Leading Authentically in Teams: A Moderated Mediation Model

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Statement of Originality

I hereby certify that the work embodied in the thesis is my own work, conducted under normal supervision.

The thesis contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. I give consent to the final version of my thesis being made available worldwide when deposited in the university's Digital Repository, subject to the provisions of the Copyright Act 1968.

Tie Zheng

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感恩所有爱我、帮助过我的人!

Abstract

Although authentic leadership theory has been substantially advanced since its inception, there are calls for more examinations of mediators and moderators in order to extend understanding of authentic leadership processes. To address such a need, this study proposed a moderated mediation model to examine the role that perceived team politics, team proactivity and team potency may play in influencing the relationship between authentic leadership and team effectiveness. The study was aimed to provide empirical evidence at the team level of analysis to further understanding of the impact of authentic leadership on team functioning.

To investigate authentic leadership processes in the teamwork context, the study conducted a survey based on the positivist research design and administered two separate questionnaires to team leaders and members respectively. The purpose of administering two questionnaires was to avoid common method bias so that the leader questionnaire sourced dependent variables while the member questionnaire collected independent variables.

The final random sample of 92 teams from healthcare as well as architectural design and construction industries was analysed by structural equation modelling techniques. The results supported all the eight hypotheses indicating that authentic leaders could elevate team effectiveness by decreasing perceived team politics and increasing team proactivity. Moreover, team potency exerted conditional effects on how authentic leadership effected team proactivity and thus team effectiveness. Authentic leaders who led teams with high team potency could expect high team proactivity whereas those leading teams with low team potency would have low team proactivity.

The research findings of the study could make theoretical contributions to the authentic leadership literature with new mechanisms that leaders could utilise in managing team processes. Practically, the findings could inform managerial practitioners of the value of authentic leadership theory and suggest new pathways for human resource management in terms of managing leadership development programmes, team processes and performance appraisal ratings.

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List of Abbreviations

AL	Authentic Leadership
ALQ	Authentic Leadership Questionnaire
ALI	Authentic Leadership Inventory
ANOVA	Analysis of Variance
AVE	Average Variance Extracted
CB-SEM	Covariance-based SEM
CFA	Confirmation Factor Analysis
CI	Confidence Interval
CR	Composite Reliability
EFA	Exploratory Factor Analysis
GLI	Gallup Leadership Institute
GoF	Goodness of Fit
GTL	Global Transformational Leadership scale
HTMT	Heterotrait-monotrait Ratio
ICCs	Intraclass Correlation Coefficents
IRA	Interrater Agreement
IRR	Interrater Reliability
LAS	Leader Authenticity Scale
LPI	Leadership Practices Inventory
MES	Moderating Effects
MLQ	Multifactor Leadership Questionnaire
NHFPC	National Health and Family Planning Commission
OCB	Organisational Citizenship Behaviour
PLS-SEM	Partial Least Square-Structural Equation Modelling
PTP	Perceived Team Politics
SEM	Structural Equation Modelling
SD	Standard Deviation
SPSS	Statistical Package for Social Science
SRMR	Standardised Root Mean Square Residual
TCM	Traditional Chinese Medicine

TPO	Team Potency
TPR	Team Proactivity
VIF	Variance Inflation Factor

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Chapter 1 Introduction

1.1. Research Background

Recent decades have witnessed ongoing academic interest in authentic leadership. Since 2000s, authentic leadership research has become the third largest research stream in leadership studies (Batistič, Černe, & Vogel, 2017). The rise of authentic leadership development was grounded in the turbulent business environment featured by societal change, ethical scandals and organisational challenges which drove leadership scholars to search for a new leadership style to lead through difficult time. Authentic leadership has been developed as a positive form of leadership that characterises leaders as those who lead with purpose, values, and integrity, and who build enduring organisations and create long-run values for stakeholders (Avolio, Gardner, Walumbwa, Luthans, & May, 2004; George, 2003). Up to date, research on authentic leadership theory has gone through conceptual formation, operationalisation of definition, creation of measures and empirical examination (Avolio & Gardner, 2005; Avolio et al., 2004; Banks, McCauley, Gardner, & Guler, 2016; Neider & Schriesheim, 2011; Walumbwa et al., 2008). The proliferation of both academic and practitioner writings on authentic leadership has accumulated an extensive body of knowledge and deepened understanding of authentic leadership (Gardner, Cogliser, Davis, & Dickens, 2011).

Nevertheless, there is much to do in order to advance authentic leadership theory and establish authentic leadership as a useful leadership approach. Yammarino, Dionne, Schriesheim, and Dansereau (2008) called on more empirical research to test authentic leadership processes and conduct multi-level analyses of those processes to identify how authentic leaders achieve their leadership effectiveness. To further understand authentic leadership processes, Avolio (2010) recommended that future research could investigate more mediators and moderators. Consequently, to respond to the needs for further research on authentic leadership, this study was focused on authentic leadership processes and on investigation of how authentic leadership impacts on team effectiveness.

1.2. Research Objectives

Recent reviews of authentic leadership research have shown that there is limited knowledge about how authentic leadership influences team processes (Batistič et al., 2017; Gardner et al., 2011). Teams have been widely used to organise work in contemporary organisations (Bell, 2007). As leadership is critical to team effectiveness (Hannah, Walumbwa, & Fry, 2011; Lim & Ployhart, 2004; Schaubroeck, Lam, & Cha, 2007), inquiry into the impact of authentic leadership on team processes is important to organisational management. Consequently, the first research purpose was to provide empirical evidence to extend understanding of how authentic leadership influences team effectiveness.

The second purpose was to examine the mechanisms through which authentic leadership is linked to team effectiveness. This study proposed two team-level mediators, perceived politics and team proactivity, and a team-level moderator, team potency. As there is no research investigating relationships between authentic leadership and the proposed mediators and moderator, the study attempted to contribute to authentic leadership literature with these new mediators and moderator. Specifically, the study had three research objectives as follows:

- 1. To investigate the mediating effects of perceived team politics on the relationship between authentic leadership and team effectiveness
- 2. To examine the mediating effects of team proactivity on the relationship between authentic leadership and team effectiveness
- 3. To explore the moderating effect of team potency on the mediated relationship between authentic leadership and team effectiveness through team proactivity

1.3. Description of Thesis

In order to achieve the above three research objectives, the study developed eight hypothesised relationships in the research model, as presented in Table 1.1., based on authentic leadership theory and previous empirical research evidence to answer the following research questions.

- 1. How does perceived team politics mediate the relationship between authentic leadership and team effectiveness?
- 2. How does team proactivity mediate the relationship between authentic leadership and team effectiveness?
- 3. How does team potency moderate the mediated relationship between authentic leadership and team effectiveness through team proactivity?
- 4. To what extent does the moderating effect become significant on the mediated relationship between authentic leadership and team effectiveness through team proactivity?

As shown in Table 1.1., Hypothesis 1-3 were aimed to answer the first research question, Hypothesis 4-6 were for the second research question and Hypothesis 7-8 were for the third question. Results of the Johnson-Neyman analysis would provide an answer to the fourth question.

Table 1.1 Hypotheses and corresponding research questions

Hypothesis	Question
Hypothesis 1: Authentic leadership is negatively related to perceived team politics.	
Hypothesis 2: A reduction in perceived team politics is significantly related to an increase in team effectiveness.	1
Hypothesis 3: Perceived team politics mediates the relationship between authentic leadership and team effectiveness.	
Hypothesis 4: Authentic leadership is positively linked to team proactivity.	
Hypothesis 5: Team proactivity is positively related to team effectiveness.	2
Hypothesis 6: Team proactivity mediates the relationship between authentic leadership and team effectiveness.	
Hypothesis 7: Team potency moderates the positive relationship between authentic leadership and team proactivity.	
Hypothesis 8: Team potency moderates the mediated relationship between authentic leadership and team effectiveness. This moderating effect is such that the mediated effect of authentic leadership leads to a greater increase in team effectiveness when team potency is higher.	3

The study argued that authentic leadership could decrease perceived team politics, thus resulting in increased team effectiveness. Perceived politics is defined as the subjective evaluation about the extent to which the work environment is characterised by self-serving behaviour (Ferris, Harrell-Cook, & Dulebohn, 2000). Perceptions of politics is an indicator of political behaviour (Vigoda - Gadot, 2007). As organisations are considered to be a 'political arena' (Mintzberg, 1985), it is likely that organisational members will be directly or indirectly engaged in power-related exchange and political behaviour

(Sheard, Kakabadse, & Kakabadse, 2011). Politics not only happens at the organisational level but also at the team level. Prior research has shown that politics taking place at different structural levels in organisations has different focal points and behavioural forms (Maslyn & Fedor, 1998). Yet, the extant research has no examination of how authentic leadership influences perceived politics in teams even though leadership styles have been found to result in different perceptions of politics (Vigoda - Gadot, 2007). The study was aimed to extend understanding of how authentic leaders effect perceptions of team politics.

The study also argued that authentic leadership could enhance team proactivity which in turn elevate team effectiveness. Proactivity refers to the behavioural pattern involving the intention of "taking initiatives in improving current circumstances or creating new ones" rather than reactively or passively adapting to the status quo (Crant, 2000, p. 436). Proactive behaviour is regarded as positive behaviour in organisations which leads to desirable outcomes at individual, team and organisational levels (Crant, 2000; Parker & Collins, 2010; Strauss, Griffin, & Rafferty, 2009). When proactivity occurs at the team level, it is argued to bear similar theoretical rationales with individual proactivity. However, team proactive behaviour is focused on the team itself such as how the team interacts with external environments (Strauss et al., 2009). The proactivity literature reflects more work done at the individual level than at the team level (Williams, Parker, & Turner, 2010). Although leadership has been found to be supportive to team proactive behaviour (Wu & Wang, 2015), there is limited understanding of how leader authenticity intervenes team proactivity. The study was attempted to foster more understanding in this line of research.

To investigate the conditions under which authentic leaders could effectively impact on team proactivity, the study explored the moderating effect of team potency with an argument that team potency could accelerate the impact of authentic leadership on team proactivity and subsequently team effectiveness. Team potency refers to shared confidence in general team performance (Guzzo, Yost, Campbell, & Shea, 1993). Prior research has demonstrated the positive impact of team potency on performance (Gully, Incalcaterra, Joshi, & Beaubien, 2002). Based on these findings, the study posited that authentic leaders who lead teams with high team potency could expect high team proactivity which in turn generates high team effectiveness whereas those who lead teams with low team potency could foresee low team proactivity which in turn leads to low team effectiveness.

The authentic leadership literature has documented research on mediating and moderating mechanisms, through which authentic leaders exert indirect influence on team outcomes. Authentic leadership has been argued to promote follower basic need satisfaction (Leroy, Anseel, Gardner, & Sels, 2015), team virtuousness, team affective commitment (Rego, Vitória, Magalhães, Ribeiro, & e Cunha, 2013), collective psychological capital, team trust (Walumbwa, Luthans, Avey, & Oke, 2011), team authenticity (Hannah, Walumbwa, et al., 2011) and team affective tone (Hmieleski, Cole, & Baron, 2012), which in turn enhance team performance and generate expected outcomes. Research has also shown that shared social self-categorisation (Steffens, Mols, Haslam, & Okimoto, 2016) and procedural justice climate (Hsiung, 2011) moderated the link between authentic leadership and team outcomes Although leadership scholars have investigated the mediating and moderating mechanisms in authentic leadership processes, much is still unknown about how perceived team politics, proactivity and potency may play a role in influencing the relationship between authentic leadership and team effectiveness.

The study was thus attempted to contribute to authentic leadership research by extending understanding of how the impact of authentic leadership on team effectiveness is the functions of team-level perceived politics, proactivity and potency. Such a contribution could be also significant when it is placed into the broader research arena, like leadership research and organisational studies, for the integration of authentic leadership with perceived team politics, team proactivity, team potency and team effectiveness. Chapter Six will explain research significance of the study in detail.

1.4. Theoretical Framework

Authentic leadership theory was the main theoretical foundation of this study. The conceptual model was graphed in Figure 1.1.



Figure 1.1. Research model of the study

Advancement of authentic leadership theory has undergone over two decades. The initial application of authenticity to leadership research originated in an attempt to identify authentic transformational leaders from pseudo-transformational leaders in 1990s (Avolio, 2010). Formalised authentic leadership theory was introduced in 2003 when Luthans and Avolio (2003) extended the earlier work on authentic transformational leadership by combining literature from leadership, positive organisational behaviour and ethics (Hannah, Walumbwa, et al., 2011). The subsequent theory development and refinement have conceptually distinguished authentic leadership from transformational leadership: authentic leaders engage in developing follower authenticity while transformational leaders are devoted to transforming followers into leaders (Avolio & Gardner, 2005; Avolio et al., 2004). The theory development of authentic leadership was crowned in 2000s (Gardner et al., 2011). Scholarly efforts in developing this new leadership style resulted in special issues in academic journals including *The Leadership* Quarterly (2005/3) and Journal of Management Studies (2005/5), research summits hosted by the Gallup Leadership Institute (GLI) during 2004-2006 and an edited book (Gardner, Avolio, & Walumbwa, 2005). To facilitate empirical research on authentic leadership, Walumbwa et al. (2008) operationalised the authentic leadership concept and developed a measurement scale, Authentic Leadership Questionnaire (ALQ). Drawing on the operationalised definition of authentic leadership in ALQ, Neider and Schriesheim (2011) introduced an alternative measurement scale, Authentic Leadership Inventory (ALI). Since 2000s, authentic leadership has become one of the most active research streams in leadership studies.

Nevertheless, different perspectives towards authentic leadership theory have emerged after theory advancement for years. There are two different views to construe the concept of 'the real self', namely essentialist and interactionist perspectives (Wilson, 1988). Given that authenticity, referred to 'being true to self' (Harter, 2002), is a root construct of authentic leadership, different views of self would lead to different conceptualisations of leader authenticity and thus what authentic leaders are (Ladkin & Taylor, 2010). The essentialist self is autonomous which shapes the circumstances or internalise external values to become a different self in social interactions (Erickson, 1995). In contrast, the interactionist self is attributed by ongoing interactions with others (Geller, 1982; Gergen, 1977). Conceptualisations of the essentialist self are akin to the conceptualisation of authentic leadership which is built on social psychology and positive organisational behaviour whereas conceptualisations of the interactionist self are similar to the conceptualisation of authentic leaders who are attributed by follower perceptions (Ladkin & Taylor, 2010). This study consequently labelled the authentic leadership studies grounded in social psychology and positive organisational behaviour as the essentialist authentic leadership research. These essentialist scholars view authentic leaders as those who can draw positive psychological capital to promote authentic leader and follower relationships (Avolio et al., 2004; Gardner, Avolio, Luthans, May, & Walumbwa, 2005; Luthans & Avolio, 2003; May, Chan, Hodges, & Avolio, 2003; Walumbwa et al., 2008). The study labelled those scholars who argue that authentic leadership emerges in follower attribution as the interactionist scholars (Shamir & Eilam, 2005; Sparrowe, 2005).

The essentialist and interactionist views of authentic leadership theory lead to different methodological choices. The essentialist stream of research facilitates the quantitative approach to test theory with two developed measurement scales. The interactionist stream relies on qualitative methods to develop authentic leadership theory (Banks et al., 2016). To be consistent with the research design, the study adopted the essentialist perspective of authentic leadership theory to develop the conceptual model.

In addition, as the formation and refinement of the essentialist authentic leadership theory have drawn ideas from concepts and theories in social psychology literature, the study followed this line of research and referred to the relevant theories from social psychology to make arguments, such as self-determination theory (Deci, Connell, & Ryan, 1989; Ryan & Deci, 2000, 2003), social learning theory (Bandura, 1977b), social exchange theory (Blau, 1964; Emerson, 1976) and expectancy theory (Vroom, 1964).

1.5. Research Methodology

It has been argued that the methodological choice should depend on the role of theory, research objectives and the types of research questions (Klenke, 2016; Newman & Benz, 1998). Given that the study was aimed to test theory, discover correlated relationships among constructs and answer the 'how' type questions, it selected the positivist research design and quantitative research approach to conduct this research.

The study adopted the survey as the methodological choice based on four reasons. First, a survey reflects the characteristics of positivist research in terms of operationalised conceptualisation, objectivity, causality and replicability (Easterby-smith, Thorpe, & Jackson, 2012). Second, a survey facilitates statistical testing of data (Hair, Celsi, Money, Samouel, & Page, 2011). Third, a self-administered survey is an efficient way to collect data from various geographical locations generating large samples to offer a compelling generalisation (Cooper & Schindler, 2011; Easterby-smith et al., 2012). Fourth, surveys have remained a dominant, typical methodology in leadership research as survey data can be directly sourced from the real-world leaders (Friedrich, Byrne, & Mumford, 2009).

Both online and paper-and-pencil questionnaires were administered to source data from work teams in healthcare as well as architectural design and construction industries to enable the geographically dispersed teams to participate in the study without time and place constraints. The reasons to choose these two industrial sectors were twofold. On the one hand, healthcare professionals, architects and construction-related engineers are knowledge workers who use their knowledge, expertise and professional discretions to perform their tasks (Davenport 2005). On the other hand, these two industries employ inter-professional work teams to complete tasks (Fay, Borrill, Amir, Haward, & West, 2006; Kog & Loh, 2012). In order to avoid common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003), two separate questionnaires were administered to leaders and members respectively. The leader questionnaire collected dependent variables while the member questionnaire sourced independent variables. The measures in the questionnaires were adopted from previously published peer-reviewed journals.

The study employed the random sampling strategy and received a final sample of 92 work teams. As the study utilised Partial Least Square (PLS)-Structural Equation Modelling (SEM) as an analytical approach, the sample size met the minimum number of the sample size which should be ten times of structural paths leading to a particular construct in the model (Hair, Hult, Ringle, & Sarstedt, 2017).

Taking into consideration of the multiple hypothesised linear relationships, the number of latent variables as well as validation of measurement scales, the study deployed the techniques of Structural Equation Modelling (SEM) to conduct data analysis. Due to the small sized sample and the need to predict team effectiveness, the dependent variable, Partial Least Square-Structural Equation Modelling (PLS-SEM) is likely to be a useful analytical tool (Hair, Ringle, & Sarstedt, 2012). PLS-SEM statistics were used to evaluate the measurement model and the predicative power of the overall model. Following prior research (Mitchell et al., 2015; Mitchell, Boyle, et al., 2014), the study utilised hierarchical regression analysis and PROCESS Macro in Statistical Package for Social Science (SPSS) to evaluate the structural model. To further investigate the moderating effect, the Johnson-Neyman technique was implemented to identify the region of significance. Such a result could display the boundary conditions on which the impact of authentic leadership takes effective (Hayes, 2013).

1.6. Thesis Structure

Following this introduction, Chapter Two and Three present literature review and the hypothesis development. Chapter Two provides an exclusive review of authentic leadership theory. It first places authentic leadership theory into the context of leadership research to reveal the relationships between authentic leadership theory and other leadership theories. It then proceeds to explicate key themes in authentic leadership: the notions of authenticity as well as self and ethics which underlie two main streams of authentic leadership research—essentialist and interactionist perspectives. Taking the essentialist perspective to view authentic leadership, the chapter sets out to delineate authentic leadership as a root construct of positive forms of leadership which makes it similar but distinct from transformational and ethical leadership styles, the chapter illustrates the influencing mechanisms in authentic leadership processes which facilitate leaders to develop authentic followers and achieve leadership effectiveness. This is followed by a review of measurement scales of authentic leadership and an explanation of why ALI was selected to measure authentic leadership. Finally the chapter provides a

review of authentic leadership and teams, and pinpoints why the study was positioned at the junction of authentic leadership and team research.

Chapter Three deals with literature review in relation to exogenous and endogenous constructs in order to establish hypothesised relationships in the research model. The hypotheses have been argued on the basis of the essentialist view of authentic leadership theory with references to self-determination theory, social learning theory, social exchange theory and expectancy theory.

Chapter Four details and reasons research methodology adopted in the study. The chapter first reasons why realist and positivist research design was employed to investigate the research questions by comparing philosophical foundations of quantitative and qualitative research. Following this, the chapter details the survey design including the types of survey, questionnaire design and administration, measures and scaling as well as the sampling strategy. This is followed by the analytical approach reasoning how the data were processed and analysed. Finally, the chapter presents ethical considerations in the research design and ends with a reflection upon methodological limitations.

Chapter Five depicts the processes in which the results were obtained and reports whether the hypotheses were supported or not. The chapter first reports results of preliminary data analysis in terms of missing values scanning, demographic profiles of data, data aggregation, descriptive statistics and independent samples t-test. This is followed by the SEM analysis to evaluate the measurement and structural models respectively.

Chapter Six summarises the findings of the research and describes how such findings answer the research questions. The significance of empirical findings is revealed in theoretical and managerial implications highlighting the value of authentic leadership theory. Following this, the chapter proceeds to reflect upon limitations of the study and recommend future research avenues to further explore the impact of authentic leadership on teams. The thesis is concluded with remarks that authentic leadership theory as a positive form of leadership deserves more research attention to explore its impact on team functioning.

Chapter 2 Authentic Leadership

2.1. Introduction

This chapter is to review the scholarly literature on authentic leadership theory for two objectives. The first goal is to reveal the needs for further research on authentic leadership and explain the perspective that the current study took on. By exploring key aspects of authentic leadership, the second goal is to pave the way to develop the research model in Chapter 3.

The chapter begins with an overview of leadership research, highlighting origins of perspectives and themes in authentic leadership research. It then proceeds to present the key themes of authentic leadership including authenticity, self and ethics which assist in understanding conceptualisations of authentic leadership. Following this, the chapter will compare authentic leadership with transformational leadership and ethical leadership so as to elicit the uniqueness of authentic leadership as a construct in leadership research. Next, the chapter will present the authentic leadership process in terms of the leader influencing mechanism, a keystone to explain how authentic leaders influence followers to achieve goals. After this, the chapter will examine the authentic leadership measurement and reason why this study used the scale of Authentic Leadership Inventory. The chapter moves on to authentic leadership and teams, and specifies what level of analysis and what type of team research this study dealt with. Lastly, this chapter ends with a summary and conclusion.

2.2. Leadership Research

To better understand the emergence and development of authentic leadership, it is essential to place it into the broader context of leadership research. Leadership has contributed to the development of human civilisation with myths and legends which document how society shaped, and was shaped by, leaders (Bass & Bass, 2008). Although the history of leadership can be traced back to antiquity, the systematic study of leadership didn't exist until early 20th century (Hernandez, Eberly, Avolio, & Johnson, 2011; House & Aditya, 1997). The following decades have witnessed proliferation of theories and frameworks about leadership presenting an expansive and complex network of knowledge, research paradigms and emerging issues. The disparate paradigms conceptualise, investigate and measure leadership from different approaches, resulting in absence of a widely accepted definition of leadership but an abundance of voluminous texts (Day & Antonkis, 2012). As the review of leadership research demonstrates, leadership studies have evolved over different time spans during which a particular paradigm predominated the field (Day & Antonkis, 2012; Hernandez et al., 2011; House & Aditya, 1997; Storey, 2011; Yukl, 1989). The prime time of these paradigms is illustrated in Figure 2.1. The shifts of these paradigms represent changes of academic interest in the progression of leadership research where each theme is not to discard but extend the preceding one that it outgrows from (Storey, 2011). As shown in Figure 2.1, each paradigm has its prime era but there is re-emergence of scholarly interest in certain ones in a later period due to availability of well-established theories and innovative research techniques (Day & Antonkis, 2012). In addition, the paradigm shifts coupled with theoretical and methodological advancements have led to expansion of the leadership loci (Hernandez et al., 2011) in the levels of analysis (Dionne et al., 2014). As it will be seen, authentic leadership theory elicits ideas from prior theories and integrates them into its theoretical underpinnings and conceptualisations as a construct.



Figure 2.1 Timeline of prevalent paradigms in leadership research

Adapted from Hernandez et al. (2011), Day and Antonkis (2012) and Batistič et.al. (2017)

2.2.1. Predominating Paradigm Shifts in Leadership Research

The trait-based research intended to identify characteristics of leaders to differentiate leaders from non-leaders. The trait paradigm originated from the 'great man' perspective in early 20th century on the assumption that leaders are exceptional individuals who are born to lead. The trait studies before 1950s were aimed to seek associations between personality traits and leadership effectiveness (Yukl, 1989), but failed to yield consistently substantiated empirical evidence to support the correlation owing to the lack of empirically supported personality theories as well as valid psychometric measurements (House & Aditya, 1997). The academic interest in trait theories ceased in the following decades until 1990s when relevant theories and research methods were substantially advanced. For instance, application of the Big Five personality model to analyse leaders' traits, inquiry of McClelland's achievement-oriented motivation into leadership effectiveness, consideration of situational variances and implementation of meta-analysis

across trait studies provide strong empirical support to correlations between leaders' traits and leadership emergence or effectiveness (Day & Antonkis, 2012; Zaccaro, 2007). Both traditional and new trait paradigms however are within 'the leader centric perspective' with the focus of the leader's traits (Uhl-Bien, Riggio, Lowe, & Carsten, 2014). Unlike the traditional trait paradigm, the new trait approach expands traits beyond inherent personality traits to coherent personal characteristics (Zaccaro, 2007) and recognises that traits are a precondition to rather than a keystone of leadership emergence and leadership effectiveness (Kirkpatrick & Locke, 1991). Up to now, consistent traits have been identified to differentiate leaders from non-leaders, such as 'drive, the desire to lead, honesty/integrity, self-confidence, cognitive ability and knowledge of the business' (Kirkpatrick & Locke, 1991, p. 49).

The behaviour paradigm emerged when the focus in leadership research shifted to the behaviour-orientation under the assumption that leaders can be trained and taught. This line of research was advanced in 1950s in search for correlations between leader behaviour patterns and leadership effectiveness. A prominent outcome from the behaviour paradigm was the identification of two overarching behavioural dimensions: tasks- and relations-orientation (House & Aditya, 1997), which served as the major taxonomy of leader behaviour in the behaviour-oriented studies for more than 60 years (Behrendt, Matz, & Göritz, 2017). Research done in the behaviour paradigm shared similarities with research on its preceding trait paradigm. The behaviour approach is also within the leader centric perspective concentrated on identifying effective leaders from ineffective ones by behaviour patterns. Research findings also failed to generate a universal behaviour style that could be consistently identified across tasks and situations in the studies conducted between 1950s and 1960s (Day & Antonkis, 2012). Most of the research findings in the behaviour approach, similarly, were not consistently supportive

and some even contradictory (Yukl, 1989) due to the lack of theory-based conceptualisation of leadership behaviour, empirically supportive theories and valid measurement scales (Behrendt et al., 2017). From the inconsistent findings, behavioural scholars proposed that leadership research should consider the impact of 'situation' on leadership effectiveness arguing that leader behaviour must be contingent upon situations. A shift of research attention to the contingency approach started in 1960s. Unlike the trait paradigm which has re-attracted scholarly attention in recent decades, the academic interest in leader behaviour remains low (Gardner, Lowe, Moss, Mahoney, & Cogliser, 2010). Nevertheless, recent years have seen scholarly efforts in advancing knowledge of leader behaviour. For instance, Yukl (2012)'s four meta-categories taxonomy and Behrendt et al. (2017)'s integrative model of leadership behaviour demonstrate that the behaviour-oriented research has drawn ideas from well-established theories in psychology and advanced research methods, and it has incorporated new specific behaviour or behavioural dimensions to reflect the nature of leadership in contemporary eras.

To address the inconsistent findings in behaviour-based research, leadership scholars turned to the contingency paradigm in the late 1960s. This line of research argued that there was no 'one best way' for effective leadership by highlighting the impact of context on leader performance and emphasising that leadership effectiveness is contingent upon a good match between the leader's style and context (Gordon, 2002). Fiedler (1964, 1967, 1971) was among the first to suggest that a two-way interaction between a measure of leader-member relations, task structure and position power, and a measure of the task- or relationship-oriented leadership determines the effectiveness of the leadership style exercised (Day & Antonkis, 2012). Like its preceding behaviour-based research, Fiedler's model became out of favour because of its conceptual deficiency, contradictory empirical

findings and ambiguous measurements (Yukl, 1989). Similar to Fiedler's work on the match between the leadership style and situations, the path-goal theory argues that the role of leader is to provide followers customised support for goal attainment and the leader behaviour should complement the constraints of environments and follower abilities and compensate for deficiency (House, 1971, 1996). Another well-known contingency work is Hersey and Blanchard (1969)'s situational leadership model which posits four leadership styles: telling, selling, participating and delegating, arguing that the style a leader exercises should be contingent upon followers' maturity level. The model received popularity among practitioners but didn't enjoy comparable attention among academics owing to the lack of supporting empirical evidence (House & Aditya, 1997). The contingency-based research is also within the leader-centric perspective in that followers are considered as a situational variable and leaders remain the loci in the studies (Hernandez et al., 2011). The contingency paradigm introduced 'context' to leadership research and paved way for a broader contextual study in leadership, but its contribution may be discounted for its inactivity in recent years (Day & Antonkis, 2012; Gardner et al., 2010).

After discouraging investigation of leadership effectiveness from the trait, behaviour and contingency paradigms, the 1980s witnessed emergence of new leadership theories which afforded a new lens to examine leadership. A significant approach in the new leadership theories was under the label of 'Neo-charismatic', comprised of transformational leadership and charismatic leadership (Day & Antonkis, 2012). The 'Neo-charismatic' approach advocated that leaders gain influence by their well-articulated vision (Rowold & Heinitz, 2007) and personal attributes (Kuhnert & Lewis, 1987) rather than by a social exchange with followers for valued outcomes at the expense of follower compliance (Day & Antonkis, 2012). The 'Neo-charismatic' approach has dominated leadership research
in the following decades (Batistič et al., 2017). Bass (1985) extended the theory of transformational leadership from Burns (1978)'s dichotomy of transformational and which distinguished leaders who intellectually stimulate transactional leadership follower transformation from those who exchange task fulfilments and follower compliance with rewards. Transformational leaders influence followers by charisma/idealised influence, inspiration for change, intellectual stimulation and individualised consideration (Conger, 1999). Similar to transformational leadership, charismatic leadership is also concerned with the leader influence over followers (Yukl, 1999). Charismatic leaders influence followers by charismatic qualities that followers attribute to the leader (Conger & Kanungo, 1987). Some theorists treat transformational and charismatic leadership as equivalence while some theorists identify conceptual and empirical differences between these two (Rowold & Heinitz, 2007; Yukl, 1999). Nevertheless, unlike the prior paradigms which have a distinct pattern (e.g. traits, behaviours or contingency), the 'neo-charismatic' leadership approach includes traits, behaviours, cognition, affect and context in the studies. The loci of leadership shifts from the leader-orientation to the highlighted leader-follower relationship (Hernandez et al., 2011). This suggests that leadership research has become more complex and robust since 1980s.

The 2000s saw the burgeoning ideas in leadership research reflecting changes in social, economic and technology development that altered perceptions of contemporary organisational life. There is no such a unified paradigm to describe burgeoning theories since 2000s. Hunt (2005) described the increase in leadership research as 'explosion of the leadership field' (p.1). This thesis followed Day and Antonkis (2012) and used "emerging theories" to refer to theory refinement and development in dynamic and complex leadership research since 2000s. The ongoing fast-changing globalised

environment characterised with complex technological and social interactions has reshaped organisations which organise work in a collaborative and collectivistic perspective and raise more concerns towards ethical practices (Alcover, Rico, Turnley, & Bolino, 2017; Bishop, 2013; Yammarino, Salas, Serban, Shirreffs, & Shuffler, 2012). As the corporate scandals and business malpractices in early 2000s brought ethics to the fore, there emerged a series of theories which highlighted the values of integrity, honesty, humility and spirituality in leadership, including ethical, spiritual and authentic leadership (Hernandez et al., 2011). The globalisation of organisations requires leaders to work in a set of culturally diverse locations and drives interest in the context of leadership, facilitating development of global leadership (Avolio, Walumbwa, & Weber, 2009). The research on context and leadership has broadened the conceptualisation of 'context' to include gender, national culture, organisational characteristics and others (Day & Antonkis, 2012). An extant body of leadership literature, concerning collective, shared, distributed and team leadership, has addressed the needs of leading across hierarchical levels and influencing effectiveness of collective work (Avolio et al., 2009). In recent years, leadership scholars have adopted the level of analysis to study leadership influence, acknowledging that leadership is a multiple level phenomenon which takes place at the individual, dyad, group/team or organisational level (Dinh et al., 2014; Dionne et al., 2014). With the proliferation of theories and methodological advancements, leadership scholars have made an attempt to integrate leadership theories based on various criteria, such as 'leader, follower and context'(Avolio, 2007), 'leadership loci and mechanisms'(Hernandez et al., 2011), 'interactions between leadership loci and mechanism through event cycles' (Eberly, Johnson, Hernandez, & Avolio, 2013), the self-expansion theory (Dansereau, Seitz, Chiu, Shaughnessy, & Yammarino, 2013) and the inductive network approach (Meuser et al., 2016). This suggests that tremendous

progress has been made in leadership research in the past decades to discover the myths and legends associated with leaders and leadership. Leadership is now a productive and dynamic discipline which deals with the quest for leadership talents to promote positive organisational developments to meet with the challenges from global markets (Avolio et al., 2009).

2.2.2. Authentic Leadership in Leadership Research

Having emerged within a value-driven, uplifting approach to leadership research, authentic leadership is inherently ingrained in the positive moral perspective (Avolio & Gardner, 2005). It shares commonalities with other theories in identifying and conceptualising the ethical leader (Hernandez et al., 2011). Authentic leadership resembles spiritual leadership in espousing the values of hope, faith, integrity, trust, courage and resilience (Avolio & Gardner, 2005) and in establishing positive organisational context to facilitate leadership effectiveness (Dinh et al., 2014). Similar to ethical leadership, authentic leadership bolsters the value of integrity, emphasises the use of high ethical standards to make decision and exercises influence over followers by role-modelling (Brown & Treviño, 2006). Other than sharing moral concerns with the abovementioned theories, authentic leadership theory also bears similar features with other leadership paradigms and theories.

Authentic leadership theory evidently draws ideas from prior leadership paradigms. The early work on conceptualisations of authentic leadership elucidated the traits of authentic leaders encompassing 'self-confidence, hope, optimism, resilience and a high moral character' (Avolio et al., 2004, p. 804). Authentic leadership theory shares the view of the behavioural paradigm that leaders can be trained and developed by instilling the development-orientation into the initial theory building and establishing specifically

designed interventions in the leadership development process (Avolio & Gardner, 2005; May et al., 2003). Regardless of no direct connectedness with the contingency paradigm, context is incorporated into the early work of authentic leadership as a moderator influencing the relation between authentic leadership and performance. A set of contextual factors are identified to have impact on the effectiveness of authentic leadership on the assumption that leaders shape or are shaped by the forces embedded in the leadership process (Avolio et al., 2004).

The transformational leadership theory within the new leadership paradigm contributes a lot to the notion of authentic leadership. The initial attempt to develop authentic leadership theory was to distinguish authentic transformational leaders from pseudo-transformational leaders who manipulated followers for self-interest through transformational behaviour (Hannah, Walumbwa, et al., 2011). There is, consequently, conceptual overlap between authentic and transformational leaders in the beliefs that leaders have positive feelings, ethical values, development orientation, positive relationship with followers and influence over followers by positive modelling (Banks et al., 2016). The proponents of authentic leadership theory acknowledged that transformational leadership is a source of theoretical underpinnings to authentic leadership theory (Gardner et al., 2011). However, even though both authentic and transformational theories share similarities, authentic leadership theory makes itself distinct by 'being true to oneself'(Avolio & Gardner, 2005).

Like other emergent leadership theories developed in the past two decades, authentic leadership theory encompasses multiple levels of analysis but the individual level of analysis predominates the analysis of authentic leadership construct (Batistič et al., 2017).

Due to the relational nature of the construct (Gardner, Avolio, Luthans, et al., 2005) and the follower identification as a means of the leader influence (Avolio et al., 2004), the loci of authentic leadership research is categorised into the dyadic level, emphasising the leader and follower relationship rather than a leader-centred perspective (Hernandez et al., 2011). Theorists warned that ambiguity may exist in the cross-level effects from the individual to the group and to the organisation (Cooper, Scandura, & Schriesheim, 2005). However, Avolio and Gardner (2005) argued that emotional contagion could assist in clarifying the ambiguity by spreading the effects of authentic leadership from the dyad to the group and organisation levels (Ilies, Morgeson, & Nahrgang, 2005). This suggests that authentic leadership is a leadership style suitable to managing teams. This study thus sought to extend understanding of authentic leadership theory by examining how authentic leadership impacts on team effectiveness.

2.3. Key Themes in Authentic Leadership

Authenticity is a core tenet in authentic leadership theory. Built upon psychology theories, authenticity is conceptualised as being true to oneself with consistent thoughts, feelings and behaviour. However, historically, the psychological conceptualisation of authenticity was influenced by the philosophical thinking, particularly existentialism(Kernis & Goldman, 2006). Consequently, this section will firstly give a historical overview of authenticity in both philosophical and psychological traditions to illustrate the enriched conceptualisations of authenticity and then proceed to elaborate on the multi-component model of authenticity from which authentic leadership theory drew ideas for concept operationalisation.

Authenticity is discussed in terms of 'self' and 'ethics' in the authentic leadership literature (Ladkin & Taylor, 2010). Self is a key theme in authentic leadership as authenticity is achieved through enhanced self-awareness and self-regulation (Avolio & Gardner, 2005). After years of theory development, ethics has been explicitly included in authentic leadership theory as a key component of the construct conceptualisation even though there was disagreement during the early theory development (Gardner et al., 2011). However, the extant literature of authentic leadership evidently reveals two perspectives to conceptualise authentic leadership, namely essentialist and interactionist, which originated from different conceptualisations of self (Wilson, 1988). After review of authenticity, the section will examine self and ethics from both essentialist and interactionist perspectives. It will end with justification of which perspective this study took to research authentic leadership.

2.3.1. Authenticity

Authenticity can be traced back to ancient Greek philosophy and is reflected by the Greek aphorism 'knowing thyself' (Gardner et al., 2011). From the etymological perspective, authenticity derives from the Greek word, *authento*, 'having the full power' (Trilling, 1972), reflecting the notion that individuals are the masters of their own and the concept of 'being true to oneself' (Kernis & Goldman, 2006). In the authenticity literature, the historical review converges upon the philosophical and psychological perspectives (Kernis & Goldman, 2006; Novicevic, Harvey, Ronald, & Brown-Radford, 2006).

The philosophical discussions of authenticity are entrenched in the realm of existential philosophy. Heidegger introduced the term of 'Authenticity' (Eigentlichkeit in German, translated as 'being real') which became the central existentialist virtue (Flynn, 2006). Authenticity in the existentialist literature involves choices and autonomy. As life is an

ongoing process of making choices, the extent of authentic existence depends on how much one could govern the self and whether he or she could have the freedom of making choices while inauthentic existence is shaped by external forces such as social norms, laws, regulations and the like (MacQuarrie, 1972). The conceptualisation of morality thus spurns any externally imposed obligations but espouses self-imposed ones. In face of conflicts and crisis, one makes decision in accordance with his or her integrity and resoluteness rather than submission to rational laws and norms or external authority (Árnason, 1994). In the existentialist view, authenticity is best moulded and revealed in 'boundary' or extreme circumstances which have been described in the abundant authenticity literature on how one responds to different ethical situations (Golomb, 1995).

The psychological conceptualisation of authenticity owes a great deal to the philosophical works on authenticity (Kernis & Goldman, 2006). Drawing from the existentialist thinking, Rogers (1965) explained that a fully functioning individual senses the information from existential situations, experiences all the deepest and innermost feelings, recognises the consequences of his or her actions and freely selects from the multitude of possibilities. Authentic functioning is therefore concerned with owning the psychological process which includes thoughts, emotions, needs, desires, preferences or beliefs and acting in response to the internal feelings and thoughts (Harter, 2002). Following Heidegger (1962)'s writing on dynamics and complexity of (in)authenticity, Erickson (1995) argued that authenticity is relative and self-referential in that there exists a transituational self shaped by social perceptions and a somewhat stable self formed by personal values and beliefs , and a person is neither authentic nor inauthentic but more or less so. The authentic selves are changing, complicated and inconsistent. Authenticity

is thus perceived as a developmental process measured on a continuum with authenticity at one end and inauthenticity at the other (Harvey, Martinko, & Gardner, 2006).

There are long-standing and in-depth discussions about authenticity on the part of individuals in society (Liedtka, 2008) but leadership research started to delve into the concept of authenticity in 1960s in the fields of sociology and education (Chan, Hannah, & Gardner, 2005). The sociologist Seeman (1960) directed his attention to inauthenticity and conceptualised it as a psychological state in which a leader overreacts to the stereotyped role requirements and makes unrealistic decisions. Seeman (1960) also developed a scale measuring inauthenticity in the educational context, but the construct validity remained problematic, partially because of the use of a psychological index in the sociological conceptualisation of inauthenticity (Brumbaugh, 1971). Building on Seeman (1960)'s conceptualisation, Henderson and Hoy (1983) developed definitions of the leader authenticity and inauthenticity and constructed the Leader Authenticity Scale in the educational leadership context. Authenticity, in their definition, involves 'salience of self over roles, maximised acceptance of responsibilities and non-manipulation of subordinates' (p. 63) while inauthenticity revolves upon subordinates' perception of the leader engagement in politics. Henderson and Brookhart (1996) subsequently revised the scale for measuring leader authenticity in both educational and non-educational contexts and tested a causal relationship between leaders' authenticity and leadership effectiveness. However, there had been scant relevant studies until 2000s when there was a quest for authenticity in leadership to cope with business malpractices (George, 2003; Walumbwa et al., 2008).

Conceptualisation of authenticity as a root construct in authentic leadership theory derives from Kernis (2003)'s multicomponent perspective of authentic functioning (Avolio &

Gardner, 2005; Gardner et al., 2011; Walumbwa et al., 2008). Kernis (2003) proposed that authenticity is 'an unobstructed operation of one's true or core self'(p.16) encompassing four key components: 1) self-awareness (e.g. self-knowledge of and trust in one's motives, emotions and self-relevant cognitions) 2) unbiased processing (e.g. objective assessment of the self and external information) 3) authentic behaviour (e.g. behaving in accordance with one's values, preferences or needs as opposed to behaving purposefully in accordance with environmental cues) 4) relational authenticity (e.g. valuing and striving for openness, trustfulness and sincerity in one's close relationship). Through a comprehensive historical review which documents an account of mental and behavioural processes to explain how individuals create and develop a core sense of self and how they maintain the consistent self across time and situations, Kernis and Goldman (2006) further validated the multicomponent conceptualisation of authenticity and concluded that authentic functioning, a union between thought and action, emphasises whether the actions result from 'within the self' spurning conformity to external pressure like expectations, norms, rules and regulations. This multicomponent conceptualisation from the perspective of social psychology serves as a theoretical foundation in authentic leadership theory development (Gardner et al., 2011; Walumbwa et al., 2008).

2.3.2. Authentic Leadership and the Self

Given that authenticity is a root construct of authentic leadership, the self-concept is central to authentic leadership. A keystone of authentic leadership theory is selfawareness which refers to understanding of an individual's strengths and weaknesses and the way the individual makes meaning of the world (Avolio et al., 2009). Self-awareness connects self-knowledge and self-concept clarity. Without self-awareness, authenticity will only involve self-identity and action, leading to compromise of narcissism, wrongdoing and the low level of psychological states which the simpleminded individuals can achieve (Diddams & Chang, 2012). Self-awareness is in part associated with selfreflection which facilitates an individual to know himself or herself by contemplating over self- knowledge and perspectives (Gardner, Avolio, Luthans, et al., 2005). "Knowing oneself and being true to oneself are essential qualities of authentic leadership" (May et al., 2003, p. 248).

Authentic leadership scholars agree that the heightened level of self-awareness is a key element contributing to authentic leadership theory but they differ in their perceptions of self (Avolio & Gardner, 2005; Gardner et al., 2011; Shamir & Eilam, 2005). The differences are manifested in the 'essentialist' and 'interactionist' perspectives which have different understanding of self (Ladkin & Taylor, 2010; Wilson, 1988). The essentialist self is an expressive real self "wholly by the laws of its own being" (Erickson, 1995, p. 125), a stable psychological state which provides a sense of authenticity and a criterion for action (Gergen, 1977). According to the self-determination theory (Ryan & Deci, 2000), the real self is not only governed by its own values, beliefs, emotions and feelings but also autonomously takes in other values and integrates them into their own. The essentialist self is therefore an autonomous self (Erickson, 1995). However, the interactionist self is constructed in relation to others in the social environment (Geller, 1982; Gergen, 1977). As the interactionist self is revealed in narrative forms, such as life stories, it can be labelled as the narrative self (Avolio & Gardner, 2005). These two perspectives of the real self lead to different conceptualisations of the leader authenticity and authentic leadership.

The essentialist notion of self was central to theories in humanistic psychology, represented in the writings of Maslow's and Rogers' (Wilson, 1988). According to

Maslow (1968), a person possesses an essential inner nature facilitating transcendence of various lower needs to achieve self-actualisation which can be permanently uncovered. The essential inner nature enables the person to feel his or her own existence, arouse self-awareness rather than know the self indirectly from others, and become true to oneself (Wilson, 1988). Consistent with Maslow (1968)'s ideas about self-awareness, Rogers (1965) stated that a fully functioning person is capable of discovering and becoming himself or herself, and learning to function more freely. Rogers (1961) viewed that self-actualisation was identical to becoming authentic. To become self-actualised or authentic is inwardly directed to discover and live with the real self whose nature is good and trustworthy, and independent from the social environment. Both Maslow's and Rogers' writings are situated in the modernist objectivity and rationality, treating the true self as objective existence which is not created but already fully developed or actualised (Geller, 1982). The essentialist self is assumed to have metacognitive capability to exercise control over their behaviour and environment (Bandura, 2001). Once the authentic self functions, the authentic behaviour will occur (Kernis & Goldman, 2006).

To illustrate how the true self is accorded in actions, the concept of self-regulation was introduced to explain the authentication process (Gardner, Avolio, Luthans, et al., 2005). Self-regulation is a process involving the setting of internal standards, evaluation of discrepancies between standards and actual or potential outcomes, and identification of intended actions to resolve the discrepancies. The behaviour of authentic leaders was argued to be primarily driven by internalised regulatory processes to maintain the self-concordant identities which reflect their internal standards and goals they pursue (Gardner, Avolio, Luthans, et al., 2005). Authenticity is achieved when the enactment of internalised regulatory processes is complete (Ryan & Deci, 2003). Consequently,

authentic leaders are able to behave in accordance with their values opposing the external threats, inducements and social expectations.

In contrast to the essentialist self, the interactionist notion of self is created through ongoing interactions with others within the external context. Wilson (1988) argued that self-awareness would not be activated until interactions with others occur and self-regulation is merely a function of adjustment to meet others' perceptions and expectations. The presence of others is thus integral to the tenet of the interactionist self. As the interactionist perspective is credited to symbolic interactionism which assumes that what humans act towards is based on the meaning of how they interpret from the interactions with others and the society (Wilson, 1988), the leader's authentic self is enacted by followers who base authentication on the narratives of the leader's life experience (Shamir & Eilam, 2005).

Echoing with Shamir and Eilam (2005), Sparrowe (2005) contended that self emerges as "oneself is another" in the narrative forms embedded with leaders' changing life events, incidents and experiences over time. Self is not fixed but dynamic partly because of a need to quickly adapt to multiple roles across different relational contexts in complex contemporary life (Harter, 2002). To picture authenticity with such a fluid self, Sparrowe (2005) suggested that the narrative nature of self-awareness, revealed in reflective autobiography memory, unifies the enduring character and the dynamism of self-constancy. He further suggested that narration of one's life as self regulative processes outweighs the essentialist prototype matching which evaluates observed behaviour against identifiable objectives in that the narrative is based on a series of actions rather than static categories.

Regardless of different perceptions of self, both essentialist and interactionist perspectives of authentic leadership, nonetheless, produce self as dichotomised between 'authentic' and 'inauthentic'. A self may not reflect true self, ultimately producing an inauthentic self when such a self is shaped by others through social interactions, and is constructed out of self-delusion or impression management (Erickson, 1995; Sparrowe, 2005). Authentic and inauthentic selves accord with real and false selves, but due to the relative nature of authenticity, no such a self is absolutely authentic or inauthentic (Erickson, 1995; Harter, 2002). Discussions on being authentic or inauthentic are nested within the contemporary ethical framework (Feldman & Hazlett, 2010).

2.3.3. Authentic Leadership and Ethics

The concern for decision-making in an ethical dilemma led to growing interest in another key theme of authentic leadership – ethics. At the beginning of theory development, it was argued that authentic leaders are high in morality (Avolio & Gardner, 2005; Avolio et al., 2004; George, 2003; Luthans & Avolio, 2003). This notion echoes with the philosophical conceptualisation of authenticity which regards authenticity as a synonym of ethics (Novicevic et al., 2006) and inauthenticity as bad faith (Sartre, 1956). However, the ethical connotation of authenticity brought up a challenge to leadership scholars who debated whether authentic leaders are intrinsically moral. Sparrowe (2005) argued that "claiming that a particular form of leadership is intrinsically moral not only is difficult to falsify empirically, but also exceptionally difficult to argue logically" (p.423).

A critique against the notion that authentic leaders are innately ethical is likely to draw ideas from existential authenticity. As ambiguity is a character within existentialism (Beauvoir, 1948), there is no specific moral content in existentialist ethics but only an ethical style. This style derives from the freedom to make choices consistent with one's

values, beliefs and feelings, a paramount component in ethics of authenticity (Flynn, 2006). Being authentic could, nevertheless, generate immoral conduct if the purposes of leading is unethical (Sparrowe, 2005). Leaders can still make unethical decisions while they are true to themselves because "they are blinded by their own values" (Price, 2003, p. 67). Consequently, being true to oneself may not always be moral when the motive is merely narcissist or self-serving (George, 2003; Hampton, 1990).

Criticisms also derive from a challenge to authentic leaders' pursuit of the collective good. A critique of authenticity supports that "the threat to morality cannot be reduced to egoism" (Price, 2003, p. 73). There are also situations where people are confronted with an ethical dilemma which requires them to choose whether the good for a collective or the good for the general applicable moral requirements, such as the debate over bombing civilians in the war. Price (2003) argued that even if leaders are unwilling to subordinate their behaviour to egoism, the leader authenticity entails their commitment to a type of good which easily overrides the general applicable moral requirements for the sake of leaders' other-regarding values.

In response to the scepticisms and criticisms, the essentialist scholars argued that the positive moral perspective is an inherent characteristic of authentic leadership. The essentialist development of authentic leadership theory is grounded in social psychology in which authenticity is conceptualised as a construct associated with advanced levels of cognitive, emotional and moral development (Gardner, Avolio, & Walumbwa, 2005). Drawing from Kohlberg (1984), Walumbwa et al. (2008) argued that authenticity involving self-awareness and self-reflection is at the heightened level rather than the low or modest level of moral development. In other words, those who are at the low and modest level of moral development are unable to have capacity to do self-reflection

required to understand the true self and others. The positivity of authentic leadership such as moral capacity, courage, efficacy and resiliency is a positive psychological resource that leaders can retrieve to address controversial ethical issues and achieve sustainable moral conduct (Avolio & Gardner, 2005). Furthermore, the balanced processing component of authentic leadership enables leaders to take into consideration various sources of information and different perspectives. Authentic leaders are likely to manage the challenges to discern what is really good and behave ethically in a long term (Avolio et al., 2009).

Even though authentic leadership has an inherent moral component, the essentialist scholars claim that moral development is an integral part of authentic leadership development. May et al. (2003) proposed a model for developing the moral component of authentic leadership. They argued that organisations can develop leaders' moral capacity, moral courage and moral resiliency to sustainably bolster leaders' authentic decision making because moral capacity assists leaders in addressing the ethical dilemma issues, moral courage transforms moral decisions to behaviour and moral resiliency facilitates leaders to sustain their moral actions regardless of difficulties.

Learning from the lessons of transformational leadership scholars who left ethics out of the model development (Bass, 1985; Bass & Steidlmeier, 1999), both essentialist and interactionist advocates rejected that authentic leadership is ethics neutral (Avolio & Gardner, 2005) in that ethics is central to leadership (Ciulla, 2004). The interactionist advocates claim that ethics of authentic leaders resides in the perception of followers on the assumption that leaders are authenticated by followers (Weischer, Weibler, & Petersen, 2013). They emphasise the role of context in which authentic leadership is enacted. Pittinsky and Tyson (2005)'s empirical study showed that social, cultural and religious values and beliefs impact on followers' perceptions of 'authentic morality'. While the interactionist perspective sees ethics as antecedents or consequences of authentic leadership, the essentialist perspective regards it as an inherent positive resource residing within authentic leaders (Avolio & Gardner, 2005). The internalised moral perspective of authentic leadership theory presents a true self which has capacity to recognise moral dilemma, consider multiple perspectives in moral reasoning and regulate behaviour to maintain consistent moral actions (May et al., 2003).

The ethical component of authentic leadership is now explicitly included in most conceptualisations of authentic leadership through theory and construct refinement and development (Gardner et al., 2011). Up to date, authentic leaders have been equated to moral leaders in the literature (Ladkin & Taylor, 2010) which draws ideas from theories of ethics, values, ethical leadership and spiritual leadership. Banks et al. (2016)'s empirical study suggested that the internalised moral perspective contributes to making authentic leadership much more effective in promoting the collective outcomes.

2.3.4. Authentic Leadership: Essentialist or Interactionist

Although essentialist and interactionist scholars take on different standpoints of self to conceptualise authentic leaders, they still share some commonalities. In both views, self-awareness is a way to uncover real self, and self-regulation is a way to keep thoughts and behaviour consistent. Moreover, both perspectives search for something good or bad in the contemporary ethical framework by distinguishing authenticity from inauthenticity (Feldman & Hazlett, 2010) and argue that ethics is an important component in authentic leadership.

The essentialist literature of authentic leadership does not exclude interactionist ideas but treat them as a complement to the broad theory development (Avolio & Gardner, 2005).

The essentialist perspective is focused on positive modelling as the leader influencing mechanism but does not explain why followers are willing to learn such exemplary behaviour. However, the interactionist perspective provides an answer by suggesting that identification with leaders' values, beliefs and purposes motivates followers to emulate their leaders (Eagly, 2005). As such, both essentialist and interactionist perspectives, albeit different ontological origins, jointly contribute to a richer theoretical foundation of authentic leadership theory.

This study took the essentialist perspective to conceptualise authentic leadership because of two reasons. On the one hand, selection of the essentialist views was aimed to keep consistent with the positivist research design in terms of the realist ontology which regards the research phenomenon as objective and measurable. On the other hand, the essentialist line of research has operationalised the construct of authentic leadership and offered validated measurement scales for quantitative research. This increases the likelihood of avoiding method errors. The term of 'authentic leadership' in the rest of the thesis refers to authentic leadership conceptualised in the essentialist perspective unless there are specific emphases of these two perspectives.

2.4. Authentic Leadership as a Root Construct

At the initial stage of construct development, authentic leadership was regarded as a root construct forming the base for other positive forms of leadership including transformational and ethical leadership (Avolio & Gardner, 2005; Avolio et al., 2004; Gardner et al., 2011; Walumbwa et al., 2008). As mentioned earlier in this chapter, authentic leadership draws ideas from other leadership theories to establish its conceptualisations as a construct. There thus exist concerns about conceptual overlaps

among those leadership constructs. It's essential to identify similarities and differences between authentic leadership and other positive forms of leadership, such as transformational leadership and ethical leadership, so as to discern the unique contribution of authentic leadership to team effectiveness.

Authentic leadership has been argued to be conceptually related to but yet distinct from transformational leadership (Avolio & Gardner, 2005; Neider & Schriesheim, 2011; Walumbwa et al., 2008). The conceptual similarities between these two constructs derive from the attempt to identify characteristics of authentic transformational leadership which served as references to the early theory development of authentic leadership. Both authentic and transformational leaders are described as hopeful, optimistic, developmentally oriented and ethical. However, these positive descriptions of authentic leaders are grounded in leaders' clear self-awareness of their values and moral standpoints as well as alignment of their strong beliefs and actions. Yet, self-awareness is not a component of the transformational leadership construct. In terms of the leadership influencing mechanism, both authentic and transformational leaders model their positive behaviour to followers. Nevertheless, authentic leaders are more likely to influence followers through their actions rather than words whereas transformational leaders tend to influence followers through articulating a positive vision which inspires and motivates followers to achieve goals and make a difference. Transformational leaders are more likely to influence followers by charisma, instilling pride and respect in followers for the leader competence and providing individualised encouragement and support to each follower. Authentic leaders are not necessarily charismatic while charisma is at the core of transformational leadership. (Avolio & Gardner, 2005). In addition, both leadership styles differ in expectations of leadership effectiveness. Authentic leaders are engaged in developing followers' authenticity rather than their competence in becoming leaders.

Respecting followers as who they are, authentic leaders accept followers' authentic selves and their input to the work. Transformational leaders however tend to transform and inspire followers, with the leader charisma and vision, to make a difference and perform beyond expectations (Avolio et al., 2009).

Although authentic leadership was argued to be conceptually different from transformational leadership in its theory development, empirical research has nevertheless generated contradictory results regarding discriminant validity of authentic and transformational leadership. A recent meta-analytic review showed that authentic leadership and transformational leadership are so closely correlated that they may not be two standalone constructs (Banks et al., 2016). In contrast, development of the measurement scales demonstrated that authentic leadership and transformational leadership distinct constructs (Neider & Schriesheim, 2011; Walumbwa et al., 2008). Although testing discriminant validity of both leadership styles and examining incremental validity of authentic leadership are not the focal concerns of the study, the accumulated incongruent empirical evidences suggest the importance of methodological design when conducting research on authentic leadership (Banks et al., 2016).

Authentic leadership is also considered to possess similarities and differences with ethical leadership. Ethical leadership is defined as "the demonstration of normatively appropriate conduct through personal actions and interpersonal relationships, and the promotion of such conduct to followers through two-way communication, reinforcement and decision-making" (Brown, Treviño, & Harrison, 2005, p. 120). Both authentic and ethical leaders are moral persons who are honest, caring and trustworthy considering ethical principles when making decisions. They exert influence over followers by positive role modelling.

Compared with authentic leaders, ethical leaders are more proactive in managing followers' ethical attitude and behaviour. Ethical leaders explicitly instil ethical values into followers by open discussion about ethics and notable role modelling of ethical behaviour. They even use rewards to visibly hold followers accountable for ethical behaviour. However, authentic leaders, truly aware of their moral values which are reflected in behaviour, promote moral values and conduct among followers through evoking followers' authenticity and positive role modelling. In other words, in terms of the way to elicit followers' ethical behaviour, ethical leaders tend to be more transactional leaders while authentic leaders tend to be more transformational (Kuhnert & Lewis, 1987).

Development of authentic leadership construct is grounded in positive psychology literature. One of the attempts to develop the construct of authentic leadership was to integrate the previous work in positive organisational behaviour and leadership development (Avolio et al., 2009). Luthans and Avolio (2003) identified positive psychological capital as a resource of authentic leaders' personal capacity. Coupled with positive organisational context, positive psychological capital facilitates authentic leaders to have heightened self-awareness and self-regulation, and thus promote authenticity.

However, self-awareness and authenticity are not explicitly emphasised in the transformational leadership literature (Avolio & Gardner, 2005) and they are no part of ethical leadership construct (Brown & Treviño, 2006). Consequently, self-awareness and authenticity fundamentally make authentic leadership conceptually distinct from transformational and ethical leadership.

2.5. The Authentic Leadership Process

Several perspectives of how authentic leaders influence followers in the leadership process have been proposed since the early stage of theory development. Authentic leaders have been argued to exert their influence on followers through "positive modelling, personal and social identification, emotional contagion, supporting self-determination and positive social exchange" (Avolio & Gardner, 2005, p. 323). The influencing mechanisms, drawn from different theories, complement each other to picture how authentic leaders affect followers to achieve goals.

Positive modelling is a means that authentic leaders use to render their values, beliefs and attitudes to followers who emulate leaders. Bandura (1986, 1997) indicated that the status, high level of expertise and trustworthiness of those being modelled capture the observer's attention and motivate the observer to emulate the observed behaviour. Authentic leaders actively model for followers through their high self-awareness, relational transparency, balanced processing and internalised moral perspectives. When followers observe the leader's self-awareness and transparent decision making which reflects the leader's integrity, ethical values and consistency between words and deeds, trust in leaders is fostered among followers who also develop heightened self-awareness and self-regulated authentic behaviour (Norman, Avolio, & Luthans, 2010). During the leadership process, both leaders and followers know who they are and understand consequences of their behaviour so that authentic relationship is established (Gardner, Avolio, Luthans, et al., 2005). The authentic relationship facilitates free exchange of information and knowledge and assist in personal learning and development which in turn foster sustainable, positive follower outcomes (Ilies et al., 2005).

Authentic leaders are suggested to have impact on followers' personal and organizational identification processes (Avolio et al., 2004). Identification is integral to the leadership process as identities have relatively sustainable influence over followers' affect, cognition and behaviour (Lord & Brown, 2001). Authentic leaders' self-awareness, high moral standards, transparent communication and positivity solicit followers' trust in leaders and their perceived leadership effectiveness (Norman et al., 2010), which evoke followers' feelings of identification with the leader, groups and organisations (Ilies et al., 2005). Identification with authentic leaders facilitates followers to become authentic themselves and assimilate leaders' values. Authentic leaders are aware of ethical implication of a given situation and their influence on followers' decision and behaviour. By reflecting upon themselves and others, authentic leaders keep followers committed to the values, beliefs and goals of not only the leaders' but the also the groups' and organisations over time (Avolio et al., 2004).

Authentic leaders influence followers' positivity through emotional contagion. Emotional contagion refers to occurrence of unconscious emotion transfer between individuals when one emulates others' emotional gestures signalling that he or she is experiencing the mimicked emotions (Johnson, 2008). Authentic leaders experience more positive emotions than inauthentic leaders (Ilies et al., 2005). As leaders' mood imposes strong influence over followers' moods and group affective tone (Sy, Cote, & Saavedra, 2005), followers of authentic leaders have more positive mood than those of inauthentic leaders. Prior research has shown positive emotions and mood of employees and group affective tone can elevate employees' positive attitudes and behaviour which in turn generate positive outcomes such as task performance, creativity and motivation (Bono & Ilies, 2006).

Authentic leaders positively influence followers by providing support for followers' selfdetermination. Self-determination theory suggests that intrinsic motivation is inherently authentic but it can be undermined by external stimuli (Ryan & Deci, 2000). Leaders play a significant role in directing followers' self-determination and subsequently intrinsic motivation by providing support for autonomy and non-controlling feedback as well as acknowledging the other's perspective (Deci et al., 1989). Authentic leaders are devoted to empowering followers to achieve authenticity, providing developmental feedback and accepting followers' strengths and weaknesses (Avolio & Gardner, 2005; Avolio et al., 2004). Authentic leaders are thus capable of fostering followers' self-determination and hence intrinsic motivation which has positive relations with followers' perceptions, affects and satisfaction with their work groups and organisations (Deci et al., 1989).

Authentic leaders exert influence over followers through high quality leader-follower relationship in terms of positive social exchange. Ilies et al. (2005) delineated three stages of how authentic leaders develop positive social exchange with followers. In the first stage, authentic relational orientation of authentic leadership facilitates leaders to nurture followers' trust, an integral part of relationship development. In the second stage, both leaders and followers gain insights into how they handle different situations and define the nature of relationship. Followers' observations of authentic leaders' balanced processing of information and moral character, together with leaders' authentic relational orientation, generate fundamental components of high quality relationship, such as respect, positive affect and trust. In the third stage, both leaders and followers are aware of mutual expectations and act upon the explicit or implicit agreement over time, forming sustainable high quality relationship in which followers internalise leaders' values and behave more authentically.

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Nevertheless, the abovementioned five influencing mechanisms are susceptible to contextual effect. Gardner, Avolio, Luthans, et al. (2005) argued that a supportive climate facilitates development of both authentic leaders and followers in that the leadership process is situated in a dynamic context. Organisational climate characterised with inclusiveness, transparency, ethical considerations, caring and support provides leaders and followers with open communication, convenient access to information and resources, fair opportunities to learn and grow, and positive environment to heighten authenticity. Meanwhile, authentic leaders' transparent relational orientation and high moral standards, coupled with followers' personal and social identification with leaders and the collectives, cultivate sustainable positive contexts for the authentic leadership process. Drawing from Gardner, Avolio, Luthans, et al. (2005) and Ilies et al. (2005), this study summarises the influencing mechanisms and the contextual factors and presents how authentic leaders influence followers to achieve positive and sustainable performance into a model shown in Figure 2.2. Leadership is an influencing process in which followers are guided to complete individual, group or organisational goals (Bass & Bass, 2008; Day & Antonkis, 2012). These five influencing mechanisms will serve as a rationale for the hypothesis development in Chapter 3.

2.6. Measurement of Authentic Leadership

As mentioned in 2.3.1 concerning the early research on leader authenticity, the first attempt to operationalise authenticity was made by Henderson and Hoy (1983)'s examination of leader authenticity. They constructed a 32-itemed Leader Authenticity Scale (LAS) based on the conceptualisation of authenticity as "a leader's salience of self over role, non-manipulation of subordinates and accepting personal and organisational

responsibility" (p.63). However, as their research was placed in the educational context, the instrument items were concerned with the principals and teachers' attitudes and behaviours. This context-specific nature of the scale jeopardised the construct validity and generalisability even though the LAS was found to have a positive relation between authenticity and Organisational Climate Descriptive Questionnaire subtests for thrust, esprit and status concern.



Figure 2.2 Influencing Mechanisms of Authentic Leadership on Followers Adapted from Gardner, Avolio, Luthans, et al. (2005)

The re-ignited scholarly interest in leader authenticity in early 2000s facilitated development of measurement scales. As shown in Table 2.1, the scales have been developed to measure the leader authenticity or authentic leadership in the quantitative studies (Gardner et al., 2011). The authentic leadership measurements, albeit different in

Studies &	Conceptualisation	Operationalised Dimensionality & Measures
Construct		
Kernis and Goldman (2006)	"unimpeded operation of one's true- or core-self in one's daily enterprise" (p.344)	Authenticity Inventory (Version 3): 45 items within four subscales
& Authenticity		Self-awareness: 12 itemsUnbiased processing: 10 items
		Behaviour: 11 itemsRelational orientation: 12 items
Jensen and Luthans (2006) & Authentic leadership	"A process that draws from both positive psychological capacities and a highly developed organisational context, which results in both greater self-awareness and self-regulated positive behaviour on the part of leaders and employees, fostering positive self-development. The authentic leader is confident, hopeful, optimistic, resilient, transparent, moral/ethical, future-oriented and gives priority to developing employees to be leaders" (p. 647)	 A measurement scale developed with summed scores of three measures: 45 items Multifactor Leadership Questionnaire: 30 items ENTRESCALE: 8 items Ethical Climate Questionnaire: 7 items
Tate (2008) & Authentic leadership	"A form of leadership concerned with developing positive leader- follower relationships (May et al., 2003), high moral standards, and integrity (Avolio et al., 2004). By actively involving and	A measurement scale developed on the base of George (2003)'s five dimensions: 17 items within three subscales

Table 2.1 Measurement scales of leader authenticity or authentic leadership

	involving and developing followers, authentic leaders should	Self-discipline and ethical standards: 9 items
	increase follower job commitment, performance (Gardner &	• Establishing positive relationships: 4 items
	Schermerhorn, 2004), and trust in leadership (Avolio et al.,	Passion for purpose: 4 items
	2004)." (p. 18)	
Walumbwa et al. (2008)	"A pattern of leader behaviour that draws upon and promotes	Authentic Leadership Questionnaire (ALQ): 16 items
& Authentic leadership	both positive psychological capacities and a positive ethical	within four subscales
	climate, to foster greater self-awareness, an internalised moral	 Self-awareness: 4 items
	perspective, balanced processing information, and relational transparency on the part of leaders working with followers.	Relational transparency: 4 items
	fostering positive self-development." (p.94)	• Internalised moral perspective: 4 items
		Balanced processing: 4 items
Neider and Schriesheim	Adopting Walumbwa et al. (2008)'s definition	Authentic Leadership Inventory (ALI): 14 items
(2011)		within four subscales
& Authentic leadership		5 5 5
		• Self-awareness: 3 Items
		Relational transparency: 3 items
		Balanced processing: 4 items
		Internalised moral perspective: 4 items

Table 2.1 Measurement scales of leader authenticity or authentic leadership (Continued)

Adapted from Gardner et al. (2011) and Neider and Schriesheim (2011)

the operationalised dimensionality, follow the essentialist conceptualisations of the construct (Jensen & Luthans, 2006; Neider & Schriesheim, 2011; Walumbwa et al., 2008) except Tate (2008)'s which was grounded in the practitioner's conceptualisation of authentic leadership. Among the authentic leadership measurement scales, Authentic Leadership Questionnaire (ALQ) and Authentic Leadership Inventory (ALI) encompass four dimensions which derive from Kernis and Goldman (2006)'s multiple components model to measure the leader authenticity, the root construct of authentic leadership.

ALQ is a theory-based higher order measure built on a thorough review of prior research. Walumbwa et al. (2008) based their ALQ on the authentic leadership theory developed by their GLI associates (Gardner et al., 2011). While applying Kernis (2003)'s model to authentic leadership development, Avolio and Gardner (2005) changed the term 'unbiased processing' to 'balanced processing' in recognition that leaders are human beings who are inherently flawed and vulnerable to biased information processing. They assumed that authentic leaders and followers are open and able to consider multiple aspects of an issue and adopt multiple perspectives to process information for problem solving in a relatively balanced way. They also argued that the term 'relational transparency' is more descriptive and better than 'relational authenticity' to reflect transparent and trustworthy information sharing in the authentic leadership process. Following Kernis (2003)'s multicomponent model, Deci and Ryan (2000)'s selfdetermination theory and conceptual developments of authentic leadership theories (Avolio & Gardner, 2005; Gardner, Avolio, Luthans, et al., 2005), Walumbwa et al. (2008) presented a validated four-dimension model encompassing self-awareness, relational transparency, balanced processing and internalised moral perspective (Also see Table 2.2). In this model, the internalised moral perspective is a combination of internalised regulation (Gardner, Avolio, Luthans, et al., 2005) and positive moral perspective (Avolio & Gardner, 2005), denoting that authentic behaviour is internally driven by intrinsic self and that leaders should be committed to ethical conduct because

Dimension	Conceptualisation
Self-awareness	"demonstrating an understanding of how one derives and makes
	meaning of the world and how that meaning making process
	impacts the way one views himself or herself over time. It also
	refers to showing an understanding of one's strengths and
	weaknesses and the multifaceted nature of the self, which includes
	gaining insight into the self through exposure to others, and being
	cognizant of one's impact on other people."
D-1-Gonal	
Relational	"presenting one's authentic self (as opposed to a fake or distorted
transparency	self) to others. Such behaviour promotes trust through disclosures
	that involve openly sharing information and expressions of one's
	true thoughts and feelings while trying to minimize displays of
	inappropriate emotions."
Balanced processing	"showing that leaders objectively analyse all relevant data before
	coming to a decision. Such leaders also solicit views that
	challenge their deeply held positions."
Internalised moral	"referring to an internalised and integrated form of self-
perspective	regulation. This sort of self-regulation is guided by internal moral
	standards and values versus group, organizational, and societal
	pressures, and it results in expressed decision making and
	behaviour that is consistent with these internalized values."

 Table 2.2 Four dimensions of authentic leadership construct

Walumbwa, Avolio, Gardner, Wernsing, and Peterson (2008, pp. 95-96)

ethics is central to leadership activities (Ciulla, 2004). The confirmation factor analysis (CFA) of the ALQ testing showed that the four dimensions are the fundamental components of authentic leadership conceptualisations which unlikely have additional

subdimensions (Walumbwa et al., 2008). ALQ is considered to crown the essentialist conceptualisations and operationalisation of authentic leadership (Gardner et al., 2011). However, as scale validation is an iterative process, Walumbwa et al. (2008) called on further research on the measurement of authentic leadership. ALI was later developed as an alternative measurement scale of authentic leadership.

ALI shared the same theoretical foundation with ALQ but attempted to address the limitations of ALQ. ALI followed the essentialist conceptualisation of authentic leadership and adopted the operationalised definition of authentic leadership as ALQ did. However, Neider and Schriesheim (2011) argued that the development of ALQ involved subjective judgement of a group of doctoral students and research team members in the content validation process. They therefore adopted a quantitative approach to examine construct validity so as to avoid subjectivity and replaced the problematic items on ALQ. Furthermore, Walumbwa et al. (2008) pinpointed that there were concerns about CFA in the development of ALQ and stated that more investigations should be done to test discriminant validity. Neider and Schriesheim (2011) thus ensured CFA without "garbage parameters" and utilised Transformational Leadership Inventory rather than the Multifactor Leadership Questionnaire which have some measurement problems (Krüger, Rowold, Borgmann, Staufenbiel, & Heinitz, 2011). The improved research methodological practices led to strong support for construct validity of ALI.

Up to date, the number of the studies employing ALQ has outdone the number of those using ALI. The meta-analytic research of Banks et al. (2016) found that most of authentic leadership research employed ALQ to measure the construct. Due to the small size of samples using ALI, they could not run the meta-analysis to compare the two measurement scales. Consequently, these scholars called on more research to employ ALI so as to improve understanding of authentic leadership construct for theory development. In addition, Neider and Schriesheim (2011) provide researchers with free access to ALI but Walumbwa et al. (2008)'s ALQ is commercially copyrighted. Considering the measurement availability, the need for application of ALI in authentic leadership research and, most importantly, strong construct validity, this study adopted ALI to measure authentic leadership.

2.7. Authentic Leadership and Teams

There are two perspectives embedded within research on leadership and teams. One, in a more traditional sense, is called 'external leadership' which conceptualises leadership as an external input to the teamwork process (Mathieu, Maynard, Rapp, & Gilson, 2008). Research in this line has dealt with the functional leadership role, the leader interactions with followers as well as the leader skills and abilities. The focus of this perspective is on the leader influence on team effectiveness. The other perspective construes leadership as the outcome of the teamwork process, pertaining to emergence of leadership as collective behaviour, the shared mental model and shared leadership responsibilities among members (Day, Gronn, & Salas, 2004; Yammarino et al., 2008). This study adopted the former perspective to examine the impact of authentic leadership on team effectiveness.

Banks (2016)'s incremental validity and relative weight analysis showed that authentic leadership, compared with transformational leadership, is more effective in predicting the team level outcomes. Banks and his associates argued that authentic leadership is good for achieving the collective results because the internalised moral perspective enables both leaders and followers to transcend their self-interests, attend to the best interests of the collective, and exert committed efforts in responsibly achieving collective goals.

Empirical research has shown that authentic leadership positively impacts on team outcomes. Authentic leaders are able to enhance team authenticity which brings about positive team productivity (Hannah, Walumbwa, et al., 2011). Authentic leaders promote team virtuousness and team affective commitment which thus heighten team potency, a key to team performance (Rego et al., 2013). Authentic leaders also improve positive team outcomes by positively influencing collective psychological capital and building up team trust (Walumbwa et al., 2011). Authentic leaders' transparent exchange of knowledge and information facilitates team innovation (Cerne, Jaklic, & Skerlavaj, 2013).

Although authentic leadership literature has already delved into examinations of authentic leadership and its leadership outcomes from various levels (Cerne et al., 2013; Hsiung, 2011; Leroy et al., 2015), there is still a need to further explore the mechanism of authentic leadership in teams. Batistič et al. (2017) pinpointed that the predominating authentic leadership studies conceptualise the construct at the individual level and examine its effect also at the individual level. They showed that there is limited research to investigate the impact of the construct on team effectiveness. Moreover, Yammarino et al. (2008) argued that " there is a need in AL future research to articulate theoretically and test empirically processes and process variables and measures...All these mechanisms for testing of AL in future work will go a long way toward establishing AL as a new and useful leadership approach." (p.705). In addition, in the team literature, Mathieu et al. (2008) claimed that there is "much to be learned about the nature of the external leader's influence on teams" (p.450).

Consequently, this study intended to investigate how authentic leadership influences team effectiveness through the mediating mechanisms. The study was designed to explore the cross-level impact of authentic leadership. Authentic leadership in this study was conceptualised as an individual level construct but its effectiveness was examined at the team level in terms of team effectiveness. The study was aimed to extend the understanding of how authentic leaders influence team members to attain goals so as to contribute to authentic leadership theory development.

2.8. Summary and Conclusion

This chapter has provided a review of authentic leadership theory in relation to some other leadership theories. A relatively new realm in leadership research, authentic leadership theory has drawn ideas from different paradigms of leadership research to develop it as a construct. It has been regarded as a root construct of positive leadership theories such as transformational and ethical leadership. Research has shown that authentic leadership is conceptually related to those positive leadership constructs but still distinct from them by highlighting self-awareness and authenticity in its conceptualisation.

The key themes of authentic leadership theories in the literature are authenticity, self and ethics. A root construct of authentic leadership, authenticity means "being true to oneself", which reflects the philosophical and psychological conceptualisations of the construct. Varied conceptualisations of authentic leadership result from two evidently different perspectives to view self: essentialist and interactionist. The essentialist perspective views self as an objective existence which is capable of achieving authenticity by self-awareness and the self-regulatory process while the interactionist perspective treats self as a product of social interactions, authenticity of which resides in the follower authentication based on their assessments of consistency between leaders' values and behaviour. Both perspectives assume existence of an objective self with dichotomised identifications of authenticity and inauthenticity. Moreover, both perspectives agree that authentic leadership is not ethics neutral because morality is an integral part of leadership. The essentialist perspective revolves upon the positive psychological state that generates and sustains leaders' ethical conduct whereas the interactionist perspective highlights the role of context and social interactions where leaders' high morality lies in the follower perception. Although there was disagreement about whether ethics should be incorporated into authentic leadership theories at the early stage of construct development, it has now been acknowledged as a component of the authentic leadership construct which ultimately comprises self-awareness, balanced processing, relational transparency and internalised moral perspective.

The chapter elucidates the authentic leadership process to show how leaders influence followers to achieve goals and leadership effectiveness. Authentic leaders have been argued to exert their influence on followers through "positive modelling, personal and social identification, emotional contagion, supporting self-determination and positive social exchange". The literature states that contextual factors have reciprocal impact on authentic leadership processes. These influencing mechanisms will serve as a rationale for hypothesis development in Chapter 3.

Efforts have been made to develop scales to measure leader authenticity and authentic leadership. The two prominent measurement scales are ALQ and ALI which share the same four components of the construct. However, a recent meta-analysis study to discern discriminant validity between authentic and transformational leadership suggests the limitation of ALQ and calls on future research to employ ALI to examine the construct so as to contribute to more profound understanding within the realm of authentic leadership theory. This study continued this line of thinking and used ALI to measure the construct of authentic leadership.

Empirical research has already shown that authentic leadership is more effective in predicting team-level outcomes. However, there is still limited research on how authentic leaders exert influences over teams. The literature on teams and leadership perceives leadership either as an input to or an outcome of teamwork processes. These two perspectives lead to different research focuses. This study viewed authentic leadership as an input to the teamwork process and examine its impact on team effectiveness in response to the call for further research on the dynamic mechanisms embedded within the influencing processes of authentic leadership.

Based on the literature review of authentic leadership, this study has anchored its position and identified the scope to explore this relatively new realm of leadership research. Regarding the level of analysis, the study will conduct a cross-level investigation, examining authentic leadership as a construct at the individual level and its effect at the team level. Drawing upon the relevant outcomes of empirical studies, this study will look at potential mediating and moderating factors influencing the impact of authentic leadership on team effectiveness. Adopting the essentialist perspective in the authentic leadership literature, the study assumed that the authentic self is an objective existence which can be observed and measured. A quantitative method will be used in the investigation to test the hypotheses so as to further uncover the dynamic mechanisms of authentic leadership.

Chapter 3 Research Model and Hypothesis Development

3.1 Introduction

This chapter continues to review literature in order to present the conceptual framework of the study and develop the hypotheses in the research model. To address the needs for further empirical examinations of authentic leadership, the study explored the indirect impact of authentic leadership on team effectiveness.

In team literature, team performance is differentiated into performance behaviour and performance outcomes (Beal, Cohen, Burke, & Mclendon, 2003). Performance behaviour refers to actions directed at goal attainment while performance outcomes are the consequences or results of performance behaviour. Research shows that performance behaviour exists within team processes (Mathieu et al., 2008). Team processes, which depict interdependent interactions directed at goal attainment through cognitive, verbal and behavioural activities (Marks, Mathieu, & Zaccaro, 2001), are critical practice to transform inputs to team outcomes and positively related to team effectiveness (LePine, Piccolo, Jackson, Mathieu, & Saul, 2008). This suggests the importance of examining performance behaviour in team processes because such research could explain how specific behaviour could assist in translating team inputs into team effectiveness. The specific behaviour the study investigated was perceived politics and proactivity in teams.

Perceived politics refers to subjective assessments on the extent to which the work environment is characterised with self-serving behaviour (Ferris et al., 2000). Perceived politics is not objective behaviour. However, given that politics is in the eyes of beholders (Gandz & Murray, 1980) and perceived politics indicates political behaviour (Vigoda -
Gadot, 2007), the study used this construct to reflect political behaviour in teams and investigated its mediating effects on the relationship between authentic leadership and team effectiveness.

Proactivity, also known as proactive behaviour in the organisational behaviour literature, is defined as self-initiated, change-focused and future-oriented behaviour (Parker, Williams, & Turner, 2006). Proactive behaviour has been extolled as an essential determinant of successful performance for individuals, groups, teams and organisations (Crant, 2000). The study examined the mediating effects of team proactivity as well as the interactive effects of authentic leadership and team potency regressed on team proactivity.

Team potency is members' confidence in the team's capacity to perform tasks (Guzzo et al., 1993). The study investigated how and when team potency could influence the mediating effect of team proactivity on the link between authentic leadership and team effectiveness. Previous research has demonstrated the mediating effects of team potency on team performance and effectiveness (Campion, Papper, & Medsker, 1996; Duffy & Shaw, 2000; Hu & Liden, 2011) but there is scant research on its moderating effects. The study intended to extend the understanding of how team potency interacts with authentic leadership and team proactivity, and how such moderating effects could bring about team effectiveness.

The past two decades have seen empirical efforts in the authentic leadership literature to examine the indirect effect of authentic leadership on various outcomes through mediators and moderators. In terms of the level of analysis, more research has been conducted at the individual level than the team one (Yammarino et al., 2008). At the individual level of analysis, Li, Yu, Yang, Qi, and Fu (2014) found that interactional

justice mediates the relationship between authentic leadership and followers' in-role performance while traditionality moderates the link between authentic leadership and interactional justice. Wong and Cummings (2009) showed that authentic leaders could indirectly effect positive work outcomes through followers' trust in management and supportive leader behaviour. Wong and Laschinger (2013) suggested that authentic leaders could enhance staff nurses' job satisfaction and self-rated performance by empowerment. Rego, Sousa, Marques, and Cunha (2012) found that authentic leaders could positively influence followers' psychological capital which in turn enhances their creativity. Cerne et al. (2013) revealed the mediated relationship between authentic leadership and creative team performance via support for innovation. Wang, Sui, Luthans, Wang, and Wu (2014) demonstrated support for the moderating effect of followers' positive psychological capital and the mediating effect of leader-member exchange on the relationship between authentic leadership and followers' performance. Woolley, Caza, and Levy (2010) showed a positive relationship between authentic leadership and psychological capital, mediated by positive work climate and moderated by gender while Walumbwa et al. (2011) identified the mediating role of collective psychological capital and trust in the link between authentic leadership and group performance. In addition, Clapp-Smith, Vogelgesang, and Avey (2009) found that trust in management mediates the relationship between authentic leadership and a firm's performance.

At the team level of analysis, authentic leadership has been argued to exert indirect impact on team outcomes via mediating and moderating mechanisms. The aforementioned mediators and moderators in Section 1.3 include basic need satisfaction, team virtuousness, team affective commitment, collective psychological capital, team trust, team authenticity, team affective tone, shared social self-categorisation and procedural justice climate. However, little is known about the influence of the mediators and moderators that the study proposed on the link between authentic leadership and team effectiveness. As what has been argued previously in Section 2.7, there is a need to conduct research on how authentic leadership impacts on team processes and effectiveness. This study was thus focused on how perceived team politics, team proactivity and team potency might facilitate the indirect impact of authentic leadership on team effectiveness.

The chapter begins with an argument on the mediating effect of perceived team politics between authentic leadership and team effectiveness. Following this, it argues the mediating role that team proactivity plays between the relationship of authentic leadership and team effectiveness. The chapter proceeds to present arguments of the moderating effect of team potency on the direct relationship between authentic leadership and team proactivity as well as on the mediated relationship between authentic leadership and team effectiveness. It then introduces two control variables included in the testing model and ends up with the summary and conclusion of the chapter.

3.2 Hypothesis Development

Based on the essentialist literature of authentic leadership (Avolio & Gardner, 2005; Avolio et al., 2004; Gardner, Avolio, Luthans, et al., 2005; May et al., 2003; Walumbwa et al., 2008), the study developed argumentation on the following assumptions. First, authentic leaders are capable of being true to themselves due to heightened levels of selfawareness and self-regulation. The leader authenticity is positive psychological capital that can be developed or strengthened through leadership development programmes. Second, authentic leaders exert influence over followers through soliciting and enhancing the follower authenticity by means of positive role modelling, supporting followers' selfdetermination, positively influencing emotional contagion and followers' identification process as well as high quality leader-follower relationship.

This section will use self-determination theory (Deci et al., 1989; Ryan & Deci, 2000, 2003), social learning theory (Bandura, 1977b), social exchange theory (Blau, 1964; Emerson, 1976) and expectancy theory (Vroom, 1964) to argue the hypothesised pathways illustrated in Figure 3.1.



Figure 3.1 A conceptual model of the study

3.2.1 Authentic Leadership, Perceived Team Politics and Team Effectiveness

Perceived politics is a good indicator of political behaviour (Vigoda - Gadot, 2007). Politics is objective and observable behaviour in organisations but varies substantially in different people's perceptions. Different people have different understanding and tolerance of political behaviour (Gandz & Murray, 1980). Literature of perceived politics refers to Lewin (1936)'s argument that people respond to their perceived reality rather than the reality itself so as to differentiate perceived politics from politics or political behaviour (Cropanzano, Howes, Grandey, & Toth, 1997; Ferris et al., 2000; Ferris & Kacmar, 1992; Gandz & Murray, 1980). Perceptions of organisational politics revolve round an individual's subjective assessment of the extent to which the work environment is characterised by self-serving behaviour (Ferris et al., 2000). Perceived politics thus reflects how much political behaviour exists in groups, teams and organisations.

Politics is viewed to be both functional and dysfunctional in organisations. When political behaviour is regarded as an approach to utilising power and mobilising resources to influence decision making, it is functional (Eisenhardt & Bourgeois III, 1988; Parker, Dipboye, & Jackson, 1995) and is an important leadership skill (Vredenburgh & Shea-VanFossen, 2009), leading to positive outcomes (Madison, Allen, Porter, Renwick, & Mayes, 1980). When it is referred to self-serving behaviour, it is dysfunctional leading to detrimental consequences (Abbas, Raja, Darr, & Bouckenooghe, 2012; Chang, Rosen, & Levy, 2009; Ferris et al., 1996; Hochwarter, Kacmar, Perrewé, & Johnson, 2003). This study took the perspective that political behaviour is dysfunctional and perceptions of politics lead to negative attitudinal and behavioural outcomes in that when organisational members were interviewed for perceptions of politics, they felt that "politics are generally bad, unfair, unnecessary, unhealthy, and conflictual" (Gandz & Murray, 1980, p. 244).

Politics in the workplace is mostly conceptualised and measured as 'organisational politics' (Witt, Hilton, & Hochwarter, 2001). Nevertheless, as politics is pervasive in every facet of organisational life (Mintzberg, 1985), political behaviour is most likely to occur in teams, forming a unique team political environment (Maslyn & Fedor, 1998). Research has shown that perceptions of team politics lead to negative team effectiveness

but team leaders could assist members in coping with politics (Witt et al., 2001). In Ferris, Russ, and Fandt (1989)'s model of perceived politics, interactions between leaders and followers are predictors of perceived politics. This suggests that team leaders are conducive to managing perceived politics. However, different leadership styles could generate different perceptions of politics. For example, transformational leadership facilitates a reduction of perceived politics while transactional leadership tends to promote perceptions of politics (Vigoda - Gadot, 2007). Such findings imply that it is necessary to delve into how different leadership styles impact on perceptions of politics. As there is still limited research concerning the relationship between authentic leadership and perceived politics, this study was aimed to contribute to the politics literature by examining the link between authentic leadership and perceptions of politics as well as extend authentic leadership research by investigating the indirect effect of authentic leadership on team effectiveness through perceptions of politics.

3.2.1.1. Direct Effect of Authentic Leadership on Perceived Team Politics

In the politics literature, influences from the job or the work environment are the best predictors of politics perceptions (Parker et al., 1995). When the job or the work environment is characterised with uncertainty and ambiguity, political behaviour most likely emerges and politics is thus perceived (Ferris et al., 1996; Ferris et al., 1989). This section revolves upon the argumentation that authentic leadership is inversely linked with perceived team politics.

Authentic leadership is argued to lessen perceived politics through promoting transparent communication within teams. As authentic leaders encourage team members to become authentic and committed to voice from within, they strive to establish a team environment where both leaders and members have open communication and transparent information exchange (Avolio & Gardner, 2005; Avolio et al., 2009). In the open communication process, leaders explicitly communicate their expectations and team goals to members so that leaders could reduce uncertainty and ambiguities concerning team tasks and expected outcomes. Furthermore, past research has revealed that leaders could weaken perceived politics by increasing leader-member goal congruence (Witt, 1998). When leaders and members have transparent, open communications, both leaders and members could make clear what types of behaviour are encouraged or discouraged, and rewarded or punished. As such, team members are more likely to align their personal goals with team goals. Moreover, according to social exchange theory (Blau, 1964), such open and honest information exchange could elicit mutual trust and commitment to goals that leaders promote (Cropanzano & Mitchell, 2005). Prioritisation to team goals would thus likely reduce self-serving behaviour which maximises self-interest at the expense of team interest.

Furthermore, authentic leadership can reduce perceived team politics by offering job autonomy to team members. Job autonomy refers to independence and freedom that a job incumbent can have when conducting the job (Morgeson, Delaney-Klinger, & Hemingway, 2005). Authenticity implies having freedom to make choices and possessing control over circumstances (Árnason, 1994). Authentic leaders are likely to delegate job autonomy to members for decision making as they are willing to support members to develop self-determination in order to enhance authenticity (Gardner, Avolio, Luthans, et al., 2005). Past research has demonstrated that job autonomy is useful to weaken perceptions of politics (Ferris & Kacmar, 1992; Gandz & Murray, 1980). Consequently, members with job autonomy may reduce their perceptions of uncertainty and thus perceived team political behaviour. In addition, authentic leaders model consistent ethical behaviour which allows reduction of perceived team politics. According to social learning theory (Bandura, 1977b), leaders could influence followers by role modelling and followers would possibly imitate leaders' behaviour through observant learning. Authentic leaders have high moral capacity that leaders can retrieve to address moral issues and behave ethically. Leaders make ethical values salient by establishing open communication and ethical cultures which provide followers with a democratic environment where both leaders and followers could freely challenge decisions, discuss ethical dilemmas and thus develop more in-depth understanding of moral values and conduct (Avolio & Gardner, 2005). Such an open, ethical work context can also encourage followers' moral courage (Hannah, Avolio, & Walumbwa, 2011; Ilies et al., 2005). Given that authentic leaders can activate followers' moral courage and thus elicit followers' ethical as well as prosocial behaviour (Hannah, Avolio, et al., 2011), it is likely that self-serving behaviour as well as perceptions of such behaviour can be significantly reduced in a team led by an authentic leader.

Last but not the least, the fair and just work environment that authentic leaders establish in teams could also attenuate perceived politics. The component of balanced processing in the authentic leadership construct indicates that authentic leaders objectively analyse all relevant data before making decision (Walumbwa et al., 2008). This suggests that authentic leaders involve followers in decision making and welcome different ideas, perspectives and attitudes, even those challenging leaders' deeply held beliefs (Neider & Schriesheim, 2011). The value of inclusiveness espoused by authentic leaders enable them to treat all team members the same or similarly (Yammarino et al., 2008). Besides, as authentic leaders promote ethical values such as fairness, justice and integrity which are displayed in leaders' behaviour, authentic leaders are able to construct ethical team environments where members may perceive fair opportunities for promotion and career development (Zhu, Avolio, Riggio, & Sosik, 2011). Promotion chances, considered as a valued but limited resource in an organisation, have been argued to predict perceptions of politics (Ferris et al., 1996; Parker et al., 1995). When team members perceive fair advancement policies and just team management practices, they are likely to reduce perceived politics (Byrne, 2005). This leads to the following hypothesis:

Hypothesis 1: Authentic leadership is inversely linked to perceived team politics.

3.2.1.2. Direct Effect of Perceived Team Politics on Team Effectiveness

Team effectiveness is a criterion to evaluate team outcomes (Beal et al., 2003). In team research, there is no consensus on an operationalised definition of team effectiveness. Mathieu et al. (2008)'s review shows that the reason for the lack of agreements on measuring team effectiveness partially results from the context specific performance criteria. Teams in different organisations have different task-related indicators to evaluate performance. Despite the lack of agreements in what to measure team effectiveness, performance has been widely incorporated as a criterion of team effectiveness (Cohen & Bailey, 1997; Mathieu et al., 2008). Mathieu et al. (2008) argued that performance is a better indicator of team effectiveness than affective reactions measures because of the self-report nature of affective measures. Moreover, prior research has used performance effectiveness as the core indicator of team effectiveness (Mitchell et al., 2015; Mitchell, Boyle, et al., 2014). This study thus used the traditional broad ratings of performance outcomes as the criterion to evaluate team effectiveness, such as the overall evaluations of performance (Mathieu et al., 2008). The rest of this section will argue that a reduction in perceived team politics leads to an increase in team performance.

Perceptions of self-serving behaviour could lead to negative consequences (Hochwarter, Ferris, Laird, Treadway, & Coleman Gallagher, 2010). Empirical evidence suggests that perceptions of politics motivate an individual to get engaged in political behaviour (Ferris et al., 2000). According to social learning theory (Bandura, 1977b), when team members observe that others' political behaviour could bring about desirable rewards, they would likely get engaged in similar acts. As such, an individual's political behaviour may spread to the team level behaviour and form the team behavioural pattern (Kelly & Barsade, 2001). Perceived politics has been found to undermine teamwork performance (Eisenhardt & Bourgeois, 1988). In a highly perceived political environment, team members may strive to maximise their own interest at the expense of team goals so that team performance is jeopardised (Witt, 1998).

A reduction in perceived team politics also lessens the risk that team members become stressed with teamwork (Ferris et al., 1996; Miller, Rutherford, & Kolodinsky, 2008). Perceived politics is a hindrance stressor which interferes with members' abilities of achieving team goals (Cavanaugh, Boswell, Roehling, & Boudreau, 2000). Stress has been found to cause negative impact on employee well-being (Robbins & Judge, 2013). Given that team members' poor health conditions could drag their work progress behind (Chang et al., 2009), team performance would be exacerbated in that completion of teamwork needs coordinated efforts among team members (West & Lyubovnikova, 2012).

When perceived team politics declines, team members are likely to enhance perceived team support. Perceived politics and perceived fairness are negatively correlated (Vigoda - Gadot, Vinarski - Peretz, & Ben - Zion, 2003). A reduction in perceived team politics therefore enhances perceptions of fairness. Fair teamwork procedures suggest that each member has equal opportunities to express their opinions and have fair treatments

(Rhoades & Eisenberger, 2002). As such, team members would form an impression that their contributions to the teamwork are valued and supported by both team leaders and fellow members (Byrne, 2005). In a supportive work context, members would like to help each other by offering constructive suggestions on team tasks and sharing knowledge and know-how beneficial to teamwork so that team performance is elevated (Rhoades & Eisenberger, 2002).

In addition, a reduction in perceived team politics facilitates members to save efforts in managing relationship conflicts. Relationship conflicts refer to interpersonal incompatibility, involving negative feelings towards others, such as annoyance, frustration and irritation among team members (Jehn & Mannix, 2001). The maximisation of self-serving political behaviour could undermine others' benefits and interests due to limitation of resources and thus ignite interpersonal conflicts (Andrews & Kacmar, 2001; Hochwarter et al., 2010). When relationship conflicts take place in the teamwork process, members may have to spend time in managing conflicts and have less time for their tasks. Furthermore, past research on conflict management has found a negative linkage between relationship conflicts and team performance (De Wit, Greer, & Jehn, 2012). Consequently, the negative relationship between perceived team politics and team performance is expected as follows:

Hypothesis 2: A reduction in perceived team politics is significantly related to an increase in team effectiveness.

3.2.1.3. Indirect Effect of Authentic Leadership on Team Effectiveness through Perceived Team Politics

In the preceding two sections, authentic leadership has been argued to be negatively linked to perceived team politics which is in turn argued to be inversely related to team effectiveness. The combination of these two arguments leads to the following hypothesis.

Hypothesis 3: Perceived team politics mediates the relationship between authentic leadership and team effectiveness.

Hypothesis 3 was aimed to answer the first research question: how does perceived team politics mediate the relationship between authentic leadership and team effectiveness? The indirect, positive impact of authentic leadership on team effectiveness is posited to take effective through a reduction in perceived team politics.

3.2.2. Authentic Leadership, Team Proactivity and Team Effectiveness

Proactivity concerns self-initiated interactions between individuals and their surroundings to make changes for a different future (Parker et al., 2006) and to meet their basic needs to manipulate and control the work environment (Kim, Cable, Kim, & Wang, 2009). This type of self-directed, change-focused, future-oriented and environment-monitoring behaviour selects or creates situations to enhance the likelihood of work effectiveness, identify opportunities for future achievements and prevent potential threats to undermine work quality (Seibert, Crant, & Kraimer, 1999).

Past research on proactivity has indicated that this construct is an overarching concept which includes an array of component behaviour (Wu, Parker, & Bindl, 2013). There are two approaches to categorise proactive behaviour. On the one hand, Parker and Collins (2010) differentiated proactive behaviour into three higher-order categories based on

behavioural goal orientation. The first category is 'proactive work behaviour' featured by taking control of and making change to the internal environment, including voice (LePine & Van Dyne, 1998), taking charge (Fuller, Marler, & Hester, 2012), individual innovation (Scott & Bruce, 1994) and proactive problem prevention (Frese & Fay, 2001). The second category is 'proactive strategic behaviour' characterised by taking control of and generating change across a broader organisational scope to maintain its fit with the external environment, including strategic scanning (Parker & Collins, 2010) and issue selling (Dutton & Ashford, 1993). The third category is 'proactive person-organisation fit behaviour' which originates from the intention to make change for a better fit between the individual and organisation environment, encompassing career initiatives (Seibert et al., 1999), feedback seeking and relationship development (Kim et al., 2009) and job change negotiation (Ashford & Black, 1996). On the other hand, Griffin, Neal, and Parker (2007) divided different forms of proactivity into 'individual task proactivity', 'team member proactivity' and 'organisation member proactivity' on the basis of the work role behaviour and the level of analysis. It has been argued that each form of proactive behaviour is positively, moderately related to one another and shares similar motivation mechanisms (Parker, Bindl, & Strauss, 2010; Parker & Collins, 2010). This suggests that it is appropriate to investigate proactive behaviour as a single construct, proactivity, in that different forms of proactive behaviour share the common ground of proactivity (Wu et al., 2013).

Research has been done to examine how to promote proactivity at the individual and team levels (Wu & Wang, 2015). However, team proactivity has been argued to differ from individual proactive behaviour although these two share similar theoretical rationales (Strauss et al., 2009; Williams et al., 2010). Both individual and team proactivity emphasise engagements in self-starting, future-oriented, change-focused behaviour but

team member proactivity is concentrated on the team itself such as interactions between a team and its environment as well as the way the team works. This indicates that a collection of individuals acting proactively cannot reflect the level of team proactivity unless the proactive efforts are coordinated (West & Lyubovnikova, 2012).

There are contextual factors to drive the coordinated proactive efforts in the teamwork process, such as leadership, work design, feedback and norms (Chen & Kanfer, 2006). Leadership is integral to provoking team motivational states (Chen, Sharma, Edinger, Shapiro, & Farh, 2011). Previous research has investigated effects of transformational leadership on team proactivity (Strauss et al., 2009; Williams et al., 2010; Wu & Wang, 2015) but there is little research on the impact of authentic leadership on team proactivity, still less of the indirect impact of authentic leadership on team effectiveness through the moderated mediation relationship. This study was therefore positioned to extend the authentic leadership literature by examining the relationships among authentic leadership, team proactivity, team potency and team effectiveness.

3.2.2.1. Direct Effect of Authentic Leadership on Team Proactivity

Team proactivity is the team behavioural pattern in the team process (Williams et al., 2010). Teamwork is completed through the cooperation of team members to achieve team goals. During the teamwork interactions, team members develop the shared mental model and behavioural norms with regard to how things should be done in teams in order to cope with challenges from internal and external environments (DeChurch & Mesmer-Magnus, 2010). As leadership emerges as a critical contextual factor to shape the team proactive behavioural pattern (Chen & Kanfer, 2006), the rest of this section revolves upon the argumentation that authentic leadership can enhance team proactivity.

Authentic leadership is argued to enhance team proactivity by establishing favourable interpersonal norms. Norms are informal rules that teams adopt to 'regulate and regularise members' behaviour' (Feldman, 1984, p. 47). Authentic leaders' unbiased processing of information, moral characters and authentic relational orientation facilitate the positive leader-member relationship characterised with inclusiveness, trust, respect and positive affect (Ilies et al., 2005). According to social exchange theory (Blau, 1964), the high quality, positive leader-member relationship could, in turn, develop members' reciprocating behaviour that is consistent with leaders' values, and form favourable interpersonal norms that shape the team behavioural patterns. The change-oriented nature of proactivity may entail risks such as challenging authority and accepted practice, making errors, or being put down by others (Parker et al., 2006; Williams et al., 2010). Before engaging in proactive behaviour, team members evaluate the context they are working in to decide whether the context is favourable to proactivity or not (Dutton, Ashford, Lawrence, & Miner-Rubino, 2002). In a supportive team environment where leaders and members trust and respect each other, team members are likely to voice their constructive opinions, influence others' understanding or prioritisation of the task-related issues and challenge the status quo in that they do not have worries about the risks that proactive behaviour could generate will put them in unfavourable positions. Moreover, in an inclusive and respectful environment, when a team member raises a problem, others are likely to listen attentively and discuss the issue thoroughly. As such, the team proactively takes charge in problem solving and problem prevention.

Furthermore, authentic leaders are able to energise team members to behave proactively through managing positive team affective tone. Positive team affective tone, a product of emotions and mood transfer within team interactions, implies that members of a team experience highly similar positive affect (Collins, Lawrence, Troth, & Jordan, 2013).

Positive affect is a physiological and psychological resource to enhance attention and energy which is necessary to maintain self-initiated and persistent proactive behaviours (Fritz & Sonnentag, 2007). Authentic leaders experience positive affect which facilitates followers to have positive emotions and mood through emotional contagion (Gardner, Avolio, Luthans, et al., 2005) and thus fosters positive team affective tone (Sy et al., 2005). When team members experience positive affect, they can possibly develop positive perceptions of the leader and other members, resulting in the heightened level of trust in the leader-member relationship (Jones & George, 1998). As trust in leaders motivates followers to behave proactively in the workplace (Wong & Cummings, 2009), authentic team leaders are more likely to assist in promoting members' proactivity.

In addition, authentic leaders are effective in provoking team proactivity through team empowerment. Team empowerment shares the similar meaning with individual empowerment but team empowerment is focused on the shared perceptions among team members with regard to how empowered the team is (Chen, Kirkman, Kanfer, & Allen, 2007). In an empowered team, members collectively believe the team competence, enjoy job autonomy at work, develop and share meaningfulness of the tasks, and experience the positive impact that the team has (Kirkman & Rosen, 1999). As authentic leaders encourage members to be authentic, they would possibly delegate autonomy to members so that members have freedom, responsibilities, independence and discretion at work. Delegating autonomy provides 'enactive mastery experience' (Parker & Wall, 1998) which could facilitate members to feel their control over the situation. During the transparent leader-member communication, team members could develop the shared meaningfulness of the teamwork and understand the impact of the team on the context it operates (Kirkman & Rosen, 1999). Encouraging equal distribution of information and open communication among team members, authentic leaders are able to increase the likelihood of knowledge sharing in teams (MacNeil, 2003). Team members therefore can update their knowledge and skills in the knowledge sharing process which in turn enhances team confidence in their capacity (Guzzo et al., 1993). When team members have positive appraisals that the team can stay control of the environment, they are more likely to engage in proactive behaviour (Frese & Fay, 2001). Consequently, a team empowered by authentic leaders could more likely display team proactivity (Erkutlu & Chafra, 2012). This leads to the following hypothesis:

Hypothesis 4: Authentic leadership is positively associated with team proactivity.

3.2.2.2. Direct Effect of Team Proactivity on Team Effectiveness

Team proactivity is likely to promote members' tendency to enhance team performance. In proactive teams, members may take initiatives in collecting and identifying information from their organisation's internal and external environments in order to better respond to the opportunities and threats that the team will face (Parker & Collins, 2010). Prior research has found that the external environmental scanning could lead to increased profitability and the strategic change while the internal environmental scanning could heighten the capabilities of strategic management (Thomas, Clark, & Gioia, 1993).

Furthermore, proactive team members could elevate team effectiveness by taking charge at work. Taking charge refers to voluntary and constructive efforts that team members exert to initiate positive functional change concerning how teamwork is processed (Morrison & Phelps, 1999). Past studies have indicated that employee-initiated efforts in correcting faulty tasks and work procedure could enhance team adaptability to external environments and encourage team innovation (Morrison & Phelps, 1999; Scott & Bruce, 1994). In addition, the proactive feedback seeking behaviour that team members engage in is argued to enhance team effectiveness. Feedback seeking is considered as a team learning behaviour which enables members to obtain information regarding their knowledge and skills, task performance and changes in the internal and external environments (Ashford, Blatt, & VandeWalle, 2003; Edmondson, 1999). As the team learning behaviour has been found to be positively related to team effectiveness (Edmondson, 1999), a team with more feedback seeking behaviour is more likely to be effective in task completion and goal attainments (Ashford et al., 2003).

Empirical research has found that team proactivity can predict several team performance and attitudinal outcomes. Kirkman and Rosen (1999)'s study on 111 teams in 4 organisations revealed that team proactivity was positively related to team productivity and customer service. Teams with high proactivity experienced more job satisfaction and more team commitment. The following hypothesis is therefore offered.

Hypothesis 5: Team proactivity is positively linked to team effectiveness.

3.2.2.3. Indirect Effect of Authentic Leadership on Team Effectiveness through Team Proactivity

The two preceding sections have argued that authentic leaders are able to promote team proactivity which in turn assists in increasing team effectiveness. As such, a mediated relationship emerges between authentic leadership and team effectiveness, leading to the following hypothesis.

Hypothesis 6: *Authentic leadership positively influences team effectiveness through the mediating effect of team proactivity.*

This hypothesis was attempted to answer the second research question: "How does team proactivity mediate the relationship between authentic leadership and team effectiveness?" The indirect, positive effects of authentic leadership is proposed to effect team effectiveness through enhanced team proactivity.

3.2.3. Authentic Leadership, Team Proactivity, Team Potency and Team Effectiveness

Self-determination theory (Ryan & Deci, 2000) suggests that an individual tends to engage in a task that he or she feels competent to complete it. The belief in one's capability to perform a specific task is known as self-efficacy (Bandura, 1977a). Self efficacy is integral to decisions about whether to initiate specific behaviour and how to maintain such behaviour. According to Gist (1987), the moderate to high level of self efficacy brings about more frequent engagements in task-related activities and more persistent efforts in coping with obstacles.

Similar to the concept of self-efficacy at the individual level, team potency is used at the team level to describe team members' shared beliefs in a team's competence in performing tasks (Bandura, 1997). The team literature includes team potency and team efficacy as emergent states into the team confidence category (Mathieu et al., 2008). However, team potency is conceptualised as team confidence in general team effectiveness whereas team efficacy as confidence in task-specific effectiveness (Gully et al., 2002; Guzzo et al., 1993). This study was focused on team potency.

Team potency is regarded as the team motivational state. Theoretical and empirical research suggests that the individual and team level motivational processes are similar (Bandura, 1997; Chen et al., 2002; Chen & Kanfer, 2006). In other words, team potency determines whether team members will initiate certain behaviour and how many efforts

members will exert to sustain the behaviour (Bandura, 1977a). Even though team potency operates similarly to self-efficacy, they are still distinct from one another (Chen et al., 2002). Feltz and Lirgg (1998)'s examination on six ice hockey teams in a season of competitions indicated that team potency was positively related to team performance but self-efficacy remained unchanged no matter how teams performed. It is thus likely to have team members with high self-efficacy but, simultaneously, low team potency in team processes.

The early empirical research on team potency demonstrated that teams could be differentiated based on the strength of beliefs in the team's ability to manage changes (Guzzo et al., 1993). As such, there is likelihood that the indirect effects of authentic leadership on team proactivity are dependent on the strength of team potency. In other words, team potency may moderate the strength of the indirect effects of authentic leadership. In line with this thinking, the following section deals with the moderating effect of team potency on the mediated relationship between authentic leadership and team effectiveness through team proactivity.

3.2.3.1. The Moderating Effect of Team Potency on the Relationship between Authentic Leadership and Team Proactivity

When a team is characterised with high team potency, team members share high confidence in general team performance which will in turn lead to high team effectiveness. Past studies have shown the positive link between team potency and team effectiveness. Examinations of work teams in financial industry found a positive relationship between team potency and team performance (Campion et al., 1996; Hu & Liden, 2011; Schaubroeck et al., 2007). Duffy and Shaw (2000) used a student sample of 143 teams and concluded a positive link between team potency and team effectiveness. Gully et al.

(2002) conducted a meta-analysis of team potency across 29 studies and supported the positive impact of team potency on team performance. The accumulated empirical evidences increase the importance of team potency which could drive team members' proactive behaviour.

Team potency is argued to facilitate team members to take risks of initiating proactive behaviour. It has been argued earlier that authentic leaders promote team proactivity. However, proactivity involves changing the status quo to enhance performance, which may incur interpersonal conflicts, so that proactivity entails psychological risks (Parker et al., 2010). Those risks, for instance, may include criticisms or resistance from stakeholders when the team initiates changes that challenge potential interests and benefits. Expectancy theory (Vroom, 1964) claims that a person assesses probabilities of how his or her efforts could bring about outcomes and how outcomes would meet his or her goals before the person takes actions to obtain expected outcomes. Due to the similar operation of motivational states at the individual and team levels, team members would evaluate the risks that proactive goal setting and goal attainment may involve before they are committed to team proactivity (Parker et al., 2010). This suggests that higher team potency could raise greater likelihood that team members would accept psychological risks and engage in proactive behaviour as they believe that high team competence and their co-ordinated efforts would lead to successful team goal achievements (Chen & Kanfer, 2006).

In the team process, higher team potency could amplify the impact of authentic leaders on team goal attainment. Authentic leaders promote transparent communications and encourage team members to express their ideas, suggestions and concerns. In the open communication process, team members are more likely to develop identification with leaders and teams (Avolio et al., 2004). Established team identities imply that team members have incorporated the team values and goals into their identities (Hall, Schneider, & Nygren, 1970). As such, authentic leaders are able to guide team members to strive for team goals. Yet, how and where to allocate efforts to pursue what goal relies on how team members perceive the team's capability to attain goals (Weingart, 1992). Past research has shown that team potency could facilitate team members to direct efforts in goal striving (Chen, Thomas, & Wallace, 2005; Hu & Liden, 2011). As such, teams higher in team potency tend to keep highly motivated for striving proactive team goals and thus for higher team proactivity.

In addition, team potency can strength the positive team effective tone that authentic leaders establish to pursue team proactivity. The positive emotions and mood of authentic leaders generate positive team affective tone (Gooty, Connelly, Griffith, & Gupta, 2010; Ilies et al., 2005; Kaplan, Cortina, Ruark, LaPort, & Nicolaides, 2014) which increases likelihood of team proactivity (Parker et al., 2010). Team potency provides team members with 'enactive mastery experience' (Parker & Wall, 1998). In other words, team members may feel that they stay control of the task-related circumstances. This positive cognitive appraisal of team performance and effectiveness could generate members' positive affect (Roseman, Spindel, & Jose, 1990) and thus elevate the positive affect tone of the teams led by authentic leaders (Kelly & Barsade, 2001). Positive team affect energises team members to maintain efforts in proactive behaviour and motivates them to cope with discouraging obstacles in the team process (Parker et al., 2010). A hypothesis is therefore offered as follows:

Hypothesis 7: Team potency moderates the relationship between authentic leadership and team proactivity, such that as strength of team potency increases, so does the relationship between authentic leadership and team proactivity.

3.2.3.2. The Moderated Mediation Relationship between Authentic Leadership and Team Effectiveness

Given that the mediated relationship between authentic leadership and team effectiveness via team proactivity as well as the moderating effect of team potency on the link between authentic leadership and team proactivity have been proposed, there emerges a moderated mediation relationship between authentic leadership and team effectiveness as follows:

Hypothesis 8: There is a mediated relationship between authentic leadership and team effectiveness via team proactivity, which is moderated by team potency such that the mediated relationship will become stronger under high team potency rather than low team potency.

Hypothesis 7 and 8 were attempted to answer the third research question "How does team potency moderate the mediated relationship between authentic leadership and team effectiveness through team proactivity?"

3.3. Control Variables

In order to minimise the confounding effects (Bernerth, Cole, Taylor, & Walker, 2018), the study controlled the impact of team size and team tenure on the proposed moderated mediation model.

Team size is a component of the team compositional context (Huczynski & Buchanan, 2001). The size of a team is important to team functioning in that the amount of resources available on the team depends upon the number of team members (Hambrick & D'Aveni, 1992). Hill (1982)'s experimental comparison study suggested that a larger team size contributes to performance by pooling information and perspectives to enhance quality

of complex problem solving, but such edge would decline if members engage in social loafing, have little relevant knowledge and skills or do not prefer team working. Moreover, past studies have demonstrated that team size could affect team effectiveness via affective conflicts (Amason & Sapienza, 1997) and CEO dominance (Haleblian & Finkelstein, 1993). As such, team size is assumed to impact on the statistical testing of the research model.

Team tenure is another component of the team compositional context (Huczynski & Buchanan, 2001). Team tenure refers to 'the amount of time the team has been intact at criterion collection' (Bell, 2007, p. 600). Team tenure implies experience in a team and familiarity with team norms and task-related knowledge so that it could have impact on team performance (Wiersema & Bird, 1993). Prior research has shown that team tenure influences performance depending on different leadership styles (Li, Yu, Yang, Qi, & Fu, 2014; Stewart & Barrick, 2000; Stoker, 2008). Such empirical evidence suggests that there is a need to control the potential confounding effects of team tenure.

Consequently, based on previous empirical research evidence, this study included these two variables into conceptual model testing in order to correctly analyse the statistics.

3.4. Summary and Conclusion

This chapter has explained hypothesised relationships between independent and dependent variables in the research model and revealed how those relationships could possibly answer the research questions. Drawing on self-determination theory, social learning theory, social exchange theory and expectancy theory, the chapter has argued the indirect effects of authentic leadership on team effectiveness through perceived team politics and team proactivity. Besides, the chapter has contended the moderating effect of team potency on the link between authentic leadership and team proactivity as well as on the mediated relationship between authentic leadership and team effectiveness via team proactivity. There are eight direct and indirect hypothesised paths in the model which are illustrated as follows:

- Hypothesis 1: Authentic leadership is negatively related to perceived team politics.
- Hypothesis 2: A reduction in perceived team politics leads to increased team effectiveness.
- Hypothesis 3: The relationship between authentic leadership and team effectiveness is mediated by perceived team politics.
- Hypothesis 4: Authentic leadership is positively linked to team proactivity.
- Hypothesis 5: Team proactivity is positively related to team effectiveness.
- Hypothesis 6: Team proactivity mediates the relationship between authentic leadership and team effectiveness.
- Hypothesis 7: Team potency moderates the relationship between authentic leadership and team proactivity, such that higher team potency will strengthen the link between authentic leadership and team proactivity.
- Hypothesis 8: Team potency moderates the mediated relationship between authentic leadership and team effectiveness via team proactivity, such that the mediated relationship will become stronger under high team potency rather than under low team potency.

To conclude, the conceptual model suggests that authentic leadership influences team effectiveness by reducing perceived team politics within the team as well as enhancing team proactivity among members. Furthermore, the strength of the mediated relationship between authentic leadership and team effectiveness via team proactivity is dependent upon presence of team potency. The higher team potency is, the stronger the mediated relationship will remain.

4.1. Introduction

This chapter is titled as research methodology as it acknowledges that the scope of research methodology is wider than research methods. Research methods are comparable to tools used in conducting research. They are various ways of collecting data and finding answers to research questions. Research methodology is, nevertheless, a systematic way of scientific inquiry which justifies selection of research methods on the basis of philosophical and theoretical frameworks and involves the use of appropriate techniques and procedures to operate research. Hence, research methods are part of research methodology (Easterby-smith et al., 2012; Kothari, 2004). In line with these authors' distinction between research methodology and research methods, this study grouped all facets of the research process into the overall heading of research methodology. The research design, data collection methods and analytical approaches were all deemed to be part of this study's methodology as outlined in the following sections.

As the study took on the essentialist perspective to view authentic leadership, the study assumed that leadership is a concrete, measurable phenomenon (Storey, 2011). The assumption of leadership was consistent with the positivist research design of the study reflecting the philosophical paradigm involved in the research process. Since the philosophical choice directs methodological selection, this chapter starts with justification of why the positivist paradigm and quantitative method were utilised by making comparison of the philosophical foundations of quantitative and qualitative methodology.

The chapter proceeds to present the research design justifying the use of a survey as the positivist research design. It outlines the types of surveys the study adopted and delineates how data were sourced through questionnaires. It then continues to deal with instrumentation addressing the measures and scales in the questionnaire.

The chapter demonstrates the sampling design by defining the population of interest, presenting the sampling frame, explaining how the population was sampled and justifying the sample size, followed by the analytical approach.

The section of analytical approaches shows how the data were processed and analysed in two phases: preliminary data analysis and the SEM analysis. Preliminary data analysis provided an overview of the data and prepared for the model analysis while the SEM analysis involved the analyses of the measurement model and structural model respectively.

Ethics is paramount to any research practice. As this study involved human participants, the chapter addresses ethical considerations in the research process. Finally the chapter reflects upon the limitations in the methodology and ends with a summary and conclusion.

4.2. Research Philosophy

In social science research, there has been a long-lasting debate about two competing research traditions, namely quantitative and qualitative research. Quantitative research is used to explain social phenomena by means of collecting numerical data and using mathematics-based methods, particularly statistics, to conduct data analysis (Aliaga & Gunderson, 2002). As opposed to the quantitative approach on the other end of the continuum, qualitative research is focused on the 'why' aspect of social phenomena by

examining direct human experience and using non-numerical data to capture the meaning and richness of human activities (Klenke, 2016). In leadership research, quantitative research had been the dominant approach to identifying and understanding leadership problems, and to finding solutions that could be tested, verified and replicated until 1980s when leadership scholars were dissatisfied with the limitations of quantitative techniques and started to promote advantages of qualitative research (Klenke, 2016).

The vehement debates over merits of each approach reflect divisive ideas underpinned by varied philosophical thinking (Onwuegbuzie & Leech, 2005). Justifications of using certain approach rather than the others reveal ontological and epistemological positions of researchers (Mason & Dale, 2011). Easterby-smith et al. (2012) stated that understanding research philosophy could facilitate researchers to identify, select or innovate the research design that could lead to good answers to the questions being investigated. The rest of this section will revolve upon philosophical assumptions for quantitative and qualitative approaches respectively, and reason why the positivist perspective was taken in the thesis.

4.2.1. Philosophical Foundation of Quantitative Research

Positivism, a system of thinking concerned with science and scientific knowledge, is the philosophical foundation of quantitative research. The key ideas of positivism is that social research should examine the 'law' of objective reality that could be empirically established by observation, experiment and comparison, and knowledge is factual, objective, accurate and certain (Crotty, 1998). Positivism, ontologically, takes the realist view that the world exists externally and objectively, independent of human perception. Epistemologically, it argues that knowledge is objective and empirically verifiable (Easterby-smith et al., 2012). For positivists, researchers should uncover the existing

objective truth by keeping themselves independent from what is being studied and use objective methods to identify causal relationships among facts and to discover the law that predicts regularities of human behaviour and establishes generalisation (Crotty, 1998; Easterby-smith et al., 2012). In other words, the key to positivist research is to measure the reality that externally exists in a scientific, objective way. As such, positivism provides quantitative research with the epistemological perspective which conceptualises what knowledge is and how it can be obtained (Klenke, 2016).

Positivism orientates the methodological choice to quantitative research for the following four reasons. First of all, positivists are renowned for using mathematics or statistics to do analysis and for being complete empiricists. For instance, logical positivists, considered to play a major role in developing contemporary positivism, argued that no statement is valid unless it is logically or empirically verifiable and that knowledge could be verified by mathematic methods or through empirical evidence collected from observations and experiments. As positivism incorporates epistemology of objectivism, the purpose of such verification is to achieve objectivity and reject subjective evaluation (Crotty, 1998). Secondly, as positivists sought to discover the general law that explains social phenomena, they argued that only quantitative research could be the basis for generalisations and laws (Crossan, 2003). Positivists believe that such regularities can be most easily generated by making comparison of variances across randomly selected samples of a sufficient size. Thirdly, drawing from reductionism, positivists state that it is better to understand problems as a whole by breaking them down into smaller constituent parts to unveil the law of cause and effect. Such reductionist thinking facilitates operationalisation of concepts which defines facts in a quantitatively measurable way (Easterby-smith et al., 2012). Fourthly, positivists use deductive reasoning to identify the truth or falsity of hypotheses which are proposed to discover the law (Hempel, 1966). The hypothesis testing which involves establishment of hypotheses based on operationalised concepts and theories, creation of measures and indicators, and testing through empirical observation or experimentation has become a common form of deductive methods (Gray, 2014).

Positivism predominated social science as an epistemological paradigm before 1960s (Gray, 2014). New paradigms have been developed to challenge the application of positivism to social science since the last half-century. Qualitative research has since then been highlighted as an important research approach opposing positivist, quantitative research.

4.2.2. Philosophical Foundation of Qualitative Research

Different philosophical terms have been used for philosophical foundation of qualitative research, such as social constructionism (Easterby-smith et al., 2012), social constructivism (Guba & Lincoln, 1994), post-positivism (Crossan, 2003) and interpretivism (Secker, Wimbush, Watson, & Milburn, 1995). Such various philosophical paradigms and perspectives reflect that qualitative research is an umbrella concept encompassing an array of philosophical paradigms and research approaches (Leavy, 2014) and ultimately cause disagreements among qualitative researchers (Spencer, Pryce, & Walsh, 2014). Nevertheless, these philosophical paradigms counter positivist ontology and epistemology arguing that reality does not exist externally for measurement but it is, or partially, constructed by human observations, and challenging positivist claims to 'objectivity, precision and certitude' (Crotty, 1998, p. 27). Since there are several different philosophical paradigms concerning qualitative research, this study followed Easterby-smith et al. (2012)'s comparison of two contrasting philosophical paradigms in

management research to avoid unnecessary confusion and adopted social constructionism as a philosophical foundation of qualitative research.

The ontology and epistemology of social constructionism route itself to the opposite side of positivism. From the ontological perspective, social constructionism takes the relativist view that reality is context- and socially related so that reality is not objective or externally existent but constructed and given meaning by people in the social interaction process (Easterby-smith et al., 2012). As reality is socially constructed, many realities co-exist simultaneously (Gergen, 1996) and change constantly (Sale, Lohfeld, & Brazil, 2002). In socially constructed reality, knowledge is derived from the constant negotiating process. As such, knowledge is not absolutely objective, accurate and certain but laden with values and theory, or coloured by subjective interpretations (Spencer et al., 2014). Unlike their positivist counterparts who are independent of what is being observed, social constructionist researchers regard themselves as part of what is being studied. The goal of social constructionist research is not to discover the causal facts of social phenomena that predict the general law but to uncover the in-depth meaning of the phenomena and the changing process so as to increase general understanding of the situation. Different from positivist research which employs the deductive approach and hypothesis testing, social constructionist research proceeds through the inductive process by drawing ideas from multiple sources of data which reflect the whole situation (Easterby-smith et al., 2012; Sale et al., 2002).

In the 'paradigm wars' concerning methodological choices between quantitative and qualitative research, researchers who adhere to mono-method studies advocating either methodological paradigm assume that quantitative and qualitative research is incompatible but complementary to each other (Onwuegbuzie & Leech, 2005). This

suggests that either quantitative or qualitative paradigm is an investigative approach in its own right.

4.2.3. Positivism or Social Constructionism

Prior to choosing the epistemological and methodological perspective, it is necessary to understand the strengths and weaknesses of positivism and quantitative methods as well as social constructionism and qualitative methods. Regarding strengths of the positivist paradigm and quantitative methods, they can provide a wide range of situations in a fast economical and replicable way, and demonstrate relationships among the facts of phenomena. Conclusions drawn from large samples may be a significant reference for decision making. However, as results of quantitative research show what it is rather than why it is, it is difficult to understand the underlying meaning and changing process of the phenomenon. Quantitative research is not a good choice for theory generation (Easterbysmith et al., 2012; Sale et al., 2002).

The strengths and weaknesses of social constructionism and qualitative methods are complimentary to those of quantitative research. The strengths of qualitative research are that they investigate the changing process, facilitate in-depth understanding of meaning with multiple sources of data and contribute to theory generation. However, it may take a long time to collect data. As it has to depend on researchers to analyse and interpret data, the subjective evaluation may reduce the credibility of results (Cooper & Schindler, 2011; Easterby-smith et al., 2012).

It is argued that selection of research paradigms and methods should be contingent upon research purposes and questions. The methodological choice rests upon the role of theory in research (Newman & Benz, 1998). If the purpose of the research is to test or modify theory, the positivist paradigm and quantitative methods should be the choice. If the research is aimed to initiate or establish theory, qualitative paradigms and methods should be considered. Furthermore, the methodological choice lies in whether the research objective is to discover the causal or correlated relationship or to understand the in-depth meaning of the situation. In addition, the methodological choice depends upon the types of questions. Quantitative methods are ideal to answer the 'what' and 'how' types of questions as opposed to the 'why' type of questions answered by qualitative methods (Klenke, 2016).

This study adopted the positivist paradigm and thus the quantitative approach as it was aimed to investigate how authentic leadership indirectly impacts on team effectiveness and test the hypotheses emerged from the conceptual model in an attempt to address the following research questions:

- 1. How does perceived team politics mediate the relationship between authentic leadership and team effectiveness?
- 2. How does team proactivity mediate the relationship between authentic leadership and team effectiveness?
- 3. How does team potency moderate the mediated relationship between authentic leadership and team effectiveness through team proactivity?
- 4. To what extent does the moderating effect become significant on the mediated relationship between authentic leadership and team effectiveness through team proactivity?

4.3. Research Design

Research design is the overall scheme of research activities guiding collection, measurement and analysis of data to achieve research objectives and answer research questions (Cooper & Schindler, 2011). Given that the study took the positivist, quantitative approach to research the topic, it adopted the positivist design. The positivist research design is amenable to experiments and surveys as two common methodologies to explore the nature of relationships between variables (Collis & Hussey, 2009; Easterby-smith et al., 2012).

Experiments involve manipulation of independent variables to observe the changing effects on dependent variables, or comparisons of differences between treatment groups and control groups. However, considering the drawbacks of experiments, for instance, the artificial setting in which the experiments are conducted may not reflect the real world (Collis & Hussey, 2009), generalisation from nonprobability sampling may pose threats to validity and reliability (Cooper & Schindler, 2011), and manipulation in human participants may incur severe ethical issues (Hair, Celsi, et al., 2011), this study chose a survey as the methodological choice to guide research activities.

The rest of this section begins with justifications of the survey as a methodological design choice and elucidates the elements in the survey design. It then proceeds to explain how to design and administer the questionnaire for data collection. The section ends with the measurement issue by explaining the measures and scales used in the study.

4.3.1. The Survey Design

A survey is a common research strategy to investigate opinions and behaviour in social science. This section deals with reasons for choosing the survey as a positivist design and summarises the elements in the survey design that the study adopted.

4.3.1.1. Reasons for the Survey Design

The study chose the survey to design research activities based on the following four reasons. First, as positivism is the dominant epistemology of the survey (Easterby-smith et al., 2012), a survey reflects the characteristics of positivist research such as operational conceptualisation, objectivity, causality and replicability. Operationalisation of definitions is carried out in the items of the survey questionnaire. Objectivity is maintained by keeping the observer from the observed with limited interactions with each other so that the observer's opinion does not affect the answer. Causality can be examined through statistical techniques like path analysis and the related regression techniques. Replicability is feasible as the instruments can be reused in another context (Bryman, 1984).

Second, in the positivist design, a survey collects quantitative data from a subset of the population of interest. As qualitative data can be collected in a survey from open-ended responses and can be coded into quantitative forms during the data processing phase, the survey results are known as 'quantitative descriptors' (Groves et al., 2004, p. 2). The survey therefore facilitates a statistical process forming the data sample to describe the characteristics of the population. The statistics based on the sample measurement reveals ranking, frequency, correlations, predictions and the like (Hair, Celsi, et al., 2011). As the study intended to test the hypotheses to explain the nature of relationships between authentic leadership and team effectiveness through mediators and moderators, the survey
was considered to be an appropriate methodological choice as it enabled not only hypothesis testing but also an efficient way of data collection.

Third, self-administered surveys are cost-effective methods of providing a wide coverage of numerical evidence to predict the general law of social phenomena. Compared with personal interviews, self-administered surveys cost much less but facilitate researchers to contact the participants who might be geographically inaccessible or who are difficult to reach like corporate executives or healthcare professionals due to their busy work schedules (Cooper & Schindler, 2011). As such, the self-administered survey facilitates generation of large samples which include multiple factors to be measured simultaneously across social contexts. Conclusions drawn from a wide coverage of samples provide a compelling potential of generalisation (Easterby-smith et al., 2012).

Last but not the least, the survey remains the dominant, typical methodology although a variety of new methods have added vigour to leadership research (Friedrich et al., 2009; Hunter, Bedell-Avers, & Mumford, 2007). One of the experiment drawbacks is that it is very difficult to find suitable participants who can attend the experiment at a given time so that students are used instead to overcome the problem (Dobbins, Lane, & Steiner, 1988). However, there are scepticisms against how much generalisation can be drawn from students to represent business leaders (Collis & Hussey, 2009; Cooper & Schindler, 2011). Friedrich et al. (2009) argued that the survey design holds great value for leadership research as it is an important approach to 'collecting data from the real-world leaders who are not amenable to experiment methods' (p.57).

4.3.1.2. Summary of the Survey Design

There are several elements in the survey design. In terms of the purpose of the survey, this study took an analytical survey design which was aimed at establishing relationships between constructs and concepts (Collis & Hussey, 2009). With regard to the time dimension, it was a cross-sectional study which collected data across different organisations and units at a given time to provide a snapshot of how authentic leadership influences team effectiveness (Hair, Celsi, et al., 2011). Concerning the communication method, the study adopted the self-administered survey method in which research participants complete the questionnaires on their own rather than join in interviews to have conversations with researchers (Sekaran & Bougie, 2013). Regarding the research environment, the survey took place in field setting rather than laboratories. In other words, the study was conducted within different organisations and units in the real world (Cooper & Schindler, 2011). With respect to the unit of analysis, the study was focused on the team level as it intended to examine team effectiveness. The individual-level data were aggregated to the team-level data to reveal team differences (Sekaran & Bougie, 2013). The research design of the study is summarised in Table 4.1. The rest of the chapter will detail how the research activities of the study were carried out to reflect such a survey design.

Elements	Options
The type of the survey	An analytical survey
Time dimension	A cross-sectional study
The communication method	A self-administered survey
The research environment	Field setting
Unit of analysis	The team level analysis

4.3.2. Questionnaires as the Data Collection Method

Consistent with the positivist design, a questionnaire survey was opted for the data collection method (Collis & Hussey, 2009). As it was mentioned in section 4.3.1.1.,

questionnaires excel in executing operationalisation of concepts, objectivity, causality and replicability in positivist research. Furthermore, a method of self-administered surveys, the questionnaire facilitates wide dissemination of surveys to geographically dispersed locations at low cost and allow more time for research participants with busy work schedules to complete the questions. Questionnaires could therefore generate a large coverage of samples for statistical analyses to reveal the regularities that explain the relationships between authentic leadership and team effectiveness through moderated mediation effects.

Following Easterby-smith et al. (2012)'s tree ring metaphor to describe the relationships among ontology, epistemology, methodology and methods, this study employed a similar metaphor to demonstrate how ontological and epistemological paradigms influence the methodological choice and thus selection of the data collection method as shown in Figure 4.1.



Figure 4.1 Summary of ontology, epistemology, methodology and method in the study

4.3.2.1. Questionnaire Design

While surveys make a great deal of contribution to knowledge generation in the field of leadership research, they are not exempt from potential vulnerabilities in weakening their values (Cooper & Schindler, 2011; Friedrich et al., 2009). Considering the potential problems involved in the self-completed survey research, this section explains how the study strived to safeguard the accurate research design.

An endemic problem in survey studies is a failure to consider common method bias (Friedrich et al., 2009). Method bias threatens the validity of the conclusion due to the measurement methods rather than the measures themselves (Podsakoff et al., 2003). In leadership research, the practice to administer both predictors and criteria at the same time in the same context and obtain data from the single source lends the survey susceptible to method bias (Friedrich et al., 2009). To handle the threats of common method bias, the study collected data from two sources. The study designed two separate questionnaires administered to team leaders and members respectively. The team leader questionnaire collected dependent variables whereas the member questionnaire collected independent variables. The surveys were linked per team through codes to ensure confidentiality. For instance, a team leader questionnaire was coded in L001001 while the member's questionnaires in the same team were coded in M001001. The rules of coding are as follows. Letter 'L' represented 'leader' whereas 'M' meant 'member'. The first three digits referred to the number of organisations under investigation whereas the last three digits meant the number of the team. The team leader and member codes enabled collation of the team responses.

The uncontrolled environment where surveys are operated makes the survey method susceptible to invalid research conclusions. As there are different factors influencing the

relationship between leadership and its criterion variables, it is essential to use the statistical control to yield more accurate estimation of leadership effects. However, much survey research on leadership does not include any control measures or include inappropriate control measures (Friedrich et al., 2009). Bernerth et al. (2018) argued that inclusion of inappropriate or unnecessary controls which might burn the degree of freedom or direct to other statistical compilation would inflate or deflate the results. Consequently, they suggested that control variables, either objective ones (e.g. demographics) or abstract ones (e.g. organisational citizenship behaviour) should be rooted in theories. This study thus put the control variables, such as team size and team tenure, in the survey questionnaire with reference to relevant theories and prior empirical research.

Low or no responses to the questionnaire survey may pose threats to the validity of generalisation due to a smaller size of samples (Collis & Hussey, 2009). There are some factors attributing to the lack of sufficient responses. With respect to the measurement scales, the hardly intelligible wording may discourage participants from responding to questionnaires (Cooper & Schindler, 2011). As the research data were sourced in China, the measurement scales, previously published in peer-reviewed journals in English speaking countries, were translated into Chinese by a qualified translator. Participants in the pilot test also provided feedback on the Chinese wording. After adjustments of wording in the Chinese version of measurement scales, the Chinese questionnaire was back-translated to English by another linguistic expert. The two bi-lingual experts compared the original English scales and the translated English ones to decide whether the Chinese scale could reflect the connotations of the original scale. Modifications continued until both experts agreed that the Chinese questionnaire could at best present the original measurement scales. By doing this, the researcher was able to ensure that the

translated measures were accurate and the respondents could understand each item of the questionnaire. The instrumentation details will be covered in section 4.3.3.

Following Cooper and Schindler (2011)'s guideline of questionnaire design, the sequence of measurement scales and the demographic information were logically arranged. Each section on the questionnaire had a clear, specific instruction to inform participants of what to do.

4.3.2.2. Questionnaire Administration

As the study adopted the cross-sectional research design, the data were collected only once. An advantage of the cross-sectional research is to facilitate comparisons of many variables across different organisational contexts at a single point of time so that relationships among variables can be identified (Hair, Celsi, et al., 2011). The data collection took place during the first six months in 2017. The researcher contacted the target organisations and obtained their consent to the survey. The contact persons from the target organisations assisted in identifying teams and recruiting participants for the study. When the recruitments were done, questionnaires were sent to the participants.

The study used either paper and pencil questionnaires or web-based questionnaires to collect data. The study originally planned to use the paper and pencil questionnaire to collect the sample data in the following process. When the organisation consent was granted and the participant recruitment was completed, the researcher would visit the target organisation at the agreed time to disseminate the hard copies of questionnaires. A paid, addressed envelope was attached to each questionnaire which allowed participants to return the questionnaire through postal service. Alternatively, participants could drop the completed questionnaires into a collection box at a designated common area in the workplace. This questionnaire distribution approach was used in the pilot test. However,

the feedback from the pilot study showed that this approach might not invite a high response rate in a given time as the participants heavily engaged in their work might forget to bring the completed questionnaires to the designated area for drop-off or to the street post outlet. Moreover, some participants expressed their preference over the online questionnaire which they could complete on computers, mobile phones or tablets at anytime and anywhere. Based on the pilot test feedback, the study adopted the web-based questionnaire as an alternative distribution approach. In other words, before sending questionnaires, the researcher would discuss with the contact person from the target organisation about which distribution approach to be used for data collection.

There are advantages of online questionnaire administration. First, the web-based questionnaire provides research participants with flexibility in choosing when and where to complete questionnaires. Provision of convenient accesses to questionnaires assists in enhancing the response rate (Cooper & Schindler, 2011). Second, as organisations often decline to use work hours for data collection or participants are too busy to fill in the questionnaire at work (Sekaran & Bougie, 2013), the response rate could be enhanced if the participants could participate in the research without the constraints of the time and place. Third, compared with the traditional paper and pencil questionnaire administration, the web-based questionnaire allows those whose locations were geographically dispersed to fill in questionnaires. It could thus lower the travel cost and facilitate faster return of questionnaires. Fourth, the preliminary results from the online questionnaire can be exported into Excel or SPSS for data analysis. As such it reduces the mistakes caused by manual data input and ensure the data originality.

The study used the corporate version of Survey Star (aka Wen Juan Xing), a popular online survey platform in China with patrons from more than 20,000 organisations and

90% of Chinese universities. The user agreement of the corporate version explicitly stipulated that the company would not expose the content of the questionnaire or the data set to the third party in any manner unless the user authorises them to do so. Consequently, the researcher was able to ensure the privacy and security of the data set. The way to distribute the online questionnaire was the same with the paper-based questionnaire. The difference was that the online questionnaire was completed electronically while the paper-based questionnaire was done with pencils or pens. The team leader received a hyperlink of the leader questionnaire while the members got a link of the member questionnaire. Each team had its two web addresses linked to the leader and member questionnaires respectively and did not share the same addresses with other teams. In other words, if there were N teams to join in the research, the researcher created N hyperlinks for the leader questionnaire and N for the member questionnaire. Every web link was password-protected to ensure that the respondents were the research participants rather than other internet users. In addition, when the respondents submitted the questionnaire, they had to fill in a verification code generated by the website. By doing so, a research participant could only complete one questionnaire.

According to Wallace and Mellor (1988)'s suggestions to enhance the response rate, the researcher sent a follow-up request to those teams which had not yet completed the survey. The criteria regarding whether a participating team had done the survey or not were twofold. On the one hand, the team leader and members both had to submit the completed questionnaires. On the other hand, the number of members who submitted the questionnaires should be no less than half of team members. The researcher could identify how many members worked with a team leader from the leader questionnaire and discover how many members submitted the questionnaire from the paired codes on the questionnaires. Due to the principle of the voluntary participation, the researcher only

sent the follow-up request once to remind those who might forget to fill in the questionnaire.

4.3.3. Instrumentation

Measurement of variables is an integral part of research, without which the hypothesis testing could not be processed. As the study adopted or adapted the previously published measurement scales, this section first presents the measures by explaining the operationalisation of constructs and the instruments with values of internal consistency reliability (Cronbach's alpha). It then proceeds to reason what scales the study adopted to measure the variables.

4.3.3.1. Measures

Variables in the proposed conceptual model are latent variables that cannot be directly measured. A technique to measure these abstract notions is to break the concept into observable behaviour or characteristics, which is known as operationalisation of constructs or concepts (Sekaran & Bougie, 2013). This section demonstrates the measures in the categories of dependent, independent and control variables. Descriptions of each latent variable or construct include the operationalised concept and the instrument. As the unit of analysis was at the team level, the measures were adapted to the team context.

Dependent variable:

Team effectiveness

As it was previously mentioned in section 3.2.1., team effectiveness was operationalised differently in the literature due to the type of teams and the industrial or organisational contexts where the team operates in. However, teams exist to perform tasks (Mathieu et al., 2008). Team effectiveness is therefore performance oriented. This study adopted the

four items from Mitchell, Boyle, et al. (2014) which had the value of Cronbach's α =0.83. These four items are as follows:

- 1) How well do you think this team performs at its task?
- 2) To what extent does this team's work exceed the performance of other teams?
- 3) How effective is this team?
- 4) To what extent does this team deserve a positive evaluation?

Independent variables:

Authentic leadership

The operationalised conceptualisation of authentic leadership encompasses four dimensions: self-awareness, relational transparency, balanced processing and internalised moral perspective (Walumbwa et al., 2008). Like the aforementioned reasons in section 2.6., the study chose ALI to measure authentic leadership at the individual level (Neider & Schriesheim, 2011). ALI has 14 items with Cronbach's α = 0.96, listed as follows:

- 1) Our team leader clearly states what he/she means.
- 2) Our team leader shows consistency between his/her beliefs and actions.
- 3) Our team leader asks for ideas that challenge his/her core beliefs.
- 4) Our team leader describes accurately the way that others view his/her abilities.
- 5) Our team leader uses his/her core beliefs to make decisions.
- Our team leader carefully listens to alternative perspectives before reaching a conclusion.
- 7) Our team leader shows that he/she understands his strengths and weaknesses.
- 8) Our team leader openly shares information with others.

- Our team leader resists pressures on him/her to do things contrary to his/her beliefs.
- 10) Our team leader objectively analyses relevant data before making a decision.
- 11) Our team leader is clearly aware of the impact he/she has on others.
- 12) Our team leader expresses his/her ideas and thoughts clearly to others.
- 13) Our team leader is guided in his/her actions by internal moral standards.

14) Our team leader encourages us to voice opposing points of view.

Perceived team politics

Drawing ideas from Ferris, Harrell-Cook, and Dulebohn (2000)'s conceptualisation of perceived organisational politics, perceptions of team politics were construed as subjective evaluations of the extent to which the team environment is characterised by self-serving behaviours. Hochwarter, Kacmar, Perrewé, and Johnson (2003) operationalised the self-serving behaviour based on previous research on political behaviour arguing that the self-serving behaviour is directed towards the promotion of self- interests, at the expense of organisational or group goals and towards important decision makers by using tactics that most people consider indecent. They developed a four-item scale concerning perceptions of work group politics with Cronbach's α = 0.97. The study adapted this scale to fit the team context. The four items were as follows:

- 1) There is a lot of self-serving behaviour going on in the team.
- 2) Team members do what's the best for them, not what's the best for the team.
- 3) Team members spend too much sucking up to those who can help them.
- Team members are working behind the scenes to ensure that they get their piece of pie.

Team proactivity

Proactivity is construed as self-initiated, goal-directed, change-oriented, future-focused and environment monitoring behaviour (Parker & Collins, 2010; Seibert et al., 1999). To reflect this conceptualisation, four items were adopted from Wu and Wang (2015) to measure proactivity at the team level. This measure had Cronbach's $\alpha = 0.85$, including the following four items.

- 1) People in my team actively attack problems.
- 2) People in my team quickly use opportunities to attain goals.
- 3) People in my team usually do more than they are asked to do.
- 4) People in my team are particularly good at realising ideas.
- Team potency

Team potency is defined as collective beliefs and confidence in team performance and effectiveness (Guzzo et al., 1993). This four-item measure, with Cronbach's α =0.87, was adapted from Guzzo et al. (1993). The instruments were outlined as follows:

- 1) No task is too tough for my team.
- 2) My team has confidence in itself.
- 3) My team expects to be known as a high performing team.
- 4) My team get a lot done when it works hard.

Control variables:

The common use of control variables in leadership research is aimed to purify the confounding effects on the observed relationship caused by extraneous variables (Spector & Brannick, 2011). To minimise the variances caused by factors outside the model, this study controlled team size and professional diversity.

Team size

Past research has shown that team size can affect team performance (Amason & Sapienza, 1997; Haleblian & Finkelstein, 1993). This study therefore included it as a control variable. Team size was a directly observable, measurable variable presented in the leader questionnaire.

Team tenure

The team literature has discussed how team tenure impacted on team outcomes. It was argued that a team consisting of long-tenured members was susceptible to unchanged, persistent strategies and high conformity to rules and regulations so that it may undermine team effectiveness (Finkelstein & Hambrick, 1990; Stoker, 2008). The study also controlled its confounding effects on the research outcomes. As it is a direct observable demographic variable, it was sourced from the leader report.

4.3.3.2. Scaling

Scales are used to distinguish the extent to which a participant differs from others in terms of the variable of interest to the study. The study employed two measurement scales to identify response variances. Categorical scales were used to measure the respondent demographic characteristics which were recorded in the open-ended responses. These data are used to describe the sample characteristics (Sekaran & Bougie, 2013). The Likert 7-point scale was adopted to rate the variances of the responses to instrument questions. The reason to choose the 7-point scale rather than the 5-point one was that the 7-point scale presents more variances among respondents so that it has a better approximation of the response curve (Cooper & Schindler, 2011). In addition, Beal and Dawson (2007) found that a larger number of options like 7 points could significantly reduce the adverse

effects of response ramp on the Likert scale concerning ICCs estimates, the indices of interrater reliability.

As shown in the preceding section, the constructs in the conceptual model were measured with the multi-items measures. The scale items of a multi-dimensional measure are measured on either formative or reflective scales (Sekaran & Bougie, 2013). The formative scale is used when the construct is perceived as a combination of items that cause the construct whereas the reflective scale is used if the scale items are the effects of the construct (Law, Wong, & Mobley, 1998). In a formative measurement scale, the items of a construct measure are not necessarily correlated so that there is little need to test internal consistency. However, in a reflective measurement scale, the items of a construct measure are related to reflect the construct so that it is necessary to test internal consistency reliability.

It is important to differentiate between formative and reflective measurement approaches as each approach uses a set of different criteria to rate the extent to which the constructs are measured by their indicators (Hair, Sarstedt, Pieper, & Ringle, 2012). Failure in identifying formative or reflective models may lead to incorrect estimation of parameters (Diamantopoulos, Riefler, & Roth, 2008). Both Baxter (2009) and Diamantopoulos (2010), although they somewhat disagreed with each other, argued that correct conceptualisation and operationalisation of the construct as well as correct understanding and application of the formative or reflective specifications of a model can reduce the chance of misspecifications. Based on how the constructs were conceptualised and operationalised, this study utilised the reflective specifications of the measurement model. In other words, a construct is reflected by multiple instrument items. Quality of a measurement scale is indicated by reliability and validity. The reliability indices that the study adopted were Cronbach's α and composite reliability. Cronbach's α is one of the most common indices to evaluate the reliability of a (sub)scale (Raykov, 2001). In the SEM context, composite reliability is generally regarded as a better criterion for internal consistency reliability than Cronbach's α in that PLS-SEM algorithms require indicators to have more strong level of reliability but Cronbach's α is a lower bound reliability indicator (Hair, Sarstedt, et al., 2012). However, Peterson and Kim (2013)'s quantitative analysis of 2,524 pairs of Cronbach's α and composite reliability (CR) values from empirical studies revealed that although the CR value (0.86) exceeded the corresponding Cronbach's α (0.84), the difference is insignificant to practical application.

The construct validity is assessed by convergent validity and discriminant validity. The study used average variance extracted (AVE), a popular indicator of convergent validity in PLS-SEM (Hair, Sarstedt, et al., 2012) to explain how positively the indicators measuring the same construct are correlated. With respect to discriminant validity, cross-loading and Fornell-Larcker criterion are traditionally two measures of discriminant validity. In cross-loading, if an indicator's outer loading associated with a construct is greater than any outer loading it is associated with other constructs, the discriminant validity is established. Fornell-Larcker criterion assumes that a construct shares more variances with its associated indicators than with any other constructs (Fornell & Larcker, 1981). As such, the square root of each construct's AVE should be greater than its highest correlations with any other constructs (Hair et al., 2017). Henseler, Ringle, and Sarstedt (2015) proposed Heterotrait-monotrait ratio (HTMT), an alternative assessment of discriminant validity, to remedy the limitations of the two traditional methods. HTMT compares the heterotrait-heteromethod correlations and the monotrait-heteromethod

correlations as evidenced by their high sensitivity rates to identify a lack of discriminant validity. Henseler, Hubona, and Ray (2016) suggested that the value of HTMT should be significantly smaller than 1 in order to establish discriminant validity.

4.4. Sampling

Sampling is a process of eliciting a subset of population to represent the characteristics of the population. If the population is appropriately sampled, the research findings can be accurately generalised. This section depicts how the sampling process was conducted to reflect the positivist research design.

4.4.1. Population

As the study intended to examine teamwork effectiveness, the research data were sourced from the organisations and industries characterised by teams as a common way to organise work in China.

The population of interest were work teams in healthcare as well as architectural design and construction industries. The study targeted these two industrial sectors based on the following reasons. Firstly, healthcare professionals as well as architects and construction related engineers are knowledge workers who use their knowledge, expertise and experience to perform their tasks at work (Davenport 2005). Secondly, inter-professional teamwork is widely used to deliver organisational performance in these two industries (Fay et al., 2006; Kog & Loh, 2012). For instance, a healthcare team is comprised of doctors and nurses to take care of a disease case. For some intensive and severe cases, doctors with various specialties work together to diagnose the symptoms and work out treatment plans. Similarly, a building and construction team consists of professionals from different professions such as architecture design, structural engineering, electrical and mechanical engineering, surveyors and project management.

However, healthcare teams in this study were referred to those working in hospitals. Hospitals, a type of healthcare organisations, house more teamwork activities than other types of healthcare organisations. According to the healthcare statistics released in November 2016 by National Health and Family Planning Commission (NHFPC) as shown in Table 4.2, hospitals, primary healthcare organisations and specialised public healthcare organisations accounted for a large majority of healthcare organisations in China. Although primary healthcare organisations amount to the largest proportion of all healthcare organisations, they are composed of community healthcare service centres, township and village clinics and in-house corporate medical clinics which provide basic healthcare services and do not have as many inter-professional teamwork activities, particularly inter-professional collaborations, as hospitals do.

Type of Healthcare Organisations	Number of Organisations		
Hospitals	28,751		
Primary Healthcare Organisations	930,209		
Specialised Public Healthcare Organisations	29,525		
Other Healthcare Organisations	3147		
Total	991,632		

Table 4.2 The number of different types of healthcare organisations in China by November 2016

Source: National Health and Family Planning Commission (www.nhfpc.gov.cn)

As shown in Table 4.3, 81.91% of specialised public healthcare organisations are engaged in healthcare administration and policy making so that team work activities are not so directly related to treating diseases or caring for patients' physical and emotional needs as hospitals are. Given that hospitals have more inter-professional team collaborations than other healthcare organisations and that the teamwork activities have direct and instant impact on disease treatments and patient care, the study targeted the healthcare teams in hospitals as part of the population of interest.

Type of Healthcare Organisations	Number of Organisations		
Women and Children Healthcare Centres	3,036		
Centres for Disease Control and Prevention	3,487		
Specialised Disease Prevention and Treatment Centres	1211		
Health Supervision Institutes	3135		
Family Planning Technology and Service Institutes	17,562		
Total	29,525		

Table 4.3 The number of different types of specialised public healthcare organisations

Source: National Health and Family Planning Commission (<u>www.nhfpc.gov.cn</u>)

In addition, there were some inclusion criteria in defining what a work team is. According to Mathieu et al. (2008), a team consists of individuals who work interdependently to achieve common goals and perform organisationally relevant tasks with recognitions as a team. Consequently, the first inclusion criterion was that team leaders and members should work within a team where they collaborated with one another through their unique expertise to perform some functional tasks and contribute to the team outcome. Secondly, the team should be organisationally recognised as a work team rather than social collectives not delivering customer- or product-oriented performance but existing for certain social purposes, such as various sport teams established by an organisation for employee welfare. Thirdly, the size of a team should be more than three members with one leader and at least two members. If a leader only worked with a follower, the leader and follower would form a dyad rather a team.

To conclude, the population of interest were work teams which met the above three inclusion criteria and operated in hospitals as well as architectural design and construction organisations in China.

4.4.2. The Sampling Frame

A sample frame records information about the population (Cooper & Schindler, 2011). A sample frame of the study was a Chinese medical encyclopaedia website (http://www.a-hospital.com) providing a free online database of hospitals at different levels across China. This online database was chosen because it offered a detailed list of names of hospitals with their addresses, contact numbers, hospital ranking, key specialities and so forth in every administrative region in China. Moreover, unlike some other databases, such as the one developed and maintained by NHFPC (https://www.hqms.org.cn), the Chinese medical encyclopaedia didn't exclude certain types of hospitals like Traditional Chinese Medicine (TCM) hospitals.

Regarding architectural design and construction teams, the sample frame was the website of China construction industry association (http://www.zgjzy.org) providing a list of architectural design and construction organisations in every administrative region in China.

As the number of hospitals and architectural design and construction organisations kept increasing, the databases might not be instantly updated so that it might not absolutely reflect the target population. Sekaran and Bougie (2013), however, argued that the difference between the population and the sample frame was so small that such a discrepancy could be ignored. Consequently, the sample was drawn from the list of hospitals provided by the Chinese medical encyclopaedia website (http://www.a-hospital.com) and the website of China construction industry association (http://www.zgjzy.org).

4.4.3. The Sampling Technique

Since this was a cross-sectional positivist study, the sample representativeness became crucial to the sampling design in that research findings were generalised to describe the population (Hair, Celsi, et al., 2011). Zyphur and Pierides (2017) suggested that an approach to doing quantitative research ethically is to deploy probability sampling. The random sampling procedure gives an equal opportunity for each element in the population to be chosen.

Based on Hair, Celsi, et al. (2011)'s guideline in conducting random sampling, a random sample was retrieved from the sampling frames. The researcher then contacted the hospitals and the architectural design and construction organisations to obtain consent for data collection. Those organisations that gave participation consent assigned a contact person who randomly selected the participating teams, based on the inclusion criteria that the researcher provided, to complete questionnaires.

4.4.4. The Sample Size

The sample size is important to the sampling design as it can influence statistical power of the results. An appropriate sample size assists in reducing the Type I & II errors and enhancing the effect size (Cohen, 1992). Nevertheless, determination of the sample size involves not only consideration of statistical requirements (e.g. variability of the target population, estimation precision and degree of confidence) but also a realistic assessment of research resources such as budget and time availability (Hair, Celsi, et al., 2011). For pragmatic reasons, the sample size is determined based on the previous similar studies and rules of thumb (Sekaran & Bougie, 2013).

Since the study deployed PLS-SEM as an approach to data analysis, it used the rules of thumb of PLS-SEM to determine the sample size. According to Hair et al. (2017), the minimum number of the sample size should be ten times of structural paths leading to a particular construct in the model. This study, therefore, required 70 teams as the minimum sample size.

A random sample of 123 healthcare teams was obtained after the researcher received organisational consent. These teams provided healthcare services in 80 hospitals within 28 cities, dispersed in the 7 geographical regions in China. Responses were received from 91 teams, yielding an initial response rate of 73.98%.

Another random sample of 47 architectural design and construction teams was generated upon receipt of organisational consent. These work teams were operated in 27 organisations from 11 cities, located in 5 out of the 7 geographical regions in China. Responses were received from 36 teams, yielding an initial response rate of 76.6%.

However, in order to gain sufficient observations, the valid data for analysis had to meet three criteria. Firstly, a full team dataset should contain both leader and member responses. Secondly, a team dataset should have no less than 2 member responses. Thirdly, a response should not contain only one answer to all questions. After deleting the teams which did not meet the aforementioned criteria, a sample of 69 healthcare teams containing 446 individuals from 49 hospitals as well as 23 architectural design and construction teams including 137 individuals from 11 organisations was obtained. The final response rate, regarding the full dataset containing two subsamples, was therefore 54.12%. The final sample size shown in Table 4.4 exceeded the minimum sample size of the study.

Region	Healthcare Teams						Architectural Design and Construction Teams					
Region	City		Hospital		Team		City		Organization		Team	
	Ι	F	Ι	F	Ι	F	Ι	F	Ι	F	Ι	F
East	3	1	6	1	8	1	1	0	1	0	1	0
South	12	10	41	31	70	47	3	3	14	8	28	19
North	3	3	11	9	12	9	1	0	1	0	1	0
Central	5	4	6	4	12	8	2	2	2	2	4	3
Southwest	3	2	12	3	12	3	1	1	1	1	2	1
Northwest	1	1	3	1	6	1	0	0	0	0	0	0
Northeast	1	0	1	0	3	0	0	0	0	0	0	0
Total	28	21	80	49	123	69	8	6	19	11	36	23

Table 4.4 Summary of the initial and final Responses

Note: 'I' stands for initial responses while 'F' refers to final responses.

4.5.Analytical Approach

Taking into account the multiple hypothesised linear relationships, the number of latent variables as well as validation of measurement scales, this study deployed the techniques of SEM in data analysis (Schumacker & Lomax, 2004). SEM is the second generation of multivariate analytical methods overcoming limitations of the first generation techniques like multiple regression analysis and enabling the indirect measurement of latent variables by indicator variables (Hayes, Montoya, & Rockwood, 2017). As the research model sought to predict team effectiveness, PLS-SEM was likely to be a useful statistical technique to test the measurement model and structural paths (Hair, Ringle, et al., 2012). PLS-SEM has been increasingly used in leadership research in recent years (Mitchell et

al., 2015; Zyphur, Barsky, & Zhang, 2012), famed as 'a silver bullet' in SEM (Hair, Ringle, & Sarstedt, 2011).

There are two different but complementary types of statistical techniques in SEM: covariance-based SEM (CB-SEM) and variance-based SEM (PLS-SEM). CB-SEM is to test and confirm theoretical relationships established in the model by minimising the differences between the model implied covariance matrix and the sample covariance matrix whereas PLS-SEM is to predict and explain the endogenous target constructs by maximising the explained variance (Hair, Ringle, et al., 2012). CB-SEM assumes that the data are normally distributed, requires the minimum sample size ranging from 100 to 150 and employs only reflective measures. In contrast, PLS-SEM can handle non-normally distributed data, a small sized sample, and both reflective and formative measurements (Hair, Ringle, et al., 2012).

There are four common reasons for using PLS-SEM: non-normality data, the small sample size, formative measurements and prediction-based models (Hair, Sarstedt, et al., 2012). Given that the study had a small sample size of 92 teams and a research goal to predict team effectiveness, it chose PLS-SEM rather than CB-SEM as the statistical technique.

The rest of this section details and justifies the data analytical approaches. It presents what software was used in the study followed by the steps of how the data were processed and analysed.

4.5.1. Statistical Tools

This study utilised Microsoft Excel 2013, SPSS version 24, SmartPLS version 3 and PROCESS SPSS macro version 2 to perform data analysis. Excel spreadsheets were used

to record and manage data. SPSS was operated to obtain descriptive statistics of constructs and to perform hierarchical regression analysis. SmartPLS was used to evaluate the measurement model and full model by PLS-SEM. PROCESS SPSS macro was conducted to analyse the mediation and moderation relationships.

4.5.2. Preliminary Data Analysis

However, before using SPSS to retrieve descriptive statistics, data screening was conducted to explore missing data to ensure data analysis quality. Missing data would be deleted or replaced depending on whether the data were predictable from other variables in the dataset (Cooper & Schindler, 2011).

Descriptive statistics gave an overview of the sample characteristics. Demographic characteristics of the sample as well as responses to the measures were described in this study in terms of mean and standard deviation.

As the data were sourced from two industrial sectors, the independent samples t-test was performed to see whether two subsamples had significant variances and whether they could be combined into one dataset for calculation.

4.5.3. Data Aggregation

As the unit of analysis is on the team level, it is necessary to aggregate data collected at the individual level to the team level. Before data aggregation, it is essential to compute Rwg(j) and two intraclass correlation coefficients (ICCs) to justify the aggregation (Biemann, Cole, & Voelpel, 2012; Bliese, 2000). The examination of Rwg(j) and ICCs for data aggregation was part of preliminary data analysis, the preparations for PLS-SEM analyses.

Rwg is one of the indices to indicate the interrater agreement (IRA) (LeBreton & Senter, 2008). In other words, Rwg shows the degree to which a rater's response to a question is similar to other raters' responses to the same question. According to James (1993), Rwg is used for single item measures while Rwg (j) is for multi-items measures. As the measures in the study were all multi-itemed, Rwg(j) was used to observe interchangeability of member responses within a team. The common cut-off point of the Rwg index is 0.70. However, LeBreton and Senter (2008) argued that 0.70 is an arbitrary dichotomous threshold and it may be too high in some instances while too low in other instances within organisational research. Alternatively, they suggested a range rather than a cut-off point to evaluate high or low IRA as shown in Table 4.5. With regard to a sample of multiple teams containing high and low Rwg values, LeBreton and Senter (2008) suggested calculations of the percentage of the values exceeding 0.70. If there is a high percentage of teams with strong IRA values, researchers should include rather than exclude the teams with low Rwg values which may reflect unique characteristics. Furthermore, in organisational research, it is reasonable to have perceptual variances regarding organisational or team reality (Biemann, Cole, & Voelpel, 2012). Consequently, this study set the threshold for IRA interpretation to the moderate range and the cut-off point as 0.50.

Level of IRA	Interpretation
0.00-0.30	Lack of agreement
0.31-0.50	Weak agreement
0.51-0.70	Moderate agreement
0.71-0.90	Strong agreement
0.91-1.00	Very strong agreement

Table 4.5 Standards for IRA interpretation

As IRA only reveals interrater agreement and does not evaluate between-team variances which suggest unique team characteristics, the use of ICC(1) and ICC(2) along with IRA is recommended for justifying data aggregation (Biemann et al., 2012). ICCs refers to interrater reliability (IRR). ICC(1) indicates the amount of variances within teams that can be attributed to the team membership while ICC2 shows the reliability of team-level means demonstrating the amount of variances between teams to distinguish the team membership. ICCs are calculated with one-way random effect ANOVA where the construct is treated as the dependent variable whereas the team membership as the independent variable. Like IRA, there is no absolute standard value for ICCs. When ICC(1) is different from 0, it is evidenced to justify the use of teams as the focal unit of analysis (Chen, Mathieu, & Bliese, 2005). LeBreton and Senter (2008) suggested that the value of ICC(1) as 0.05 indicates small to medium effects. This study therefore chose 0.05 as the cut-off point to evaluate ICC(1). Regarding ICC(2), the sampling strategy may impact on its value. Biemann et al. (2012) found that the sample sourced from one organisation in a single industry has lower ICC(2) values than the one collected from twenty organisations in four industries in that the latter has a more heterogeneous population. The cut-off criterion of Cronbach's α is 0.70. But Lebreton, Burgess, Kaiser, Atchley, and James (2003) stated that values of ICC(2) in organisational research are reported to be lower and the low ICC (2) values may be attributed to the restricted variances of measures.

4.5.4. The Measurement Model

The measurement model, also known as the outer model, consists of correlations between each latent variable and its associated manifest variables (observed indicators). As exploratory factor analysis (EFA) is to search a model to fit the data and gain theoretical support while confirmatory factor analysis (CFA) is to statistically test the significance of the hypothesised factor model and to see whether the data fit the model (Schumacker & Lomax, 2004), CFA was conducted to determine whether a set of observed indicators could best describe their associated theoretical latent variables. In SEM, the CFA was completed in the measurement model analysis (Schreiber, Nora, Stage, Barlow, & King, 2006).

As the reflective measurement scale was adopted in the study, a latent variable and its observed indicators should covary and the indicators were expected to be interchangeable due to their homogeneity (Sekaran & Bougie, 2013). Examination of internal consistency and convergent validity became essential to the reflective outer model in the study (Hair et al., 2017). The criteria of each model parameter is illustrated in Appendix A.

Analyses of the measurement model involved assessments of reliability by standardised factor loading, Cronbach's α and CR, validity analysis by AVE, Fornell-Larcker criterion, cross loading and HTMT (Hair, Sarstedt, et al., 2012).

4.5.5. The Structural Model

When the measurement model was found to be satisfactory, the structural model, also knowns as the inner model, was appraised against parameter estimation. Evaluation of the structural model included the criteria like variance inflation factor (VIF), path coefficient estimates, R², predicative relevance, effect size and the standardised root mean residual (Hair et al., 2017). A summary of these parameters is presented in Appendix B.

Before path analysis, the values of VIF were calculated to examine whether the predictors in the model had collinearity. If collinearity values were larger than 5, the model would have collinearity issues which could make path coefficients unstable so that the predicative power of the model would be jeopardised.

Path coefficient estimates determine whether the hypothesised relationships are supported or not. Following prior research (Mitchell et al., 2015; Mitchell, Boyle, et al., 2014), hierarchical regression analysis was performed to generate standardised beta coefficients in the equation to evaluate hypothesised links between independent variables and dependent variables in the model. Model 4 and Model 7 in PROCESS SPSS macro were utilised to create statistics to examine the mediation as well as moderated mediation relationships respectively. To further understand the moderating effect, Johnson-Neyman technique was adopted to investigate the significant region of the conditional effect (Hayes, 2013).

To examine the statistical significance of hypothesised relationships, bootstrapping with 5,000 subsamples was conducted to yield confidence intervals. Bootstrapping involves repeated random sampling with replacements from the original sample to create subsamples which allow the estimated coefficients to be tested for their significance. The original samples and subsamples are compared to obtain standard errors for hypothesis analyses on the assumption that the sample distribution can reasonably represent the target population distribution (Hair, Babin, & Anderson, 2010; Hair, Ringle, et al., 2011; Henseler, Ringle, & Sinkovics, 2009). After the analysis of the inner model was completed, PLS-SEM statistics were performed to obtain other metrics to evaluate the full model.

 R^2 explains how much variance in Y is attributed to all the X variables so that it is an indicator of the overall quality of the model. The Goodness of Fit (GoF) index has been used to explain the fit of the model quality (Wetzels, Odekerken-Schröder, & van Oppen,

2009) but Hair, Sarstedt, et al. (2012) argued that GoF is not an appropriate criterion in PLS-SEM because PLS-SEM is aimed to maximise the explained variance of endogenous variables but GoF is more appropriate to describe CB-SEM models. Given that the study was aimed to predict the dependent variable, it followed Hair, Sarstedt, et al. (2012)'s advice and reported the value of R^2 rather than GoF.

Predicative relevance demonstrates how much the model can predict endogenous constructs. The prevailing indicator of predicative relevance is the Stone–Geisser's Q^2 obtained by the blindfolding procedure which is only applied to the endogenous constructs in the reflective measurement model. In the blindfolding procedure, every *d* th data point is omitted and the resulting estimates are used to predict the omitted part (Hair, Ringle, et al., 2011). Q^2 comes in two forms—the cross-validated redundancy and communality. The redundancy and communality indices indicate the overall quality of the model (Esposito Vinzi, Chin, Henseler, & Wang, 2010). However, Hair, Ringle, et al. (2011) argued that the cross-validated redundancy is better fit to the PLS-SEM approach in that it uses the estimates of both the measurement and structural models for data prediction. Consequently, Q^2 in the form of redundancy was chosen in the study.

Effect size explains the degree to which a particular independent construct can impact on a dependent construct, indicated by the value of f^2 (Cohen, 1988). f^2 is calculated to reflect the changes of \mathbb{R}^2 (Hair, Sarstedt, et al., 2012).

The standardised root mean square residual (SRMR) is a model fit measure to detect a range of model misspecifications. SRMR identifies discrepancy between observed and predicted correlations to evaluate the model fit (Hair et al., 2017). The study followed Henseler et al. (2016)'s threshold value of 0.08 to decide the model fit.

To odd out effects of extraneous variables on the model, the impact of the control variables were examined.

4.6.Ethical Considerations

Research ethics are codes and standards that direct behaviour and relationships during the research process in an ethical manner. The goal of ethics is to ensure anyone involved in the studies not to get harm or suffer from consequences of research activities (Cooper & Schindler, 2011). When the research involves human participants, it is essential for researchers to respect research participants and protect them from suffering negative consequences in the research process (Hair, Celsi, et al., 2011). To fulfil these obligations and conduct research responsibly, the researcher followed the policy and guideline of Human Research Ethics and obtained ethics approval from Human Research Ethics Committee of University of Newcastle (Approval No. H-2015-0341).

To ensure voluntary participation, the study didn't provide financial incentive or other material rewards to participants but gave them sufficient information about the research to decide whether to participate in the research or not. In the recruitment phase, the organisation information statement along with the organisation consent form were sent to potential participating organisations. The participant information statement was subsequently delivered to the contact persons of those organisations which agreed to participate in the research and returned the organisation consent form. The contact persons assisted in the participant recruitment by disseminating the participant information statement to potential participants. Participant implied consent was employed in the study so that participants showed their agreement about voluntary participation when they submitted their completed questionnaires. However, freedom of withdrawal at

any time before the questionnaire submission was explicitly stated in the participant information statement and the questionnaire. Both organisation and participant information statements listed information about the purpose of the research, participation requirements, participant rights and protections.

To safeguard participants against potential harm, the study conducted risk assessments. Even though participants were not exposed to physical risks, there might be a risk of causing potential psychological harm when participants negatively responded to the questionnaire. To address such a risk, the participant information statement pointed out this potential risk and advised participants to stop at any time when they felt distressed. The contact information of the support service was provided to participants if they needed advice.

To protect interests of participating organisations and individuals, the study adhered to anonymity and confidentiality to avoid making anyone at disadvantaged positions. The questionnaire survey did not collect any information that could identify the organisations or individuals. The responses participants provided therefore would not become traceable in any research outcomes. To communicate the anonymous design of the questionnaires, a statement concerning anonymity was made both in the participant information statement and the questionnaire to encourage honest responses and facilitate ethical conduct of participants. After data were collected, the data set was stored securely on a password protected computer in the chief investigator's office. The web-based questionnaires were removed from the survey account. Only the research team members had access to the data that would be retained for a minimum of 5 years as per University of Newcastle requirements.

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To respect participants' right to know or to make complaints, the study offered accesses to relevant contacts in the information statement. Contact information of the research team was provided for participants to gain further ideas about the research project or address their concerns before their participation in the survey. An available date and the contact details were listed for them to request a summary of the research results in the near future. A section related to how to make complaints about the manner in which the research was conducted was included in the information statement.

4.7. Limitations

As the study intended to explore prediction of team effectiveness through independent constructs, the cross-sectional research design confined the data capacity to reveal the change effects on dependent constructs. The temporal factor has attracted greater scholar attention in the teamwork literature (Mathieu et al., 2008). To demonstrate team effectiveness along the timeline, the longitudinal design should be opted for the future research design on this topic.

Regarding the sample size, although the data set contained 92 teams meeting the minimum sample size for PLS-SEM, the small size could also pose a challenge to the statistical power of the model. A larger sample size should therefore be obtained when the time and resources were available. Furthermore, data were sourced from two industrial sectors in the study. Although generalisation of research findings could be, at least, specifically referred to managing team processes in these two industries, data from other industries are also desirable to discern whether the research outcomes would still be valid in other industrial and organisational contexts.

4.8. Summary and Conclusion

This chapter has detailed and justified the cross-sectional survey as the methodological choice. Built upon realist ontology and positivist epistemology, this quantitative study chose the survey as its methodology and questionnaires as the data collection method.

To avoid the common method bias, the study designed a leader questionnaire and a member questionnaire and administered these two online questionnaires to team leaders and members respectively. The leader questionnaire sourced responses to dependent variables and the member questionnaire collected responses to independent variables. The instruments were adopted and adapted from previously validated scales published in peer-reviewed journals and measured on the Likert 7-point scale. The measurement model was measured on the reflective scale.

The population of interest were the work teams in Chinese hospitals as well as architectural design and construction organisations. A random sample was generated from the sample frames but the questionnaires were only distributed to those teams which gave participation consent. After deleting the teams that did not meet the inclusion criteria, the final sample contained 92 teams meeting the minimum sample size of 70 for PLS-SEM analyses.

The study used Excel, SPSS, SmartPLS and PROCESS SPSS macro for data analysis. The data analysis process involved preliminary data analysis and the SEM analysis. The preliminary analysis included missing values scanning, descriptive statistics, data aggregation and independent samples t-test. In the SEM analysis, PLS-SEM techniques were used to evaluate the measurement model. Hierarchical regression analysis was conducted to generate standardised path coefficients. The PROCESS SPSS macro was run to generate statistics to assess the mediation and moderation relationships in the model. The power of the full model was examined by PLS-SEM statistics.

As the study involved human participants, the study obtained ethics approval from the human research ethics committee of University of Newcastle with the approval number H-2015-0341. Following the university guideline, the study considered the ethical concerns and designed a study which respected participants, protected their privacy and kept the data confidential.

Finally, the study acknowledged the limitations in the methodological design and suggested what could be done for the future research. On the one hand, the inherent limitation of the cross-sectional design hindered the dataset from revealing change effects of dependent variables. On the other hand, the small sample size might influence the statistical power and precision of PLS-SEM estimates even though it met the sample requirement of PLS-SEM. The longitudinal design and a larger sample size were thus expected to enhance the quality of future research.

Chapter 5 Results

5.1. Introduction

This chapter reports results of data analysis and evaluates model estimations so as to justify the hypothesised relationships in the research model. The data analysis procedure had two phases. The first phase involved preliminary data analysis which was conducted to gain an overview of the dataset and prepare for the SEM analysis. The second phase included evaluations of the measurement model and the structural model. The chapter is structured based on the data analysis procedure and ends with a summary and conclusion.

5.2. Preliminary Data Analysis

This section reports the results of missing values scanning, demographic profiles of research participants, data aggregation, descriptive statistics of constructs and the independent samples t-test.

5.2.1. Missing Values Scanning

SPSS was operated to check both the leader and member datasets to see whether there were missing values. If there were missing data, replacement or deletion of the missing values would be performed in accordance with Cooper and Schindler (2011). No missing values were found in the checks.

5.2.2. A Demographic Profile

The dataset contained 92 teams, 69 of which were healthcare teams involving 446 healthcare professionals from 49 Chinese hospitals in 21 cities and 23 of which were architectural design and construction teams involving 137 professionals from 11 organisations in 6 cities. The demographic profiles describing team composition included information in terms of gender, age, professions, team tenure and team size. As shown in Table 5.1, there were 253 male respondents and 330 female respondents respectively accounting for 43.4% and 56.6% of the total sample size.

Table 5.1 Statistics of respondents' gender

Industry	Male	Female		
Healthcare	152	294		
Architectural Design and Construction	101	36		
Total	253	330		

As illustrated in Table 5.2, the percentage of respondents aged in their 20s, 30s, 40s and 50s reached 46.5%, 37.6%, 13.4% and 2.6% of the sample size respectively. According to the career stages theory (Cohen, 1991; Kram & Isabella, 1985), the professionals at their early career stage constituted 84% of the total respondents, equivalent to 490 individuals indicating that the information from the dataset mainly reflected the views of those who were establishing in career or advancing themselves into organisations or professions.

The dataset included 7 professions representing the common professions in architectural design and construction teams (Kog & Loh, 2012). As depicted in Figure 5.1, these participants were architects, interior designers, civil and structural engineers, electrical engineers, mechanical engineers, quantity surveyors and project managers.
Age Range	Frequency	Percentage	Cumulative Percentage
20-30	271	46.5	46.5
31-40	219	37.6	84
41-50	78	13.4	97.4
51-60	15	2.6	100
Total	583	100	

Table 5.2 Statistics of the respondent age range

As shown in Figure 5.1, 93% of the 446 healthcare professionals provided direct healthcare services to patients while healthcare administrators and medical researchers made up 7% of the respondents. The sample had at least 30 healthcare professions directly or indirectly performing disease treatments and patient care. However, 32 respondents, accounting for 7% of 414 healthcare practitioners, did not specifically report their specialties but generally stated 'doctor', 'surgeon' and the like. As such, apart from medical research and healthcare administration, only 28 professions were known to directly deliver healthcare services, ranging from nurses, medical specialists, medical technologists and healthcare counsellors. The 28 professions represented by 382 professionals were distributed to the following specialties in Table 5.3.



Figure 5.1 Statistics of respondent professions

Professions	N	Professions	N	Professions	N	Professions	N	Sub- total
Anaesthetists	4	Dermatologists	10	Urologists	8	Paediatric Surgeons	6	28
Emergency Physician	1	Dentists	5	Clinical Dieticians	2	Orthopaedic Surgeons	14	22
Ophthalmologists	10	Paediatricians	22	Pharmacists	3	ENT Surgeons	5	40
General Pathologist	1	Haematologists	12	Intensive Care Physicians	2	Plastic Surgeons	4	19
Radiologists	8	Cardiologists	12	Renal Physicians	8	Medical Laboratory Technologists	4	32
Endocrinologists	2	Neurologists	9	Physical Therapists	7	TCM Practitioners	17	35
Obstetricians &Gynaecologists	45	Respiratory Physicians	12	Medical Oncologists	5	Nurses	144	206
]	Fotal	382

Table 5.3 The reported healthcare specialties

Note: The abbreviation of 'N' stands for the number of professionals engaged in the specialties. TCM refers to Traditional Chinese Medicine

A modern hospital has administration departments (e.g. operation and marketing), medical departments (e.g. cardiology, neurology and paediatrics), surgical departments (e.g. urology, ENT and orthopaedic surgery), specialist units (e.g. dermatology, ophthalmology and dentistry), para-medical services (e.g. radiology, medical lab technology, pathology and pharmacy), medical support services (e.g. clinical dietetics and physical therapy) and research centres (Garala, 2012). Professions in the sample could therefore represent the major functions of a modern hospital. Furthermore, although TCM is globally known as an alternative medicine (Kronenberg & Fugh-Berman, 2002), it is an inseparable part of the Chinese medical system, widely practised in most Chinese hospitals and health centres (Zhang, Zhu, & Van Lerberghe, 2011). Consequently, the sample including professionals practising TCM made itself more representative of medical services provided in China.

Team tenure refers to how long leaders and members have been working together as an intact team (Bell, 2007). This information was retrieved from the team leader who indicated the length of team tenure in the leader questionnaire. The averaged team tenure was 41.12 months ranging from 2 months to 126 months with a median value of 30.5 months and the standard deviation value (SD) of 32.25. Table 5.4 shows that 90.2% of the participating teams have worked as a team for more than a year. This suggests that team members had sufficient interactions and gained adequate team knowledge (Finkelstein & Hambrick, 1990) to provide genuine team information.

Team Tenure	Frequency	Percentage	Cumulative Percentage
Less than 1 year	9	9.8	9.8
1-2 years	26	28.3	38
2-5 years	38	41.3	79.3
5-10 years	16	17.4	96.7
More than 10 years	3	3.3	100
Total	92	100	

	Table :	5.4	Statistics	of team	tenure	range
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Team size was also sourced from the team leader who reported the number of team members. The team size ranged from 2 to 30 with an average of approximately 7 individuals per team (N=92, SD=5.828). Compared to the team size, the total number of responses equates to 67.26% on average per team, equivalent to 5.34 responses a team. The high response rate suggests that the data are very likely to represent each team.

5.2.3. Data Aggregation

As mentioned in Chapter 4, IRA and IRR were examined before data aggregation so as to ensure that the data sourced at the individual level were appropriately aggregated for the team level of analysis. Following James, Demaree, and Wolf (1984), the study chose Rwg (j) as an index of IRA. When calculating Rwg(j), it is important to choose an appropriate shape of the alternative null distribution, such as uniform (rectangular), triangular, slightly, moderately and heavily skewed null distribution because each form yields different results. Among these distribution forms, the uniform null distribution leads to a highest value. Nevertheless, it has been advised not to choose uniform null distribution light-heartedly for it assumes no response bias in ratings (James et al., 1984; Meyer, Mumford, Burrus, Campion, & James, 2014). In leadership research, leniency errors are likely to exist as leaders or members could possibly rate for social desirability so that moderate or slightly skewed distribution is recommended (Biemann et al., 2012; James et al., 1984).

Based on the averaged team tenure and the high response rate received per team, the study chose slightly skewed shape of null distribution on the assumption that the team members were likely to give a rating with minimum bias as they had sufficient knowledge about the team. Following the computation guideline of Biemann et al. (2012), the values of Rwg(j), ICC(1) and ICC(2) pertaining to independent constructs were calculated and listed in Table 5.5.

Following previous research in organisation studies (Srivastava, Bartol, & Locke, 2006; Zhang, Hempel, Han, & Tjosvold, 2007), the median values of Rwg(j) were used to evaluate the interchangeability of within-team ratings in this study. As aforementioned in Chapter 4, this study used the IRA range to evaluate the results. The results of three constructs, Authentic Leadership, Team Potency and Team Proactivity, ranged between 0.71 and 0.90, indicating strong agreement among respondents. The Rwg(j) value of perceived team politics implied lack of agreement among team members. However, this low value could not evidence no existence of team membership. According to Chen, Mathieu, et al. (2005), a value of ICC(1) as small as 0.01 could provide prima facie evidence for the use of teams as the focal unit of analysis. Based on the ICC(1) value of perceived team politics, it should not be excluded from data aggregation.

	Rwg(j) S	lightly Sk	ewed Dis	tribution	In	traclass C	Correlatio	ns
			Cumu Percen	llative				
			Rwg	$Rwg(i) \ge$				
	Median	Range	0.7	0.5	ICC(1)	ICC(2)	F	р
Authentic Leadership (AL)	0.95	0.00 - 1.00	85.90%	88%	0.11	0.39	1.63	0.001
Team Potency	0.79	0.00 - 0.99	65.20%	75%	0.12	0.43	1.75	0
Team Proactivity	0.84	0.00 - 1.00	72.80%	83.70%	0.05	0.21	1.26	0.069
Perceived Team Politics	0.23	0.00 - 1.00	34.80%	41.30%	0.08	0.33	1.48	0.006

Table 5.5 Indices of IRA and IRR of independent constructs

The values of ICC(1) of the four constructs under examination exceeded 0.05, suggesting that the team effect could be detected (LeBreton & Senter, 2008). Three constructs, Authentic Leadership, Team Potency and Perceived Team Politics, were statistically significant at the 0.05 level whereas Team Proactivity was significant at the 0.10 level. While ICC(1) was examined to determine within-team variances that could be attributed to team membership, ICC(2) was used to see whether the amount of between-team variances could distinguish team membership.

The ICC(2) values ranged between 0.21 and 0.43, relatively low values that might limit the statistical power to identify significant team membership (Bliese, 2000). Nevertheless, it has been argued that large differences between teams are less likely when teams belong to the same organisation (George, 1990) or a single industry (Biemann et al., 2012) due to the lack of heterogeneous population. Moreover, if the F ratios from one-way ANOVA are greater than 1.00, it is reasonably evidenced that between-team differences exist (George, 1990). In addition, Chen and Bliese (2002) argued that low ICC(2) values should not preclude aggregation if the group-level measurement is justified by theory or support with other metrics such as significant within-group variance (median Rwg), significant ICC(1) and significant F ratios from ANOVA, as was the case in the current study.

5.2.4. Descriptive Statistics of Constructs

After data aggregation was justified, SPSS was performed to evaluate descriptive statistics of all the constructs in the model. The constructs were measured against the Likert 7- point scale with the highest number 7 indicating 'a great deal' and the lowest number indicating 'not at all'. Besides, SmartPLS was run to obtain the values of composite reliability to examine the reliability of the instruments. The descriptive statistics, such as mean and standard deviation, together with composite reliability and correlation coefficients are presented in Table 5.6.

The results show that the respondents gave positive ratings to the constructs of authentic leadership, team potency, team proactivity and team effectiveness but negative responses to perceived team politics. Composite reliability is a commonly used reliability criterion in PLS-SEM (Hair et al., 2017). The results demonstrate that all the values of composite reliability have exceeded the threshold of 0.70. However, in the SEM analysis, only the indicator of composite reliability alone is not sufficient to judge the quality of the measurement model. There will be more testing regarding the validity of the measurement model in the following Section 5.3.1.

Table 5.6 Descriptive statistics, composite reliability and correlation coefficients

N=92; *p<0.05, **p<0.01; Boldface diagonal numerals represent the square root of the average variance extracted.

5.2.5. Independent Samples T-Test

An independent samples t-test was conducted to compare mean differences of the two samples sourced from the healthcare industry and from the architectural design and construction industry. As shown in table 5.7, there was no significant difference between the means of the two industrial samples. This suggests that it was appropriate to combine the two subsamples to form one sample for data analysis.

					t-test for	Equality	of Mean	IS	
Construct	Leven's Test for Equality of Variance				Sig. (2- tailed)	MD	SED	95% Confidence Interval of the Difference	
	F	Sig.	t	df				Lower	Upper
Authentic	5.46	0.02	-0.3	90	0.78	-0.04	0.14	-0.33	0.24
Leadership			-0.4	56.6	0.73	-0.04	0.12	-0.28	0.2
Team	1.91	0.17	1.01	90	0.32	0.16	0.16	-0.16	0.49
Potency			1.15	49.1	0.26	0.16	0.14	-0.12	0.45
Team	1.44	0.23	0.04	90	0.97	0.01	0.13	-0.25	0.26
Proactivity			0.05	48.6	0.96	0.01	0.11	-0.23	0.24
Perceived	1.49	0.23	-1.2	90	0.24	-0.28	0.23	-0.74	0.19
Team Politics			-1.3	48.1	0.19	-0.28	0.21	-0.69	0.14
Team	0.76	0.38	-0.3	90	0.77	-0.05	0.19	-0.42	0.32
Effectiveness			-0.3	43.8	0.75	-0.05	0.17	-0.4	0.29
Taom Tamuma	3.51	0.06	0.94	90	0.35	7.32	7.77	-8.12	22.76
Team Tenure			1.12	53.9	0.27	7.32	6.53	-5.78	20.42
Taom Size	2.15	0.15	0.37	90	0.71	0.52	1.41	-2.28	3.32
ream Size			0.47	64.7	0.64	0.52	1.1	-1.68	2.72

Table 5.7 Comparison of the samples from two industries by the independent sample t-test

Note: MD refers to 'Mean Difference'; SED means 'standard error difference'.

5.3. The SEM Analysis

The PLS-SEM analysis involves evaluation of the measurement model and the structural model. The measurement model assessment precedes the structural model evaluation in

that if the construct measures are not reliable or valid, the assessment of the structural model will be inaccurate (Hair et al., 2017).

5.3.1. The Measurement Model

The most important metrics to assess the reflective measurement model in PLS-SEM are reliability, convergent validity and discriminant validity (Hair et al., 2017). SmartPLS was run to obtain these metrics.

5.3.1.1 Indicator Reliability, Internal Consistency Reliability and Convergent Validity

Estimations of the measurement model in terms of outer loading, internal consistency reliability and convergent validity, are presented in Table 5.8. For the reflective measurement model, it is essential to assess internal consistency reliability as indicators are correlated to represent construct measures.

Although Cronbach's α is not a vital criterion in PLS-SEM as it underestimates the internal consistency reliability of latent variables, it is still included in this report to show the lower bound values of reliability. Composite reliability (CR) is, however, commonly used to evaluate internal consistency reliability in PLS-SEM and regarded as an upper bound measure. As the values of both indices exceeded 0.70 among all the constructs under examination, this suggests that the measurement model had high internal consistency reliability (Hair et al., 2017; Henseler et al., 2009).

Individual indicator reliability was assessed by the common criterion that outer loading estimates are above 0.70 (Hair, Ringle, et al., 2011). However, this 0.70 cut-off point does not imply that all the indicators with lower values than 0.70 should be deleted from the measure or that the measure is not reliable. Hair et al. (2017) stated that the cut-off point

Construct	Indicator	Outer Loading	Cronbach's	CR	AVE	
	AL1	0.74				
	AL2	0.89				
	AL3	0.55	-			
	AL4	0.79				
	AL5	0.74				
Authentic Leadership	AL6	0.84		0.964		
	AL7	0.86	0.06		0.66	
(AL)	AL8	0.85	0.90		0.00	
(AL)	AL9	0.68				
	AL10	0.92				
	AL11	0.83				
	AL12	0.87				
	AL13	0.87				
	AL14	0.85				
	TPO1	0.68				
Team Potency	TPO2	0.94	0.87	0.011	0.72	
Team Potency (TPO)	TPO3	0.88	0.07	0.911	0.72	
	TPO4	0.87				
	TPR1	0.91			0.70	
Proactivity	TPR2	0.92	0.85	0 902		
(TPR)	TPR3	0.59	0.05	0.702	0.70	
	TPR4	0.89				
D . 1	PTP1	0.97				
Perceived Team Politics	PTP2	0.98	0.97	0.976	0.91	
(PTP)	PTP3	0.91	0.97	0.970	0.71	
	PTP4	0.96				
Term	TE1	0.91			0.67	
Fffectiveness	TE2	0.92	0.83	0.89		
(TE)	TE3	0.77	0.05	0.07		
	TE4	0.66				

Table 5.8 Outer loading, internal consistency reliability and convergent validity

Note: The SmartPLS output of the table is presented in Appendix C.

value should be at least higher than 0.50. Moreover, Henseler et al. (2009) argued that only indicators smaller than 0.40 are recommended for deletion. Given that the internal consistency reliability was high across all the constructs and all the outer loading values were above 0.50, the five boldface numerals that are lower than 0.70 but above 0.50 in Table 5.8 were not removed from the measurement model. In addition, the bootstrapping with 5,000 examples generated *t* values of all the outer loadings in the model exceeding 2.58 (p<0.01) and further validated the no removal decision. The bootstrapping result was listed in Appendix C.

A criterion of convergent validity, AVE explains how much amount of variances that indicators of reflective constructs converge with each other. The threshold value of AVE is 0.50 or higher (Hair, Ringle, et al., 2011). The high AVE values of the five constructs in the study indicate that those constructs had high levels of convergent validity.

5.3.1.2. Discriminant Validity

Discriminant validity was estimated by the results of Fornell–Larcker criterion, cross loading and HTMT. Regarding Fornell-Larcker criterion, as it assumes that a construct shares more variances with its associated manifest variables than any other constructs, the square root of each construct's AVE should be greater than its highest correlation with any other construct (Hair et al., 2017). The results of Fornell-Larcker criterion estimation in Table 5.9., indicates that all the constructs under examination had good discriminant validity.

With regard to cross loading, when an indicator's outer loading onto its associated construct greater than any of its cross loading onto other constructs, the discriminant validity is established. Table 5.10 shows well-established discriminant validity of all the construct measures in the study. No factor was wrongly loaded onto other constructs rather than its own associated construct.

Table 5.9 Fornell-Larcker criterion estimation

		1	2	3	4	5	6	7
1	Authentic Leadership	0.81						
2	Team Potency	0.67	0.85					
3	Perceived Team Politics	-0.56	-0.40	0.95				
4	Team Proactivity	0.76	0.82	-0.52	0.84			
5	Team Effectiveness	-0.05	0.08	-0.21	0.12	0.82		
6	Team Tenure	-0.14	-0.08	0.19	-0.09	0.12	1.00	
7	Team Size	-0.07	0.04	0.09	-0.03	0.00	0.26	1.00

Fornell-Larcker criterion and cross loading are two traditional approaches to evaluate discriminant validity. However, both Fornell-Larcker criterion and cross loading are limited in detecting discriminant validity between two strongly correlated constructs, HTMT was thus introduced to remedy this limitation (Henseler et al., 2015). HTMT is a ratio of the averaged pairwise indicator correlations between different constructs to the averaged pairwise indicator correlations within a given construct, the value of which suggests a lack of discriminant validity when the ratio value equals 1. Compared with Fornell-Larcker criterion, HTMT is an upper bound value (Henseler et al., 2016).

The threshold value of HTMT was suggested to be less than 0.90 for establishment of discriminant validity (Henseler et al., 2015). However, the exact cut-off point value of HTMT is still debatable in terms of "when is a correlation close to 1 ?" (Hair et al., 2017, p. 118). Henseler et al. (2016) suggested that when the HTMT value is significantly smaller than 1, the discriminant validity could be sufficiently established. The results of HTMT estimation are shown in Table 5.11.

Table 5.10 Cross loading estimation

	AL	TPO	AL×TPO	TPR	PTP	TE	TT	TS
AL1	0.74	0.46	0.00	0.57	-0.53	-0.05	-0.03	-0.07
AL2	0.89	0.58	-0.23	0.73	-0.52	0.02	-0.08	-0.12
AL3	0.55	0.23	-0.16	0.29	-0.21	-0.07	-0.19	0.02
AL4	0.79	0.51	-0.01	0.59	-0.28	-0.14	-0.21	-0.20
AL5	0.74	0.50	0.07	0.62	-0.43	-0.08	-0.11	-0.12
AL6	0.84	0.55	-0.30	0.62	-0.45	0.05	-0.07	-0.01
AL7	0.86	0.55	-0.27	0.61	-0.43	-0.03	-0.18	-0.01
AL8	0.85	0.48	-0.15	0.62	-0.43	-0.07	-0.15	-0.02
AL9	0.68	0.33	0.02	0.43	0.32	0.20	0.01	0.01
AL10	0.92	0.68	-0.37	0.70	-0.58	-0.01	-0.16	-0.06
AL11	0.83	0.59	-0.04	0.68	-0.44	-0.06	-0.08	-0.11
AL12	0.87	0.63	-0.30	0.66	-0.58	0.03	-0.14	-0.08
AL13	0.87	0.67	-0.34	0.73	-0.52	0.00	-0.10	-0.02
AL14	0.85	0.61	-0.18	0.66	-0.43	-0.06	-0.12	0.01
TPO1	0.33	0.68	-0.09	0.49	-0.04	-0.03	0.01	0.11
TPO2	0.68	0.94	-0.20	0.81	-0.41	0.11	-0.11	0.00
TPO3	0.60	0.88	-0.02	0.76	-0.39	0.06	-0.04	-0.01
TPO4	0.59	0.87	-0.27	0.69	-0.43	0.10	-0.10	0.06
AL×TPO	-0.21	-0.17	1.00	-0.08	0.32	-0.19	0.09	-0.12
TPR1	0.71	0.74	-0.15	0.91	-0.54	0.12	-0.05	-0.09
TPR2	0.75	0.75	-0.14	0.92	-0.60	0.08	-0.08	-0.06
TPR3	0.33	0.43	0.08	0.59	-0.07	0.18	0.01	0.11
TPR4	0.68	0.78	-0.01	0.89	-0.41	0.06	-0.14	-0.02
PTP1	-0.51	-0.36	0.32	-0.48	0.97	-0.26	0.19	0.10
PTP2	-0.59	-0.44	0.32	-0.56	0.98	-0.19	0.20	0.11
PTP3	-0.49	-0.35	0.22	-0.48	0.91	-0.15	0.14	0.09
PTP4	-0.54	-0.38	0.34	-0.48	0.96	-0.18	0.18	0.06
TE1	-0.02	0.04	-0.22	0.12	-0.21	0.90	0.05	0.03
TE2	-0.04	0.00	-0.16	0.07	-0.24	0.91	0.10	-0.01
TE3	0.03	0.07	-0.27	0.12	-0.14	0.78	0.12	0.17
TE4	-0.11	0.16	0.00	0.10	-0.07	0.67	0.12	-0.12
TT	-0.14	-0.08	0.09	-0.09	0.19	0.12	1.00	0.26
TS	-0.07	0.04	-0.12	-0.03	0.09	0.00	0.26	1.00

Note: AL-Authentic Leadership; TPO-Team Potency; TPR-Team Proactivity; PTP-Perceived Team Politics; TE-Team Effectiveness; TT-Team Tenure; TS-Team Size

Table 5.11 HTMT estimation

		1	2	3	4	5	6	7
1	Authentic Leadership							
2	Team Potency	0.70						
3	Team Proactivity	0.81	0.93					
4	Perceived Team Politics	0.57	0.41	0.54				
5	Team Effectiveness	0.12	0.14	0.16	0.22			
6	Team Tenure	0.15	0.08	0.09	0.19	0.13		
7	Team Size	0.08	0.06	0.09	0.09	0.11	0.26	

As it is seen from the above table, only HTMT (Team Proactivity, Team Potency) =0.93 was greater than 0.90 and the rest values were less than 0.90. To examine whether this 0.93 was significantly smaller than 1, bootstrapping with 5,000 samples was operated to see if the bias corrected 95% confidence intervals included 1. The result showed that the confidence interval was ranged between 0.839 and 0.999 without 1. Consequently, the HTMT assessment added support to the measurement model's discriminant validity established by Fornell-Larcker criterion and cross loading.

To conclude, the reflective measurement model in the study was justifiably sound in terms of individual indicator reliability, internal consistency reliability, convergent validity and discriminant validity. The well-established measurement model provided confidence in proceeding to evaluate the structural model (Hair et al., 2017).

5.3.2. The Structure Model

The analyses of the structural model included collinearity assessment, path analysis and model evaluation. Collinearity assessment was conducted before path analyses to ensure each set of predictors in the structural model free from the collinearity matter in that high collinearity leads to incorrect estimations of predictors.

Three statistical analysis techniques were employed in path analyses. First, hierarchical regression analyses were carried out to generate standardised path coefficient (β). Meanwhile, bootstrapped confidence intervals were generated by SPSS to examine whether the direct paths could be established to support hypotheses. Next, PROCESS SPSS macro was run to examine the indirect relationships among the constructs in the model.

PLS-SEM was used to evaluate the power of the model in predicting the dependent variable. The important metrics to assess the inner model such as R^2 , f^2 , Q^2 and SRMR were generated by SmartPLS.

5.3.2.1. Collinearity Assessment

A measure of collinearity is VIF which should be lower than 5 to pass the critical level (Hair et al., 2017). If the collinearity was an issue in the model, the path coefficients would become unstable and thus the predicative power of the model would be weakened (Wold, Ruhe, Wold, & Dunn, 1984)

Three sets of predicting constructs were identified from the model as follows: (1) authentic leadership, perceived team politics, team proactivity, team size and team tenure as predictors of team effectiveness (2) authentic leadership as a predictor of team effectiveness (3) authentic leadership, team potency and the interactive term MES as

predictors of team proactivity. As shown in Table 5.12, the VIF values are all smaller than 5 indicating that there was no collinearity issue in the dataset.

		1	2	3	4	5	6	7	8
1	Authentic Leadership				1.00	1.83	2.64		
2	Team Potency					1.80			
3	MES					1.05			
4	Perceived Team Politics						1.53		
5	Team Proactivity						2.49		
6	Team Effectiveness								
7	Team Size						1.08		
8	Team Tenure						1.11		

Table 5.12 Collinearity statistics (VIF)
Image: Collinearity statistics (VIF

5.3.2.2. Path Analyses

Before analysis, all those that might be used as control variables were transformed to mean-centred variables. The use of mean-centred data in a multilevel model is to construct a meaningful zero point on the scale, to investigate level 2 predictors while controlling for level 1 covariates and to create interaction terms (Enders & Tofighi, 2007). In addition, a mean-centred interaction variable was created to test the moderating effect (Frazier, Tix, & Barron, 2004).

The statistical significance of path coefficients determines whether the hypothesised relationships among all the constructs are supported or not (Mitchell et al., 2015).

Standardised path coefficients (β) of hierarchical regression were generated by SPSS. To test whether the path coefficients were significant, the bootstrapped confidence interval (CI) with 5,000 samples was created to see if the interval excluded zero. If zero fell into the range, it would imply that the hypothesised relationship was not supported and the null hypothesis should be accepted (Hair et al., 2017). Following previous similar research (Liu et al., 2015; Wu & Wang, 2015), the study performed hierarchical regression analysis and established eleven models listed in Table 5.13. The significant tests of standardised path coefficients are reported in Table 5.14 and graphed in Figure 5.2.

First, the researcher predicted perceived team politics by including all control variables, team proactivity and team potency (Model 1) and then additionally including authentic leadership (Model 2). The first hypothesis was supported by a significant path coefficient ($\beta = -0.39$, t = -2.98, 95% CI -1.069 to -0.213) indicating that authentic leadership is negatively associated with perceived team politics. Second, the researcher predicted team effectiveness by including all control variables, authentic leadership, team proactivity, team potency (Model 8) and additionally including perceived team politics (Model 9). The second hypothesis was also supported by a significant path coefficient ($\beta = -0.31$, t = -2.519, 95% CI -0.54 to -0.06) suggesting that perceived team politics is negatively related to team effectiveness. Third, the prediction of team proactivity was made by including all control variables, perceived team politics and team potency (Model 3) and

Table 5.13 Hierarchica	l Regression	Results (N=92)									
	Perceive Polii	d Team tics		Tea	am Proactiv	ity			Team Effo	ectiveness	
Model	1	2	\mathfrak{S}	4	5	9	٢	8	6	10	11
Team Size	0.05	0.04	-0.03	-0.02	0.03	-0.02	00.00	-0.04	-0.03	-0.06	-0.06
Team Tenure	0.14	0.11	0.02	0.03	0.00	0.03	0.02	0.11	0.15	0.17	0.16
Authentic Leadership		-0.39**		0.32^{**}		0.32**	0.33**	-0.32*	-0.44**	-0.34*	-0.48**
Perceived Team Politics			-0.23**	-0.12	-0.48**	-1.72	-0.16*		-0.31*	-0.30*	-0.23
Team Proactivity	-0.52**	-0.28						0.41^{*}	0.33		0.43^{*}
Team Potency	0.06	0.12	0.71^{**}	0.55**		0.55**	0.55**	-0.05	-0.01	0.16	-0.07
$AL \times TPO$							0.14*			-0.16	-0.22*
Н	7.53**	8.35**	43.95**	44.18^{**}	8.90**	44.18^{**}	39.68**	1.64	2.51^{*}	2.38*	2.84^{*}
\mathbb{R}^2		0.33	0.67	0.72	0.23	0.72	0.74	0.09	0.15	0.14	0.19
R ² Change		0.07**		0.05^{**}		0.49^{**}	0.02^{*}		0.06^{*}		0.05*

Note: This table presents standardised β coefficients. AL: Authentic leadership; TPO: Team Potency; $p^{*<0.05}$; $P^{**<0.01}$

additionally including authentic leadership (Model 4). A significant path coefficient ($\beta = 0.32$, t = 3.95, 95% CI 0.15 to 0.44) between authentic leadership and team proactivity revealed that authentic leaders positively impact on team proactivity, supporting Hypothesis 4. Fourth, the investigation of Hypothesis 5 was conducted by adding all control variables, authentic leadership, perceived team politics, team potency, the interaction term (Model 10) and additionally including team proactivity (Model 11). The result demonstrated support for the impact of team proactivity on team effectiveness ($\beta = 0.43$, t = 2.22, 95% CI 0.064 to 1.148).

Paths		Standardised Coefficients β	95% Confidence Intervals	t	р
Authentic Leadership	Perceived Team Politics	-0.39	[-1.07,-0.21]	-2.98	0.004
Authentic Leadership>	Team Proactivity	0.32	[0.15,0.44]	4.11	0.000
MES	Team Proactivity	0.14	[0.03,0.30]	2.35	0.02
Perceived Team Politics	Team Effectiveness	-0.31	[-0.54, -0.06]	-2.52	0.01
Team Proactivity	Team Effectiveness	0.43	[0.06, 1.15]	2.22	0.03
Team Size►	Team Effectiveness	-0.03	[-0.03, 0.02]	-0.27	0.79
Team Tenure	Team Effectiveness	0.15	[0,0.01]	1.38	0.17

Table 5.14 Significance tests of standardised path coefficients

Note: MES refers to the cross-product interaction variable (Authentic Leadership × Team Potency)

The hierarchical regression analysis showed that two control variables linked to the dependent variable team effectiveness had insignificant path coefficients (Team size:

 β = -0.03, t = -0.27, 95% CI -0.03 to 0.02; Team tenure: β = 0.15, t =1.38, 95% CI 0 to 0.01), suggesting that they did not have impact on team effectiveness in the model.



* P<0.05, **p<0.01

Figure 5.2 Hierarchical regression analysis of authentic leadership impact on team effectiveness

Hypothesis 3 and 6 involved mediation relationships. There are various perspectives to establish mediation effects. Baron and Kenny (1986)'s criteria have been widely cited by journal articles in *Social Science Citation Index* (Zhao, Lynch, & Chen, 2010). Based on Baron and Kenny (1986)'s approach, Kenny, Kashy, and Bolger (1998) introduced an alternative perspective. According to their work, the establishment of a mediator should meet the following four conditions. Take the proposed mediating effects of perceived team politics in the model for example.

- 1. The path a between authentic leadership and perceived team politics is significant.
- 2. The path b between perceived team politics and team effectiveness is significant.
- 3. The path c between authentic leadership and team effectiveness is significant.

4. The strength of the relationship between authentic leadership and team effectiveness is weakened when perceived team politics is added to the model as a mediator.

As mediation effects include full and partial mediation, the first two conditions are a must to form the mediation relationship while the third one is not (Kenny et al., 1998). According to Kenny et al. (1998)'s approach, the supported Hypothesis 1, 2, 4 and 5 in the study have made the four direct paths in the model a precondition for the mediation analysis.

However, recent years have seen Baron and Kenny (1986)'s approach to mediation analyses being challenged for its conceptual and methodological limitations (Hayes, 2013; Zhao et al., 2010). Zhao et al. (2010) argued that Baron and Kenny (1986)'s stringent approach excluded certain mediation type. Drawing on previous research on mediation effects, Zhao et al. (2010) proposed a flow chart for judging mediation relationships as illustrated in Figure 5.3.

Zhao et al. (2010) recommended that the significance test of path a \times path b by the bootstrapping method should replace Baron and Kenny (1986)'s 'three criteria plus the Sobel Test'. In Zhao et al. (2010)'s approach to mediation analyses, complementary and indirect-only mediations are comparable to Baron and Kenny (1986)'s partial and full mediations. While they added competitive mediators to their mediation analysis model, the competitive mediation relationship is excluded in Baron and Kenny (1986)'s mediation analysis. Furthermore, recent research has found that Sobel statistics have a lack of statistical power in mediation analyses (Hair et al., 2017). Zhao et al. (2010) advocated that PROCESS macro could be used to generate bootstrapping results to assess whether a \times b is significant so as to follow the flow chart in Figure 5.3 to determine

mediation effects. Following this line of thinking (Hair et al., 2017; Hayes, 2013; Zhao et al., 2010), the study ran PROCESS macro to examine the mediation, moderation and moderated mediation relationships.



Figure 5.3 Mediation Analysis Procedure

Consequently, Model 4 in PROCESS SPSS macro was selected to test these parallel mediation relationships (Hayes, 2013). Bootstrapping with 5,000 samples was conducted to create confidence intervals to evaluate the mediation effects. The investigation of Hypothesis 3 displayed a significant mediation relationship to support the hypothesis (Effect=0.21, 95%, CI 0.08 to 0.44) indicating that authentic leadership had positive impact on team effectiveness through a reduction of team politics. The investigation also found support for the mediation relationship in Hypothesis 6 (Effect= 0.30, 95%, CI 0.04 to 0.58) confirming the mediating relationship of team proactivity between authentic

Adapted from Zhao, Lynch, Chen (2010, p.201)

leadership and team effectiveness. The direct and indirect effects are reported in Table 5.15. According to Zhao et al. (2010), this type of mediation effects is competitive mediation which implies that there might be other mediators intervening the relationship between authentic leadership and team effectiveness.

Hypothesis 7 involved testing moderating effects that team potency moderates the relationship between authentic leadership and team proactivity. A cross-product interaction variable MES was created (Frazier et al., 2004) and included into the hierarchical regression analysis as shown in Table 5.13. The prediction of the moderating effect was made by including all control variables and perceived team politics (Model 5), adding authentic leadership and team potency (Model 6) and lastly including the mean-centred interactive term (Model 7). The test generated a significant path coefficient as shown in Table 5.14 demonstrating that the interaction variable regressed on team proactivity ($\beta = 0.14$, t = 2.35, 95% CI 0.03 to 0.30). Furthermore, the significant value of R² change in Table 5.13 also indicates that the interaction effected the relationship between authentic leadership and team proactivity, supporting Hypothesis 7.

Total effect of Authentic Leadership on Team Effectiveness							
Effect	SE	t	р	LLCI	ULCI		
-0.06	0.14	-0.44	0.66	-0.34	0.21		
Direct effect of Authentic Leadership on Team Effectiveness							
Effect	SE	t	р	LLCI	ULCI		
-0.57	0.20	-2.89	0.00	-0.96	-0.18		
Indirect effect of Authentic Leadership on Team Effectiveness							
		Effect	Boot SE	BootLLCI	BootULCI		
Total		0.51	0.17	0.22	0.89		
Team Proactivity		0.3	0.14	0.04	0.58		
Perceived T	Perceived Team						
Politics		0.21	0.09	0.08	0.44		

Table 5.15 Total, Direct and Indirect Effects

The moderating effect is illustrated in Figure 5.4 which was plotted by using the high (one standard deviation above the mean) and low (one standard deviation below the mean) level of the moderator (Dawson, 2014). The graph indicates that higher team potency can strengthen the positive impact of authentic leadership on team proactivity.



Figure 5.4 Moderating Effects of Team Potency

Investigation of Hypothesis 8 involved a moderated mediation relationship between authentic leadership and team effectiveness through proactivity contingent upon team potency. Model 7 in PROCESS SPSS macro was used to test the relationship (Hayes, 2013). The bootstrapped confidence interval with 5,000 samples revealed support for the moderated mediation relationship. The 95 percent confidence intervals did not cross zero (95% CI 0.01 to 0.15). Hypothesis 8 was thus supported. In addition, the report of the conditional indirect effect of authentic leadership on team proactivity at the highest and lowest values of team potency as presented in Table 5.16 suggested the positive relationship between authentic leadership and team proactivity but the presence of team potency amplifies the leadership impact.

Conditional indirect effect of authentic leadership on team proactivity at values of team potency						
Mediator	Team Potency	Effect	Boot SE	BootLLCI	BootULCI	
Team Proactivity	-0.68	0.13	0.07	0.02	0.30	
Team Proactivity	0.00	0.16	0.08	0.04	0.36	
Proactivity	0.68	0.20	0.10	0.05	0.43	

To further investigate to what extent the moderating effect could become significant on the mediated relationship, the Johnson-Neyman technique was used to examine the regions where the moderating effect became significant (Preacher, Rucker, & Hayes, 2007). The result showed that when team potency was assessed as greater than -0.75 with an effect size of 0.18 (t =1.99, p = 0.05), approximately 85.87% of the teams in the dataset fell above this level. This also suggests that team potency could accelerate the positive impact of authentic leadership on team proactivity when team potency is high. The full result of the Johnson-Neyman analysis is attached to the thesis in Appendix D.

In addition, drawing upon the ideas of Edwards and Lambert (2007), the study constructed alternative moderated mediation models and found that team potency did not have moderating effects on the link between team proactivity and team effectiveness or the link between perceived team politics and team effectiveness.

To conclude, the path analysis found support for all the hypotheses as summarised in Table 5.17. Apart from the path analysis to verify the hypothetical relationships, there are other metrics concerning qualities of the structural model.

Table 5.17 Summary of hypothesis analyses

Hypothesis	Direct or Indirect Effect?	Supported?
Hypothesis 1: Authentic leadership is negatively related to perceived team politics.	Direct	Yes
Hypothesis 2: A reduction in perceived team politics is significantly related to an increase in team effectiveness.	Direct	Yes
Hypothesis 3: Perceived team politics mediates the	Indirect	
relationship between authentic leadership and team effectiveness.	(Mediation)	Yes
Hypothesis 4: Authentic leadership is positively linked to team proactivity.	Direct	Yes
Hypothesis 5: Team proactivity is positively related to team effectiveness.	Direct	Yes
Hypothesis 6: Team proactivity mediates the relationship	Indirect	Vaa
between authentic leadership and team effectiveness.	(Mediation)	Yes
Hypothesis 7: Team potency moderates the positive	Indirect	V
relationship between authentic leadership and team proactivity.	(Moderation)	Yes
Hypothesis 8: Team potency moderates the mediated		
relationship between authentic leadership and team	Indirect	
effectiveness. This moderating effect is such that the mediated	(Moderated	Yes
effect of authentic leadership leads to a greater increase in team effectiveness when team potency is higher.	Mediation)	

5.3.2.3. Other Structural Model Metrics

This section reports the important metrics in PLS-SEM obtained by SmartPLS, such as R^2 , f^2 , Q^2 and SRMR.

Besides the statistical significance of path coefficients, R^2 is one of the primary assessment criteria for the structural model. The reason why this metric is important is that PLS-SEM aims to explain the variance of the target endogenous constructs. In other words, R^2 is supposed to be high. However, there is no absolute threshold values for R^2 . The value of 0.20 is considered to be high in consumer behaviour research (Hair, Ringle, et al., 2011). The R^2 values of the three endogenous constructs in the model were listed in Table 5.18.

Construct	\mathbf{R}^2	95% Confidence Intervals		
		Bias Corrected		
Perceived team politics	0.31	[0.14, 0.47]		
Team proactivity	0.77	[0.67, 0.83]		
Team effectiveness	0.14	[0.03, 0.21]		

Table 5.18 The R2 values of three endogenous constructs

To understand how an exogenous construct contributes to an endogenous construct's \mathbb{R}^2 , the effect size f^2 is used for such an explanation. In other words, f^2 is the changed \mathbb{R}^2 when a predictor is omitted from the model (Hair et al., 2017). The results in Table 5.19 explain the exogenous constructs in the model with 95% confidence intervals (5,000 samples) as the indicator of statistical significance. The general threshold values are 0.02, 0.15 and 0.35 representing weak, medium and strong effect sizes respectively. However, recent research has made this general guideline debatable (Hair et al., 2017). Aguinis, Beaty, Boik, and Pierce (2005)'s review about research assessing moderating effects in the past 30 years found that the average effect size of moderation is only 0.009. Accordingly, Kenny (2016) suggested that the cut-off points of f^2 could be 0.005, 0.01 and 0.025 to indicate small, medium and strong moderation effects. Even though the variances between these two sets of f^2 threshold values remain large, the data in Table 5.19 indicates that all the exogenous constructs except the two control variables could effect endogenous ones.

	Path	f^2	95% Confidence Intervals Bias Corrected
Authentic Leadership	Percei Team Politic	ved 0.45	[-0.69, -0.38]
Authentic Leadership	Team Proact	ivity 0.39	[0.25,0.55]
Team Potency	► Team Proact	ivity 0.78	[0.41,0.71]
MES	→ Team Proact	ivity 0.04	[0.01,0.15]
Perceived Team Politics	Team Effect	iveness 0.08	[-0.53, -0.06]
Team Proactivity	► Team Effect	iveness 0.04	[0.05, 0.61]
Team Size	Team Effect	iveness 0.00	[-0.35, 0.18]
Team Tenure	→ Team Effect	iveness 0.02	[-0.09, 0.35]

Table 5.19 Size of predictor effect on endogenous constructs (f^2)

In addition to examining R^2 values as a predicative criterion of predictive accuracy, the Stone-Geisser's Q^2 value was examined for predicative relevance (Hair et al., 2017). The cross-validated redundancy technique was used to obtain the Q^2 value as it evaluates both the measurement and structural models (Hair, Ringle, et al., 2011). The Q^2 values calculated with an omission distance of 7 were 0.50 for team proactivity, 0.26 for team politics and 0.06 for team effectiveness, which were all above the threshold value of 0, indicating that the exogenous construct had predicative relevance for the endogenous constructs under examination.

As PLS-SEM aims to detect the predicative capacity embedded in the model, the model fit is not a primary concern (Hair et al., 2017). Nevertheless, SRMR has been applied to the PLS-SEM context to assess the model fit. When the SRMR value falls into the range between 0 and 0.08, the model is considered to have goodness of-of-fit (Henseler et al., 2016). The SRMR value of 0.08 generated by SmartPLS suggested that the model was considered a good fit (95% CI=0.05 to 0.08).

5.4. Summary and Conclusion

The preliminary data analysis was conducted to understand the demographic profile of the dataset and prepare for the SEM analysis. When it was confirmed that there were no missing data, the study proceeded to generate the demographic profiles of the teams under evaluation. It then examined whether the data sourced at the individual level could be appropriately aggregated to the team level of analysis with reference to the indices of Rwg(j), ICC(1) and ICC(2). The results showed that data aggregation could be reasonably justified so that the descriptive statistics with the aggregated data were obtained to describe the characteristics of all the constructs in the model. The last step in the preliminary data analysis was to confirm the data collected from two industrial sectors could be combined into a dataset. The independent samples t-test ensured the accuracy of such a combination.

The PLS-SEM analysis revealed that the research model had capacity to predict the endogenous constructs. As it was a reflective measurement model, the indicator reliability, internal consistency reliability, convergent validity and discriminant validity were important metrics to assess construct measures. The outer loading as the criterion for indicator reliability, CR and Cronbach's α for internal consistency reliability, AVE for convergent validity, Fornell-Larcker criterion, cross loading and HTMT for discriminant validity all passed the threshold values, suggesting that the measurement model is reliable and valid.

Regarding the structural model, three statistical techniques were employed to analyse the data using SPSS, SmartPLS and PROESS SPSS macro. The hierarchical regression analysis was made to obtain the path coefficients and evaluate the direct paths of the inner model which turned out to be supported. PROCESS SPSS macro was used to analyse the mediation, moderation and moderated mediation relationships and provided support to the hypotheses concerning the indirect effects of authentic leadership on team effectiveness. The results showed that both team proactivity and perceived team politics mediated the relationship between authentic leadership and team effectiveness. Team potency moderated the mediating effects of team proactivity. In other words, the research findings have offered empirical evidence to support all the hypotheses in the study.

However, in order to further validate the model quality, other important metrics were calculated. R^2 values were examined to see how many variances the endogenous constructs could be explained. The three endogenous constructs, perceived team politics,

team proactivity and team effectiveness, had sufficient explanatory power. Next, the values of f^2 were obtained to reveal direct contributions of predictors to endogenous variances. The findings showed that all the exogenous constructs except the two control variables could have impact on endogenous ones. Following the examination of f^2 , the values of the Stone-Geisser criterion (Q²) concerning the three endogenous constructs were generated showing that the model had good predicative relevance. In addition, the SRMR value was used to evaluate the model fit, which indicated that the model has achieved goodness of fit.

Chapter 6 Discussion and Conclusion

6.1 Introduction

The purpose of the study was to investigate how the impact of authentic leadership is linked to team effectiveness. The research findings have supported all the hypotheses and demonstrated sufficient predicative capacity of the research model. Authentic leaders have been found to play a positive role in facilitating team effectiveness.

This chapter will first discuss the results in relation to research questions followed by reflections of this research project. Through critical examinations of the research processes and results, the chapter presents how the study theoretically contributes to organisational research specifically leadership studies and how it may inform managerial practitioners of the values of authentic leadership. Following this, the chapter proceeds to delineate the limitations in the study and direct avenues of future research. The chapter ends with concluding remarks.

6.2. Positive Impact of Authentic Leadership on Teams

Banks et al. (2016)'s meta-analytic study found that authentic leadership is an effective leadership style in promoting team level outcomes. The outcomes of data analysis have added empirical support to their research findings. The remaining section will discuss how the findings correspond to the hypotheses which are illustrated in Figure 6.1 so as to answer the research questions.



H8: The moderated mediation effects of team proactivity on the link between authentic leadership and team effectiveness via team potency

Figure 6.1 Hypotheses in the Research Model

The first research question deals with how perceived team politics links the impact of authentic leaders on team effectiveness. The testing of Hypothesis 1, 2 and 3 have provided answers to this question. The study conceptualised politics as self-serving behaviour in the workplace, and perceptions of such behaviour could bring about negative consequences to teams (Abbas et al., 2012; Chang et al., 2009; Ferris et al., 1996; Hochwarter et al., 2010; Hochwarter et al., 2003). The data revealed that authentic leaders were able to reduce perceived team politics (H1: β = -0.39, t = -2.98, 95% CI -1.069 to -0.213) and subsequently enhanced team effectiveness (H2: β = -0.31, t = -2.519, 95% CI -0.54 to -0.06). The testing of the mediation effects of perceived team politics also supported Hypothesis 3 (H3: Effect=0.21, 95%, CI 0.08 to 0.44). As such, it is the

reduction in perceived team politics that links the positive impact of authentic leadership on team effectiveness.

The second research question is concerned with how team proactivity mediates the relationship between authentic leadership and team effectiveness. Hypothesis 4, 5 and 6 have been confirmed to the establishment of such mediation effects. The testing results demonstrated that authentic leaders were capable of promoting team proactivity (H4: $\beta = 0.32$, t = 3.95, 95% CI 0.15 to 0.44) which in turn exerts positive impact on team effectiveness (H5: $\beta = 0.43$, t = 2.22, 95% CI 0.064 to 1.148). The mediation analysis displayed support to the link between authentic leadership and team effectiveness via team proactivity (H6: Effect=0.30, 95%, CI 0.04 to 0.58).

The third research question is related to the moderating role of team potency in the mediated relationship between authentic leadership and team effectiveness via team proactivity. Hypothesis 7 and 8 jointly provided answers to this question. The testing outcomes verified these two hypotheses in support of the moderated mediation effects (H7: $\beta = 0.14$, t = 2.35, 95% CI 0.03 to 0.30; H8: 95%, CI 0.01 to 0.15). Figure 5.4 in the preceding chapter demonstrated that the positive impact of team potency could strengthen the positive influences of authentic leadership on team proactivity such that authentic leaders who lead the teams with higher team potency could promote more proactive behaviour in teams. The data in Table 5.16 also confirmed the positive role of team potency in elevating the mediated relationship between authentic leadership and team effectiveness via team proactivity.

The fourth research question is focused on the range of the moderating impact on the mediated relationship between authentic leadership and team effectiveness through team proactivity. The analytical result by the Johnson-Neyman technique revealed that when

team potency was at or greater than 4.81 with the effect size of 0.17 (t=1.99, p=0.05), the mediating effects of team proactivity become significant and stronger. Below this level of team potency, the mediating effects of team proactivity become weakened and not significant. As such, the research data have revealed the conditions on which the positive, indirect effects of authentic leadership become significant and strong.

To conclude, this study has empirically confirmed that authentic leadership is a positive form of leadership (Avolio & Gardner, 2005; Avolio et al., 2004; George, 2003; Walumbwa et al., 2008) which could lead to positive team effectiveness through a reduction in perceived team politics and an increase in team proactivity. When the research findings are placed into the broader context of leadership studies or organisational research, this study could make several important theoretical and practical contributions.

6.3. Contributions to Theory and Practices

The outcomes of the model testing could be added to the authentic leadership literature to extend understanding of authentic leadership as a construct in leadership research. Meanwhile, the study has provided empirical evidence to integrate authentic leadership, perceived politics and proactivity into the broader literature of organisational studies. Furthermore, the results of the study could advise managerial practitioners of the value of authentic leadership and provide directions to manage leadership development, team processes and employee performance. The rest of the section will delineate how the study could make such theoretical and practical contributions.

6.3.1. Theoretical Implications

Although the burgeoning leadership studies have amassed an extensive body of knowledge on leadership, there is insufficient understanding of the processes which affect leadership outcomes (Dinh et al., 2014). More work is expected to examine the mediators and moderators so as to explain how leaders impact on their leadership outcomes (Avolio et al., 2009). In leadership studies, authentic leadership theory has become the third largest research cluster since its debut in 2000s (Batistič et al., 2017). Nevertheless, there is still a need to conduct empirical examination concerning the processes underlying effectiveness of authentic leadership (Yammarino et al., 2008). This is even more the case at the team level of analysis (Walumbwa et al., 2011). The empirical evidence from this moderated mediation model of authentic leadership could therefore contribute to understanding of how leaders influence followers in team processes within the realm of authentic leadership research and extend understanding of the leadership processes to achieve team level outcomes in leadership studies, a broader research arena.

The study has added to the authentic leadership literature that perceived team politics and team proactivity mediate the relationship between authentic leadership and team effectiveness, and team potency moderates the mediated relationship between authentic leadership and team effectiveness via team proactivity. These findings have provided empirical support for integrating authentic leadership with team-level perceived politics, proactivity and team effectiveness which has been rarely researched in the authentic leadership literature (Gill & Caza, 2018; Walumbwa et al., 2011).

Support for the mediating effect of perceived team politics in this study could address a research gap that there was a lack of research to show how authentic leadership could decrease unethical behaviour (Banks et al., 2016). In the politics literature, political
behaviour has been regarded as rational, goal-driven, conscious acts to promote selfinterest at the expense of or in support of others' interest (Valle & Perrewe, 2000). However, in the main stream of perceived politics research, political behaviour is referred to bad, unfair and unethical acts because employees usually evaluate it negatively (Ferris & Kacmar, 1992; Gandz & Murray, 1980; Miller et al., 2008). As such, politics could be perceived as a form of anti-social behaviour including blaming or attacking others, withholding information, strategic bullying and the like (Gotsis & Kortezi, 2010). Empirical evidence has explained that perceived politics could trigger political behaviour which maximises self-interest at the expense of others' interest or collective good (Ferris et al., 2000). Given that the study has shown authentic leaders' capacity to attenuate perceived team politics and thus enhance team effectiveness, it has suggested that authentic leaders are likely to reduce unethical, political behaviour in teams by lessening perceived team politics and provided an alternative to reduce unethical behaviour in the workplace. In this sense, the study also provides empirical support to the argument that the moral values and ethical work climate which authentic leaders promote in the leadership process could generate positive outcomes (Avolio et al., 2004) and that the moral component of authentic leadership could bring about positive collective outcomes (Banks et al., 2016).

Moreover, support for the moderating effect of team potency in the model not only provides a managerial motivation approach but also explains the boundary within which authentic leadership takes effective in promoting proactive behaviour in teams. Potency is a psychological state that leaders can activate so as to energise followers to achieve goals (Zaccaro, Ely, & Nelson, 2008). The result of Johnson-Neyman analysis suggested that higher team potency could amplify the impact of authentic leadership on team proactivity but low potency could weaken or nullify such impact. As such, the findings of the study have suggested the significance of team potency as a motivation approach for authentic leaders to enhance team proactivity and thus team effectiveness.

In addition, the study has provided empirical support to the studies of perceived politics and proactivity in organisational research. Prior research of perceived politics indicated that perceptions of politics at different levels in an organisation could bring about different political activities (Maslyn & Fedor, 1998). The findings of the study could contribute to the team level of analysis of perceived politics. Ferris et al. (1989)'s conceptual model implied that leadership plays an important role in influencing perceived politics of followers. Vigoda - Gadot (2007) demonstrated that different leadership styles, such as transformational and transactional leadership, could generate different perceptions of politics. This study is one of very few to investigate the potential for leader authenticity to effect perceived politics and presents the negative relationship between authentic leadership and perceived politics. Regarding the proactivity literature, there is a need to explore what types of leaders support proactive behaviour in teams (Wu & Parker, 2017). Previous research has examined the role of transformational leadership in promoting team proactivity by inspirational talks and emotional appeals (Wu & Wang, 2015). The current study nevertheless is one of very few to provide empirical support to the positive impact of authentic leaders who facilitate development of team members' authenticity to enhance team proactive behaviour. To conclude, the study has lent support to authentic leadership as an antecedent of team-level perceived politics and proactivity.

6.3.2. Managerial Implications

The findings of the study have important implications for managerial practitioners in terms of leadership development, team management and performance appraisal. As the current research has shown the positive impact of authentic leadership on team effectiveness, human resource managers and human resource development practitioners could pay attention to authentic leadership theory so as to understand how to integrate this leadership style into leadership development programmes and how to create a supportive environment for such a leadership style to thrive in the workplace. The four components of the authentic leadership construct provide references for human resource development practitioners with intervention cues to design the leadership development materials as the focal micro-intervention technique (Avolio, 2010). In order to facilitate the authentic leadership style to thrive among leaders and managers in the workplace, it is essential to establish a supportive environment where leaders and followers could have open access to information and resources, transparent communication and equal opportunities to learn and develop (Avolio & Gardner, 2005). The supportive climate to nurture positive leader and member interactions is important in that authentic followers could act as a trigger in the authentic leadership development process for leadership enactment (Avolio, 2010).

Furthermore, the research results of the study suggested that human resource development professionals should integrate moral development into leadership development programmes. High morality is a feature of authentic leadership as this leadership style was developed to answer the call for coping with corporate scandals (Avolio & Gardner, 2005; George, 2003). The findings of this study implied that the moral component of authentic leadership could facilitate a reduction in perceived team politics which might attenuate self-serving behaviour. It is therefore necessary to highlight the value of moral development in the leadership development process (Gardner et al., 2011). May et al. (2003)'s development model of moral component in authentic leadership, which describes how moral capacity could assist in identifying the moral dilemma and deciding

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to act authentically, how moral courage could link authentic decision to behaviour and how moral resiliency maintains authentic behaviour in the long run, could be a reference to the leadership development design. As such, in the leadership development programmes, simulations, case discussions and role plays that involve moral dilemma for decision making and that encourage development of moral courage and moral resiliency could be deployed to raise the leader moral competence (Cianci, Hannah, Roberts, & Tsakumis, 2014; Walumbwa et al., 2011).

Another managerial implication could be implemented into team management. The study has revealed that authentic leaders are able to elevate team effectiveness by reducing perceived team politics and promoting team proactive behaviour. Such findings could advise authentic team leaders in terms of three pathways to manage team performance as follows.

First, to facilitate both leaders and members to be authentic, team leaders are suggested to construct an open, transparent, respectful, inclusive and ethical team climate. Prior research has shown that goal congruence could weaken perceived politics (Witt, 1998) and activate proactive behaviour (Parker et al., 2010). In the positive and supportive team environment, leaders and members could exchange their ideas and information, take in shared positive values, and have better understanding about what should be encouraged and discouraged in team processes, which would in turn leads to alignments of personal and team goals (Avolio et al., 2004). In addition, the respectful, inclusive and ethical team environment could elicit mutual trust between leaders and members (Avolio et al., 2004) which would in turn facilitate goal congruence and reduce self-serving goal pursuit and energise members to proactively achieve team goals (Cropanzano & Mitchell, 2005; Wong & Cummings, 2009).

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Second, team leaders are recommended to consider how to delegate autonomy in task design and empower team members. As job autonomy provides job incumbents with freedom for decision making in the job process, the empowered team members tend to nurture authenticity in team processes (Árnason, 1994). Furthermore, job autonomy has been found to be an effective approach to decreasing perceived politics (Ferris & Kacmar, 1992; Gandz & Murray, 1980) and to increasing proactive behaviour (Erkutlu & Chafra, 2012; Parker et al., 2010). Consequently, authentic leaders who empower team members in team processes could expect enhanced team effectiveness.

Third, team leaders are advised to pay attention to enhancing team potency as a motivation strategy to strengthen leaders' impact on team proactivity. The research findings have identified the moderating effects of team potency on the mediated relationship between authentic leadership and team effectiveness through team proactivity. This suggests that when team members are highly confident in the belief that their collaboration could create team effectiveness, they are more likely to engage in proactivity. In contrast, their low confidence in team potency would diminish or even eradiate the leader impact on team proactivity. As such, it is valuable to provide open access to information and resources as well as leader support to team members and to ensure explicit communication about individual and team tasks and goals so as to ultimately enhance team potency through goal alignments (Chen et al., 2002; Hu & Liden, 2011).

Last but not the least, a further managerial implication is linked to managing performance in the workplace. The current research findings have demonstrated that an increase in team proactivity and a reduction in perceived team politics could bring about enhanced team effectiveness. Performance appraisal ratings could therefore have relevant behavioural indicators to reflect these two mediators. For instance, team leaders could identify what type of proactive behaviour is desirable to complete the team tasks before they work with human resource department to include specific proactive behaviour in the appraisal forms as behavioural indicators. Similarly, team leaders could also involve ethical behaviour into appraisal ratings to encourage more positive behaviour such as organisational citizenship behaviour (OCB) and reduce unwanted self-serving behaviour in team processes (Griffin et al., 2007; Rosen, Levy, & Hall, 2006). Since performance appraisal indicators can serve as a goal-driven motivator generating expected behaviour (Murphy & Cleveland, 1995), inclusion of specific proactive behaviour and positive behaviour like OCB could lead to expected performance outcomes and thus team effectiveness.

6.4. Limitations

However, findings and implication should be interpreted with caution of several limitations in the study. First, as what has been mentioned in Chapter 4, the cross-sectional design of this positivist study confined the establishment of causality from the data. Even though the statistical techniques like regression or SEM analysis could assist in detecting the casual relationship, the one-time data limited such statistical power in that the data could not reflect the changes along the timeline to establish cause and effect.

Second, a small sample size (N=92) might pose a threat to generalisability of the findings. Although the sample size in the study has met the minimum size requirement of the PLS-SEM analysis and the testing results showed support for all the hypotheses, a larger sample size is still desirable to enhance the statistical power for the generalisation purpose. Third, there was a further potential limitation of the sample. The sample of the study was sourced from two industries, healthcare as well as architectural design and construction. The independent sample t-test verified the appropriateness of combing two sub-samples into one for statistical estimation, which suggested that the findings could be, at least, generalised to team management in these two industries. However, the less heterogeneous teams in terms of tasks and industries could create low ICC(2) values for data aggregation. The values of ICC(2) were relatively low in the study, lower than the common cut-off point 0.70, which might undermine the credibility of data aggregation. As what has been argued in Chapter 4 and 5, the low ICC(2) might be due to homogenous population like sampling from the same organisation or similar organisations in one or two industries (Biemann et al., 2012; George, 1990), and owing to the restricted variances of measures (Lebreton et al., 2003). Although the team-level aggregation can be justified by theory and supported by other metrics such as significant ICC(1) and F ratio from ANOVA (Chen & Bliese, 2002; George, 1990), future research could possibly involve more teams from other industries to have the team-level data with distinguished team membership.

Fourth, the study did not test a specific form of proactive behaviour but used a single measure of proactivity. Following prior research (Wu & Wang, 2015), the study employed a four-item measure to investigate proactivity at the team level (Cronbach's α =0.85). Different types of proactive behaviour have been argued to share similar motivational mechanisms and conceptual common ground (Parker et al., 2010; Parker & Collins, 2010). Yet, a single measure constrained the data capacity for identifying what types of proactive behaviour that authentic leaders excel in initiating and maintaining during the team process.

Fifth, the study utilised performance, a single criterion, to evaluate team effectiveness. Team effectiveness could be assessed by team performance as well as members' affect (Cohen & Bailey, 1997). However, team performance has widely been used as an indicator of team effectiveness in that it has been argued to be more effective in predicting goal achievements than the self-reported affect (Mathieu et al., 2008). The study followed previous research and used team performance to evaluate team effectiveness (Mitchell et al., 2015; Mitchell, Boyle, et al., 2014; Mitchell, Parker, Giles, & Boyle, 2014). Yet, inclusion of members' affect and viability, together with performance, as criterion variables could provide an alternative picture of team effectiveness.

A final potential problem might stem from subjective response to the survey questions. The study used the leader and member questionnaires to source dependent and independent variables respectively so as to avoid common method bias (Podsakoff et al., 2003). However, in leadership research, leaders and followers are likely to rate for social desirability in survey research so that leniency errors may occur (Biemann et al., 2012; James et al., 1984) which, in turn, could lead to inaccurate data interpretation.

6.5 Future Research Avenues

Future research could address the limitations of the study mentioned above. First, changes could be made in the research design. Longitudinal studies are needed to confirm the causal relationships between predictor and criterion variables in the model. Furthermore, as teams perform simultaneously multiple processes involving multiple episodes in goal-attainments, time-based examinations could reveal a fuller picture of vibrant and dynamic team processes (Marks et al., 2001). In addition, qualitative research methods may be introduced to explore the 'why' aspects of research phenomena so as to gain in-depth

understanding of the rationales on which authentic leaders could reduce perceived team politics and promote team proactivity for the purpose of achieving team effectiveness.

Second, a larger sample size sourced from more industries or sectors is desirable to not only attain stronger statistical power for generalisation but also establish more distinguished team membership in the dataset.

Third, tests could be done to make clear how authentic leaders influence team effectiveness through which specific type of proactive behaviour. As Parker and Collins (2010) noted, various concepts of proactivity, which are similar yet distinct from each other, could make it possible that team members are proactive in one domain (e.g. voice) without being proactive in the other (e.g. feedback seeking). Consequently it is important to investigate the effects of the leader authenticity on different forms of team proactivity in order to gain better understanding of the relationship between authentic leadership and team proactivity.

Fourth, more can be done to expand the understandings of team effectiveness. On the one hand, the quantitative criteria to measure team effectiveness could be implemented to reduce the bias that may be caused by both leader and member perceptions involved in providing information about the teamwork processes in surveys. On the other hand, as what has been mentioned in the preceding section, inclusion of members' affect and viability such as team commitment into the conceptualisation of team effectiveness could provide more information about the teamwork outcomes.

Apart from the approaches to handling the limitations in the study, there are three more research avenues to extend and expand the understanding of authentic leadership theory. First, alternative perspectives to conceptualise authentic leadership could be implemented to diversify research design. The study adopted the essentialist perspective of authentic leadership theory and employed the positivist research methodology (Banks et al., 2016; Ladkin & Taylor, 2010). However, there are alternative perspectives of authentic leadership which have revolved upon qualitative methods to investigate authentic leadership, such as the interactionist perspective (Ladkin & Taylor, 2010). Furthermore, recent research has defined authentic leadership from the four themes within existentialist philosophy arguing that authenticity may not imply goal and value congruence and could be intrinsically unethical (Algera & Lips-Wiersma, 2012). Such a philosophical version of authentic leadership theory has formed a huge contrast to both essentialist and interactionist perspectives of authentic leadership theory (Avolio & Gardner, 2005; Gardner et al., 2011). Nevertheless, as what Avolio and Gardner (2005) claimed, different views of authentic leadership could contribute to theory development and provide a fuller picture of authentic leadership. More empirical studies departing from the interactionist or the philosophical perspective are likely to forge ahead authentic leadership theory development.

Second, future work on authentic leadership and teams could possibly reconceptualise authentic leadership as the outcome of team processes. In the current cross-level study, authentic leadership was conceptualised as an individual level construct while leadership effectiveness was examined at the team level in terms of team effectiveness. Authentic leadership is therefore an external leadership in the traditional sense as an input to the team process (Mathieu et al., 2008). However, at the beginning of the theory formation, authentic leadership was argued to be a multi-level construct (Avolio & Gardner, 2005; Cooper et al., 2005). In other words, authentic leadership could be perceived as an outcome of team functioning which is characterised with collective, shared leadership responsibilities among team members (Hmieleski et al., 2012). As scant research has delved into authentic leadership as a shared team property (Batistič et al., 2017; Yammarino et al., 2008), more investigations into this vein could provide guidance to teamwork practices within top management teams and self-management teams.

Third, more mediators could be added to the current research model to gain more understanding of the mechanisms linking authentic leadership to team effectiveness. The findings of the research suggested that there might exist other mediators. Authentic leadership was developed as a positive, ethical leadership style to deal with corporate immoral conduct. The internalised moral perspective is a component of the authentic leadership construct (Gardner et al., 2011). Authentic leaders have been found to have positive impact on followers' ethical decision making (Cianci et al., 2014) and display of moral courage (Hannah, Avolio, et al., 2011). Banks et al. (2016) suggested that the moral component of such a leadership style could lead to strong association with collective outcomes. However, there are insufficient studies on how authentic leaders could reduce unethical behaviour in the workplace (Cianci et al., 2014; Hannah, Avolio, et al., 2011; May et al., 2003). Although this study has provided empirical evidence that authentic leaders could lessen perceived team politics which is likely to reduce self-serving behaviour in teams, other factors like moral efficacy and moral resiliency in May et al. (2003)'s moral components model of authentic leadership could be also tested to show how authentic leaders decrease unethical conduct in teams.

6.6. Concluding Remarks

Authentic leadership has been developed as a positive form of leadership providing guidance for leaders to cope with ethical challenges in contemporary business world. Authentic leaders display "a pattern of leader behaviour that draws upon and promotes both positive psychological capacities and a positive ethical climate, to foster greater selfawareness, an internalized moral perspective, balanced processing of information, and relational transparency on the part of leaders working with followers" (Walumbwa et al., 2008, p. 94), bringing about positive outcomes at the individual, team and organisational level (Gardner et al., 2011). In order to investigate the process of how such a positive leadership style could lead to team effectiveness, this study has adopted a cross-sectional positivist research design and surveyed work teams in healthcare as well as architectural design and construction industries which are featured with inter-professional teamwork and innovative tasks.

Results of the study have supported positivity of authentic leadership and identified two new paths that leaders could employ to enhance team effectiveness. In other words, the study provides the first evidence that not only does authentic leadership have significant correlations with perceived politics and proactivity at the team-level, but also through these two mediators, it is also related to team effectiveness. Furthermore, the moderation analysis has revealed the positive impact of authentic leadership on team proactivity. The presence of team potency as a moderator has demonstrated amplified effects of authentic leadership on team proactivity. This study is one of very few studies that provide the team-based evidence of authentic leadership effects.

As authentic leadership has been extolled as an ethical type of leadership by both academics and managerial practitioners (Avolio et al., 2004; Gardner et al., 2011; George, 2003), this thesis echoes with positive empirical evidence to show that authentic leaders are able to decrease negative perceptions of the team environment and increase positive behaviour in team processes by facilitating development of both leader and member authenticity. Given that authentic leadership is a positive leadership style to ensure organisations to survive and thrive in a dynamic complex business environment

characterised with rapid change as well as social and economic challenges, it deserves more research attention to further explore its impact on team functioning. The supportive results reported in the thesis are significant to future development of authentic leadership theory and leadership practice in teams.

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Appendices

Appendix A: Assessment Criteria for the Measurement Model

Assessment	Criterion	Threshold	Reference	
Convergent	• Standardised factor loading of individual indicator on latent	 ≥ 0.50 	Hair et al. (2010)	
Validity	variable;			
	• <i>p</i> value	• <i>p</i> ≤ 0.05		
	AVE	> 0.50	Hair et al. (2010)	
		Square root of AVE;		
	Fornell-Larcker	More than the	Fornell and Larcker	
	Criterion	correlations of the latent	(1981)	
		variables		
Discriminant		An indicator's outer		
Validity	Cross Loading	loading is greatest in the	Hair et al. (2017)	
	Closs Loading	construct it is associated		
		with		
	НТМТ	< 0.90	Henseler et al.	
			(2015)	
Reliability	Cronbach's α	> 0.70	Hair et al. (2017)	
	CR	> 0.70	Hair et al. (2017)	
Indicator	Standardised factor	> 0.70	Hair et al. (2017)	
Reliability	loading	> 0.70		
Multi-	VIE	< 5 or tolerance > 0.20	Hair, Ringle, et al.	
collinearity	V 11	condition index < 30	(2011)	

Assessment	Criterion	Threshold	Reference	
The percentage of variance in Y that can be explained by all the X variables	R ² (Coefficient of Determination)	0.75: substantial 0.50: moderate 0.25: weak	Hair, Ringle, et al. (2011)	
Path Coefficient	β	<i>p</i> value	Hair et al. (2010)	
Effect Size	f^2	0.02: small 0.15: medium 0.35: large	Cohen (1988)	
Predictive Relevance	Q^2 q^2	> 0, Stone-Geisser Test q^2 : in analogy to f^2 values	Henseler et al. (2009)	

Appendix B: Assessment Criteria for the Structural Model

Appendix C: The Assessment of the Measurement Model by SmartPLS



 \downarrow Outer loading, Cronbach's α, composite reliability, AVE

4 The results after bootstrapping 5,000 samples



Note: The meaning of the abbreviations in the figure is listed as follows:

AL- Authentic Leadership; TPO-Team Potency; TPR-Team Proactivity; PTP-Perceived Team Politics; TE-Team Effectiveness; TS-Team Size; TT-Team Tenure

Moderator value(s) defining Johnson-Neyman significance region(s)									
Value % below % above									
75 14.1	3 85.87								
Condition	al effect	t of X	on Y at	values	of the	moderator	(M)		
TeamPote	Effect	se	t	р	LLCI	ULCI			
-1.93	02	.15	11	.91	31	.28			
-1.75	.01	.14	.08	.93	27	.29			
-1.58	.04	.13	.30	.76	22	.30			
-1.41	.07	.12	.56	.58	17	.31			
-1.24	.10	.11	.86	.39	13	.32			
-1.07	.12	.10	1.21	.23	08	.33			
89	.15	.09	1.60	.11	04	.34			
75	.17	.09	1.99	.05	.00	.35			
72	.18	.09	2.06	.04	.01	.35			
55	.21	.08	2.55	.01	.05	.37			
38	.23	.08	3.07	.00	.08	.39			
21	.26	.07	3.58	.00	.12	.41			
04	.29	.07	4.02	.00	.15	.43			
.14	.32	.07	4.36	.00	.17	.46			
.31	.35	.08	4.57	.00	.20	.50			
.48	.37	.08	4.67	.00	.21	.53			
.65	.40	.09	4.68	.00	.23	.57			
.82	.43	.09	4.63	.00	.25	.61			
1.00	.46	.10	4.54	.00	.26	.66			
1.17	.49	.11	4.44	.00	.27	.70			
1.34	.51	.12	4.33	.00	.28	.75			
1.51	.54	.13	4.23	.00	.29	.80			

Level of confidence for all confidence intervals in output:									
95.00									
NOTE: The following variables were mean centered prior to analysis:									
AL TeamPote									