does not explicitly tap this expression of belief or confidence in followers; the item that comes closest to this is, "Inspires others with his/her vision". This does not tap behaviours on the part of the leader that are explicitly related to expressing confidence in followers. In Bass and Avolio's (1995) conceptualisation of transformational leadership, a key component of inspirational motivation refers explicitly to expressing belief in followers. This component is not directly measured in the TLI; secondly, the individual support dimension is also narrowly defined in the TLI relating mainly to the leader demonstrating consideration of the individual needs and feelings of followers. Whilst this is an important element of transformational leadership it misses another key component which relates to follower development. In Bass's (1985) conceptualisation of individualized consideration he clearly states that this dimension includes leader behaviours that relate to follower development. This component has been omitted from the TLI.

One further weakness associated with the TLI is that the sub-dimensions of this scale have according to Podsakoff et al. (1990) demonstrated questionable discriminant validity. Despite all the sub-dimensions demonstrating adequate discriminant validity at



the measurement level, Podsakoff et al., decided to combine three of the scales (articulating a vision, providing an appropriate role model and fostering acceptance of group goals) to make what he called a “core” transformational scale. Whilst the correlations between these three factors were high (all approaching or exceeding .90) the correlations were significantly less than one, which some would argue indicates that these factors are different. However, in a subsequent study by Podsakoff et al. (1996) the separate sub-dimensions of the TLI demonstrated similar results in terms of discriminant validity to the 1990 study, but this time Podsakoff and colleagues retained the fully differentiated factor structure of the scale. Authors using this measure have adopted alternative approaches to the conceptualisation of transformational leadership. Some authors have conceptualised the TLI as a global construct (e.g., Schaubroeck, Lam, & Cha, 2007), a reduced factor structure (e.g., Podsakoff et al., 1990) or have retained a fuller factor structure (e.g., Podsakoff et al., 1996; Spreitzer, Pertula, & Xin, 2005).

#### *Rafferty and Griffin Transformational Leadership Scale*

Rafferty and Griffin (2004) developed a third measure of transformational leadership that was based on the work of Bass (1985), House (1998), and Podsakoff et al. (1990).

Rafferty and Griffin developed a more focussed measure of transformational leadership that contained theoretically distinct sub-dimensions. These were: *Articulating a vision* – the expression of an idealized picture of the future based around organizational values; *inspirational communication* – the expression of positive and encouraging messages about the organization, and statements that build motivation and confidence; *intellectual communication* – enhancing employees’ interest in, and awareness of problems, and increasing their ability to think about problems in new ways; *supportive leadership* –

expressing concern for followers and taking account of their individual needs; and *personal recognition* – the provision of rewards such as praise and acknowledgement of effort for achievement of specified goals. Whilst the Rafferty and Griffin (2004) measure demonstrated good psychometric properties, discriminant and predictive validity, it again has a relatively narrow operationalisation of transformational leadership missing out key behaviours such as, expressing belief in followers, role modelling, fostering acceptance of group goals and developmental leadership. To the best of the current author's knowledge no published articles have used the Rafferty and Griffin scale to date.

### **Assessing Discriminant Validity**

An interesting issue that is related to the above discussions on measurement, and probably social psychological research as a whole is establishing exactly what constitutes good or adequate discriminant validity. It is clear from the previous discussions that there is some confusion regarding precisely when the separate leader behaviours should be combined and when they should be kept separate. There are a number of different tests that purport to measure acceptable or unacceptable discriminant validity. For example, conducting  $\chi^2$  difference tests where an unconstrained model is tested against a series of more constrained models (see, Anderson & Gerbing, 1988; Rafferty & Griffin, 2004), correlations significantly less than one, and the Fornell and Larcker (1981) test where the variance accounted for in the latent variables by its indicators should be more than variance the indicators account for in any of the other latent constructs have all been reported in the transformational leadership literature. However, the exclusive use of these different tests at the measurement level to assess discriminant validity is not the only

way to determine whether constructs are sufficiently dissimilar. Rather, if constructs have different antecedents, consequences, and are differentially affected by interventions, this would also be strong evidence that those constructs are dissimilar. Whilst this is an important issue that requires acknowledgement further discussion of it is beyond the scope of the current PhD.

### **Differentiated Versus Globalisation**

Another issue that is inherent in measurement discussions is the level at which transformational leadership should be conceptualised, that is, as a global construct, reduced factor structure, or fully differentiated. As discussed earlier, the most popular conceptualisation of transformational leadership in the research literature has been to use a global construct. However, there are certain limitations and assumptions that are inherent when one adopts a global conceptualisation of transformational leadership. The following discussion will focus on these assumptions and limitations.

First, a global conceptualisation of transformational leadership assumes that all the separate leader behaviours will have similar effects on all outcome variables. This assumption is somewhat counter-intuitive. For example, why should individual consideration have the same effect as high performance expectations? Indeed, there is research evidence that suggests that different behaviours differentially affect outcomes. For example, Podsakoff et al. (1990) demonstrated that whilst the majority of the leadership behaviours examined in their study demonstrated hypothesised relationships, some crucial differences were evidenced; specifically, that intellectual stimulation was negatively related to trust and satisfaction. A further study by Podsakoff et al. (1996)

revealed that intellectual stimulation, and high performance expectations were both positively related to role conflict and high performance expectations was negatively related to general satisfaction. In the same study, high performance expectations was positively related to courtesy. In another study, Rafferty and Griffin (2004) found that intellectual stimulation was positively related to affective commitment and continuance commitment, but that vision was negatively related to continuance commitment and role breadth self-efficacy. Lowe, Kroeck, and Sivasubramaniam (1996) conducted a comprehensive (including published and unpublished papers) meta analysis of the transformational leadership literature in studies that used the MLQ. Their meta analysis revealed that the magnitude of the relationships between the different transformational leader behaviours were often different and varied widely from study to study i.e., there were contextual differences in the relationships. In another meta analysis, Dumdum, Lowe, and Avolio (2002) reported that the different leader behaviours they analysed displayed different magnitudes of relationships with the outcome variables included in their analysis. For example, attributed charisma was shown to have a corrected correlation of .57 with job satisfaction whereas intellectual stimulation was shown to have a corrected correlation of .21 with job satisfaction. Collectively, these results suggest that the different leader behaviours do indeed have different relationships with outcome variables, and the nature of these relationships may depend on context as well as the nature of the outcome variables measured.

Second, global conceptualisations of transformational leadership suggest that leaders will always display similar levels of each of the behaviours that are theorized to make up transformational leadership. In the current author's opinion, a leader having

high performance expectations for their followers does not necessarily imply that the same leader will also demonstrate comparable levels of individual consideration. To the best of the current author's knowledge no systematic research has examined whether leaders display different levels of the different behaviours or whether the same leader can alter their levels of the use of the different behaviours.

Third, Antonakis et al. (2003) suggested that global constructs of leadership are fairly "blunt" and will therefore be of little use in leader development programmes. It is self-evident that interventions that provide information and feedback of transformational leadership in general terms will be less focussed and will likely therefore be less effective than interventions based on more detailed feedback (e.g., Goodman & Wood, 2004; Ilgen, Fisher, & Taylor, 1979; Kluger & DeNisi, 1996). For example, it is suggested that "you need to be more transformational" will be of less use to leaders than "you need to pay attention to the individual needs of your followers". Furthermore, differentiated conceptualisations of transformational leadership will be able to make use of detailed information to provide interventions based on: (1) Which leadership behaviours are most important in the specific context under consideration; and (2) The levels of the different behaviours that each leader displays prior to the intervention. However, the most powerful interventions would presumably combine both these sources of data i.e., use both relationship data and current levels. For example, were inspirational motivation shown to be an important determinant of a desired outcome but the leader already displayed high levels of this behaviour, perhaps the intervention should focus on other behaviours that have a lower level, but a strong relationship with the desired outcome. Global measures of transformational leadership cannot provide this information.

In conclusion, transformational leadership is a very large domain that encompasses a wide array of different behaviours, characteristics, situations etc. One of the criticisms that has been levelled at the leadership literature as a whole is the oversimplification of the domain (see for example, Antonakis et al., 2003; House & Aditya, 1997). Indeed, Antonakis et al., warns “..that going to simpler models [of leadership] will push leadership research and training in the wrong direction in the same way that earlier two-factor models of leadership did at Ohio State and Michigan.” (p.285). Furthermore, in discussing transformational leadership, Yukl (1999) states that relying on two factor models of leadership (e.g., transformational/transaction) fails to properly examine the underlying components of these factors.

### **Underlying mechanisms**

The transformational leadership literature has identified and examined a number of potential mechanisms by which transformational leadership is proposed to exert its influence on follower behaviour. For example, group cohesion and group potency (Bass et al., 2003), intrinsic motivation (Charbonneau et al., 2001), and trust (Jung & Avolio, 2000; Podsakoff et al., 1990) have all been identified as mediators of the transformational leadership and performance relationship. However, the potential mediators that have been examined in the literature thus far are slightly problematic. This is because the direction of causality that has been attached to these mediators is often questionable. For example, whilst group cohesion has been theorised to affect performance it has also been theorised to be affected by performance (for example, Carron, Hausenblas, & Eys, 2005). Furthermore, a meta analyses by Mullen and Cooper (1994) that included military,

organizational, and sporting contexts revealed that the cohesion to performance effect size was smaller than the performance to cohesion effect size. In a similar vein Bandura (1997), identifies previous performance accomplishments as the primary source of efficacy expectations, so that performance is as likely to influence self-efficacy as self-efficacy is to influence performance. The direction of the relationship between trust and performance and performance and trust is again questionable. For example, it is entirely possible that leaders of high performing followers may be trusted by their followers because of the fact that they are achieving high levels of performance. Finally, self-determination theory highlights that feelings of competence will lead to the internalisation of behavioural regulation (Deci & Ryan, 1985). It is suggested that high performing individuals will feel highly competent, again questioning the direction of causality between performance and intrinsic motivation.

The above arguments are further exacerbated in the transformational leadership literature because the vast majority of the studies that have examined potential mediators have used correlational designs. Consequently, very little is actually known about exactly what it is that the different transformational leader behaviours actually provide their followers with. This sentiment is echoed by Kark and Shamir (2002) “..research on transformational leadership has not fully explored the question of what are the underlying processes and mechanisms by which transformational leaders exert their influence on followers and ultimately on performance.” (p.68). The current research will attempt to shed some light on this issue by identifying three common themes that transformational leaders are proposed to provide their followers with. Firstly, the common themes will be

identified, and then this will be followed by an in depth theoretical examination of each of the themes in turn.

### **Malleability of transformational leadership and effects on outcomes**

Whilst there is no consensus regarding the specific behaviours that make up transformational leadership or how these behaviours should be measured, there is considerable agreement and empirical evidence on the positive effects that transformational leadership is theorised to have. As discussed earlier the positive relationships between transformational leadership and selected outcome variables has been evidenced in military (e.g., Dvir et al., 2002; Bass et al., 2003; Kane & Tremble, 2000), sport (e.g., Charbonneau et al., 2001; Rowald, 2006), business (e.g., Barling et al., 1996; Jung, Chow & Wu, 2003; Podsakoff, et al., 1990; Podsakoff et al., 1996; Howell & Avolio, 1993), the public sector (e.g., Rafferty & Griffin, 2004), and education (e.g., Koh, Steers, & Terborg, 1995). Whilst evidence of positive associations is fairly substantial, the vast majority of this research has been correlational and thus causation still remains a question. Indeed, many researchers have called for more experimental studies to be performed. For example, Dumdum et al. (2002) pointed out in their meta analyses of transformational leadership that “Any researcher going through the coding exercise cannot help but be struck by the fact that there are still too few experimental studies..” (p.62). This short fall in experimental designs leaves two main questions requiring further investigation: (1) to what extent do transformational leader behaviours cause the outcomes, which are often implied by the correlational designs; and (2) to what extent are the different transformational behaviours modifiable?



Despite repeated calls by authors for more experimental studies into transformational leadership, to the best of the current author's knowledge, there have been only five published studies that have utilised experimental designs (Barling et al., 1996; Dvir et al., 2002; Howell & Frost, 1989; Kelloway, Barling, & Helleur, 2000; Kirkpatrick & Locke, 1996), with just two of these studies employing a field based intervention that included outcome variables (Barling et al., 1996; Dvir et al., 2002). Howell and Frost (1989) and Kirkpatrick and Locke (1996) both used confederate leaders to create the experimental conditions. Howell and Frost (1989) had confederate leaders display three different types of leader behaviour: (1) charismatic; (2) considerate; and (3) structuring. The results revealed that participants who worked under the charismatic actor had higher levels of performance, and task satisfaction, and lower role conflict, and ambiguity. Kirkpatrick and Locke (1996) manipulated three behaviours: (1) communicating a vision – the confederate actor expressed confidence in followers and informed them that their performance would be compared to other groups. The confederate actor also created a vision that emphasised the quality of the product and the extra efforts that current staff went to ensure the quality; (2) implementing the vision – the confederate leader provided information on how to better perform the task; and (3) demonstrating a charismatic communication style – The confederate leader displayed charismatic attributes, for example, displayed an air of confidence, spoke with a captivating tone of voice etc. The results revealed that communicating a vision was more strongly related to follower attitudes than any of the other conditions. Whilst these two studies demonstrated that followers can distinguish between the different behaviours and

that the different behaviours differentially affected the outcome variables included in the studies, no evidence was presented that leader behaviours can be trained.

Kelloway et al. (2000) used a field based experimental study to assess whether followers' perceptions of their leaders' transformational behaviours can be impacted by a transformational leadership intervention. The results revealed that follower' perceptions of their leaders' transformational behaviours were positively impacted by the intervention. However, no follower outcome data was provided, thus no inferences can be made regarding any possible effects the training had on followers.

Barling et al. (1996) were the first to use a field based intervention study designed to examine the effects of transformational leadership on followers' perceptions of their leaders' behaviours, organisational commitment, and performance. The results demonstrated that the intervention positively impacted follower perceptions of their leaders' behaviour, organizational commitment, and a performance indicator. However, a number of limitations exist with their study: First, only three indices of transformational leadership behaviours were measured (charisma, intellectual stimulation and individualized consideration); second, only one attitudinal outcome variable was measured (organizational commitment); and third, the sample size was relatively small for the financial (performance) outcomes measured ( $n = 20$ ).

Dvir et al. (2002) is the only other study that has utilised a field based intervention to examine the potential effects of transformational leadership. They conducted a study in a military training environment. The results provided evidence that an intervention underpinned by transformational leadership can positively impact a number of outcomes including follower perceptions of their leaders' behaviours, selected attitudinal outcomes,

and individual level performance. Whilst this study provides clear evidence that an intervention underpinned by transformational leadership can enhance a variety of outcome variables, a number of limitations are still evident: (1) a global measure of transformational leadership was used. Thus, examination of which specific leadership behaviours were enhanced was not possible; (2) only two of the five performance results were positively enhanced in the experimental group (a written exercise and performance on an obstacle course). Practical shooting and physical fitness were not enhanced by the intervention; and (3) no overall indication of training course outcome was reported for example, pass versus failure rates for control and experimental groups.

### **Summary and thesis structure**

In summarising the transformational leadership literature several areas with research potential have been highlighted. This thesis will examine the following issues: the measurement and conceptualisation of transformational leadership; intervention issues, including the extent to which the different transformational leader behaviours are malleable and the concomitant effects on follower attitudes and performance; and the means by which transformational leadership exerts its influence upon follower attitudes and behaviour.

The thesis consists of five chapters, the present introduction, three research chapters, and a general discussion. The main part of the thesis is written as a collection of three research papers. This will inevitably mean that there will be overlaps and repetitions in places. The first research chapter (Chapter 2) is a two study chapter. Study 1 develops a contextually relevant measure of transformational leadership that allows for

the differentiation of the separate leader behaviours. Following this, a correlational design was used to identify which of the transformational leader behaviours were important in predicting performance. Study 2 then used a mixed model quasi-experimental design to assess the efficacy of an intervention underpinned by transformational leadership theory. Importantly, Study 2 made use of the information obtained in Study 1; that is, the intervention focussed on the behaviours that predicted performance and were displayed in relatively low levels by the leaders in Study 1.

Chapter 2 provides a unique contribution to the literature because it is the first field based experimental study that used a 2 study approach to implementing an intervention.

Chapter two's design is particularly powerful given the contextual differences that have been observed in the literature.

Chapter 3 describes a large scale longitudinal experimental study that included objective performance/outcome data. A total of 3468 participants (Infantry recruits undergoing basic training) took part in this study. Chapter 3 was an organisation wide study where approximately half the organisation formed the intervention group and the other half formed the control group. Study 1 identified the important leader behaviours in Infantry recruit training. Study 2 then used a mixed model quasi-experimental design to assess the efficacy of an intervention underpinned by transformational leadership theory. Again, Study 2 made use of the information obtained in Study 1; that is, the intervention focussed on the behaviours that predicted performance and were displayed in relatively low levels by the leaders in Study 1.

Chapter 4 used a 3 study design to identify, theoretically explore, and empirically test the validity of a model that endeavours to explain what it is that transformational

leaders provide their followers with. Study 1 uses confirmatory factor analyses techniques in an exploratory way to refine the model. Study 2 sought to confirm the model obtained in Study 1 on a separate sample. Study 3 then assessed the predictive validity of the model.

Chapter 5 then discusses the main findings of the research chapters, identifies limitations of the thesis, and presents suggestions for future research.

## Chapter 2

The relationship between transformational leadership behaviours, psychological, and training outcomes in elite military recruits<sup>1</sup>

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<sup>1</sup>This chapter is accepted for publication as;  
Hardy, L., Arthur, C. A., Jones, G., Shariff, A., Munnoch, K., Isaacs, I., & Allsopp, A. J.  
The relationship between transformational leadership behaviors, psychological, and  
training outcomes in elite military recruits. *The Leadership Quarterly*.

## **Abstract**

Two studies examined the effects of a differentiated model of transformational leadership on follower outcomes. In Study 1, 484 UK Royal Marine recruits completed questionnaires about their trainers' leadership behaviours and their own attitudes towards training. Training outcome was measured as successful completion of training or non-completion. Discriminant function analyses identified that fostering acceptance of group goals, inspirational motivation, appropriate role model, individual consideration, and contingent reward significantly discriminated between pass and failure. A separate discriminant function analyses revealed that the attitudinal variables of self-confidence, resilience, and satisfaction also successfully discriminated between pass and failure. Study 2 used an experimental design to examine the effectiveness of a transformational leadership intervention. Participants were 85 experimental and 67 control recruits who completed questionnaires at weeks 5 and 15 of recruit training. Results revealed that 3 of the 5 key leadership behaviours, and all of the 3 recruit attitudinal variables measured, were significantly enhanced by the intervention.

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## Chapter 4

The structural and predictive validity of a Vision, Support, Challenge model of Transformational Leadership<sup>5</sup>

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<sup>5</sup> Arthur, C. A., & Hardy, L. (In prep). The structural and predictive validity of a Vision, Support, Challenge model of Transformational Leadership.

### Abstract

This paper presents 3 studies that test the structural and predictive validity of a three factor, vision, support, and challenge model of transformational leadership. The research was conducted with infantry recruits in a military training organization. Study 1 ( $n = 573$ ) used confirmatory factor analyses in an exploratory manner to refine the concepts of vision, support, and challenge. After minor modifications the conceptual model appeared tenable. Using a second sample, Study 2 ( $n = 693$ ) confirmed the factor structure obtained in study 1. A subset of the Study 2 sample was used in Study 3 ( $n = 248$ ) to examine the predictive validity of the vision, support, and challenge model. The outcome variables selected were leader inspires extra effort, satisfaction with training, self-confidence, and performance. The results revealed that vision, support, and challenge predicted leader inspires extra effort, vision and support predicted satisfaction, support predicted self-confidence, and vision and support predicted performance.

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# Chapter 5

## Summary, General Discussion, and Future Directions

The thesis has examined some of the issues surrounding transformational leadership theory. The first chapter discussed some of the main issues in transformational leadership research including: measurement; conceptualisation; what it is that transformational leaders provide their followers with; and intervention issues. Chapters 2 and 3 utilized a combination of correlational and experimental designs to examine a differentiated conceptualisation of transformational leadership. In the intervention studies transformational leadership was expressed as a way in which leaders could provide their followers with a vision of the future, support them in achieving that vision, and also challenge them to meet that vision. Chapter 4 then examined the empirical validity of the vision, support, and challenge model.

### **Summary of main findings**

The main findings of the thesis were: (1) Evidence was provided for the differentiated conceptualisation of transformational leadership used in the thesis; (2) Leader behaviours appear to be malleable, i.e., appear to be positively impacted by appropriate interventions; (3) Increases in leader behaviours were associated with increased follower and organizational outcomes; and (4) The empirical bases for the vision, support, and challenge model was shown to offer some promise.

### **Main findings**

Evidence was provided that corroborates the Antonakis, Avolio, and Sivasubramaniam's (2002) and Rafferty and Griffin's (2004) assertion that differentiated conceptualisations of transformational leadership ought to be adopted. Theoretical arguments and empirical

evidence supporting differentiation were consistently provided throughout the thesis. Initially, a theoretical case was made for differentiation based on the notion that globalization implicitly assumes that all transformational behaviours will have a similar relationship with all outcomes, will have similar antecedents, will be similarly affected by interventions, and that leaders will display similar levels of all the behaviours. Secondly, from an applied perspective, adopting a differentiated approach to transformational leadership allows for the fine tuning of interventions. Globalization ignores two important sources of information, namely, which of the transformational leadership behaviours are most important in specific contexts, and which of the behaviours are displayed in relatively low levels by the leaders in question. Chapters 2 and 3 demonstrated that such relationship and level information can be used to effectively guide interventions.

The second main finding of the thesis was that transformational leadership interventions can positively enhance follower perceptions of their direct leaders' behaviours and selected follower outcomes including performance. This thesis adds to the three previously published studies (Barling, Webber, & Kelloway, 1996; Dvir, Eden, Avolio, Bass, & Shamir, 2002; Kelloway, Barling, & Helleur, 2000) that have examined whether transformational leader behaviours can be modified. The two intervention studies in this thesis have greatly strengthened the existing evidence that leader behaviours are modifiable by an appropriate intervention.

The third main finding relates to the efficacy of enhanced follower perceptions of their leaders' transformational behaviours. In chapters 2 and 3, strong evidence was provided that training in transformational leadership leads to increased follower

intrapersonal outcomes, enhanced group cohesion and enhanced performance. These results extend the vast amount of correlational evidence linking transformational leadership to positive outcomes by strengthening the often assumed (but rarely tested) notion that transformational leadership caused the positive outcomes. The results of both chapters 2 and 3, but especially chapter 3, provide very strong evidence that appropriate transformational leadership training can be beneficial to organisational outcomes, i.e., in the current context first time pass rates increased.

A major strength of the thesis is that it contained two large scale longitudinal field based experimental studies; this almost doubles the number of field based experimental studies published to date. Furthermore, chapter 2 is the first study to utilise a two study design (diagnosis plus intervention) to test the efficacy of a transformational leadership intervention, and chapter 3 is the first experimental study to utilise a longitudinal organizational design in which the whole organisation was included in the study. The study reported in chapter 3 is unique in that it used a longitudinal fully randomised design to assess the efficacy of the leadership intervention, whereby the followers in the pre-test were different to the followers in the post-test condition.

The fourth main finding of the thesis was the applied (chapters 2 and 3), and the theoretical and empirical (chapter 4) tenability of a vision, support, and challenge model of transformational leadership. Chapters 2 and 3 provided evidence that an intervention that described a differentiated model of transformational leadership in terms of the provision of vision, support, and challenge can enhance a number of follower outcomes, and chapter 4 explored the theoretical underpinnings, and provided evidence of the psychometric and predictive validity, of the vision, support, and challenge model.



## **Issues arising from the thesis**

### *Vision, support, and challenge*

Two themes that run through this thesis were that, on the one hand we argue for differentiation, yet on the other we argue for a simplified 3-factor model of transformational leadership (vision, support, and challenge). At first glance, these two themes may appear to be somewhat contradictory notions. However, a closer examination at the precise way in which these two positions were operationalised in the thesis reveals that these two views of transformational leadership are completely complimentary. At no point does the vision, support, and challenge model supersede the differentiated model. Rather, the fully differentiated model is described as a way that leaders can provide their followers with a vision of the future, challenge them to achieve the vision, and support them in their efforts to achieve the vision. Chapters 2 and 3 provided evidence that this view of transformational leadership can be used to underpin successful interventions, and chapter 4 provided evidence of the structural validity of the 3-factor model. Whilst chapter 4 provided evidence that it is empirically tenable to view transformational leadership in this way the obvious next step is to examine the extent to which the different transformational behaviours map onto vision, support, and challenge, i.e., examine the tenability of the vision, support, and challenge model using a hierarchical factor structure.

### *Interactions between the transformational leader behaviours*

An interesting finding with some potentially far reaching theoretical and applied implications was that, in chapter 4, vision and support interacted to affect the performance outcome measured, such that when vision was low support did not appear to

affect performance but when vision was high support appeared to negatively affect performance. Two possible interpretations of this result were provided in chapter 4. Whilst, the transformational leadership research has begun to examine the potential moderating effects that contextual (e.g., Antonakis, Avolio, Sivasubramaniam, 2004; Lowe, Kroeck, & Sivasubramaniam, 1996) and situational (e.g., Lim & Ployhart, 2004) variables may have on the efficacy of transformational leadership, the possibility that the different transformational behaviours may interact to affect outcomes has not been examined. In the current author's opinion this is a major weakness in the transformational leadership literature that needs to be addressed.

The discussions in chapter 1 and throughout this thesis that relate to the differentiation issues raise the possibility that the different leader behaviours may interact to impact the outcomes. Within these discussions it was noted that the different leader behaviours have been shown to have dramatically different relationships with outcome variables. For example, Podsakoff, MacKenzie, and Bommer (1996) found that high performance expectations was negatively related to satisfaction and positively related to courtesy, whilst in another study high performance expectations was shown to have no significant relationship with satisfaction (Schriesheim, Castro, Zhou, & DeChurch, 2006). The empirical evidence suggests that there are times when high performance expectations will have positive effects, times when they will have no effects, and times when they will have negative effects. One possible explanation for these mixed findings may be that the relationship one leader behaviour has with an outcome, is at least, partially dependent on the levels of other accompanying behaviours. For example, if the leader offers high levels of support alongside high performance expectations, followers may view the

challenging behaviours as a positive contribution on the part of the leader. However, if high levels of challenge are accompanied by low levels of support then followers may view the challenging behaviours as pressuring and unhelpful. Whilst the above argument is somewhat speculative, taken together with the results of chapter 4, exploration of the possibility that different leader behaviours may interact would appear to be a potentially fruitful avenue for future research.

One further issue that is related to the above argument is that the literature has generally explained contradictory results as being primarily related to contextual or situational differences. The moderating effects of context and situation have thus far only been studied, or theorised to moderate the main effects of transformational leader behaviours. It is suggested that extending the potential moderating effects of situation and context to incorporate the moderation of the nature of interactions between leader behaviours is worthy of further exploration. Indeed, as our knowledge surrounding leadership becomes more sophisticated so to do the analyses required to investigate the specific relationships between the different behaviours, contexts, and outcomes. More use needs to be made of 3-way designs where the nature of interactions between the different leader behaviours may be moderated by contextual or situational variables.

#### *Augmentation hypothesis*

One issue that was not directly addressed by the current thesis but is relevant to the transformational leadership literature is the augmentation hypothesis. The augmentation hypothesis argues that transformational leadership will predict performance over and above the performance predicted by transactional leadership (i.e., transformational leadership will augment transactional leadership; Bass, 1985, 1998). There is mixed

empirical support for the augmentation hypothesis, but the majority of this evidence has shown that transformational leadership does predict variance in performance over and above the variance accounted for by transactional leadership (e.g., Bass et al., 2003; Judge & Piccolo, 2004; Waldman, Bass & Yammarino, 1990). Most of the research examining the augmentation hypothesis has focused on the relative contributions that transformational and transactional behaviours make to outcome variables. While this research has generated evidence supporting the hypothesis, no attempt has been made to theoretically explain, or empirically test, the underlying mechanisms by which this process occurs. This omission in previous research may have contributed to the mixed support obtained for the hypothesis, especially when a closer inspection is made of the different ways in which transactional contingent reward behaviours have been conceptualized and measured. For example, Bass et al. (2003) did not find any support for the augmentation hypothesis until they partitioned their items measuring transactional leadership into higher level transactional behaviours “..generally associated with recognition and forming of implicit contracts.” (p. 214) and lower level transactional behaviours “..associated with more explicit contracting with followers.” (p. 214). Bass et al., proposed that the following two items formed the lower order factor; “rewards us when we do what we are supposed to do” and “makes clear exactly what platoon members will get if performance goals are met”. Subsequently, when they re-ran their analyses using only the lower order items, transformational leadership predicted variance in performance over and above the variance predicted by transactional leadership. However, this finding still does not explain how or why transformational leadership augments lower level transactional leadership. The present researcher would suggest that

a theoretically driven explanation of the underlying mechanism by which augmentation occurs should lead to a greater understanding of the issue. Whilst not directly testing the underlying mechanisms of the relationship between transformational and transactional leadership, the current thesis did reveal an interesting finding for future research to consider. In chapters 2 and 3 contingent reward was the strongest contributor to the discriminant function predicting achievement outcomes, yet did not have large correlations with the psychological outcomes. Indeed, the average correlation between contingent reward and the psychological outcomes in chapter 2 was  $r = .24$ , and the correlation between the global measure of transformational leadership and the psychological outcomes was  $r = .34$  (whilst we disagree with using a global measure it is used in this case merely to accentuate a point), a similar pattern of results was also obtained in chapter 3. These findings suggest that contingent reward may have direct effects on performance, which, to some extent, may by-pass higher level cognition. One of the key propositions of transformational leadership is that transformational leaders activate the higher-order needs of followers (Bass, 1985). Even though not explicitly stated in the literature, this implies that transactional leadership either, does not activate higher-order needs, or activates higher-order needs to a lesser extent than transformational leadership. The activation of higher order processes implies that consciousness will be increasingly involved and thus people will be more likely aware of the effects. Consequently, the effects of transformational leadership can be picked up by self-reported mediating variables. Conversely, transactional behaviours may bypass the higher order needs and have direct effects on performance via the reward centres of the "old" brain (see, for example, Lang, 2000; LeDoux, 1996; Gray, 1977, 1990). Although

speculative, the results of chapter 2 suggest that this proposition may be an area worthy of future investigation.

### *Contingent reward*

Another issue that relates to the above discussion on the augmentation hypothesis is the notion that Bass et al. (2003) suggests that Bass (1985) may have elevated Burns' (1978) original conceptualization of transactional-contingent reward to be more transformational by including implicit contracts and recognition in the definition. Bass et al., suggest that the lower level factor of transactional leadership will have a smaller correlation with transformational leadership than the higher level factor. Unfortunately, Bass et al., did not report the correlations of the higher and lower order contingent reward factors with the transformational leadership behaviours, thus leaving this question open. However, the conceptualization and measurement of transactional leadership used in the current thesis is close to Bass et al.'s conceptualization and measurement of the lower order transactional leadership construct. For example, an item from Bass et al.'s lower order construct is "Rewards us when we do what we are supposed to do", and an item from the current studies is "Personally praises me when I do outstanding work". The average correlation in Chapter 2 between contingent reward and transformational leadership behaviours was .42, while in the Bass et al., study the correlation between the combined aspects of transactional leadership and transformational leadership was .85, thus lending some preliminary support to the suggestion by Bass et al., that lower level transactional-contingent reward should have a smaller correlation with transformational leadership than higher level transactional leadership. These results suggest that the partitioning of

transactional behaviours could lead to increased discriminant validity between transactional contingent reward and transformational leadership behaviours.

*Examination of the separate transformational behaviours*

One of the criticisms that has been levelled at the transformational leadership research literature is that the separate leader behaviours can be somewhat ambiguous and can include different conceptually distinct behaviours or attributes (Yukl, 1999). Rafferty and Griffin (2006) verified this point with the construct of individualized consideration. In their study clear evidence was provided that individualized consideration can be delineated into two conceptually and empirically distinct behaviours, one that relates to the provision of support, and the other that relates to developmental aspects of leadership. In a similar vein, the current researcher believes that at least two other behaviours used in the present research can also be delineated into conceptually distinct behaviours. The conceptualisation of inspirational motivation used in the current research was based on that in the MLQ-5X (Bass & Avolio, 1995, 2000). As discussed in the introduction of chapter 2, this conceptualisation is theorized to contain elements that pertain to creating and inspiring followers with a positive vision of the future and expressing belief in followers that they can achieve the vision. It is suggested that there are at least two conceptually distinct factors contained within this definition: The first relates to creating a positive vision of the future; and the second relates to expressing confidence in followers. A leader that talks of a positive vision may not express a belief in followers that they can achieve or be a part of the vision. It is suggested that there is a theoretical argument to delineate inspirational motivation into these two distinct factors. Future

research may want to theoretically explore and then empirically assess whether these two constructs are indeed, conceptually, empirically, and meaningfully, distinct.

The other factor included in the current research that may contain more than one conceptually distinct behaviour is fostering acceptance of group goals. Podsakoff, et al. (1990) define fostering acceptance of group goals as, *behaviour on the part of the leader that is aimed at promoting cooperation among employees and getting them to work together toward a common goal*. His measurement of the construct includes the following items: “develops a team attitude and spirit among employees.”; and “gets the group to work together for the same goal.”. It is suggested that the latter item primarily appears to be about encouraging followers to set and adopt group goals, whilst the former item primarily appears to be about developing team spirit, which might be related to, but is arguably a conceptually distinct component from setting group goals. It is quite conceivable that there are other ways to develop a team spirit than setting group goals. For example, by emphasizing the identity of the group, the followers’ membership of the group, and stressing the uniqueness of the group in comparison to other groups have all been suggested as ways that will foster team spirit (Kark & Shamir, 2002). Future research would seem warranted to examine whether Podsakoff et al.’s conceptualisation of fostering acceptance of groups can be differentiated into two conceptually distinct constructs, one that relates to encouraging followers to set and adopt group goals, and the other that relates to developing a team spirit and identity among followers.



### **Limitations of thesis**

One limitation of the thesis is that it primarily relied on data analysis techniques that assumed effects were occurring at the individual level of analyses. Having said this, it was not an aim of the current thesis to investigate the level at which leadership was operating at. Much has been written about the need to consider the level of analyses (see, for example, Antonakis, Schriessheim, Donavan, Gopalakrishna-Pillia, Pellegrini, & Rossomme, 2004; Bliese & Halverson, 2002; Gavin & Hofmann, 2002; Markham & Halverson, 2002; Yammarino, 1990). There now appears to be a wide consensus in the literature that researchers ought to empirically test the level at which leadership effects are occurring rather than implicitly assuming the level. Currently, the candidate is working on research designs and analytical strategies that will allow for the investigation of such effects. Some of these include; hierarchical linear modelling, i.e, multilevel analyses (Hoffman, 1997); within and between analysis (Dansereau, Alutto, & Yammarino, 1984); and  $r_{wg}$  coefficient analyses (James, Demaree, & Wolf, 1984).

A further methodological limitation that needs to be acknowledged is that the thesis relied on a reflective indicator approach to examine the structural properties of the measurements used. Whilst using reflective indicator approaches to assess the structural properties is the norm in the transformational leadership literature, MacKenzie, Podsakoff, and Jarvis (2005) have recently called for authors to provide a detailed rationale of why either a reflective or formative approach has been adopted. The reflective approach assumes that a latent variable is reflected in its indicators i.e., substantive meaning emanates from the underlying latent construct to its indicators. The formative approach assumes that meaning flows from the items to the construct i.e.,

substantive meaning emanates from the indicators to the construct. There are several important measurement and conceptual implications of adopting either a formative or a reflective approach. The reflective approach assumes that the covariance in the items are reflective of the underlying latent construct, where each item is theorized to tap the same conceptual space, in contrast to the formative approach that assumes each of the indicators tap a different conceptual space of the construct. This implies that reflective indicators ought to be highly correlated, interchangeable without any loss of conceptual meaning, and should have the same antecedents and consequences, whereas formative indicators should not be highly correlated, should tap distinct conceptual domains, and should have different antecedents and consequences (Mackenzie et al., 2005). A further implication of the above discussion is that a formative approach would appear to be better suited to constructs that are multifaceted and that a reflective approach is better suited to one-dimensional constructs. In many cases the multifaceted nature of psychological constructs depends on the level of abstraction that the researcher is investigating. For example, MacKenzie et al. suggests that transformational leadership lends itself more to a formative rather than a reflective approach (the reflective approach has dominated the literature evaluating the structural properties of transformational leadership and was used in this thesis). The candidate concurs with MacKenzie and colleagues that transformational leadership is a multidimensional construct containing several different behaviours that are conceptually distinct with different antecedents and consequences. However, this may only be true if transformational leadership is conceptualised at a global level. Were the researchers interested in a more differentiated conceptualisation of transformational leadership where the different behaviours were the unit of analyses (as

apposed to the global construct) a reflective approach maybe more appropriate. This would be entirely dependent on the different conceptualisations of the separate behaviours i.e., are the separate behaviours theorised to be one-dimensional or multidimensional, or can the behaviours be further sub-divided. In other words, if the recommendations of MacKenzie and colleagues are followed, the current author suggests that the approach adopted will be a function of the level of abstraction that constructs are being analysed on.

As mentioned earlier, the current thesis adopted a reflective approach to assessing the structural properties of the constructs measured. This was done primarily because a differentiated conceptualisation of transformational leadership was adopted which would lend itself more to a reflective approach. However, as discussed earlier the one-dimensional nature of some of the separate transformational leader behaviours is questionable (see earlier discussions on: Inspirational motivation; fostering acceptance of group goals; and individualized support). It might therefore be interesting to further test these models with a formative indicator approach. An interesting result that may inform on this discussion was that in order to test the relative efficacy of adopting a differentiated approach over a global approach to transformational leadership the differentiated scale was collapsed to form a global scale. Lending weight to the above suggestions by McKenzie and colleagues the fit of the differentiated model was far superior to the global scale.

Another limitation of the thesis is that, like the majority of the transformational leadership research, it has ignored the possibility that situational variables, and especially follower characteristics, may impact the effectiveness of transformational leadership.

Indeed, Avolio (2007) stated that “..if the accumulated science of leadership had produced a periodic table of relevant elements ... one might conclude that leadership studies had focussed too narrowly on a limited set of elements, primarily highlighting the leader yet overlooking many other potentially relevant elements of leadership such as the follower and context.” (p.25). This sentiment has been echoed by many scholars, for example, Grint (2000) suggested that leadership research has been flawed from the start because it has failed to consider the impact of the follower in the relationship, and Lord, Brown and Frieberg (1999) suggested that followers maybe a source of variance that is yet to be fully explored in the leadership literature. There is some research on transformational leadership that has focused on the follower; for example, Dvir and Shamir (2003) examined which follower characteristics predicted the emergence of transformational leadership, and Ehrhart and Klein (2001) examined which follower characteristics were related to leadership style preference. However, to the best of the current author’s knowledge there have been no studies that have explicitly set out to determine if follower characteristics moderate the effectiveness of transformational leadership or the relative importance of different transformational leadership behaviours. This is somewhat surprising given the central role that follower characteristics have occupied in other prominent leadership theories. For example, path goal theory (House, 1971) identified follower characteristics as one of the two situational variables that are theorized to moderate the effects of leaders’ behaviour and follower outcomes. Perhaps the reason that follower characteristics have not been more widely studied in the transformational leadership literature is due to the results of a meta analyses conducted by Wofford and Liska (1993) revealing that only one of the follower characteristics

identified in the literature moderated the leader behaviour and follower outcome relationship. Furthermore, even in a theory (path goal theory) that explicitly identifies follower characteristics as a potential moderator variable relatively few studies have actually examined them in this way (c.f. Wofford & Liska, 1993). Relational models of leadership, for example, vertical dyad linkage theory (Dansereau, Graen, & Uhl-Bien, 1975), and leader-member exchange theory (Graen & Uhl-Bien, 1995) all give prominence to the role of the follower in affecting leadership effectiveness. However, follower characteristics have not necessarily been included as moderating variables in studies of these theories, rather, these theories have focussed on the quality of the relationship between the leader and followers as a determinant of leader outcomes. It seems quite plausible that follower dispositions or personalities may moderate the effectiveness of transformational leadership, or the effectiveness of the different sub-dimensions of transformational leadership. Research examining the potential of follower characteristics to moderate the effectiveness of the different transformational leadership behaviours would seem a fruitful avenue for future research.

### **Strengths and weaknesses of the research programme**

A strength of the current research programme was that it involved a variety of different study designs that included: Correlational; large scale field based intervention studies; and measurement studies. The correlational studies used a number of different techniques including moderated hierarchical regression and discriminant function analysis, the intervention studies used ANOVA (mixed model and fully randomised), and the conceptual study used confirmatory factor analyses techniques to assess model fit. Of

note is the way in which confirmatory factor analyses were interpreted, where, in recognition of the heated debates and controversy that surrounds the interpretation of the fit statistics the current thesis always endeavoured to adopt a balanced view (see for discussions: Markland, 2007; Barrett, 2007). It is clear that a variety of different analytical techniques and strategies were employed throughout the thesis providing the candidate with a strong base in research design and applied statistics (the candidate intends to further develop this area to incorporate multilevel analyses techniques and partial least squares).

A further strength of the research programme was the amount of consultancy work that was involved. This provided the candidate with excellent opportunities to develop his consultancy skills, whilst also gaining invaluable knowledge in how to balance both research and applied consultancy work. During this time, the candidate liaised, and ran workshops, with a variety of people from different levels of the organisations involved, including relatively senior ranked personnel.

The research programme also developed the candidates' awareness of what are good research questions and what are not quite so good research questions. For example, a research question that has strong applied implications is possibly quite exciting, just as a research question that has strong theoretical implications. However, the most exciting research questions tend to be those that have both strong theoretical and applied implications.

From the evidence provided in the thesis, a limitation of the research programme could be that no qualitative studies were included. Whilst not detracting from the value that empirical research provides, a PhD in the social sciences that does not include some

sort of qualitative research has not used all the available research techniques. Qualitative research methods can provide a richer, more in depth, picture whilst providing a better understanding of complex phenomena (e.g., Alvesson, 1996; Bryman, Stephens, & Campo, 1996; Conger, 1998). Indeed, Conger (1998) stated that "...they [qualitative approaches] can be the richest of studies, often illuminating in radically new ways phenomena as complex as leadership." (p.108). Qualitative research is proposed to be particularly useful in the early stages of theory development when not much is known about the topic. Once an understanding of the topic has been generated, quantitative approaches can then be used to refine and empirically examine the topic (Conger, 1998). In a similar vein, the current research adopted a comparable approach to the project. The initial phase involved collecting information about organisations that the candidate did not have any prior experience with. Qualitative approaches were adopted in the initial phases of the project in order to glean as much information as possible about the organization and the specific requirements. This initial qualitative phase was conducted via a series of focus groups where the organizational outcome (exiting recruits) were profiled to determine what the ideal exiting recruit should look like, i.e., skills and attributes an exiting recruit should ideally possess. This information was then used to inform the quantitative part of the project. Even though the qualitative phase has not been reported in the thesis, qualitative methods were included in the broader research programme.

After the initial information gathering stages, personnel were identified with whom the candidate and thesis supervisor would work. It was vital for the success of the project that a trusting relationship was developed with these personnel, which was not a

trivial matter. This is especially true given the current climate the military has with certain civilian organisations. The military's normal experience of external civilian organisations is that the external organisations conduct audits of quality control that are essentially designed to find fault and cast blame. Yet these audits have not generally been forthcoming with workable proposals for solutions to the problems that they have identified. In order for the project to be a success it was vital that we overcame these obstacles to developing a positive trusting relationship with the clients. This was primarily achieved by working with a model of equal expertise and initial reassurances that we would not impose any external controls over the process, and did not profess to be experts about *their* specific environment. Indeed, after the initial introductions, the opening gambit was something along the lines of, "We do not profess to know anything about what it is like to be a front line military soldier, we do not know anything about closing with the enemy and destroying them, but what we do know a lot about is the psychological aspects of elite performance and how to train these". The process was laid out transparently where the clients would have control and ownership of the project. It was explained that we (the external agents) would operate primarily as information sorters, data analysts, educators, and conduits of this process. After a series of workshops we felt comfortable that the clients did indeed trust us and were actively engaged in the project. This was evidenced by their apparent enthusiasm and desire for more information regarding the issues we were dealing with outside of the formal meetings. For example, on numerous occasions, we would receive phone calls about specific training or management issues that the clients were dealing with, or the clients would contact us to organise extra meetings outside of the formally agreed scheduled. If they



were not engaged in the process or lacked trust in us, this “extra curricular” behaviour would likely not have been so evident.

### **Reflective Section**

There are three main areas of development that the candidate has undergone whilst on this research programme, the first relates to consultancy work, the second relates to research proficiency, and the third relates to the merging of these two perspectives, i.e., how to combine good science with good consultancy work. Through the process of studying for this PhD there have been many moments of sheer terror (e.g., waiting to have a meeting with a group of hostile sergeant majors) coupled with moments of relief (e.g., finding out that the hostile sergeant majors were not really hostile in intent, they were just understandably concerned that some civilian academics from their ivory towers were going to tell them how they should be doing their jobs). The experience of being expertly supervised and mentored through this process has allowed the candidate to develop many consultancy skills and competences. This said, the research component of this process has been where the biggest gains to the candidates’ development have been evidenced, yet probably still remains the area where the biggest discrepancy exists between what the candidate does and does not know. The candidate has begun to understand some of the issues that surround scientific approaches to studying leadership. Whilst still only just scratching the surface of this vast area of research the candidate looks forward to applying the skills learned to further his knowledge (and knowledge in general) of other related areas in the social sciences.

### **Summary of future directions**

Below is a summary of some specific research questions that have been highlighted by the thesis;

- 1) To what extent do the different behaviours that are theorized to make up transformational leadership map onto the vision, support, and challenge model?
- 2) Do vision, support, and challenge interact to affect outcomes?
- 3) To what extent are the potential interactions between vision, support, and challenge moderated by situational and contextual factors?
- 4) Do the separate transformational leadership behaviours interact to affect outcomes?
- 5) To what extent are the potential interactions between the separate transformational leadership behaviours moderated by situational and contextual factors?
- 6) Does follower personality moderate the leader behaviour and follower outcome relationship?
- 7) Do leader transactional behaviours have a “direct” effect on followers?
- 8) What are the mechanisms by which transactional behaviours operate?
- 9) To what extent are Bass et al.’s (2002) “higher” and “lower” order constructs of contingent reward, theoretically, empirically and meaningfully valid?
- 10) What is the relationship between reward and punishment, i.e., do these behaviours interact to effect follower behaviours?
- 11) To what extent does adopting a reflective or formative approach to model testing in transformational leadership lead to different conclusions about the factor structure?
- 12) How important is the inclusion of the social context/organizational context in interventions?

13) Is it theoretically, empirically, and meaningfully valid to delineate inspirational motivation into, communicating a positive vision and expressing belief in followers?

14) Is it theoretically, empirically, and meaningfully valid to delineate fostering acceptance of group goals into, fostering team spirit, and fostering the acceptance of groups goals?

### **Conclusions**

To conclude, the thesis addressed some of the issues that surround transformational leadership research. In particular, further evidence was generated for the efficacy of transformational leadership interventions and also some preliminary evidence was provided to support the tenability of a vision, support, and challenge model. The thesis also highlighted several areas of future research that would lead to increased understanding of the conceptual bases of transformational leadership and the mechanisms by which it operates.

## References

- Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modelling in practice: A review and recommended two-step approach. *Psychological Bulletin*, 103, 411-423.
- Alvesson, M. (1996). Leadership studies: From procedure and abstraction to reflexivity and situation. *The Leadership Quarterly*, 7, 455-485.
- Antonakis, J., Avolio, B. J., & Sivasubramaniam, N. (2003). Context and leadership: an examination of the nine-factor full-range leadership theory using the Multifactor Leadership Questionnaire. *The Leadership Quarterly*, 14, 261-295.
- Antonakis, J., Cianciolo, A. T., & Sternberg, R. J. (2004). Leadership: Past, present, and future. In J. Antonakis, A. T. Cianciolo, & R. J. Sternberg (Eds.), *The Nature of Leadership* (pp. 2-15). California: Sage Publications, Inc.
- Antonakis, J., Schriesheim, C. A., Donovan, J. A., Gopalakrishna-Pillia, K., Pellegrini, E. K., & Rossomme, J. L. (2004). Methods for studying leadership. In J. Antonakis, A. T. Cianciolo, & R. J. Sternberg (Eds.), *The Nature of Leadership* (pp. 48-71). California: Sage Publications, Inc.
- Avolio, B. J. (2005). *Leadership development in balance: Made/born*. Mahwah, NJ: Erlbaum.
- Avolio, B. J. (2007). Promoting more integrative strategies for leadership theory-building. *American Psychologist*, 62, 25-33.

Avolio, B. J., & Bass, B. M. (1988). Transformational leadership, charisma and beyond.

In J. G. Hunt, B. R. Baliga, H. P. Dachier, & C. A. Schriesheim (Eds.), *Emerging leadership vistas* (pp. 29-49). Lexington, MA: Lexington Books.

Avolio, B. J., Bass, B. M., & Jung, D. I. (1995). *Multifactor Leadership Questionnaire Technical Report*. Redwood City, CA: Mind garden.

Avolio, B. J., Bass, B. M., & Jung, D. I. (1999). Re-examining the components of transformational and transactional leadership using the multifactor leadership questionnaire. *Journal of Occupational and Organizational Psychology*, 72, 441-462.

Bandura A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84, 191-215.

Bandura, A. (1997). *Self efficacy: The exercise of control*. New York: W. H. Freeman and Company.

Barling, J., Weber, T., & Kelloway, E. K. (1996). Effects of transformational leadership training on attitudinal and financial outcomes: A field experiment. *Journal of Applied Psychology*, 81, 827-832.

Barrett, P. (2007). Structural equation modelling: Adjudging model fit. *Personality and Individual Differences*, 42, 815-824.

Bass, B. M. (1985). *Leadership and performance beyond expectations*. New York: Free Press.

- Bass, B. M. (1998). *Transformational leadership: Industrial, military, and educational impact*. Mahwah, NJ: Erlbaum.
- Bass, B. M., & Avolio, B. J. (1990). *Transformational Leadership Development: Manual for the Multifactor Leadership Questionnaire*. Palo Alto, CA: Consulting Psychologists Press.
- Bass, B. M., & Avolio, B. J. (1993). Transformational leadership: A response to critiques. In M. M. Chemers (Ed.), *Leadership: Theory and research perspectives and directions* (pp. 49-80). San Diego, CA: Academic Press.
- Bass, B. M., & Avolio, B. J. (1995). *Transformational Leadership Development: Manual for the Multifactor Leadership Questionnaire*. Palo Alto, CA: Consulting Psychologists Press.
- Bass, B. M., & Avolio, B. J. (1997). *Revised Manual for the Multifactor Leadership Questionnaire*. Palo Alto, CA: Mind Garden.
- Bass, B. M., & Avolio, B. J. (2000). *Transformational Leadership Development: Manual for the Multifactor Leadership Questionnaire*. Palo Alto, CA: Consulting Psychologists Press.
- Bass, B. M., Avolio, B. J., Jung, D. I., & Berson, Y. (2003). Predicting unit performance by assessing transformational and transactional leadership. *Journal of Applied Psychology*, 88, 207-218.

- Bass, B. M., & Riggio, R. E. (2006). *Transformational Leadership*. (2<sup>nd</sup> edd.). NJ: Lawrence Erlbaum Associates.
- Beauchamp, M. R., Bray, S. R., Eys, M. A., & Carron, A. V. (2005). Leadership behaviours and multidimensional role ambiguity perceptions in team sports. *Small group Research*, 36, 5-20.
- Beauchamp, M. R., Welch, A. S., & Hulley, A. J. (2007). Transformational and transactional leadership and exercise-related self-efficacy: An exploratory study. *Journal of Health Psychology*, 12, 83-88.
- Bennis, W., & Nanus, B. (1985). *Leaders: The strategies for taking charge*. New York: Harper Collins.
- Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, 103, 411-423.
- Bentler, P. M., & Bonnet, D. G. (1980). Significance test and goodness-of-fit in covariance structures. *Psychological Bulletin*, 88, 588-606.
- Berlew, D. E. (1974). Leadership and organizational excitement. *California Management Review*, 17, 21-30.
- Berson, Y., Shamir, B., Avolio, B. J., & Popper, M. (2001). The relationship between leadership strength, leadership style, and context. *The Leadership Quarterly*, 12, 53-73.

- Biddle, S. J. H., Markland, D., Gilbourne, D., Chatzisarantis, N. L. D., & Sparks, A. (2001). Research methods in sport and exercise psychology: Quantitative and qualitative issues. *Journal of Sport Sciences*, 19, 777-809.
- Blazer, D. (1982). Social support and mortality in an elderly community population. *American Journal of Epidemiology*, 115, 684-694.
- Bliese, P. D., & Halverson, R. R. (2002). Using random resampling in multilevel research: An example of the buffering effects of leadership climate. *The Leadership Quarterly*, 13, 53-68.
- Bono, J., & Anderson, M. (2005). The advice and influence networks of transformational leaders. *Journal of Applied Psychology*, 90, 1306-1314.
- Bradford D. L. & Cohen, A. R. (1984). *Managing for excellence: The guide to developing high performance in contemporary organisations*. New York: Wiley.
- Brown, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing Structural Equation Models* (pp. 136-162). Newbury Park, CA: Sage.
- Brown, D., & Keeping, L. (2005). Elaborating the construct of transformational leadership: The role of affect. *The Leadership Quarterly*, 16, 245-272.
- Bryman, A. (1992). *Charisma and Leadership in Organizations*. London: Sage.
- Bryman, A., Stephens, M., & Campo, C. (1996). The importance of context: Qualitative research and the study of leadership. *The Leadership Quarterly*, 7, 353-370.



- Burns, J. M. (1978). *Leadership*. New York: Harper & Row.
- Bycio, P., Hackett, R. D., & Allen, J. S. (1995). Further assessments of Bass's (1985) conceptualisation of transactional and transformational leadership. *Journal of Applied Psychology*, 80, 468-478.
- Byrne, B. M. (1989). *A primer of LISREL basic applications and programming for confirmatory factor analytic models*. New York: Springer-Verlag.
- Carless, S. A. (1998). Assessing the discriminant validity of transformational leader behaviours as measured by the MLQ. *Journal of Occupational and Organizational Psychology*, 71(4), 353-358.
- Carron, A. V., Hausenblas, H. A., & Eys, M. A. (2005). *Group Dynamics in Sport*. (3<sup>rd</sup> Ed.). Sheridan Books: USA.
- Carron, A. V., Widmeyer, W. N., & Brawley, L. R. (1985). The development of an instrument to assess cohesion in sports teams: The group environment questionnaire. *Journal of Sport Psychology*, 7, 244-266.
- Charbonneau, D., Barling, J., & Kelloway, K. E. (2001). Transformational leadership and sports performance: The mediating role of intrinsic motivation. *Journal of Applied Social Psychology*, 31, 1521-1534.
- Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin*, 98, 310-357.

- Conger, J. A. (1998). Qualitative research as the cornerstone methodology for understanding leadership. *The Leadership Quarterly*, 9, 107-121.
- Conger, J. A. (1999). Charismatic and transformational leadership in organizations: An insider's perspective on these developing streams of research. *The Leadership Quarterly*, 10(2), 145-179.
- Conger, J. A., & Kanungo, R. N. (1987). Toward a behavioural theory of charismatic leadership in organizational settings. *Academy of Management Review*, 12, 637-647.
- Conger, J. A., & Kanungo, R. N. (1988). *Charismatic leadership: The elusive factor in organizational effectiveness*. San Francisco: Jossey-Bass.
- Conger, J. A., & Kanungo, R. N. (1994). Charismatic leadership in organizations: Perceived behavioural attitudes and their measurement. *Journal of Organizational Behaviours*, 15, 439-452.
- Conger, J. A., & Kanungo, R. N. (1998). *Charismatic Leadership in Organizations*. Thousand Oaks: CA. Sage.
- Cortina, J. M. (1993). What is coefficient alpha? An examination of theory and applications. *Journal of Applied Psychology*, 78, 98-104.
- Cutrona, C. E., & Russell, D. W. (1990). Type of social support and specific stress: Toward a theory of optimal matching. In B. R. Sarason, I. G., Sarason, & G. R..

Pierce (Eds.), *Social support: An international view* (pp. 319-366). New York: Wiley.

Day, D. V. (2001). Leadership development: A review in context. *The Leadership Quarterly*, 11, 581-613.

Dansereau, F., Alutto, J. A., & Yammarino, F. J. (1984). *Theory testing in organizational behavior: The variant approach*. Englewood Cliffs, NJ: Prentice Hall.

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behaviour*. New York.: Plenum Press.

Downtown, J. V. (1973). *Rebel leadership: Commitment and charisma in the revolutionary process*. New York: Free Press.

Dumdum, U. R., Lowe, K. B., & Avolio, B. J. (2002). A meta analyses of transformational and transactional leadership correlates of effectiveness and satisfaction: An update and extension. In B. J. Avolio & F. J. Yammarino (Eds.), *Transformational and Charismatic Leadership: The Road Ahead*. (pp. 35-66). Oxford, UK: JA/Elsevier.

Dvir, T., Eden, D., Avolio, B. J., Bass, B. M., & Shamir, B. (2002). Impact of transformational leadership on follower development and performance: A field experiment. *Academy of Management*, 45 (4), 735-744.

- Dvir, T., Eden, D., & Banjo, M. L. (1996). Gender and leadership style: A meta analyses. In R. Steers, L. Porter, & G. Bigley (Eds.), *Motivation and leadership at work* (pp. 315-345). New York: McGraw-Hill.
- Dvir, T., & Shamir, B. (2003). Follower developmental characteristics as predicting transformational leadership: A longitudinal field study. *The Leadership Quarterly*, 14, 327-344.
- Eden, D. (1990). *Pygmalion in management: Productivity as a self-fulfilling prophecy*. Lexington, MA: Lexington Books.
- Eden, D., Geller, D., Gewirtz, A., Gordon-Tener, R., Inbar, I., Liberman, M., Pass., Salomon-Segev, I., & Shalit, M. (2000). Implanting Pygmalion leadership style through workshop training: Seven field experiments. *The Leadership Quarterly*, 11, 171-210.
- Eden, D., & Ravid, G. (1982). Pygmalion versus self-expectancy: Effects of instructor – and self-expectancy on trainee performance. *Organizational Behavior and Human Performance*, 30, 351-364.
- Eden, D., & Shani, A. B. (1982). Pygmalion goes to boot camp: Expectancey, leadership, and trainee performance. *Journal of Applied Psychology*, 67, 194-199.
- Eden, D., & Sulimani, (2002). Pygmalion training made effective: Greater mastery through augmentation of self-efficacy and means efficacy. In B. J. Avolio & F. J. Yammarino (Eds.), *Transformational and Charismatic Leadership: The Road Ahead*. (pp. 287-308). Oxford, UK: JA/Elsevier.

- Eden, D., & Zuk, Y. (1995). Seasickness as a self-fulfilling prophecy: Raising self-efficacy to boost performance at sea. *Journal of Applied Psychology*, 80, 628-635.
- Ehrhart, M. G., & Klein, K. J. (2001). Predicting followers' preferences for charismatic leadership: The influence of followers values and personality. *The Leadership Quarterly*, 12, 153-179.
- Ehrlich, S. B., Meindl, J. R., & Viellieu, B. (1990). The charismatic appeal of a transformational leader: An empirical case study of a small, high-technology contractor. *The Leadership Quarterly*, 1, 229-248.
- Eys, M. A., Beauchamp, M. R., & Bray, S. R. (2006). A review of team roles in sport. In S. Hanton & S. D. Mellalieu (Eds.). *Literature Reviews in Sport Psychology*. Hauppauge, NY: Nova Science Publishers, Inc.
- Eys, M. A., & Carron, A. V. (2001). Role ambiguity, task cohesion, and task self-efficacy. *Small Group Research*, 32, 356-373.
- Fiedler, F. E. (1971a). *Leadership*. Morristown, NJ: General Learning Press.
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 48, 39-50.
- Gavin, M. B., & Hofmann, D. A. (2002). Using hierarchical linear modelling to investigate the moderating effect of leadership climate. *The Leadership Quarterly*, 13, 15-23.

- Goodman, J. S., & Wood, R. E. (2004). Feedback specificity, learning opportunities, and learning. *Journal of Applied Psychology, 89*, 809-821.
- Graen, G. B., & Uhl-Bien, M. (1995). Relationship-based approach to leadership: Development of leader-member exchange (LMX) theory of leadership over 25 years: Applying a multilevel multi-domain perspective. *The Leadership Quarterly, 6*, 219-247.
- Gray, J. A. (1977). Drug effects on fear and frustration: Possible limbic site of action on minor tranquilizers. In L. L. Iversen, S. D. Iversen, & S. H. Snyder (Eds.), *The Biological Bases of Individual Behavior* (pp. 182-205). New York: Academic Press.
- Gray, J. A. (1990). Brain systems that mediate both emotions and cognition. *Cognition and Emotion, 4*, 269-288.
- Grint, K. (2000). *The art of leadership*. Oxford, England: Oxford University Press.
- Hardy, L., Arthur, C. A., Jones, G., Shariff, A., Munnoch, K., Isaacs, I., & Allsopp, A. J. (in press). The relationship between transformational leadership behaviours, psychological, and training outcomes in elite military recruits. *The Leadership Quarterly*.
- Hater, J. J., & Bass, B. M. (1988). Superiors' evaluations and subordinates' perceptions of transformational and transactional leadership. *Journal of Applied Psychology, 73*, 659-702.

- Hayduk, L. A., & Glaser, D. N. (2000). Jiving the four-step, waltzing around factor analyses, and other serious fun. *Structural Equation Modeling*, 7, 1-35.
- Hofmann, D. A. (1997). An overview of logic and rationale of hierarchical linear models. *Journal of Management*, 23, 723-744.
- House, R. J. (1971). A path-goal theory of leadership effectiveness. *Administrative Science Quarterly*, 16, 321-339.
- House, R. J. (1977). A 1976 theory of charismatic leadership. In J. G. Hunt & L. L. Larson (Eds.), *Leadership: The cutting edge* (pp. 189-207). Carondale, IL: South Illinois Press.
- House, R. J. (1998). Appendix: Measures and assessments for the charismatic leadership approach: Scales, latent constructs, loadings, interclass correlations. In F. Dansereau, & F. J. Yammarino (Eds.), *Leadership the multiple-level approaches contemporary and alternative* (24, Part B, pp. 23-30). London: JAI Press.
- House, R. J., & Aditya, R. N. (1997). The social scientific study of leadership: Quo vadis? *Journal of Management*, 23, 409-473.
- House, R. J., & Podsakoff, P. M. (1994). Leadership effectiveness: Past perspectives and future directions for research. In J. Greenberg (Ed.), *Organizational behavior: The state of science* (pp. 45-82). Hillsdale, NJ: Lawrence Erlbaum.
- House, R. J., & Shamir, B. (1993). Toward the integration of transformational, charismatic, and visionary theories. In M. M. Chemers & R. Aymen (Eds.).

*Leadership theory and research: Perspectives and directions* (pp. 81-107). San Diego, CA: Academic Press.

Howell, J. M. (1998). Two faces of charisma: Socialized and personalized leadership in organizations. In J. A. Conger & R. N. Kanungo (Eds.), *Charismatic leadership: The elusive factor in organizational effectiveness* (pp.213-236). San Francisco: Jossey-Bass.

Howell, J. K., & Avolio, B. J. (1993). Transformational leadership, transactional leadership, locus of control, and support innovation: Key predictors of consolidated business-unit performance. *Journal of Applied Psychology, 78*, 891-902.

Howell, J. M., & Frost, P. J. (1989). A laboratory study of charismatic leadership. *Organizational Behavior and Human Decision Processes, 43*, 243-269.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analyses: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1-55.

Hunt, J. G. (1991). *Leadership A new synthesis*. Newbury Park, CA: Sage.

Ilgen, D. R., Fisher, C. D., & Taylor, M. S. (1979). Consequences of individual feedback on behaviour in organizations. *Journal of Applied Psychology, 64*, 349-371.



- Jackson, S. E., & Schuler, R. S. (1985). A meta-analysis and conceptual critique of research on role ambiguity and role conflict in work settings. *Organizational Behavior and Human Decision Processes*, 36, 16-78.
- James, L. R., Demaree, R. G., & Wolf, G. (1984). Estimating within-group interrater reliability with and without response bias. *Journal of Applied Psychology*, 69, 85-98.
- Jaques, E. (1986). The development of intellectual capability. *Journal of Applied Behavioral Science*, 22, 361-383.
- Jöreskog, K. G. (1993). Testing structural equation models. In K. A. Bollen & J. S. Long (Eds.), *Testing Structural equation models* (pp. 294-316). Newbury Park, CA: Sage.
- Jöreskog, K. G., & Sörbom, D. (1989). *LISREL 7: User's reference guide*. Mooresville, IN: Scientific Software.
- Judge, T. A., & Bono, J. E. (2000). Five-factor model of personality and transformational leadership. *Journal of Applied Psychology*, 85, 751-765.
- Judge, T. A., Bono, J. E., Ilies, R., & Gerhardt, M. W. (2002). Personality and leadership: A qualitative and quantitative review. *Journal of Applied Psychology*, 87, 765-780.

- Judge, T. A., & Piccolo, R. F. (2004). Transformational and transactional leadership: A meta-analytic test of their relative validity. *Journal of Applied Psychology, 89*, 755-768.
- Judge, T. A., Thorson, C. J., Bono, J. E., & Patton, G. K. (2001). The job satisfaction-job performance relationship: A qualitative and quantitative review. *Psychological Bulletin, 127*(3), 376-407.
- Jung, D. I., & Avolio, B. J. (2000). Opening the black box: An experimental investigation of the mediating effects of trust and value congruence on transformational and transactional leadership. *Journal of Applied Organizational Behavior, 21*, 949-964.
- Jung, D. I., Chow, C., & Wu, A. (2003). The role of transformational leadership in enhancing organizational innovation: Hypotheses and some preliminary findings. *The Leadership Quarterly, 14*, 525-544.
- Jung, D. I., & Sosik, J. J. (2002). Transformational leadership in workgroups: The role of empowerment, cohesiveness, and collective-efficacy on perceived group performance. *Small Group Research, 33*, 313-336.
- Kane, T. D., & Tremble, T. R. (2000). Transformational leadership effects at different levels of the army. *Military Psychology, 12*, 137-160.
- Kark, R., & Shamir, B. (2002). The dual effects of transformational leadership: Priming relational and collective selves and further effects on followers. In B. J. Avolio, &

F. J. Yammarino (Eds.), *Transformational and Charismatic Leadership: The road Ahead*, Elsevier, Oxford.

Kelloway, K. E., Barling, J., & Helleur, J. (2000). Enhancing transformational leadership: The roles of training and feedback. *Leadership and Organizational Development Journal*, 21, 145-149.

Kim, K., Dansereau, F., & Kim, I. (2002). Extending the concept of charismatic leadership: An illustration using Bass's (1990) categories. In B. J. Avolio & F. J. Yammarino (Eds.), *Transformational and Charismatic Leadership: The Road Ahead*. (pp. 35-66). Oxford, UK: JA/Elsevier.

Kirkpatrick, S. A., & Locke, E. A. (1996). Direct and indirect effects of three core charismatic leadership components on performance and attitudes. *Journal of Applied Psychology*, 81, 36-51.

Kluger, A. N., & DeNisi, A. (1996). The effects of feedback interventions on performance: A historical review, a meta-analysis and a preliminary feedback intervention theory. *Psychological Bulletin*, 119, 254-284.

Koh, W. L., Steers, R. M., & Terborg, J. R. (1995). The effects of transformational leadership on teacher attitudes and students performance in Singapore. *Journal of Organizational Behavior*, 16, 319-333.

Kouzes, J. M., & Posner, B. Z. (1987). *The leadership challenge: How to get extraordinary things done in organizations*. San Francisco: Jossey-Bass.

- Lang, P. J. (2000). Emotion and motivation: Attention, perception and action. *Journal of Sport and Exercise Psychology*, 20, S122-S140.
- LeDoux, J. E. (1996). *The Emotional Brain: The Mysterious Underpinnings of Emotional Life*. New York: Touchstone Simon and Schuster.
- Lim, B.C., & Ployhart, R. E. (2004). Transformational leadership: Relations to the five-factor model and team performance in typical and maximum contexts. *Journal of Applied Psychology*, 89, 610-621.
- Locke, E. A., & Latham, G. P. (1990). *A theory of goal-setting and task performance*. New Jersey: Prentice-Hall, Engelwood Cliffs.
- London, M. (2002). *Leadership development: Paths to self-insight and professional growth*. Mahwah, NJ: Elrbaum.
- Lord, R. G., Brown, D. J., & Frieberg, S. J. (1999). Understanding the dynamics of leadership: The role of follower self-concepts in the leader/follower relationship. *Organizational Behavior and Human Decision Processes*, 75, 167-203.
- Lowe, K. B., Kroeck, K. G., & Sivasubramaniam, N. (1996). Effectiveness correlates of transformational and transactional leadership: A meta analytic review of the MLQ literature. *The Leadership Quarterly*, 7, 385-425.
- MacKenzie, S. B., Podsakoff, P. M., & Jarvis, C. B. (2005). The problem of measurement model misspecification in behavioral and organizational research and some recommended solutions. *Journal of Applied Psychology*, 90, 710-730.

- Mardia, K. V. (1970). Measuring multivariate skewness and kurtosis with application. *Biomtrica*, 57, 519-530.
- Markham, S. E., & Halverson, R. R. (2002). Within- and between-entity analyses in multilevel research: A leadership example using single level analyses and boundary conditions (MRS). *The Leadership Quarterly*, 13, 35-52.
- Markland, D. (2007). The golden rule is that there are no golden rules: A commentary on Paul Barrett's recommendations for reporting model fit in structural equation modelling. *Personality and Individual Differences*, 42, 851-858.
- Miller, M. B. (1995). Coefficient alpha: A basic introduction from the perspectives of classical theory and structural equation Behaviour. *Structural Equation Modeling*, 2, 255-273.
- Mullen, B., & Cooper, C. (1994). The relationship between cohesiveness and performance: An integration. *Psychological Bulletin*, 115, 210-227.
- Mumford, M. D., & Strange, J. M. (2002). Vision and mental models: The case of charismatic and ideological leadership. In B. J. Avolio & F. J. Yammarino (Eds.), *Transformational and Charismatic Leadership: The Road Ahead*. (pp. 109-142). Oxford, UK: JA/Elsevier.
- Nanus, B. (1992). *Visionary Leadership*. San Francisco: Jossey-Bass.
- Parry, K. W. (2002). Four phenomenologically determined processes of organizational leadership: Further support for the construct of transformational leadership. In B.

- J. Avolio & F. J. Yammarino (Eds.), *Transformational and Charismatic Leadership: The Road Ahead*. (pp. 35-66). Oxford, UK: JA/Elsevier.
- Pillai, R., Schriesheim, C. A., & Williams, E. S. (1999). Fairness perceptions and trust as mediators for transformational and transactional leadership: A two-sample study. *Journal of Management*, 25, 897-933.
- Ployhart, R. E., Lim, B. C., & Chan, K. Y. (2001). Exploring relations between typical and maximum performance ratings and the five factor model of personality. *Personnel Psychology*, 54, 809-843.
- Podsakoff, P. M., MacKenzie, S. B., & Bommer, W. H. (1996). Transformational leadership behaviours and substitutes for leadership as determinants of employee satisfaction, commitment, trust, and organisational citizenship behaviours. *Journal of Management*, 22, 259-298.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method bias in behavioural research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88, 879-203.
- Podsakoff, P. M., MacKenzie, S. B., Moorman, R. H., & Fetter, R. (1990). Transformational leader behaviours and their effect on followers' trust in leader, satisfaction, and organizational citizenship behaviours. *The Leadership Quarterly*, 1, 107-142.
- Rafferty, A. E., & Griffin, M. A. (2004). Dimensions of transformational leadership: Conceptual and empirical extensions. *The Leadership Quarterly*, 15, 329-354.

- Rafferty, A. E., & Griffin, M. A. (2006). Refining individualized consideration: Distinguishing developmental leadership and supportive leadership, *Journal of Occupational and Organizational Psychology*, 79, 37-61.
- Rees, T., & Hardy, L. (2000). An investigation of the social support experiences of high-level sports performers. *The Sports Psychologist*, 14, 327-347.
- Rees, T., & Hardy, L. (2004). Matching social support with stressors: Effects on factors underlying performance in tennis. *Psychology of Sport and Exercise*, 5, 319-337.
- Rees, T., Hardy, L., & Evans, L. (2007). Construct validity of the social support survey in sport. *Psychology of Sport and Exercise*, 8, 355-368.
- Rowold, J. (2006). Transformational and transactional leadership in martial arts. *Journal of Applied Sport Psychology*, 18, 312-325.
- Sandler, I. N., & Berrera, M., Jr. (1984). Toward a multimethod approach to assessing the effects of social support. *American Journal of Community Psychology*, 12, 37-57.
- Sarason, B. R., Sarason, I. G., & Pierce, G. R. (1990). Traditional views of social support and their impact on assessment. In B. R. Sarason, I. G. Sarason, & G. R. Pierce (Eds.), *Social support; An international view* (pp. 9-25). New York: Wiley.
- Sashkin, M. (1984). *The visionary leader: The leader behaviour questionnaire*. Bryn Mawr, PA: Organization design and development.

- Sashkin, M. (2004). Transformational leadership approaches: Review and synthesis. In J. Antonakis, A. T. Cianciolo, & R. J. Sternberg (Eds.), *The Nature of Leadership* (pp. 2-15). California: Sage Publications, Inc.
- Satorra, A., & Bentler, P. M. (1994). Corrections to test statistics and standard errors in covariance structure analyses. In A. von Eye and C.C. Clogg (Eds.) *Latent variables analysis: Applications for developmental research* (pp. 399-419). California: Sage.
- Schaubroeck, J., Lam, S. S., & Cha, S. E. (2007). Embracing transformational leadership: Team values and the impact of leader behaviour on team performance. *Journal of Applied Psychology*, 92, 1020-1030.
- Schriesheim, C. A., Castro, S. L., Zhou, X., & DeChurch, L. A. (2006). An investigation of path-goal and transformational leadership theory predictions at the level of analyses. *The Leadership Quarterly*, 17, 21-38.
- Schumacker, R. E., & Lomax, R. G. (1996). *A beginner's guide to structural equation modeling*. Hillsdale, NJ: Erlbaum.
- Schutz, R. W., & Gessaroli, M. E. (1993). Use, misuse, and disuse of psychometrics in sports psychology. In R. N. Singer, M. Murphay, & L. K. Tennant (Eds.), *Handbook of research in sports psychology* (pp. 901-917). New York: Macmillan.
- Shamir, B., House, R. J., & Arthur, M. B. (1993). The motivational effects of charismatic leadership: A self-concept based theory. *Organizational Science*, 4, 577-594.



- Shamir, B., Zakay, E., Breinin, E., & Popper, P. M. (1998). Correlates of charismatic leader behaviour in military units: Subordinates' attitudes, unit characteristics, superiors' appraisals of leader performance. *Academy of Management Journal*, 41, 387-409.
- Shin, S. J., & Zhou, J. (2003). Transformational leadership, conservation and creativity: Evidence from Korea. *Academy of Management Journal*, 46, 703-714.
- Spreitzer, G. M., Pertula, K. H., & Xin, K. (2005). Traditionality matters: An examination of the effectiveness of transformational leadership in the United States and Taiwan. *Journal of Organizational Behavior*, 26, 205-227.
- Stajkovic, A. D., & Luthans, F. (1998). Self-efficacy and work-related performance: A meta analyses. *Psychological Bulletin*, 124(2), 240-261.
- Sutton C., & Woodman R. (1989). Pygmalion goes to work: The effects of supervisor expectations in a retail setting. *Journal of Applied Psychology*, 74, 943-950.
- Tangirala, S., Green, S. G., & Ramanujam, R. (2007). In the shadow of the Boss's boss: Effects of supervisors' upward exchange relationships on employees. *Journal of Applied Psychology*, 92, 309-320.
- Tejeda, M. J., Scandura, T. A., & Pillai, R. (2001). The MLQ revisited: Psychometric properties and recommendations, *The Leadership Quarterly*, 12, 31-52.
- Tepper, B. J., & Percy, P. M. (1994). Structural validity of the multifactor leadership questionnaire. *Educational and Psychological Measurement*, 54, 734-744.

- Tucker, L. R., & Lewis, C. (1973). A reliability coefficient for maximum likelihood factor analyses. *Psychometrika*, 38, 1-10.
- Vealey, R. S. (1986). Conceptualization of sport-confidence and competitive orientation: Preliminary investigation and instrument development. *Journal of Sport Psychology*, 8, 221-246.
- Waldman, D. A., Bass, B. M., & Yammarino, F. J. (1990). Adding to contingent reward behaviour: The augmentation effect of charismatic leadership. *Group Organization Studies*, 15, 381-394.
- Warr, P., Cook, J., & Wall, T. (1979). Scales of measurement of some work attitudes and aspects of psychological well-being. *Journal of Occupational Psychology*, 52, 129-148.
- Weber, M. (1947). *The theory of social and economic organization* (A. M. Henderson & T. Parsons, Trans.). New York: Oxford University Press. (original work published 1924).
- White, S. S., & Locke, E. A. (2000). Problems with the Pygmalion effect and some proposed solutions. *The Leadership Quarterly*, 11, 389-415.
- Whittington, J. L., Goodwin, V. L., & Murray, B. (2004). Transformational leadership, goal difficulty, and job design: Independent and interactive effects on employee outcomes. *The Leadership Quarterly*, 15, 593-606.

Wofford, J. C., & Liska, L. Z. (1993). Path-goal theories of leadership: A meta-analysis. *Journal of Management*, 19, 857-876.

Woodman, T., & Hardy, L. (2003). The relative impact of cognitive anxiety and self-confidence upon sport performance: A meta-analysis. *Journal of Sport Sciences*, 21, 443-457.

Yammarino, F. J. (1990). Individual- and group-directed leader behaviour descriptions. *Educational and Psychological Measurement*, 50, 739-759.

Yukl, G. J. (1998). *Leadership in Organizations*. Englewood Cliffs, NJ: Prentice-Hall.

Yukl, G. J. (1999). An evaluation of the conceptual weaknesses in transformational and charismatic leadership theories. *The Leadership Quarterly*, 10, 285-305.

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