

5-2019

**IMPACT OF LEADERSHIP STYLES ON THE PERFORMANCE OF
VIRTUAL TEAMS IN THE UAE GOVERNMENT SECTOR:
ASSESSMENT OF TRANSACTIONAL AND TRANSFORMATIONAL
LEADERSHIP STYLES**

Nama Salmeen Mabrouk Omar Al Ameri

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IMPACT OF LEADERSHIP STYLES ON THE PERFORMANCE OF
VIRTUAL TEAMS IN THE UAE GOVERNMENT SECTOR:
ASSESSMENT OF TRANSACTIONAL AND TRANSFORMATIONAL
LEADERSHIP STYLES

Nama Salmeen Mabrouk Omar Al Ameri

This dissertation is submitted in partial fulfilment of the requirements for the degree
of Doctorate of Business Administration

Under the Supervision of Dr. Ananth Chiravuri

May 2019

Declaration of Original Work

I, Nama Salmeen Mabrouk Omar Al Ameri, the undersigned, a graduate student at the United Arab Emirates University (UAEU), and the author of this dissertation entitled "*Impact of Leadership Styles on the Performance of Virtual Teams in the UAE Government Sector: Assessment of Transactional and Transformational Leadership Styles*", hereby, solemnly declare that this dissertation is my own original research work that has been done and prepared by me under the supervision of Dr. Ananth Chiravuri, in the College of Business and Economics at UAEU. This work has not previously been presented or published, or formed the basis for the award of any academic degree, diploma or a similar title at this or any other university. Any materials borrowed from other sources (whether published or unpublished) and relied upon or included in my dissertation have been properly cited and acknowledged in accordance with appropriate academic conventions. I further declare that there is no potential conflict of interest with respect to the research, data collection, authorship, presentation and/or publication of this dissertation.

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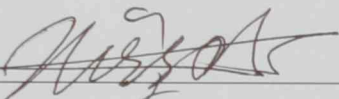
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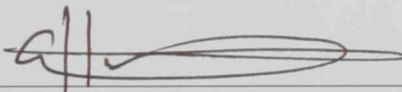
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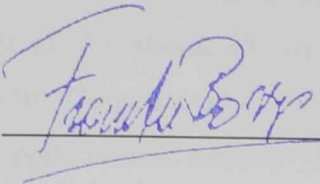
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Abstract

The widespread availability of computers, and the presence of ubiquitous internet has motivated organisations to acknowledge the potential role of virtual teams in reducing the cost of operations, increasing firm productivity, and creating flexible work environments. Consequently, most global firms are running their operations using multiple experts located remotely in different parts of the world (virtual teams) to plan, design and implement projects and tasks. However, virtual teams face many challenges resulting from a lack of face to face contact. Based on existing relevant literature, this study contributes a unique insight on how some challenges surrounding virtual team performance might be addressed. Specifically, this thesis investigates the effect of transformational and transactional leadership styles on the virtual teams' performance in the UAE Government sector. In addition, it also examines the interactive effect of key virtual team contextual factors such as cohesion, trust, creativity, and team empowerment. Research hypotheses were tested using the quantitative research method, wherein data was collected from a sample of 344 participants followed by analyses. The obtained findings indicate that both transformational and transactional leadership styles had significant effects on virtual team performance, with transformational style having a stronger impact. As regards moderator effects, team cohesiveness and team creativity significantly affected the impact of leadership style on virtual team performance. Team empowerment was only significant for transformational leadership, but surprisingly team trust was not significant for both forms of leadership styles. To sum up, these findings were largely in line with the results of prior studies in that both transactional and transformational styles were best suited to organisations for improving the performance of their virtual teams. However, transformational style worked better in an organisational environment of higher team empowerment than the transactional style. This thesis recommends that further studies investigate other internal and external factors of virtual team performance to gain more insights into the various sets of factors shaping the commitments of virtual teams to work performance.

Keywords: Leadership styles, transactional leadership, transformational leadership, virtual teams, virtual leadership, virtual teams' performance.

Title and Abstract (in Arabic)

تأثير أنماط القيادة على أداء الفرق الافتراضية في القطاع الحكومي في دولة الإمارات العربية المتحدة: تقييم نمط قيادة المعاملات والقيادة التحويلية

المخلص

حفز توافر أجهزة الكمبيوتر على نطاق واسع، ووجود شبكة الإنترنت في كل مكان المؤسسات على الاعتراف بالدور الممكن للفرق الافتراضية في خفض تكلفة العمليات، وزيادة إنتاجية الشركة، وخلق بيئات عمل مرنة. وعليه فإن معظم الشركات العالمية تدير عملياتها باستخدام العديد من الخبراء الموجودين عن بعد في أنحاء مختلفة من العالم (فرق افتراضية) لتخطيط وتنفيذ المشاريع والمهام. ومع ذلك تواجه الفرق الافتراضية العديد من التحديات الناتجة عن عدم الاتصال المباشر. استنادًا إلى الدراسات الحالية ذات الصلة، تسهم هذه الدراسة في رؤية فريدة حول كيفية مواجهة بعض التحديات المحيطة بأداء الفريق الافتراضي. على وجه التحديد، تبحث هذه الأطروحة تأثير أسلوب القيادة التحويلية والمعاملات على أداء الفرق الافتراضية في القطاع الحكومي لدولة الإمارات العربية المتحدة. بالإضافة إلى ذلك، تشمل الأطروحة دراسة التأثير التفاعلي لعدد من العوامل السياقية الرئيسية للفريق الافتراضي مثل التماسك والثقة والإبداع وتمكين الفريق. تم اختبار فرضيات البحث باستخدام طريقة البحث الكمي، حيث تم جمع البيانات من عينة من 344 مشاركًا اتبعت عقبتها بالتحليلات.

تشير نتائج الدراسة إلى أن أسلوب القيادة التحويلية والمعاملات كلاهما له تأثير كبير على أداء الفريق الافتراضي، غير أن الأسلوب التحويلي له تأثير أقوى. وفيما يتعلق بتأثير العوامل الوسيطة، فقد أثر تماسك وإبداع الفريق بشكل كبير على تأثير أسلوب القيادة على أداء الفريق الافتراضي. فيما كان تمكين الفريق مهمًا فقط للقيادة التحويلية، ولكن من المفاجئ أن ثقة الفريق لم يكن لها أثر يذكر على كلي أسلوب القيادة.

خلاصة إن نتائج هذه الدراسة تتفق إلى حد كبير مع نتائج الدراسات السابقة في أن أسلوب قيادة المعاملات والتحويلي كانا الأنسب للمؤسسات لتحسين أداء فرقها الافتراضية. ومع ذلك، فإن أسلوب القيادة التحويلي له تأثير أكبر من أسلوب المعاملات في بيئة العمل التي تحرص على تمكين فرقها. توصي هذه الأطروحة بدراسة العوامل الداخلية والخارجية الأخرى المتعلقة بأداء الفريق الافتراضي لاستيضاح المزيد عن العوامل التي تبلور درجة التزام الفرق الافتراضية بأداء العمل.

مفاهيم البحث الرئيسية: أساليب القيادة، قيادة المعاملات، القيادة التحويلية، الفرق الافتراضية، القيادة الافتراضية، أداء الفرق الافتراضية.

Acknowledgements

Genuine thanks are due to the principal advisor Dr Ananth Chiravuri whose unlimited support, guidance, supervision, and encouragement throughout the DBA journey brought me to achieve sound scholarly contributions. I would also like to thank the examining committee members Dr Kursad Asdemir and Dr Abdullah Saif, for their fruitful cooperation. Special thanks are due to Prof. Nur Abu-Mansour, the external examiner, for her constructive comments that enriched the dissertation contents.

I am genuinely grateful to Prof. Mohamed Madi, Dr Rihab Khalifa, Dr Amany Elanshasy, and Ms Vandana, for their generous collaboration, unwavering support, encouragement, and friendship. Thankful to Mr Ahmed Taha (Library Research Desk) for his assistance in proofreading and reviewing the dissertation structure and layout.

My special thanks to my husband, whose encouragement all the way has made sure that I give it all it takes to finish that which I have started. Special thanks and gratefulness go to my parents and sisters who were patient and helped me along the way. I am sure they suspected it was endless.

I do also want to pass my appreciation to all organisations and respondents for participating in this research study and devoting their time to get the questionnaire completed which indeed resulted in enabling me to accomplish the objectives of this dissertation and conclude my study.

Dedication

To our wise visionary leadership, and great country the UAE

To my beloved parents, husband, and family

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List of Abbreviations

AMbE	Active Management by Exception
AVE	Average Variance Extracted
BSC	Balanced Scorecard
CMCS	Computer-Mediated Communication Systems
CR	Composite Reliability
CR	Contingent Reward
ECQ	Executive Core Qualifications
EFA	Exploratory Factor Analysis
GVT	Global Virtual Team
IBM	International Business Machine Corporation
IC	Individualized Consideration
ICT	Information Communication Technology
Ia	Idealized Influence attributed
Ib	Idealized Influenced behaviour
IM	Inspirational Motivation
IMOI	Input-Mediator-Output-Input
IS	Intellectual Stimulation
IT	Information Technology
MbEP	Management by Exception Passive
MLQ	Multifactor Leadership Questionnaire
MSQ	Minnesota Satisfaction Questionnaire
TAM	Technology Acceptance Model
TCAM	Team Climate Assessment Measurement Questionnaire
TCI	Team Climate Inventory
TTCT	Questionnaire and the Torrance Test of Creative Thinking
UAE	United Arab Emirates
UAEU	United Arab Emirates University

Chapter 1: Introduction

This Chapter provides a brief background on the thesis's research topic. It also discusses specifically the research issues, such as motivation, problem statement, scope, aims, and objectives.

1.1 Overview

The integration of digital technology into all business areas has resulted in a fundamental change in terms of how an organisation operates and delivers values to its customers; such change is defined as *digital transformation* (Saul, 2012). In the last decade, many organisations in several industries had conducted and implemented several initiatives not only to explore new digital technologies but also to get the most benefits from their capabilities, including transformations of crucial business operations, organisational structures, and management concepts (Christian et al., 2015). These transformations of business models have drawn the attention of both scholars and business decision-makers. As such, the potential benefits of digitisation are manifold such as increasing sales, improving product and service quality, increasing productivity, value creation, and supporting innovations (Christian et al., 2015).

In this era of digital transformation, organisations are relying more on virtual teams than on face-to-face teams (as done in the past) in order to address their issues and resolve them. With the widespread availability of computers and the Internet, organisations are increasingly considering the virtual environment and virtual teams as an option to reduce cost, increase productivity, and create a more flexible work environment (Carlson et al., 2013). Unlike traditional face-to-face teams, members in

a virtual team could communicate via computer-mediated communication systems (CMCS) in the cyberspace (Coleman, 1997; Carlson et al., 2013) either at the same time (synchronously) or at different times (asynchronously).

Due to the increasing migration towards the adoption of virtual teams, understanding the leadership characteristics that contribute to the success of virtual teams has become essential and critical (Susilawati et al., 2013; Pinar et al., 2014; Avolio et al., 2009). Several scholars have been investigating this issue: some have been attempting to re-confirm the findings of prior studies (in traditional/physical set up) in the virtual world. Others are exploring new approaches to examine leadership in the virtual context. Despite the abundant leadership research on the traditional workplace/teams conducted over the years, the shift to a virtual workplace propelled the need to re-examine the topic, or at least confirm that their findings in the traditional workplace remained applicable in the virtual environment (Hooijberg et al., 1997).

In comparison with the traditional work environment, leaders in a virtual environment encounter different team dynamics because of its asynchronous nature and a lack of face to face contact. In the virtual workplace, some aspects of leading a team such as trust, motivation, cohesiveness, and culture may be more challenging (Hooijberg et al., 1997). Therefore, one may argue that traditional styles of leadership may not work in a virtual team workplace. In the digital work environment, many organisations had realised this shifting paradigm and have been making efforts to blur the boundaries between the virtual and real worlds.

In the 1990s, the International Business Machines Corporation (IBM), a leader in virtual technology; for instance, had developed new tools to enhance virtual team

effectiveness (Bruner, 1996). These tools included virtual conferencing rooms, technology for sharing pictures and videos, and virtual team-building games to improve team interaction. Consequently, these tools helped team members located in different geographic locations share a somewhat traditional work experience (Bruner, 1996). Though these tools helped make the virtual experience somewhat similar to a traditional work environment, there remained significant differences in the work environment for an on-site worker and a virtual worker.

Notably, lack of physical contact affects leadership, making it a leading issue in virtual team member communication in the cyberspace (Avolio et al., 2009; Susilawati et al., 2013). This has been confirmed by Pinar et al. (2014), who acknowledged that many virtual teams are encountering major issues with leadership. Since virtual team requirements are different from face-to-face teams (Dulebohn & Hoch, 2017), there is a need to understand virtual team requirements and define all the essential leadership strategies and managerial guidelines required to support this type of leadership.

To sum up, there is a need for further examination of issues concerning the leadership of virtual teams, which is the primary research aim of this study. Moreover, this study also inspects two styles of leadership (i.e., transformational leadership and transactional leadership), which are frequently and widely used in the context of virtual teams and their impact on virtual team performance. Also, we examine the moderating effect of other team variables, such as i) cohesiveness, ii) empowerment, iii) trust, and iv) creativity.

1.2 Research Motivation

Despite the increasing number, the focus of most of the studies on virtual teams has been devoted to the technology impact thereby leading to fewer studies examining virtual teams' leadership and performance thoroughly (Duarte & Synder, 2001; 2008; Pinar et al., 2014; Morris, Dulebohn & Hoch, 2017). Also, many scholars find that traditional leadership styles and traditional team-based structures might not be effective in managing today's organisations (Susilawati et al., 2013). They suggest that further clarifications are needed on the following: i) comprehensive virtual team leadership strategy and the effective ways to lead virtual teams, and ii) the analysis of factors (internal and external) affecting the effectiveness of leading those teams (Kozlowski & Bell, 2001; Avolio & Bass, 2002; Morris, 2008; Truss et al., 2013; Pinar et al., 2014; Dulebohn & Hoch, 2017). This calls for an examination of the virtual team leadership, including factors impacting it.

This study addresses the above shortcomings by examining the impact of leadership styles, transactional and transformational, along with the moderating role of other standard and most investigated variables on the performance of virtual teams. Amongst the studies that have considered the leadership and management of virtual teams, transactional and transformational leadership styles have remained integral to the discourse of leadership styles (Avolio & Bass, 2002; Hamilton, 2010; Truss et al., 2013; Pinar et al., 2014) thus gaining popularity as artefacts of study (Kozlowski & Bell, 2001; Morris, 2008; Wang et al., 2014; Dulebohn & Hoch, 2017).

It is surprising, however, to note that there are a limited number of studies devoted to the impact of transactional and transformational leadership on a virtual teams' performance in the context of the virtual work environment in the Eastern and Arab

world. This creates a need to re-examine this issue in the local/regional context, which is addressed in this study. Also, there is a lack of relevant literature that helps us understand how to lead global virtual teams and boost their performance, and the moderators affecting the relationship between the applied leadership style and the performance of virtual teams (Sirkka et al., 2004; Tangen, 2005; Sena Ferreira et al., 2012). Thus, there is a need to examine these issues.

As mentioned earlier, the transformational and transactional leadership styles have remained integral to the discourse of leadership styles in traditional and virtual set up because these leadership styles cover the full range of leadership skills (Avolio & Bass, 2002; Riaz & Haider, 2010). Since the transformational and transactional leadership characteristics cover all the range of leadership skills, it is not surprising that most contemporary studies consider mostly these two leadership styles in empirical studies (Riaz & Hider, 2010).

However, no single leadership style might be considered as the best leadership approach for all situations (Griffin 1999). Instead, a combination of factors such as traits, situation, contexts and contingent factors account for the successful performance of any leadership style. Thus, many researchers have expressed significant interest in closing the relationship between leadership and organisational performance (Laohavichien et al., 2009). Thus, more studies are required to assess the same in a virtual work environment which motivated this thesis. Finally, the UAE has been working on adopting and employing e-concepts, which is noticeable through the significant presence of e-government. Furthermore, and as shown in Figure 1.1 below, the UAE government has shown clear and robust intent to move from a transactional paradigm to a transformational paradigm (Thomson Reuters,

2017). Hence, it is necessary to examine the issue of an active virtual leadership style that boosts and sustains the performance of virtual teams. As indicated earlier, the primary construct of interest and the dependent variable is the performance of virtual teams. This objective of this study is to examine the effects of an effective leadership style on it including assessment of moderating effects of the selective factors/moderators.

UAE MODEL FOR GOVERNMENT LEADERSHIP



Figure 1.1: UAE Model for Government Leadership

1.3 Research Problem

Team-based organisational structures have been widely researched to understand how teams better accomplish desired outcomes (Foote & Li-Ping Tang, 2008). Conversely, rapid globalisation coupled with the revolution in information and

communication technologies led to the rapid rise in the use of virtual teams (Gibson & Cohen, 2003; Hertel et al., 2005).

Presently, virtual teams are becoming more frequent and are expected to play an increasingly important role in organisations in the future as well (Lipnack & Stamps, 2000; Hertel et al., 2005). Moreover, in their drive toward success and sustainability, organisations have increasingly and intensively formed virtual working environments (Kankanhalli et al., 2007). Organisations in the UAE, like those in other countries, have followed a similar strategy. For example, Etisalat is one of the organisations which reflect the growth of virtual teamwork. It has adopted virtual working settings in both their local and global branches (Etisalat Inc. 2018). Mubadala is another example of a firm managing multiple projects with teams working in different sites that geographically distant, different time zones, and different cultures (Mubadala Inc., 2018).

Though this phenomenon had had a positive impact on the success of virtual teams; leaders are continually faced with several challenges to improve and boost the performance of team members and increase team productivity (May & Carter, 2001; Finholt, 2002; Stansfield & Longenecker, 2006). To add to it, the increase in the complexity of business environment demanded a strategic transformation of the leadership styles (Kalmanovich-Cohen, Pearsall & Christian, 2018). This was noted by other studies as well. For example, one recent study suggested that poor leadership style was one of the critical hindrances for a capable virtual team leadership (Alotebi et al., 2017).

Other such constructs as size, culture, technology, trust, and cohesion function (as moderators) are impacting the relationship between the leadership style and the

performance of virtual teams. Since each of these constructs has a different impact, it makes it essential to examine them (Cook et al., 1997; Koh, 2001; Wang et al., 2006), which reinforced by the fact that effective leadership remains a challenge in a face-to-face setting that might get more significant in the virtual work environment (Kayworth & Leidner, 2002; Carte & Becker, 2006).

Also, the present research conducted in this field articulates mostly virtual contexts from three main perspectives: i) virtual team characteristics, ii) practical skills for leaders, and iii) technological and IT impacts on virtual team success (Hooijberg et al., 1997; Judge & Piccolo, 2004; Purvanova & Bono, 2009). Most studies on virtual teams have focused on the first and third perspectives. Since the second perspective is less explored, as explained earlier, there is a need to understand further the most effective leadership strategy and style that would result in a positive impact on virtual teams and their performance.

Additionally, many scholars have observed the impact of transactional and transformational leadership on organisational outcomes using face to face teams. The results of these studies have shown a positive impact of transactional and transformational leadership on face to face teams' performance and organisational outcomes in different situations and across different cultures (Bryman, 1992; Avolio et al., 2009). It is still seen whether the impact remains the same in a virtual work environment. Especially so, when studies have noted that virtual leadership comprises two types of leadership: transformational and transactional leadership (Poole & De Sanctis 1989; Purvanova & Bono 2009). Also, it remains to be seen whether the impacts are the same in a different context and culture (e.g., the UAE). Therefore, this study examines the impact of transactional and transformational

leadership on virtual teams' performance in the context of UAE, which aims to provide a better understanding of a leader's actions in a virtual team setting.

Equally, the impact of numerous factors, that have been identified as moderators, on the relationship between the leadership style and the virtual team performance has not been comprehensively and widely studied in the MENA region, hitherto. Besides studying the impact of leadership style on the performance of virtual teams, this research is also concerned with covering the impact of selective moderators such as team cohesion, empowerment, trust, and creativity, which have been identified and examined in preceding studies (Griffin, 1999; Wang et al., 2006; Riaz & Haider, 2010). Moreover, those selective moderators were considered as critical elements of the proposed model of government leadership styles in the UAE context. On the other hand, some relevant studies have assessed the links of those moderators to transactional and transformational leadership, along with their impact on the performance of the virtual teams (e.g., Kayworth & Leidner, 2002; Hambley et al., 2007; Ruggieri, 2009; Hoch & Kozlowski, 2014). Other scholars investigated impact of specific moderators on the leadership styles. For instance, Hambley et al. (2007) asserted a positive moderating impact of team cohesion. Xiaojing et al. (2008) asserted the positive moderating effect of trust. Also, Shazia et al. (2010) claimed the impact of empowerment, while Rui et al. (2010) found that creativity exhibited a positive moderating effect.

Finally, it is vital to examine the impact of virtual leadership on the performance because the body of knowledge on the factors contributing to the performance of virtual teams and determining their effectiveness is not extensive and often contradictory (Ebrahim, et al., 2009; Algesheimer, et al., 2011; Hosseini et al., 2013).

To summarise, this quantitative study examines the impact of transactional and transformational leadership on organisational outcomes regarding virtual team performance and commitment in the UAE government sector. Further, this study aims to tackle the leadership style that might be appropriate for organisations in the UAE government sector in terms of improving virtual team performance. Lastly, the study examines the impact of selected moderators on virtual teams' performance. Those factors are team cohesion, empowerment, trust, and creativity.

1.4 Research Objectives

The objectives of this thesis are manifold. *Firstly*, to identify the appropriate leadership style that has a positive effect on the performance of virtual teams. *Secondly*, the research aims to identify the impact of selected moderators (team cohesion, empowerment, trust, and creativity) on virtual team's performance. The generated results from this study would be useful from both practical and theoretical perspectives. Understanding the impact of leadership style on the performance of virtual teams will help in the improvement of the overall performance of virtual teams and ultimately, the organisation.

1.5 Research Aims

This research study primarily aims at examining the transformational and transactional leadership theories, and to re-assess which leadership style has a stronger impact on virtual teams in terms of the improvement of their performance. The results of this study will enable leaders and decision makers in organisations better understand whether transactional or transformational leadership style is more effective leadership style impacting virtual team performance. Results will also help understand the impact of other moderators such as team cohesion, empowerment,

trust, and creativity on the relationship between the leadership style and virtual teams' performance. Further, the findings of this study will be useful to UAE public and private organisations as virtual teams are becoming a common phenomenon in the UAE.

1.6 Research Goals

This study on the impact of leadership style on virtual team performance aims to achieve the following research objectives:

- i] To examine the impact of transactional and transformational leadership styles on virtual team performance.
- ii] To examine the possible interaction effect of team cohesion, trust, empowerment, and creativity on virtual team performance.
- iii] To use the findings and propose a virtual leadership model to improve the performance of virtual teams.

1.7 Research Questions & Hypotheses

It is proposed that transactional and transformational leadership styles exhibit specific impacts on virtual teams' performance. Thus, this study aimed to answer following questions:

- i] RQ1: *Is there a relationship between transactional leadership and the performance of virtual teams?*
 - H_{0,1}: Transactional leadership style does not impact the performance of virtual teams.
 - H₁: Transactional leadership style positively impacts performance of virtual teams.

ii] RQ2: *Is there a relationship between transformational leadership and the performance of virtual teams?*

- H_{0.2}: Transformational leadership style does not impact performance of virtual teams.
- H₂: Transformational leadership style positively impacts performance of virtual teams.

Also, different moderator variables exist that may impact and influence the strength of the relationship between the leadership style and the performance of virtual teams. They include, but not limited to, employee empowerment, team size, cohesion, creativity, trust, technology, and culture, among others. However, as explained later, the current study focuses on four main moderators: team cohesion, empowerment, trust and creativity. The following research questions, along with the relevant hypotheses, will be examined:

iii] RQ3: *Does virtual team cohesion positively moderate the relationship between leadership styles and the performance of virtual teams?*

For the transactional leadership style, the following hypotheses are established:

- H_{03.1}: Virtual team cohesion does not positively moderate the relationship between transactional leadership style and the performance of virtual teams.
- H_{3.1}: Virtual team cohesion positively moderates the relationship between transactional leadership style and the performance of virtual teams.

For the transformational leadership style, the following hypotheses are established:

- H_{03.2}: Virtual team cohesion does not positively moderate the relationship between transformational leadership style and the performance of virtual teams.
- H_{3.2}: Virtual team cohesion positively moderates the relationship between transformational leadership style and the performance of virtual teams.

iv] RQ4: *Does team empowerment positively moderate the relationship between leadership styles and the performance of virtual teams?*

For the transactional leadership style, we proposed the following hypotheses:

- H_{04.1}: Virtual team empowerment does not positively moderate the relationship between transactional leadership style and the performance of virtual teams.
- H_{4.1}: Virtual team empowerment positively moderates the relationship between transactional leadership style and the performance of virtual teams.

For the transformational leadership style, the following hypotheses are established:

- H_{04.2}: Virtual team empowerment does not positively moderate the relationship between transformational leadership style and the performance of virtual teams.
- H_{4.2}: Virtual team empowerment positively moderates the relationship between transformational leadership style and the performance of virtual teams.

v] RQ5: *Does virtual team trust positively moderate the relationship between leadership styles and the performance of virtual teams?*

For the transactional leadership style, the following hypotheses are established:

- H_{05.1}: Virtual team trust does not positively moderate the relationship between transactional leadership style and the performance of virtual teams.
- H_{5.1}: Virtual team trust positively moderates the relationship between transactional leadership style and the performance of virtual teams.

For the transformational leadership style, the following hypotheses are established:

- H_{05.2}: Virtual team trust does not positively moderate the relationship between transformational leadership style and the performance of virtual teams.
- H_{5.2}: Virtual team trust positively moderates the relationship between transformational leadership style and the performance of virtual teams.

vi] RQ6: *Does virtual team creativity positively moderate the relationship between leadership styles and the performance of virtual teams?*

For the transactional leadership style, the following hypotheses are established:

- H_{06.1}: Virtual team creativity does not positively moderate the relationship between transactional leadership style and the performance of virtual teams.
- H_{6.1}: Virtual team creativity positively moderates the relationship between transactional leadership style and the performance of virtual teams.

For the transformational leadership style, the following hypotheses are established:

- H_{06.2}: Virtual team creativity does not positively moderate the relationship between transformational leadership style and the performance of virtual teams.

- H_{6.2}: Virtual team creativity positively moderates the relationship between transformational leadership style and the performance of virtual teams.

1.8 Research Importance

- *Firstly*, this research study is essential as it addresses the need to thoroughly analyse the impact of leadership styles on the performance of virtual teams and organisations (Northouse, 2007; Hambey et al., 2007).
- *Secondly*, despite growing of its importance, the body of knowledge on the factors contributing to the performance of virtual teams and the factors determining their effectiveness are not extensive and often contradictory (Ebrahim et al., 2009; Algesheimer et al., 2011; Hosseini et al., 2013). Prior research has identified the importance of social factors (Peters & Karren, 2009), task-related factors (Lipnack & Stamps, 2000), and communication (Maznevski & Chudoba, 2000). However, studying these factors within an integrated model has proved difficult because of their diversity and the difficulties associated with collecting data from virtual teams.
- *Thirdly*, as the use of the virtual environment is becoming a common phenomenon in the region generally and UAE in particular, this study will be beneficial in making a valuable contribution for both practitioners and academics to have better understanding and insights of the impact of leadership styles (transactional and transformational) on the performance of virtual teams in the context of UAE government sector. In general, numerous studies had observed that virtual teams lead to various performance outcomes to both the organization and team members in terms of higher outcomes, better financial results, customer satisfaction, career success, and others,

(Hooijberg et al., 1997; May & Carter, 2001; Finholt, 2002; Kayworth & Leidner, 2002; Judge & Piccolo, 2004; Carte & Becker, 2006; Purvanova, Joyce & Jessica, 2006; Stansfield & Longenecker, 2006; Hambley et al., 2007; Kong & Barsness, 2018). However, specific studies in the region and UAE are scarce, which may suggest that this study is essential and required for the UAE government sector.

- *Finally*, this study aims to provide an empirical model of the impact of leadership styles on the performance of virtual teams. The application of this study results may help organisations deploying virtual teams globally and in UAE to develop effective strategies to improve virtual team performance through the development of virtual team leaders.

1.9 Research Significance

This study investigates the impact of the most common and widely studied and used leadership styles, transactional and transformational, contributing to the literature on effective leadership in the virtual context. Additionally, it contributes to the literature on the moderating effect of team cohesiveness, empowerment, trust and creativity. It also makes it a significant contribution to literature as it is conducted in the UAE and rare studies addressed this subject in the context of the UAE.

Another significance is due to the new conceptual and theoretical framework that is developed based on transactional and transformational theory and, unlike other models, it has also considered the moderating effect of four factors. Another vital significance is that the study is targeting a sample of real virtual team members, whereas most of the other studies targeted either students or a random sample.

The research, at the business and practical level, is significant first because it is explicitly considering the context of the UAE. The assessment of leadership styles is being held in the UAE government sector using virtual team members' perceptions from numerous government entities. It seeks a holistic way to provide a comprehensive instrument that enables the assessment of leadership impact on the virtual team's performance. Another fundamental practical significance of this research is that it ties its approach with the UAE government leadership model.

It also makes it significant as the results and findings will enable team leaders and decision makers to define an effective virtual leadership strategy to deploy towards not only boosting the performance of virtual teams but also putting in place a practical leadership development framework for current and future virtual team leaders. Indeed, this will contribute to the success of the virtual team leader, members, and ultimately, the organisation. Last but not least, the findings of this study could be generalised and apply to the private sector as well.

In general, the study reports both academic and practical significance. It helps fill some gaps in the existing related literature, and it offers team leaders and decision makers with an analytical and operationalized framework that allows them to better understand and decide on effective virtual leadership (transactional or transformational) and the moderating effect of selective factors (team cohesiveness, empowerment, trust, and creativity).

1.10 Research Deliverables

As indicated earlier, the results of this study will enable organisations, globally and in the UAE, understand whether transactional or transformational is the more

effective leadership style about improving the virtual team's performance. Furthermore, results from this study should provide better insights and understanding of the determinants of virtual team performance in general and more so in the context of the UAE. This research study would also be providing recommendations that would help UAE public and private organisations gain insights regarding the impact of leadership on the performance of virtual teams, which are becoming a common phenomenon in the UAE. Finally, this study aims to provide recommendations about the most commonly addressed and studied moderators based on their impact on the relationship between the leadership style and virtual team performance.

1.11 Summary

To sum up, this Chapter conceptually presented an overview of the topical theme of this research study and addressed such critical elements as research motivation, problem, objectives, aim, goals, questions, and hypotheses, importance, significance, and deliverables. The rest of the thesis is organised as follows: Chapter 2 discusses the literature review. Chapter 3 presents the theoretical research model and the proposed hypotheses. Chapter 4 discusses the research methodology. Chapter 5 details the analysis approach and interprets the findings generated. Chapter 6 discusses the research findings, while Chapter 7 discusses some implications of the study findings, and suggested areas of future research in the same topical line.

Chapter 2: Literature Review

2.1 Introduction

The earlier chapter provided an introduction to this study. It included the problem statement, purpose, goals and objectives, research importance, significance, research questions, and research hypotheses. The relevant theory/literature supporting these research problems and questions is reviewed critically next. Doing this is necessary to understand this research study and its goals.

The first part of this chapter discusses leadership styles in terms of transactional and transformational leadership and critiques both styles, and it also elaborates conceptually on the leadership theories to give a better understanding of the psychology of leadership and highlight the importance of this phenomena. The second part discusses virtual teams. Its major sections and subsections include a definition and evolution of virtual teams, understanding of virtual teams, workforce types of virtual teams, virtual leadership and success factors, types of virtual teams. The last part discusses virtual team performance in terms of models, measures, and moderators. It concludes with the advantages and drawback of virtual teams.

2.2 Leadership Styles and Theories

This section is giving insights about the literature that is related to leadership styles and leadership theories. It addresses first the leadership styles and then conceptually presents the primary leadership theories addressed by the researchers.

2.2.1 Leadership Styles

Sivasubramaniam et al. (2002) grouped leadership into three categories: transactional, transformational, and laissez-faire leadership. The need to focus on

transactional and transformational leadership is based on the premise that these two have remained integral to virtual team performance management as opposed to laissez-faire leadership (Poole & De Sanctis, 1989; Purvanova & Bono, 2009). Also, Judge et al. (2004) in their comprehensive study of transformational, transactional, and Laissez-Faire leadership, reveal that transactional and transformational leadership styles resulted in the achievement of goals and assigned tasks.

Surprisingly, laissez-faire failed to predict leaders' job performance. Likewise, the effectiveness of transformational and transactional leadership has also been evidenced by other scholars, including Avolio & Bass (2002) and Yukl (2006). Also, the universality of transformational and transactional leadership paradigm was studied and evidenced by Bass (1997). All these studies found that the same styles with their conception of phenomena and relationships can be observed and applied in a wide range of organisations and cultures.

However, the scope of this research study covers only the transactional and transformational leadership styles. However, before discussing leadership styles, it is vital to gain a clear understanding of leadership, a subject that was extensively studied by social scientists because of its importance to organisational success. Due to the rapid economic and technological changes taking place, interest in leadership theories are still substantial with more than thousand articles related to leadership styles published around the world in 2016 alone (Northouse, 2007).

An important topic in this area of scholarship relates to different leadership styles. According to Yukl (2002), leadership involves influencing others by ensuring that they understand what needs to be done and how it will be done, to confirm that the set target or objective is achieved. This is similar to Northouse's (2007) observation

that leadership is a process through which a specific individual exerts influence over other individuals to ensure that a common goal is achieved. In contrast, Antonakis et al. (2004) proposed a broader definition that involved influencing the processes, as well as outcomes, of a given entity. Bass (1990) defines leadership as an interaction between two or more members of a group that often involves a structuring or restructuring of the situation and the perceptions and expectations of the members. Leaders are “agent of change” persons whose acts affect other people more than other people’s acts affect them (Bass, 1990, p. 19). Therefore, with this broad definition, any member of the group can exhibit some amount of leadership, and the member will vary in the extent to which they do so.

Scholars often explain differences in leadership effectiveness regarding the environmental factors by which a team operates. How leadership styles impact virtual team performance and a company's profitability is less well understood because of a large number of other factors that must also be considered. However, a causal link exists between leadership and team performance because leadership is concerned with building cohesive and goal-oriented virtual teams (Wakefield et al. 2008). As is evident from the various definitions of leadership given by different authors, one may argue that leadership entails influencing others to ensure that a pre-established common objective is achieved.

Despite the fact that there are multiple definitions of leadership, to some extent all agree that leadership is a structure in which a leader applies a directed influence onto the fellow workers this is done in order to enhance activities in the organization, structure, guide and foster relationship in a particular group or organization (Yukl, 2002). This is the definition of leadership we use in this study. To better understand

the evolvement of leadership styles, it is important to have a conceptual understanding of leadership theories. The next section gives a closer look at leadership theories.

2.2.2 Leadership Theories

Over the last hundred years, different leadership theories have emerged, showing a deep interest in the psychology of leadership and the importance of these complex phenomena (Seters & Field, 1990). Throughout human history, the man has been interested in leadership, and this interest increased substantially during the twentieth century. The history of leadership theories indicates that early leadership theories concentrated on what qualities distinguished between leaders and followers, whereas the subsequent leadership theories focused on other factors such as skills level and situational variables (Burns, 1978; Seters & Field, 1990; Bass & Bass, 2008; Avolio, Walumbwa, & Weber, 2009). Though several leadership theories have emerged to be classified generally into main eight theories:

2.2.2.1 Great Man Theory

A theory that was originally proposed by Thomas Carlyle, and it simply describes the leader as "born to lead". This theory assumes that leaders are born with required characteristics that enable them to be natural born leaders. (Burns, 1978; Seters & Field, 1990; Bass & Bass, 2008). This theory did not last long as it suggests that people cannot learn how to learn and develop themselves to become effective leaders.

2.2.2.2 Trait Theory

Not very much different than Great Man theory, this theory also assumes that people inherit certain traits and qualities that enable them better suited to leadership. It assumes that some traits are particularly better suited to leadership, and those having a sufficient combination of traits make a good leader (Stogdill, 1974; Burns, 1978). Different studies of leadership traits were conducted, and they agree only in the general saintly qualities needed to be a leader. Stogdill (1974) identified the several traits and skills as being critical to leaders: Traits include adaptable to situations, alert to the social environment, and ambitious and achievement-orientated and Skills include intelligence, creativity, diplomacy and tactfulness, knowledgeable about group task, and being persuasive.

Similarly, McCall and Lombardo (1983) identified in their study four key traits leading to success: emotional stability and composure, admitting error, excellent interpersonal skills, and intellectual breadth. This theory, nevertheless, was challenging to be used in practice due to its inability to justify and explain why those who possess those traits were not leaders. Likewise, it did not explain those who lack primary traits, yet they excel as leaders (Podell, 2013).

2.2.2.3 Contingency Theory

This theory proposes that leadership is about applying the appropriate behaviours that best suits the situation and is developed mainly by Fred Fiedler (Burns, 1978; Podell, 2013). According to this theory, no leadership style is best in all situations. Leaders who are successful in one situation (place and time) may turn out to be unsuccessful when they face another situation.

2.2.2.4 Situational Theory

Situational theory suggests that the success of the leader is based on his choice of best actions based upon situational factors. Leaders' style is affected with and guided by their perception of the situation, about themselves, and their followers (Stogdill, 1974; Podell, 2013). Maier (1963, as cited in Pedell, 2013) argued that in addition to the likelihood of the followers accepting a suggestion, the leaders also consider the importance of meeting the objectives and getting things done as required. This explains why leaders tend to be more directive in their style in critical situations.

It is worth to mention that the situational theory is similar to contingency theory. However, the main difference between them is that situational theory tends, with given situational variables, to focus more on the behaviours that the leader should adopt, often about followers' behaviour and skills, whereas contingency theory takes a broader view that includes contingent factors about leader capability and other factors within the situation (Stogdill, 1974, Podell, 2013).

2.2.2.5 Behavioural Theory

Behavioural theory is the flip-side of Great Man theory. It proposes that leaders can be made rather than are born. This theory considers the actions not the inherited traits of the leader and accordingly, the success of the leadership is based on learnable behaviour. Scholars view behavioural theory as a replacement of Trait theory as the former suggests leadership capabilities can be identified and learned. This assumption is the primary basis for leadership development (Stogdill, 1974, & Podell, 2013).

2.2.2.6 Participative Theory

This leadership theory proposes that the input of team members is taken into account where leaders encourage the contribution and participation of team members. Eventually, this involvement makes team members feel committed to the decision they have participated in or being involved in making (Stogdill, 1974). The influence given to the followers may vary depending on the leader's beliefs and other factors such as the type of the decision, and the objectives that the team can decide and be involved in. One major issue with this theory is that it may lead to feelings of disloyalty and unfaithfulness when the followers ask their leaders for opinions, and the leaders ignore them (Stogdill, 1974, Podell, 2013).

2.2.2.7 Management Theory

Management theory is known as transactional theory, and it was proposed in 1978 by James Burns and later evolved by Bass (Burns, 1978; Bass, 1985, Podell, 2013). It suggests that a system of rewards and punishments is the basis of this leadership. The reward is contingent on the successful performance of the followers. Punishments are also understood and implemented through the system in place. However, critics indicate that motivation is more complicated than managing it through a simple reward system.

The authority is ceded and devoted to the manager fully and the critical role of the followers to perform what they been told to accomplish (Stogdill, 1974; Bass, 1985; Bass, 1990). Bass (1990) elaborated on the characteristics of this leadership theory, where the team member is entirely responsible and accountable for the task assigned by the leader. He is rewarded when things go as desired, or he is punished when things turn out to be wrong. The leaders mostly apply *management by exception*

principle where tasks completed with the expectation of “being exceeded” is given attention, praised, and rewarded. Tasks with the expectation of “being met” are just accepted, and corrective action is applied for tasks that are “below expectation”. Generally, transformational leadership is known as "selling style" (Bass, 1990, Bass; 1999).

Transactional leadership is a well-known approach and widely implemented despite its limitations that have been highlighted by many research studies. The main restraint of this leadership style is that it assumes that people who are motivated by financial rewards have predictable behaviour. This results in ignorance of emotional constructs and multiple social values and factors (Bass, 1985; Bass, 1990). Generally, transactional leadership is known as "telling style" (Bass, 1999).

2.2.2.8 Relationship Theories

Relationship theory, developed by Bass and Avolio (1995), is known as transformational theory, and it focuses on the relationship and connections between the leader and the followers. It proposes that the leader has a vision and inspires his followers to accomplish tasks assigned with enthusiasm. Transformational leaders, while focusing on the performance, also work on making each team member fulfil his potential (Bass & Avolio, 1995; Bass, 2008).

This leadership begins with a developed vision which the leader repetitively sells with consideration to followers' integrity and trust. The transformational leaders are selling themselves while selling the vision in their journey to create followers. Transformational leaders seek a way forward to turn the vision into reality successfully, and they are happy as long progress is made, and they accept failures

along the way. They, in addition to the motivation of followers, stand to be accountable and demonstrate to their followers how everyone should behave and act creating a tacit desire to followers that they will be like this effective leader (Bass & Avolio, 1995; Bass, 2008; Todell, 2013).

Bass, as cited in Todell (2013), argued that one major limitation of this leadership is that the energy that motivates the followers can cause them to give up. Additionally, transformational leaders focus on the big picture, and if they did not have people looking after the details, then the probability of their failure is high. Finally, the transformational leader will be frustrated if he is working in an environment that does not need transforming (Bass, 2008; Todell, 2013). This study is investigating the impact of transactional and transformational leadership styles on the performance of virtual teams. Hence, it adopts Management (Transactional) and Relationship (Transformational) leadership theories. The theories adopted have guided the model design of the study and the interpretation of results. The theory in this study is supported and exhibits confidence in its authenticity by repeating the conduct of empirical investigations; this indicates that there is an unbreakable affinity between the theory and empirical research.

In the next Section, transactional and transformational leadership styles are discussed. The discussion will be held with consideration to traditional teams (face to face teams) as the virtual set up evolved in the latter half of the 20th century whereas the leadership styles have been reviewed and discussed decades earlier. Nevertheless, the study will address the evolvement and interaction of teams in a virtual context under the umbrella of selected leadership styles in this study. Focus on traditional teams will help gain insight and validate the role of leadership in virtual teams since

virtual teams, as opposed to traditional teams, are new and scarce in supporting literature.

As observed by Hamilton (2010), the consideration of the transactional and transformational leadership styles covers the full range of skills required to achieve a successful organisation. Nonetheless, the selection of one of these leadership styles may occur on the leadership continuum but may not exclusively be restricted to any context. The sections that follow cover the critical areas of transformational and transactional leadership style.

2.2.3 Transactional Leadership

According to Dulebohn & Hoch (2017), transactional leadership is built on two integral components: *management by exception* and *contingent reward*. Transactional leadership is a two-way traffic where a leader depending on employee performance, practises both positive and negative attributes, while prizes, compliments, and rewards are dedicated positively to the recognised performance of the employees. Punishment and reproach are directed to poor performing employees by the same leader. Further, transactional leadership uses both rewards and punishments to influence employee outcomes but not to try to change the underlying behaviour, which is one of the goals of transformational leadership (Peter & Austin, 1985).

Arguably, Bass (1985) was the first scholar to propose a transactional leadership style. Bass (1985) reasoned that pre-existing, leadership theories focused on a leader-follower relationship, but Bass (1985) was more concerned with improving performance concerning sanctions versus rewards. In that study, transactional

leadership also identified a definite link between this type of leadership and high performance of a traditional team.

In contrast to transformational leadership, the transactional leadership exhibited more impact on team output as compared to team satisfaction, which can be defined adequately through the mode in which a leader applying transactional leadership directs his/her team (Northouse, 2007). Transactional leaders create distinct frameworks and subsequently elucidate precisely what is required and ultimately reward team members accordingly. This leadership is anticipated to inspire better team performance rather than team satisfaction (Bass, 1990). The definite link is identified where the critical concern of transactional leadership is actually on the output and results of a team and not to building rapport and trust and thus the higher impact on performance as compared to satisfaction (Bass & Bass, 2008).

Transactional leadership is associated with teamwork being an exchange process. As mentioned above, transactional leadership directly deals with team members regarding rewarding or threatening them regarding punishment. This leadership style is also known as command and control leadership (Northouse, 2007). Relatedly, transactional leadership is explained by Bass (1990) as dealing with the role of “reward” as a motive for achieving results and “punishment” as a motive to ensure that a goal is achieved. Kullerman (1984) argued that transactional leaders advocated for a relationship of mutual dependence where contribution by either party is not only acknowledged but also appreciated.

According to Kullerman (1984), transactional leaders are very influential since their followers are left with no option but to do what is best for the leader. As far as the followers are concerned, for a transactional leader to be termed as being effective,

the leader must ensure that the expectations of the followers are fulfilled. The main advantage of transactional leadership, as explained by Bass (1985) and Sadler (2003) is that the style ensures that the roles and responsibility of each follower are well clarified.

The focus of transactional leadership is basically on interactions between the leaders and their followers (Avolio & Bass, 2002). The interactions are essential since they enable the leaders to achieve their objectives relative to performance, complete required tasks, sustain the organizational state, inspire followers via agreement, dictate the followers' behaviours relative to accomplishing set objectives accentuate extrinsic recompenses, evade unwanted risks, and ultimately concentrate on advancing organizational proficiency (Avolio & Bass, 2002).

Based on Avolio & Bass's (2002) assertion, transactional leadership facilitates achievement of the self-interests of workers and reduces workplace anxiety as it facilitates the followers to concentrate on attaining the organisation's goals, which may include reducing overall costs and maximising profits (Bass & Bass, 2008). Transactional leadership theory suggests that the relationship between leaders and followers can be defined as a sequence of interactions of satisfaction intended to optimise both personal and organisational benefits (Northouse, 2007).

The evolution of transactional leadership began from comfortable, fast exchanges among some leaders and followers each in search of satisfaction from one to another exchange (Bryman, 1992). Based on empirical study findings, there is a positive link between transactional leadership and organisational efficiency in some distinct settings (Northouse, 2007). The central concept in these articles was the relationship between transactional leadership and team creativity (Bass & Bass, 2008). The study

was examining the effect of leadership styles on group members' divergent thinking. The group members performed a brainstorming task, and their performance was assessed and evaluated using fluency and flexibility of creative ideas generated.

Two components were introduced into the relationship between transactional leadership and team creativity: *emotional labour* and *team efficacy*. As per crucial predictions, a probable negative link between team creativity and transactional leadership was proposed (Bass & Bass, 2008). It was further assumed that in a given environment, transactional leadership could lead to team creativity and that emotional labour was a moderating factor (Northouse, 2007). This information aids in creating a solid understanding of how transactional leadership promotes organisational efficiency (Bass & Bass, 2008).

Bryman (1992) stated that due to instilling fear in the followers, transactional leadership is not an ideal style of leadership. Their satisfaction and performance are negatively affected by the fact that they know the measures that will be adopted should they not achieve the desired results. Even though the present Section and its sub-sections elaborate on transactional leadership, whereas much attention paid to the linkage between virtual teams in the subsequent section.

2.2.3.1 Elements of Transactional Leadership

Transactional leadership emphasises the primary role of supervision, group performance, and organisation (Bass, 1985). In other words, transactional leadership is a form of leadership in which the leader is expected to promote the full compliance of the team or followers using rewards and punishments (Northouse, 2007). Changing the future is never the issue with transactional leadership as it is with

transformational leadership, but rather, it focuses on keeping things the same leadership wise (Forrester & Taschian, 2006). Transactional leadership is regarded as a viable model in global leadership as a whole, and those utilising it are expected to primarily focus on their teams' work and progress for the sheer purpose of unveiling possible deviations and faults (Northouse, 2007). This form of leadership is very fundamental in times of crisis and emergency periods and useful for the developments that need execution in a specific manner.

As mentioned before, transactional leadership consists of two fundamental attributes through which its implementation is made possible and smooth (Bass & Bass, 2008). These attributes are *contingent reward* and *management by exception*. Contingent reward offers a platform for rewarding and congratulating followers for their recognisable efforts to the organisation and also to acknowledge their top-notch performance (Avolio & Bass, 2002). Whereas, management by exception suggests that the management has to intervene in the instances which the followers fail to meet the set performance levels according to the organisation, thus responsible for the initiation and supervision of correctional measures meant for instilling integration in performance levels (Northouse, 2007).

Typical examples of transactional leadership include coaches or trainers of sports teams who use winning a game or tournament as a top reward (Northouse, 2007). They are faced with the responsibility of instilling a very high level of commitment in that their team members can virtually risk all the pain, injury and other similar atrocities therein to get that win their leader asks of them. Bass & Avolio (1995) pointed out three major concepts in inspiring team efficiency; these are i)

development of distinct subordinate frameworks, ii) elucidation of what is required, and iii) provision of appropriate rewards.

Transactional leaders tend to apply the following three behavioural acts (Northouse, 2007). First, they are involved with close monitoring of their subsequent teams to guarantee they achieve the set target and meet the goals. Second, the leaders involved in this type of leadership design and define clear structures of what they expect from their employees. Third, when the roles are correctly performed, they provide rewards accordingly (Avolio & Bass, 2002). Moreover, by displaying the behaviours as described above, the leaders can actively contribute to the better performance of their teams.

In Management by exception, the leader is involved in monitoring his/her team and in the case of any setbacks takes appropriate actions to guarantee the attainment of the set target. Management, by exception, can be looked from two perspectives:

- i] The leader will only intervene when a team member tends to differ with the previously established rules; this will translate in the punishment of the team member, and this type of leadership is also viewed as ineffective or passive.
- ii] The leader may decide to put the team members to work on their own and intervene when necessary, this type of leadership is also known as active, although it is also ineffective.

In a contingent reward system, leaders recognise accomplishments and consequently give rewards as a way of recognising good performance and distinct effort. A team member is rewarded for meeting previously set goals. This kind of leadership is characterised as productive and active (Bass, 1985; Avolio & Bass, 2002).

2.2.3.2 Critiquing Transactional Leadership

Transactional leadership has been argued to facilitate short-term interactions with the leader. The aspect of transactional leadership in which it only promotes surface and temporary interactions of satisfaction ultimately leads to resentment, which occurs between the participating individuals. Moreover, transactional leadership is often criticised based on its application of an approach referred to as one-size-fits-all which neglects both contextual and situational factors that are associated with challenges in an organisation (Avolio & Bass, 2002). This led to the development of transformational leadership that is discussed next.

2.2.4 Transformational Leadership

Bass (1990) conducted a comparison between transformational leaders and transactional leaders. On the one hand, transformational leaders would strive to transform their organisations and seek ways to advance the relationship with followers beyond self-interest. On the other hand, transactional leaders focus on self-interest. This comparison meant that transformational leaders have more than self-interest at stake. In this context, Bass (1990) asserted that what is suitable for the organisation will eventually be useful for the leaders and the followers. Therefore, the difference is substantial because the transformational leader seeks to inspire employees to look beyond mere self-interest.

Transformational leaders seek to change the organisational culture, unlike transactional leaders who want to operate within the existing organisational guidelines. Transformational leaders use more than simple rewards to motivate employees (Bass & Avolio, 1995). Transformational leaders motivate their followers via personal leadership, inspiring employee effort, intellectual stimulation, and

individual consideration. By comparison, transactional leaders are not concerned with inspiring beyond self-interests, which may hinder team building and creativity (Bass, 1990).

It may be added that both transformational and transactional leaders strive to achieve set goals; however, the transformational leader places a greater emphasis on organisational impact (Bass & Avolio, 1995; 2002). Although transactional and transformational leadership styles have a positive performance on productivity, a stronger relationship was exhibited in transformational leadership (Lowe & Kroeck 1996).

Transformational leaders are inspirational and motivational; they drive a higher moral incentive for team members (Burns, 1978). Transactional leaders give orders to achieve success. Transformational leaders sell ideas and believe in the team's ability to achieve success (Ricketta, 2008). Transformational leadership aims at raising the performance of a team to unknown levels through the leadership motivation and inspiration of their team members (Dvir et al. 2002).

Burns (1978) introduced transformational leadership as a model in which change leaders help motivate followers. According to Burns, transformational leaders require the following:

- Perceptual changes of the follower regarding the importance of the organisation (Barbuto, 2000).
- A wide range of leadership characteristics (Northouse, 2001).
- Higher quality relationships with followers when compared to transactional leaders (Bass, 1997).

It must be noted that the primary focus of the leading research that has been done in the last ten years has been on transformational leadership: in fact, more than on the work conducted on all other leadership theories combined (Bono & Judge, 2000). There are multiple reasons for this: i) it is considered to be more effective in influencing others/followers, ii) it has a positive influence on organisational outcomes (Kirkpatrick & Locke, 1996), and iii) it is more effective in improving the inspiration, the drive, and the output of followers (Burns 1978; Bass 1985). About point 3, Bass (1985) contended that transformational leadership inspires followers to do more than they would have expected to accomplish.

Similarly, Seltzer & Bass (1990) asserted that transformational leadership can help broaden and elevate the interests of the followers and that it may generate awareness and motivation of the purpose and mission of the organisation. According to the authors, it is a theory of leadership that brings the objectives of a group above individual needs for the attainment of a common goal. Transformational leadership connects with followers and appeals to their needs, which would result in higher performance and satisfaction among followers (Bryman 1992).

Transformational leaders use a set vision to inspire the members to see and approach the future by displaying to them what lies ahead (Northouse, 2007). A transformational leader can be described best as a coach who is involved in inspiring all his team members each on a personal level and encourages them to go back and assess their actions to facilitate personal development. Transformational leaders have a set of characteristics that they exhibit, such as integrity and concern for the welfare of the team (Avolio & Bass, 2002). They project a vision and clear goals that they share with their members. Transformational leaders communicate to their team

members' high expectations, and the overall proper performance of their teams is inspired by their actions of encouraging their team members to apply new tactics and methods in approaching their tasks (Northouse, 2007). In comparison, transactional leaders design frameworks that guide them in monitoring and managing their employees.

To sum up, the literature on leadership styles has highlighted the decisive role of transformational leadership (Burns, 1978; Bass, 1985; Bass & Bass, 2008) in inspiring and motivating team members. The main objective of transformational leadership is to motivate followers to ensure that they achieve incredible levels of performance (Bass, 1985; Bass & Bass, 2008).

2.2.4.1 Elements of Transformational Leadership

Transformational leadership is composed of the following leadership attributes and behaviours: a) idealised influence, b) inspirational motivation, c) intellectual stimulation, and d) special consideration (Bass & Avolio, 1995; Bass & Riggio, 2012). Research has established the idea that those four dimensions may affect critical organisational attitudes and outcomes (Bass, 1997; Avolio, 2009). Idealised influence suggests that transformational leaders act as role models for their subordinates. Leaders set an example of moral conduct in both their personal and professional lives leading to follower identification (Bass, 1997). The use of formal, legitimate power is the last resort for a transformational leader.

Inspirational motivation suggests that transformational leaders motivate and inspire subordinates by providing meaning and challenge through an emphasis on teamwork (Bass, 1997). Inspirational motivation leads to internalisation. Leaders work with

followers to build a shared vision for the organisation while articulating expectations and goals. Intellectual stimulation suggests that leaders allow subordinates to creatively address problems through new techniques (Northouse, 2007). Leaders ensure an open exchange of ideas by allowing mistakes, soliciting new methods for problem-solving, and evaluating the followers' processes rather than situational outcomes. Individualised consideration suggests that leaders are concerned with the understanding of personal concerns, are active listeners, and have an acceptance of individual differences (Bass, 1997).

Previous research has shown that effective leaders of virtual teams operating in complex environments must respond with various sets of behavioural repertoires and leadership roles to facilitate the high performance of team members and the success of the team (Denison et al., 1995). Studies have also shown that transformational leaders perform multiple leadership roles and behaviours to facilitate success on both the individual and the organisational level (Bass & Avolio, 1995; Bass & Riggio, 2012). This type of leadership is seen as both active and practical; due to its ability to focus more on trust rather than on control, and it is found to be suitable for virtual teams (Bass & Avolio, 1995; Purvanova & Bono 2009). Habley & Schuh (2007) confirm that both transactional and transformational leadership play significant roles in ensuring superb team performance.

Transformational leadership is more valiant in bringing success to the organisation and encourages team members to work more on their performance (Powell et al., 2004). A study conducted by Kouters (2009) concluded that there exists some cordial relationship between trust and transformational leadership and that transformational

leadership is based on trust, which is considered as the backbone to virtual team performance.

2.2.4.2 Critiquing Transformational Leadership

Based on numerous empirical studies that have been conducted over the years, a significant number of them support the fact that transformational leadership has a positive impact on the performance of both the team players and the overall organisation. However, as in all cases, there are criticisms of transformational leadership. According to Yukl (2002), there is uncertainty in the underlying mechanisms relative to leader influence on employees in transformational leadership. Additionally, there is only minimal literature on the impact of this form of leadership on virtual teams and organisations (Northouse, 2007).

Critics also focused on both idealised influence and inspirational motivation, where the overlap between the fundamental frameworks was thought to exist. According to Yukl et al. (2002), the transformational leadership theory was characterised by the insufficiency in the aspect of identifying the impact of the variables of situational and context aspects on the efficacy on leadership. Nonetheless, as discussed earlier, there is a significant amount of literature relative to transformational leadership. In the next section, virtual teams are discussed.

2.2.5 Transformational, Transactional Leadership & Virtual Teams

In considering transactional versus transformational leadership, Avolio & Bass (2002) considered an ethical behaviour perspective, where the styles were viewed as definite paradigms strengthened by distinct ethical basics. Northouse (2007) proposed that transactional leadership can be viewed to flow from utilitarianism

(teleological ethical principles) while transformational leadership as coming from altruism (deontological ethical principles). Bryman (1992) states that transactional leadership is not an ideal style of leadership as it instils fear in the followers since they know the measures that will be adopted should they not achieve the desired results and that this hurts employee satisfaction and performance.

In diverse research on virtual team leadership, the distinction between transactional and transformational leadership styles is widely accepted (Northouse, 2007). The style of leadership is identified as a critical component in inspiring high performance, among other things such as team efficacy. However, despite each style having individual impacts, it is still a contentious issue on whether they are conflicting or complementary concepts (Northouse, 2007).

Some scholars found transformational leadership as a leadership type that perceives followers' effectiveness and predicts cohesion and empowerment (Jung & Sosik, 2002). The employment and effective implementation of transformational leadership guarantees on the whole better outcomes in terms of efficiency in traditional teams, even though situations were found in which also transactional leadership can be associated with work results positively (Judge & Piccolo, 2004; Ruggieri, 2009).

On the whole, and as mentioned earlier, research with a primary focus on the effectiveness of transformational and transactional leadership within the context of virtual teams is relatively scarce (Hambey et al., e, 2007). Because of that, the next section discusses and elaborates on virtual teams.

2.3 Virtual Teams

With the emergence of the digital age and the increased reliance on the Internet, the virtual environment and virtual teams became an attractive option for organisations to conduct their work. Virtual team members no longer need to be physically in an office to communicate and collaborate. With the help of the Internet, virtual workers can meet and communicate in the cyberspace via computer-mediated communication systems (CMCS) (Coleman, 1997). Since the workplace of virtual teams is different from those of onsite teams, they present different sets of challenges and opportunities. Consequently, the leadership style that is required for the effectiveness and the success of virtual teams is also different.

Zaccaro & Bader (2003) noted that two forces might significantly affect organizational leadership: 1) communication technology boom, which has dramatically enhanced the degree of communication among co-workers, colleagues and the bosses themselves who are geographically separated; and 2) a continued increase of global dispersion in divisions and subunits, stakeholders and suppliers belonging to the organization. Cascio & Shurygailo (2003) asserted that these factors compelled organisations to rapidly create virtual teams of talented people who can respond to the needs of their customers. In order to further discuss virtual teams, it is essential to agree on an operational definition. This is done next.

2.3.1 Definition and Evolution

Zenun (2007) defined a "team" as a small number of people with complementary skills, who are equally committed to a common purpose, goals, and working approach for which they hold themselves mutually accountable. Chudoba et al. (2005) contended that defining a virtual team is problematic due to its multiple

institutional contexts. Kirkman et al. (2002) defined a virtual team as a group of workers who work distantly from each other but with the same objective to achieve within a specified time and rely on advanced technological innovations with which to interact with one another.

Gassmann and Von Zedtwitz (2003) defined the virtual team as “a group of people and sub-teams who interact through interdependent tasks guided by a common purpose and work across links strengthened by information, communication, and transport technologies”. Whereas, Hertel et al. (2005) defined it as “a virtual team is geographically dispersed work groups whose members coordinate their work predominantly with electronic information and communication technologies (e-mail, video-conferencing, telephone, and the like). Griffith et al. (2003) asserted that a virtual team might be a mixture of non-virtual and virtual members.

The main commonalities in most of the perspectives given on virtual teams by different authors include the idea that virtual teams are geographically dispersed which allows organisations to hire talented and skilful workers without being restricted by geographic locations. Virtual teams have a specific goal, are formed for a specific task or project, and are temporary, which suggests that they may be dismantled once the objectives are achieved (Lee-Kelley & Sankey, 2008). However, scholars in the field differed on the temporariness of virtual teams (Gassmann & Von Zedtwitz, 2003). Table 2.1 shows the standard criteria and other characteristics of virtual teams.

Table 2.1: Four Standard Criteria of Virtual Teams

Virtual Teams	Descriptions	References
Common Criteria	Dispersed geographically over different time zones	Wong & Burton, 2000; Dafoulas & Macaulay, 2002.
	Driven by a common purpose (guided by a common purpose)	Bal & Teo, 2001; Rezgui, 2007
	Enabled by communication Technologies	Bal & Teo, 2001; Nemiro, 2002; Peters & Manz, 2007.
	Involved in cross-boundary collaboration	Bal & Teo (2001); Gassmann & Vol Zedtwitz (2003)
	Non-permanent Team	Wong & Burton (2000); Bal & Teo (2001); Cascio & Shurygailo (2003).
Other Characteristics	Small in size	Bal & Teo (2001)
	Predominantly knowledge workers	Bal & Teo (2001); Kirkman et al. (2004)
	Team members belong to different companies	Dafoulas & Macaulay (2002)

Source: Ebrahim et al. (2009)

Table 2.2 below shows the characteristics of both physical teams and the virtual team.

Table 2.2: Comparison of Physical Teams with Virtual Teams

Aspect	Characteristics of physical team	Characteristics of virtual team
Communication	Team members tend to share work and non-work information	Virtual team members have a minimal information exchange as non-work
Use of resources	Resources are shared among members	Team members have similar access to the organisation resources
Accountability	The team leader is often referred to as a project manager responsible for ensuring that the project is run well	A virtual team leader is responsible for the task
Characteristics of the members	Members are likely to be from one cultural background as well as the same educational background	Members are from diverse backgrounds and have different education qualifications
Technical abilities	Basic technical know how	Expert technical knowhow

(Source: Pawar & Sharifi, 1997)

Powell et al. (2004; p. 11) defined virtual teams as "groups of geographically, organizationally, and time dispersed workers brought together by information technologies to accomplish one or more organisation tasks". This definition is adopted in this study, and the next section provides a deeper understanding of virtual teams.

2.4 Understanding Virtual Teams

This section gives more insights into virtual teams for a better understanding of its nature in order to proceed to further elaboration on the role it plays in the organisational environment.

2.4.1 Non-virtual Versus Virtual Teams

Non-virtual teams can be defined as a group of individuals working independently and have typical responsibilities regarding an outcome; such teams will always associate themselves as complete social entities fixed in one or more extensive social system. Conversely, Powell et al. (2004) suggested that the virtual team definition previously stated is temporary. However, it is the regular physical proximity of non-virtual teams that distinguishes them from virtual teams. As far as this study is concerned, virtual teams in the UAE government sector are considered to be the teams having a single manager with team members located in various locations.

2.4.2 Differences between Non-virtual and Virtual Teams

Three aspects differentiate virtual and non-virtual teams: space, time, and organisational boundaries.

2.4.2.1 Space

Based on the definitions of virtual teams, space arises from the aspect of geographical distance. Townsend et al. (1998) agreed that virtual teams are demonstrated by their ability to spread on a global base geographically as compared to virtual teams. Townsend et al. (1998) argued that recruiting workers in a virtual team environment is not as demanding in comparison to a non-virtual team environment.

2.4.2.2 Time

With a virtual team's ability to spread globally, it can perform its functions on a twenty-four-hour basis compared to the non-virtual teams, which only work eight hours per day. Working in the virtual space, twenty-four hour a day is further supported by the different time zones globally. Another difference is duration as most virtual teams are assembled to achieve specific goals, which may require less time to achieve. In comparison, non-virtual teams are put together for a more prolonged period (Jarvenpaa & Leidner, 1999).

2.4.2.3 Organizational Boundaries

Virtual teams consist of members from different units or different organisations while non-virtual teams typically work in a single organisational unit. One advantage that is realised as a result of cross-border cooperation is that the professional contributions may be broader. (Townsend et al., 1998; Griffith et al., 2003; Carreno, 2008). The differences mentioned above are significant to note because it implies that virtual teams have different dynamics in the workforce. This is discussed next.

2.5 Virtual Teams and Workforce

Virtual teams emanate from different angles, which can be from multicultural issues, ethical issues, trust building, communication, and structural (Zaccaro & Bader, 2003). Zaccaro & Bader (2003) proposed that some significant advantages characterise a virtual team as opposed to facing-to-face teams. Some of these advantages include the observation that virtual teams are not limited to geographical settings as opposed to face-to-face teams, virtual teams can provide a competitive advantage to their parent organisation (Carreno, 2008), and that it is easier for the virtual teams to generate social capital.

Zaccaro & Bader (2003) were also interested in understanding how virtual leadership contributed to the growth of virtual teams, while at the same time checking losses and improving the team's membership trust, as well as discovering what should be done to develop trust in virtual teams. For illustrating the basics of trust development in virtual teams, the two scholars proposed a three-stage module:

- i] Leaders should come up with the knowledge-based truth, which can help in familiarising team members to each other, as this helps in anticipating their behaviours readily.
- ii] Leaders should create environments based on trust, where team members can share their needs, values, and goals, as well as their preferences.
- iii] Leaders should create a calculus-based trust that will oversee trust in other team members, which can spread continuously in a diverse team situation.

Some key issues would likely govern virtual leadership applied in virtual teams. Since virtual teams heavily rely on computer-based communication over boundaries

that differ across time, culture, geography and organisational affiliation virtual, leaders must devise solutions that incorporate the following components:

- i] Critical factors that oversee the effectiveness of these virtual teams.
- ii] Traditional roles of virtual leaders should be incorporated and redefined.
- iii] Roles should be outlined across all spatiotemporal contexts.
- iv] There should be the role of facilitators in virtual teams.

Walvoord, Redden, Elliot & Coover (2008) asserted that for leaders to be effective, they must demonstrate relationship skills in the following areas:

- Motivation.
- Listening.
- Conflict management.
- Communication.

The four scholars further claimed that the vital role of leadership skills is communicating one's intent to fellow team members to help the team members first to understand the messages and then respond to them in a way that helps achieve the goals of the team. This communication is essential in the modern world where computers are the primary means of communication. Kayworth & Leidner (2002) attributed the need for a virtual team as being fuelled by globalising of commercial operations, continued flatter to organisational structures, shifts from production to service-related businesses, and an emerging group of young individuals who are not tied by physical working conditions.

Typical benefits from virtual teams include the reduced cycle times, improved decision making and an excellent problem-solving, cost saving; multiple perspectives

are originating from different cultures and business customs and talent maximisation without relocation costs (Kayworth & Leidner, 2002). This is not to say that virtual teams do not face challenges. However, Kayworth & Leidner (2002) identified the main challenges as they do not differ from those of traditional teams because both relate to communication, culture, and project delivery. Challenges that are more specific to virtual teams include the misunderstanding solely due to lack of response, problems that can be traced from communication, the absence of a shared context from which messages can be interpreted, the lack of mechanisms for monitoring team members and reduced control and reward capabilities by the team leader.

The last factor forces innovative solutions. Geister et al. (2006) reasoned that for performance and satisfaction of a virtual team, it is the responsibility of the manager to foster a healthy relationship. Geister et al. (2006) argued that social factors have a significant impact on the productivity and satisfaction of virtual teams and that factors like cohesion, trust, relationship building are critical for virtual team efficiency. These scholars further asserted that communication is a unique tool that has a direct influence on the social scale of the team, while the performance of the team is associated with the positive impact on the satisfaction of the virtual team. Furthermore, the effects felt by the team were mediated by media richness, even when it was low. They concluded that task cohesion would only be realised if there are group consensus and satisfaction, and a cooperative climate is raising discussion contentment and reduces task time requirements.

Virtual leadership continues to experience difficulties related to bridging the distance among followers, ensuring that there is effective communication among followers, ensuring there are interest and inspiration among them, and also the aspect of

building trust with people without a prior face to face encounter (Kayworth & Leidner, 2002). Trust, cohesiveness, empowerment and the ability to communicate effectively are the main factors that influence virtual teams and their performance (Kayworth & Leidner, 2002). To raise the performance of a team, it is vital for one to fast deal with cohesiveness, trust, empowerment, and ensures that communication among the team members is effective (Zaccaro & Bader, 2003). The concept of virtual leadership is discussed and detailed in the next subsection.

2.5.1 Virtual Leadership

Team-based organisational structures and their advantages and disadvantages have been widely researched by scholars to understand better how and why teams achieve desired outcomes (Foote & Li-Ping Tang, 2008). Due to rapid globalisation, new networks of relationships are forming between geographically dispersed business entities and geographically dispersed members giving rise to virtual teams, who coordinate their activities using information and communication technology (Gibson & Cohen, 2003; Hertel et al., 2005).

Virtual teams have become an integral part of organisations, and they are a logical evolution from traditional organisational structures (Lipnack & Stamps, 1997), evolved to meet the rapidly changing and highly competitive business environment. Ahuja & Galvin (1998) highlighted that there are as many as 8.4 million employees in the U.S., who are members of one or more virtual teams.

Most of the problems prevalent in virtual work environments require leaders to adopt different systematic procedures. Use of effective procedures when attempting to generate any solution has proved so relevant for many virtual teams and their

performances. Leaders can try to encourage some of the frequent discussion on a wide range of options. Preventing a team from going beyond the cost and benefit of each option can also play a significant role in combating virtual workplace problems.

Kalmanovich-Cohen et al. (2018) acknowledged that we are living in a complex business environment which requires a fast, flexible, dynamic approach to problem-solving to realise our objectives. The drastic changing environment is a clear demonstration of the urgent need to transform our leadership styles. Virtual leadership is a new type of leadership projected to curtail these problems. Mochaitis et al. (2012) noted that any virtual team comprising of more than three members objectively qualifies to the complexity and managerial issues if it is operating internationally. Continuous evaluation of virtual team strategies is the only effective way virtual team leaders can control a spiralling virtual team environment (Alotebi et al., 2017).

Virtual team leadership has enabled organisations to save a considerable amount of money that would have gone to renting of large spaces, meeting travel costs and paying taxes (Kalmanovich-Cohen et al., 2018). Organisations can now effectively increase their productions within minimally reduced timeframes and saving of cost. According to Alotebi et al. (2017) poor planning, lack of adequate training, poor leadership skills, negative attitudes, and lack of support among team members are the key hindrances to effective virtual team leadership. Lack of strategies to lead virtual teams has been blamed for the poor performance of virtual teams.

Virtual leadership offers the ability to provide a higher level and more rapid service through the recruitment of a broader talent pool and their potential management across an entire 24-hour period in a "follow the sun methodology." The downside of

this method is a potential exacerbation of a leader's weakness due to additional work demands. Additionally, any shortcomings in their abilities to communicate messages with the team members may be worsened by the reduce pathways for communication that is now open to them. As the concept of the virtual team increases, the existing drivers of international dispersion regarding subunits and divisions, consumers, shareholders, distributors of the company will only increase (Kayworth & Leidner, 2002).

Although many organisations utilise and implement technology with the anticipation of private gains and commercial activities encompassing elevation inefficiency, increased productivity and maximise profitability, few studies draw a clear corollary between ICT and subsequent corporate gains. Technology also has the possible downside of alienation, so predicting the level of success in implanting technology in a company in a virtual leadership context is hard to predict (Poole & De Sanctis, 1989).

Successful past leadership has had a proven positive impact on the present's day successful leadership in non-virtual environments. The historical record for virtual environments is less clear. This is even truer for e-business models, despite a general rush of existing non-e-business companies trying to adapt to some form of a virtual business model rapidly. Conclusively, e-business is making its way into almost every strategy involving business in general, becoming a stationary component and omnipresent in all areas of business. Regarding leadership trends in virtual business, it is more of a state of mind notion, being accepted, embraced and implemented by companies starting from scratch to the firms advancing from an already established point.

Decision making has remained a key area of concern in virtual team management; specifically, how managers in virtual teams' process and offer task support. Their findings showed that transactional leadership has a direct impact on improving team cohesion, while transformational leadership only indirectly improved task cohesion. Virtual leadership is composed of two types of leadership's transformational and transactional leadership (Poole & De Sanctis, 1989; Purvanova & Bono, 2009). Transformational leadership focuses on charismatic and effectiveness as the main components of leadership. According to Burns (1978), transactional leadership is a type of leadership where both leaders and followers interact cohesively. The leader's primary responsibility lies in offering followers some tangible rewards as an acknowledgement of their efforts (Bass, 1985).

2.5.2 Leadership Difference from Leading Traditional Teams versus Virtual Teams

The traditional team consists of team members working in physical proximity, whereas virtual teams consist of groups of team members separated geographically, culturally, and by time zones and their interaction is mediated by ICT tools (Ahuja & Galvin 1998; Gibson & Cohen, 2003). Both traditional and virtual teams go through different stages of team formation and development, wherein the dynamics experienced by the members of virtual teams are more complex than those of traditional team members. Such complexity might be attributed to the fact that virtual team members are relying largely on using the electronic modes of communication and collaboration in their work activities. Also, time zone differences and cultural boundaries add to the complexity (Gibson & Cohen, 2003; Hertel et al., 2005; Alotebi et al., 2017; Kalmanovich-Cohen et al. 2018). Thus, for virtual teams, the challenges experienced by the traditional teams rise manifold. Not only this, there

might be further new challenges that remain solely in a virtual environment (e.g., Zigurs, 2003; Hertel et al., 2005; Foote & Li-Ping Tang, 2008; Purvanova & Bono, 2009).

Research studies indicate that the virtual environment offers complex and some unique challenges compared to a traditional setup (Zigurs, 2003; Alotebi et al., 2017). This finding leads to the fact that in order to overcome those challenges and unleash the potentiality of team members, the leaders of the virtual teams need to revisit and customize their leadership approach and use a blend of different techniques and skills (Ahuja & Galvin 1998; Kayworth & Leidner, 2002; Gibson & Cohen, 2003; Hertel et al., 2005; Mochaitis et al., 2012; Alotebi et al., 2017).

Zigurz (2003) asserted that virtual teams had been afforded a unique opportunity to redefine leadership. In the traditional setup, the leaders manage, encourage, reward, follow up, and motivate the follower mostly through physical presence or feedback, and they reinforce the development of relationships. He claimed that the recognizability of the leader's status is one fundamental characteristic in this new context.

One significant change in leadership approach is related to the leader's knowledge and skills of ICT and CMCS technologies. Virtual teams use merely CMC technology to interact and communicate, and those CMCs mostly differ from traditional face to face communications. Many scholars argued that this characteristic of virtual context is the most significant because the communication is usually asynchronous instead of synchronous (Kayworth & Leidner, 2002; Zigurs, 2003; Hertel et al., 2005; Purvanova & Bono, 2009; Mochaitis et al., 2012; Alotebi et al., 2017). This temporal independence of using CMCs for communication resulted in

changes in patterns of decision-making, approaches of work, and enhanced our understanding regarding the relationship between team members and its development. Thus, it is essential that leaders develop their knowledge of understanding and using the CMCs convenient for communication, and also assure that team members have the required skills to use those technologies.

Another key difference affecting the leadership approach is the cultural difference. The diversity in the ethnic background and culture of team members is prevalent in virtual teams. Sandy and Lina (2006), claimed that cultural background has a significant impact on the homogeneity of the team. This involves but not limited to individualism values, habits, traditions, customs, languages spoken, country of birth, and nationality. The higher the homogeneity, the higher the performance level of teams and the more the heterogeneity, the more are the chances of conflicts and lesser is the satisfaction. Many scholars also argue that culture is one of the most complex and challenging factors that virtual team leaders are facing. Unlike traditional team leaders, virtual team leaders have to be attuned to cultural differences and its impact on team building (Hertel et al., 2005; Sandy & Lina, 2006; Purvanova & Bono, 2009; Gregory, 2011; Mochaitis et al., 2012). On the other hand, exhibiting the behavioural leadership attributes is another key challenge the leaders need to consider and articulate while managing virtual teams.

The interaction in traditional setup involves body language, vocal inflexion, eye contact, and clothing, which is difficult to be perceived in the virtual context. As a consequence, the reflection of leadership attributes, behaviours, and characteristics is associated with complexities (Judge & Piccolo, 2004; Sandy & Lina, 2006; Gregory, 2001; Kalmanovich-Cohen et al. 2018). For instance, Jung and Sosik have found that

though transformational leadership is based on idealised influence or "*charisma*", most leaders in virtual context struggle to represent this charisma. It is claimed by many scholars that demonstrating the attributes requires high level of not only emotional intelligence but also artificial intelligence to assure that the CMC used is conveniently addressing the required message or giving the required reflection of the desired attribute (Judge & Piccolo, 2004; Sandy & Lina, 2006; Hambey et al., 2007).

In general, a virtual team leader should customise the leadership approach while managing and leading in a virtual context. He needs to have high levels of techno-socio-emotional capabilities and should be able to strike a perfect ability to overcome the challenges faced with virtual teams by implementing all possible solutions and create a distinctive approach to manage multi-cultural, multi-lingo, multi-geographies and multi-time zone member, team. We discuss more of these success factors next.

2.5.3 Virtual Team Leadership Success Factors

Numerous studies have analysed the critical success factors in virtual team leadership (Horwitz & Albert, 2006). While technology plays an important role, most of the authors in the field identified that having clear objectives, team size, and cohesion as the most critical factors contributing to virtual team success. Team forming is critical to success because individuals must be productive and feel comfortable while working in teams virtually.

Lipnack & Stamps (1997) stated that the success of virtual teams in achieving their goals is driven by three elements: co-operative goals, interdependent tasks, and concrete results. Virtual teams rely on a clear purpose because of their cross-

boundary work. Cooperative goals define the outputs desired, while interdependent tasks connect those desired outcomes to those achieved. Previous virtual team performance models have not focused on the style of leadership that is effective in improving performance (Neely et al., 2000). Figure 2.1 illustrates the critical components of the research model, which discussed in detail later. In general, it lists the independent variables (transactional and transformational leadership), the dependent variable with primary constructs representing this variable, and the four moderators that are argued to have a positive moderating effect on the performance of virtual teams.

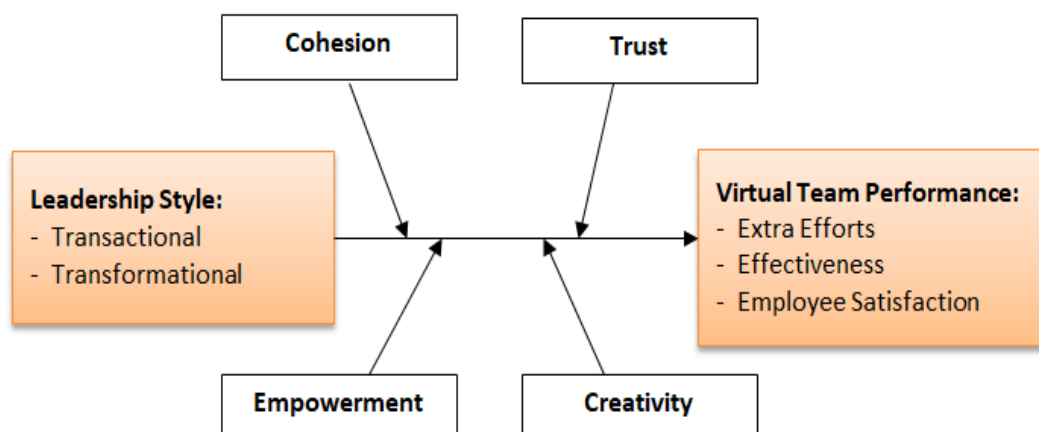


Figure 2.1: Research Model

Neely et al. (2000) outlined the importance of setting clear measures of business performance, as it would force management teams to be very explicit about their priorities. Neely et al. (2000) identified the factors affecting performance and the understanding of their relationships as an essential step in performance management design. Performance management becomes much more challenging for virtual team managers in the absence of objective, outcome-based measures of performance, especially as their capability to observe and measure the process, is limited.

According to Kurkland & Bailey (1999), if appropriate measures to evaluate performance are not readily available, it may cause frustration in virtual teams.

In their work, Stansfield & Longenecker (2006) identified that even though feedback and goal setting are effective in changing performance, some types of feedback appear to enhance the improvements more than others (Sena Ferreira et al., 2012). Similarly, Caulat & De Haan (2006) highlighted certain success factors, in that the virtual team leader and team members need to be fully supported by the organisation. Since virtual working is a new form of doing things, virtual working teams need specific support and endorsement. Furthermore, it is essential to keep technology simple so that it can facilitate clear communication and establishing trust and recognising that each is different.

2.6 Types of Virtual Teams

Virtual teams can be categorised in many ways. For example, Staples & Webster (2008) categorised virtual teams according to the project, responsibilities of members, the duration of the project, and temporal distribution. Cascio & Shurygailo (2003), however, categorised virtual teams by the number of managers and the different number of locations. These two categorisations are the most commonly used in the literature. The context of this research study shaped by these two categorisations, thereby ensuring that the subject of virtual leadership in the UAE will be thoroughly examined in the perspectives of a number of managers, the various locations of the employees, nature of the work assigned to the employees, and how long the team is being formed.

From the perspective of the number of managers and number of locations, Cascio & Shurygailo (2003) classified virtual teams into four different categories. The first of these is the teleworkers entailing only one manager in a single location. The second constitutes the remote team that represents one manager and a team of workers located in various locations. The third covers the matrix of teleworkers constituting various managers of a team of workers located in one location — finally, the matrix of remote teams characterised by multiple managers located in various locations.

Table 2.3: Virtual Team Classification

		Managers	
		One	Multiple
Locations	One	Teleworkers	Matrixed Teleworkers
	Multiple	Remote Team	Matrix Remote Teams

(Source: Cascio & Shurygailo, 2003)

Conversely, Staples & Webster's (2008) classified virtual teams according to the objective of the project, responsibilities of members, the duration of the project and a temporal distribution constitutes seven different categories. These categories are:

- i] Networked teams, which can be said to be teams that are made up of members who work together to achieve a set target and is characterised by frequently diffuse and fluid membership.
- ii] Parallel teams that constitute members who have short-term objectives of developing and offering suggestions on how processes can be improved.
- iii] Product or project development teams that comprise members who undertake projects that focus on customer products or projects, hence the reason they have a specific period within which they have to be undertaken.
- iv] Production or work teams that undertake frequent and on-going tasks.

- v] Service teams that mainly offer support services to customers.
- vi] Management teams that work together regularly with a specific functional department of an organisation.
- vii] Action teams that provide a prompt response in case of an emergency.

Other studies, including Saunders et al. (2004) discussed virtual teams in the context of short-term versus long-term virtual teams. According to Saunders et al. (2004), short-term virtual teams are the ones in which members are located in various physical locations but have a simple undertaking as they are responsible for ensuring a common objective is achieved resulting in the disbandment of the team once it has been achieved. In contrast, long-term virtual teams are defined as being composed of members located in various physical locations and working for a long-term objective. For long-term virtual teams to be effective, Saunders et al. (2004) noted that it is paramount that relationships among team members, as well as the relationship between managers and team members, are compelling.

There are numerous examples of organisations that have either used virtual teams in the past or are have been using virtual teams for long periods of times to ensure that they are valid. For example, Geber (1995) explained that international consulting firm Price Waterhouse Coopers that has the presence in various countries and employs over 45,000 employees in more than 120 countries uses virtual teams composed of members from different countries to undertake a specific project for a specified period anywhere between two weeks to one month.

Another example of an organization using virtual teams in the past as discussed by Geber (1995), is the example of consumer electronics manufacturer, Whirlpool that used a virtual team with members from the United States, Italy and Brazil working

on two-year project whose main objective was to develop a new type of refrigerator that was chlorofluorocarbon-free.

As far as this study is concerned, virtual teams in the UAE government sector are considered to be the teams having a single manager with team members located in various locations. This is the remote team structure that this study is considering and focusing on. These virtual teams undertake frequent and on-going tasks in a specified function and are formed for the long-term (Saunders et al., 2004). Other classifications of virtual teams are also evident in the UAE government sector, but it is important to note that the virtual team criteria set are the most common in the UAE government sector.

According to Townsend et al. (1998), organisations have recently become more global; an aspect that has contributed to increased competition in both the domestic and foreign markets. Consequently, Townsend et al. (1998) noted that for organisations to be active across various markets, they must evolve their operations from being purely production oriented to becoming service, knowledge-based work environments. Furthermore, Townsend et al. (1998) argued that technological advancement has resulted in establishing jobs that are challenging and dynamic which have consequently made demands on organisations to put structures and systems in place to ensure high flexibility and responsiveness to changes in the environment.

For over two decades now, technology giant IBM has used virtual teams comprising members from Germany, the US, Finland, and the UK in the development of new products (IBM, 2003). Another organization that has been able to make the most of virtual teams as discussed by Buckenmyer et al. (2000) is Sun Microsystems who

have relied on virtual teams comprising of members of the organization's clients such as Motorola, FedEx, and Xerox, with the objective of ensuring that the software developed by the organization meets (and probably exceeds) client needs.

Cascio (2000) noted that virtual teams have had positive impacts on IBM since the organisation's productivity increased by an average of 30% while operating costs decreased since the organisation does not have to provide any worksite for the employees as they work from their homes. The fact that about 66% of US-based multinational companies use at least some virtual teams is a clear indication that virtual teams are now becoming commonplace in most organisations (Theresa 2012). The relationship between leadership style and performance of team members is discussed next in general and in the context of virtual teams.

2.7 Leadership and Performance of Teams and their Members

While this research study focuses on virtual teams' performance, it is crucial to understand the existing literature on teams and their performance. In comparison, the latter has been more extensively explored. The variant of virtual teams discussed later in this chapter to address how they may or may not impact the overall performance.

2.7.1 Effect of Leadership on Individual Member Performance

According to Piccolo et al. (2004), employee performance is the primary outcome of the efforts of the employees based on the outlined goals and objectives of the organisation. Cumulatively, individual performances are indicative of team performance. A variety of definitions exist, ranging from organisational performance to employee performance. This study considers a definition provided by Kotter

(1990) where performance is perceived as the ability to ensure that the organisation is in a position to successfully attain its objectives.

According to Kotter (1990), this definition applies in both face to face and virtual context. Leadership influences the level of performance, thus influencing employee production and consequently that of the organisation. Recent studies have analysed the link between leadership and performance of virtual team members and many studies reported that leadership has a considerable influence on organisational performance (Yukl, 2002). When the appropriate indices of effectiveness are studied, they show that specific leadership characteristics are associated with enhanced team performance.

According to Bass (1990) and Yukl et al. (2002), the performance and satisfaction of subordinates are due to useful leadership behaviour, whereas turnover, insubordination, industrial sabotage are the outcome of unskilled leadership. Studies show 60% to 75% of the employees in any organisation report that the worst or most stressful aspect of their job is their immediate supervisors (Bass, 1990). Studies by Hogan et al. (1994) also prove a majority of employees report that their supervisors cause them the most stress, which negatively impacts performance. Incompetent leaders create a considerable loss in productivity due to their abusive and incompetent way of handling people and work whereas, on the other hand, good leaders may put pressure on their people but have reduced loss in productivity. In the next section, the virtual team life cycle model is discussed.

2.8 Elements of Virtual Team Performance Cycle

Saunders et al. (2003) developed a life cycle model to illustrate the effectiveness of a virtual team. Figure 2.2 illustrates the model of virtual team cycle. Moreover, Gaudes et al. (2007) grouped the different processes as free actions, as shown in the concerned figure. The groups show the interdependency of the four blocks; these are i) inputs, ii) social-emotional processes, iii) outputs, and iv) task processes.

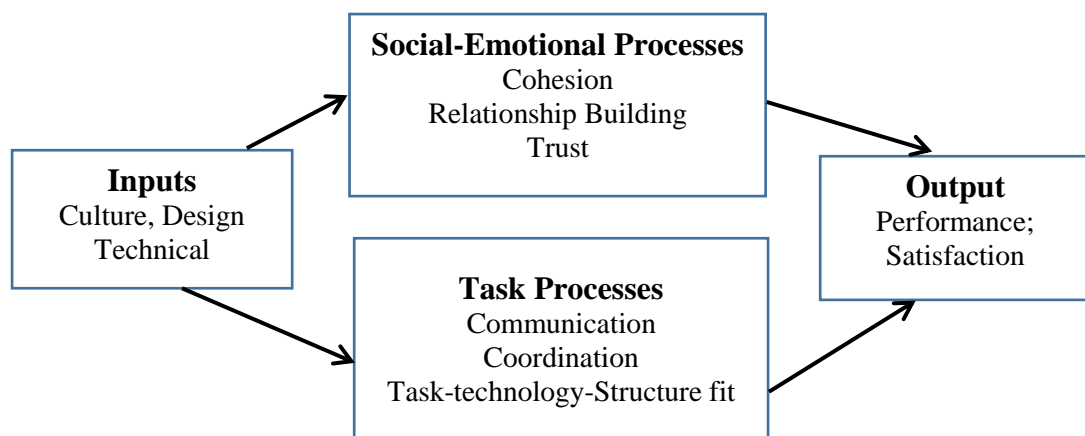


Figure 2.2: Virtual Team Cycle
(Source: Powell et al., 2004)

2.8.1 Inputs

Inputs are mainly concerned with the mixture of a team and what the teams can bring in terms of resources, skills, and capabilities. Galegher and Kraut (1994) argued that the fact that virtual teams do not meet makes it more difficult to pass information. However, these difficulties can be addressed if the team leader initiates effective plans through the holding of face-face-meetings and setting clear goals and objectives (Kaise et al., 2000). Suchan and Hayzak (2001) and Saunders et al. (2003) reasoned that face-to-face meetings are essential as they help to cement trust and respect among virtual team members.

Further, face-to-face meetings facilitate establishing a common language and understanding, which are important for leaders to set clear, intermediate, and final objectives. Kayworth and Leidner (2002) stated that cultural differences could lead to coordination and communication difficulties in a virtual team if not addressed properly and can create obstacles in communication that may negatively impact a team's performance. These issues may be resolved if a proper understanding of the team's cultural backgrounds is developed among team members (Robey, Khoo, & Powers 2000).

Technology itself may further complicate the effectiveness of virtual teams, especially if all the participants are not well conversant with the new technologies. Van Ryssen & Godar (2000) pointed out that the inability to deal with technical problems and technical expertise can lead to reduced satisfaction and performance. Thus, the team leader is left with no option but to ensure that the team members are trained on the new technologies. Van Ryssen and Godar (2000) and Kaiser et al. (2000) both agreed that engaging team members in continuous training on new technologies would ensure better performance. Suchan and Hayzak (2001) suggested that a mentor program for virtual teams is essential in helping the recruits feel more connected to the team, which increases cohesiveness and trust amongst the team members which would eventually enhance performance.

2.8.2 Social-Emotional Processes

The term social-emotional processes are used to refer to trust, relationship, and cohesion among the team members. Powell et al. (2004) claimed that trust and cohesion are critical to teamwork success. Team members should feel they belong to the team and should actively participate in contributing to their team's goals. Dakrory

& Abdou (2009) asserted that three factors would determine social-emotional. The first of these is that members should embrace a friendly interaction. Robey et al. (2000) and Maznevski & Chudoba (2000) claimed that building personal relationships would improve team performance.

The second encompasses the direction of team member's efforts towards the engagement of all members, all cultures, all ideas, and all functions to establish successful procedures (Ratcheva & Vyakarnam, 2001). The third constitute team members contribute to the team's interdependence, where all members are required to possess leadership potential skills (Dakrory & Abdou, 2009).

Balthazard, Waldman and Atwater (2008) and Balthazard, Waldman & Warren (2009) asserted that all members of a team should be able to initiate independent actions through active discussion. Yoo and Alavi (2004) suggested that it would not be correct to place new employees in new positions; if such a move is taken, it can significantly undermine the relationship among team members. Forrester and Tashchian (2006) asserted that when team members are stacked together to meet the team's goals, cohesiveness will occur (Forrester & Tashchian, 2006). This concept was supported by Cohen and Bailey (1997), who added that cohesion is a critical factor in determining the performance of virtual teams. The authors concluded that the lack of trust among team members would curtail cohesion, which would affect the team's performance negatively.

Scholars in this field have different opinions on this topic. Warkentin et al. (1997) contended that the inherent technological nature of virtual teams significantly challenged the team cohesion, unlike non-virtual teams. On this point, Chidambaram (1996) asserted that virtual teams might start with a low cohesion level compared to

their non-virtual counterparts that with time, a virtual team can reach the same cohesion level.

As mentioned above, trust is an essential aspect of the performance of virtual teams (Sarker, Lau & Sahay, 2001). It may be asserted that for trust to be realised in a virtual team, members must demonstrate a high level of communication, members must complete their assignments on time, and members should be proactive. The level of trust experienced in a group is solely based on performance. The results of a study conducted by Purvanova & Bono (2009) showed that trust is more important for virtual teams than traditional physical face-to-face teams.

2.8.3 Task Processes

The term task processes mean affecting the team's responsibilities or objectives that have been put in place by the team. Task-technology can be of great importance to the virtual team if it is introduced in a proper manner and with the right task processes at hand (Hollingshead et al., 1993). Powell et al. (2004) coined some of the aspects associated with task processes, including coordination, communication, and task-technology structure fit. Coordination tends to share the same problem with those associated with communication in a virtual team, and this problem is mainly time lag. Powell et al. (2004) highlighted that working across time zones and amongst cultural differences poses severe threats to the cohesiveness of a virtual team's and its performance.

Communication determines the wellbeing of a virtual team and its performance. Hulnick (2000, p. 33) argued that *'if the technology is the foundation of the virtual business relation, communication is the cement'*. Ultimately there are two

communication problems regularly experienced in a virtual team; these include the observation that the absence of non-verbal communication cues may significantly hamper communication Sproull & Kiesler (1986). The second constitutes are communication time lags. Powell et al. (2004) noted that the global nature of most virtual teams creates an asynchronous aspect that precludes regular feedback in a direct and timely manner. Maznevski & Chudopa (2000) proposed that regular face to face meetings can help in coordinating tasks, moving the same tasks forward, and addressing time lag problems.

2.8.4 Outputs

The output of a virtual team can be measured in terms of performance and satisfaction (Powell, 2004). Performance metrics may include delivery time, decision quality, and the results from income or brand awareness (Powell, 2004). The satisfaction of the team is based on certain conditions. By comparing the different factors to similar tasks that are undertaken by non-virtual or traditional teams, an objective basis for comparison is established.

2.9 Transactional and Transformational Leadership in Virtual Teams

The scholars in virtual contexts have been, in the last decades, attempting to analyse and answer numerous questions related to the roles assumed by VT team leaders, the differences between leading teams in face-to-face setups versus computer-mediated communication (CMC) (Zigurs, 2003; DeChurch & Marks, 2006).

Transactional and transformational leadership styles were found, among various studies of leadership, to be the best-known leadership styles (Bass, 1985; Bass & Avolio, 1993; Ruggieri, 2009). Moreover, as mentioned earlier, the impact of

transactional and transformational leadership styles on teams where team members (followers) are interacting in a virtual set up was studied and analysed with a focus on the evaluation of the perception of the style adopted and the level of satisfaction. Overall, the results indicated that transformational leadership style is more satisfying and has a more positive impact on teams than transactional leadership.

Some researchers (e.g., Jung & Sosik, 2002) had found that transformational leadership not only increases the follower's level of interest but also predicts empowerment, cohesion, and perceived team effectiveness. It is worth mentioning that despite the presence of transformational leadership have shown better results in terms of team's efficiency, and transactional leadership found to be positively associated with work outcomes (Judge & Piccolo, 2004).

In general, studies focusing on the impact of transactional and transformational leadership styles within the context of virtual teams is scarce (Hambey, O'Neill, & Kline, 2007), and this study aims to study the impact of transactional and transformational leadership styles on the performance of VTs. More specifically, the study analyses how those leadership styles are perceived by the team members (followers) in the UAE context.

From the review of past studies thus far in the current chapter, the following hypotheses are justified:

- H₁: Transactional leadership style positively impacts the performance of virtual teams.
- H₂: Transformational leadership style positively impacts the performance of virtual teams.

2.10 Virtual Team Performance Models

Previous studies have mostly focused on empowering team members to promote self-control in virtual teams. To ensure that virtual teams achieve their goals, virtual team managers have to have some control over that team member's performance (McDonough et al., 2001). A study on virtual team performance was conducted by Kirkman et al. (2004), who investigated the relationship between team empowerment and virtual team performance and assessed the moderating effect of the extent of face-to-face interactions. The authors studied 35 virtual teams in a single high-technology organisation and concluded that team empowerment was positively related to two independent assessments of virtual team performance: i) process improvement, and ii) customer satisfaction. Figure 2.3 illustrates the model of virtual team performance.

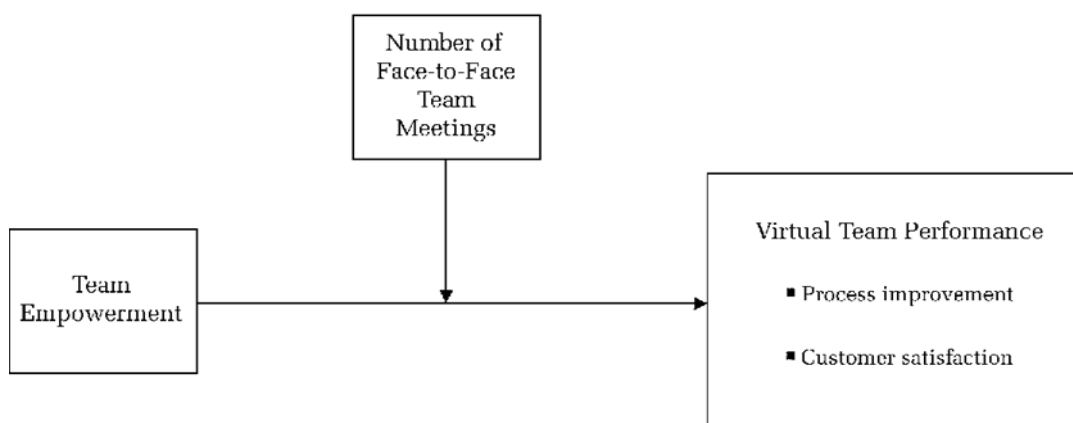


Figure 2.3: A Contingency Model of Virtual Team Performance
(Source: Kirkman et al., 2004)

Further, they asserted that the number of face-to-face meetings moderated the relationship between team empowerment and process improvement in a virtual context positively.

Ebrahim et al. (2009) considered these findings and suggested that high-performance teams are distinguished by a passionate dedication to goals, identification and emotional bonding among team members, and a balanced between unity and respect for individual differences.

Despite its growing importance, the body of knowledge on the factors contributing to the performance of virtual teams and the factors determining their effectiveness are not extensive and often contradictory (Algesheimer et al., 2011, Ebrahim et al., 2009; Hosseini et al., 2013). Prior research has identified the importance of social factors (Peters & Karren, 2009), task-related factors (Lipnack & Stamps, 2000), and communication (Maznevski & Chudoba, 2000). However, studying these factors within an integrated model has proved difficult because of their diversity and the difficulties associated with collecting data from virtual teams (Lin et al., 2008).

The lack of clarity surrounding how to measure the performance of virtual teams was highlighted by Tangen (2005) and Sena Ferreira et al. (2012). Tangen (2005) suggested that performance measurement systems should support the strategic objective and have a limited number of clearly set performance measures. Another model, which encouraged executives to pay attention to the horizontal flow of materials and information within the organisation; that is, the business processes, most notably those proposed by Brown (1994) and Lynch and Cross (1991). Brown's framework, as shown in Figure 2.4, is useful because it highlights the difference between input, process, output, and outcome measures using a cake baking analogy.

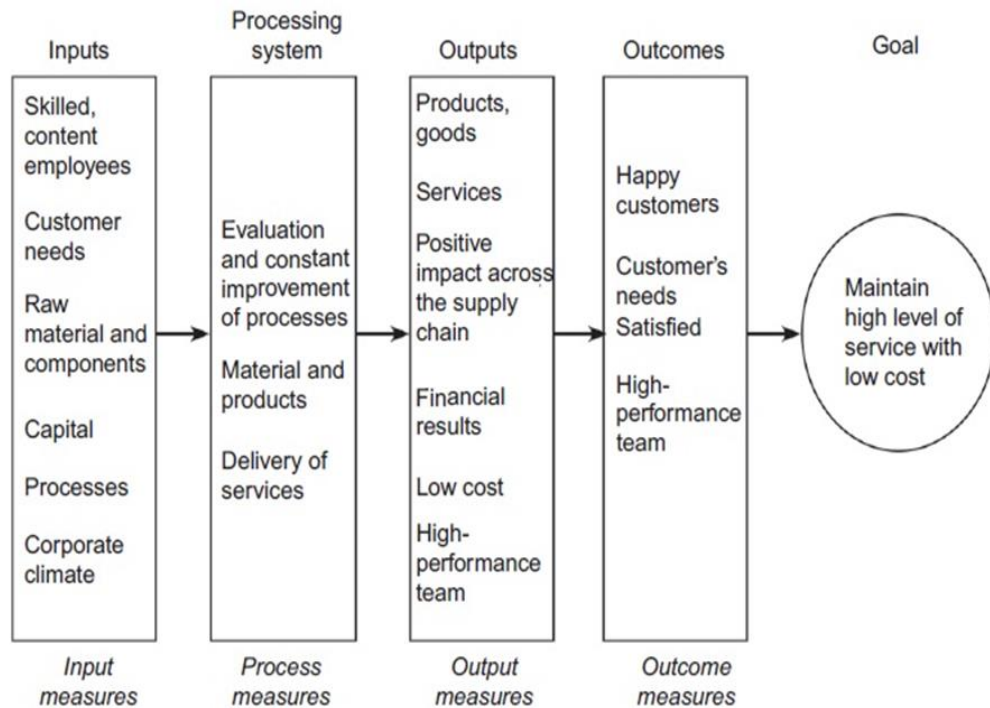


Figure 2.4: Brown's Framework
(Source: Brown, 1994)

To address the dearth of a comprehensive model to measure virtual team performance, Algesheimer et al. (2011) presented a model using an Input-Process-Emergent States-Output-Input framework of analysis. Initial inputs are represented by the team's demographic characteristics, such as size, tenure, and heterogeneity, while team processes are characterised by intra-team communication and cohesion; emergent states including strategic consensus and joint intentions, and outcomes are measured through expected and actual team performance; and the final input element is represented by past performance. Figure 2.5 illustrates the input-process-emergent states-output-input framework.

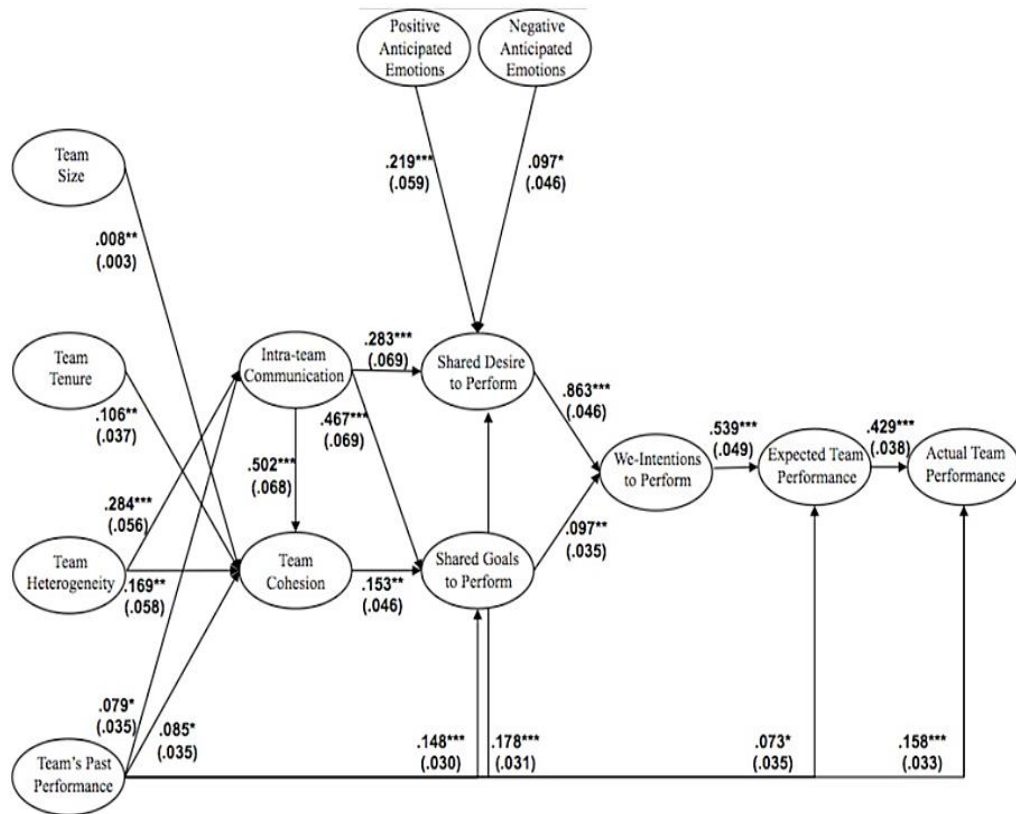


Figure 2.5: The Input-Process-Emergent States-Output-Input Framework
(Source: Algesheimer et al., 2011)

Al Algesheimer et al. (2011) empirically validated a version of the IMO model (Ilgen, Hollenbeck, Johnson, & Jundt, 2005) and concluded that team demographics have a positive impact on team processes. Hence, it is important to select the right team members from a heterogeneous pool with diverse skills (Lipnack & Stamps, 2000; Elfenbein & O'Reilly, 2007). Furthermore, team tenure has a positive effect on team cohesion. Finally, Algesheimer et al. (2011) concluded that past performance has a positive impact on team processes, strategic consensus, expected team performance and actual team performance as past performance imply the feedback provided to team members by the management.

2.11 Performance Measures of Virtual Teams

Neely et al. (2005; p.1) asserted that performance measurement is a subject that often mentioned but rarely defined; however, they defined the performance measurement as "*the process of quantifying action, where measurement is the process of quantification and action leads to performance*". They added that "*organisations achieve their objectives and business goals by satisfying their employees, driving for greater efficiency, and effectiveness*".

Neely et al. also focused on these three measurements mentioned above and asserted that they were the drivers of future performance, whereas the category of financial measures emphasises past performance. Conversely, Kaplan and Norton discussed in their study the balanced scorecard (BSC) which identifies and integrates four different ways of looking at the performance (financial, customer, internal business and innovation, and learning perspectives). The balanced scorecard gives equal weight age to financial performance, the drivers of it (customer and internal operational performance) and *drivers of continuous improvement and future performance*. It must be added that the balanced scorecard reflects many attributes of other measurement frameworks but more explicitly links measurement to the organisation's strategy.

Kaplan & Norton (1992) argue that the full potential of the balanced scorecard will only be realised if an organisation links its measures identifying the drivers of performance. To measure performance, different measurements are available. According to Kaplan and Norton (1992), the most popular performance measurement framework has been the balanced scorecard. Due to the shortcomings of traditional performance systems, the balanced scorecard measurement system was first

introduced, which did not only focus on financial measures but also non-financial aspects like customer/employee satisfaction, internal processes and learning/*innovation*.

The balanced scorecard, which is widely recognised performance management system (Kaplan & Norton, 1992) was used to define the performance measures for the virtual teams at Sabre Inc. The four dimensions of the balanced scorecard (BSC) are financial, customer, internal process, and learning and growth. These performance variables are derived from the four performance-related dimensions of the balanced scorecard (Kaplan & Norton, 1992) and were used by Kirkman et al. (2004), in their study on virtual team performance in Sabre. The balanced scorecard measures of performance developed by Sabre's consisted of: i) Growth (share of the market), ii) Profitability, iii) Process improvement (cycle time, or the time required to process a transaction), iv) Customer satisfaction (assessed with survey data collected from actual customers).

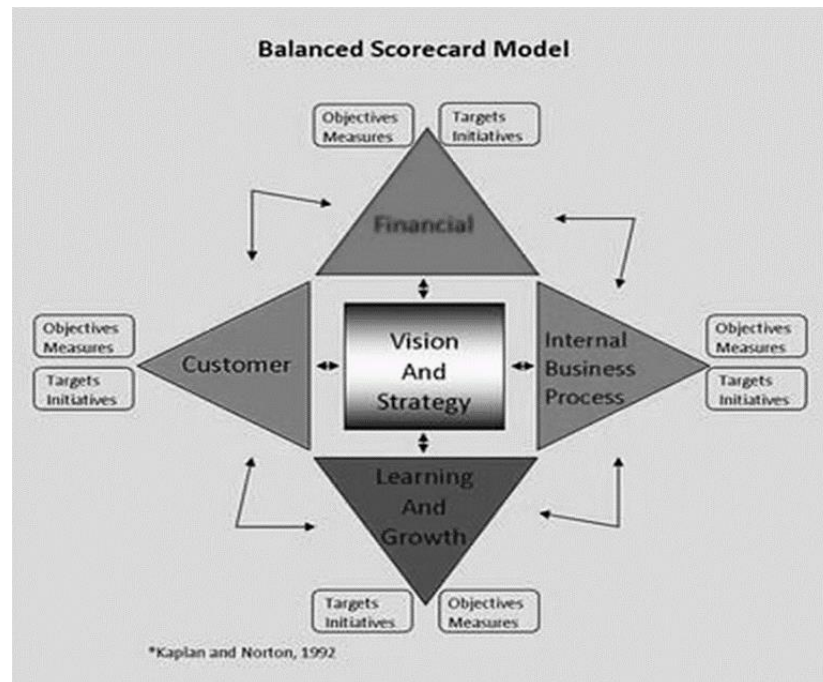


Figure 2.6: Balanced Scorecard Model
(Source: Kaplan & Norton, 1992)

Furthermore, rapid changes in the business environment have made relevant information extremely necessary to support decision-making to achieve strategic goals and support the effectiveness and efficiency of operations. Managers need information on various aspects of the business to compete in the marketplace successfully. Performance measurement is influenced by financial reporting, which does not reflect the need for customer-focused, process-oriented learning organisations.

Ultimately, the new competitive realities demand new measurement systems to help organisations to develop the capabilities to ensure future prosperity (Olve et al., 1999, p. 3). Eccles (1991) wrote one of the most influential articles in this direction in the Harvard Business Review. In this article, the author pointed to the lack of a process to help manager's change their performance measurement system and stresses on the importance of giving other non-financial measures equal status to the

financial one and linking measurement systems to strategy and long-term financial success.

Traditional performance measurement systems are based on the accounting reports and statements such as return-on-equity (ROE) and profit margin. Companies have developed sophisticated systems to help measure financial performance. These systems, however, do not measure non-financial performance, which is an area of increasing importance. In an era of tremendous competition, companies need to understand their strengths and weaknesses and improve their existing capabilities.

Essentially, traditional metrics do not provide a full understanding of the business situation, and they are outcome focused instead of process oriented. Hence, there is a need for performance measurement systems that use both financial as well as process-based measures. Performance measurement plays an important role in the efficient and effective management of organisations; it remains a critical and much-debated issue. The important issues in performance measurement are what should be measured and how. Several academics have put forward different frameworks like the balanced scorecard, and performance prism to further our understanding of this issue.

Several organisations undertake projects to design and implement better performance measures, but consideration should be given to the fact that measures evolve following their implementation (Noe et al., 2006). According to Lynch & Cross (1991), it is important that performance measurement systems be dynamic, so that performance measures remain relevant and continue to reflect the issues of importance to the business. Dixon et al. (1990) proposed the need to ensure that ensure the relevancy of measures is maintained; organisations need a process in place

to make sure that the measures and measurement systems are reviewed and modified as the organisation's circumstances change. In subsequent work, the need for a dynamic performance measurement that would have an external monitoring system, an internal monitoring system, a review system, and an internal deployment system to deploy the revised objectives and priorities to critical parts of the system, were discussed.

2.12 Moderators

The relationship between leadership and team performance has been affected by numerous factors, both in a traditional and virtual set up (Griffin, 1999; Riaz & Haider, 2010). Those factors have been addressed and investigated in scatter studies as moderators and mediators. Nevertheless, the majority of studies were assessing the impact of those factors as moderators in their attempt to strengthen the relationship between the adopted leadership style and the performance of virtual teams. Thus, this study is focusing on moderating role as well.

As observed, building on the situational perspective, leadership does not happen in isolation. It happens within a specific context, and the particulars of the context affect the success or effectiveness of leadership performance (Griffin, 1999; Riaz & Haider, 2010). It is for this reason that Laohavichien et al. (2009) argues that leadership styles depend on the situation at hand, and no single leadership style may be considered feasible or defaults for all situations. The present study, therefore, considers four main moderators of leadership effectiveness based on literature in support of virtual team contextual elements that most likely influence team performance.

In essence, numerous factors have an impact on the relationship between the leadership style and the performance of VT, such as team size, technology, cultural difference, empowerment, cohesion, project nature, and trust. However, the current study focuses primarily on four main moderators: team cohesiveness, empowerment, trust, and creativity due to their popularity being the most common moderators investigated by the scholars and their close association with the virtual team environment and also relativeness to UAE government leadership model. A theory developed by Gladstein (1984) on a model group of behaviour indicated that team outcome factors consist of three leading outputs team cohesion, team satisfaction, and attitude. For each model, the authors maintained that there must be some input and output processes at every stage.

The Gladstein (1984) model identified team inputs as team composition and team structure, whereas team communication and conflict resolution represented the team process. For all teams, performance is based on a purposive structure consisting of different team size, team composition, and needs which are necessary for achieving project goals within the allocated resources and timeframe. This explains why it is essential for one to ensure the presence of team trust, team satisfaction, team cohesion and team effectiveness in any project environment (Project Management Institute, 2008).

2.12.1 Team Cohesion

Team cohesion refers to the project manager's perception of the degree of attractiveness of a team to its members and the closeness of the interpersonal bonds between the team members (Cook et al. 1997). Cohesiveness, along with team size, determines the ease of interaction between members of a team. Based on previous

generalisations, the ideal team size has been found to vary from different ranges such as small (=5) to large (≥ 12). Teamwork is based on the principles of cohesiveness and mutual accountability and influences the way results are delivered (Wang et al., 2006).

Forrester & Tashchian (2006) asserted that when team members are stacked together to meet the team's goals, cohesiveness will occur (Forrester & Tashchian 2006). This concept was supported by Cohen & Bailey (1997), who added that cohesion is a critical factor in determining the performance of virtual teams. The authors concluded that the lack of trust among team members would curtail cohesion, which would affect the team's performance negatively.

It must be added that team cohesion plays a vital role in goal realisation; it makes every member of the team more productive. Budman et al. (1993) agreed that team cohesion has always created positive behaviours in groups and also resulted in many positive outcomes such as problems awareness, the inclination to change, enhanced motivation, increased morale, better decision making and greater creativity. Similarly, cohesive groups generally seem to out-perform non-cohesive groups (Mach et al. 2010). Other studies have also supported that group cohesion has a positive effect on individual's contribution to a group and that it affects the relationship between leadership style and performance (Jung & Avolio, 2000; Mach et al., 2010).

Cohesiveness positively impacts leadership styles: transactional and transformational. According to Burns (1978), transactional leadership is a type of leadership where both leaders and followers interact cohesively. Studies investigating the moderating role of team cohesiveness showed that cohesiveness has

a moderating effect on transactional leadership and VT performance (Burns, 1978; Chidambaram, 1996; Warkentin et al., 1997). Similar findings have been concluded by other researchers towards transformational leadership (Poole & De Sanctis, 1989; Purvanova & Bono, 2009).

However, the impact of cohesiveness in the context of virtual teams is not reliable. Warkentin et al. (1997) contended that the inherent technological nature of virtual teams significantly challenged the team cohesion, unlike non-virtual teams. On this point, Chidambaram (1996) asserted that virtual teams might start with a low cohesion level compared to their non-virtual counterparts that with time, a virtual team can reach the same cohesion level. Powell et al. (2004) also highlighted that working across time zones and amongst cultural differences poses serious threats to the cohesiveness of a virtual team's and its performance. Therefore, there is a need to examine the impact on leadership in the context of virtual teams, leading to the hypothesis below.

- *H₃: Team cohesiveness moderates the relationship between leadership styles and the performance of virtual teams.*

2.12.2 Team Empowerment

Generally, employee empowerment is defined as a managerial practice concentrating on the delegation of responsibilities. Lee & Koh (2001) argued that team empowerment enables employees to be decisive about their performance. Thus, they perceive empowerment as a philosophy. Cunningham et al. (1996) argued that empowerment is viewed as an essential component of human capital and is vital in developing an organisation. To increase productivity and efficiency, it is crucial to

ensure that employees are motivated by both skills and attitude (Lee & Koh, 2001). According to Quick & Nelson (2009), empowering employees is a key success factor that results with enabling the organisations to improve the quality of work.

In the virtual context, Kirkman et al. (2004) concluded that team empowerment was positively related to virtual team performance, specifically process improvement and employee satisfaction. The additional supporting argument resulted from the study conducted by Jung & Sosik (2002). They suggested that empowerment was positively related to collective efficacy, which eventually led to team effectiveness. Findings from these studies seem to indicate that empowerment may be an essential moderator affecting both transactional and transformational leadership requiring more examination. Therefore, we hypothesise:

- H₄: *Team empowerment moderates the relationship between leadership styles and the performance of virtual teams.*

2.12.3 Team Trust

Mayer et al. (1995) defined team trust as a manager's ability to trust his or her followers with all the essential decision-making tasks without exercising any direct monitoring or control. Secure trust experience can encourage team members to collaborate, network and innovate (Ring 1996). According to Cook et al. (1997), trust helps in increasing interaction patterns and improves productivity by increasing the willingness to share confidential information among the team members. Employees perform better in a situation that involves trust between team members themselves and also between their leaders (Mayer et al., 1995; Ring, 1996).

In virtual context, numerous studies concluded on the crucial role of trust as a factor positively affecting the performance of VTs (Suchan & Hayzak, 2001; Saunders et al., 2003; Sirkka et al., 2004). The existence of a cordial relationship between trust and adopted leadership style was confirmed by many researchers (Zaccaro & Bader, 2003; Kouters, 2009). Conversely, Powell et al. (2004) claimed that both trust and cohesion are critical to teamwork success. Though trust received much attention of leading scholars in virtual set up, there has been little analysis conducted to explain how trust evokes sentiments and affects virtual performance (Sirkka et al., 2004).

Research in trust has also indicated a lack of consensus. On the one hand, Purvanova & Bono (2009) argued that trust is more important for virtual teams than traditional face to face teams. However, on the other hand, Duarte & Snyder (2006) asserted that the cultural difference among virtual team members is a potential driver of conflicts and the lack of trust among them. There is thus a need to examine this further across the two leadership styles, leading us to propose

- H₅: *Team trust moderates the relationship between leadership styles and the performance of virtual teams.*

2.12.4 Team Creativity

Creativity has been defined as the employment of “novel and useful ideas” to solve problems encountered in the day to day business of the person or organisation (Amabile et al., 2005, p. 368). According to De Stobbeleir et al. (2011) and Muqadas et al. (2016), creative differences significantly contribute to differences in work performance. The term *creative performance* has, therefore, gained popularity as a desirable performance outcome achievable by employees that artistically combine

resources and inputs in a novel and useful manner. Creativity as a construct has not often been considered separately but as an outcome or mediator of various intrinsic and extrinsic factors towards performance (Gong et al., 2009).

Aside from the inexplicable association with performance, creativity again underlies innovation, learning orientation and openness to new experience (Quintas et al., 1997; De Stobbeleir et al., 2011). Studies have asserted that fostering creativity in a virtual context has a substantial impact on not only the contribution of team members, but it also promotes cohesiveness and trust (Alahuhta et al., 2014). While overwhelming evidence exists, that creativity remains a critical element of transformational leadership within the organisation (Quintas et al., 1997; Bass & Bass, 2008; West & Richter, 2008; Gong et al., 2009), it remains to be seen whether the effects of creativity differ across the two styles of leadership: transactional and transformational. Hence, we develop the following hypothesis:

- H₆: *Team creativity moderates the relationship between leadership styles and the performance of virtual teams.*

2.13 Challenges in Measuring Virtual Team Performance

Piccolo et al. (2004) defined effectiveness as “*the quality and quantity of the outputs produced by the team along with the advantages a team brings about for its members*”. A capable virtual team has the capability of producing high-quality outputs which could be either products or services. Effectiveness is related to performance, and so we look at the operational definition of performance in the context of virtual teams next. Performance in the context of virtual teams as the level of the products or services produced or provided by a virtual team fulfils concerning

the requirements of the defined standards regarding the quality along with the quantity and timeliness (Martins & Schilpzand 2011).

Performance is the cornerstone of the virtual team's effectiveness (Piccolo et al. 2004) and is correlated with the satisfaction level of the stakeholders, end-users, and members of virtual teams. Also, Hosseini et al. (2013) stated in their paper on performance evaluation for global virtual teams that in studying control and performance of a global virtual team (GVT) the inherent interconnections between various features of managing the GVT throughout its life cycle must be considered.

There are different viewpoints regarding the best leadership strategy for effectively managing virtual teams. Jarvenpaa and Tanriverdi (2003) asserted that selecting an appropriate leadership strategy would contribute enormously to the effectiveness of a GVT. Malhotra et al. (2007) argued that choosing a specific leadership strategy could be the most challenging task. This raises questions about the influence of leadership on the performance of virtual teams. Also, studies have suggested that task-oriented leadership styles are not practical due to the specific conditions dominant in the virtual team environment (Hertel et al. 2005). However, it is necessary for virtual team managers to possess specific leadership attributes (Bal & Teo, 2001).

The critical elements of leadership strategies for virtual teams proposed by various authors mainly focus on empowering employees and promoting self-managing policies (Hertel et al., 2005). Even though numerous studies have proposed leadership frameworks even for specific contexts such as construction (Chen & Messner, 2010), ambiguity remains surrounding the appropriate leadership strategy for virtual teams, and a well-established and widely accepted leadership strategy for virtual team working environments is missing.

Another key challenge in managing virtual teams is utilising ICTs effectively and improving communication management. As virtual teams rely heavily on ICTs (Booth, 2011), they become vulnerable to technical problems that can hamper smoother/faster communication between team members (Hertel et al., 2005). Therefore, virtual team managers should be fully aware of the different information and communication needs and channels and the ICT challenges specific to their team(s). Due to heavy reliance on ICTs, managers are confined in controlling the performance of virtual teams (Hosseini et al., 2013). Furthermore, poor communications are problematic in virtual teams (Walvoord et al., 2008), therefore, establishing effective rules of communication management, is crucial for capable virtual team's management (Martins & Schilpzand, 2011).

Building trust is another significant challenge in virtual teams trust behaviour between members can influence the performance significantly (Kanawattanachai & Yoo, 2002). Additionally, the development of trust depends on the stage of the lifecycle of the team and the cultural backgrounds of the team members. However, the impact of trust on a virtual team's performance depends on the conditions of the team, and the relationship between trust and team outcomes are not reliable (Jarvenpaa et al., 2004). Lastly, control and supervision of virtual teams is another major managerial challenge (Piccoli, Powell & Ives, 2004) because of the lack of a useful managerial tool to exert direct control and observational supervision (Hosseini et al., 2001; Rice, 2006), as illustrated in Figure 2.7.

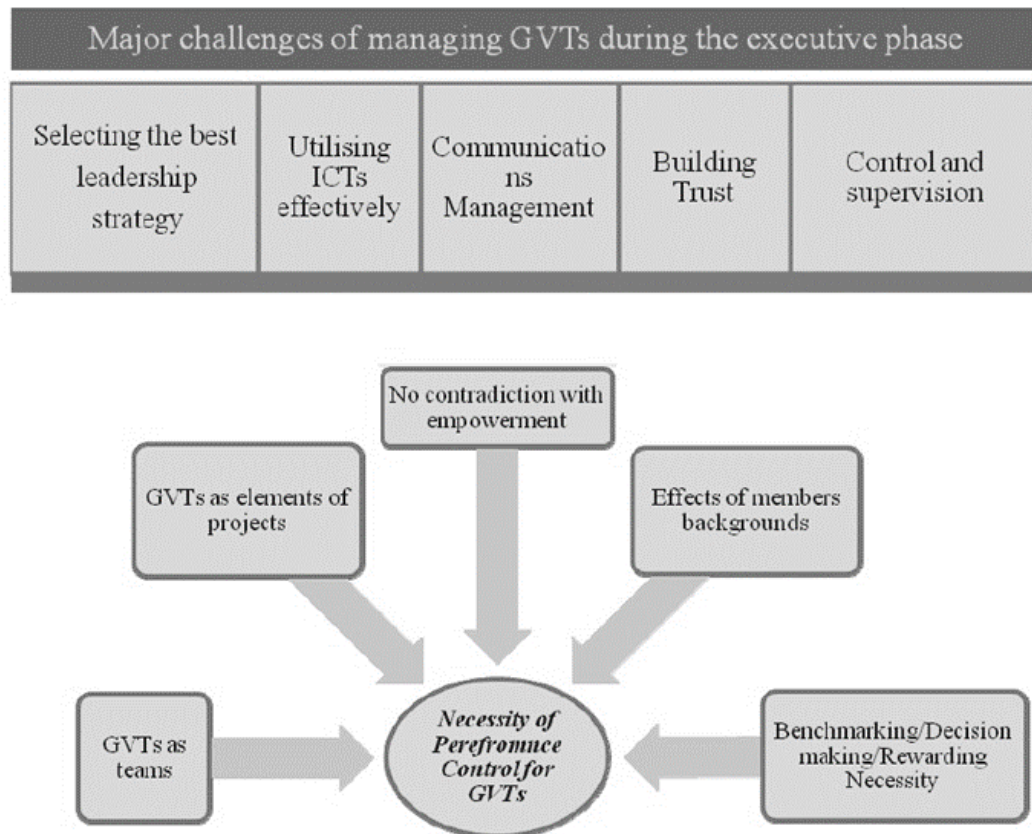


Figure 2.7: Major Challenges of Managing GVTs during Executive Phase
(Source: Hosseini et al., 2013)

Several authors also had suggested empowering employees to address this GVT management challenge (e.g., Kirkman et al., 2004; Walvoord et al., 2008). Ebrahim et al. (2009), based on a review, some studies suggested that virtual teams with higher performance demonstrate a higher level of team cohesion and dedication to teams' objectives. Kirkman et al. (2004) argued that customer satisfaction with the team is an acceptable indicator of the performance of virtual teams.

Furthermore, various GVT performance metrics were suggested by authors, such as the number of ideas generated, the quality of decisions made, and the time taken by the team to make a decision (Piccoli et al., 2004; Powell et al., 2004). The debate surrounding the issue of controlling GVT performance depends on leadership

strategy, building trust, supervision policy, and control methods. Therefore, there is a need for an integrated approach with interrelated constructs to address the challenges of performance measurement and control in virtual teams (Hertel et al., 2005).

Hosseini et al. (2013) stated that it is essential to think through the below questions when evaluating virtual team performance:

- What is the purpose and objective of setting up a virtual team?
- What are the key performance indicators of a virtual team?
- What are the factors outside the boundaries of a virtual team affecting the success of the team?

Based on assessing the abovementioned questions, designing the construct for evaluating GVT performance could be initiated entailing the identification of the key performance indices, and defining the outputs and inputs.

Kirkman et al. (2004) argued that empowerment is essential to the performance of virtual teams because of the unique nature of virtual team tasks. Based on their study of 35 virtual teams in Sabre Inc., a high-technology service company in the travel industry, they concluded that team empowerment is significantly positively correlated with process improvement and customer satisfaction. Most virtual teams are knowledge-based teams that solve customer problems or develop new products; hence, process improvement is an important performance outcome.

Another important performance outcome is customer satisfaction (Lipnack & Stamps, 2000; Duarte & Snyder, 2006). Satisfying critical internal and external customers is paramount to virtual team success. Due to the nature of their tasks and the virtual challenges, it is expected that this relationship to be even stronger in

virtual teams (Kirkman et al., 2004). Based on the findings of the study, Kirkman et al. (2004) suggested that virtual team managers can empower their teams to enhance process improvement and customer satisfaction.

Based on the current research, both task-oriented and relationship-oriented methods of leadership are used in dichotomising the whole variety of leadership conducts known. Closely related behaviours are associated with task functions and relational functions. The latest research on leadership highlights the need to focus on tasks, personal needs, and relationships (Gill & Hicks, 2006). Since leadership is independent concerning two orientations; that is relationship and task, both can be used separately or in combination. Recent studies explore team members' opinions concerning the virtual importance of both orientations in virtuality alongside face-to-face communication backgrounds.

If task-oriented or relation-oriented task are looked on as vital organs in the practical situation, the main query is whether the relative importance of these behaviours will increase as the team member's work rises virtually. Even though members of a team can at times, rotate or share leadership roles, team members need an official leader of their team. DeVries et al. (2002) take a cross-sectional outlook in these matters to establish the level of importance of various leadership behaviours in virtual communication settings (phone and internet).

Horner-Long & Schoenberg (2002) suggested that leadership is equally essential in virtual and non-virtual settings. In a virtual setting, networking and priority often take precedence versus issues such as commitment, empowerment, role definition, mission goals, vision, trust, and task definition. Thus, the roles of GVT and not GVT managers tend to differ, including identifying and solving problems, implementing

reward systems and devising performance indicators (Zaleznik, 2004; Adair et al., 2006). In both cases, there is a need for both leaders and managers to create a shared understanding of task creation, promoting members commitment to their tasks and teams and organising interactions amongst the members.

2.14 Advantages of Virtual Teams

Virtual teams are now a typical aspect in most of the multinational organisations (Goodbody, 2005). Therefore, discussing virtual team benefits is critical. Virtual teams allow employees to work and communicate in real-time around the globe. Organisations can derive numerous advantages from these technologically driven teams. Virtual teams offer cost advantages as they reduce travel time and cost as well as the cost of office space that would otherwise be needed to seat teams (Baskerville & Nandhakumar, 2007). Furthermore, Buhlmann (2006) suggested that the organisations can lower their operating costs since they can recruit talented employees from various parts of the world and who are willing to accept lower wages along with the cost of moving them.

According to Lipnack & Stamps (2000), talented workers are increasingly unwilling to move, which is an obstacle to accessing them when organisations can only tap their potential virtually. According to Byrne, Brandt & Port (1993), virtual teams are beneficial to organisations as they offer a unique opportunity to access competent individuals for specific projects irrespective of where they are located. As a result, Byrne et al. (1993) noted that organisations could effectively compete in various sectors in which they operate without having to incur high resource costs. Additionally, a virtual employee can efficiently serve on multiple teams since the geographic location is no longer a requirement of a team member. This flexibility

allows a company to maximise its human resources by allowing team members with particular skills to serve on several teams concurrently (Hertel et al., 2005).

Virtual teams consist of diverse and heterogeneous team members, which may lead to creativity and effectiveness. Diversity helps engender creativity and originality among virtual team members. Through virtual teams, organisations can create equal opportunities in the workplace for all employees and reasonably accommodate the particular needs of a range of disadvantaged employees and discourage age and race discrimination (Hertel et al., 2005). Buhlmann (2006) asserted that virtual teams play a role in increasing the productivity of virtual teams. The surge in productivity occurs because virtual team members do not experience inconveniences of reporting to work like traffic jams, and public transportation failures, and related stress.

Further, Pauleen (2004) suggested that since most virtual teams are made up of members from different regions, the teams tend to have various skills that may enhance innovation in the organisation. To understand the effect of virtual teams on performance, one may want to consider the study conducted by Stanford University that was by Buhlmann (2006). The results of the study showed that the performance of employees working remotely was 13% higher than employees who were physically co-located. The demerits and disadvantages of virtual teams are discussed in the next section.

2.15 Drawbacks of Virtual Teams

According to Edwards (2004), one of the main drawbacks of virtual teams is that organisations are required to invest a significant amount of money in implementing systems to ensure that virtual teams can operate effectively. Moreover, Edwards

(2004) explained that virtual teams might result in social isolation of members since physical interactions are usually avoided. From this perspective, Edwards (2004) claimed that virtual teams might result in the lower performance of employees since isolation can result in stress, as a stressed employee cannot perform optimally.

Besides, Jonson (2002) suggested that all industries may not be equally conducive to the use of virtual teams. For example, the structure of the virtual team may not be the best option for manufacturing companies. Any work that is sequential or highly integrated may pose unique problems for virtual teams. Additionally, some employees may not be able to work without active supervision or in an entirely virtual space, while others prefer interactions with others (Jonson, 2002). The participation of such employees may require extensive training and support if they are to engage even partially a virtual team.

Duarte and Snyder (2006) asserted that the cultural differences among virtual team members might drive conflicts and the lack of trust among them. Duarte and Snyder (2006) provided an example of how the conflict in a virtual team of an American and an Asian might arise due to cultural differences since the American might prefer to highlight problems while the Asian might find it disrespectful. Although the concept of virtual teams has advantages and disadvantages, the fact that multinational organisations used and continue to use virtual teams may suggest that the advantages of virtual teams outweigh the disadvantages. The existing body of the virtual team literature in the context of the UAE is scarce; therefore, the generated findings from this research study could be filling the knowledge gap in the UAE literature.

2.16 Summary

A review of the available literature emphasises on the challenge virtual teams leaders is facing regarding defining the suitable leadership style and demonstrates a clear gap in research the impact of leadership styles on the virtual team performance in the context of the UAE government sector. This quantitative study attempted to address this gap by employing a customised research model where the relationship between commonly applied leadership styles, transactional and transformational, and virtual team performance can be assessed and evaluated in addition to the moderating impact of mostly addressed factors/constructs: team cohesion, empowerment, trust, and creativity. The next chapter discusses the theoretical framework of the study with particular attention to how the study arrived at the various research hypotheses.

Chapter 3: Theoretical Framework

3.1 Introduction

In this chapter, the theoretical framework guiding and directing this research is presented. Blaikie (2007) suggested that social sciences are characterised by several approaches to social inquiry and many research methods. Therefore, it is imperative that researchers adopt a theoretical perspective that is best suited for the topic being studied. The framework will guide the research problem that will be investigated, the research questions that will be answered, the research strategy that will be used to answer the research questions, the research stance that will be adapted, and the research paradigm used. Therefore, this chapter focuses on the theoretical research framework in terms of the current research study on virtual teams' performance. Each independent variable will be presented along with its theoretical discussion that leads to forming the research hypotheses. The chapter ends with a summary of the complete set of research hypotheses which guide the establishment of empirical evidence.

3.2 Theoretical Framework Model

As indicated earlier, the present research study aims to assess the impact of transactional and transformational leadership styles to identify the leadership style that has a positive relationship in improving the performance of virtual teams in the UAE government sector. The study also examines the moderating influence of team cohesion, empowerment, trust, and creativity aiming to identify which factor is positively moderating the relationship between the leadership style and the performance of VTs. Examining this issue is vital, as previous literature suggested

that the measurement of virtual teams' performance lacks clarity. This has been highlighted by several scholars (Tangen, 2005; Sena Ferreira et al., 2012).

Numerous researchers adopted different research models in their investigation to verify the impact of leadership style on the teams' performance in virtual context (Kaplan & Norton, 1992; Browns, 1994; Bass et al., 2003; Kirkman et al., 2004). This research study considered the leadership and performance model of Bass (1985), Bass & Avolio (1995) and Bass et al. (2003). In this model, the elements or attributes of transactional and transformational leadership are used to explain specific outcomes, which in turn are related to performance expectations.

Max Weber first described transactional leadership theory in 1947 and then thoroughly by Bernard Bass in 1981, who built a model to validate it (Bass, 1985; Bass & Avolio, 1995). This leadership focuses on directing followers, where the leading role of the followers is to follow the instructions of the leader. Here, the exchange between leader and follower takes place to achieve usually routine performance goals where employees are motivated by rewards (Burns, 1978; Bass, 1985). Furthermore, this leadership assumes that the followers are not self-motivated, and they need to be monitored and controlled to get the assigned tasks accomplished (Burnes, 1978; Bass, 1985).

Transformational leadership was introduced by Burns (1978) as a model in which change leaders help motivate followers. Following this, Bass (1985) built on this model to further validate it. According to Bass and Avolio (1990, & 1995), transformational leaders strive to help increase subordinates' involvement so that they can achieve more (Bass, 1985). To accomplish this concept, transformational leaders attempt to expand subordinates' interests so that they exceed their self-

interests (Bass, 1985). When an employee accepts such a perception, he or she will attempt to exert extra effort (Bass, 1997). Furthermore, transformational leaders play the roles of both coach and advisor which suggest that a one-to-one relationship can improve the commitment of team members to take on the tasks assigned by the leader and ultimately improve performance (Bass, 1985).

Also, the transformational theory suggests that when a person interacts with others within a team, he/she can create solid relationships which are directly affected by team cohesion, creativity, trust, and other constructs, which all do drive performance (Algesheimer et al., 2011). About the performance measures of VTs, some of most commonly used measurements are effectiveness, efficiency, satisfaction, growth, and process improvement (Kaplan & Norton, 1992, Neely et al., 2005). This study considers the measurement used in the study conducted by Neely et al. (2005) and Bass (1997): effectiveness, employee satisfaction, and extra efforts.

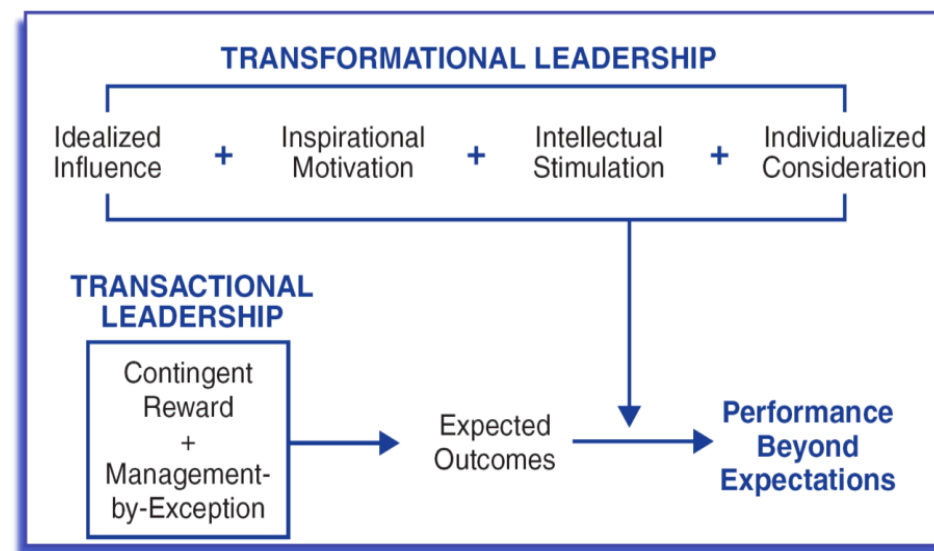


Figure 3.1: Bass and Avolio's Leadership Model
(Source: Bass & Avolio, 1990)

Consequently, the adopted theoretical framework by this study considers both transformational and transactional leadership style attributes and VT performance measures that were adapted from the studies of Bass and Neely (1997; 2005). The model is suitable to be used to ensure that the impact of leadership styles on the performance of virtual teams is empirically validated in the context of the UAE government sectors.

The linkage of the selective moderators (team cohesion, empowerment, trust, and creativity) to the model has been representative in the literature where the impact of those moderators was investigated in relation to the transactional and transformational leadership styles (Kayworth & Leidner, 2002; Hambley et al., 2007; Ruggieri, 2009; Hoch & Kozlowski, 2014, Rebecca, 2014). These are explained next.

Kayworth and Leindner (2002) claimed that, whether transactional or transformational leadership style, the three key dimensions of effective team functioning were: task achievement, followers' needs, and team cohesion. In their study, they investigated those factors as moderators. Findings from a study by Hambley et al. (2007) indicated the positive moderating effects of group cohesion on both leadership styles resulting in better performance and work quality of virtual teams. Similarly, Rebecca's (2014) study showed the positive moderating impact of team cohesiveness on teams' performance and overall outcomes. Thus this construct was linked to the model as a moderator.

Trust was one of the most complex constructs that have had been studied by scholars to verify its moderating impact on teams performance in a traditional and virtual setup. The importance of this construct in a global virtual context has been noted and reiterated in the literature. Precisely how trust influences specific outcomes within

virtual teams remains unresolved. The study conducted by Xiaojing in 2008 asserted the significant moderating effect of trust and this outcome resulted from an investigation made on the integral components of both, transactional and transformational leadership (Xiaojing, et al. 2008).

Saonee et al. (2014) were seeking to understand the theoretical linkage among trust and member performance in virtual teams. In their study, they used and tested three models (moderate, interaction, and mediation) describing the role of trust and its relationship with leadership and communication to explain virtual teams performance. Based on their test findings, they argued that trust has a significant moderating effect on teams' performance, and they also argued that a social network approach is hypothetically more appropriate than attribute-based approach. They concluded that the moderating model best explains how trust works to influence performance (Saonee et al., 2014). This study is aiming to assess the moderating impact of trust in the virtual context in UAE government sector. Thus this construct was linked to the model as a moderator.

Similarly, prior researches have claimed that the moderating effects of team empowerment are significant and it varies based on the leadership style being adopted (Shazia et al., 2010, Bradley et al., 2017). Bradley et al. (2017) investigated the moderating relationship between the empowerment and virtual team performance, and concluded that team empowerment was positively effecting two independent antecedents of virtual team performance, namely process improvement and employee satisfaction. This study is aiming likewise to assess the moderating impact of empowerment in the virtual context in UAE government sector. Thus this construct was linked to the model as a moderator.

Creativity is a construct that recently got the attention of many scholars, and is a key construct being represented in the literature of virtual teams (Rui et al., 2010; Luis et al., 2011). The contingent effect of team creativity in virtual context was assessed on team members with a leader following transactional style and another team where the team leader was following transformational style to reflect the moderating effect of team creativity about different leadership attributes being exhibited. The study resulted in an assertion of the moderating effect of creativity (Rui et al., 2010). This study is aiming likewise to assess the moderating impact of creativity in the virtual context in UAE government sector. Thus this construct was linked to the model as a moderator.

Overall, the theoretical research model considers a transformational leadership style and transactional leadership style as independent variables, and virtual team performance as the dependent variable. The latter is measured in terms of effectiveness, extra efforts, and employee satisfaction. Finally, as explained in the previous paragraph, this study focuses also on team cohesion, empowerment, trust, and creativity as moderators affecting the relationship of both leadership styles (transactional and transformational) on the virtual teams' performance. The proposed theoretical research model identifies the attributes of the two leadership styles, along with the performance of virtual teams. Figure 3.2 illustrates the theoretical framework.

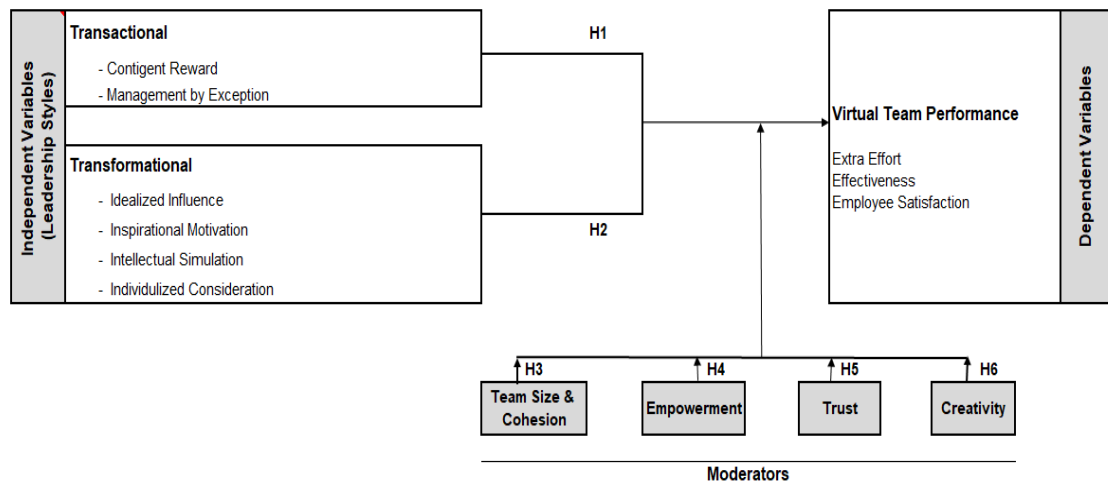


Figure 3.2: Research Theoretical Framework

The research framework represents three main constructs: leadership styles, virtual team's performance, and the moderators. Since this study is focusing primarily on improving the performance of virtual teams through investigating the impact of transactional and transformational leadership styles, virtual team performance turns to be the main construct in this model.

In the next section, each independent variable, as well as each moderator, is discussed to give further insights on the development of research hypotheses.

3.3 Antecedents of Performance: Transactional and Transformational Leadership

Generally, studies investigating the impact and effectiveness of transactional and transformational leadership styles within the context of virtual teams' performance are relatively scarce (Habley et al., 2007; Ruggieri, 2009). Therefore, it is crucial and essential to conduct a thorough investigation of leadership impacts on virtual teams for better management and improved performance. The two main antecedents of performance in the research model are discussed here with regards to the literature

surrounding their predictive effects on performance. These include the two leadership styles: transactional and transformational leadership.

3.3.1 Transactional Leadership Style

According to Bass (1985), Peter & Austin (1985), and Dulebohn & Hoch (2017), transactional leadership does not focus much on inspiration to motivate people or teams as it is based on a system of rewards and penalties. As a result, the followers develop a tendency to achieve what would make them avoid being punished (Bass, 1990). Studies on transactional leadership (Judge and Piccolo, 2004; Ruggieri_2009) reveal that, in general, the transactional leadership style results in the achievement of goals and given tasks.

Similarly, the particular link between transactional leadership and performance of a traditional team and organisational efficiency has been well established (Bass, 1990; Northouse, 2007; Ruggieri, 2009). Likewise, other scholars concluded that transactional leadership positively associates with work results or outcomes (Judge & Piccolo, 2004; Ruggieri, 2009). Accordingly, it is expected that there should be a positive impact of transactional leadership on a virtual teams' performance because the system of rewards and punishments will motivate virtual members of a team to focus more on the achievement of tasks and goals. Especially when virtual leadership is not present face-to-face. Thus, we hypothesised:

- H₁: *Transactional leadership style positively impacts the performance of virtual teams.*

3.3.2 Transformational Leadership Style

The effectiveness of transformational leadership has been evidenced by other scholars (Bass, 1985; Avolio & Bass 2002; Yukl, 2002; Peter & Manz, 2007). Unlike transactional leaders, transformational leaders use more than simple rewards to motivate and encourage their employees (Avolio & Bass, 1990 & 1995). Research studies by Avolio & Bass (1999, 2004) demonstrate that although both transactional and transformational leaders strive to achieve and accomplish a set of goals, transformational leaders place greater emphasis on organisational impact.

Burns (1978) addressed the effect of inspiration and motivation on team members' morale and reasoned the high performance to this critical incentive that distinguishes transformational leadership. Prior studies have also contended that transformational leadership facilitates success on both individual and team levels resulting in an organisation's success (Bass & Avolio, 1995; Bass & Riggio, 2012) ultimately. This was confirmed by Riketta (2008), who also concluded that transformational leaders promote ideas and believe in the team's ability to achieve success.

Many scholars claim that transformational leadership, due to its focus on trust, is active and productive (Bass & Avolio, 1995; Habley & Schuh, 2007; Purvanova & Bono, 2009). Some researchers (Jung & Sosik, 2002) have found that transformational leadership not only increases the follower's level of interest but also predicts empowerment, cohesion, and perceived team effectiveness. It is worth mentioning that transformational leadership has shown better results in terms of impacting a team's efficiency (Judge & Piccolo, 2004). Similarly, we hypothesise that transformational leadership will positively impact virtual teams' performance. In the absence of face to face contact with leaders, members are more likely to be

motivated and inspired by the ideas and the vision offered by their leaders thereby focusing more efficiently on the achievement of goals and other outcomes.

Therefore, we posit that:

- H₂: *Transformational leadership style positively impacts the performance of virtual teams.*

3.4 Moderators Influencing Performance of Virtual Teams

Moderators either strengthen or weaken the relationship between leadership styles and performance. In order to narrow the scope of this study, we consider the four central and most discussed moderators in the virtual team literature: team cohesion, empowerment, trust, and creativity. As previously addressed in the reviewed literature, studies investigating the factors affecting the performance of virtual teams and impacting the relationship between the adopted leadership style and VT performance are relatively limited. There is a need for further investigations to clearly understand the effects of those factors and what approaches are recommended to be followed to better position those factors toward improving the effectiveness of leadership and improve virtual teams' performance.

3.4.1 Team Cohesion

According to Cook et al. (1997), the team cohesion refers to the leader's perception of the degree of attractiveness of a team to its members and the closeness of the interpersonal bonds between the team members. Apart from technology, clear objectives and team cohesion are identified by many authors as the most critical factors contributing to virtual team success (Cook et al., 1997; Wang et al., 2006; Mach et al., 2010). It is essential for one to ensure the presence of team cohesion and

team effectiveness in any project environment because of its impact on team performance (Project Management Institute, 2008).

Team cohesion determines and controls the ease of interaction. Efficient teamwork is based on team cohesiveness and mutual accountability as well (Wang et al. 2006). Team cohesion has always created positive behaviours in groups and also resulted in many positive outcomes such as problems awareness, the inclination to change, enhanced motivation, increased morale, better decision making and greater creativity (Budman et al. 1993; Mach et al., 2010).

Mach et al. (2010) in her study, contended that cohesive groups generally seem to out-perform non-cohesive groups. Findings of other scholars also supported Mach's content as their research demonstrated that group cohesion has a positive effect on individual's contribution to a group and it affects the relationship between leadership style and performance (Jung & Avolio, 2000; Mach et al., 2010). Indeed, research has shown that cohesiveness results in less conflict and better results. Following this, and in line with what is mentioned above, the following hypothesis in the context of UAE is proposed:

- H₃: *Virtual team cohesion positively moderates the relationship between leadership styles and virtual teams' performance.*

3.4.2 Empowerment

Houghton and Yoho (2005) asserted on the criticality of empowering team members in a virtual context. Employee empowerment is generally defined as a managerial practice concentrating on the delegation of responsibilities. Lee & Koh (2001) argued that team empowerment is a philosophy and strategy that makes it possible

for employees to be decisive about their responsibilities and performance. Cunningham et al. (1996), however; concluded that employee empowerment is essential in organisation development and growth. According to Quick & Nelson (2009), empowering employees remains the only way organisations can improve the quality of work, which in turn brings competitiveness in the entire organisation.

Studies on virtual teams have concluded that empowerment positively impacted different outcomes. Kirkman et al. (2004) concluded that team empowerment was positively related to virtual team performance in terms of specific process improvement and employee satisfaction. Similarly, Jung & Sosik (2002) suggested that empowerment was positively related to collective efficacy, which eventually led to group effectiveness. Empowerment is more critical in the transformational style than transactional because transformational leaders empower their followers and encourage them to think, act, and make independent decisions without direct supervision (Manz & Sims, 2001; Jung & Sosik, 2002; Houghton & Yoho, 2005).

We posit that this will apply in the virtual team context as well. While transactional style will focus more on supervision and rewards as compared to transformational which focuses more on vision and motivation, the impact of empowerment across both styles will be felt similarly in the absence of direct interaction. Since leaders and followers do not meet each other in person, leaders could tend to delegate more responsibilities to their followers, allowing them to act independently. This, in turn, will motivate members to trust their leaders' more and work harder as in the case of transformational style. In the case of the transactional style, followers will use the additional responsibilities and independence to achieve goals as there is a fear of losing rewards. Thus, the following hypothesis is proposed:

- H₄: *Empowerment positively moderates the relationship between leadership styles and virtual teams' performance.*

3.4.3 Trust

There is no doubt that drastic change in work environments push employees to perform better. Such a situation involves trust between employees and their leader. Mayer et al. (1995) defined team trust as a manager's ability to trust his or her followers with all the essential decision-making tasks without exercising any direct monitoring or control. Secure trust experience can encourage team members to collaborate, network and innovate (Ring 1996). According to Cook et al. (1997), trust is a critical aspect of today's organisations as it increases the willingness to share confidential information among the team members which eventually helps in increasing interaction patterns, improving problem-solving and productivity. Task completion and goals realisation revolve around trust, which means that project managers must rely on this construct.

Trust remains one of the critical factors that positively affect the level of motivation and leads to employees' engagement, thus organisational performance. Kouters (2009) concluded in his study that there exists a cordial relationship between trust and applied leadership style and performance. This conclusion was evidenced and confirmed. Furthermore, the effect of trust on team performance in a virtual context was studied by Zaccaro & Bader (2003), and they also contended that there is a positive relationship between team performance and trust building. Ruggieri (2009), however, in his study concluded that trust is associated more with transformational leadership, which is implicitly built in the notion of trust.

Several studies have concluded on the importance and effect of trust in increasing the performance of employees and eventually teams (Suchan & Hayzak, 2001; Saunders et al., 2003). Also, Powell et al. (2004) claimed that both trust and cohesion are critical to teamwork success. Lack of trust would affect the team's performance negatively, and it is worth mentioning that Purvanova & Bono (2009) argued that trust is more important for virtual teams than traditional face to face teams. In line with the above studies, we posit that trust becomes more significant for in the case of virtual teams and will positively influence teams using any leadership style to perform better. Accordingly, the following hypothesis is proposed as follows:

- H₅: *Trust positively moderates the relationship between leadership styles and virtual teams' performance.*

3.4.4 Creativity

Creativity has been defined as the employment of “novel and useful ideas” to solve problems encountered in the day to day business of the person or organisation (Amabile et al., 2005, p. 368). According to De Stobbeleir, Ashford & Buyens (2011) and Muqadas, Ilyas & Aslam (2016), creative differences significantly contributes to differences in work performance. The term creative performance has therefore gained popularity as a desirable performance outcome achievable by employees that artistically combine resources and inputs in a novel and useful manner. Creativity as a construct has not often been considered separately but mainly as an outcome, by product or mediator of various intrinsic and extrinsic factors towards performance (Gong, Huang & Farh, 2009).

Aside from the inexplicable association with performance, creativity again underlies innovation, learning orientation and openness to new experience (Quintas, Leferen & Jones, 1997; De Stobbeleir et al., 2011). Overwhelming evidence exists that creativity remains a critical element of transformational leadership within the organisation (Quintas et al., 1997; Bass & Bass, 2008; West & Richter, 2008; Gong et al., 2009).

Transformational leaders encourage their followers to think and analyse problems on their own, which in turn promotes creativity and innovation (Bass & Avolio, 1990; Jung, 2001; Fernandes & Awamleh, 2004). Thus, transformational leadership followers show higher creativity in their performance (Jung & Avolio, 2000). We argue that in the absence of direct contact with the leaders, creativity within members in a virtual team will force them to be more innovative and risk-averse. Creative members are more likely to think out of the box to achieve outcomes because of monetary rewards or recognition. Thus, the following hypothesis is proposed:

- *H₆: Creativity positively moderates the relationship between leadership styles and virtual teams' performance.*

3.5 Summary of Research Hypotheses

Based on the theoretical framework model (Figure 3.2), this study will test the following research hypotheses in the context of the UAE government sector:

- H₁: Transactional leadership style positively impacts the performance of virtual teams.
- H₂: Transformational leadership style positively impacts the performance in virtual environments

- H₃: Team cohesion moderates the relationship between leadership styles and the performance of virtual teams.
- H₄: Team empowerment moderates the relationship between leadership styles and the performance of virtual teams.
- H₅: Team trust moderates the relationship between leadership styles and the performance of virtual teams.
- H₆: Team creativity moderates the relationship between leadership styles and the performance of virtual teams.

For the third, fourth, fifth and sixth hypotheses, the individual leadership styles of transactional and transformational leadership are observed independently in the test for the moderation of these critical variables.

Chapter 4: Research Methodology

4.1 Introduction

This Chapter presents an overview of the methodological framework guiding the research data collection and analysis. The main sections covered here include the research scope, research philosophy, research design, research instrument, research procedures, ethical research considerations, research data analysis plan, ending with the summary. The methodology of this research was framed and designed based on the research aims and objectives and theoretical research framework. This helped ensure an adequate design that would lead to actual outcomes, as explained next.

The present study aims to critically examine transformational and transactional leadership theories and evaluate their contribution to the leadership of virtual teams. This will help gain insight into how different leadership styles improve the performance of virtual teams. Additionally, this research examines the effect of the following moderators (team cohesion, empowerment, trust, and creativity) on the relationship between the leadership style and the performance of virtual teams. The results of this study will help institutional leaders globally, and within the UAE government sector provide an understanding of the contribution of both transactional and transformational leadership styles to virtual team performance.

The two commonly used approaches to research are quantitative and qualitative. A quantitative approach is a hard data-driven approach, which primarily investigates and develops new knowledge through cause and effect thinking, reduction to specific variables and hypotheses and questions, use of measurement and observation, and the test of theories. Through the use of instruments such as experiments and surveys, researchers collect data on predetermined instruments that yield statistical data. The

quantitative approach is recommended when the problem is to identify factors that influence an outcome or understanding the best predictors of outcomes (Creswell & Creswell, 2017). In this study, the aim is to identify the best predictors of performance in virtual teams. Thus, a quantitative approach is adopted for this study.

In contrast, a qualitative approach is ideal if there is a need to understand the concept or phenomenon and the factors surrounding it. The research strategies used are narratives, phenomenology, ethnographies, grounded theory, or case studies (Creswell & Creswell, 2017). The primary intent of collecting such data formats is to develop themes from the data to build a theory. Furthermore, when variables to be examined are not manifest, such as in the case of exploratory studies, then qualitative research is considered ideal (Morse, 1991). Since this study is clear about the variables to be studied and has developed hypotheses to test, the qualitative approach using interviews or case study approach was not considered.

It must be emphasised that this research aims to identify the most effective virtual leadership style that has a positive impact on the performance of virtual teams. As stated formerly, similar studies have not been conducted in the UAE, and therefore, there is no related secondary data available for this research. Moreover, much of the research conducted in similar fields elsewhere used primary data (Kirkman et al., 2002; Cascio & Shurygailo, 2003; Hertel et al., 2005). Consequently, the study will use primary data.

To arrive at the data for analysis, the primary data was collected by surveying individuals from different levels (managerial and operational level). Those are team members who are working under virtual set up to ascertain their views on the subject of this study. Accurately, their views regarding the constructs in the study research

model will be assessed. This data will provide the crucial quantitative information consistent with the methodology and methods design and the identified variables.

This research study is quantitative research driven by a positivistic paradigm. This approach has been predominantly used in management and leadership research (Alvesson & Deetz, 2000; Alvesson & Willmott, 2003). The current study aims to study the impact of transactional and transformational leadership styles on the performance of virtual teams through objective measurements and quantitative analysis empirically. It also aims to investigate the moderating effect of the following factors: team cohesion, empowerment, trust, and creativity.

The proper way of conducting research would assist in clarifying the type of data required to answer the research questions. Therefore, it is crucial to ensure consistency between research aims, objectives and research methods being used. The current research has considered the aspects below: a) research objectives, b) research methods - quantitative or qualitative, c) sources of data, d) data collection instruments – interviews, questionnaires) data analysis approach.

This study employed a quantitative methodology to examine whether the transformational or transactional leadership style has a stronger positive relationship on virtual team performance. A survey was developed and conducted among virtual team members using the widely popular Multifactor Leadership Questionnaire (MLQ), 5X self and rater forms and Minnesota Satisfaction Questionnaire (MSQ) (Bass & Avolio, 1995; Avolio & Bass, 2002; Truss et al., 2013; Zohrabi, 2013). The MLQ scale items and MSQ scale items were adapted to fit as deemed necessary for this virtual leadership study.

As explained earlier, the study considers not only the transformational and transactional leadership styles from the MLQ but as well as consider the sub-constructs of performance such as satisfaction, effectiveness and extra effort. Since the items in the MLQ scale have been previously validated about these sub-constructs (Bass & Avolio, 1995; Avolio & Bass, 2002; Truss et al., 2013; Zohrabi, 2013), we consider them for this study as well. In line with these observations, the methodology chapter elaborates on the theoretical perspective, paradigm, and methods for collecting and analysing data before undertaking and pursuing any social enquiry. The immediate next section highlights research strategy, the stance and research paradigm regarding the present research study on virtual teams' performance.

4.2 Research Philosophy

James (2012) asserted that there are several dimensions in research: ontology, epistemology, methodology, and methods. These are important to discuss because research question formulation, project conceptualisation, and how a study is carried out depends on each of these dimensions. Research methodology and the choice of methods used are based on ontological and epistemological positions adopted by the researcher (James & Vinnicombe, 2002; Blaikie, 2007).

According to Marsh & Furlong (2002), ontological and epistemological positions are more implicit than explicit, and they shape the approach to theory and methods used in a study. According to Guba et al. (1998, p. 4), “ontology is a philosophical belief system about the nature of social reality-what can be known and how”. Examples include: is the world we live in follows a pattern and is it predictable? Alternatively, is it continuously evolving through human interactions and rituals? Ontology is the

science or theory of being and concerns questions about the reality of the world in which we live. A researcher's ontological assumptions impact topic selection, the formulation of research questions, and strategies for conducting the research.

Whereas epistemology is a philosophical belief system about who can be a knower (Guba et al., 1998; Hesse-Biber et al., 2004; Easterby-Smith et al., 2008). It helps the researcher understand the nature of reality and adopt appropriate research methods for the inquiry while considering the limitations in obtaining knowledge. The ontological and epistemological positions form the philosophical basis of any investigation. This philosophical foundation impacts every aspect of the research process. According to Marsh & Furlong (2002), epistemology is the theory of knowledge and assumes that objectivity is possible. In any study, the epistemological position of a study reflects the view of what we can know about the world and how we can know it. Therefore, the epistemological position enables the ability to answer a given set of research questions correctly.

4.2.1 Research Strategy

The research strategy is the procedure and logical process that is required to answer the research questions. Choosing the most appropriate research strategy in investigating the research problem is salient. According to Saunders et al. (2003), there are two research strategies: inductive and deductive. Each of these strategies tackles the research questions differently. While the process of the inductive research strategies consists of the data collection, data analysis, and generalization by the use of inductive reasoning; the process of deductive research strategies consists of the identification of patterns, establishing some explanation by testing the theories, and eliminating false ones (Saunders et al., 2004).

Typically, the inductive reasoning is used in qualitative research and the deductive reasoning is used in quantitative research methods. In research studies that examine the impact of leadership on team performance, the deductive research strategy is best to answer the research questions. According to Saunders et al. (2004), the deductive reasoning is concerned with developing the hypotheses based on existing theory and then designing a research strategy to test the hypotheses.

Furthermore, the term deductive implies reasoning from the particular to the general. When a causal relationship or link is implied by the particular theory, it will be right in general. The deductive reasoning can be employed in research as it provides the possibility to explain causal relationships between variables, the possibility to measure concepts quantitatively, and the possibility to generalise research findings. All of these issues are relevant to the present study; therefore, the deductive research strategy was used to answer the research questions.

4.2.2 Researcher's Stance

Blaikie (2007) explained that the researcher's stance refers to the researcher's position towards the research process and research participants. Balikie (2007) suggested three basic positions a researcher may adopt: outside expert, inside learner, and reflective partner. The issue of membership or role of the researcher as insider or outsider to the population studied received by social scientist an increasing exploration (Dwyer & Buckle, 2009).

Asselin (2003), in her study examining the development of staff, suggested that insider researcher gather data having his eyes open. Nevertheless, he assumes knowing nothing about the phenomenon being studied. Further, Adler and Adler in

1987 classified researcher membership role into three roles: (a) peripheral member researcher, (b) active member researcher, and (c) complete member researcher. In the first instance, the researcher does not participate in the study.

The second typology considers the case where the researcher gets involved without a commitment to the group values and goals. In the last instant, the researcher is already a member of the group. The researcher in this study adopted a combination of researcher's stances, insider and outsider. Insider researcher when researching their organisation and outsider when researched other companies in the UAE government sector.

4.2.3 Research Paradigm

A research paradigm is a matrix of beliefs and perceptions; Foucault's (2013) theory helps in understanding paradigms. According to his theory, each age has certain mind-sets that emerge through the conversations and actions of people. These mindsets are contextual and specific to a time and place. Furthermore, mindsets are social constructs rather than individual and emerge out of daily interactions with others, and determine how we interact with others. In designing the research strategy, it is essential to clarify the paradigms that guide the research and the methods adopted. Often the researcher's experience, knowledge, and personal beliefs can influence the research methods chosen (Saunders et al., 2003).

Researchers use the positive paradigm approach to explore social reality based on reason and evidence. Positivists adopt scientific methods as a means of knowledge generation within the framework of the principles and assumptions of science. According to Cohen & Levinthal (2000), the scientific principles adhered to by

positivists in generating new knowledge are determinism, empiricism, parsimony, and generality. The principle of 'Determinism' suggests that other events and circumstances cause events and understanding the causal link between them is necessary for prediction and control. 'Empiricism', on the other hand, focuses on the collection of evidence that is verifiable to support theories or hypotheses. 'Parsimony' refers to the explanation of the phenomena in the most economical way possible.

The principles of 'Generality' are the process of generalising the knowledge obtained through observation of the particular phenomenon to the world at large. However, it is essential to note that objectivity and truth do not exist because positivists assume as we live in a dynamic and imperfect world that is continually evolving. A positivist approach was adopted for this study. Due to the nature of this research, a positivist approach is best suitable for this study. Based on the principles of the science of positivism, it will be possible to gather a sufficient amount of data to support the hypotheses. Further, positivist approaches have been used in previous similar studies to test which leadership style has a more significant positive impact on virtual team performance. In the next section, the research design is discussed.

4.3 Research Design

The research design focuses on the main methods and sampling design employed for the investigation. Other areas highlighted include the research validity, reliability and response formats. This study includes six pairs of null and alternative hypotheses. These hypotheses relate to virtual team performance with respect of i) the relative effectiveness of transformational leadership versus transactional leadership and ii) the role and the impact of team cohesion, empowerment, trust, and creativity.

This study used survey instruments to generate a reliable dataset relevant to studying virtual teams funded by UAE entities. For this, the researcher used the definition of a virtual team proposed by Powell et al. (2004) and focused on the characteristics outlined in Chapter 2. The current study considers the three constructs from MLQ that measures performance, i.e., satisfaction, effectiveness and extra effort, to measure the performance of virtual teams.

Other constructs measure performance such as attitude, quality of services, working environment, safety among others, and process improvement; the current study will not consider them as they are not directly relevant in the context of virtual teams (Habley et al., 2007; Ruggieri, 2009). It is essential to address that the construct "satisfaction" is measured in MLQ using only two items. To validate this construct, the scholar amended MLQ and has used additional items from MSQ. This amendment is part of amending the instrument used to collect data and to assure each construct is effectively measured.

4.3.1 Research Methods

Research in the social sciences and organisational studies is evolving (Creswell & Creswell, 2017). Developments in the field of research have caused a re-examination of the quantitative, qualitative, and mixed methods. To include only quantitative and qualitative methods fall short of the significant approaches being used today in the social and human sciences. The debate today is less about quantitative versus qualitative and more about how research practices lie somewhere on a continuum between the two. Research studies today can be more quantitative or qualitative (Creswell & Creswell, 2017). To gather data in a more efficient manner using

different organisations make it crucial to choose the most suitable data collection technique.

According to Yilmaz (2013), quantitative research is based on testing a theory composed of variables, measured with numbers, and analysed with statistical procedures to determine whether the predictive generalisations of the theory hold. On the other hand, a qualitative approach is one in which the researcher often makes knowledge claims based primarily on meanings, derived from individual experiences and which are socially and historically constructed. The purpose is to develop a theory or pattern.

Numerous leadership and team performance studies have been conducted investigating the impact of leadership styles on the performance of virtual teams. However, there is considerable confusion surrounding the subject of studying the performance of virtual teams. By adding the dimension of leadership style and aiming to study its impact on the performance of virtual teams, further adds to the complexity of this research and thus quantitative approach was found best to overcome such limitations.

Creswell and Creswell (2017) contend that the survey questionnaire method is a typical quantitative methodological approach. Accordingly, a large-scale survey used and completed by virtual team members from different organisations in the UAE government sector. It is important to note that a researcher needs to give thoughtful consideration when designing the survey questionnaire since measurement validity and reliability are crucial (Truss et al., 2013; Zohrabi, 2013); this has been ensured since we adopted the MLQ questionnaire as a survey instrument for this study.

4.3.2 Research Sample Design

The research sample design is the basis of the survey sample selection and data collection. At an early stage of the research, the researcher needs to select a sampling frame that can represent the targeted population from which a sample is drawn (Truss et al., 2013). The research sample design is an essential step because it represents the basic plan and methodology for selecting the right sample. Because a researcher cannot investigate the entire population, he/she will select a research sample that will represent the whole population. Using appropriate statistical/sampling concepts, the researcher generalises the findings and make inferences accordingly.

In general, there are two main techniques in sample design: non-probability sampling and probability sampling. Samples in non-probability sampling are collected in a process that does not give all the individuals in the population equal chances of being selected. Probability sampling, however, is the opposite of the non-probability sampling (Truss et al., 2013). Both techniques were used in this research study where probability sampling was applied in the organization where the researcher works. Non-probability sampling or convenience sampling was applied to the other organisations as the respondents were limited. As mentioned, choosing the right sample design is critical to the success of the research. Nevertheless, other important aspects of research design and research sample design are validity, reliability and response format. These elements need to be taken into consideration and given careful attention. Those elements are discussed in detail in the next subsections.

4.3.2.1 Validity

Validity means that the test or the instrument used is accurately measuring what it is supposed to. It is an indication of how sound the research is; more specifically,

validity applies to both the design and the methods of the research. Validity in data collection means that your findings truly represent the phenomenon the researcher intends to measure (Truss et al., 2013). Further, there are several types of validity; content and construct validity, convergent validity, concurrent validity, predictive validity, discriminate validity, internal and external validity (Truss et al., 2013).

Content validity refers to the validity of all elements of research where the behaviours for which it is intended are measured effectively. Consequently, measuring the impact of leadership styles on team performance should have content validity because it showed a positive relationship in other research studies (Truss et al., 2013). Convergent validity is sub-type of construct validity. It indicates how a test designed to measure a particular construct is measuring it.

Convergent validity is concerned with taking two measures that are supposed to be measuring the same construct and showing that are related. When a construct is statistically related to real aspects within the same timeframe, it is called concurrent validity. When it is related in the future, the validity is called predictive validity. However, when the construct is statistically different from other similar constructs, the validity is called discriminant validity (Truss et al., 2013). Internal validity refers to how well an experiment is conducted; especially whether it avoids confounding where confounding happens when more than one independent variable act at the same time. Less confounding in a study means higher internal validity. Truss et al. (2013) defined internal validity as “*the validation of the research findings with reality*”. Therefore, in the current study, the researcher used different techniques such as triangulation to arrive at an acceptable level of validity.

The final validity that addressed in this section is external validity. External validity refers to the validity of generalised inferences (Truss et al., 2013). In the current study, if the findings show high external validity, those findings can be generalised and apply to the entire population. MLQ, the data collection instrument, used for the present investigation has gained extensive validation from many scholars including Pillai et al. (1999) and Vigoda-Gadot (2007) and is thus appropriate for our study.

4.3.2.2 Reliability

Reliability is a way of assessing the quality of the measurement procedures used to collect data. It refers to the stability and consistency of measurement. Consequently, in order for the findings of research to be valid, the measurement must be reliable first. Therefore, the reliability of the data and findings is salient as the research process, and findings thereof should be consistent and dependable (Atkinson, 2012; Truss et al., 2013).

Essential aspects of reliability are internal consistency reliability and external test-retest reliability (e.g., Atkinson, 2012; Truss et al., 2013). The internal consistency reliability refers to the consistency of collecting processing, analysing and interpreting the data, ensuring that items measuring different constructs will deliver consistent results. Reaching consistency in the results indicates higher internal reliability. High internal reliability indicates that items of the same measurement scale do correlate together. Statistically, internal consistency reliability is measured by the Cronbach's Alpha with an acceptable value of above 70% (Field, 2013).

4.3.2.3 Response Format

In the current research study, the independent variables in this study are transformational leadership, transactional leadership, virtual team member empowerment, virtual team cohesion, creativity, and trust. The dependent variable is virtual team performance which is measured by team members perceptions of their leader on three factors identified in the Multifactor Leadership Questionnaire (MLQ), namely i) leaders' ability to motivate team members using extra effort, ii) leaders' effectiveness in the organization, and iii) how satisfied team members are with their leaders work methods (Avolio & Bass, 2002).

The MLQ uses a 5-point Likert scale, with 0 representing "not at all" and four representing "frequently if not always". Based on the MLQ scores that managers will receive from virtual team members on the leadership scales, it is possible to determine which style of leadership is practised, and employees' perceptions of manager effectiveness, satisfaction with managers' performance, and employees' willingness to exert extra effort, which may lead to improved performance. Besides assessing the leadership style that is more effective in improving virtual team performance, the impact of four selective moderators too will be assessed under another section added to MLQ.

4.4 Research Instruments

Bass developed in 1985 the MLQ. Since then, it is being used in getting a better understanding of the perceptions of virtual team members (followers) as to which of the two styles; transformational or transactional was being practised and competent (Bass & Avolio, 1995). The MLQ measures a full range of leadership behaviours;

however, for this study, transformational and transactional characteristics were the only leadership styles measured (Carless, 1998).

The existing scholarly works reported that effective leaders of global virtual teams operating in complex environments must respond with varied sets of behavioural repertoires and leadership roles to facilitate team member high performance and the success of the team (Denison et al., 1995). Prior research also showed that transformational leaders perform multiple leadership roles and behaviours to facilitate success on both the individual and the organisational levels (Bass & Avolio, 1995; Bass & Riggio, 2012). A reliability check for the MLQ (English version) was conducted to provide evidence that the MLQ produced the data for which it was designed. The Cronbach alpha produced $\alpha = 0.86$. This indicated an acceptable rate, which is greater than 0.70 (Muenjohn & Armstrong, 2008; Field, 2013).

The used measurement scale of the constructs varies based on the instrument (questionnaire) adopted to measure those constructs. The leadership performance and leadership styles have been measured using MLQ, which adopts five-point Likert scale ranging from 0 to 4. These indicators, together with the other measurements on the MLQ-5X, have been validated extensively in measuring leadership performance. Conversely, the moderators are measured using five-point Likert scales ranging from strongly agree to disagree strongly.

The next sub sections elaborate and give better insights on the measurement scale used for the main study constructs: VT performance, leadership styles, and the moderators.

4.4.1 Measurement Scale of Virtual Team Performance

Performance of virtual teams is measured using three attributes as part of the leadership questionnaire in Section Two of the survey questionnaire. Those attributes are employee satisfaction, effectiveness, and extra effort and each is measured using four items, respectively. The use of these three attributes to measure leadership performance is not new but has gained relevance in related literature, including Avolio and Bass (2002). These outcomes also form an integral aspect of the full range of leadership questionnaire formulated by Avolio & Bass (2002).

The variables, like other aspects of the MLQ-5X, were measured with the help of the five-point Likert scale ranging from: Not at all (0), once in a while (1), sometimes (2), fairly often (3), and frequently, if not always (4). These, indicators, together with the other measurements on, the MLQ-5X, has been validated extensively in measuring leadership performance (Bass & Avolio, 1997; Barling et al., 2000; Bass & Avolio, 2002). Another meta-analysis was employed to validate the consistency, reliability, and resilience of this measurement framework (Lowe & Kroeck, 1996; Judge & Piccolo, 2004).

4.4.2 Measurement Scale of Transformational Leadership

The widely popular Multifactor Leadership Questionnaire (MLQ) was adapted for this virtual leadership study. Five main sub-constructs were originally used for the measurement of transformational leadership. These include Inspirational Motivation (IM), Idealized Influence attributed (IIa), Idealized Influenced behaviour (IIb), Intellectual Stimulation (IS) and Individualized Consideration (IC). As explained in the context of the literature review, IM deals with the visionary nature of the leader, IIa considers the attribution of charisma to the leader, IIb observes the collective

sense of mission, IS challenges the assumption of followers' beliefs, and IC the consideration of follower needs as well as the development of their strengths (Avolio & Bass, 2002).

The use of the MLQ for the measurement of transformational leadership using these indicators has gained high-level recognition and acceptance (Pillai et al., 1999; Avolio & Bass, 2002; Antonakis et al., 2004). The instrument has been translated into various languages for the measurement of transformational leadership (Rowold, 2005). Each of the five subscales under transformational leadership was originally measured using a total of 4 indicators each, on a five-point scale numbered 0 to 4. A total of these scales from 0 to 12 indicate the level of passive or active orientation of the leader under observation. A total of 20 items were used for the measurement of this construct summed into five main observed variables.

4.4.3 Measurement Scale of Transactional Leadership

As explained in the earlier section, transactional leadership is one of the leadership styles measured by the MLQ-5X employed in the present study. As observed, researchers have found the instrument to be highly reliable and appropriate for the measurement and evaluation of transactional leadership style (Pillai et al., 1999; Avolio & Bass, 2002; Antonakis et al., 2004). Transactional leadership was measured using three main sub-constructs or subscales; these include Contingent Reward (CR), Active management by Exception (AMbE), and Management by Exception Passive (MbEP).

Each of the three subscales of Transactional Leadership is measured using four main items or indicators on a Likert five-point scale in the range of 0 to 4. Thus, a total of

12 items were used for the measurement of transactional leadership summed into three unique indicators for the main analysis. A sum of the scores within each sub-scale represents the overall measurement of each scale.

4.4.4 Measurement Scale of Virtual Team Cohesion

Virtual team cohesion was adapted from the Team Climate Assessment Measurement Questionnaire (TCAM), adopted by Zajac (2014) in the measurement of virtual team size and cohesion. A total of 16 items were considered for the measurement of Virtual Team Cohesion. The original instrument has received several validations for the measurement of the various characteristics of teams (Cooper et al., 2010; Beaulieu et al., 2014; Marlow et al., 2018). Considering the use of 16 items in this area, a five-point Likert scale was employed ranging from strongly agree (5), Agree (4), neutral (3), disagree (2), and strongly disagree (1).

4.4.5 Measurement Scale of Virtual Team Empowerment

Virtual team member empowerment was measured using a scale developed by Kotlarsky et al. (2009). A total of 5 items were used for the measurement of this construct as employed by Kotlarsky et al. (2009). The five items were measured on a five-point Likert scale evaluating the extent to which respondents agree to each of the statements. On the Likert scale, the following were measured strongly agree (5), Agree (4), neutral (3), disagree (2), and strongly disagree (1). The reliability of this scale was 0.93.

4.4.6 Measurement Scale of Virtual Team Trust

Measurement of trust was adapted from a validated questionnaire developed by Carter & Belanger (2005). A total of 6 items were employed in the measurement of

this construct. Carter & Belanger (2005) measured the trustworthiness of the internet and government from a Technology Acceptance Model (TAM) perspective. The indicators were adapted to suit the current context of virtual teams' trust measurement. A five-point Likert scale was employed for the measurement of this construct ranging from strongly disagree (1) to strongly agree (5).

4.4.7 Measurement Scale of Virtual Team Creativity

Badaruddin's (2012) study on an exploration of the relationship among creativity, engineering, knowledge and overall team interaction, helped in the measurement of team creativity. Badaruddin (2012) employed the Team Climate Inventory (TCI) Questionnaire and the Torrance Test of Creative Thinking (TTCT) as part of his study. The TTCT was developed initially by Torrance in 1966 to measure creativity and cognitive processes (Cooper, 1991; Fleenor & Taylor, 2003; Almeida et al., 2008). Others, including Simpson (2010) have validated the TTCT with regards to ranking in content, concurrency and validity. Three items were considered and employed in the measurement of this construct. Also, a five-point Likert scale was employed, including strongly agree (5), Agree (4), neutral (3), disagree (2), and strongly disagree (1).

4.5 Research Procedures

This Section includes the pilot of the survey questionnaire, data collection, target population and sample selection, and survey administration and rollout.

4.5.1 Pilot of Survey Questionnaire

Conducting a pilot of the survey questionnaire is a vital research practice because it helps in refining the original survey questionnaire and in resolving issues that may

emerge in the actual data collection. The data collected during the pilot study help the researcher in determining the effectiveness of the research methodology and in pre-testing the research instruments (Schutte et al., 2018). The researcher of the current study conducted a pilot study using a small sample of the targeted population to ensure the suitability of the survey questionnaire for the UAE government sector research studies.

In the pilot study, a sample of 23 participants working as team members (followers) under a virtual work set up in the governmental organisation was selected from the targeted population; however, only 19 of the selected participants completed the survey. It is important to note that the response rate of the pilot study survey was 83%. The results of the pilot study were used to predict the suitability of the survey questionnaire to the UAE context. Generally, the feedback received from the participants indicated that the survey is clear, and the statements used are understandable, and this confirmed the suitability of this survey to be rolled out to the targeted sample population.

4.5.2 Data Collection

Data were collected using both probability sampling and non-probability sampling techniques. The non-probability sampling technique does not give members of the targeted population equal chances of being selected where convenience selection is used. Whereas, the probability sampling technique does give members of the targeted population equal chances of being selected where the random selection is used (Truss et al., 2013; Schutte et al., 2018). The probability sampling was applied to the organisation the researcher is working for where more control and access is being

granted. Also, the non-probability sampling technique was applied to governmental organizations that allowed their employees to participate in this study.

Data acquired from the opinions or works of other scholars are identified as secondary data. For example, finalising of research writing can include secondary information that has already been administered by another person (Creswell & Creswell, 2017). Also, studies taken on a statistical examination can include secondary data. However, there is a way that this kind of data has been explained by its use instead of its essential nature. Secondary data to support the study is gathered from an extensive literature review. Data regarding the key variables of this study, namely leadership, leadership styles, transactional leadership, transformational leadership, virtual teams, and performance was conducted thoroughly and retrieved relevant scholarly work from the available e-resources held by the UAEU Library that concerned with business and management studies (e.g., Emerald, EBSCOhost, ProQuest, and the like).

Primary data was collected through a quantitative survey. The survey was purchased from authorised representeter (MindGarden), and it was rolled out among virtual team members using the widely popular Multifactor Leadership Questionnaire (MLQ) self and ratter forms. It is to be noted that due to the challenges in gaining access to a leader and all his immediate followers (team members), the study had to involve only virtual team members from different virtual teams without a clear indication of their direct or indirect reporting to the team leader— the respondent survey assessment established as primary data.

The surveys were the critical tool to collect data related to the perceptions of team members about an effective leadership style that has a more significant impact on the

performance of virtual teams and their perception on how the selected moderators are affecting the leadership impact on virtual teams' performance. The questionnaire was personally administered or emailed to a sample of carefully selected virtual team members working in pre-screened organisations that had virtual teams and were willing to be part of the study. Some of the organisations that have shown interest in the study are either Local or Federal organisations that were based mostly in Abu Dhabi and Dubai.

The survey was also hosted online at www.surveymonkey.com for the convenience of the respondents. The total population that was targeted consisted of around 500 virtual team members. A total of 344 (N=344) respondents participated in the study, out of 500, making the achieved response rate of 68.8%. It is important to address that this study is considered the perception of team members only (followers). The perception of team leaders is not considered. It was pointed out by Atwater et al. (1995) (as cited in Kao (2011)) that leader's self-perceptions of effective leadership style would often differ from the team members' perceptions.

For quantitative researchers, there are several potential risks related to reliability and validity (Lowe & Kroeck, 1996). When considering issues with reliability, there are concerns with whether the instrument scores accurately when the test is repeated. When considering the validity, they are concerned whether the instrument measures the required variables. Avolio & Bass (2002) reported that the MLQ achieved 0.76 to 0.92 for reliability measures, and the general reliability of the instrument was supported by subsequent research (Creswell & Creswell, 2017). This is acceptable as it is above the minimum value of 0.7, taken as standard in many social science studies.

The same is true for the reliability of the instrument used in this study (i.e., MLQ). It showed that Cronbach's alpha ranged from 0.74 to 0.94 and was substantiated by Creswell and Creswell (2017). The reliability of the moderators was also checked, and all four moderators showed an acceptable reliability rate above 0.7. The validity of items about each moderator is based on the overall validity of the survey used as claimed by the relevant studies used those instruments.

The structure of the survey questionnaire consists of three main sections (See Appendix 1):

- Section 1: Demographics-This section has questions based on the demographic variable of the respondents. Questions asked to include the nationality of the respondent, the length being in business, age bracket, the category of specialisation, position in the organisation, the field of the virtual team, the total number ship of the team, duration of the virtual team, and duration of time being a member of the team.
- Section 2: This section tested the leadership style of the respondents' team leader. The respondents identified what best describes their leaders/managers leadership style. Each statement was rated based on how it fits the person they are describing using the provided rating scale. This section also considered the measurement of three items that represented virtual team performance as an ultimate dependent variable.
- Section 3: This section provided questions to help measure the selected moderators; that is, team cohesion, empowerment, trust, and creativity. The moderation effect of these variables on the relationship between leadership and virtual team members' performance was observed. Ultimately, the

respondent identified what best describes him/her by selecting how frequently each statement was best.

Other researchers have also found the instrument to be highly reliable and appropriate for evaluating leadership style (e.g., Pillai et al., 1999; Avolio & Bass, 2002; Antonakis, Avolio, & Sivasubramaniam, 2004). For example, a study by Pillai et al. (1999) reported reliabilities of 0.96 and 0.89 for the transformational and transactional scales, respectively (Pillai et al., 1999). Another study by Vigoda-Gadot (2007) also reported high reliabilities of 0.95 and 0.83, respectively for transformational and transactional scale. To conclude, the MLQ was found to be reliable and was accepted and used for this study.

4.5.3 Target Population and Sample Selection

A sample is an illustrative section of a vast populace. Sample features are vital, especially in a quantitative method which was applied in this study. The way the model size is created can be applied to display the reliability of the outcome of the study. For research to be efficient and reliable, people in a particular population must participate in it. Sample size then signifies the number of people selected to participate in the research. Fewer samples can distort the outcome. Adequate sample amount is chosen from huge research through specific technique methods. The larger the audience, the more the study will be dependable and reliable (Hair et al., 2010).

The target study population consisted of all employees in UAE government organisations working in a virtual set up. Though there is no exact number defines this population, it is estimated that employees working in the government sector to be not less than 500,000 employees. This number is expected to keep increasing with

the increase of business complexity and the spread and advancement of communication technologies.

The researcher of this study adopted a sample size estimation criterion presented by Tabachnick and Fidell (2013), which suggests that the minimum sample size N shall be $N > 50 + 8m$, where M in this formula is the number of independent variables and this study has 8 sub-independent variables represented by Transactional and Transformational leadership styles. Consequently, the estimated minimum sample size is 114. Based on this approach, as mentioned above, the researcher aimed for even larger sample size and got complete filled surveys from 344 virtual team members (2 questionnaires/surveys) were rejected because of incomplete data.

4.5.4 Survey Administration and Rollout

The data was collected by first requesting and obtaining an Ethics Approval from the UAE University (UAEU) Research Ethics Committee. The survey was then placed on Survey Monkey, an online data collection platform, and the link was sent via emails to the participants for data collection.

For all 346 respondents that made up the population frame, personalised emails were sent, and workshops were conducted to participants with clearly provided instructions and information regarding the study. Respondents were assured of the highest level of confidentiality and anonymity in participating in the study. A link to the survey monkey online data collection platform, which provided respondents with an opportunity to participate in the study, was included in the main emails. Additionally, hard copies were distributed in conducted workshops for those who want to respond promptly. The achieved response rate of 68.8% was received after

several reminders sent to the group of respondents every week. This level of respondents may be considered rather satisfactory of an online survey (Beins & McCarthy, 2017).

The implementation of a random sampling technique for the survey administration was made possible through the cooperation of the many involved institutions. Even though the allocation of the samples to those institutions was not done proportionally, the actual selection of cases from each institution was conducted randomly with the assistance of the human resources professionals of these institutions. The random generator was applied to only the virtual teams within these institutions. The contact details of HR professionals were available to the researcher and personalised messages sent to them to remind the respondents. Some institutions that preferred to hold their employees' details confidential worked together with the researcher to ensure that the human resource administrator personally handles the random rollout of the survey to suitable candidates.

4.6 Research Field Access

Access to the research fields remains one of the most challenging natures of academic research (Johl & Renganathan, 2010). Research field access may not only centre on the possibility to reach respondents face-to-face but may also include online access to participants. Participants who consider the research topic as a sensitive area will not be willing to contribute effectively to the communicated survey. Leadership ratings can be considered a sensitive subject area where the participants may be influenced by personal sentiments, feelings and other social connections they have with other people within the organisation; thus, influencing their responses.

Considering the survey questionnaire and online platform as an instrument for gathering required quantitative data was in the right direction to ensure that respondents are truthful to participation and that the responses provided are an accurate representation of their perceptions. Also, assuring participants of their confidentiality and anonymity was critical to convince them to participate more willingly. As part of the need for confidentiality and anonymity, participants were promised and assured formally that their involvement would not affect their personal and professional lives in any adverse manner.

From another perspective, Johl & Renganathan (2010) considered that research field access might be categorised into four main stages; pre-entry access, access during fieldwork, access after fieldwork, and access after returning to the site. The pre-entry phase access was managed with the help of the official letter offered by the UAEU, which helped gain consent from the gatekeepers. The “during the fieldwork” access was gained mainly by obtaining consent from the individual respondents and participants. To maintain the established connections with the participants and collaborating institutions, phase three and four access are very instrumental. Participants and institutions who desired to have access to the results were promised an update after the study is completed.

4.7 Research Ethical Considerations

Ethical considerations are considered an essential element that governs any scientific research. Consequently, this research study adhered to the necessary ethical standards to maintain integrity, credibility, and validity throughout the research process. Further, the researcher observed all rules, regulations, and policies set by the

academic institute, the organisation where the study was conducted, and the UAE regulating entities.

The process of these ethical considerations began with an initial discussion with the respondents. The researcher informed them about the research study, its requirements, its purpose and its goal. This conforms to the idea that researchers must be honest and ethical throughout the conduct of the research (Smith, 2005). Also, the researcher assured that confidentiality, privacy and anonymity of the participants are protected throughout the research processes.

4.8 Research Data Analysis Plan

The data collected from the surveys were sorted and analysed using Excel and the IBM SPSS Statistic for all calculations. First, preliminary data analysis and screening was processed, and this included Multivariate Linearity and Homoscedasticity assessment. Then sample demographics and respondents' profile were, illustrated, followed by descriptive statistics on main study variables and constructs. Next Exploratory Factor Analysis (EFA) was performed to understand the factor structure and test for reliability and validity of the data. Multiple regression was used to test the main hypotheses of the study, which included predicting team performance using transformational and transactional leadership styles. The test for moderation was also conducted using regression analysis.

4.9 Summary

This Chapter outlined the research methodology used and discussed the philosophical context of the study regarding virtual team performance; it also detailed the research design and the adopted research instruments. It highlighted

research procedures regarding data collection, participant approach, survey administration and rollout. Finally, it included a section on the research field access, ethical considerations, and data analysis plan. The next chapter discusses data analysis and results.

Chapter 5: Analysis and Results

5.1 Introduction

This chapter analyses and presents the findings of this thesis on virtual team's performance. We first discuss the demographics of the respondents. Following this, we discuss the impact of the two leadership styles on performance. Next, we discuss the effect of the moderators of the performance of virtual team members. The last section discusses the overall findings based on the entire chapter in a summary format.

5.2 Preliminary Data Analysis and Screening

Before designing the main forms of data analysis, preliminary analyses were conducted to ensure that corrections are made to the data to permit a more seamless analytical phase using regression analysis. Some of these checks conducted include the check for missing data, check for outliers, normality, linearity, homoscedasticity, multicollinearity and Common Method Bias, in order as recommended by Hair et al. (2010).

5.2.1 Data Input Accuracy Assessment

We used Survey Monkey platform to structure the online questionnaire, with some modification to avoid data entry errors. The possibility of entry error based on the consideration that the entered data in the online questionnaire are automatically organised into downloadable tables in the form of Microsoft Office Excel Sheet. The output was therefore downloaded from the Survey monkey Digital database in the form of Microsoft Office Excel file, inspected and uploaded into SPSS for analysis. An inspection was conducted here to ensure that the items used to collect data on

each of the dimensions are grouped into their respective categories. Moreover, it helped affirm that the data is numerical were required for quantitative analysis where a question included an answer in the form of “other”. The “other” answer was entered separately as a string variable in IBM SPSS Statistics.

5.2.2 Missing Data Assessment and Unengaged Responses

Cleaning data of any missing details is essential to meet the assumptions of the regression analysis. Data cleaning is, therefore, one of the most critical steps in the event of quantitative inferential data analysis. The descriptive statistics of all entered indicators were generated together with incomplete answers to inspect the potential missed data. All missing data characteristic of the variables were inspected to be 0. This response is also due to the consideration that all responses were made compulsory to submit the online form and participate effectively successfully. This observation was necessary as some of the analytical procedures will not function on the availability of missing data.

We copied the collected data into excel with inspecting any potential variance and unengaged responses. A response with a variance of 0 would imply the allocation of the same rating for all the variables under consideration. This would imply that the respondent was unengaged and such case may be taken out of the analysis. The check for variance was to ensure that the expectation of the squared deviation of each of the cases or participants’ responses is different from their mean response. Where the variance is similar to the mean response, then it implies that the same response was provided for all the answers. No missing data was recorded, and no such unengaged responses were recognised. All 344 responses were, therefore, continued to the next stage of the analysis.

5.2.3 Normality Assessment with Skewness and Kurtosis

Normality is critical to meet other assumptions of the study in performing various multivariate analysis (Hair et al., 2010). According to Hair et al. (2010), multivariate normality can be inspected by observing the skewness and kurtosis of the data. Put of a total number of 77 main items, excluding the demographics section of the questionnaire, all remaining data that will be used for the multivariate analysis are presented in the table to observe their normality. According to Sposito et al. (1983), skewness and kurtosis beyond an absolute value of 2 imply that normality is flawed.

On the Likert five-point scale, the smaller the skewness, the more normal the data may be considered. A visual inspection of the data below reveals that none of the skewness or kurtosis had more than 2 in absolute terms. Also, the data can be considered significant enough to offset the adverse effects of non-normally distributed variables on a pool of data (Tabachnick & Fidell, 2013). With the use of IBM SPSS Statistics, this dataset is presented in Table 5.1 below.

Table 5.1: SPSS Output of Standard Deviation, Skewness and Kurtosis

Variables/ Items	\bar{x} Std. Error	Std. Deviation	Skewness	Skew Std. Error	Kurtosis	Kurt Std. Error
IIb6	0.047	0.870	-0.723	0.131	0.426	0.261
IIb14	0.049	0.913	-0.764	0.131	0.006	0.261
IIb23	0.048	0.889	-0.607	0.131	-0.101	0.261
IIb36	0.048	0.896	-1.074	0.131	0.698	0.261
IIa10	0.042	0.790	-1.047	0.131	1.311	0.261
IIa18	0.046	0.860	-0.924	0.131	0.571	0.261
IIa21	0.047	0.880	-0.784	0.131	0.010	0.261
IIa25	0.048	0.886	-0.908	0.131	0.483	0.261
IM9	0.046	0.856	-0.943	0.131	0.520	0.261
IM13	0.051	0.941	-0.891	0.131	-0.025	0.261
IM27	0.051	0.955	-0.611	0.131	-0.474	0.261
IM39	0.054	1.011	-0.973	0.131	-0.029	0.261

Table 5.1: SPSS Output of Standard Deviation, Skewness and Kurtosis (Continued)

Variables/ Items	\bar{x} Std. Error	Std. Deviation	Skewness	Skew Std. Error	Kurtosis	Kurt Std. Error
IS2	0.049	0.919	-0.996	0.131	0.439	0.261
IS8	0.049	0.912	-1.029	0.131	0.681	0.261
IS31	0.052	0.961	-0.967	0.131	0.252	0.261
IS34	0.052	0.971	-0.968	0.131	0.235	0.261
IC15	0.051	0.945	-0.831	0.131	0.018	0.261
IC19	0.046	0.859	-1.004	0.131	0.521	0.261
IC30	0.049	0.908	-0.969	0.131	0.277	0.261
IC33	0.049	0.918	-1.174	0.131	1.072	0.261
CR1	0.047	0.876	-0.724	0.131	-0.037	0.261
CR11	0.044	0.819	-0.773	0.131	0.253	0.261
CR16	0.044	0.826	-0.784	0.131	0.152	0.261
CR37	0.043	0.794	-0.857	0.131	0.456	0.261
MbEP3	0.046	0.848	-0.819	0.131	0.249	0.261
MbEP12	0.047	0.873	-0.893	0.131	0.384	0.261
MbEP17	0.044	0.813	-1.039	0.131	1.121	0.261
MbEP20	0.043	0.791	-0.894	0.131	0.300	0.261
AMbE4	0.044	0.812	-1.155	0.131	0.718	0.261
AMbE22	0.044	0.820	-1.040	0.131	0.771	0.261
AMbE24	0.041	0.765	-0.981	0.131	0.879	0.261
AMbE28	0.042	0.785	-0.986	0.131	0.506	0.261
EF43	0.044	0.824	-0.749	0.131	-0.148	0.261
EF47	0.041	0.761	-0.620	0.131	-0.393	0.261
EF49	0.041	0.760	-0.864	0.131	0.260	0.261
Effective40	0.042	0.774	-0.904	0.131	0.843	0.261
Effective44	0.038	0.706	-1.223	0.131	1.980	0.261
Effective48	0.041	0.767	-0.546	0.131	0.132	0.261
Effective50	0.041	0.767	-1.087	0.131	1.557	0.261
Pro_Sat38	0.046	0.856	-0.990	0.131	0.926	0.261
Pro_Sat41	0.046	0.861	-1.028	0.131	0.990	0.261
Pro_Sat42	0.043	0.801	-1.326	0.131	2.140	0.261
Pro_Sat46	0.046	0.848	-0.997	0.131	0.882	0.261
Team_Coh_1	0.053	0.984	-1.280	0.131	1.542	0.261
Team_Coh_2	0.050	0.936	-1.046	0.131	1.039	0.261
Team_Coh_3	0.052	0.974	-0.723	0.131	0.398	0.261
Team_Coh_4	0.049	0.915	-0.404	0.131	-0.438	0.261
Team_Coh_5	0.048	0.895	-0.508	0.131	-0.110	0.261
Team_Coh_6	0.050	0.925	-0.526	0.131	-0.248	0.261
Team_Coh_7	0.049	0.908	-0.680	0.131	-0.124	0.261
Team_Coh_8	0.052	0.974	-0.871	0.131	0.188	0.261
Team_Coh_9	0.049	0.920	-0.809	0.131	0.539	0.261
Team_Coh_10	0.052	0.968	-1.068	0.131	0.596	0.261

Table 5.1: SPSS Output of Standard Deviation, Skewness and Kurtosis (Continued)

Variables/ Items	\bar{x} Std.	Std.	Skewness	Skew Std.	Kurtosis	Kurt Std.
	Error	Deviation		Error		Error
Team_Coh_11	0.050	0.925	-0.865	0.131	0.126	0.261
Team_Coh_12	0.053	0.982	-0.679	0.131	-0.167	0.261
Team_Coh_13	0.061	1.140	-0.243	0.131	-0.644	0.261
Team_Coh_14	0.045	0.830	-0.947	0.131	1.165	0.261
Team_Coh_15	0.063	1.170	-0.322	0.131	-0.450	0.261
Team_Coh_16	0.068	1.270	-0.294	0.131	-0.783	0.261
Team_Emp1	0.066	1.219	-0.279	0.131	-0.703	0.261
Team_Emp2	0.060	1.124	-0.145	0.131	-0.692	0.261
Team_Emp3	0.069	1.291	-0.216	0.131	-0.900	0.261
Team_Emp4	0.067	1.246	-0.298	0.131	-0.871	0.261
Team_Emp5	0.066	1.226	-0.019	0.131	-0.735	0.261
Trust1	0.054	0.996	-0.172	0.131	-1.128	0.261
Trust2	0.055	1.030	-0.525	0.131	-0.955	0.261
Trust3	0.058	1.087	-0.667	0.131	-0.442	0.261
Trust4	0.059	1.100	-0.519	0.131	-0.667	0.261
Trust5	0.072	1.333	-0.461	0.131	-1.000	0.261
Trust6	0.067	1.237	-0.565	0.131	-0.763	0.261
Creative1	0.058	1.075	-0.795	0.131	0.106	0.261
Creative2	0.055	1.018	-1.052	0.131	0.822	0.261
Creative3	0.064	1.187	-0.523	0.131	-0.652	0.261

5.2.4 Multivariate Independence and Normality of the Residuals Assessment

The independent and normality of the residuals are examined to meet the underlying assumption of regression analysis. The normality of the residuals is presented in Figure 5.1 and Figure 5.2 in a histogram of residual plot and a typical P-P Plot of Regression. The graphs indicate a normal distribution of data in the form of a normal curve. The expected cumulative probability and the observed probability also show maps neatly onto the 45-degree line on the P-P plot.

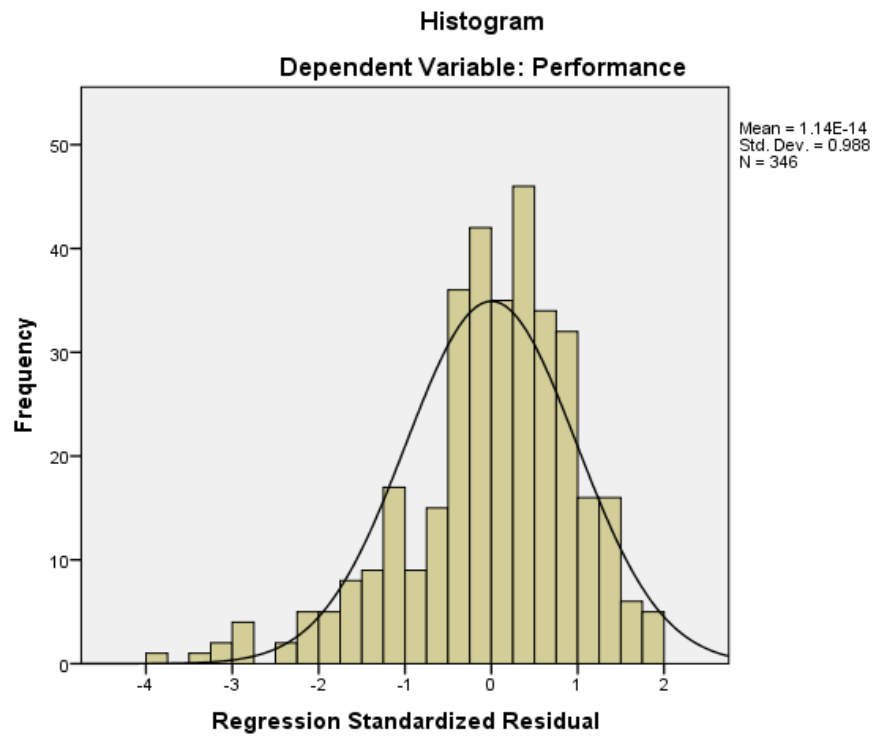


Figure 5.1: Histogram of Residual Plot

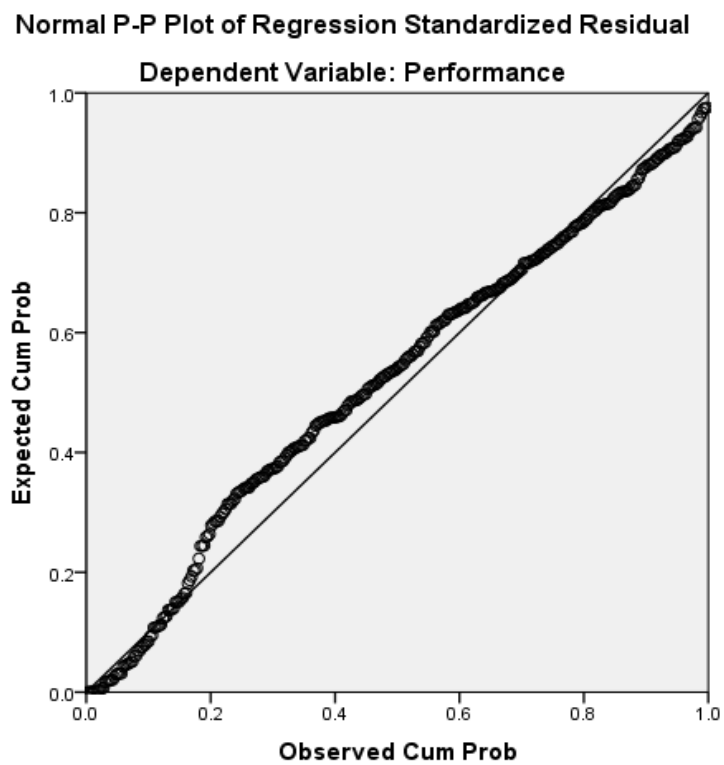


Figure 5.2: Normal P-P Plot of Regression

5.2.5 Multivariate Outliers and Influential Assessment

The check for multivariate outliers and influential assessment is to remove or handle any unique case or response that aspires to offset the data in an unreal manner from what the rest of the findings indicate. Hair et al. (2010) observe that if not well handled, outliers can distort data and make it challenging to achieve the genuinely applicable outcome. Several methods have been proposed, including the Mahalanobis distance and Cook's distance. Since Mahalanobis distance is susceptible to sample size and the number of independent variables, the Cook's distance was considered as a more suitable approach to outliers check.

Both of the findings are, however presented below. Table 5.2 present the Mahalanobis and Cooks Distance results of selected cases with extreme effects on the data. First, in Table 5.2, the degree of freedom of 8 is used to represent the 8 predictors that represent the sub-dimensions of transformational and transactional leadership. The composite scores were used for prediction instead of the individual items.

Given the data presented in the tables and figures below, a few outliers may be observed as visible even though not threatening. Case number 346 mainly appears in both tables and has a very high Cooks' distance from the rest of the data. The first two highest scores in the Cooks Distance Table did not go beyond the 1 threshold but were removed to permit a high level of parsimony within the data. These two cases also appeared on Mahalanobis Distance and were considered of possible threat to the later analysis. A total of 344 responses were therefore carried forward for analysis.

Table 5.2: Top Scores of Mahalanobis Distance

S/N	Case No.	Mahalanobis Distance	<i>df</i>	Mahalanobis Distance / <i>df</i>
1	346.00	57.60364	8	7.200455
2	345.00	55.73096	8	6.96637
3	344.00	43.02595	8	5.37824375
4	45.00	42.86816	8	5.35852
5	322.00	41.19897	8	5.14987125
6	335.00	41.10175	8	5.13771875
7	147.00	40.85117	8	5.10639625

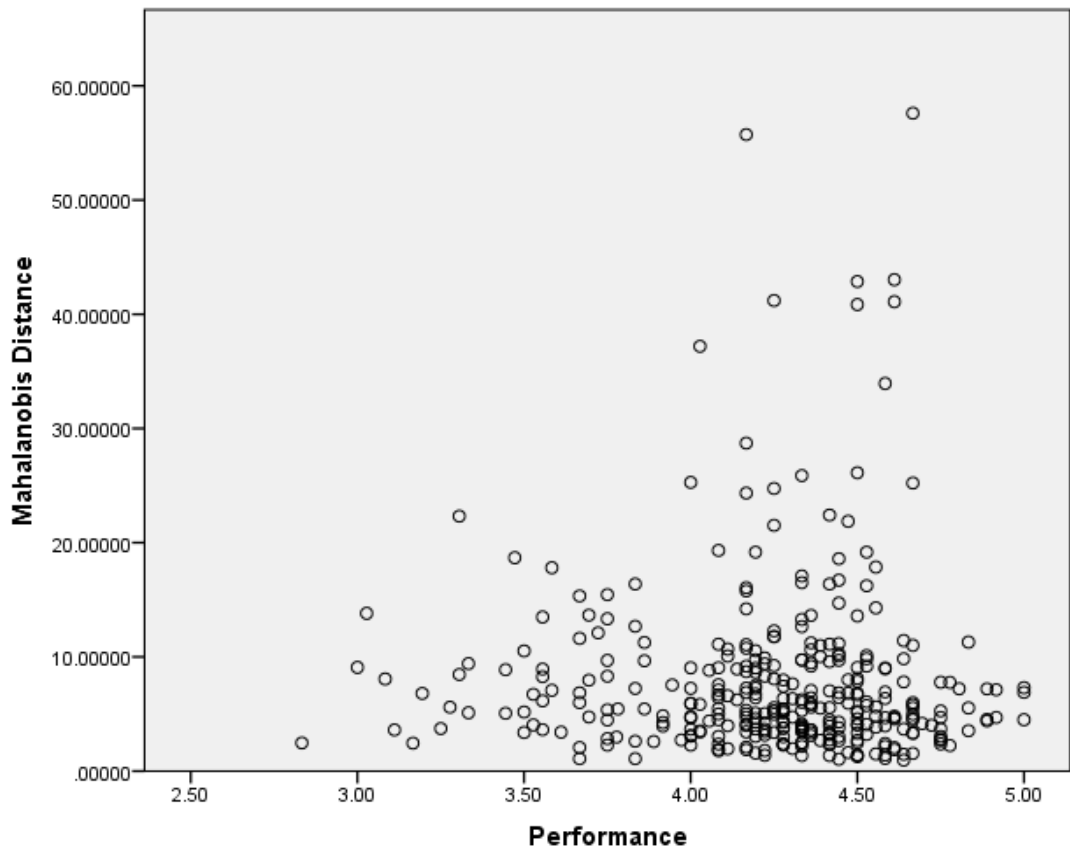


Figure 5.3: Plot of Mahalanobis Distance

5.2.6 Multicollinearity Assessment

According to Hair et al. (2010), multicollinearity is defined as an unexpected statistical situation where multiple variables used to predict a given dependent

variable have a high level of correlation. This creates much redundancy in the regression model, may alter the significance of the regression model and may impact on the test for statistical significance.

The use of tolerance and variance inflation factor (VIF) as a measure of reliability is not new. Tolerance measures the amount of variability/variance in any variable that is not accounted for by another variable. VIF, on the other hand, observes the inverse of tolerance; that is, the variability or variance of a variable shared by other variables. While tolerance must not go beyond 0.10, VIF must not exceed 10 to be considered suitable conditions of no multicollinearity. Multicollinearity data is presented in Table 5.3. Both statistics were within an acceptable range and permitted subsequent analysis.

Table 5.3: Multicollinearity Assessment

S/N	Predictors	Variance	VIF
1	Idealized Influence behaviour	.773	1.294
2	Idealized Influence attributed	.780	1.282
3	Inspirational Motivation	.867	1.154
4	Intellectual Stimulation	.935	1.070
5	Contingent Reward	.891	1.122
6	Management by Exception - Passive	.719	1.390
7	Active Management by Exception	.786	1.272

5.2.7 Common Method Variance

Common Method Variance (CMV), also known as the Common Method Bias (CMB), is an analytical procedure, which observes the total variance across the data set whether a standard underlying or latent error exists across the factors. According to Podsakoff et al. (2003), such unexpected variances could create excessive or

severely deflated correlations among factors. To test CMV, Herman's Single Factor Test (HSFT) is implemented to observe whether a single factor explains a majority of the variance in the data.

The SPSS Factor analysis results presented in the table was generated based on the final data with outliers removed. The data covered all constructs in the research model, including leadership and the moderators. The highest factor observed in the table is factor 2, with a variance of about 10.003. According to Malhotra et al. (2006), the variance of less than 25% is acceptable even though a variance of up to 50% may be considered satisfactory when a few factors are in focus. Considering no single factor comes above 10%, this might be considered that no variance error or unexplained latent factor exists across the factors considered in the present study analysis. The results for CMV is presented in Table 5.4.

Table 5.4: Common Method Variance Test

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Sq. Loadings ^a
	Total	Var. %	% Cumu	Total	Var. %	Cumulative %	Total
1	6.565	10.589	10.589	2.335	3.766	3.766	5.727
2	4.621	7.453	18.042	6.202	10.003	13.769	3.040
3	3.687	5.947	23.989	3.007	4.850	18.619	2.330
4	3.399	5.483	29.472	3.224	5.200	23.819	2.323
5	2.898	4.675	34.147	2.733	4.408	28.227	2.832
6	2.582	4.164	38.311	2.708	4.368	32.594	2.692
7	2.365	3.815	42.127	1.668	2.691	35.285	2.464
8	2.152	3.471	45.598	2.037	3.285	38.571	2.519
9	1.969	3.176	48.774	1.556	2.509	41.080	2.095
10	1.838	2.964	51.738	1.126	1.817	42.897	2.566
11	1.714	2.765	54.502	1.525	2.460	45.357	2.161
12	1.605	2.588	57.091	1.264	2.038	47.395	2.249
13	1.498	2.415	59.506	1.411	2.276	49.671	2.200
14	1.378	2.222	61.729	1.081	1.744	51.415	2.458
15	1.290	2.080	63.809	.906	1.462	52.877	3.660
16	1.229	1.983	65.791	.833	1.344	54.221	1.676
17	1.080	1.743	67.534	.868	1.400	55.621	2.106
18	1.037	1.673	69.207	.683	1.101	56.722	.637
19	.916	1.477	70.684				
61	.108	.174	99.834				
62	.103	.166	100.000				

Extraction Method: Maximum Likelihood.

^aWhen factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

5.3 Sample Demographics and Respondent Profile

The demographic characteristics of the sample profile are presented in this section.

Demographic data were collected in the following areas.

- Role (leader or follower of Virtual Teams) (numeric)
- Gender (numeric)
- Nationality (numeric/ string)

- Time spent in Business (numeric)
- Age of respondent (numeric)
- Category of Specialization (numeric)
- Position in Organization (numeric / string)
- Field of Virtual Team (numeric / string)
- Number of Team Members (string)
- Duration of Team (string)
- Duration has a member of the team (string)

While some responses were collected in numeric formats, others were recorded in string formats (open-ended). Others were combined; that is, at least one response collected on string format. Some of the closed-ended or numeric data relevant to the study are presented in this section.

5.3.1 Respondents Distribution per Gender

The distribution of respondents based on their gender is presented in Table 5.5, and Figure 5.4 While 218 or 63.4% of them were male, the remaining 126 of the sample were female (36.6%).

Table 5.5: Gender of Respondents

		Frequency	Per cent
Valid	Male	218	63.4
	Female	126	36.6
	Total	344	100.0

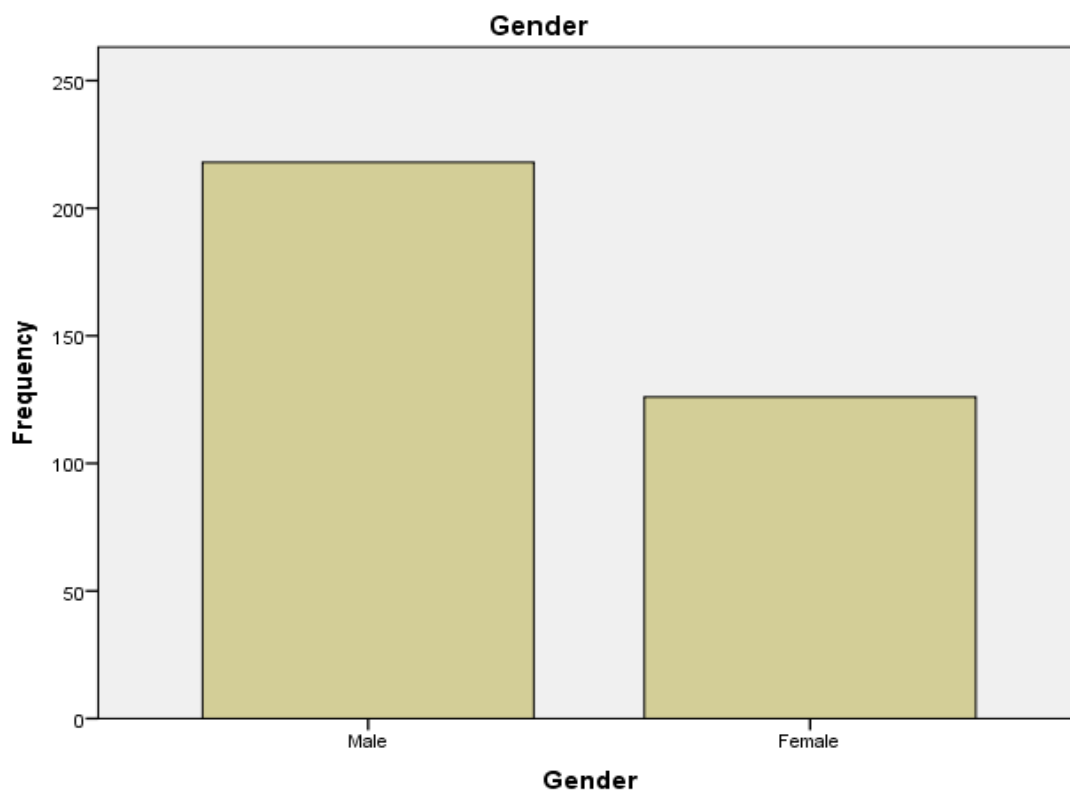


Figure 5.4: Gender of Respondents

5.3.2 Respondent Distribution per Nationality

Since the data was collected mainly from government and public agencies, a significant portion of them were UAE nationals (64.5%). Non-UAE nationals made up the other 35.5% or 122 participants. Data on respondents' nationalities are presented in Table 5.6 and Figure 5.5, respectively.

Table 5.6: Nationality

		Frequency	Per cent
Valid	UAE	222	64.5
	Other	122	35.5
	Total	344	100.0

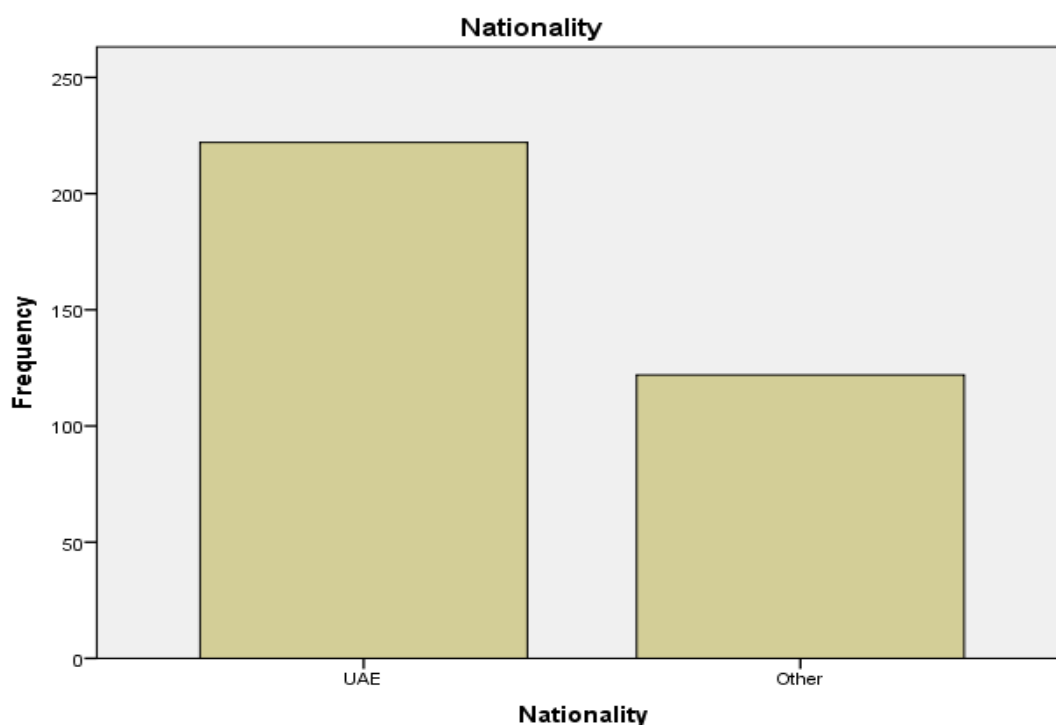


Figure 5.5: Nationality

5.3.3 Respondent Distribution per Time in Business

Out of a total of 344 participants, a total of 127 or 36.9% of them had been in the business for about 1-5 years. Another 141 of the participants representing 41.0% had been in the businesses for about 6-10 years. About 14.0% or 48 respondents had spent over 11-15 years in the businesses. Finally, 8.1% had over 16 years in the business. Data on respondent's distribution per time in business are presented in Table 5.7 and Figure 5.6.

Table 5.7: Time in Business

		Frequency	Per cent
Valid	1-5	127	36.9
	6-10	141	41.0
	11-15	48	14.0
	16 and above	28	8.1
	Total	344	100.0

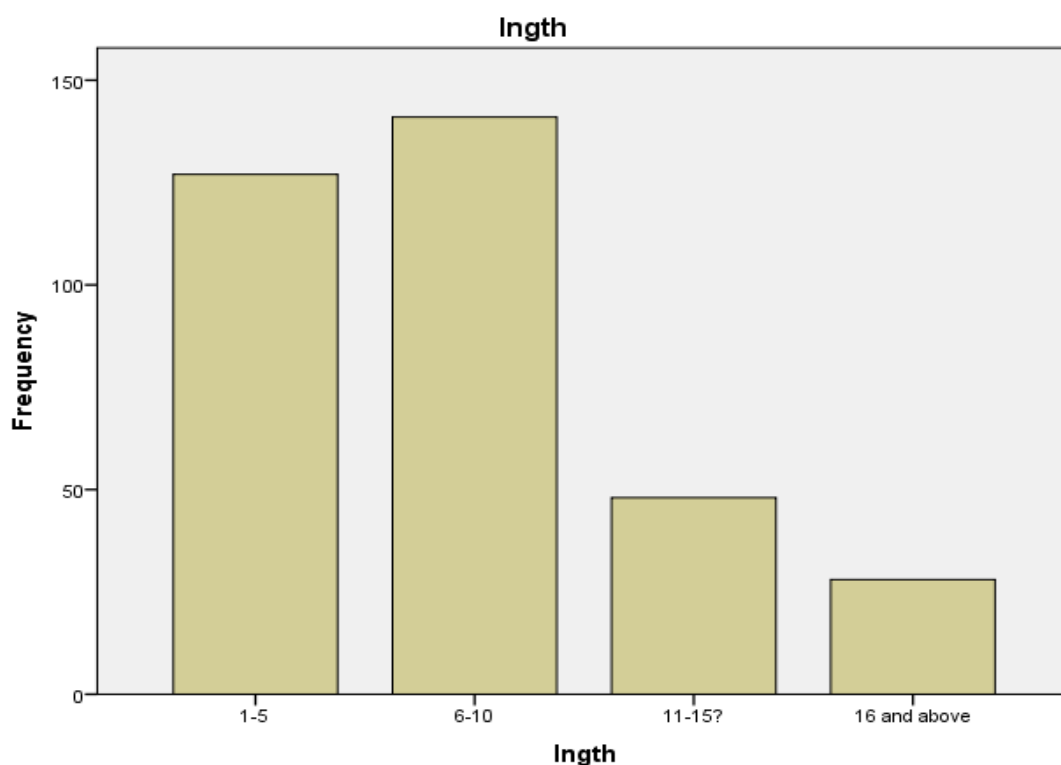


Figure 5.6: Time in Business

5.3.4 Respondent Distribution per Age of Respondents

Most of the participants were aged between the years of 31 and 40; this age group made up about 47.7% of the total number of respondents. This was followed by those aged between 21 and 30 years and those between 41 and 50 years. Older respondents made up a combined 3.8% of the sample.

Table 5.8: Age of Respondents

		Frequency	Per cent
Valid	21-30	75	32.1
	31-40	145	47.7
	41-50	68	16.5
	51-60	54	2.6
	60 and above	2	1.2
Total		344	100.0

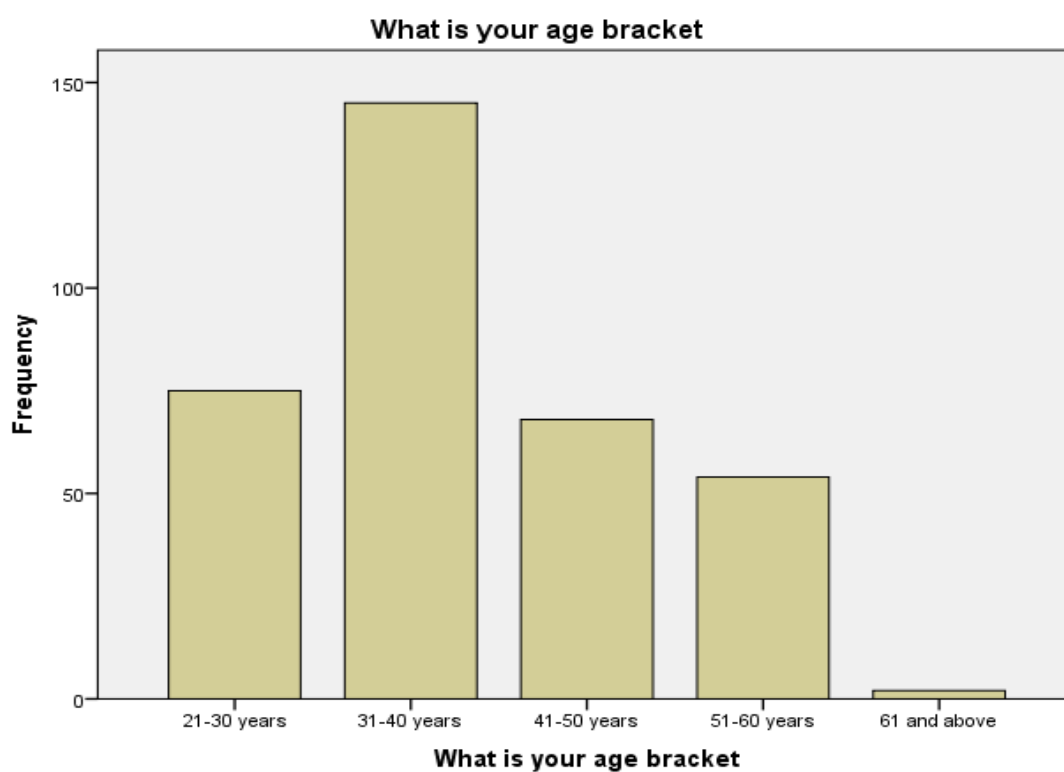


Figure 5.7: Age of Respondents

5.3.5 Respondent Distribution per Category of Specialisation

Respondents were grouped into two main categories; technical and non-technical categories as presented in Table 5.9 and Figure 5.7. Technical Virtual Teams accounted for about 63.1% of respondents while non-technical teams accounted for 127 (36.9%) of respondents.

Table 5.9: Category of Respondents

		Frequency	Per cent
Valid	Technical Category	213	61.9
	Non-Technical	131	38.08
Total		344	100.0

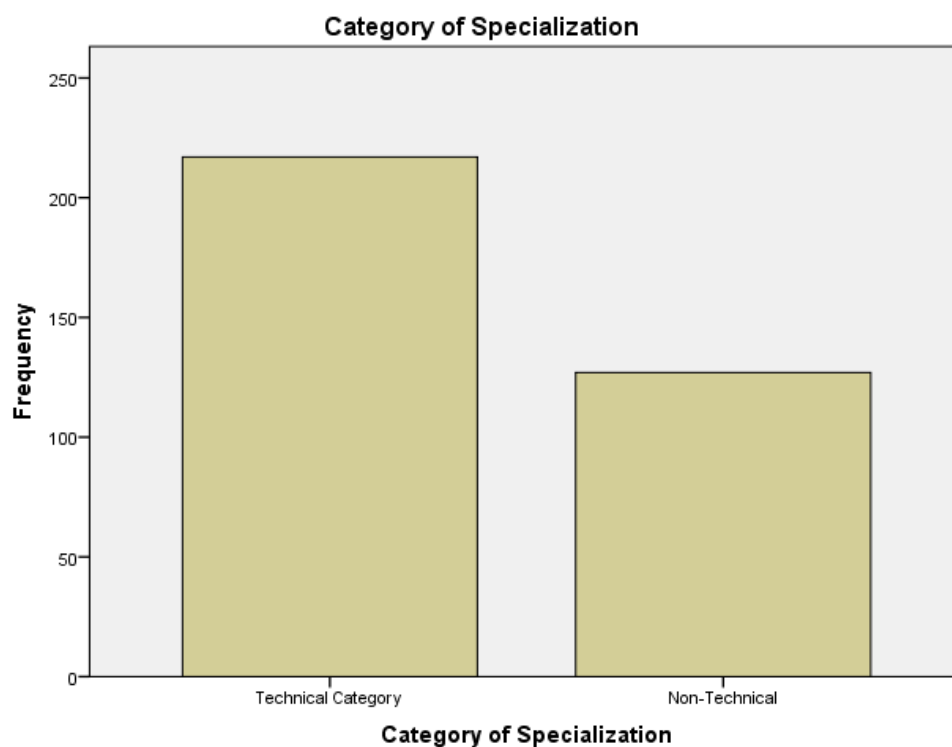


Figure 5.8: Category of Specialisation

5.3.6 Respondents Distribution per Position in Organisation

Respondents' distribution per position in the organisation is presented in Table 5.10 and Figure 5.9. Most of the virtual team members are in the positions of Directors (36.3%), Engineers (15.1%), and managers (12.5%). Only 0.9% of the respondent were in other positions other than those listed in Table 5.10.

Table 5.10: Highest Level of Education

	Frequency	Per cent
Administrative Support	20	5.8
Individual Contributor	34	9.9
Valid Engineer	52	15.1
Manager	43	12.5
Director	125	36.3
Vice President	38	11.0
Senior Executive	29	8.4
Other	3	0.9
Total	344	100.0

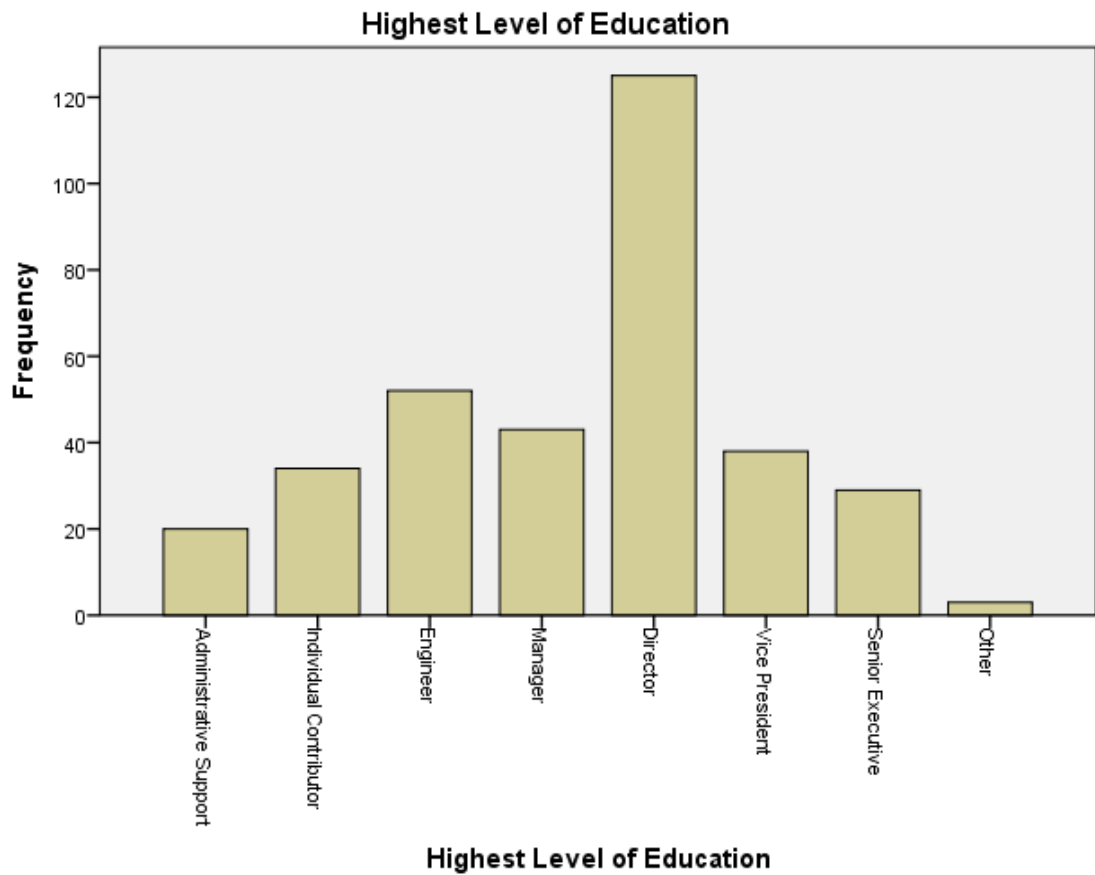


Figure 5.9: Highest Level of Education

5.3.7 Respondents Distribution per Field of Virtual Team

Virtual Teams in the areas of technology & communication (21.8%) and military teams (21.8%), had an equal number of participants each. This was followed by Virtual teams in the field of transportation and logistics. Respondents' distribution per field of virtual teams is presented in Table 5.11 and Figure 5.10.

Table 5.11: Field of Virtual Team

		Frequency	Per cent
Valid	Energy & Oil	26	7.6
	Health care	41	11.9
	Transportation & Logistics	68	19.8
	Education & Training	29	8.4
	Technology & Communication	75	21.8
	Military, Armed Forces & Law	75	21.8
	Business & Finance	28	8.1
	Production & Marketing	2	.6
	Total	344	100.0

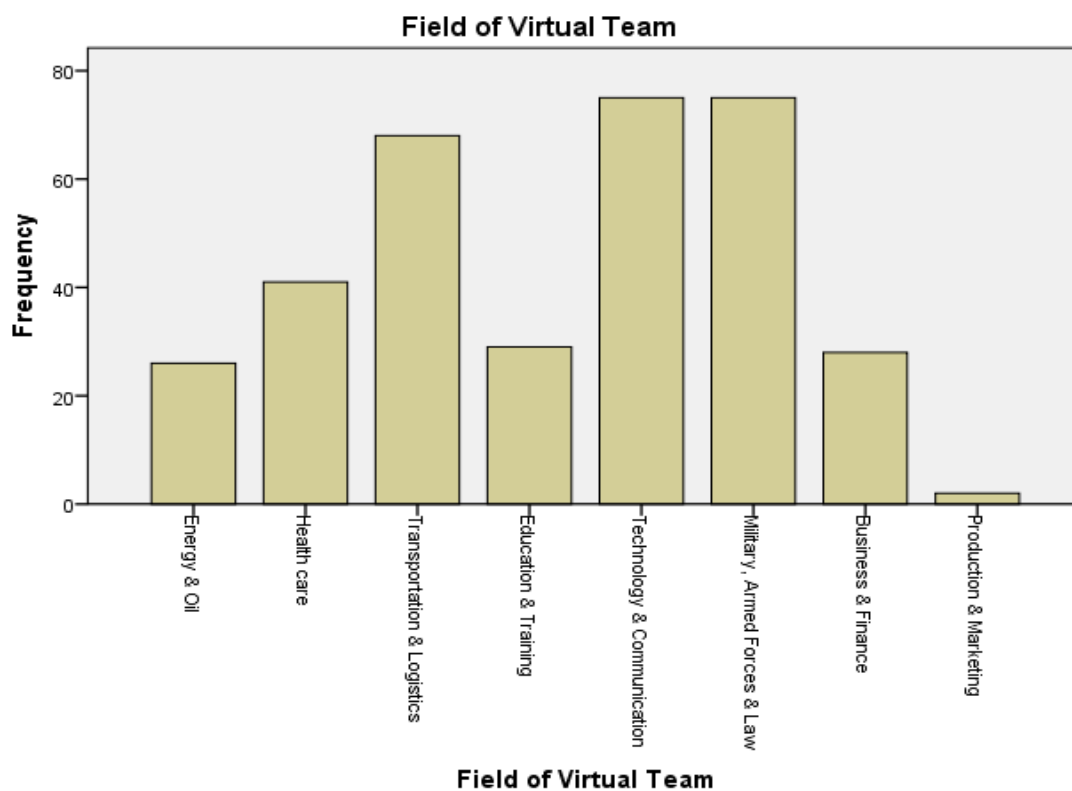


Figure 5.10: Field of Virtual Team

5.3.8 Respondents Distribution per Team Age

Respondents' distribution per team age is presented in Table 5.12 and Figure 5.11.

Only a handful of teams had spent more than one year together.

Table 5.12: Team Age

	Months	Frequency	Per cent
Valid	1.00	2	.6
	2.00	31	9.0
	3.00	36	10.5
	4.00	25	7.3
	5.00	25	7.3
	6.00	77	22.4
	7.00	46	13.4
	8.00	32	9.3
	9.00	20	5.8
	10.00	14	4.1
	11.00	20	5.8
	15.00	14	4.1
	16.00	2	.6
	Total		344

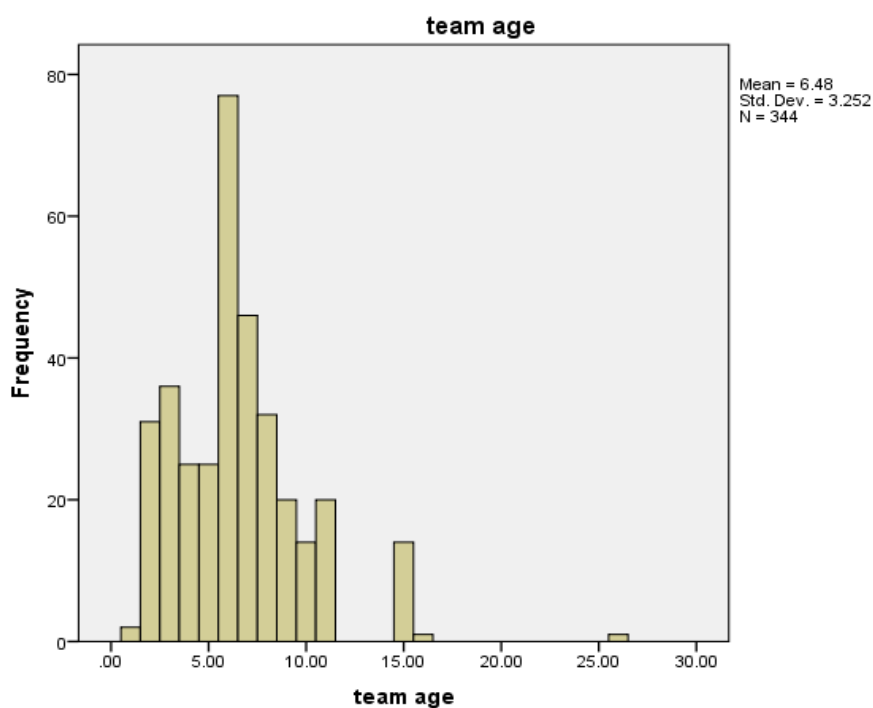


Figure 5.11: Team Age

5.3.9 Respondents Distribution per Length of Time with Team

Respondents' distribution per length of time with virtual teams is presented in Table 5.13 and Figure 5.12. Most of the respondents had been in the teams for about six months.

Table 5.13: Length of Time with Virtual Team

		Frequency	Per cent
Valid	1.00	36	10.5
	2.00	63	18.3
	3.00	29	8.4
	4.00	47	13.7
	5.00	46	13.4
	6.00	70	20.3
	7.00	11	3.2
	8.00	20	5.8
	9.00	7	2.0
	10.00	1	.3
	11.00	3	.9
	12.00	1	.3
	15.00	9	2.6
	16.00	1	.3
	Total		344

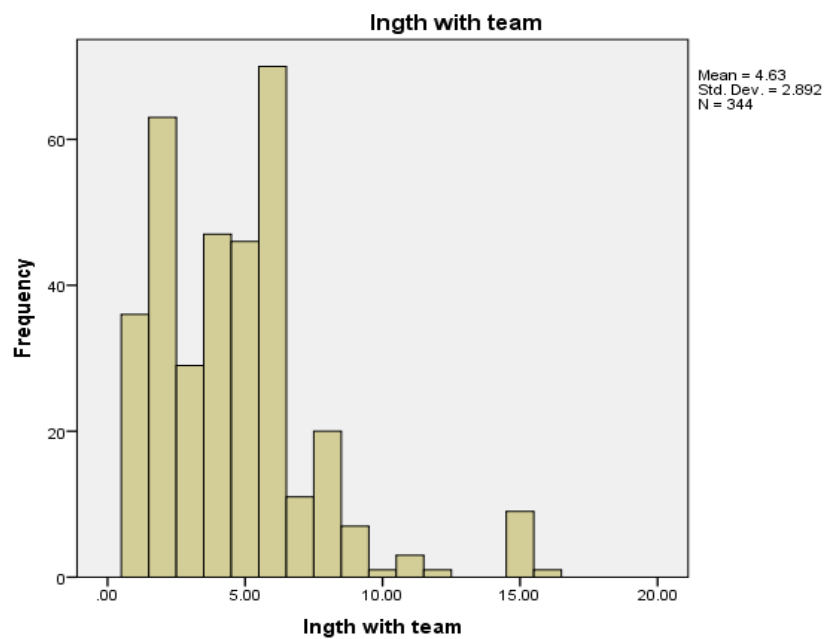


Figure 5.12: Field of Virtual Team

5.4 Descriptive Statistics on Main Study Variables and Constructs

The descriptive statistics of the study about the main constructor variables under observation are presented in Table 5.14. All the respondents were recorded on a five-point Likert scale and did not need transformation into a standard scale. Generally, all the variables used for the measurement of transformational leadership, transactional leadership and performance were recorded to be above 4 points on a five-point scale. All the moderators had below 4 points but above 3 points on the Likert scale.

Table 5.14: Summary of Descriptive Statistics by Study Variables

	N	Mean	Std. Error	Std. Dev.	Items
	Valid				
<i>Idealized Influence behaviour</i>	344	4.047	0.035	0.656	4
<i>Idealized Influence attributed</i>	344	4.180	0.034	0.630	4
<i>Inspirational Motivation</i>	344	4.143	0.037	0.677	4
<i>Intellectual Stimulation</i>	344	4.145	0.038	0.706	4
<i>Individualized Consideration</i>	344	4.175	0.038	0.714	4
Transformational Leadership Mean Score		4.138			
<i>Contingent Reward</i>	344	4.172	0.033	0.606	4
<i>Management by Exception – Passive</i>	344	4.201	0.035	0.650	4
<i>Active Management by Exception</i>	344	4.325	0.030	0.548	4
Transactional Leadership Mean Score		4.233			
Extra Effort	344	4.237	0.034	0.628	3
Effectiveness	344	4.250	0.030	0.562	4
Process Satisfaction	344	4.221	0.036	0.660	4
Team Cohesion	344	3.924	0.029	0.543	16
Team Empowerment	344	3.466	0.054	0.999	5
Trust	344	3.725	0.039	0.728	6
Creativity	344	3.734	0.051	0.951	3
Total					77

5.5 Factor Structure Assessment for Reliability and Validity

After preparing the data and observing the demographics data of the study, the exploratory factor analysis (EFA) was presented to assess reliability and validity. This helped explore the data to determine the best fit, with keen regards to how the variables load onto their respective constructs. By employing IBM SPSS Statistics for this purpose, this assessment proved useful in the check for reliability and validity. For the factor analysis, the Maximum Likelihood extraction method was used.

Promax rotation was as well employed mainly due to its fast handling of large datasets with clear segregation of factor loadings (Tabachnick & Fidell, 2013). Essential results of the KMO and Bartlett's Test, Total Variance Explained, Pattern Matrix and Factor correlation matrix are presented to discuss the reliability and validity of the data.

5.5.1 KMO and Bartlett's Test Assessment and Variance Extracted

Kaiser-Meyer-Olkin (KMO) permits the observation of data or sample adequacy. As a test of sample adequacy, it also observes the extent to which the sample is substantial enough for proceeding to further analysis. On the other hand, Bartlett Test of Sphericity observes the correlation among the items in the factor; implying that the observed model is possible to be factored. According to Hair et al. (2010) and Tabachnick & Fidell (2013), these tests are underlying to proceed to the reading of factor analysis.

KMO and Bartlett's Test results are presented in Table 5.15 KMO was more significant than 0.5, and the goodness of fit statistic was also statistically significant

(Table 5.16). Bartlett's Test of Sphericity was also statistically significant.

Furthermore, the total variance extracted analysis is presented in Table 5.17.

Table 5.15: SPSS Output of KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.698
Bartlett's Test of Sphericity	Approx. Chi-Square	5804.361
	<i>df</i>	1081
	Sig.	.000

Table 5.16: Goodness of Fit Test

Chi-Square	Df	Sig.
773.792	514	.000

The total variance explained determined the number of significant factors in the model. The extracted and rotated values help identify the most critical factors which have eigenvalues more than 1, as shown in Table 5.17.

Table 5.17: Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Sq. Loading
	Total	% of Var.	Cum. %	Total	% of Var.	Cum. %	Total
1	4.526	10.526	10.526	2.328	5.415	5.415	2.318
2	3.281	7.631	18.157	2.404	5.591	11.006	2.816
3	3.206	7.457	25.614	3.433	7.983	18.988	2.368
4	2.768	6.436	32.050	2.271	5.281	24.269	2.412
5	2.209	5.137	37.188	2.530	5.885	30.154	2.166
6	2.081	4.839	42.027	1.711	3.978	34.132	2.362
7	1.837	4.273	46.299	1.530	3.558	37.691	2.377
8	1.733	4.030	50.330	1.526	3.548	41.239	2.483
9	1.491	3.467	53.797	1.325	3.082	44.321	2.175
10	1.443	3.357	57.154	.781	1.816	46.138	1.960
11	1.361	3.165	60.318	.985	2.290	48.427	1.789
12	1.205	2.803	63.121	1.072	2.492	50.919	1.517
13	1.134	2.637	65.759	.741	1.722	52.642	1.859
14	1.044	2.429	68.188	.587	1.365	54.006	1.266
43	.168	.391	100.000				

^extraction Method: Maximum Likelihood.

5.5.2 Factor Structure Assessment

According to Hair et al. (2010), even though generally higher loadings are expected, loadings above 0.3 may be given some consideration, especially when the sample size is more than 350. A cut-off point, of 0.4 was, however maintained to ensure a higher level of accuracy in the model. Ultimately, the pattern matrix table was observed for high loadings and the existence of no cross-loadings. Where cross-loadings were observed, it must be supported with some amount of literature on the subject area. The non-existence of cross-loadings supports the validity of the constructs used in the model. Items that do not load well into their respective constructs were therefore removed from the dataset, and the remaining data observed for sufficiency in carrying out the remaining analysis, as shown in Table 5.18.

Table 5.18: Factor Loading (Pattern Matrix Model)

Factors	PS	MbEP	IS	IC	EF	IIab ^b	IM	AMbE	IIa	CR	Eff.1 ^c	IIb	Eff.2 ^c
IIb6						0.462							
IIb14						0.848							
IIb23												0.622	
IIb36												0.65	
IIa18									0.984				
IIa21									0.77				
IIa25						0.717							
IM9							0.694						
IM13							0.66						
IM27							0.648						
IM39							0.521						
IS2			0.748										
IS8			0.612										
IS31			0.667										
IS34			0.643										
IC19				0.499									
IC30				0.884									
IC33				0.857									
CR1										0.715			
CR11										0.647			
CR16										0.756			
MbEP3		0.807											
MbEP12		0.813											
MbEP17		0.463											
MbEP20		0.525											
AMbE4								0.571					

Table 5.18: Factor Loading (Pattern Matrix Model) (Continued)

Factors	PS	MbEP	IS	IC	EF	IIab ^b	IM	AMbE	IIa	CR	Eff.1 ^c	IIb	Eff.2 ^c
AMbE22								0.595					
AMbE24								0.58					
AMbE28								0.543					
LF5													
LF7													
LF29													
LF35													
EF43					0.689								
EF47					0.563								
EF49					0.87								
Effective44											0.618		
Effective48													0.831
Effective50											0.87		
Emp_Sat38	0.742												
Emp_Sat41	0.947												
Emp_Sat42	0.463												
Emp_Sat46	0.647												

Extraction Method: Maximum Likelihood.

Rotation Method: Promax with Kaiser Normalization.

^a Rotation converged in 7 iterations.

^b IIa and IIb share some indicators loading together as IIab

^c Effectiveness also loads into two distinct factors Eff1 and Eff2

5.5.3 Reliability Assessments

Based on past studies, the MLQ 5x-short has been evidenced to have a high-reliability scale. In one of the studies, both transformational and transactional leadership styles were found to have high-reliability scales of 0.96 and 0.89, respectively. In a different study of 201 employees, transformational and transactional leadership styles were found to have reliabilities 0.95 and 0.83, respectively. Lastly, a study with a sample of 102 employees also found out that transformational and transactional leadership had 0.98 and 0.89 reliability rates, respectively (Thomas, 2005).

Below is the reliability score of the individual constructs in the research model. However, it is essential to note that when the moderators are excluded, the coefficient reliability increases. The original scale reported in Table 5.19 was adopted from Rowold (2005) in a multiple test and retest set of studies to observe the inter-rater agreement and test-retest-reliability of the scale. This data is compared with the Cronbach's Alpha test of reliability (Appendix 2). The test for the reliability of the moderators was conducted using Cronbach's Alpha, as shown in Table 5.20.

The moderators could not be tested for validity together with the MLQ instrument. This is due to a significant number of cross-loadings and irregular factor structure when the EFA for the moderators is generated together with the MLQ. In essence, the MLQ achieved an exact pattern after a few modifications, but the moderator variables could not be aligned in the same pattern matrix due to unacceptable loading behaviour. For this challenge, the various secondary data sources were the only

reliable sources of validity for the moderator variables. These sources are presented together with the reliability scores in Table 5.20.

Table 5.19: Reliability Scale Assessment of Cronbach Alpha and CR - MLQ

S/N	Constructs	Reference and Scale used	Scale Type	Items (n)	Rowold (2005)	Cronbach Alpha
1	Idealised Influence Behaviour	Avolio & Bass, (2002). MLQ-5X Scale	5-points Likert	4	.67	.72
2	Idealised Influence attributed	Avolio & Bass, (2002). MLQ-5X Scale	5-points Likert	3	.79	.72
3	Inspirational Motivation	Avolio & Bass (2002). MLQ-5X Scale	5-points Likert	4	.69	.70
4	Intellectual Stimulation	Avolio & Bass (2002). MLQ-5X Scale	5-points Likert	4	.78	.75
5	Individualized Consideration	Avolio & Bass (2002). MLQ-5X Scale	5-points Likert	3	.67	.79
6	Contingent Reward	Avolio & Bass, (2002). MLQ-5X Scale	5-points Likert	3	.70	.73
7	Management by Exception – Passive	Avolio & Bass (2002). MLQ-5X Scale	5-points Likert	4	.69	.80
8	Active Management by Exception	Avolio & Bass, (2002). MLQ-5X Scale	5-points Likert	4	.65	.67
9	Extra Effort	Avolio & Bass, (2002). MLQ-5X Scale	5-points Likert	3	.80	.73
10	Effectiveness	Avolio & Bass (2002). MLQ-5X Scale	5-points Likert	3	.70	.73
11	Employee Satisfaction	Avolio & Bass, (2002). MLQ-5X Scale	5-points Likert	4	.77	.80

Table 5.20: Reliability Scale Assessment for Moderators

S/N	Construct	Items (n)	Sources in Secondary data (Validity and Reliability)	Reliability
				Cronbach Alpha (study)
1	Team Cohesion	16	Zajac (2014)	.92
2	Empowerment	5	Kotlarsky et al. (2009)	.84
3	Trust	6	Carter & Belanger (2005)	.87
4	Creativity	3	Badaruddin (2012)	.75

5.5.4 Validity Assessments

The validity of the EFA model was assessed using the factor correlations matrix. To affirm the validity of the study, it is essential that the various inter-relationships are observed to identify excessively high correlations; usually above an absolute value of 0.7. As presented, none of the factor correlations is more than an absolute value of 0.7. Average variance extracted (AVE) test for construct validity was also estimated. Results indicate that most of the constructs in the study model are valid with a few constructs falling below the 0.5 benchmarks. Table 5.21 details the extracted factor correlations matrix and average variance. Table 5.22 details the factor correlations matrix for the moderators

Table 5.21: Factor Correlations Matrix and Average Variance Extracted

Factor	AVE	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	.74	1.000													
2	.50	-.029	1.000												
3	.43	-.061	.042	1.000											
4	.83	-.060	.050	.343	1.000										
5	.65	.064	.112	.229	.274	1.000									
6	.48	.104	.091	-.037	-.028	-.028	1.000								
7	.59	-.031	.046	.224	.215	-.063	.338	1.000							
8	.40	.105	.494	.091	.099	.212	.076	.103	1.000						
9	.78	-.083	.005	-.067	-.061	-.028	.279	.221	.034	.110	1.000				
10	.50	-.060	.233	-.060	-.071	-.003	.058	.089	.092	-.040	.022	1.000			
11	.57	.087	-.111	-.027	.136	-.014	-.108	.040	.006	.096	-.016	-.031	1.000		
12	.40	.027	.065	.221	.207	.158	.301	.258	.152	.065	.113	.094	.026	1.000	
13	.69	-.036	.011	.095	.005	.064	-.175	-.113	-.088	.017	-.137	.000	.074	-.029	1.000

Extraction Method: Maximum Likelihood.

Rotation Method: Promax with Kaiser Normalization

Table 5.22: Factor Loading Analysis for the Moderators

Rotated Component Matrix^a				
	Component			
	1	2	3	4
TC1	0.553	0.227	0.400	0.270
TC2	0.684	0.217	0.141	0.309
TC3	0.639	0.101	0.209	0.083
TC4	0.623	0.111	-0.343	0.225
TC5	0.527	0.385	0.104	0.031
TC6	0.559	0.089	0.562	0.230
TC7	0.510	-0.134	0.191	0.162
TC8	0.331	0.173	0.093	0.140
TC9	0.553	0.056	0.354	0.307
TC10	0.327	0.011	0.300	-0.008
TC11	0.780	0.163	0.289	0.244
TC12	0.702	0.248	0.013	0.244
TC13	0.841	0.005	0.092	0.282
TC14	0.777	0.170	0.332	-0.151
TC15	0.532	0.742	0.044	-0.048
TC16	0.868	0.173	0.212	0.099
TE1	0.258	0.415	0.635	0.316
TE2	-0.181	0.639	0.205	-0.023
TE3	0.465	0.178	0.710	0.284
TE4	-0.134	0.477	0.720	0.039
TE5	0.258	0.017	0.794	0.152
TRST1	0.422	0.303	0.365	0.660
TRST2	0.085	0.621	0.025	0.587
TRST3	0.301	0.805	0.180	0.098
TRST4	0.315	0.462	0.195	0.241
TRST5	0.148	0.770	0.039	0.045
TRST6	0.216	0.426	0.392	0.047
CRT1	0.039	-0.102	0.360	0.448
CRT2	0.516	-0.004	0.079	0.682
CRT3	0.520	0.167	0.362	0.486

5.5.5 Reliability and Validity Assessment Summary

The earlier sections present the factor assessment of the main dimensions of the study. An EFA analysis permitted the exploration of the factor structure. Other tests such as KMO, the goodness of fit, and Barlett's Tests indicate the suitability of the analysis to proceed to the next phase of analysis. The pattern matrix helped observe

the convergent nature of the constructs while the inter-factor matrix helped observe the discriminant validity of the EFA model. For this final section, the composite reliability (CR) and Average Variance Extracted (AVE) are applied as a measure of reliability and validity respectively.

While AVE should be more than 0.5, CR must be more than 0.7 to meet the required thresholds of reliability and validity (Hair et al., 2010). Even though the model fit indicators were significant, some constructs in the research model were below acceptable levels of validity and reliability. This is not unusual as earlier tests also observed that reliability and validity for the MLQ-5X apart to fail the reliability tests as reported by Rowold (2005). AVE and CR were presented as part of the data presented in Table 5.21.

Factor loading for the moderators shows also some constructs below acceptable level of validity. However, those constructs were not dropped to make sure that all dimensions of the main construct are articulated and covered as discussed in prior theory.

5.6 Hypothesis Testing

The hypotheses H_{01} and H_{02} are coming under the first two research questions as stated:

- H_{01} : Transactional leadership does not positively impact the performance of virtual teams.
- H_{02} : Transformational leadership does not positively impact the performance of virtual teams.

First, the test for correlation between the variables was conducted. The correlation between transactional leadership, transformational leadership and team performance are presented in Table 5.23.

Table 5.23: Correlations

		OP Avg.	TFL Avg.	TCL Avg.
OP Avg.	Pearson Correlation	1	.892**	.673**
	Sig. (2-tailed)		.000	.000
	N	344	344	344
TFL Avg.	Pearson Correlation	.892**	1	.596**
	Sig. (2-tailed)	.000		.000
	N	344	344	344
TCL Avg.	Pearson Correlation	.673**	.596**	1
	Sig. (2-tailed)	.000	.000	
	N	344	344	344

** . Correlation is significant at the 0.01 level (2-tailed).

It may be observed that correlations exist between the three main constructs under observation. Correlation is strongest between transformational leadership and team performance, and weakest between transformational leadership and transactional leadership. The test for effect is presented in Table 5.24 and Table 5.25. The results indicate that both transformational leadership ($B=.801$, $p < 0.001$) and transactional leadership ($B=.440$, $p < 0.001$) are significant given $R^2 = .826$. These results indicate that both leadership styles explain a significantly high portion of the variance in the dependent variable, team performance. The graph presented in Figure 5.13 presenting expected cumulative probability and the observed probability shows that the data maps neatly onto the 45% line on the P-P plot.

Table 5.24: Model Summary – H1 & H2

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.910 ^a	.827	.826	.4184

^a Predictor: (Constant), TFL Avg., TCL Avg.

^b Dependent Variable: OP Avg.

Table 5.25: Coefficients – H1 & H2

Model		Unstandardized Coefficients		Standardised	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.535	.087		-6.159	.000
	TCL Avg.	.440	.056	.219	7.819	.000
	TFL Avg.	.801	.029	.762	27.276	.000

^a Dependent Variable: OP Avg.

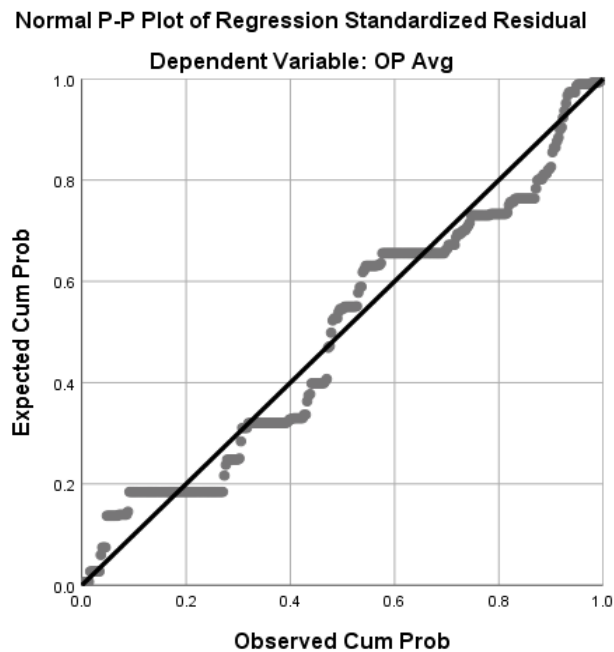


Figure 5.13: Normal P-P Plot of Regression Standardized Residual, Dependent Variable: OP Avg

Given the arrived findings, for the first hypothesis, it is established that transactional leadership significantly predicted team performance, $\beta = .440$, $t(343) = 7.819$,

$p < 0.001$. The second hypothesis is also accepted as transformational leadership positively predicts team performance, $\beta = .801$, $t(343) = 27.276$, $p < 0.001$. Both leadership styles explain significantly team performance, $R^2 = .827$, $p < 0.001$. The first and second hypotheses are therefore accepted. However, transformational leadership style showed stronger effect on the performance of virtual teams.

5.6.1 Moderation Analysis

Moderation effects are conducted individually for each leadership style under the various moderation subjects.

5.6.1.1 Moderation of Team Cohesiveness

To test whether TC (team cohesiveness) moderates the relationship between transformational leadership style and team performance, the regression analysis R^2 change is presented in Table 5.26 and Table 5.27.

Table 5.26: ANOVA – H3 (Transformational)

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	276.947	1	276.947	1346.601	.000 ^b
	Residual	70.748	344	.206		
	Total	347.696	345			
2	Regression	283.116	2	141.558	751.852	.000 ^c
	Residual	64.580	343	.188		
	Total	347.696	345			

^a Dependent Variable: OP Avg.

^b Predictors: (Constant), TFL Avg.

^c Predictors: (Constant), TFL Avg., TC Avg.

It may be observed that both models are significant. Model summary in Table 5.27 indicates the R^2 change.

Table 5.27: Model Summary – H3 (Transformational)

Model	R	R ²	Adj. R ²	Std. Err. Est.	Change Statistics				
					R ² Change	F Change	df1	df2	Sig. F Change
1	.892 ^a	.797	.796	.4535	.797	1346.601	1	344	.000
2	.902 ^b	.814	.813	.4339	.018	32.763	1	343	.000

^a Predictors: (Constant), TFL Avg.

^b Predictors: (Constant), TFL Avg., TC Avg.

^c Dependent Variable: OP Avg.

In model 1, the transformational leadership style accounts for a significant amount of variance in team performance ($r^2=.797$, $p<0.01$); when adding the interaction term in model 2, it would be resulting in the interaction term accounting for a significant proportion of the variance in team performance ($r^2=.018$, $p<0.01$) indicating a moderation effect. For transactional leadership, a similar analysis was employed, the results are presented in Table 5.28 and Table 5.29 below.

Table 5.28: ANOVA – H3 (Transactional)

Model		Squares	Sum	df	Mean Square	F	Sig.
1	Regression	52.389		1	52.389	258.548	.000 ^b
	Residual	69.704		344	.203		
	Total	122.093		345			
2	Regression	63.023		2	31.512	182.980	.000 ^c
	Residual	59.069		343	.172		
	Total	122.093		345			

^a Dependent Variable: OP Avg.

^b Predictors: (Constant), TCL Avg

^c Predictors: (Constant), TCL Avg, TC Avg.

Table 5.29: Model Summary – H3 (Transactional)

Model	R	R ²	Adj. R ²	Std. Err. Est.	Change Statistics				
					R ² Change	F Change	df1	df2	Sig. F Change
1	.655 ^a	.429	.427	.45014	.429	258.548	1	344	.000
2	.718 ^b	.516	.513	.41499	.087	61.751	1	343	.000

^a Predictors: (Constant), TCL Avg.

^b Predictors: (Constant), TCL Avg., TC Avg.

^c Dependent Variable: OP Avg.

In model 1, the transactional leadership style accounts for a significant amount of variance in team performance ($r^2=.429$, $p<0.01$). Adding the interaction term in model 2, resulting in the interaction term accounting for a significant proportion of the variance in team performance ($r^2=.087$, $p<0.01$) indicating a moderation effect.

5.6.1.2 Moderation of Trust

To test whether TRST (trust) moderates the relationship between transformational leadership style and team performance.

Table 5.30: ANOVA – H4 (Transformational)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	276.947	1	276.947	1346.601	.000 ^b
	Residual	70.748	344	.206		
	Total	347.696	345			
2	Regression	276.980	2	138.490	671.727	.000 ^c
	Residual	70.716	343	.206		
	Total	347.696	345			

^a Dependent Variable: OP Avg.

^b Predictors: (Constant), TFL Avg.

^c Predictors: (Constant), TFL Avg., TRST Avg.

Results indicate that both models are significant. The model summary is presented in Table 5.31.

Table 5.31: Model Summary – H4 (Transformational)

Model	R	R ²	Adj. R ²	Std. Err.	Change Statistics				
				Est.	R ² Change	F Change	df1	df2	Sig. F Change
1	.892 ^a	.797	.796	.4535	.797	1346.601	1	344	.000
2	.893 ^b	.797	.795	.4541	.000	.156	1	343	.693

^a Predictors: (Constant), TFL Avg.

^b Predictors: (Constant), TFL Avg., TRST Avg.

^c Dependent Variable: OP Avg.

In model 1, the transformational leadership style accounts for a significant amount of variance in team performance ($r^2=.797$, $p<0.01$). Adding the interaction term in model 2 did NOT result in the interaction term accounting for a non-significant proportion of the variance in team performance ($r^2=.00$, $p>0.05$) indicating NO moderation effect. For transactional leadership, a similar analysis was employed, the results are presented in Table 5.32 and Table 5.33.

Table 5.32: ANOVA – H4 (Transactional)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	52.389	1	52.389	258.548	.000 ^b
	Residual	69.704	344	.203		
	Total	122.093	345			
2	Regression	52.885	2	26.442	131.051	.000 ^c
	Residual	69.208	343	.202		
	Total	122.093	345			

^a Dependent Variable: OP_Avg.

^b Predictors: (Constant), TCL_Avg.

Predictors: (Constant), TCL Avg., TRST Avg.

Table 5.33: Model Summary – H4 (Transactional)

Model	R	R ²	Adj. R ²	Std. Err. Est.	Change Statistics				
					R ² Change	F Change	df1	df2	Sig. F Change
1	.655 ^a	.429	.427	.45014	.429	258.548	1	344	.000
2	.658 ^b	.433	.430	.44919	.004	2.458	1	343	.118

^a Predictors: (Constant), TCL Avg.

^b Predictors: (Constant), TCL Avg., TRST Avg.

^c Dependent Variable: OP Avg.

In model 1, the transactional leadership style accounts for a significant amount of variance in team performance ($r^2=.429$, $p<0.01$). Adding the interaction term in model 2, resulting in the interaction term accounting for a non-significant proportion of the variance in team performance ($r^2=.004$, $p>0.05$) indicating NO moderation effect.

5.6.1.3 Moderation of Team Empowerment

To test whether team empowerment moderates the relationship between transformational leadership style and team performance is shown in Table 5.34.

Table 5.34: ANOVA – H5 (Transactional)

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	276.947	1	276.947	1346.601	.000 ^b
	Residual	70.748	344	.206		
	Total	347.696	345			
2	Regression	277.093	2	138.546	673.078	.000 ^c
	Residual	70.603	343	.206		
	Total	347.696	345			

^a Dependent Variable: OP Avg.

^b Predictors: (Constant), TCL Avg.

^c Predictors: (Constant), TCL Avg., TE Avg.

Both models are significant; the model summary for the data is presented in Table 5.35.

Table 5.35: Model Summary – H5 (Transactional)

Model	R	R ²	Adj. R ²	Std. Err. Est.	Change Statistics				
					R ² Change	F Change	df1	df2	Sig. F Change
1	.655 ^a	.429	.427	.45014	.797	1346.601	1	344	.000
2	.658 ^b	.433	.430	.44919	.000	.706	1	343	.401

^a Predictors: (Constant), TCL Avg.

^b Predictors: (Constant), TCL Avg., TE Avg.

^c Dependent Variable: OP Avg.

Step 1: In model 1, the transactional leadership style and team empowerment account for a significant amount of variance in team performance ($r^2=.797$, $p<0$). Adding the interaction term in model 2 did NOT result in the interaction term accounting for a significant proportion of the variance in team performance ($r^2=.00$, $p>0.05$) indicating NO moderation effect. For transformational, the results are presented in Table 5.36 and Table 5.37.

Table 5.36: ANOVA – H5 (Transformational)

Model	Sum of Squares	df	Mean Square	F	Sig.
1					
Regression	52.389	1	52.389	258.548	.000 ^b
Residual	69.704	344	.203		
Total	122.093	345			
2					
Regression	52.885	2	26.442	131.051	.000 ^c
Residual	69.208	343	.202		
Total	122.093	345			

^a Dependent Variable: OP_Avg.

^b Predictors: (Constant), TFL_Avg.

^c Predictors: (Constant), TFL_Avg., TE_Avg.

Table 5.37: Model Summary – H5 (Transformational)

Model	R	R ²	Adj. R ²	Std. Err. Est.	Change Statistics				
					R ² Change	F Change	df1	df2	Sig. F Change
1	.655 ^a	.429	.427	.45014	.429	258.548	1	344	.000
2	.718 ^b	.515	.512	.41539	.086	60.958	1	343	.000

^a Predictors: (Constant), TFL Avg.

^b Predictors: (Constant), TFL Avg., TE Avg.

^c Dependent Variable: OP Avg.

In model 1, the transformational leadership style account for a significant amount of variance in team performance ($R^2=.429$, $p<0.01$). Adding the interaction term in model 2, resulting in the interaction term accounting for a non-significant proportion of the variance in team performance ($R^2=.086$, $p<0.01$) indicating a moderation effect.

5.6.2.4 Moderation of Team Creativity

Testing whether CRT (creativity) moderates the relationship between transformational leadership style and team performance is detailed in Table 5.38.

Table 5.38: ANOVA – H6 (Transactional)

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	276.947	1	276.947	1346.601	.000 ^b
	Residual	70.748	344	.206		
	Total	347.696	345			
2	Regression	278.550	2	139.275	690.877	.000 ^c
	Residual	69.146	343	.202		
	Total	347.696	345			

^a Dependent Variable: OP Avg.

^b Predictors: (Constant), TCL Avg.

^c Predictors: (Constant), TCL Avg., CRT Avg.

Both models are significant. The model test statistics are as well presented in Table 5.39.

Table 5.39: Model Summary – H6 (Transactional)

Model	R	R ²	Adj. R ²	Std. Err. Est.	Change Statistics				
					R ² Change	F Change	df1	df2	Sig. F Change
1	.892 ^a	.797	.796	.4535	.797	1346.601	1	344	.000
2	.895 ^b	.801	.800	.4490	.005	7.949	1	343	.005

^a Predictors: (Constant), TCL Avg.

^b Predictors: (Constant), TCL Avg., CRT Avg.

^c Dependent Variable: OP Avg.

Step 1: In model 1, transactional leadership style and creativity account for a Step 1: In model 1, the transactional leadership style and creativity account for a significant amount of variance in team performance ($r^2=.797$, $p<0.01$). Adding the interaction term in model 2, resulting in the interaction term accounting for a significant proportion of the variance in team performance ($r^2=.005$, $p<0.01$) indicating a moderation effect. On one final test for moderation for transformational, the results are presented in Table 5.40 and Table 5.41.

Table 5.40: ANOVA – H6 (Transformational)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	52.389	1	52.389	258.548	.000 ^b
	Residual	69.704	344	.203		
	Total	122.093	345			
2	Regression	57.144	2	28.572	150.892	.000 ^c
	Residual	64.949	343	.189		
	Total	122.093	345			

^a Dependent Variable: OP Avg.

^b Predictors: (Constant), TFL Avg.

^c Predictors: (Constant), TFL Avg., CRT Avg.

Table 5.41: Model Summary – H6 (Transformational)

Model	R	R ²	Adj. R ²	Std. Err. Est.	Change Statistics				
					R ² Change	F Change	df1	df2	Sig. F Change
1	.655 ^a	.429	.427	.45014	.429	258.548	1	344	.000
2	.684 ^b	.468	.465	.43515	.039	25.113	1	343	.000

^a Predictors: (Constant), TFL Avg.

^b Predictors: (Constant), TFL Avg., CRT Avg.

^c Dependent Variable: OP Avg.

In model 1, the transformational leadership style account for a significant amount of variance in team performance ($R^2=.429$, $p<0.01$). Adding the interaction term in model 2, resulting in the interaction term accounting for a non-significant proportion of the variance in team performance ($R^2=.039$, $p<0.01$) indicating a moderation effect.

From the findings for the third, fourth, fifth, and sixth hypothesis, it is established that team cohesion, empowerment, and creativity significantly predict positive moderating effect on the relationship between transformational leadership and virtual team performance. Team trust did not predict a similar moderating effect. Team empowerment showed the highest moderating impact considering the difference in R^2 before and after introducing each moderator.

5.7 Summary of Hypotheses Testing Results

A summary of the study hypotheses is presented in Table 5.42. Two of these main hypotheses represented direct relationships even though there were sub-divided into nine hypotheses to help observe the nature of effects. Four of the remaining main hypotheses were focused on the moderation effect.

Table 5.42: Summary of Study Hypotheses

S/No.	Hypotheses	Status
H1	H1a: Transactional leadership style positively impacts the performance of virtual teams.	<i>Significant</i>
H2	H2a: Transformational leadership style positively impacts the performance of virtual teams.	<i>Significant</i>
H3	H3: Team cohesion positively moderates the relationship between leadership styles and the performance of virtual teams.	<i>Significant</i>
H3.1	<i>H3.1a: Team cohesion positively moderates the relationship between transactional leadership style and the performance of virtual teams.</i>	<i>Significant</i>
H3.2	<i>H3.2a: Team cohesion positively moderates the relationship between transformational leadership style and the performance of virtual teams.</i>	<i>Significant</i>
H4	H4: Team empowerment positively moderates the relationship between leadership styles and the performance of virtual teams.	<i>Partially Significant</i>
H4.1	<i>H4.1a: Team empowerment positively moderates the relationship between transactional leadership style and the performance of virtual teams.</i>	<i>Insignificant</i>
H4.2	<i>H4.2a: Team empowerment positively moderates the relationship between transformational leadership style and the performance of virtual teams.</i>	<i>Significant</i>
H5	H5: Team trust positively moderates the relationship between leadership styles and the performance of virtual teams.	<i>Insignificant</i>
H5.1	<i>H5.1a: Team trust positively moderates the relationship between transactional leadership style and the performance of virtual teams.</i>	<i>Insignificant</i>
H5.2	<i>H5.2a: Trust positively moderates the relationship between transformational leadership style and the performance of virtual teams.</i>	<i>Insignificant</i>
H6	H6a: Team creativity positively moderates the relationship between leadership styles and the performance of virtual teams.	<i>Significant</i>
H6.1	<i>H6.1a: Team creativity positively moderates the relationship between transactional leadership style and the performance of virtual teams.</i>	<i>Significant</i>
H6.2	<i>H6.2a: Team creativity positively moderates the relationship between transformational leadership style and the performance of virtual teams.</i>	<i>Significant</i>

5.8 Summary

The present chapter elaborates on the findings of the study. It commenced with a data screening and preparation phase where the data was thoroughly inspected to ensure that there are no missing data, outliers, influential or unengaged responses in the data. These underlying multivariate assumptions of inferential statistics were critically evaluated in the areas of normality, heteroscedasticity, linearity, multicollinearity was observed and standard method variance.

A factor assessment was conducted to explore patterns in the data in line with literature underpinnings. The factor analysis results largely affirm the original structure and earlier observations of the model structure in the surrounding literature. Data were checked for reliability and validity to ensure that indicators that the data is fit to test the given hypotheses. Following this, we tested the hypotheses. First, we presented the demographics of the study. Key demographics presented include gender, nationality, time spent in business, the age of respondent, the category of specialisation, the position in the organisation, the field of the virtual team, and the time spent in this team. Next, the leading indicators of the measurement model were presented. Finally, we presented our analysis regarding the hypotheses tests. The analysis resulted in having a total of seven hypotheses supported while three were not supported.

Chapter 6: Discussion

6.1 Introduction

This chapter discusses and analyses the study findings presented earlier in this thesis in chapter 5. It critically discusses the findings of the literature of virtual teams and the findings of other prior studies reviewed in the first sections of the thesis. The chapter commences with a review of the research objectives. It then elaborates on the findings of the two main antecedents of the model: that is transformational leadership style and transactional leadership style. It follows with a discussion related to the moderators addressed in this study in its theoretical framework and its data analysis chapter.

6.1.1 Review of Research Objectives

This study aimed to examine transformational and transactional leadership styles and to identify which one was better suited for leading virtual teams successfully in terms of the improvement of their performance. It was explained that the results would help decision-makers, managers, and leaders of virtual teams and, in particular, leaders in the UAE understand whether the transactional or transformational style is the more effective leadership style impacting virtual teams' performance. Also, the moderating effect of selected team factors such as team cohesion, trust, empowerment and creativity was observed to help cement the underlying factors that impede or catalyse the ability of leaders to improve the performance of virtual teams.

Demand for more empirical studies testing different leadership styles and their impact on virtual teams' performance remains high (Sirkka et al., 2004; Tangen, 2005; Northouse, 2007; Sena Ferreira et al., 2012). This study attempts to fill the

enormous existing gaps. Apart from contributing to virtual leadership theory, this study is dedicated to offering some practical implications to all organisations currently using or planning to implement virtual teams. Findings from our study become salient because it is the organisation's duty to decide on the type of leadership style they prefer for their teams which will ultimately affect both the performance and satisfaction of their team members (May & Carter, 2001; Kayworth & Leidner, 2002; Judge & Piccolo, 2004; Carte & Becker, 2006; Stansfield & Longenecker, 2006). While team leadership has been identified to impact virtual team performance positively, more exploration is needed to understand the impact of different virtual team leadership styles together with their moderators (and mediators) which either try to increase or decrease their effects.

Companies that adopt virtual teams are destined for success in the competitive and complex global economy of today (Lipnack & Stamps, 1997) as principles of virtual teaming have already been adopted by forward-thinking companies, thereby enabling them to become agile and compete more robustly in the global marketplace. The use of virtual teams provides the opportunity for maximum use of talent wherever it is located. In other words, it provides an opportunity to improve organisational performance through amalgamating the best, multi-functional teams available, while giving room for leadership and team members to attend to issues that require their physical presence. Arguably this is done more economically and with rapid communication with the employees, customers, and even the suppliers, which is thought to offset the absence of personal contact.

Virtual leadership offers the ability to provide a higher level and more rapid service through the recruitment of a broader talent pool and their potential management

across an entire 24 hours period. The downside of this is a potential exacerbation of a leader's weakness because demands on their own time now know no bounds. Additionally, any shortcomings in their abilities to communicate may be worsened by the reduce pathways for communication now open to them. As the concept and penetration of virtual teams increase in coming years, the two existing drivers of international dispersion regarding subunits and divisions, consumers, shareholders, distributors of the company will only increase along with the ethical and cultural diversity of the workforce is managed.

The previous chapters of this study have expounded and explained in more depth the objectives and the aim of this study along with the hypothesis formation, analysis, findings, and results. The following research questions were being answered in the context of the UAE government sector:

- RQ1: *Is there a relationship between transactional leadership and the performance of virtual teams?*
- RQ2: *Is there a relationship between transformational leadership and the performance of virtual teams?*
- RQ3: *Does team cohesion positively moderate the relationship between leadership styles and the performance of virtual teams?*
- RQ4: *Does team empowerment positively moderate the relationship between leadership styles and the performance of virtual teams?*
- RQ5: *Does team trust positively moderate the relationship between leadership styles and the performance of virtual teams?*
- RQ6: *Does team creativity positively moderate the relationship between leadership styles and the performance of virtual teams?*

6.2 Contribution to Theory: Antecedents of the Research Model

The study had two antecedents: transformational leadership style and transactional leadership style. The results about these hypotheses and others related to moderators are presented in the sub-sections that follow.

6.2.1 Transactional Leadership Effect on Virtual Team Performance

The transactional leadership style is regarded as a less engaging exchange process. Findings from our study revealed that transactional leadership has a significant effect on virtual team performance, but insignificant when compared with that of transformational leadership ($\beta = 0.440$, $p < 0.01$). Transactional leadership holds some potential to impact team performance even though conflicting evidence exists in varied contexts.

This obtained finding is consistent with the study of Kullerman (1984) which found that transactional leaders are influential since their followers are left with no option but to do what is best for their leaders. Bass and Sadler in their studies conducted in 1985 and 2003 respectively, also reasoned the positive impact of transactional leadership on the performance of the team to the clarity of roles and responsibilities of followers, so each is working on achieving the assigned responsibilities resulting in improved performance, however; the satisfaction of the followers is not considered when roles are assigned, (Bass, 1985; Sadler, 2003).

As part of the present study, it is important to emphasise again that laissez-faire was measured as part of the questionnaire but was not considered as part of the measurement of the transactional leadership style. The need to focus on only transactional and transformational and eliminate the Laissez-Faire leadership style

has been explained and justified earlier in this study. It is, in general, based on the premise that the first two styles have remained integral to not only in traditional but also virtual team performance management as opposed to laissez-faire leadership (Poole & De Sanctis, 1989; Avolio & Bass, 2002; Yukl, 2006; Purvanova & Bono, 2009). Judge et al. (2004) studied the leadership styles (transformational, transactional, and laissez-faire) comprehensively to have asserted that Laissez-Faire failed to predict team leaders' job performance. Another key practical reason to eliminate this leadership style is that in UAE the government leadership model was built decades ago on transactional leadership characteristics and currently it is reflecting thoroughly transformational leadership characteristics.

The finding is also in line the Avolio and Bass (2002) argument of why transactional leadership shows a positive impact on virtual teams' performance. They argued that the relationship between the leader and the followers enables the leader to achieve the objectives relative to performance, complete required tasks, sustain the organizational state, inspire followers via agreements, dictate the followers' behaviours relative to accomplishing set objectives accentuate extrinsic recompenses, evade unwanted risks, and ultimately concentrate on advancing organizational proficiency (Avolio & Bass, 2002).

Though the researchers asserted the definite link between transactional leadership and the performance of virtual teams, many have addressed the issue that this style optimises organizational benefits but not personal benefits (Bryman, 1992; Avolio & Bass, 2002; Bass & Bass, 2008; Ruggieri, 2009) which is opposite to transformational leadership that gives and values followers' needs and satisfaction.

Northouse (2007), however, contradicted with this assertion arguing that transactional leadership optimises both personal and organisational benefits.

Bryman (1992) reasoned the low impact of transactional leadership compared to transformational leadership. He stated that due to instilling fear in the followers, transactional leadership is not an ideal style of leadership. Their satisfaction and performance are negatively affected by the fact that they know the measures that will be adopted should they not achieve the desired results. Rowold (2005) observed that transactional leadership when compared to the transformational leadership, may appear more passive and represents the lack of firm control and authority. These findings as observed in the present study are much in line with the previous literature suggesting that transformational leadership has a stronger effect on performance outcomes than transactional leadership.

It is not unusual to argue that transformational leadership holds an upper hand over transactional leadership in a traditional team environment (Wang et al., 2011). Wang et al. (2011) observed that the relationship between transactional leadership and performance beyond expectation is somewhat lacking. This argument has received overwhelming support. According to Bass (1985) and Avolio & Bass (1995), transformational leadership goes beyond the performance outcomes of transactional leadership to represent a higher order or superior performance outcome. Nonetheless, the findings of the study indicate that these arguments are in support of findings.

According to Perter & Austin (1985), MacKenzie, et al. (2001), and Dulebohn & Hoch (2017), transactional leaders focus on the exchange between leaders and followers, rather than offering explicit instructions and guidelines to followers while seeing them through the performance of their duties. As discussed, the virtual team

environment leaves little physical interaction and many limitations of leadership. In light with such an environment, a low leadership atmosphere may be welcoming.

It is worth mentioning also that in a study conducted by Purvanova and Bono in 2009, a close observation at the individual components of transactional leadership and performance indicated that contingent reward which entails providing followers with clearly defined tasks, while providing them with reward, may not apply to the context of virtual teams (Purvanova & Bono, 2009). Nonetheless, positive feedback is registered on performance when leaders of virtual teams search actively for deviations from rules and standards and activate the adoption of corrective actions where necessary. This finding is supporting the finding of this research where the positive impact of transactional leadership was found to be less than the transformational leadership impact.

Another study that justifies why transactional shows less impact on virtual teams' performance was conducted by Avolio and Bass (2002). They have argued that transactional leadership facilitates short-term interactions with the leader. The aspect of transactional leadership in which it only promotes surface and temporary interactions of satisfaction ultimately leads to resentment which occurs between the participating individuals. They additionally, resulted from the lower impact of transactional leadership due to its approach which is referred to as one-size-fits-all which is neglected both contextual and situational factors which are associated with challenges in an organisation (Avolio & Bass, 2002).

In summary and based on an empirical study finds, there is a positive link between transactional leadership and virtual team's performance in some distinct settings and this supports the finding of this present study in the context of the UAE.

6.2.2 Transformational Leadership Effect on Virtual Team Performance

Prior studies have found that transformational leadership impacted team performance in the “traditional” team formats. For example House & Aditya (1997), Yammarino et al. (2005) and Wang et al. (2011). Also, transformational leadership style has been argued to have a significant and robust effect on the performance of virtual teams (Manz & Sims, 2001; Avolio & Bass, 2002; Jung & Sosik, 2002; Kirkman et al., 2004; Houghton & Yoho, 2005). The generated findings from this study also indicate that transformational leadership does affect virtual team performance ($\beta = .801, p < 0.01$). The positive and strong effect of transformational leadership on virtual team performance is in line with the majority of the previous literature on this area.

When considering the broad impact of transformational leadership on virtual team performance, it must be stated that a transformational leader acts as a personal coach/mentor to his team. Their main obligation lies in encouraging their team members to be reflective of their actions, forming an integral part of personal development. Transformational leadership derives its main strength from relationship building. The sound relation between a leader and his team leads to positive effects on team effectiveness. Therefore, it is necessary to look at the sub-constructs of transformation leadership for better understanding.

One sub-construct of transformational leadership is inspirational motivation which constitutes articulation and representation of the leaders’ vision. Other components include idealised influence behaviour which constitutes acts based on leadership held values, intellectual stimulation and idealised consideration. Ultimately, a positive effect of inspirational motivation and idealised influence on virtual team performance may indicate a stable relationship between transformational leadership

and virtual team performance. Mainly led by the elements of inspirational motivation and idealised influence, this entails the vision, charisma, perceived power, ideals and values that are used to build trust and confidence among team members (Rowold, 2005).

In the context of virtual teams where face-to-face or physical interaction is not possible, these attributes of the leader may hold significant influence performance. Literature support also exists for similar findings in the traditional team environment, for example, refer to House & Aditya (1997) and Yammarino et al. (2005). Findings from this study validate that different elements of transformational leadership have a positive effect and are significant predictors of performance in the virtual team environment adding to the literature.

Though the findings of this study revealed that both leadership styles, transactional and transformational, have a positive impact on virtual teams' performance in the context of UAE, transformational leadership showed more impact than transactional. Peter and Austin in their study supported the above finding and their attempt to explain this finding they claimed that transactional leadership uses both rewards and punishments to influence employee outcomes but not to try to change the underlying behaviour, which is one of the goals of transformational leadership (Peter & Austin, 1985). A similar finding was concluded by other scholars who argued that changing the future is never the issue with transactional leadership as it is with transformational leadership (Forrester & Taschian, 2006).

This finding is in line with Bass argument which resulted from a comparison between transformational leaders and transactional leaders (Bass, 1990). On the one hand, transformational leaders would strive to transform their organisations and seek

ways to advance the relationship with followers beyond self-interest. On the other hand, transactional leaders focus on self-interest. This comparison meant that transformational leaders have more than self-interest at stake. In this context, Bass (1990) asserted that what is suitable for the organisation will eventually be good for the leaders and the followers. Therefore, the difference is substantial because the transformational leader seeks to inspire employees to go beyond mere self-interest. Numerous other studies have considered transformational leadership to exhibit stronger relationship impacting the performance of virtual teams (Bass & Avolio, 1995; Lowe & Kroeck, 1996; Bass & Avolio, 2002; Jung & Sosik, 2002; Riketta, 2008) positively.

Likewise, the finding is in agreement also with the empirical study of Dvir et al. (2002) which supported in their finding that transformational leadership exhibits more positive impact on both traditional and virtual teams' performance. They argued that transformational leaders sell ideas and believe in team members' ability to achieve success, unlike transactional leaders who give orders to achieve success. They described a transformational leader as a coach who inspires all his team members on a personal level and encourages them to go back and assess their actions to facilitate personal development.

Looking at the recent studies conducted in a western work context, it is found that findings are in agreement of this study found. They are conceptually asserting that transformational leadership is more valiant in bringing success to the organisation and encourages team members to work more on their performance due to its ability to focus more on trust rather than on control (Powell et al., 2004; Habley & Schuh, 2007; Kouters, 2009; Purvanova & Bono 2009; Algesheimer et al., 2011). In

summary, the findings of the research successfully predicted the positive impact of transformational leadership supporting the overall findings of previous relevant studies. Therefore, it is recommended that organisations give more attention to the transformational relationship when leading virtual teams

6.3 Contribution to Theory: The Role of Moderators

Three out of four main hypotheses of the moderators observed a somewhat significant effect on the relationship between leadership and performance. First of all, team cohesiveness proved statistically significant together with the role of team creativity. These two were significant for both transactional leadership and transformational leadership. Team empowerment was only significant for transformational leadership but not for transactional leadership. Finally, trust was not statistically significant neither for transformational nor for transactional leadership.

These findings support that the virtual team environment holds some unique features different from the traditional team environment (Powell et al., 2004). The virtual team environment is unique in terms of social processes, task processes, inputs, culture, design, structure and output or performance (Powell et al., 2004; Gaudes et al., 2007). Earlier observations sought to support the observation that trust, teamwork empowerment, cohesion and creativity are critical factors in a virtual team environment; findings supported all the moderators to some extent except for “trust”.

The third hypothesis represents the impact of team cohesiveness as a moderator. Statistical analysis showed that team cohesiveness found to be significant and this finding is in line with study outcomes of Forrester & Tashchian (2006), who asserted that when team members are stacked together to meet the team’s goals, cohesiveness

will occur. The same finding was also supported by Cohen & Bailey (1997) who added that cohesion is a critical factor in determining the performance of virtual teams. Interestingly, their findings showed that transactional leadership has a direct impact on improving team cohesion, while transformational leadership only indirectly improved task cohesion. A similar finding was revealed from the study of Burns (1978).

Scholars in this field have different opinions on this topic. Warkentin et al. (1997) contended that the inherent technological nature of virtual teams significantly challenged the team cohesion, unlike traditional teams. Some researchers (Jung & Sosik, 2002; Horwitz & Albert, 2006) have found that transformational leadership not only increases the follower's level of interest but also predicts empowerment, cohesion, and perceived team effectiveness. Other studies have also supported that group cohesion has a positive effect on individual's contribution to a group and that it affects the relationship between leadership style and performance (Jung & Avolio, 2000; Mach et al., 2010).

Cohesiveness positively impacts leadership styles: transactional and transformational. Studies investigating the moderating role of team cohesiveness showed that cohesiveness has a moderating effect on transactional leadership and VT performance (Burns, 1978; Chidambaram, 1996; Warkentin et al., 1997). Similar findings have been concluded by other researchers towards transformational leadership (Poole & De Sanctis, 1989; Purvanova & Bono, 2009). Powell et al. (2004) also highlighted that working across time zones and amongst cultural differences pose serious threats to the cohesiveness of a virtual team's and its performance.

The fourth hypothesis in this study is related to the moderating impact of the empowerment, and the analysis resulted with significance for transformational leadership only. This finding is in line with the outcomes of many scholars who found transformational leadership is a leadership type that perceives followers' is built on clear objectives that need to achieve without consideration to personal relationships (Cunningham et al., 1996; Lee & Koh, 2001; Jung & Sosik, 2002). Another study that also supported this finding is Quick & Nelson study conducted in 2009 where they asserted that empowering employees is a critical success factor that results with enabling the organizations to improve the quality of work and transformational leaders, in addition to selling the vision, they also work empowering and delegating to the followers to enable them to achieve assigned objectives and tasks.

Kirkman et al. argued that in virtual context team empowerment was positively related to virtual team performance and suggested that it is better addressed by transformational leadership (Kirkman et al., 2004). The additional supporting argument resulted from the study conducted by Houghton and Yoho (2005). They asserted on the criticality of empowering team members in a virtual context and suggested that empowerment was positive impacting collective efficacy which eventually led to team effectiveness.

Numerous studies conclusions were supporting the finding of this study. Many scholars claimed that empowerment, in a virtual context, is more critical in the transformational style than transactional because transformational leaders empower their followers and encourage them to think, act, and make independent decisions

without direct supervision (Manz & Sims, 2001; Jung & Sosik, 2002; Houghton & Yoho, 2005).

The fifth hypothesis is assessing the moderating impact of trust, and interestingly, the analysis revealed with no significance for both transactional and transformational leadership styles. It is evidenced that task completion and goals realisation revolve around trust which means that project managers must rely on this construct. The previous scholars are partially supporting the finding. It is supported when it is related to transactional leadership while it is not when it is related to transformational leadership. Bass & Bass supported the finding related to transactional leadership as they argued that the critical concern of transactional leadership is actually on the output and results of a team and not to building rapport and trust (Bass & Bass, 2008).

Trust showed a strong moderating effect on the relationship between transformational leadership and performance of virtual teams as argued by many scholars (Bass & Avolio, 1995; Zaccaro & Bader, 2003; Purvanova & Bono 2009). Likewise, Kouters (2009) and Ruggieri (2009), in their studies contended that trust is associated more with transformational leadership which is implicitly built in the notion of trust and this is considered the backbone to virtual team performance.

The finding of this study is not in line with what the literature is supporting. Some scholars reason this due to the difficulties associated with virtual context which lacks face to face meetings. Kaiser et al. (2000), Suchan & Hayzak (2001), and Saunders et al. (2003) argue that face-face-meetings are essential as they help to cement trust and respect among virtual team members.

Another reason might be the fact that building trust requires not only physical interactions, but it also requires time till team members get to build a base to trust each other. The sample of this study is virtual team members who mostly been working with their team for a short period. Around 85% of respondents spent less than six months with their teams. This may not be enough time to trust each other. On the other hand, Duarte & Snyder (2006) asserted that the cultural difference among virtual team members is a potential driver of conflicts and the lack of trust among them. There is thus a need to examine this further across the two leadership styles taking into consideration the factors that might affect the moderating role of trust. It is a potential area for further studies and analysis in the future.

The last hypothesis addressed by this study pertains the moderating effect of creativity, which revealed to be significant for both leadership styles. As mentioned earlier, studies have asserted that fostering creativity in a virtual context has an important impact on the contribution of team members (Alahuhta et al., 2014). This finding was supported for transactional leadership by Northouse (2007). He claimed that, in a given environment, transactional leadership could lead to team creativity and that emotional labour was a moderating factor. However, Bass & Bass (2008) contradicted with Northouse conclusion, and they proposed a negative link between team creativity and transactional leadership. A previous study of Bass asserted the offer mentioned conclusion as he claimed that transactional leaders are not concerned with inspiring beyond self-interests, which may hinder team building and creativity (Bass, 1990).

Conversely, overwhelming pieces of evidence exist supporting that creativity highly moderates the relationship between transformational leadership and team

performance in virtual context (Quintas et al., 1997; Bass & Bass, 2008; West & Richter, 2008; Gong et al., 2009). Transformational leaders encourage their followers to think and analyse problems on their own which in turn promotes creativity and innovation. Thus, transformational leadership followers show higher creativity in their performance (Bass & Avolio, 1990; Jung, 2001; Fernandes & Awamleh, 2004). Virtual teams consist of diverse and heterogeneous team members, which may lead to creativity and effectiveness. Diversity helps engender creativity and originality among virtual team members (Muqadas et al., 2016).

These positive results for the main hypotheses and the moderators indicate a clear demonstration that as in the current study, leadership requires the presence of important external variables that would moderate or have the potential to catalyse performance outcomes resulting from leadership activities. Ultimately, the discussion of the relationship between transactional and transformational leadership may be best discussed in the presence of contextual elements like team empowerment, team cohesiveness and team creativity.

Sound relations enable individuals to connect to their tasks and among themselves while transactional leadership acts as a bridge connecting good relations to virtual team outcomes. When transactional leadership attributes are executed in a proper relation manner, it is evident that team effectiveness will increase mainly as a result of satisfaction. The researcher observed that any transactional leader must be in a position to emphasise on the human relations aspect (consideration) of team function. Such leaders must be considerate and understanding; this is important towards members as it allows them to express their ideas freely in a conducive environment. Such teams are often associated with high team performance.

Unpredictable environment and rapid technology improvement have brought with them a shift in the working environment. Employees can now work from any location, thanks to technological innovation. With these developments, a review of current literature directly demonstrated that there some huge existing gaps between leadership styles and virtual teams. The continually increasing demand for geographically dispersed workers has been identified as the main reason why there is low attention to leadership behaviours towards their virtual workforce. The virtual environments also bring with its new contextual considerations required to make traditional leadership styles more effective in such environments.

Ultimately, to effectively explore the relationship between leadership behaviours and team performance, the researcher chose to use the MLQ 5X analysis factor, which significantly helps the researcher fill out some of the common existing gaps in the literature. After conducting research and gathering data from, the researcher was able to predict the effects of transactional and transformational leadership on the criterion variables for the present study which was mainly team performance. Holding in place essential moderators, a significant association was again observed.

According to the analysis reported, transformational leadership style has strong and positive effects on virtual team performance while transactional leadership has a moderate effect. In what appears as a remarkable point, transformational leadership style effect on team performance proves to be higher than for virtual team performance when compared to transactional leadership. Leadership execution in transactional leadership helps create clear structures clarifying what is expected from their team members and offering rewards accordingly. In the transactional leadership style, team performance remains high while satisfaction levels remain low.

Ultimately, the transformational leadership style has a more significant effect on team performance. After deeply and intensely studying the two type of leadership, this study concluded that transformational leaders demonstrate leadership behaviours that encourage both personal and team success.

It is important to note that in a geographical setting of transformational leadership attributes are directly linked with improved team performance. In response to previous cries from previous researches on the need for more empirical studies on virtual team leadership and performance, the researcher did everything under his control to ensure that the study fills some of the existing gaps on virtual team leadership. It is essential to finalise that the virtual team problems may remain concomitant until technology advances to bridge or solve these problems.

The continued growth of virtual teams across various industries; however, it provides ripe areas for new research which will continue offering brand new solutions to every new arising case. This study was able to make a clear distinction between leadership style and control mechanisms. It makes sturdy advances on the emerging virtual leadership through an exploration of some common effects and possible consequences of leadership shift on the relevant outcome.

In light of these findings, there is no doubt that the literature lacks enough evidence depicting how leaders should behave and motivate their members in a virtual context. However, with the results of this research leaders have been provided with important links on how they can choose their leadership style and being control oriented when it comes to virtual team context.

On the other hand, the findings of this study not only provided leaders with insights on the moderators that positively affects transformational leadership and its impact on the performance of virtual teams but it also did indicate moderators that have a higher impact than the others. In this study, team empowerment scored the highest impact.

6.4 Contribution to Practice

This study measured the impact of leadership on virtual team performance. Through specific scientific testing, the study has supported significant findings of the existing body of research that virtual leadership possess a strong positive impact on virtual team performance in terms of transformational leadership style. The study provides significant implications for any organisation seeking to leverage a virtual work environment. It is evident that despite different communication and interaction mechanism, acquiring and developing transformational leaders is directly tied to team performance.

This study supports transformational and transactional leaders are both suited to lead virtual teams in any organisation. This is because leaders who exhibit these leadership attributes directly linked to virtual team success. However, transformational showed a more positive impact on the virtual team's performance in the context of the UAE. This study analysed the two types of leadership transformational and transactional determining the most suitable type of leadership for virtual teams which would help in fostering of performance. It also made efforts to review both transformational and transactional leadership styles which were mainly based on opinions of virtual team leaders and team members towards the establishment of a suitable style of leadership for virtual work environments. The

researcher also hoped that the findings would be useful to Government Institutions more so because virtual teams are becoming a common phenomenon in the UAE Government sector.

The transformational leaders are very extrinsic and trained motivators in that they can attract adequate compliance from their followers in a virtual environment. They also wholly take in and accept the set goals, culture, structure the entire current or existing firm. Transformational leaders have a high tendency of being initially action oriented and in most incidences very directive. Transformational leaders are willing to take severe risks for the well-being of the entire firm or organisation.

Also, transformational leaders are also known for thinking outside the box when dealing with adversities facing the organisation — the specific elements of transactional leadership on the other hand impact performance differently. The first element contingent reward offers a platform for sheer rewarding and congratulating followers for their recognisable efforts to the organisation and also to acknowledge their top-notch performance. The second element management by exception suggests that the management has to intervene in the instances which the followers fail to meet the set performance levels according to the organisation.

In comparison to the efficiency of a team, transformational leadership was discovered to have a more significant impact on traditional teams as they have on virtual teams. The first component of transformational leadership, idealised influence (attributed and behaviour), suggests followers respect and trust their leaders because leaders readily put others' needs before their own. The second element of transformational leadership is the inspirational motivation the leader works with the

followers to build a shared vision for the organisation while clearly articulating expectations and goals.

The third component, intellectual simulation, shows that leaders ensure an open exchange of ideas by allowing mistakes, soliciting new methods for problem-solving, and evaluating the followers' processes rather than just situational outcomes. The fourth component is an individualised consideration where the leader acts as a coach, teacher, and mentor for each subordinate, providing individual attention and feedback, both positive and negative. Taking into consideration the statistical outcomes of this study and the attributes of transformational leaders, the leaders and decision-makers in UAE government sector can not only build effective virtual teams but also improve their performance and maximise the gain of the advantages associated with virtual teams. Additionally, they can customise the development and training of their current and future virtual team leaders to fit the internal and external factors that are related to their organisations, accomplishing the ultimate return on investment.

6.5 Summary

This chapter discussed the findings of the study in line with existing work in this area. It commences with a review of the leading research goals in the context of the study. The significance of the study to theory and practice are highlighted about the findings of the study. Attention is however paid to the critical antecedents of transformational and transactional leadership styles, the outcome of their effect on performance, and the support of literature to explain these inter-relationships. The four main moderators of the study are discussed next with regards to the findings on

how they interact with the relationship between leadership and virtual team performance. Finally, the research findings are presented in line with the discussions.

Chapter 7: Conclusion

7.1 Introduction

The present chapter summarises and concludes the present investigation. The chapter commenced with a presentation of the key findings of the study. It also discusses the implications of the findings, recommendations and limitations of the study. Similarly, as the study was introduced, it is crucial that a clear set of robust conclusions are offered to close the study. The primary goal of this study was to identify the leadership style that is best suited for improving the performance of virtual teams. The researcher was hopeful that the results of this study would go a long way towards providing some useful information to all UAE organisations tactically struggling to use virtual teams or aiming to improve the performance of virtual teams being used.

The researcher observed that this knowledge would go a long way towards offering some critical knowledge to entire UAE organisations particularly on matters about decisions for setting virtual teams, and what relates to hiring, promoting, development and training. This study employed the quantitative methodological approach in a sample of about 344 followers of virtual teams in the UAE government sector. After a thorough screening and data preparation, reliability and validity tests, various hypotheses were tested for empirical support using mainly regression analysis. In this final chapter, the findings, implications, recommendations, limitations and avenue for future research are provided.

7.2 Key Findings

The research model entailed two main antecedents in the form of transactional and transformational leadership styles. For the RQ1, the effect of transactional leadership on virtual teams' performance was sought. Overall, transactional leadership registers a positive effect on virtual team performance. Based on these findings for the first research question, it is concluded that to improve the performance of virtual teams; leaders must actively search for deviations from rules among the team members. Leaders, however, must avoid intervening in errors only after they occur, or they have been committed. A distant and more passive leadership component will prove useful in the management of virtual team performance.

The RQ2 observes the contribution of transformational leadership to virtual teams' performance. Generally, transformational leadership has a stronger positive effect on the performance of virtual teams. Based on these observations, it is concluded that transformational leadership will contribute to virtual team performance and leaders must set and communicate a clear vision to followers while encouraging them to be innovative and committed towards a common goal or agenda.

For the RQ3, the study sought to observe whether team cohesion has a moderating effect on the relationship between the leadership and performance of virtual teams. The results were significant for both transformational and transactional leadership types. It is therefore concluded that team cohesiveness is an ultimate requirement if the performance of leadership in virtual teams will be improved.

For the RQ4 and hypotheses groups, team empowerment demonstrated a partial effect on the relationship between leadership and performance. Team empowerment proved statistically significant for transformational leadership but not for

transactional leadership. This implies that empowerment flourished and adds to performance in an environment where innovation and relationship building is present.

For the RQ5, team trust was observed as a non-contributing element for both transactional and transformational leadership styles. This contradicts supporting evidence that backed the hypothesis that trust is a significant element within the team environment. For the RQ6 and final hypothesis, virtual team creativity was observed as a significant moderator of the relationship between both leadership styles and virtual team performance. This adds to team cohesiveness as main elements that are pre-requisite to performance improvement within the virtual team environment.

7.3 Recommendations

From the findings the study makes the following recommendations:

- i] To boost virtual team performance organisations may build on both leadership styles of transactional and transformational leadership styles because they are both best suited for improving performance in virtual team environments.
- ii] Transformational leadership creates innovation and helps in creating a consensus based on the professionalism of team members at the collective group interest. Carefully understanding implications of leadership in a virtual team environment comes as in as the significant factor considering that employee interaction has changed from face to face into only virtual.
- iii] As pressure to lower operating costs and increase the available talent pool is forcing organisations to opt for virtual team setting, this holds the key to

success in the future. The only way organisations can better prescribe their training, hire a more productive staff and perhaps use existing employees more effectively, is to understand that virtual teams require team members to demonstrate a high level of independence and professionalism.

- iv] If leaders wish to increase their member's willingness to propose new ideas, earning of trust, respect and satisfaction; they must be ready and willing to provide some guidance or directions to their members in an effective but not a passive manner. This should happen through a showing of concern, understanding and empathy working in the whole working process, and not at the end of the work activity.
- v] Virtual teams in the UAE and surrounding regions must aspire to implement team cohesiveness, team empowerment, and team creativity as they are keys to improve virtual team performance and success.

7.3.1 Final Framework Based on Research Findings

As mentioned earlier in chapter 3, the research framework was developed based on the Bass & Avolio leadership model (Bass & Avolio, 1990). The hypotheses were linked to this model and customized theoretical framework was developed and used. Figure 7.1 represents the framework updated based on the results and findings of this study. The results assert adopting transformational leadership as it indicated a higher impact on the performance of virtual team leaders. It also represents the moderators that showed significance in positively moderating the relationship between transformational leadership and virtual teams' performance: team empowerment, creativity, and cohesion. They are ordered based on their impact.

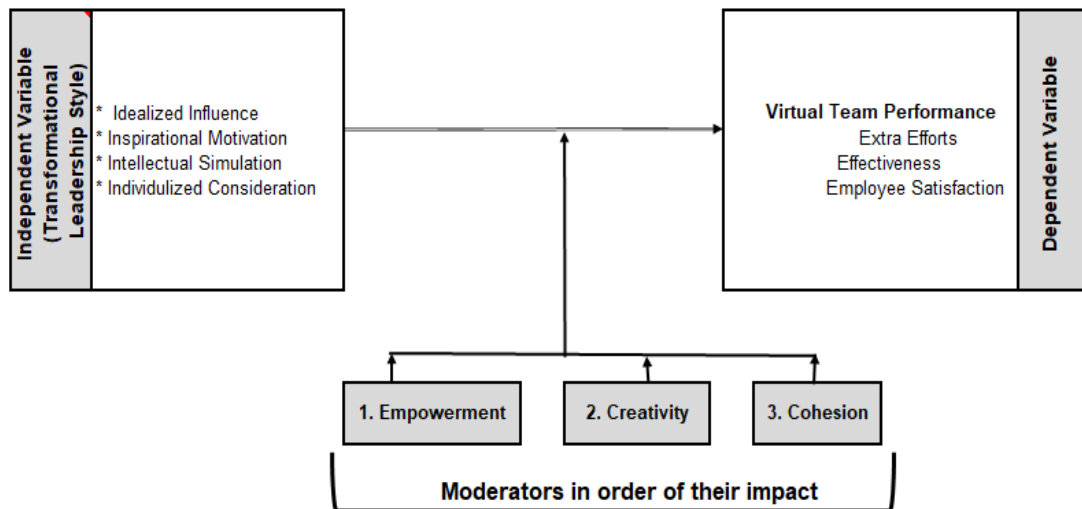


Figure 7.1: Updated Framework Based on Study Findings

7.4 Limitations and Future Research

7.4.1 Limitations

Even though this quantitative study is conducted within the UAE government sector, its results can be generalised to other sectors such as the private or the non-profit sectors in the UAE and elsewhere. However, the conditions in which the study was conducted must be met and possibly exceeded. One notable area is that the sample size that consisted of 300-350 virtual team members is considerably small. To increase the level of validity and generalisation, a larger sample size needed. Another limitation is that the study develops a virtual leadership model without connecting it to a specific training and development matrix. The influence of training and human development elements in the research model is therefore missing.

Moreover, it must be added that the study does not cover internal or external factors influencing virtual leadership; for instance, business and governmental factors, and technology. These factors mainly outside of the team but within the organisation may

appear as significant moderators instead of the factors considered as moderators in the present investigation. Culture, for instance, plays a significant role in shaping the behaviours of team members and influences their commitment to work; however, culture is being omitted from the scope of this study.

Mainly, the empirical test for leadership only remained in simulation, and this made it impossible for it to appear as believable or realistic when compared to real virtual teams. Participants failed to experience any meaningful difference between the two types of leadership styles. Participants failed to take comments despite hearing them; this is shown in the leadership manipulation check results. It was also difficult to consider leaders as realistic even after being allowed some form of flexibility in the timing of their comments and the ability to interject additional generic comments. Ultimately, leaders were denied powers to command their teams, which is different in a real organisational setting where leaders enjoy immense powers such as conducting followers' performance reviews. This may have influenced the findings with demonstrated support for transactional leadership.

Another limitation which made everything look as pure leadership manipulation is that the two types of leadership - transactional and transformational failed to demonstrate a real dichotomy. These two leadership styles remain highly correlated and are both associated with a positive performance. Despite other studies also applying this dichotomy, the truth is that it may not still be able to reflect on those actual real-world leaders who can exercise on both types of leadership.

Another potential limitation of the study was brought up by the composition of the sample population. Males constituted the most significant percentage of participants. The teams were made up of mostly males; thus the leadership positions were mainly

taken up by the males. There were no significant differences between genders on any of the outcome variables based on the statically gender comparison. For a better understanding of any potential difference, there is needed to conduct more empirical studies in future examining the effects of gender composition within the virtual teams. A low to moderate power also presented another additional limit to this study.

Valuable findings still emerged from this research despite the limitations. It is essential for virtual team leaders to show concern towards their team members, understanding and empathy to affect member's creative thinking abilities. The researcher realised that there is little empirical work on leadership in virtual team settings but plenty of theories and empirical studies on traditional team settings. This research provides virtual team leaders with some important virtual leadership attributes.

The researcher candidly accepts that data collection proved to be a challenge in the whole research process. Despite the teams being selected and motivated by very influential people in the organisation, the response still fell below the expected level. One organisation performed better than the other, but this could also be measured in depth by comparative analysis in future studies. Virtual teams can be compared, and their performance measured differently in different organisational settings. Only a small number of team members met researchers expectations; some of the expectations included geographical virtual and national diverse teams. In some cases, the response was only from one culture group something that made it challenging to conduct team level analysis. Team level variables failed to show any significant results on both team level and individual level despite being considered as the moderating variables.

The study lacked a multilevel analysis which could greatly help in the evaluation of the whole model. Future researchers need to incorporate this analysis into their plans for a better approach to the conceptual model. However, despite these limitations, the researcher could still find some effects which are most likely to be found in an even stronger population. To efficiently detect virtual relations in future, the researcher argues that more effort should be put in place by future researchers to enable them to obtain higher power level. For this to happen researchers will have to work to diversify the methodological approach; that is, to adopt a mixed methodology as opposed to what was done in this current study.

7.4.2 Future Research

To solve these problems shortly, it would be logical to direct some of these questions face-to-face to the virtual team leaders. Possibly, future studies should use a mixed methodological approach. This will enable the researcher to get more elaborations on the question whenever the situation demands. Team effectiveness, performance and satisfaction all share a strong positive correlation and that both team effectiveness and team performance measure the same concept which is leadership effect. In future studies, it would be better if each of these dimensions is measured separately.

Currently, it is difficult to prove that the findings from this study apply to an actual field setting. However, through future research, virtual teams working on actual problem-solving tasks and should be examined. Such studies are vital towards capturing the whole “motivational element” which may not have been presented in the current study. Deciding on the most effective style and behaviour for actual teams can only be done by measuring of real leaders and hence the need for more comprehensive studies. Extra familiarity and expertise in the actual task at hand seem

to have some different effects on the relationship and impact on team members; this also needs to be examined shortly.

How virtual team outcomes are affected by the different leadership styles such as laissez-faire and shared leadership needs also to be investigated in the future to make another critical contribution to pertinent literature. On the type of intervention, selecting, training, coaching, team building necessary toward the strengthening of leadership, constructive team interaction, team cohesion, and performance of virtual teams need some more attention in future research. There is a growing need for more empirical laboratory and field research to cater to the new emerging technologies such as video conference which is now becoming a new communication tool for virtual teams. New researches must now divert from the old popular system which mainly relies on practical recommendations.

More studies need to be conducted concerning virtual team leadership. Researchers need to include more variables to test virtual team effectiveness. This will significantly help to determine if indeed these leadership styles are more or less effective in a virtual team environment. More and more organisations should be reached to help uncover much of the still hidden problems especially those where employees are less likely to be technically savvy and discern whether leadership characteristics and team performance mirror those of a traditional workplace. Team cohesion in virtual team context can determine so much in terms leader's effectiveness.

There are also other areas that need to be investigated to enrich the contributions of this study both academically and practically. The impact of some moderators could also be studied as mediators, and more clarity could be revealed when comparing the

impact of the same construct as a moderator and as a mediator. Another aspect would be identifying the leadership model applied in reality; transactional or transformational. Additionally, identifying the timeline for transformation is another critical area for future research. Conversely, investigating the impact of team size, duration of participation as a virtual team member may reveal an effect on the perception of the leadership style. Though the study did not count for team size, this factor could be studied as a control variable.

The complete study has created dozens of learning opportunities. It tried to further the body of Knowledge regarding the relationship between virtual leadership and team performance. The main goal for this research was to invite insight into the strength of the relationship between virtual team leadership and team performance. The researcher believes that it is essential to clearly understand everything on transactional leadership as it relates to virtual teams. As more and more organisations and employees seek the virtual team structure, it is evident that there is a more significant opportunity to influence a higher social change.

This study results finally revealed that virtual teams are day by day turning into very fundamental work units gaining much higher expectations on all organisations functions. Most organisations now operate on one common belief, success and sustainability are all dependent on the virtual working environment. UAE organisations just as other countries have decided to follow the same strategy in conducting all such operations. Etisalat represents some of these organisations that have fully adopted this whole process; the company conducts all its operations be it local or global using the virtual working setting. Another company which has also not been left behind is the Mubadala; operates many projects that are managed by

different virtual teams based in different geographical regions, different time zones and cultures.

Despite the numerous positive returns on the virtual team working environment, enhancing the performance of work team members and increasing team productivity is not an easy task. Leading separate virtual teams and always ensuring that this team remains highly motivated to pass the required superior performance is not something easy. Many will undoubtedly agree that effective leadership remains a significant challenge even for teams working on face to face basis, take to imagine on a virtual work environment, this needs more dedication and effort if everything is to work as expected.

It is acknowledged that there is a need for a further empirical study to try and bring understanding of the impact of different leadership styles on virtual teams and its performance. Nonetheless, the fact that many studies have been conducted by very many different researchers, to determine the impacts caused by the various types of leadership on unique organisational outcomes, may not be denied. These studies have produced varying results on the positive impact of transactional and transformational leadership on organisational outcomes in different situations and across different cultures and contexts. A meta-analysis of these findings will help observe the predominant orientation of such findings.

7.5 Summary

As the final chapter of the study, it is essential to mention that the main aim of this study was to determine impacts of inspirational transactional and transformational leadership styles on organisational outcomes like performance and commitment of

employees in one of the leading government divisions in the UAE. It aimed at outlining the leadership style most appropriate for application in a virtual context and within the government sector of the UAE to warrant performance and commitment of employees' enhancement. Ultimately, there is a need for more insight to help fill the existing gap in the literature on virtual leadership and its impact on virtual team performance especially in the context of the UAE. This study adds more value to virtual team management specifically in the context of the UAE, where few studies have been done in this context.

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Appendices

Appendix 1: Survey Questionnaire

Dear Sir / Madam

I am currently undertaking a research as part of my university course which serves only an academic purpose. The questionnaire is designed to assess and analyze the impact of leadership style on the performance of virtual team members, (Virtual team is defined as a group of individuals who work across time, space and organizational boundaries with interaction links through electronic communication technology). You should be a member of a virtual team to answer this questionnaire.

You are being invited to take part in this research study by completing the following questionnaire. The participant may have a consent form to sign if s/he wishes to ascertain that confidentiality is maintained. Please email your request to get a consent form to nalameri@gmail.com.

Kindly, take your time and go through the following questionnaire and answer all items to which best describes you and your situation.

Thank you ☺

The job/project you are working in/on has a team leader / manager. What is your organizational level compared to this team leader/manager?

___ I am at a higher organizational level than the person I am rating.

___ The person I am rating is at my organizational level.

___ I am at a lower organizational level than the person I am rating.

SECTION 1: Demographics

This survey is being administered to study the leadership style practiced by your team leader/line manager on virtual team members' performance.

Personal Information about you and your team

1. Name of the organization (optional) _____

2. Gender

Male

Female

3. Nationality

- UAE
- Others (please specify) _____

4. How long you have been into business

- 1-5 years
- 6-10 years
- 11-15 years
- 16 years and above

5. What is your age bracket?

- 21-30 years
- 31-40 years
- 41-50 years
- 51-60 years
- 61 years and above

6. Category of specialization

- Technical category
- Non-technical category

7. Your position in the organization - Please mark only one choice.

- Administrative Support
- Individual Contributor (i.e. Consultant / Sales Rep.)
- Engineer
- Manager / Supervisor
- Director
- Vice President
- Senior Executive
- Other

8. Please select the field in which your team work is relevant to

- Energy & oil
- Health care
- Transportation & logistics
- Education & training
- Technology & communication
- Military, armed forces, & law
- Business & finance
- Production & manufacturing
- Other

9. Please specify the total number of team members on this team. _____

10. How long has this team been in existence? _____ (Years / Months)

11. How long have you been a member of this team? _____ (Years / Months)

SECTION 2: Leadership style of your team leader

Identify what best describes your leaders/managers leadership style. Judge how frequently each statement fits the person you are describing using the following rating scale:

Not at all	Once in a while	Sometimes	Fairly often	Frequently
0	1	2	3	4

THE PERSON: I AM RATING. . .

1	Provides me with assistance in exchange for my efforts	<input type="checkbox"/>
2	Re-examines critical assumptions to question whether they are appropriate	<input type="checkbox"/>
3	Fails to interfere until problems become serious	<input type="checkbox"/>
4	Focuses attention on irregularities, mistakes, exceptions, and deviations from standards	<input type="checkbox"/>
5	Avoids getting involved when important issues arise	<input type="checkbox"/>
6	Talks about their most important values and beliefs	<input type="checkbox"/>
7	Is absent when needed	<input type="checkbox"/>
8	Seeks differing perspectives when solving problems	<input type="checkbox"/>
9	Talks optimistically about the future	<input type="checkbox"/>
10	Instils pride in me for being associated with him/her	<input type="checkbox"/>
11	Discusses in specific terms who is responsible for achieving performance targets	<input type="checkbox"/>
12	Waits for things to go wrong before taking action	<input type="checkbox"/>
13	Talks enthusiastically about what needs to be accomplished	<input type="checkbox"/>
14	Specifies the importance of having a strong sense of purpose	<input type="checkbox"/>
15	Spends time teaching and coaching	<input type="checkbox"/>
16	Makes clear what one can expect to receive when performance goals are	<input type="checkbox"/>
17	Shows that he/she is a firm believer in "If it isn't broke, don't fix it."	<input type="checkbox"/>
18	Goes beyond self-interest for the good of the group	<input type="checkbox"/>
19	Treats me as an individual rather than just as a member of a group	<input type="checkbox"/>
20	Demonstrates that problems must become chronic before taking action	<input type="checkbox"/>
21	Acts in ways that builds my respect	<input checked="" type="checkbox"/>
22	Concentrates his/her full attention on dealing with mistakes, complaints, and	<input type="checkbox"/>
23	Considers the moral and ethical consequences of decisions	<input type="checkbox"/>
24	Keeps track of all mistakes	<input type="checkbox"/>
25	Displays a sense of power and confidence	<input type="checkbox"/>
26	Am satisfied with the praise I get for doing a good job	<input type="checkbox"/>

- 27 Articulates a compelling vision of the future
- THE PERSON: I AM RATING. . . (Continued)***
- 28 Directs my attention toward failures to meet standards
- 29 Avoids making decisions
- 30 Considers me as having different needs, abilities, and aspirations from others
- 31 Gets me to look at problems from many different angles
- 32 Am satisfied the way my boss handles his/her work.....
- 33 Helps me to develop my strengths
- 34 Suggests new ways of looking at how to complete assignments
- 35 Delays responding to urgent questions
- 36 Emphasizes the importance of having a collective sense of mission
- 37 Expresses satisfaction when I meet expectations
- 38 Am satisfied being able to do things that don't go against my conscience...
- 39 Expresses confidence that goals will be achieved
- 40 Is effective in meeting my job-related needs
- 41 Uses methods of leadership that are satisfying
- 42 I get the chance to do something that makes use of my abilities
- 43 Gets me to do more than I expected to do
- 44 Is effective in representing me to higher authority
- 45 Works with me in a satisfactory way
- 46 Am satisfied with the way the company policies are put into practice
- 47 Heightens my desire to succeed
- 48 Is effective in meeting organizational requirements
- 49 Increases my willingness to try harder
- 50 Leads a group that is effective
-

SECTION 3: The effect of selected moderators on virtual team members' performance

For the remaining sections, identify what best describes yourself. Judge how frequently each statement fits you using the following rating scale:

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
5	4	3	2	1

Team cohesion	5	4	3	2	1
I am comfortable accepting procedural suggestions from other team members.					
I trust that other members' knowledge about the project is credible.					
I am confident relying on the information that other team members bring to the discussion.					
I accept the information provided by other team members without a doubt.					
I have a lot of faith in other members' expertise.					
Our team works together in a well-coordinated fashion.					
Our team has very few misunderstandings about what to do.					
Most of the time we do things right the first time.					
We accomplish the task smoothly and efficiently.					
It is clear how we will accomplish the task.					
Our team creates new ideas for difficult issues.					
Our team searches out new working methods, techniques, or instruments.					
Our team generates original solutions for problems.					
Our team mobilizes support for innovative ideas.					
Our team acquires approval for innovative ideas.					
Our team makes important organizational members enthusiastic for innovative ideas.					

- Zajac, S. (2014). Exploring new boundaries in team cognition: Integrating knowledge in distributed teams". Electronic Theses and Dissertations. Paper 4544
- The Team Climate Assessment Measurement Questionnaire (TCAM)

Team empowerment	5	4	3	2	1
Each team member has specialized knowledge of some aspect of our project.					
I have knowledge about an aspect of the project that no other team member has.					
Different team members are responsible for expertise in different areas.					
The specialized knowledge of several different team members is needed to complete the project deliverables.					
I know which team members have expertise in specific areas.					

- Kotlarsky et al. (2009). Are We on the Same Page? Knowledge Boundaries and Transactive Memory System Development in Cross-functional Teams. Proceedings of the International Conference on Information Systems, ICIS 2009, Phoenix, Arizona, USA

Trust	5	4	3	2	1
Our team has enough safeguard to make me feel comfortable when using them					
I feel assured due to adequate legal and technological systems to protect me from harm					
The internet is a robust and safe environment when using virtual teams					
I can trust team services' when using them					
Using virtual team services enables me to carry out transactions faithfully					
Using virtual team puts my best interests in mind					

- Carter, L. & Belanger, F. (2005). The utilization of e-government services: citizen trust, innovation and acceptance factor. *Info Systems J* 15, 5–25

Creativity	5	4	3	2	1
Achieved objectives are more than stated in plan					
Team creativity reflects a level of quality beyond what is normally expected					
Team members have originality of ideas					

- Badaruddin. I. (2012). Exploring the relationships among creativity, engineering knowledge, and design team interaction on senior engineering design projects. (Doctorate thesis, Colorado State University, Fort Collins).

If you have any query or if want us to share the result of this study with you, please request through the following email: nalameri@gmail.com

Thank you for completing the survey. It is appreciated.

Appendix 2: Ratter Form

THE PERSON I AM RATING. . .

1	Provides me with assistance in exchange for my efforts	<input type="checkbox"/>
2	Re-examines critical assumptions to question whether they are appropriate	<input type="checkbox"/>
3	Fails to interfere until problems become serious	<input type="checkbox"/>
4	Focuses attention on irregularities, mistakes, exceptions, and deviations from	<input type="checkbox"/>
5	Avoids getting involved when important issues arise	<input type="checkbox"/>
6	Talks about their most important values and beliefs	<input type="checkbox"/>
7	Is absent when needed	<input type="checkbox"/>
8	Seeks differing perspectives when solving problems	<input type="checkbox"/>
9	Talks optimistically about the future	<input type="checkbox"/>
10	Instills pride in me for being associated with him/her	<input type="checkbox"/>
11	Discusses in specific terms who is responsible for achieving performance targets	<input type="checkbox"/>
12	Waits for things to go wrong before taking action	<input type="checkbox"/>
13	Talks enthusiastically about what needs to be accomplished	<input type="checkbox"/>
14	Specifies the importance of having a strong sense of purpose	<input type="checkbox"/>
15	Spends time teaching and coaching	<input type="checkbox"/>
16	Makes clear what one can expect to receive when performance goals are achieved	<input type="checkbox"/>
17	Shows that he/she is a firm believer in "If it ain't broke, don't fix it."	<input type="checkbox"/>
18	Goes beyond self-interest for the good of the group	<input type="checkbox"/>
19	Treats me as an individual rather than just as a member of a group	<input type="checkbox"/>
20	Demonstrates that problems must become chronic before taking action	<input type="checkbox"/>
21	Acts in ways that builds my respect	<input type="checkbox"/>
22	Concentrates his/her full attention on dealing with mistakes, complaints, and	<input type="checkbox"/>
23	Considers the moral and ethical consequences of decisions	<input type="checkbox"/>
24	Keeps track of all mistakes	<input type="checkbox"/>
25	Displays a sense of power and confidence	<input type="checkbox"/>
26	Am satisfied with the praise I get for doing a good job	<input type="checkbox"/>
27	Articulates a compelling vision of the future	<input type="checkbox"/>
28	Directs my attention toward failures to meet standards	<input type="checkbox"/>
29	Avoids making decisions	<input type="checkbox"/>
30	Considers me as having different needs, abilities, and aspirations from others	<input type="checkbox"/>
31	Gets me to look at problems from many different angles	<input type="checkbox"/>
32	Am satisfied the way my boss handles his/her work.....	<input type="checkbox"/>
33	Helps me to develop my strengths	<input type="checkbox"/>
34	Suggests new ways of looking at how to complete assignments	<input type="checkbox"/>
35	Delays responding to urgent questions	<input type="checkbox"/>
36	Emphasizes the importance of having a collective sense of mission	<input type="checkbox"/>

THE PERSON I AM RATING. . . (Continued)

- | | | |
|----|---|--------------------------|
| 37 | Expresses satisfaction when I meet expectations | <input type="checkbox"/> |
| 38 | Am satisfied being able to do things that don't go against my conscience..... | <input type="checkbox"/> |
| 39 | Expresses confidence that goals will be achieved | <input type="checkbox"/> |
| 40 | Is effective in meeting my job-related needs | <input type="checkbox"/> |
| 41 | Uses methods of leadership that are satisfying | <input type="checkbox"/> |
| 42 | I get the chance to do something that makes use of my abilities | <input type="checkbox"/> |
| 43 | Gets me to do more than I expected to do | <input type="checkbox"/> |
| 44 | Is effective in representing me to higher authority | <input type="checkbox"/> |
| 45 | Works with me in a satisfactory way | <input type="checkbox"/> |
| 46 | Am satisfied with the way the company policies are put into practice | <input type="checkbox"/> |
| 47 | Heightens my desire to succeed | <input type="checkbox"/> |
| 48 | Is effective in meeting organizational requirements | <input type="checkbox"/> |
| 49 | Increases my willingness to try harder | <input type="checkbox"/> |
| 50 | Leads a group that is effective | <input type="checkbox"/> |
-

Appendix 3: Reliability Statistics

Reliability Statistics for Individualized Influence Behaviour

Reliability OP

Reliability Statistics

Cronbach's Alpha	N of Items
.866	5

Reliability TFL

Reliability Statistics

Cronbach's Alpha	N of Items
.971	20

Reliability TCL

Reliability Statistics

Cronbach's Alpha	N of Items
.526	12

Reliability TC

Reliability Statistics

Cronbach's Alpha	N of Items
.923	16

Reliability TE

Reliability Statistics

Cronbach's Alpha	N of Items
.839	5

Reliability TRST

Reliability Statistics

Cronbach's Alpha	N of Items
.869	6

Reliability CRT

Reliability Statistics

Cronbach's Alpha	N of Items
.570	3