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The influence of transformational leadership on individual and team innovativeness in the hospital sector in the United Arab Emirates.

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Abstract

Healthcare organisations assume best practice as they implement and monitor the latest clinical evidence available. However, this approach can result in rapid increase in costs in order to stay up to date with state-of-the-art developments, inflicting budget constraints that work at the expenses of soft people management issues. This can render attempts to apply simple healthcare innovations difficult. Past literature suggested that leadership plays an important role in individual and team innovation. In this project, I draw on the idea that transformational leadership is capable of encouraging social interactions within a team and thereby fosters individual and team innovativeness. I set to investigate the role of knowledge sharing and team reflexivity in explaining how transformational leadership encourages innovativeness. Moreover, ample evidence suggests that new knowledge increases innovativeness. By applying this logic, should we expect individuals and teams deficient in new knowledge acquisition opportunities not to be innovative? Would followers socially interact differently in this case? Also, would transformational leaders be able to counteract knowledge deficiency in order to drive innovativeness? The gap in the literature this study attempt to satisfy is whether under transformational leadership, different social interaction mechanisms are triggered in reaction to different levels of external knowledge acquisition in order to drive innovativeness.

This study provide evidence that under conditions of fewer new knowledge acquisition opportunities, the emphasis on the team leader as the main driver of team innovativeness increases. On the other hand, where new knowledge acquisition opportunities are abundant, transformational leadership influence on teams innovativeness will increasingly be mediated through team reflexivity levels. The study result is discussed using two faces of transformational leadership framework (Kark and Shamir 2002; Kark et al., 2003). These findings are stronger at the team level than the individual level where the study data did not generate statistically significant associations.

1. Introduction

Professor Joseph Schumpeter (1939) described the importance of innovations to economic development in the early 20th century. He reflected on novelties (innovations) as the disruptive force to regular circular patterns of economics and stressed on the important role of the innovative entrepreneur (later on replaced by research and development departments) of industrial firms as an agent of such disruption. In the present day, economists continue to identify knowledge, innovation and entrepreneurship as the strong force propelling economic dynamics (Hanusch and Pyka, 2007; Schumpeter, 1939). In today's fast paced advancement of technological innovation in dynamic markets, it is vital for organisations to be abreast of the latest developments in order to gain competitive advantage. Organisations would be able to find a position at the frontline of knowledge, or even, become the leading producers of knowledge and innovation through the innovativeness and efficient productivity of their employee.

> "*As organizations seek to harness the ideas and suggestions of their employees, it is axiomatic that the process of idea generation and implementation has become a source of distinct competitive advantage*" (Anderson et al., 2014 - p.1298).

Educators, parents, employers, and policy makers also put a lot of value on promoting creativity in the hope that it will address the countless problems facing our societies (Hennessey and Amabile, 2010). Similarly, there is a general agreement among scholars that innovation is a critical determinant for organisational performance, success, and survival. Creativity and Innovation management has received much attention from scholars in various fields, including

management psychology, social psychology, applied psychology, and multidisciplinary psychology fields. The number of publications containing the key words innovation/creativity in the topic has increased exponentially over recent years; reaching as high as 6000 articles in 2008-09 (Anderson et al., 2014).

Until recently, the stream of leadership research has been developing independently from the stream of creativity and innovativeness research. On the one hand, the vast majority of creativity literature has given little attention to leadership as a creative process. This was highlighted in Hennessey and Amabile's (2010) survey where creativity was considered by many scholars as a cognitive process that is further constructed through social forces (see for example Amabile, 2012; Mumford et al., 2002; West, 2002, Woodman et al., 1993; also see Anderson et al., 2014 for a full review). On the other hand, leadership is consistently portrayed as the "*process of achieving goals though the exercise of influence on others*" (Rickards, 2015 - p.282), where creativity is considered an outcome of this influence. The emphasis on the leader's ability to facilitate the creativity of others (Parnes, 1992) is carried out through stimulating the creative individual's intrinsic and extrinsic motivation (Amabile, 2012), and/or integrating group knowledge diversity and skills (West, 2002). What is noticeable is that the vast majority of contemporary leadership theories had given little attention to the concept of creativity as a leadership process (see a comprehensive review by Dinh et al., 2014). Therefore, more research is needed to understand the dynamics of leadership influence on subordinates at individual and group levels and whether creativity is a process or an outcome of such dynamics.

Empirical research of leadership influence on workplace creativity and innovativeness was carried out mainly at C-level management and looking at organizational creativity performance (see for example Gumusluoglu and Ilsev, 2009; García-Morales et al., 2012; García-Morales et al., 2008). A substantial number of researches also investigated the direct leadership influence

on enticing immediate followers' creative talents (Sanders and Shipton, 2012; Gong et al., 2009; Bednall et al., In Prep; Sheehan 2016; Carmeli et al., 2013; Zhang and Bartol 2010). However, fewer studies extended the leadership-creativity nexus to the team level with goal to "*engage employee imagination to define and guide a group towards a novel goal*" (Puccio et al., 2011). The number of team level empirical research projects that focus on team dynamics involved in mediating leaders' influence on group creativity is only a recent trend (see for example Zhang et al., 2011; Sanders and Shipton, 2012).

1.1.Aims and objectives

Many factors can influence individuals' and teams' innovativeness, for example the psychology of the innovator (the individual), helpful innovative climate (the work team), and organisational support of innovation (the organisation overall) (Hennessey and Amabile, 2010). Over the past 30-40 years, considerable research looking at predictors of innovation has been conducted: the outcome of many such studies indicated that management and leadership could very well be a significant influencer of the innovativeness process (Hülsheger et al., 2009; Martin, 2012; Anderson et al., 2014). On the whole, professionals described the most effective leader they ever worked with as one that goes beyond the exchange of reward for effort, and corrective action for lack of it (Avolio and Bass 2004b). Favourable leaders' behaviours as perceived by subordinates are likely to motivate and inspire individuals to perform creatively at a higher level (Amabile and Khaire, 2008). As such, transformational leadership has particularly drawn the attention of considerable innovation research (Wang et al., 2011; Hülsheger et al., 2009, see section 2.3) where the ultimate leader is described as *"inspirational, intellectually stimulating, challenging, visionary, development oriented, and determined to maximize performance"* (Avolio and Bass, 2004b - p.4). Moreover, leaders are likely to create an environment either conducive or obstructive to the overall collective creativity processing of the team (Hargadon and Bechky, 2006).

By instilling vision and trust in the work environment they encourage team members to be involved in positive team level relationships, to actively participate in open discussions, and to exchange ideas for the benefit of learning and better error evaluation (Schippers et al., 2008; Hirst et al., 2004; Hirst and Mann, 2004; Somech, 2006).

Early scholars referred to '*situational variables*' that may complement or antagonise the likelihood of leadership effects on follower's outcomes; however, they did not launch the formal search for possible moderators until recently (se for example, Bass, 1985; Pawar and Eastman, 1997; Pettigrew, 1988). Early studies on leadership influence on followers' work outcomes (such as innovativeness) were oversimplified, because it did not account for the effect of mediators, that translate leadership intentions, or moderators, that can augment or attenuate the outcome (Wang et al., 2011).

This research supports the search for mediators and moderators of leadership influences on workplace innovativeness at both the individual and the team level. Given that this research project is the first of its kind in the context of the healthcare sector in the UAE, it is useful to start with the basic research questions:

- Research question 1: To what extent does an employee's perception of the transformational leadership behaviours of his/her immediate manager influence their own innovativeness?

- Research questions 2: To what extent do team members' collective perception of the transformational leadership behaviours of their immediate manager influence team innovativeness?

Further, I will attempt to discuss and provide an argument for the following research questions

- Research question 3: What explains the relationship between immediate manager's behaviours and the extent of individual subordinates' innovativeness?

- Research question 4: What explains the relationship between team leaders' perceived transformational leadership style and team innovativeness?

- Research question 5: Does the effect of transformational leadership on team innovativeness become stronger (or weaker) under certain circumstances, e.g., high level of new knowledge acquisition?

1.2. The Healthcare Sector

This research is of particular importance to the healthcare sector. Globally the healthcare sector is often confronted, one way or another, with a similar dilemma of offering a high-quality service that reflects the latest scientific development but is limited by the available finite resources (Arah et al., 2003). Therefore, it is common for healthcare management to place emphasis on sophisticated technological and medical solutions at the expense of soft people management issues (see for example, Wylie, 2009; Arah et al., 2003; Vestal and Massey,1994). For instance, human resource management is somewhat a low priority in many healthcare organisations (Harris et al., 2007). Khatri and colleagues (2006) suggest that this may be due to the clinical rather than management proficiency of top managers, where clinicians and specialist medical staff traditionally led healthcare organisations, dominating matters outside their areas of expertise. They reasoned that as management move from a control-based to commitment-based approach, there would be better quality of care and less medical errors (Khatri et al., 2006). In fact, previous research on high performance work practices linked lower patient mortality rates in hospitals to diverse sets of human resource practices, including training, performance appraisal, and teamwork (McAlearney et al., 2011; West, Guthrie et al., 2006; West et al., 2002). In Addition, investing in training and educational activities and adopting evidence-based practices could counter the effect of the fast-changing dynamics of health knowledge, such as knowledge erosion (Richardson 2001, Cooke 2002).

Management support is evidently a vital requirement for promoting creativity and innovativeness in the workplace. In particular, transformational leadership attracted the attention of a large number of scholars because it describes how leaders' charismatic, inspirational and intellectual abilities encourages communication; organisational learning and knowledge creation. Transformational leaders' commitment to organisational goals drive them to seek the best possible performance by encouraging

knowledge dissemination and motivating their followers to be high achievers, hence advocating an innovative culture (Bass and Avolio, 2000). Developing an innovative culture within healthcare organizations, where teamwork designs are popular (Blancett and Flarey, 1995), can be a challenge due to the inefficient communication of vital information across clinical sites and units (Safran et al., 2006; Campbell et al., 2010). Moreover, routine work practices as well as social boundaries between differently ranked professionals (doctors/nurses/technicians) play a role in inhibiting the diffusion of innovations (Scott and Bruce, 1994; Ferlie et al., 2005). A number of researchers highlighted the important role healthcare middle managers play in bridging the information gap due to their positioning that allows them to influence their superiors as well as subordinates (Birken, Lee et al., 2012; Floyd and Wooldridge, 1997; King and Zeithaml, 2001). As the role of middle managers in overseeing team initiatives increases, so does the important role they play in innovation implementation (Birken, Lee et al., 2012; Bourne and Walker, 2005).

West and Farr (1990) defined innovation as "*the intentional introduction and application within a job, work team or organization of ideas, processes, products or procedures which are new to that job, work team or organization and which are designed to benefit the job, the work team or the organization*" (p.9). More specifically, healthcare innovations fall into three open categories: an innovation that changes the way "*consumers buy and use healthcare*"; "*uses technology to develop new products or treatments or otherwise improve care*"; or "*generates new business models*" (Herzlinger, 2006). Thakur, Hsu et al., (2012) viewed innovations within healthcare as "*those changes that help healthcare practitioners focus on the patient, by helping healthcare professionals work smarter, faster, better and more cost effectively*" (p.564).

The intricate organisational changes needed for initiative implementation renders attempts to apply simple healthcare innovations difficult (Alexander, 2006). Innovation in healthcare is complex due to the number of organisational members involved (Klein and Sorra, 1996; Mantzana and

Themistocleous, 2006; Kannampallil et al., 2011) and the degree of "*interrelatedness of system components ... the degree and number of relationships between the components*" (Kannampallil et al., 2011). They are subject to Herzlinger's "*six forces that can drive innovation - or kill it"* in healthcare: *"Players", "Funding", "Policy", "Technology", "Customers" and "Accountability*" (Herzlinger, 2006 - p.61). The complex nature of healthcare innovation requires hospitals to tap knowledge from internal as well as external sources and form flexible "*innovation chains*" involving several stakeholders that change over time (Dias and Escoval, 2012). Traditional collaborations between internal organisational members (senior management, supervisors, colleagues, subordinates) as well as external ones (patients, payers, and suppliers), and non-traditional collaborations between hospitals and other health services, universities and users are seen as drivers of innovation (Thakur et al., 2012, Dias and Escoval 2012). Birken et al. (2012) reiterated the importance of top healthcare management commitment and physicians' acceptance of initiatives in innovation implementation.

Since this research setting is a government-funded facility, this might bring about some elements of the public sector in terms of values, such as honesty, fairness, and equity; as compared to the economic values of the corporate world, such as cost control, and goal orientation (Posner and Schmidt 1996). Ferlie et al. (2012) concluded their critical review of generic management and health-related literature with the observation that "*the generic management literature is underpinned by the assumption that organisations are firms seeking competitive advantage*" (p.1302), when in fact healthcare organisations are more like "*Quasi-firms*" (p.1302) positioned in between private and public sectors. Healthcare organisations are different from private ones in terms of market, incentive and moral value. The resource-based view of the firm dictates that "*each organisation possesses a different profile of tangible and intangible resources and capabilities, and these differences account for variations in organisations' competitive positions and their performance*" (Easterby-Smith and Prieto, 2008 - p.236). It originated from streams of research in sectors unrelated to healthcare, namely industrial economics and strategic

management, which focus primarily on productivity, performance, and competitive advantage (Teece et al., 1997). Whilst the resource-based view of the firm is well developed in management literature, it is largely missing from healthcare literature (Ferlie et al., 2012). Consequently, applying it to healthcare organisations could potentially produce value by considering knowledge as an asset (Ferlie et al., 2012), with tacit knowledge securing competitiveness and technological innovation. Since healthcare organisations are affected by the fast-changing dynamics of health knowledge (Richardson, 2001), they too need to ensure that they have the "*ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments*" (Teece et al., 1997 - p.516). Knowledge sharing is emphasised more in the private sector for the sake of gaining competitive advantage through maximizing their abilities to meet customer's changing needs (Argote and Paul 2000). Kim and Lee (2006) assert that, "*public managers face more organizational constraints on their ability to improve employee knowledge-sharing capabilities*" (p.377) than private sector managers. A comparative empirical study in the Cambodian public sector found that government organisations demonstrated less knowledge sharing and lower performance than non-government organisations (Vong et al., 2016). Typically, in the public sector, knowledge is shared randomly or on a need to know basis (Sibbald and Kothari 2015; Cong et al., 2007). I join Herzlinger (2006), Kannampallil et al. (2011), and Ferlie et al. (2012) in questioning the applicability of general management studies in healthcare settings because, by and large, general management studies focus on financial profit-oriented organisations (service and manufacturing sectors), as opposed to the not-for-profit, quasi-public, and complex healthcare organisations.

Under ideal circumstances, innovativeness in healthcare is encouraged in the hope that it would ultimately benefit both the patient and physician cost effectively (Thakur et al., 2012). Whilst the role of senior management in stating a clear vision in order to drive organisational innovations is an obvious requirement, what is more crucial are the soft skills of middle managers (Pop, 2014) who relay this

vision to their subordinates (Viitanen and Konu, 2009). Since teams dominate healthcare organisations (Blancett and Flarey, 1995), it is important to consider the influence of middle managers who could directly impact their subordinates' work in terms of creativity and innovativeness. However, this is subject to employees' perception and interpretation of their supervisors' behaviour (Mumford et al., 2002). This thesis attempts to advance our understanding of how middle managers can navigate their subordinates individually or collectively to be more innovative.

1.2.1. Relevant Empirical Studies in Healthcare

Many theories of innovation and empirical studies confirmed the leadership role in encouraging innovativeness at team and individual levels (see for example: Wang et al., 2011; Sheehan, 2016, Hunter et al., 2007; Carmeli et al., 2013; Zhang et al., 2011; Zhang and Bartol, 2010; Bednall et al., In prep; García-Morales et al., 2008; Lin, 2007b). Two particularly relevant studies to this project are Sanders and Shipton (2012) and Somech (2006), both studies enrolled several members of health teams and their immediate leaders; they investigated the role played by the immediate (middle) manager in enhancing individual or team innovativeness. The former study was conducted in the not-for-profit private healthcare sector of the Netherlands, where it provided evidence for the positive link between transformational leadership and employee innovative behaviour mediated by team cohesion and learning. The latter study, was conducted in a national health service, providing evidence for the link between participative/directive leadership coupled with team reflection and team innovation.

Individual Level

At the individual level, a study by Sanders and Shipton (2012) found that "*transformational leadership is positively related to a learning route and is related to a cohesive team, resulting in innovative behaviour*" (p.95). They argued that the learning route could be seeded by the team leader to form a "*community of learning*". The term "*community of learning*" is borrowed from the literature

on "*community of practice"*. As community of practice evolves, so does group cohesiveness whereby members of the same community informally engage, bond and involve themselves in knowledge sharing and learning activities that enable the dissemination of ideas, and progress in producing and supporting new ideas that initiate change to the existing status quo (Wenger and Snyder 2000). In cohesive groups, team members will benefit from the psychologically safe environment created by the transformational leader, allowing for effective social interaction with colleagues, to discuss ideas and share knowledge (Reagans and McEvily 2003; Edmondson, 1999). This will increase the likelihood that employees will behave innovatively. I followed a similar logic in this study, with the assumption that the main purpose of team cohesiveness in relation to the outcome, i.e., employee innovative behaviour, is the increased knowledge sharing behaviours among team members (Reagans and McEvily, 2003).

Therefore, in this study the relationship between transformational leadership on employee innovative behaviour mediated by knowledge sharing was subjected to the test.

Team Level

Group cohesion and team reflexivity are considered to be elements of positive team members' interactions and group processes (West et al., 1998). They are closely-related psychological group traits that stimulate shared understanding and attitudes (Cohen and Bailey 1997; Schippers et al., 2013), which in turn, mediate team performance by coordinating group efforts, knowledge and skills (Hackman, 1987; Antoni and Hertel, 2009; and West et al., 1998). Therefore, introducing team reflection sessions, where team members are able to question, debate and analyse, could enhance team progression by aligning expertise, skills and diversity of knowledge (West, 2000). Indeed, Somech (2006) found that under a participative leadership style, functionally heterogeneous clinical team members were more successful in combining their diverse knowledge capital to produce team innovations; an effect which was mediated via team reflexivity. By encouraging team members to share their diverse expertise, all members of the team would benefit by widening their information and knowledge scope, therefore increasing the overall

team absorptive capacity (Dahlin et al., 2005; Dahlin and Weingart, 1996; Woodman et al., 1993; Cohen and Levinthal, 1990).

On one hand, external communication that the team is involved in determines its long-term team success (Ancona and Caldwell 1992), as a result of increasing overall team absorptive capacity (Martinkenaite and Breunig, 2016). On the other hand, it could lead to increased team diversity that has several inherent disadvantages, including disagreement among team members due to differences in perspectives (Pelled et al., 1999), increased costs, lower group cohesion, and increased stress levels (Swamidass and Aldridge, 1996). Effective team leadership that can successfully manage disagreements among team members, would ultimately have a positive influence on team innovativeness (Lovelace et al., 2001), by improving group cohesion and elevating the overall knowledge of the team through constructive knowledge sharing (Simons et al., 1999). Accordingly, I would expect team reflexivity to be an effective mechanism in consolidating knowledge diversity gained by team members from external sources.

In this study, I attempt to contribute to the existing literature; an empirical examination of the mechanism through which the influence of transformational leadership, coupled with knowledge acquisition from external sources, leads to team innovativeness through effective team reflexivity.

1.3.The Research Context

1.3.1. The Unique Story of the United Arab Emirates (UAE)

Since creativity and innovation theories have been developed and tested mostly in western countries, confirmatory research in other cultures is advocated. "*Research identifying what contextual conditions would be most relevant to individuals in different cultures is warranted*" (Shalley et al., 2004 - p.948). Although this is not a cultural dimension study (Hofstede et al., 2010), its results could indicate the applicability of western led theories to non-western contexts. This project is unique because currently there are no similar research projects conducted in the UAE.

The UAE is an oil producing country situated in the eastern part of the Arabian Peninsula, in the Middle East. It is a relatively young country that has developed economically at "*breath-taking pace*" over the past 45+ years (Seznec, 2009 - p.189), from predominantly small fishing and agricultural villages to highly ranked cities (Seznec, 2009; Hareb, 2013). Very early on, the government had set development plans that resulted in state of the art infrastructure: roads, educational and research institutes, hospitals, harbours and airports, as well as dramatically increased literacy and life expectancy of the local population. The economic development of the UAE is well documented in the "*Global Competitiveness Report 2015-2016*" (Schwab and Sala-i-Martín, 2015), achieving a global rank of 17 out of 140 economies. "*Health and primary education*" were the highlights of the initial plans of the UAE at its inception in 1971 and by 2015 it was ranked 48 out of 140 economies signalling huge development as well as room for improvement (see Figure 1) (Schwab and Sala-i-Martín, 2015). Overall, the indicators of the "*Global Competitiveness Report 2015-2016*" point to vast development of the economy of the UAE reaching the stage of an "*Innovation Driven*" economy.

There are currently ambitious plans to turn the local economy into a knowledge-based economy in order to reduce the weight of dependence on foreign technology and to join other producers of knowledge (see Al Maktoum, 2011; Abu Dhabi Economic Vision 2030). In pursuit of this goal, some

of the most prestigious universities in the world have opened branch campuses in the UAE. For example, in the capital Emirate of Abu-Dhabi the Massachusetts Institute of Technology (MIT) became the primary partner and stakeholder of Masdar Institute. INSEAD Business School, Sorbonne University, and New York University have also established their own campuses In Dubai, the "*Knowledge Village*" (Dubai Knowledge Village) is home to 15 major foreign universities and more than 200 technical schools.

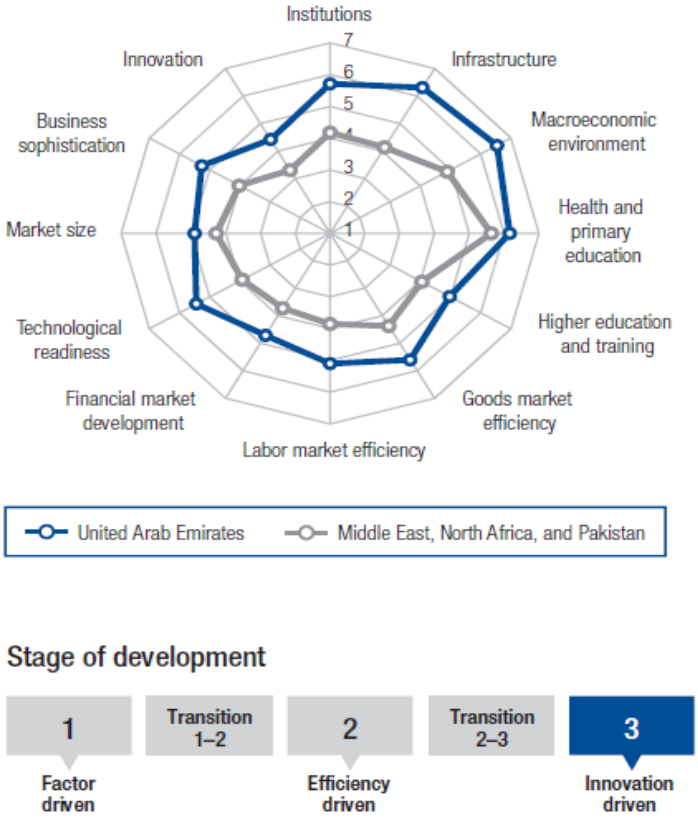


Figure 1, Stages of economic development of the UAE. Source, Global Competitiveness Report (2015-2016), p.356.

According to the "*Global Innovation Index 2016"*, the UAE innovation input sub-index is ranked at position 25 out of 128 economies, thanks to the strong indicators of infrastructure (ranked 23rd), institutions (ranked 22nd), and business sophistication (ranked 24th). However, despite the heavy investment, the innovation output sub-index is staggeringly behind at position 75, owing mainly to the poor overall knowledge and technology outputs (ranked 86th); and creative outputs (ranked 70th). Overall, the UAE has achieved a disappointing innovation efficiency ratio, ranked 117th (Dutta et al., 2015), which is indicative of the complicated web of processes and underlying forces at play between "*Innovation Input*" and "*Innovation Output*".

Countless factors contribute to the evolution of a healthy innovation ecosystem that will ultimately result in high quality innovation efficiency. "*How best to create such an organic innovation system poses an interesting dilemma for governments and their role in future innovation policy models*" (Dutta et al., 2016 - p.xxv). Wang et al. (2016) conceptualised a time lag of several years between innovation input and output in China's national innovation system. This time lag was a result of the vast "*network of interacting policies, institutions, and organizations whose innovative performance depends not only on how the individual component part performs in isolation, but on the quality of interaction and cooperation between the various elements, which is subject to dynamic processes*" (p.2).

I am encouraged to carry out this research in support of the UAE' mission as announced in October 2014, "*to make the U.A.E. among the most innovative nations in the world within seven years*" (WAM, 2014).

1.3.2. Transformational-Transactional Leadership Paradigm.

Scholars advocating the transformational leadership theory have highlighted inspiring innovativeness as a basic leadership function (Conger, 1999; Bass, 1985; Tichy and Ulrich, 1984; Basu, and Green, 1997). Bass (1998) suggested that "*Transformational leadership styles build on the transactional base in contributing to the extra effort and performance of followers*" (p.5). Therefore, a true transformational leader displays both transformational and transactional leadership behaviours (Bass, 1985; Bass and Avolio, 1993). More recently, Wang et al. (2011) made a distinction between task and contextual performance. They suggested that transformational and transactional leadership interact differently according to the performance type: Task performance refers to work behaviour expectations as specified in formal job descriptions (Borman and Motowidlo, 1993; Harrison et al., 2006). In this case, highly transactional leaders would clearly specify job expectations and rewards for achieving well laid out targets (Bass, 1985). Followers will achieve higher task performance through being extrinsically motivated (Amabile, 2012). Simultaneously, highly transformational leaders would help their followers to achieve their job requirements by enabling and intrinsically motivating them to fulfil their job obligations in a number of ways. First, by coaching and mentoring followers, supporting them and providing them with the necessary tools to accomplish their job requirements (e.g., Howell and Hall-Merenda, 1999). Second, they instigate a promising vision of the future causing followers to view their job as significantly meaningful thus elevating their intrinsic motivation potential (Bono and Judge, 2003; Zhu et al., 2009), in addition to their self-efficacy (Bandura, 1986), and a can-do attitude (Shamir et al., 1993). Wang and colleagues (2011) conducted a meta-analysis and concluded that both transformational and transactional leadership styles are important in encouraging task performance because they work through different motivational mechanisms. Contextual performance, on the other hand, refers to intrinsically motivated work behaviour that goes beyond the expected roles specified in formal job descriptions. Extra role performance and organisational citizenship behaviour are examples

of contextual performance (Wang et al., 2011). Highly transformational leaders serve as role models that often prioritise the collective good above their own interests (Podsakoff et al., 1990; van Knippenberg and van Knippenberg, 2005). They work at elevating their followers' social identification, increasing their intrinsic motivation level, and inspiring them to work for the good of the group (Bass, 1985; Amabile, 2012). An intrinsically motivated follower is likely to view their work environment as meaningful and in line with their self-concept, and consequently would internalise the goals of the collective. Therefore, they would voluntarily engage in assisting colleagues in need of help (altruistic behaviours), and promoting organisational public images (Bass and Avolio, 1993; Kouzes and Posner, 2002; Pillai et al., 1999; Sosik, 2005). Wang and colleagues (2011) in their meta-analysis concluded that in the case of contextual performance "*transformational leadership had an augmentation effect over transactional leadership (contingent reward) in predicting individual-level contextual performance and team-level performance"*. Innovative behaviours can be considered contextual performance if it is an activity beyond the leaders' expectation of the job performance. The positive effect of transformational leadership on organisational innovation was reiterated in numerous empirical studies using different indicators for innovativeness (e.g., Scott and Bruce, 1994; Sanders and Shipton, 2012; García-Morales et al., 2012; Gumusluoglu and Ilsev, 2009; and many more). Scholars did not research the link between transactional leadership style and innovation as much as they did with transformational leadership, and what is available did show a degree of variability. For example, Dayan et al. (2009) found a positive relationship between transactional leadership and R&D product success, and Jansen et al. (2009) found a positive relationship with exploratory innovation but not under conditions of high environmental dynamism. Furthermore, Kahai et al. (2003) and Sosik et al. (1997) found that transactional leadership had a stronger effect on team creativity than transformational leadership. In their studies, a cash reward was offered to the idea generators. The idea generation behaviour in this case could be classified as a

task performance (as opposed to contextual performance) that is augmented by both transactional and transformational leadership behaviours (Wang et al., 2011).

In the healthcare sector of the UAE, innovation is not a core component expected from employees, hence it can be considered contextual performance.

1.3.3. The State of Healthcare Industry in the UAE

The rapid economic development of the UAE's economy had to be matched by importing a useful and relevant workforce from all over the globe resulting in an unusual work context. Numerous scholars called for further research of the contextual conditions created by diverse cultures in the work place, see for example: Forstenlechner (2010), Khan et al., (2010), Neal (2010), Yaghi and Yaghi (2013).

The UAE' government is continuing the effort to improve the healthcare sector by setting it as a goal in the national agenda: "*UAE Vision 2021 National Agenda aims to achieve a world-class healthcare system*" (Al Maktoum, 2011). The distinctiveness of the UAE stems from the accelerated growth and development of the population, from half a million in 1975 to over 9 million in 2015, largely due the arrival of expatriate workers (Hareb, 2013; WHO, 2016). The expanding population has driven the healthcare sector through metamorphosis, evolving from basic healthcare provision to the local population into a complex one, with the ambition of attracting medical tourism. In the same vein, the local government of the Emirate of Dubai announced its plan to "*position Dubai as a globally recognized destination for elective health and wellness treatments*" (DHA, 2016). This initiative emphasises the image of local healthcare providers as an attractive medical tourism destination, capable of competing with the rest of the world. The government set a target for health providers to achieve "*excellence in healthcare*" and expressed its commitment to support healthcare providers by "*developing and implementing plans, policies and legislations that encourage investment and improve quality in the*

healthcare sector to promote medical tourism in identified regions through collaborative efforts with stakeholders" (DHA, 2016).

Despite the government's efforts to develop the public healthcare sector, in 2010 the UAE had spent US$2 billion (equating to 25% of the total healthcare budget) to send its citizens abroad for medical treatments. This was due to the general lack of confidence in local medical facilities and expertise (WHO, 2012; Underwood, 2009). "*To attract inbound travellers, the logic goes, the UAE health system must expand its physical and human capital while also raising the actual and perceived quality of its services*" (p.9). The government of the UAE ambitious plan for the healthcare industry is placing increasing pressure on healthcare providers to advance rapidly. In other words, in order to reclaim the UAE patient population who are accustomed to seeking treatment abroad, local healthcare providers must increase their capacity and elevate their standards (Ganji, 2015). This transformation would require the innovative contribution of all current players and stakeholders in the sector. Given the above, while policy makers of the country are vocalising their support to drive this transformation, the intricate questions are: How and why would members of staff in the lower organisational hierarchy contribute their innovative ideas? Moreover, how could management at senior and middle levels encourage innovativeness? Searching through the literature, the number of studies investigating management and health leadership in this part of the world are scarce.

My aim is to expand my understanding of the innovativeness process, including constraints and challenges in the healthcare workplace in the UAE. This study could contribute to the healthcare innovativeness literature because it extends the study of innovative behaviour from a traditional research context into the healthcare context. Therefore, it can be of particular importance to the UAE's fast evolving healthcare system, whereby it may help managers of aspiring innovative hospital departments to identify critical team processing factors involved in enticing significant outcomes. It can also be of interest to the academic community.

2. Literature Review and Hypothesis.

In this section, I will be discussing our current understanding of the underlying mechanisms that drive innovativeness in the workplace, at the individual and team levels. Section 2.1 start with a review of relevant literature in the field of creativity as a precursor of innovation, emphasising the fact that creativity and innovativeness are multi-level constructs. Section 2.2 highlights the differences between the two levels relevant to this study, i.e., the individual and the team levels. Section 2.3 evaluate the different leadership styles and behaviours that could influence work place innovativeness, keeping in mind that the early leadership innovation research was somewhat over simplified. Since the early literature is shadowed with controversy; I will attempt to summarise the most logical current and past arguments and theories. Section 2.4 delves into the potential mechanisms of leadership influence on individual and team innovativeness through mediators. What is noticeable is that the influence of leadership on individual innovative behaviour seems to flow through different mechanisms from leadership influence on team innovativeness, whereby this relationship could very well be sensitive to various moderators. In this section, I discuss the past research into the mediatory influence of followers' social identity on transformational leadership outcomes. Section 2.5 review knowledge as the potential contingent (moderator) that could adjust the leadership-innovativeness link. Since knowledge seem to be processed through different social interaction mechanisms depending on the level of investigation, this study investigates the dynamics of new knowledge acquisition at individual and team levels independently by taking into account knowledge sharing between colleagues at the individual level, and team reflection among all members of the group at the team level, see sections 2.5.2 and 2.5.3. The unique point about the study is that it goes a step further by investigating whether new knowledge acquisition by team members moderates the relationship. Specifically, whether the effect of team reflection as a mediator between transformational leadership and team innovativeness, is altered in

response to varying levels of external to the team knowledge acquisition. This conditional process is explained in sections 2.5.4 and 2.5.5.

2.1.Creativity and Innovation in the Workplace

It is through the creative mind that ideas arise in an unprecedented way. In order for these ideas to be truly creative they must be "*novel and appropriate responses, products, or solutions to an open-ended task*" according to Amabile (2012, p.3), or "*novel* (and) *useful*" according to Mumford et al. (2002, p.707). Creative ideas could range from recommendations for incremental editions, to radical new product suggestions (Mumford and Gustafson, 1988). Novel ideas are the ones that are unique in relation to other ideas flowing through the organisation, and useful ideas are the ones that add value to the organisation in a direct or indirect way. Innovations are essentially ideas (new ideas or a combination of old ideas) or a new approach or scheme that changes the status quo (Amabile et al., 1996; Van and Rogers, 1988). Innovation and creativity are integral parts of the same process, where *"the creativity stage of this process refers to idea generation, and innovation refers to the subsequent stage of implementing ideas toward better procedures, practices, or products*" (Anderson et al., 2014, p1298). West and Farr (1990) defined innovation as "*the intentional introduction and application within a job, work team or organization of ideas, processes, products or procedures which are new to that job, work team or organization and which are designed to benefit the job, the work team or the organization*".

The stages of innovation start with problem recognition and the proposition of possible solutions and ideas that can be new or adopted. Once an idea starts to mature the next stage of innovation begins, where an innovative individual will promote his/her ideas in order to build a coalition of enthusiasts who will help in gaining as much financial and moral support as possible. At the last stage, the innovator

will actually work on making the idea a reality by building "*a prototype or model of the innovation ... that can be touched or experienced, that can now be diffused, mass-produced, turned to productive use, or institutionalized*" (Kanter, 1988 - p.191). As such, for innovation to be successful, the innovative individual should exhibit a wide variety of specific behaviours and it should be noted that individuals vary in how many innovative behaviours they exhibit (Scott and Bruce, 1994).

There is growing evidence that employee creativity and innovative behaviour can positively contribute to favourable organisational and economic outcomes, such as organisational innovation, effectiveness, and survival (Amabile et al., 1996; Nonaka, 1991). In fact, employee innovativeness is considered as one of the most important resources that organisations can draw upon (West and Farr 1990). Increasingly, organisations depend on its employees to manage difficult and unpredictable challenges produced by the modern business environment (Shalley et al., 2004; Janssen, 2000).

Hennessey, Amabile (2010) and Shalley et al. (2004) summarised a large number of empirical studies that have examined the personal and contextual factors that enhance or restrict an individuals' creativity. Factors involved in creativity at an individual level include affect, personality, cognitive style, and individual differences in intelligence. Amabile's work on "*Componential Theory of Creativity*" conceptualised three creativity components necessary in any creative situation: The first component is "C*reativity-relevant process*" (p.4) (Hennessey and Amabile, 2010), which takes into consideration personality characteristics such as independence, self-discipline, risk-taking inclination, perseverance in the face of ambiguity and frustration, and a relative indifference towards social approval. The second component is "*Domain-relevant skills*" (p.3) which include intellectual assets such as knowledge, intelligence, talent, technical skills, and expertise. The individual can draw on these assets during the creative process to produce appropriate responses. The third component is "*Task motivation*" (p.4), which is the person's perception of his/her reason for undertaking the task, coupled with his/her

baseline attitude towards a task; and so, motivation is what determines the difference between a 'can do' and 'will do' attitude (Amabile, 2012).

Hunter et al. (2007) investigated the notion that the interaction of the person and the situation affected a person's creativity and confirmed earlier theories by Woodman and colleagues (Woodman and Schoenfeldt, 1989; Woodman et al., 1993). They conducted a meta-analysis examining 42 studies in which they assessed the relationships between work climate dimensions, such as support and autonomy, and various indices of creative performance and found them to be "*effective predictors of creative performance across criteria, samples, and settings*" (p.69). In particular, these dimensions were particularly effective predictors of creative performance in highly challenging markets. Woodman et al. (1993) developed the theory of "*interactional framework for organizational creativity*" which postulate that *"individual creativity is a function of antecedent conditions (e.g., past reinforcement history, biographical variables), cognitive style and ability (e.g., divergent thinking, ideational fluency), personality factors (e.g., self-esteem, locus of control), relevant knowledge, motivation, social influences (e.g., social facilitation, social rewards), and contextual influences (e.g., physical environment, task and time constraints*)" (p.294). According to this theory, creativity is a "*complex product of a person's behavior in a given situation*" (p.294), whereby the creative situation is defined "*as the sum total of social and environmental (contextual) influences on creative behavior*" (p.310). Group/team creativity is influenced by its group composition, characteristics, processes, and other contextual factors stemming from the organisation. Organisational creativity is a product of its group/teams' creativities that are in turn influenced by individuals' creative behaviours as well as contextual influences arising from the environment as a whole (Woodman and Schoenfeldt, 1989; Woodman et al., 1993). Therefore, social and contextual circumstances do not affect the individual only, but also the whole group/team that this individual belongs to.

In both the "*Componential Theory of Creativity*" (Amabile, 2012) and the "*Interactionist Approach*" (Woodman et al., 1993), a supportive environment is vital for creativity and innovation. In particular, leadership has been identified as a critical precursor of innovation given leaders' important role in motivating teams to coordinate the actions of its members in order to operate effectively.

2.2.Levels of Analysis:

In an attempt to understand all facets of creativity, Hennessey and Amabile (2010) asked 21 of the most prominent researchers in the field of creativity to recommend what they consider to be "*must have*" references. It is their impression that researchers working in one field are not up to date with advances made in another field and that most often research is done within one level of analysis (individual, group, or organisational level) and within one discipline at a time (see Figure 2).

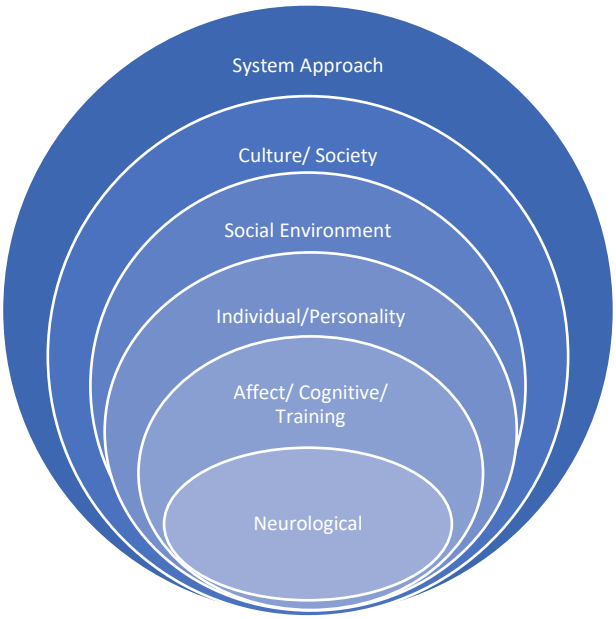


Figure 2, "*The increasingly large concentric circles in this simplified schematic represent the major levels at which creativity forces operate*". Source (Hennessey and Amabile, 2010).

Yammarino and Bass (1991) highlighted the need to conduct leadership studies with proper consideration as to whether the behaviour and consequence of an individual is determined by their "*personal characteristics (e.g., traits, dispositions, styles), situational factors (e.g., contexts, constraints, interactions among people), or some combination thereof*" (p.121). The work of Yammarino and colleagues explained the different levels of analysis focusing first on individuals as independent human beings different from one another; then on the dyadic interaction between two persons that encompass their interpersonal relationships; followed by the interactions within teams and groups; and finally, the larger collectives of groups such as organisations (Yammarino et al., 2005).

> "*When a single innovative idea is expressed to others, it proliferates into multiple ideas because people have diverse frames of reference, or interpretive schemas, that filter their perceptions*" (Ven, 1986 - p.597).

The success of an idea requires a person or a team to develop it further beyond its inception stage (West and Farr 1990; Amabile et al., 1996). Organisations that are team based are reliant on teams to originate creative ideas and realise innovative solutions, even if these ideas were the brainchild of an individual employee. Anderson and colleagues discussed the importance of three categories of factors in work group innovativeness: "*team structure and composition; team climate and processes; and leadership style*" (Anderson et al., 2014).

Climate influences team's creativity indirectly through its effect on individual's creativity, consequently, team creativity is described as an aggregation of people and time processes whereby the weighted average creativity of each team member can explain the overall team creativity across time (Pirola-Merlo and Mann, 2004). Likewise, the interactional framework for organisational creativity clearly sets out that creativity is a result of the person's interaction with the situation; where social and contextual circumstances affect not only the individual but also the whole group/team where this individual belongs and yields different levels of creative situations (Woodman and Schoenfeldt, 1989). West (1990) devised a four-factor model of innovation; arguing that four climate factors are predictors of innovation: vision, participative safety; task orientation; and support for innovation. Other contextual factors such as leadership support, autonomy, and challenging tasks were also particularly effective predictors of creative performance in highly challenging markets (Hunter and Bedell et al., 2007).

In this study, I will be considering leadership influence on innovativeness at the individual and the team level.

In the next section, I review the literature on leadership behaviours and their role in influencing employee and team innovativeness.

2.3.Leadership

The innovative behaviour research has placed considerable emphasis on leadership in particular (e.g. Shin and Zhou, 2003; Scott and Bruce, 1994; Kahai et al., 2003; Jung et al., 2003; Jaussi and Dionne, 2003). Frequently, innovation studies have focused on two types of leadership styles: transformational and transactional leadership (see for example, Wang, et al., 2011; Scott and Bruce, 1994; Sanders and Shipton, 2012; Kahai et al., 2003; García-Morales et al., 2012; Gumusluoglu and Ilsev, 2009; Dayan et al., 2009; Jansen et al., 2009; and many more). "*Transformational leaders are proactive, raise follower awareness for transcendent collective interests, and help followers achieve extraordinary goals*" (p.264), while transactional leaders follow "*an exchange process based on the fulfillment of contractual obligations and is typically represented as setting objectives and monitoring and controlling outcomes*" (Antonakis et al., 2003 - p.265).

2.3.1. Transformational Leadership:

A transformational leader is one who has charismatic, inspirational and intellectual abilities. With these abilities, the leader is able to encourage communication; organisational learning and knowledge creation. Such a leader would take responsibility for his/her employees, promote their professional development, encourage their creativity, and inspire higher work values by creating a shared mission, and instilling a sense of purpose and meaning into followers' roles. Transformational leaders are committed to organisational goals and seek the best possible performance through motivating and inspiring their followers to achieve high expectations and through encouraging knowledge dissemination and an innovative culture by organisational members (Bass and Avolio, 2000).

There are four conceptual components to transformational leadership (Bass, 2006): The first component is "*Idealized Influence*" where followers seek to identify with the leader and match him or

her. Followers admire, trust, respect, and are loyal to their charismatic leader and consider them as gifted with extraordinary capabilities, persistence, and determination. Greatly influential leaders are consistent rather than arbitrary and are willing to take risks, since they can be counted upon to do the right thing, and continuously demonstrate high ethical and moral standards. The second component is "*Inspirational Motivation*". In this instance, transformational leaders are capable of heightening team spirit by inspiring optimism and enthusiasm through their emotional, non-intellectual, qualities. They clearly envision attractive future prospects and communicate goals, shared vision, challenges, and expectations that followers would want to meet. Such leaders are often successful at developing self-confident, action-oriented followers. Idealised influence and inspirational motivation are components of a combined single factor of charismatic leadership, originally described in the charismatic leadership theory, see House (1976) and Conger (1999). The third component is "*Individualized Consideration*". Here, transformational leaders demonstrate acceptance of individual differences and pay personalised consideration to the growth and progression needs of each follower. This type of leader will act as a mentor to help followers develop their potential by encouraging a two-way communication exchange. They will often delegate and monitor tasks as a way of developing followers and assessing their needs for additional support. Ideally, followers do not feel they are being controlled. The fourth and last component is "*Intellectual Stimulation*", where transformational leaders encourage their followers to question assumptions, think of old situations in new unprecedented ways, and reframe problems. Such leaders would solicit their followers for new ideas and creative solutions to problems and involve them in the process of refining and implementing suggested solutions. Under these conditions, creativity and innovativeness are encouraged and there is no place for public criticism of mistakes since members are encouraged to try new approaches that may be different from the leader's way of doing things.

Transformational leadership advocates both directive and participative leadership. Two transformational leadership attributes have directive impact on followers: Inspirational motivation and

idealised influence. While individualised consideration indicates a leader's acceptance of follower's uniqueness and independence; intellectual stimulation implies participative and directive attributes through challenging subordinates, where the leader would stimulate his/her followers and at the same time solicit them to volunteer their creative ideas (Bass, 2006).

2.3.2. Transactional leadership:

Unlike transformational leadership, the focus of transactional leadership is on establishing rewards (and/or avoidance of corrective actions) in exchange specified goals. Whilst such a management style is important to maintain the momentum of work activity, it does not have the same impact on innovation-driven activities as transformational leadership (Zhu and Akhtar, 2014). Transactional leaders tend to explicitly communicate to their subordinates the performance expectations, associated rewards in exchange for achieving goals, and disciplinary action in case of underperformance (Podsakoff et al., 1982). It also implies continuous assessment of performance; monitoring for deviations, mistakes and errors; and quickly taking corrective actions. It is expected that individuals and groups under transactional leadership will achieve expected levels of performance and will be committed and satisfied (Bass, 1985; Bycio et al., 1995; Hunt and Schuler, 1976; Podsakoff et al., 1984). There are two conceptual components to transactional leadership (Bass 2006): The first component is "*Contingency Rewards*": This behaviour involves assigning, with the follower's agreement, tasks with a promised reward offered in exchange for reasonably carrying out the assignment. This practical transaction is effective in motivating others to achieve sufficient levels of job performance. Contingency reward can be viewed as transformational when the reward is psychological, for example, expressing admiration for the work done and praising the achiever. Conversely, it can be considered transactional when the reward is a material one, such as a financial bonus (Antonakis et al., 2003; Avolio et al., 1999). The second component of transactional leadership is "*Management by Exception*", where disciplinary

action can be of an active or passive nature. Here, the leader arranges to monitor and inspect mistakes and inaccuracies of the follower's performance, and where implementation of corrective action takes place as necessary. This leadership style is generally less effective than transformational or contingency rewards, but it might be required in situations where safety takes precedence (Bass, 2006).

2.3.3. Transformational Leadership and Individual Innovativeness.

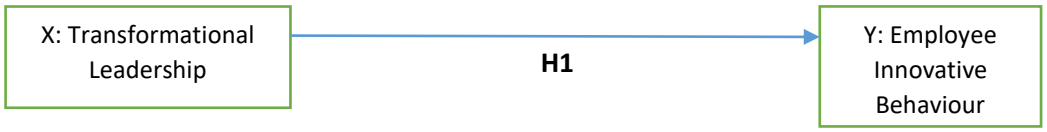
Modern environmental ambiguities and challenges of the 21st century gave rise to the change centred leadership style that was described in terms of leader's visionary qualities, creativity, action for implementation, and risk taking (Arvonen, 2009; Judge et al 2004). Amabile (2012) had developed the widely accepted componential theory of creativity, among other things, this theory provides an explanation of the mechanism whereby individuals' creativity is driven by their intrinsic and extrinsic motivation that can be vulnerable to environmental factors, i.e., it may be supported or threatened by the attitudes and behaviours of others. Ample empirical studies provided evidence that supported the notion that employee creativity is mediated through work environment (Amabile et al., 1996), these studies also emphasised the role of the supportive team leader in driving employee creativity. Much of Amabile's work was concerned with how team leaders counteract external inhibitors to employee creative behaviours through extrinsic motivation that is aligned with employee intrinsic motivation (Amabile, 1998). Charismatic leadership theory (House, 1976), and the charisma component of the subsequent transformational leadership theory (Bass and Riggio, 2013; Conger, 1999), are thought to act on raising the positive emotions and motivation of followers (Podsakoff et al., 1990; Pillai et al., 1999). Empirical evidence indicated that followers of transformational leaders are motivated to go well beyond the contractual minimum role requirements of their job descriptions (Podsakoff et al., 1990), resulting in higher levels of contextual performance (e.g., organizational citizenship, volunteering their assistance to colleagues in need, promoting organizational public image) (Bass and Avolio, 1993;

Kouzes and Posner, 2002; Pillai, Schreisheim et al., 1999; Sosik, 2005). A growing number of empirical research projects have demonstrated that innovative behaviour of employees is associated with a variety of factors, with transformational leadership being the most discussed (for example, Mumford et al., 2002; Sanders and Shipton 2012; Shalley et al., 2004; Farmer et al., 2003). Highly transformational leaders encourage "*performance beyond expectations*", they intellectually inspire their followers to challenge the status quo through encouraging divergent thinking, and enticing them to take risks, in order to suggest creative ideas and to attempt to implement them innovatively (Bass, 1985). Moreover, followers will enjoy working in a blame free and question friendly environment, i.e., where it is easy to ask questions without feeling embarrassed (Cheetham and Chivers, 2001 - p.284). These leadership qualities can prove to be useful in the intellectually highly demanding tertiary hospital workplace where critical decisions are taken throughout the working day (Birken, et al., 2012; Viitanen and Konu, 2009; Wylie, 2009). Therefore, I reached decision to focus on transformational leadership and its impact on followers' innovativeness as the current study took place in a unique context of healthcare (tertiary hospital) in the United Arab Emirates.

I commence this study by affirming the leadership influence on employee innovative behaviour.

Hypothesis 1: Transformational leadership is positively related to employee innovative behaviour (see figure 3).

Figure 3, Conceptual model in which transformational leadership influences employee innovative behaviours (H1).



2.3.4. Transformational Leadership and Team Innovativeness

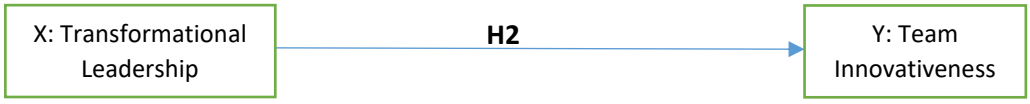
There is a consensus that most creative output in organisations is produced by two or more individuals working closely together (Paulus and Yange, 2000). Team creativity literature take into consideration contextual and team characteristics that affect the collective creativity of group/team members (Paulus et al., 2006). Empirical evidence points out the work climate factors (contextual influences) that influence the quality of internal social interaction of team members that consequently influences group creativity (Woodman et al., 1993). Factors involved in creativity at a contextual level include relationships with supervisors and colleagues, job complexity, goals, time deadlines, evaluation, rewards, and work settings (Shalley et al., 2004).

As the transformational leader's behaviours instil trust, intellectual stimulation, inspirational motivation into his/her team members (Bass 2006; Bass et al., 2003), their sense of threat will diminish, and they will have higher trust levels in their work environment. Hence, they will be encouraged to volunteer their knowledge to their team, contributing to a better collective team performance (West and Farr, 1990; Kramer, 1999; Golembiewski and McConkie 1975; Dutton, 1993; MacDuffie, 1997; Argyris, 1990). In the absence of proper leadership, negative aspects of the team processes will breed as a result of reduced psychological safety and low trust among team members (Connelly et al., 2012; Cerne et al., 2014). The resulting negative climate could hinder social interactions among team members (McDermott and O'Dell, 2001). A meta-analysis by Wang et al. (2011) concluded that the positive influence of transformational leadership was strongest at team-level performance, whilst contingency reward had a stronger influence at individual level task performance. This is in line with transformational leadership theory which states that the role of creative leader is much more than just a facilitator or supporter of the work of others (Mumford et al., 2002). Transformational leaders clearly communicate a vision and intellectually motivate their followers toward achieving this vision (Bass, 1985); by expressing their confidence in their team ability they encourage coordination and cooperation

among group members, hence increasing the level of team potency and cohesion (Bass et al. 2003; Schaubroeck et al., 2007). Transformational leaders act as a role model, inspiring followers, encouraging creative idea generation, resource provision; and they drive the vision of the organisation and its implications (Sosik et al., 1999). Highly transformational leaders stress the importance of team identity, efficacy, and potency, which encourage team members to have higher team commitment, cooperation and performance (Shamir et al., 1993; Gully et al., 2002). At the moral level, transformational leaders' care for their followers, appeal to them and influence them to care for their co-workers, hence the generated synergy among team members would increase further team performance (Klein and House 1995). Transformational leaders at the team level exert dual effects on performance. The first effect is at the individual level through their intellectual stimulation and individualised consideration that foster identification with the leader. The second is at the team level through their idealised influence and inspirational motivation that foster identification with the work group (Chun et al. 2009; Kark et al., 2003; Kark and Shamir 2002).

Hypothesis 2: Transformational leadership is positively-related to team innovativeness (see figure 4).

Figure 4, Conceptual model in which the transformational leadership influences team innovativeness (H2).



2.4.Underlying Leadership Contingencies and Mechanisms

Pieterse et al. (2010) concluded that "*empirical evidence for the roles of transformational and transactional leadership in engendering follower innovative behavior is scarce and inconsistent*" (p.610). For example, some studies found that transformational leadership positively influence innovativeness while other found negative effects (see for example, Shin and Zhou 2003, Kahai, et al. 2003; Basu and Green 1997). These inconsistent findings call for the identification of a possible moderator variable(s) upon which the relationship between leadership style and innovativeness is contingent. Wang et al. (2011) concluded their meta-analysis with the probable existence of potential moderators of the outcomes of transformational leadership "*given the non-negligible true variation across studies found*" (p.250).

Research which calls for moderators is not new, Yukl (1999) conducted a thorough evaluation of conceptual weaknesses in transformational leadership theories, stating that "*the theories of transformational leadership assume that the underlying leadership process and its outcomes are essentially the same in all situations*" (p.291). Scholars have suggested that situational variables may change or moderate the effect of transformational leadership on followers' outcomes (Bass, 1985; Pawar and Eastman, 1997; Pettigrew, 1988). A moderator may help us to understand and predict when these relationships would be positive or negative, or when certain effects will hold. A moderator is "*any variable that affects the association between two or more variables; Moderation is the effect the moderator has on the association*" (Dawson, 2014). This is often confused with the concept of a mediator variable that represents "*the generative mechanism through which the focal independent variable is able to influence the dependent variable of interest*" (p.1173), mediator which explain how or why the relationship between two other variables occur (Baron and Kenney 1986).

2.4.1. Follower's Social Identity

There is ample evidence to support the notion that transformational leadership is advantageous for employees and teams, regardless of the situation (see for example: Wang et al. 2011; Dionne et al. 2004; Judge and Piccol, 2004). Never the less, several theorists have suggested that situational variables have the potential to moderate the effects of transformational leadership on followers (Bass, 1985; Pawar and Eastman, 1997; Pettigrew, 1988). Early contingency theories of leadership suggested that leaders adjust to a situation or adjusts the situation to suite him or her-self (House, 1971; Fiedler, 1986; Hersey and Blanchard, 1972). The meta proposition of these theories is that "*leaders, to be effective, engage in behaviors that complement subordinates' environments and abilities in a manner that compensates for deficiencies and is instrumental to subordinate satisfaction and individual and work unit performance"* (House, 1996 - p.323). These early theories were limited by their inadequate consideration of the "*web of human interactions*" (Burns, 1996 - p.3) from which a socially negotiated order emerges through the acts of transformational leaders. Burns (1996) argues that the leader's role should be looked at as the initiator of change, who takes the first step to changing the state of equilibrium in the web through communicating with other actors in order to gain a positive response. However, while scholars had discussed leaders' characteristics extensively, followers' characteristics have not received as much attention (Yukl, 1999).

In order to have a better understanding to followers' characteristics, Yukle (1999) turned to social psychology theories of the self (Brewer, 1991) and questioned, "*How do personal identification, social identification, internalization, and instrumental compliance interact in determining the behavior of followers?*" (p.293). The individual self-represent a person's sense of uniqueness that is different from others. This is in contrast to the social-self that is derived from reconciliation of opposing self-concepts that are similar to, and at the same time, different from others within the social group (Brewer, 1991). Therefore, in order to understand the distinctive orientation of identity, one should take into

consideration three basic loci, that each have its own level of inclusiveness, motives and self-worth (Brewer and Gardner 1996). The first locus is the self as an individual, where the emphasis is on personal self-concept, where interpersonal comparisons is a frame of reference to serve self-interest. The second locus is the self as an interpersonal agent, where the emphasis is on relational self-concept, where reflection is the frame of reference for the benefit others. This level is based on dyadic relationships, which have its roots in the parent-child relationship, forming personalized bonds of attachment to the significant other (Prentice et al., 1994). Lastly, the third locus is the self as a group member, where the emphasis is on collective self-concept, where inter-group comparison is the frame of reference to ensure collective welfare. This level is based on an innate feature of human nature, the "*need to belong*", where collective identity is derived from impersonal bonds with a symbolic group (Prentice et al., 1994).

Each person has an identification as an individual, a partner, and group member that is dependent on the context. At each level, there are certain forces that can influence the cognitive accessibility of the relevant self-concept. For example, quality of relationships can shape relational (dyadic) self-concept, while group norms shape collective self-concept. Hence self-concept can be regarded as dynamic and multifaceted (Kark and Shamir, 2002) with various forces leading to the activation of a particular identity at a given point in time (Brickson, 2000). This is relevant to the understanding of employee behaviour because they tend to take ownership of a decision (internalization) when it is close to their self-concept and self-worth, hence the effects of transformational leadership on followers are expected to be shaped by relational and collective self-concepts (Yukl, 1999).

2.4.2. Relational Self-Concept

In the case of a strong relational self-concept, followers will develop a strong personal identification with the significant other (leader) and will see themselves in terms of their role behaviours. They are motivated to enhance their leader's well-being in order to conceive positive appraisal by their leader as being a good employee that is loyal and obedient (Brewer and Gardner, 1996; Kark and Shamir, 2002). Hence, followers will comply with, and adhere to leader's requests and set task objectives in an attempt to gain his/her acceptance and approval. Very often, followers will seek to please the leader.by making self-sacrifice in the form of exerting extra efforts. Personal identification with the leader could takes place through "*evoking followers' self-concept*", i.e., motivated by the value similarities between leader and follower, and/or through evoking "*followers' desire to change*", i.e., driving their values and beliefs to become more similar to those of the leader (Pratt, 1998).

The strong relational self-concept was particularly evident in the case of charismatic leadership that was described to intensely evoke follower's identification and dependence (Conger, 1999; Shamir et al., 1993). Transformational leadership also stress on followers' identification with the leader through its charismatic component (i.e., idealized influence and inspirational motivation) (Avolio et al., 1999). Moreover, the individualised consideration component of transformational leadership refers to the high level of affect and welfare attention offered to each follower. It is reciprocated by followers' resulting in high level connection and personal level identification with the leader (Kark and Shamir 2002). The higher the level of interaction between leaders and followers (closeness as in the case of middle managers), the more the chance for leaders to exhibit value similarities, that will further entice personal identification and dependence on the leader (Kark and Shamir, 2002; Kark et al., 2003).

2.4.3. Collective Self-Concept

As followers believe in the positive attributes of the group and high self-esteem of its members, they will develop a strong personal identification with the group (Tajfel and Turner, 1986). Further enhancement of this process will take place when the self-concept of the person is reinforced through accepting and participating in collective group activities, because it is useful, because it is right, or because it feels right (Shamir, 1990). The more employee believe that they are capable of functioning effectively to perform tasks successfully; the more intense group collective efficacy will be (Bandura, 1991). As the social motivation of group members prevail, the group welfare will become an end in itself, resulting in enhanced cooperative behaviours toward shared problems (Brewer and Gardner, 1996). The more employees experience heightened social identity with the group, there will be a build-up of increased self and collective efficacy momentum to the extent that employee will experience the psychological reward of increased self-worth, self-esteem, and empowerment (Kark et al. 2003; Shamir, 1990). In the case of a strong collective self-concept, leaders' behaviours that increase attractiveness of and foster social identification with the group are likely to augment collective efficacy (Shamir et al., 1998). A number of studies asserted that transformational leadership influence on group members' willingness to contribute to group objectives is mediated through raising followers' identification with the group (Kark and Shamir, 2002; Kark et al., 2003; Shamir et al., 1998).

2.5.Knowledge

In searching for potential contingency mechanisms that moderate the transformational leadership-innovativeness nexus, knowledge and its dynamic economy seemed to be an appropriate starting point (Cooke, 2002). Drawing on memory development research, as prior knowledge accumulates one's ability to memorise new knowledge, to recall, and use it increases (Bower and Ernest, 1981). Our ability to make sense of new knowledge depends on the extent of our prior knowledge, the way it is categorised, the differences and the relationship between categories (Cohen and Levinthal, 1990). "*Individual Absorptive Capacity*" is about recognising the value of new information (Cohen and Levinthal, 1990; Da Silva and Davis, 2011). In order to have a high absorptive capacity one would need to be well versed with the basics, i.e., prior technical knowledge, skill, and recent scientific or technological development in a given field. Absorptive capacity is a multi-level construct where the actions and interactions of individual employees evolves into group level and then to firm level absorptive capacity (Martinkenaite and Breunig, 2016). In fact, it all depends on the "*links across a mosaic of individual capabilities*" (p.133), what is important is that employees need to be aware of who knows what, and who can help with what problem or issue (Cohen and Levinthal, 1990). As the complimentary knowledge of different employees, which stems from their varied backgrounds and experiences is combined, the likelihood that it will evolve into new knowledge increases (Cohen and Levinthal, 1990; Kogut and Zander, 1992). Therefore, team and firm level absorptive capacity cannot be attributed to any individual employee because, by its very nature, organisational knowledge is dispersed among different members of the firm (Tsoukas, 1996).

The dispersal of new information and adoption of innovation within the social network of medical specialists is determined by the quality of relational ties between any two members of the network, they can be strong or weak (Reagans and McEvily, 2003; Burt, 2004). Weak ties allow fresh knowledge into the network and strong relational ties provide opportunities for knowledge sharing,

exchange, and feedback, which in turn aids innovations (Tenkasi and Chesmore, 2003; Granovetter, 1983). Sometimes these ties can play a more important role than training and education (Jippes et al. ,2010). The extent of socialisation and coordination among employees determines the likelihood of knowledge spreading within an organisation (Roberts, 2015; Nonaka, 1994). Employees that socially interact across unit boundaries act as a link between the different units, they create informal coordination with other units to obtain knowledge for their own benefit, tapping into resources made available through the network and bringing such knowledge back to their units (Willem and Buelens, 2007). Social networks increase the visibility of the new knowledge and consequently reduces the perceived uncertainty risk for potential adopters. It also influences knowledge sharing by acting as communication channels, social constructions, and a negotiation medium of the new knowledge (Greenhalgh et al., 2004; Larsen and Ballal, 2005; Rogers, 2003). Social relationships built in social networks can be crucial for the sustainability of healthcare innovation (Sibthorpe et al., 2005). Intense social networking offers an optimal environment for producing high quality ideas (Bjork and Magnusson, 2009), which enables the exchange of complex information that is required for innovation adoption (Hansen, 2002). For example, it has long been established that the more links and contacts a physician is involved in, the more likely he or she would be an early adopter of innovation (for example, a new prescription drug); than those who are more isolated (i.e., with fewer weak and strong links in their network) who tend to be late adopters (Coleman et al., 1966).

2.5.1. Sources of Knowledge: Internal vrs External.

The debate continues regarding the main driver of organisational innovation: internal versus external opportunities of learning. A number of empirical studies advocate internal resources as the main driver of firm innovativeness (Oerlemans et al., 1998; Vega-Jurado et al., 2009; Freel, 2003), whereas other studies, support external resources as the main determinant of innovation (Dias and Escoval, 2012; Gumusluoglu and Ilsev, 2009; Vega-Jurado et al., 2009; Darroch and McNaughton, 2002; Damanpour, 1991; Backmann et al., 2015). Rothwell (1992) maintained that external opportunities of learning is an important ingredient of innovation performance, but it depends in the first place on the internal capabilities of industrial firms. In fact, cumulative empirical evidence points to firms gaining competitive advantage and being more successful in product and service innovation as they pursue internal and external opportunities of learning simultaneously (see for example, Bierly and Chakrabarti, 1996; Campanella et al., 2016; Cegarra-Navarro and Dewhurst, 2007; Danneels, 2002; Gibson and Birkinshaw, 2004; Han and Celly, 2008; He and Wong, 2004; Katila and Ahuja, 2002; Kuckertz et al., 2010; Li et al., 2008; Tushman and O' Reilly 1996).

There is increasing empirical evidence that innovativeness is an interactive process between the firm and its customers, suppliers, competitors, and knowledge institutions (Thakur et al., 2012; Dias and Escoval, 2012; Jensen et al., 2007; Hsu et al., 2007). Well-organised external (to the team) knowledge acquisition by team members would enable them to appreciate a 360^{o} view of their work environment. By being aware of the wider horizon of the organisation, employees will be able to idealise and suggest informed improvement to products, services, or work processes (Bednall et al. In prep). Sibbald and Kothari (2015) executed a qualitative study in a healthcare setting where collaboration with external parties were regarded as key to innovativeness and, more fundamentally, to sustainability. In their study, collaboration with "*colleagues, communities, and experts*" (p.345) facilitated knowledge co-creation by participants at individual and team level. Knowledge acquisition from external experts constitutes a

large part of team knowledge acquisition and production; participants described it as a way to "*stretch the mind and share research findings (*and*) invite some excitement*" (p.344). The community also represented a very important source of knowledge for participants; *"(I) take a look at the broader world and see what's out there and how can we, what do we want to do, what can we do and then we go and do it, so that's my process*" (p.344) said a health promoter. "*Most of us are mainstream so we really needed to connect with the community in order to hear their stories, their approaches*" said a public health nurse (Sibbald and Kothari, 2015 - p.344).

2.5.2. Individual Level Mechanism: Knowledge Sharing

There is ample evidence indicating that a great deal of learning takes place in the workplace informally (Cheetham and Chivers, 2001), where knowledge sharing is considered an important informal way of acquiring knowledge without conscious effort (Marsick and Watkins, 1997). Moreover, knowledge sharing activities are central to an effective knowledge management system within the organisation, with the latter being described as *"the process through which an enterprise uses its collective intelligence to accomplish its strategic objectives*" (Arora, 2011). In many cases, it is considered an organisational asset and a competitive advantage as it contributes to the resolution of current work problems or the development of new products and processes. Knowledge management is often quoted as an antecedent of innovation (Dove, 1999; Cerneiro, 2000; Darroch and McNaughton, 2002). Indeed, empirical evidence that knowledge sharing positively influence innovation is accumulating (see for example: Lin, 2007b; Wang and Wang, 2012; Brockman and Morgan, 2006; Liu et al., 2005; Hall and Andriani, 2002; Hall and Andriani, 2003; Leiponen, 2006; Yesil et al., 2013; Leiponen, 2005; Hu et al., 2009; Hu and Randel, 2014; Liao et al., 2007; Park et al., 2014).

Individual employee creativity and innovativeness in the workplace results largely from their pool of knowledge (tacit and explicit). Explicit knowledge represents the tip of the iceberg, with regard to the entire amount of knowledge in any one's head. Most knowledge is described as tacit knowledge that is difficult to express in words and numbers, i.e., "*we can know more than we can tell*" (Polanyi, 1966 - p.4). Therefore, getting employees to volunteer their knowledge and/or to acquire other employees knowledge for the use of solving work problems or issues is an achievement in the right direction towards innovativeness (Nonaka, 1994; Polanyi, 1966). Employees can benefit from each other through knowledge sharing, i.e., by exchanging ideas, concepts, and learning from each other's past experiences (Wang and Wang, 2012; Wang and Noe, 2010). As employees collaborate and cooperate with each other through observations and consultations, dispersion of knowledge takes place (Eraut, 2011). Mutual co-operation between two knowledgeable individuals extend the "*zone of proximal development*" for both (Vygotskiĭ, L. S. (Lev Semenovich) 1896-1934, 1978) or put simply, two heads are better than one.

An individual's willingness to share knowledge is governed by social-psychological factors, namely, anticipated reciprocal relationships (Seers et al., 1995; Bock et al., 2005), sense of self-worth (Bock et al., 2005; Gecas, 1971), altruistic behaviour (Lin, 2007b; Lin, 2007a), and organisational commitment (Vong et al., 2016). Anticipated reciprocal relationships are about an employees' desire to maintain ongoing relationships with others through volunteering one's knowledge and anticipating others to do the same. Sense of self-worth refers to one's positive sense of self largely based on his/her competence and efficacious work conduct, and their personal contribution to the organisation through knowledge sharing (Bock et al., 2005). Altruistic behaviour refers to ones enjoyment in helping others by sharing knowledge with those who are less experienced with organisational tasks (Lin, 2007a). Organisational commitment is a form of intrinsic motivation that heighten the extent of obligations an

employee has towards the organisation; hence it may influence how an employee voluntarily shares knowledge (Wei et al., 2010; Lyman et al., 1974).

Employees' willingness to engage in problem solving activities can be limited by their sense of increasing threat (Dutton, 1993; MacDuffie, 1997; Argyris, 1990). Researchers such as Kramer (1999), Golembiewski and McConkie (1975) have noted the importance of trust in groups and organisations. Trust is defined as "*the expectation that others' future actions will be favorable to one's interests, such that one is willing to be vulnerable to those actions"* (Edmondson, 1999 - p.354). Indeed, employees engaged in learning behaviour without having full trust in their group may want to preserve their image by not asking for help and not admitting errors or mistakes. In fact, people abide by social expectations because they value their image and do not want to appear as incompetent, which may lead them to incurring costs such as delayed promotions or a reduced salary raise (Goffman, 1955; Brown, 1990; Michael, 1976; Lee, 1997).

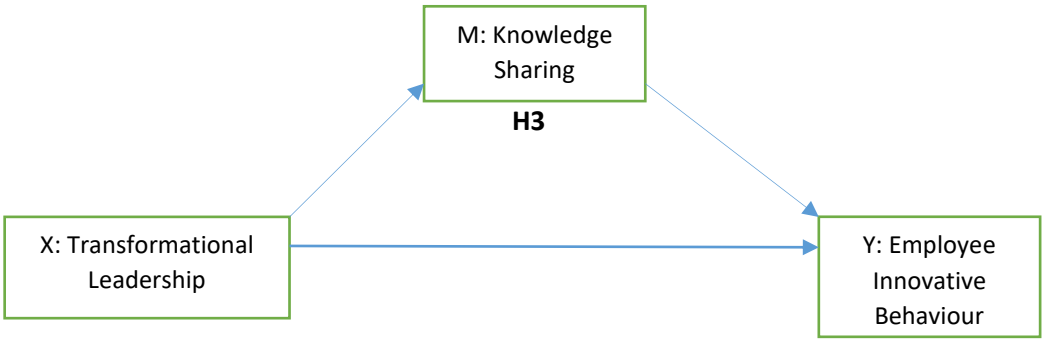
The concept of knowledge sharing and how it could positively influence an individual's innovativeness is not well understood. Firstly, knowledge sharing is an effective way of learning the "*way of doing things*" around the organisation (Hoffman, 2005) and this very same mechanism reinforces the status quo which could inhibit employees from expressing unusual and novel ideas (West, 2002). Secondly, informal learning that is unstructured and would lead individuals to frame a situation according to their own needs, values, and assumptions that may give rise to "*blind spots*" about ones responsibility when errors occur (Marsick and Watkins, 2001). Thirdly, the effectiveness of knowledge sharing depends on whether the individual is a giver or a recipient of knowledge (Mueller and Kamdar, 2011). Fourthly, there is no guarantee that the shared knowledge is taking place in the desirable direction, i.e., what goes on among colleagues' remains largely under the surface (Van Woerkom, 2003). Finally, in all cases learning is not guaranteed, whether formalised or not, due to individuals' different learning styles (Marsick and Watkins, 2001). This aggravated further in the healthcare sector because

of the inherent difficulty in transferring knowledge between different business units (in this case therapeutic units) and across social boundaries created by professional club (communities of practice of doctors, nurses, or technicians) (Nicolini et al. 2008; Ferlie et al. 2005; Scott and Bruce, 1994).

To summarise, I expect employees' knowledge exchange to enable them to share concepts and ideas, to benefit from each other's past experiences (Wang and Wang, 2012; Wang and Noe, 2010) and to positively influence their innovativeness (Nonaka, 1991; Bock et al., 2005; Lin, 2007a; Cummings, 2003). Furthermore, there is increasing empirical evidence that management support is a significant factor that favourably influences knowledge sharing, which in turn will improve firm innovative capability (García-Morales et al., 2008; Lin, 2007b; Bednall et al., in prep; Sheehan, 2016; Hunter et al., 2007; Carmeli et al., 2013; Zhang et al., 2011; Zhang and Bartol, 2010). Employees operating under transformational leadership enjoy working in situations where it is a blame free and question friendly environment, i.e., where it is easy to ask questions without feeling embarrassed (Cheetham and Chivers 2001).

Hypothesis 3: Knowledge sharing mediates the relationship between transformational leadership and employee innovative behaviour (see figure 5).

Figure 5, Conceptual model in which the effect of transformational leadership on employee innovative behaviour is mediated via knowledge sharing (H3).



2.5.3. Team Level Mechanism - Team Reflection

At the team level, when a group of employees volunteer tacit knowledge in the form of ideas, it is group innovativeness, as opposed to when a single employee volunteers tacit knowledge, it is individual employee innovativeness (Ven, 1986). Innovating as part of a team has some obvious advantages, as expressed by team members in a qualitative study by Cheetham and Chivers (2001): "*A difficult task often appears less daunting when being tackled by a team*"; "*different team members bring different skills to the group*"; and "*these different skills tend to 'rub off' onto other members of the team*" (p.275).

Teams as information processing systems pave the path towards better team progression through knowledge sharing, analysing, storing, and retrieving (DeDreu et al., 2008; Hinsz et al., 1997; Nijstad and Stroebe, 2006). An effective idea exchange process within the team requires an adequate level of attention and incubation, which will ultimately enhance creativity and innovation in organisations (Paulus and Yang, 2000). Attention refers to the extent to which ideas exchanged in the group are carefully processed among group members; and incubation refers to the extent of group member's reflection on these ideas after the exchange process. Team reflexivity is a group level construct defined as "*the extent to which group members overtly reflect upon, and communicate about the group's objectives, strategies (e.g., decision-making) and processes (e.g., communication), and adapt them to current or anticipated circumstances*" (West, 2000 - p.296). Marks et al (2001) refer to reflexivity as a transition process between performance episodes and the actions that teams execute in between (Marks et al., 2001). Team reflexivity has dual focus, to reflect on and infer accomplishments so far, and to plan for future action (LePine et al., 2008). One can think of reflexivity as an iterative process involving three modules: "*reflection, planning and action / adaption*" (Widmer et al., 2009 - p.3). Consequently, reflexivity will stimulate more reflections with the aim being for team members to work even more effectively by engaging in deep thinking, whereby they will review ideas critically, disregard those that are not promising, and implement the better ones.

Reflexivity with a specific focus on difficulty, problems, or environmental challenges offer team members clarity, agreement, and specific goals to be addressed, making it more likely that targeted innovation will ensue (Schippers et al., 2015; Schippers et al., 2014; Schippers et al., 2013). According to the Goal-Setting Theory, people who have a set of clear goals perform better than those who do not, because the attention and efforts of participants is directed "towards goal relevant activities and away from goal irrelevant activities" (Locke and Latham, 2002 - p.706). Perceiving achievable but challenging goals will energise participants' willingness to exert extra physical (Bandura and Cervone, 1983) and psychological efforts (Sales, 1970), and motivate participants to use their cognitive abilities and task-relevant knowledge, i.e., their reserve of tacit and explicit knowledge (Wood and Locke, 1990). It is the realisation that there are problems or challenges ahead that prompt actions such as innovation (Locke and Latham, 2002; Cyert and March, 1963; Locke et al., 1970). For example, Schippers et al. (2015) study identified two challenges faced by the team that prompted increased innovativeness: high level "work demands" and poor "quality of physical work environment" (p.769). As such, when the challenge is coupled with team reflexivity, it predicted higher levels of team innovativeness through team reflexivity.

As different members of the team acquire knowledge from different sources, their collective knowledge and diversity of professional skills increases. This process represents a widening of the team's overall reservoir of task related skills and knowledge, which in turn, is expected to increase the potential for enhanced team performance (Jackson, 1992; Simons et al., 1999; Dahlin et al., 2005), innovation, renewal, and creativity in organizations (Schneider and Northcraft, 1999; Woodman et al., 1993). As team members' awareness of their work environment develops, they also become more aware of inconsistencies between their current and ideal work status (Schippers et al., 2008; Schippers et al., 2013; Kahneman, 1973; Locke and Latham, 1990). Such teams are inclined to be proactive with detailed planning and attention to long-term consequences. Reflexive teams are observant of their environmental

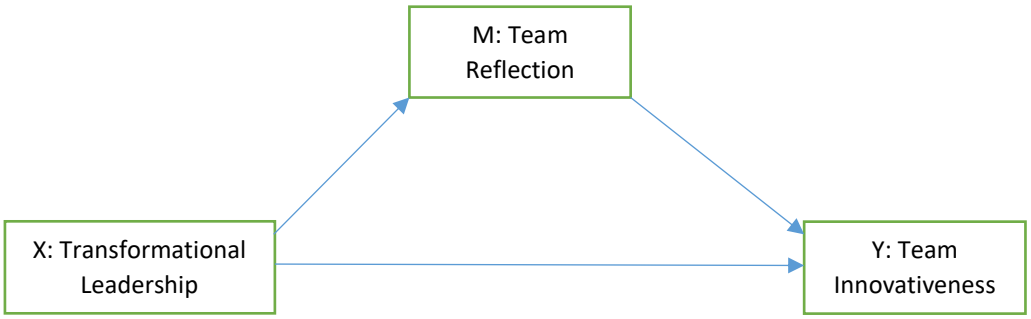
cues in which they operate and are fully attentive to team objectives and strategies. Conversely, non-reflexive teams seem to be ignorant of the environment in which they operate and are inclined to react in a defensive way to an environmental threat (West, 2000). Therefore, reflexive teams are predisposed to be more innovative than non-reflexive teams (Hülsheger et al., 2009; Nonaka, 1991; DeDreu et al., 2008; Wong et al., 2007).

Widmer et al. (2009) summarised current findings of antecedent factors that influence reflexivity. Ideally, transformational leaders would instil trust in team members and accept their varied suggestions and points of view that may be different from their own. They would enthusiastically communicate their trust in the team's ability to accomplish ambitious team goals (Podsakoff et al., 1990; Shin and Zhou, 2007), hence they will be actively raising team members collective self-concept and identification with the group (Kark and Shamir, 2002; Kark et al., 2003; Shamir et al., 1998).. By articulating a strong vision, transformational leaders also inspire followers to focus on strategic priorities and group loyalty to achieve those objectives (Waldman and Atwater, 1994). Leaders' encourage team members to assist each other with idea development and execution in support of collective team innovativeness (West and Farr, 1990). Schippers et al. (2008) work showed that as inspirational leader behaviours instil shared vision, as well as trust and safety among team members. They inspire followers to go beyond self-interest, motivate them to perform above expectations, encourage greater error evaluation management, better learning, and discussions that are inherent factors of reflection. This is particularly important to teams that perform intellectual tasks (Hinsz et al., 1997; Salas et al., 1999) because as task complexity increases, teams are more likely to encounter information-processing failures. Transformational leaders could counteract the negative effects of team information processing failures by encouraging trust among team members (Schippers et al., 2008) and emphasising employee identification with the team (Kark et al., 2003). These would lead to positive social interaction behaviours that improves knowledge sharing (Hu and Randel 2014) and reduces the chance for knowledge hiding (Connelly et al., 2012).

Indeed, innovative leader's behaviour led to team reflexivity that in turn "*mediated the link between innovative leadership and team performance*" (Hirst and Mann, 2004 - p.155). The link between team reflexivity and innovativeness was also confirmed in a number of empirical studies including Schippers et al. (2013), Carter and West (1998), Tjosvold et al. (2004), Schippers et al. (2015), Drach-Zahavy and Somech (2001), and many more. In this study, I investigate the influence of the transformational leaders on team reflexivity towards driving further innovativeness out of the team.

Hypothesis 4: that team reflection mediates the influence of transformational leadership on team innovativeness (see figure 6).

Figure 6, Conceptual model in which the effect of transformational leadership on team innovativeness is mediated via team reflection (H4).



2.5.4. Team Level Mechanism – Under Conditions of Low External Knowledge Acquisition.

There is no doubt that fresh knowledge that flows through social structures is pivotal for driving better work performance, creativity, and innovation (Cooke, 2002). There is also, ample evidence indicating that organizations benefit from sharing knowledge amongst colleagues or between teams (Woodman et al., 1993; Cohen and Levinthal, 1990). However, by considering the reverse of the above, should we expect individuals and teams deficient in new knowledge acquisition opportunities not to be innovative? I question whether different team processes would be activated or deactivated in response? And whether the transformational leader would capable of positively influencing team innovativeness under this condition?

In searching for the answer, I started by reviewing past literature on the consequences of having chronically low level of knowledge acquisition opportunities available to members of staff. Al-Laham et al. (2011) argued that over time, "*failure to refresh human capital can offset the positive impact of high levels of human capital stock*" (p.557). Employee task knowledge will erode and become outdates as new knowledge supersedes it. They will also go into competency trap due to their repetitive use of existing and somehow outdated knowledge (Al-Laham et al., 2011). This could result in their technical knowledge and expertise to be perceived as inferior to that of the group's leader who have access to new information and knowledge, or put it differently, the technical knowledge and expertise of the leader to be perceived as superior to that of followers. There are two possible trajectories that follows and could influence team innovativeness:

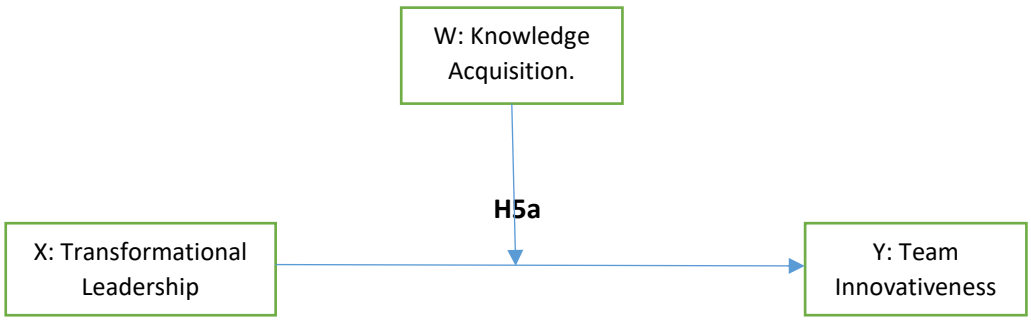
The first possible trajectory stems from the "*Cognitive Resource Theory*" (Fiedler, 1978) and its subsequent refinements (Murphy et al., 1992), which suggests that at lower levels of employee development, leaders should communicate their knowledge and expertise to their group members in a direct way, i.e., to tell the group how to do the job and expect them to comply (Murphy et al., 1992). House and Mitchell (1974) argued that it is acceptable for the leader to behave in a directive way when

the group is in need of their guidance and structure to achieve an ambiguous goal. Under these circumstances, directive leaders act as the main supplier of cognitive resources to the team. Where the team relies on the knowledge brought in by the transformational leader, the leader would then resource the knowledge in a directive way through personal support, intellectual stimulation, and inspirational vision. Murphy et al. (1992) and Somech (2006) provided empirical evidence that directive leadership was beneficial to healthcare team outcomes under conditions of lower team development level and knowledge diversity. Studies indicated that in the case of lesser followers' task relevant knowledge, the directive leadership generates cognitive processes by playing an active information management role in problem solving discussions (Larson et al., 1998; Larson et al., 1996). Although a number of scholars suggested that non-directive leaders achieve better group buy-in to the task than directive ones, with better task and outcome satisfaction (e.g., Maier, 1950; Locke and Schweiger, 1979; Vroom and Yetton, 1973), Blades and Fiedler (1973) argued that directive leadership communication style is in itself neither bad nor good; it is merely a communication method. Studies indicated that both directive (rule creating for work behaviours) and non-directive (idea soliciting from team members) leadership can be associated with high levels of team outcomes (e.g., Somech, 2006; Sagie et al., 2002).

The second possible trajectory stems from the social psychology literature (Brewer and Gardner, 1996; Tajfel and Turner, 1986; Shamir et al,. 1993), where leader's direct influence on followers was suggested to be mediated via follower's self-concept (Brewer and Gardner, 1996; Kark and Shamir, 2002). The charismatic characteristics of the transformational leader coupled with the leader's superior expertise would entice team members to develop a relational self-concept and identification with the leader, and even dependency on their leader (Kark and Shamir, 2002; Kark et al., 2003). The leader's wellbeing becomes a priority to followers, who are motivated to exert extra effort in order to receive his/her approval by complying with, and adhering to leader's requests and set task objectives (Brewer and Gardner, 1996; Kark and Shamir, 2002).

Hypothesis 5a: The direct relationship between transformational leadership and team innovativeness is stronger in teams with lower external knowledge acquisition and weaker in teams with higher external to the team knowledge acquisition (see figure 7).

Figure 7, Conceptual model in which the direct effect of transformational leadership on team innovativeness is moderated by knowledge acquisition from external to the team sources (H5a).



2.5.5. Team Level Mechanism – Under Conditions of High External Knowledge Acquisition.

Investing in knowledge acquisition opportunities, such as training and educational, activities are important not only in offsetting knowledge erosion due to fast changing dynamics of health knowledge (Richardson, 2001; Cooke, 2002), but also in widening the overall reservoir of collective task related skills and knowledge, ultimately leading to better performance, creativity, and innovation (see for example, Woodman et al., 1993; Cohen and Levinthal, 1990). However, one should observe that "*Diversity of knowledge and skills is a powerful predictor of innovation, but integrating group processes and competencies are needed to enable the fruits of this diversity to be harvested*" (West, 2002 -p.355).

Whilst an influx of new knowledge into teams has some obvious advantages in encouraging innovativeness, it can be compromised by practical failures in team-information processing. For example, dissimilar team members tend to comprehend problems differently. Failure to develop shared understanding would lead to a problematic representational gap, where colleagues may not be able to integrate their different representations of the same problem efficiently, ultimately resulting in team-information process losses (Cronin and Weingart, 2007). Another potential problem is social categorization that a team may encounter as its members move towards being more diverse in their knowledge, i.e., developing growing differences in perspectives because of non-uniform external knowledge acquisition. Pelled et al. (1999) summarised social categorisation as the subconscious tendency of individuals seeking to increase self-esteem to cultivate a positive impression about their own category and negative impressions of other categories, leading to negative cognitive, emotional, and behavioural impressions of others. Social categorisation can lead to problems among team members, such as relationship conflicts and substantive disagreements, that increases stress, harm group cohesiveness, and damage performance and satisfaction (Jehn, 1997), this in turn can be harmful to innovative behaviour (Sanders and Shipton, 2012). Furthermore, one of the particular characteristics of healthcare organisations is that differently ranked professionals (doctors/nurses/technicians) present social boundaries that plays a role in inhibiting the diffusion of innovations (Scott and Bruce 1994; Ferlie et al., 2005).

> "*If the potentials for group problem solving can be exploited and if its deficiencies can be avoided, it follows that group problem solving can attain a level of proficiency not ordinarily achieved*" (Maier, 1967 - p.239).

Schippers et al. (2014) suggested that team reflexivity "*can function as an antidote to team-level biases and errors in decision making*" (p.731). Collaborative planning and cross-understanding of

mental models of different team members is a prerequisite to enable the consolidation of appropriate group members' information, knowledge, and expertise in seeking better analytical performance (Woolley et al., 2008; Huber and Lewis, 2010). Extensive research indicated that team reflection improved members' alertness to changes in their wider work environment, their detection and identification of potential problems, and the production of suitable innovative solutions (Ancona and Caldwell, 1992; Maier and Solem, 1962). Furthermore, when groups focus on problems rather than solutions, they had further improved productivity (Maier and Solem, 1962). Teams improve their productivity by evaluating all possible risks and benefits, through the process of debating various and conflicting opinions as well as the evaluation of goals and tasks (e.g., Pelled et al., 1999; Jehn and Mannix 2001). They will be inspired to contribute new and improved ideas at each round of planning and these activities are inherent in team reflexivity. In this study, I focus on team reflexivity as the mechanism that can improve the quality of internal social interactions and group discussions. In turn, this can potentially influence the efficiency of information distribution among team members towards higher quality decision-making and better group creativity (Woodman et al., 1993; Maier, 1967; Brodbeck et al., 2007).

According to the "*Path-Goal Theory*" of leadership, if the leader's task knowledge and expertise is not superior to the group then directive behaviour would be improper (House and Mitchell, 1974). Expert group members cannot fully integrate conflicting ideas for the benefit of the work task if their leader is directive, because he/she often pre-empt the ideas that are to be discussed and inhibit group members' participation (Murphy et al., 1992). For leaders to be successful, they need to take a different approach by encouraging group members to contribute their task knowledge to group decisions and performance (Koopman and Wierdsma, 1998). Leaders' role in encouraging the consolidating and combining of team members' diverse knowledge lies in the cognitive realm they create. By encouraging a psychologically safe environment, it will be easier for team members to exchange ideas comfortably

(e.g., Sagie et al., 2002; Durham et al., 1997), including new and conflicting suggestions and perspectives by team members (Bradley et al., 2012). Psychological safety refers to the shared belief among team members that it is safe for them to exchange ideas and that they can challenge the status quo through comments about the current business conduct, which is necessary for innovativeness (West, 2002; Edmondson, 1999; Dollard and Bakker, 2010). "*Team psychological safety involves but goes beyond interpersonal trust; it describes a team climate characterized by mutual respect*" (Edmondson, 1999 - p.354), where team members will evaluate and learn from feedback for every task (Hackman, 2004). By reducing barriers, leaders encourage an open exchange of ideas, provoking team members with different backgrounds and new knowledge to contribute their tacit and explicit knowledge to the team (Barrett, 1998; Curral et al., 2001). As a result, they will be compelled to reconsider and reflect on their personal points of view and to take into account factors they had not previously considered (Drach-Zahavy and Somech, 2001).

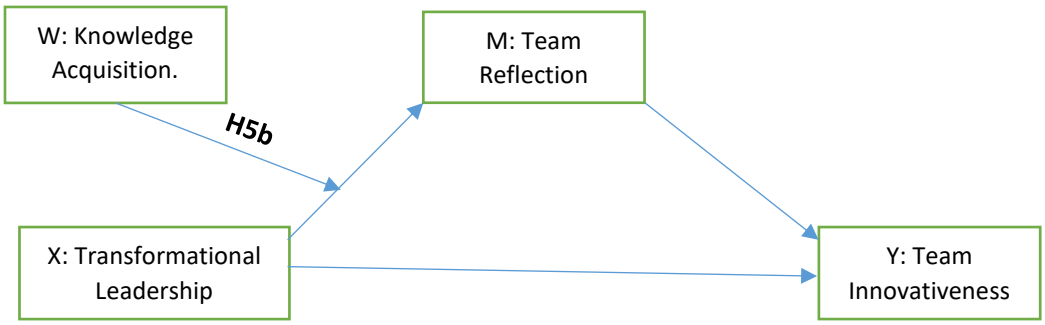
Transformational leaders play an active role in conflict resolution among team members (Hirst and Mann, 2004) and shaping positive team processes by fostering members' identification with the team (Kark et al., 2003). They plea team members' willingness to contribute to the planning and execution of tasks as well as receiving and evaluating feedback for improved further planning (Pieterse et al. 2010; Nemanich and Vera, 2009; Garvin et al., 2008). In order to enhance team information processing and exchange, leaders initiate discussion by asking more questions, recapping newly shared information, and increasing members' willingness to adopt new information (Murphy et al., 1992; Somech, 2006; Sosik et al., 1997; Sagie et al., 2002).

In this part of the study, I focus on the mechanism that switches on under conditions of high levels of new external knowledge influx into the team. Given that, team-reflexivity promotes positive relationships, conflict resolution, and idea exchange among team members (Hirst and Mann, 2004; Hirst

et al., 2004), therefore, it is suitable for further investigation as the potential internal social interaction mechanism that becomes activated under conditions of high external knowledge acquisition.

Hypothesis 5b: The indirect relationship between transformational leadership and team innovativeness through the moderator team reflection is moderated by the extent of external to the team knowledge acquisition. Such that it is stronger in teams with higher levels of external knowledge acquisition opportunities and weaker in teams with lower levels of external knowledge acquisition (see figure 8**).**

Figure 8, Conceptual model in which the Team reflection is the proposed mediator of the conditional effect of transformational leadership on team innovativeness is moderated by the extent of group knowledge acquisition from external sources to the team (H5b).



A gap in the literature that we address concerns the boundary conditions which influence whether the transformational leadership evokes the team's social identify (represented by reflexivity) or personal identification with the leader (Kark et al., 2003).

3. Method

3.1.Ethical Consideration

3.1.1. Ethical Conduct of the Survey.

This study was conducted in accordance with Nottingham Trent University research ethics policy and with the ethical principles that have their origin in the Declaration of Helsinki (WHO, 2014) and any applicable regulatory requirements.

3.1.2. The Research Approval Process

This study protocol went through a series of research ethics committee applications before data collection was finally permitted. The first research ethics committee I applied to gave this study unfavourable feedback in a letter expressing the following remarks: "*Please note that disapproval is because of the difficult feasibility for non XXX staff to perform such a study within XXX facility*". It was clear that this facility had denied access rather than rejecting the subject matter of the research project. I then assembled a list of possible alternative options within the United Arab Emirates and at other countries within the Middle East, namely the Kingdom of Saudi Arabia (KSA). Upon speaking to officials at major and well renowned hospitals in the UAE and KSA, this option seemed to be feasible. Finally, the decision to conduct this research project at a hospital located within the UAE had logistical reasons, because it was at geographical proximity and easy access for me.

The research project went through two major pilot study phases before producing the final questionnaire. In the first phase, I completed a research and ethics committee application and attached the latest study protocol, data collection tools, and the informed consent form. In subsequent study phases, I produced a report of the previous phase outcomes and a detailed list of changes to be implemented in the next phase (where applicable). I waited for a favourable outcome in writing from

the concerned research ethics committee before inviting potential study subjects to volunteer into this study

3.1.3. The Informed Consent Process

I provided potential respondents full and adequate oral and written information about the nature, purpose, possible risks and benefits of the survey. In order to encourage potential participants to make an informed decision, I disclosed the study questionnaire and allowed each participant ample time to review and to decide their participation willingness. All respondents had the opportunity to ask questions and if agreeable, they signed and dated two copies of the informed consent form before completing the survey. One copy of the signed 'Informed Consent Form' was handed over to the respondent and the other was archived securely in a safe location for data protection purposes.

3.1.4. Subject Data Protection

Respondents' confidentiality was ensured by allocating an individually unique code, the code comprised of a team number and a subject number. No names or other identifiers were included in the study documents other than the informed consent forms. I asked respondents to grant me permission to collect, use, and disclose their anonymous survey data for the purpose of ensuring good conduct of the research, thesis writing, and publication. At the data management stage, I collated all data together and analysed it without referring to particular individuals or teams.

3.2.Participants' Selection.

Study participants were selected based on the following inclusion criteria: they should be currently in active employment at the specified hospital; leaders and followers should be involved in substantial

day-to-day interaction; leaders and followers should be in the current position and working together for at least 6 months. I excluded employees that had entered into their notice period for leaving the organisation and those that had been in their current position for less than 6 months. Participants who volunteered for this study were enrolled on first come first served basis, i.e., without randomisation.

3.3.Pilot Testing

3.3.1. Phase 1: Pilot Testing I. Evaluation of Data Collection Tools:

In the Initial phase of this study, I conducted an in depth face-to-face discussion with sixteen members of staff: eight leaders and eight followers. This evaluation focused on the suitability and wording of questions used, and their appropriateness to the working environment at the participating hospital. I took every opportunity to capture respondents' feedback through asking open questions such as: Do the questionnaire items apply to your department? Do the questions make sense to you in your everyday workflow? Would you recommend that I apply any modification, addition or deletion of any survey element?

Since I had modified the questionnaires to a considerable extent, it appeared appropriate to carry out further pilot tests. I conducted a thorough evaluation of the suitability of data collection questionnaires to other the hospital's members of staff, selected at random.

3.3.2. Phase 2: Pilot-Testing II.

The aim of this phase is to pilot the final study questionnaires (leaders' and followers' versions) and to set up the data capture database. I had conveniently approached each leader in their department first and asked them to complete the study questionnaire (leader version) and to nominate four of their subordinates to participate in the study. Subordinates that expressed interest went through the informed

consent process. I collected data from five units, each unit is comprised of a leader and at least four direct followers, a total of 24 respondents were enrolled into this phase.

The rate of participants' responsiveness was 85% and the item incompletion rate was minute at 0.004%. The process of data collection was efficient but extremely time consuming, so, in order to increase time efficiency, I delivered a continuous medical education accredited short seminar followed by visits to lecture attendee departments.

Upon analysing the pilot data set, it became clear to me that respondents tended to be unreasonably positive when answering the study questions. In particular, I noticed that subordinates avoided rating their leaders' behaviours in the lower half of the 5-point Likert scale. Since most of the responses returned were in the 4 and 5 scale categories, there was little data variability to detect any interaction effect. In order to avoid jeopardizing statistical sensitivity, I followed the method recommendation of Russell and Bobko (1992) who had demonstrated that a 5-point Likert scale is "*too coarse*" (p.336) to measure fine responses, such that it could limit the response variability and may cause valuable information loss by reducing the probability of detecting true interaction effects. I followed the suggestion of Russell and Bobko (1992) by increasing the Likert scale points in order to provide a closer approximate of continuous measure, and thus more information captured. Therefore, I decided to expand the response spectrum from a 5 to 7-point Likert scale.

3.3.3. Main Data Collection Phase.

Thirty-five Leaders (departmental heads) were invited to participate in this study, at one of the largest hospitals located in the United Arab Emirates, to participate into this study. Three leaders had declined participation; the remaining 32 leaders had recommended 3 to 5 of their followers to be included into the survey. Overall, I have enrolled 32 leaders and 125 followers into the study.

3.4.Data Collection Tools.

The study tools used to capture the perception of leaders are different from those that captured the perceptions of followers (see Table 1). Respondents' completed the study questionnaire by indicating their answers on a 7-point scale.

Table 1: Data collection points, Leaders and Followers.

Concept	Questionnaire items	Leader	Follower
General Information Control Variable	1) My year of birth is	✓	✓
	2) I am ☐Male ☐Female	✓	✓
	3) My highest education level is:		
	• High school;		✓
	• Some college;		✓
	• Associate degree;		✓
	• Diploma	✓	✓
	• Bachelor's degree;	✓	✓
	• Master's degree;	✓	✓
	• Ph.D. degree.	✓	✓
	• Other degree: Specify	✓	✓
	4) My Current Position is:	✓	✓
	5) I spent a total of ___ years in this-Hospital.	✓	✓
	6) Did you receive leadership training:	✓	✓
	if yes, which year did you receive it:	✓	✓
	7) Date of completing this form:	✓	✓
MLQ- Transformational Leadership (Item numbers corresponds to those in the original MLQ Questionnaire as published by Avolio and Bass (2004a)			
	The person I am rating		
Intellectual stimulation	2) Re-examines critical assumptions to question whether they are appropriate		✓
	8) Seeks differing perspectives when solving problems		✓
	30) Gets me to look at problems from many different angles		✓
	32) Suggests new ways of looking at how to complete assignments		✓
Idealistic Influence (attributed)	10) Instils pride in me for being associated with him/her		✓
	18) Goes beyond self-interest for the good of the group		✓
	21) Acts in ways that builds my respect		✓
	25) Displays a sense of power and confidence		✓
Idealistic Influence (Behaviour)	6) Talks about his/her most important values and beliefs		✓
	14) Specifies the importance of having a strong sense of purpose		✓
	23) Considers the moral and ethical consequences of decisions		✓
	34) Emphasizes the importance of having a collective sense of mission		✓
Inspirational Motivation	9) Talks optimistically about the future		✓
	13) Talks enthusiastically about what needs to be accomplished		✓
	26) Articulates a compelling vision of the future		✓
	36) Expresses confidence that goals will be achieved		✓
Individualized consideration	15) Spends time teaching and coaching		✓
	19) Treats me as an individual rather than just as a member of a group		✓
	29) Considers me as having different needs, abilities, and aspirations from others		✓
	31) Helps me to develop my strengths		✓
Knowledge Acquisition			
(Garvin et al., 2008)	1. Our unit has forums for meeting with and learning from		✓
	a. Colleagues from other departments.		✓
	b. Experts from outside the hospital.		✓
	c. Patients and their representatives, patient groups.		✓
	d. Suppliers such as pharmaceutical and medical companies.		✓

Concept	Questionnaire items	Leader	Follower
Within team Knowledge Sharing			
(van Woerkom et al., 2002, Van Woerkom, 2004)	2. I share my knowledge and experiences with my colleagues on a regular basis.		✓
	3. I discuss with my colleagues what I think is important in my job		✓
	4. We discuss as a team our plans for functioning well.		✓
	5. We discuss problems in our department in order to improve.		✓
	6. I discuss my development with my colleagues.		✓
Team Reflection			
(West, 1996)	1. In the team, we always look for different interpretations and perspectives to confront a problem.		✓
	2. In the team, we criticize each other's work in order to improve team effectiveness.		✓
	3. In the team, we are prepared to reflect on the way we act.		✓
	4. In the team, we engage in evaluating our weak points in attaining effectiveness.		✓
	5. In the team, we openly challenge each other's opinions.		✓
	6. In the team, we reassess any proposed solution		✓
Employee Innovative Behaviour (Scott and Bruce, 1994)			
idea generation	1. Generate new ideas.	✓	
	2. Searching out new working methods, techniques, and new ideas.	✓	
idea promotion	3. Investigates and secures funds needed to implement new ideas.	✓	
	4. Promotes and champions ideas to others. Making important hospital members enthusiastic for innovative ideas.	✓	
idea realization	5. Develops adequate plans and schedules for the implementation of new ideas.	✓	
General	6. Is innovative.	✓	
Team Innovativeness			
(Dreu, 2002)	1. Team members often implement new ideas to improve the quality of our products and services	✓	
	2. This team gives little consideration to new and alternative methods and procedures for doing their work (reverse coded);1. Team members often implement new ideas to improve the quality of our products and services	✓	
	3 Team members often produce new services, methods, or procedures2. This team gives little consideration to new and alternative methods and procedures for doing their work (reverse coded);	✓	
	4. This is an innovative team	✓	

3.4.1. Measuring Transformational Leadership

Burns (1978) said that leaders can transform the life of followers by altering their perceptions, aspirations, expectations, and values. This is thought to occur as a result of certain qualities within the leader that captivate followers' attention and action. Hence, the successful leader is able to connect with followers through verbal and nonverbal communication skills that convey a certain message. The audience in turn will feel the urge to internalise a vision and act accordingly. Bass (1985), contributed to Burns (1978) theory by describing the psychological mechanisms and setting forth ways of measuring the efficacy of leaders that ranges from Laissez-faire to transformational.

It was through interviews and descriptions of subordinates' ideal leader, observations, and the use of factor analysis that the "*Multifactor Leadership Questionnaire*" (MLQ-5X) was originally built and further refined (Antonakis et al., 2003; Bass et al., 2003; Avolio and Bass, 2004a). This tool identifies four distinct components of transformational leadership: Idealised Influence (attributes and behaviours), Inspirational Motivation, Intellectual Stimulation, and Individualised Consideration (Bass et al., 2003; Avolio and Bass, 2004a).

Scale response choices are: 1-Not at all 7-Frequently, if not always

3.4.2. Measuring Knowledge Sharing

Flores et al. (2012) summarised prominent models of organisational learning and identified six sub-processes that seem to capture the organisational learning cycle. The cycle starts with "*Information Acquisition*" (Daft and Weick, 1984; Huber, 1991), which is then "*Distributed*" throughout the organisation (Huber, 1991). Organisational members interpret and integrate the new information to suit organisational goals. Finally, this information is stored in organizational memory and subsequently becomes institutionalised knowledge (Huber, 1991; Crossan et al., 1999).

In this project, I measured the first two sub-processes of organisational learning:

1) Knowledge acquisition, sometimes termed *"knowledge sharing with external parties"* (Bednall et al., In prep) or *"externally oriented knowledge sharing"* (Garvin et al., 2008).

2) Knowledge distribution within the team is also called "*knowledge sharing within team*" (Bednall et al., In prep).

I used the "*knowledge sharing with colleagues*" 5-item scale developed by Van Woerkom et al. (2002), Van Woerkom (2004). I measured the extent by which individuals were willing to share their knowledge and experiences with colleagues, ask for their advice, and discuss current problems and future development plans at both personal and team levels. One sample item is, "*I share my knowledge and experiences with my colleagues on a regular basis".*

Scale response choices are: 1-Not at all 7-Frequently, if not always

3.4.3. Measuring Knowledge Acquisition

Huber (1991) defined knowledge acquisition as "*the process by which knowledge is obtained*"; Garvin et al (2008) viewed knowledge acquisition as being externally oriented. I measured knowledge acquisition using the 4-items scale established by Garvin et al. (2008), i.e., exchanges with customers, suppliers, and internal /external subject matter experts. One sample item is, "*Our unit has forums for meeting with and learning from colleagues from other departments"*.

Scale response choices are: 1-Not at all 7-Frequently, if not always

3.4.4. Measuring Team Reflection

Team reflection takes place when members collectively reflect upon the team's objectives, strategies, and processes. I measured the extent to which reflection takes place using a 6-item scale developed by West (1996). A sample item is "*In the team, we always look for different interpretations and perspectives to confront a problem*".

Scale responses are: 1- Strongly disagree 7- Strongly agree

3.4.5. Measuring Employee Innovative Behaviour

For individuals to be innovative, they need to exhibit a range of specific behaviours that lead to the generation and implementation of ideas. Some people may exhibit all the behaviours involved in innovativeness, and others may exhibit only one or few types of behaviour. Scott and Bruce (1994) developed the 6-items scale of "*Employee Innovative Behavior"* by drawing on Kanter's (1988) stages of innovation. A sample item is "*Please rate your subordinates on the extent to which he or she promotes and champions ideas to others. Making important hospital members enthusiastic for new ideas*".

Scale responses are: 1- Not at all 7-To an exceptional degree

3.4.6. Measuring Team Innovativeness

I measured "*Team Innovativeness"* using a 4-items scale adapted from Dreu (2002) and Anderson and West (1998) with Cronbach's $\alpha = .92$. This scale queries the collective team generation of new ideas; their openness to new and alternative methods and procedures; and the extent to which they actually implement new services, methods, or procedures. A sample item is "*please rate your team*

on the extent to which: team members often implement new ideas to improve the quality of our products and services".

Scale responses are: 1- Not at all 7-To an exceptional degree

3.5.Control variables

At the individual level, various studies have indicated that innovative behaviour depends on age, organisational tenure, and gender (Janssen, 2000; Sanders et al., 2010). Other control variables, such as demographics and job position since previous work, were found to be related to both climate perceptions and innovative behaviour (Scott, 1993). Scott and Bruce (1994), James et al. (1990), Gustafson and Mumford (1995) included individual age, and education as control variables in the prediction of innovative behaviour.

4. Data Entry, Statistical Analysis and Results

4.1.Methodological Strength

Healthcare organisations are arranged predominantly in teams; hence, the strategic role of the middle manager is of paramount importance in translating senior management vision to lower level subordinates to action (Birken et al. 2012; Floyd and Wooldridge, 1997). Middle managers prompt healthcare innovations through disseminating information, promoting innovation implementation (Birken et al., 2012), and encouraging the formation of new ideas to their subordinates (Blancett and Flarey, 1995; Floyd and Wooldridge, 1997; Sanders and Shipton, 2012).

In order to reduce common method variance, I collected study data using different sources and multi-informants (Gerhart et al., 2000). On one hand, I asked four direct subordinates to rate their immediate manager using Transformational Leadership Multifactorial Questionnaires. On the other hand, I asked team leaders to rate each one of their four subordinates using Employee Innovative Behaviour scale, and to rate their overall Team Innovativeness.

I also asked subordinates to provide their perception of the extent of their knowledge sharing within their unit, and of their unit's overall team reflection practices as well as their unit's sources of knowledge acquisition (see Table 1, Appendix 1: Data collection form, Leaders. and Appendix 2: Data Collection Form, Followers).

4.2.Data Entry and Treatment

I exerted every effort to ensure the accurateness and completeness of returned questionnaires by electronically entering and critically examining every data point. I queried imperfections by contacting the respondent personally. See Table 2 for details on data treatment and coding.

Table 2: A note on electronic data coding

Gender	• Male • Female
Mother Tongue	0- Arabic 1- Indian subcontinent languages (Kannada, Konkani, Malayalam, Marathi, Urdu 2- Others (Tagalog, Polish) P.S only one person speaks Polish as a mother tongue.
Nationality	1- UAE 2- India/ Pakistan 3- North Arabia (Iran, Iraq, Jordan, Lebanon, Palestine, Syria) 4- Africa (Algeria, Egypt, Somalia, Sudan, Tunisia) 5- Philippines (+one Poland) 6- Oman and Yemen
Highest Education	1- High School, Diploma 2- B.Sc. 3- FRCP, MRCP, Pg. Dip, MSc. 4- PhD
Profession	1- Physician 2- Nurse 3- Others (Pharmacist, Laboratory technician, etc)
Leadership Training	• No • Yes

4.3.Statistical Analysis Plan

Demographic data are summarised using means, standard deviation, and percentages. I used factor analysis in order to confirm the conformity of the data collected with the constructs under study. Relationships between the different constructs and demographics were investigated initially using simple correlations. Further inferential analysis was conducted but after checking possible collinearity and intercorrelated data, control factors were chosen accordingly.

Since this thesis is primarily about investigating mediators and moderators that play significant role in the Transformational Leadership- Innovativeness nexus, the choice of statistical analysis method had to be carefully chosen. Starting with the basics: a mediator is the indirect effect (M) of the independent variable (X) on the dependent variable (Y), it had been most widely measured using Baron

and Kenny (1986) method. Mediation is said to be significant when the relation between (X) and (Y) start with as significant, but later on is no longer significant due to the introduction of the mediator (M) to the equation. Statisticians had criticised the Baron and Kenny (1986) method heavily on the ground that it is the "*least likely of the many methods available to actually detect that effect*" (Hayes, 2009). This is further complicated when considering whether or not a mediation effect persistent across different settings, groups of individuals, and the values of the independent variable. Moderators, on the other hand, function as an additional variable that could "*partitions a focal independent variable into subgroups that establish its domain of maximal effectiveness in regard to a given dependent variable*" (Baron and Kenny, 1986). While scholars attempted to discuss mediated-moderation or a moderated-mediation possibilities, until recently "*their exact definitions and analytic procedures have not been completely articulated*" (Muller et al., 2005). Challenges often existed in understanding the boundary conditions of effects, the 'how' and 'in what context' does that effect exist or not, strong or weak, positive or negative, etc (Hayes, 2017). Hayes and colleagues attempted to disentangle conflicting definitions of moderated mediation by offering modern methods of mediation analysis and describing approaches for estimating and testing a variety of hypothesis involving conditional indirect effects (Hayes, 2009; 2013; 2017; Preacher et al., 2007).

4.4.Individual Level Study Results

4.4.1. Descriptive Statistics

The total number of volunteers enrolled onto this study at employee level is 125, of which 41% nurses, 31% physicians, and 28% others, see Table 3. The average age of all employees is 40.8 (SD 9.5) years, with an average organisational tenure in this hospital of 10.9 (SD 7.1) years. The overall gender distribution is 77% females, and 38.4% of all study subjects have some kind of postgraduate qualification (MSc and PhD).

There are striking demographic differences between physicians and nurses, see Table 3:

- Gender distribution: 47.5% of physicians vs. 98% of nurses are females. Bivariate correlation is highly statistically significant with a negative correlation between gender (female) and being a physician (-.495, $p<0.01$) as opposed to being a nurse (.282, $p<0.01$) or other healthcare workers (.207, $p<0.05$).
- Level of education: 75% of physicians vs. 4% of nurses have postgraduate degrees. Bivariate correlation is highly statistically significantly positive between education level and being a physician (.588, $p<0.01$) or other healthcare worker (.138, $p<0.05$), as opposed to being a nurse (-.686, $p<0.01$).
- Ethnicity: 80% of physicians vs. 50% of nurses are native Arabic speakers. Bivariate correlation in this case is highly statistically significant with a positive relationship between Arabic mother tongue and being a physician (.285, $p<0.01$), as opposed to being a nurse (-.419, $p<0.01$). In contrast Bivariate correlation demonstrated a highly statistically significant and negative correlation between Indian/Urdu mother tongue and being a physician (-.204, $p<0.05$), as opposed to being a nurse (.431, $p<0.01$).

I conducted factor analysis to confirm the conformity of data collected to the constructs under investigation in this study, see Table 4. The transformational leadership concept is comprised of five

constructs; each being made up of four items, totalling twenty transformational leadership items. Nineteen out of the twenty items have loaded into factor 1, with the exception of Q6, "*Attributed Idealistic Influence*" (Q6, The person I am rating talks about his/her most important values and beliefs: 1-Not at all…7- Frequently, if not always.). Employee innovative behaviours 6 items loaded neatly onto factor 2, and knowledge sharing 5 items loaded onto factor 4.

The descriptive statistics of study measures, correlations and Cronbach's Alpha appear in Table 5. Calculated Cronbach's alphas ranged from .810 to .963 for study construct measurements (employee innovative behaviour, knowledge sharing, and transformational leadership). In this study sample, employee innovative behaviour is positively and highly statistically significantly correlated with the level of education (.326, $p<0.01$) and with working in other departments outside of nursing (-.294, $p<0.01$). It is marginally significantly correlated with age and organisational tenure (.171, $p<0.1$; .164, $p<0.1$ respectively). On the other hand, employee innovative behaviour is statistically significant but negatively correlated with being a nurse and to a lesser extent with being a female, which is due to the fact that 92% of all nurses are female and 47% of all females in the sample are nurses. Employees working in allied health (pharmacists, technicians, physiotherapists, etc.) seem to behave more innovatively than physicians and nurses (.195, $p<0.05$). Knowledge sharing has a positive and statistically significant correlation with transformational leadership (.415, $p<0.01$), as well as, a positive and marginally statistically significant correlation with age, indicating that older employees tend to be willing to share more information (.155, $p<0.1$).

In order to determine the control factors, I conducted collinearity diagnostics using SPSS V.22. Table 6 indicates that there are serious problems with multicollinearity. Several Eigen values are close to zero, indicating that the predictors are highly inter-correlated and that small changes in the data values may lead to large changes in the estimates of the coefficients. Looking at the data, it is clear that the

profile of employees working in any department is unique to that department, in particular the profile of physicians in comparison to nurses, in terms of gender distribution, education level, ethnicity, and to a lesser extent organisational tenure (that in turn is highly correlated with age). Therefore, I decided to limit the number of control factors relating to duty (being a physician or nurse), education level, and organisational tenure.

Table 3: Followers' profile by profession.

		Physicians	Nurses	Others	Total
N	Count	40	50	35	**125**
	%	31.35%	40.75%	27.90%	**100.00%**
Male	Count	21	4	3	**28**
	%	52.50%	8.00%	8.57%	**22.40%**
Age	average	42.0	41.0	39.1	**40.8**
	SD	8.3	9.2	11.3	**9.5**
Org Ten	average	8.7	12.0	11.8	**10.9**
	SD	5.8	7.3	7.9	**7.1**
Education					
	Count	14	1	1	**16**
PhD	%	35.00%	2.00%	2.86%	**12.80%**
	Count	16	1	15	**32**
Post Grad	%	40.00%	2.00%	42.86%	**25.60%**
	Count	10	18	19	**47**
B.Sc.	%	25.00%	36.00%	54.29%	**37.60%**
	Count		30		**30**
Diploma	%	0.00%	60.00%	0.00%	**24.00%**
Language					
	Count	32	25	26	**83**
Arabic	%	80.00%	50.00%	74.29%	**66.40%**
	Count	8	20	6	**34**
Indian Languages & Urdu	%	20.00%	40.00%	17.14%	**27.20%**
	Count		5	3	**8**
Tagalog	%	0.00%	10.00%	8.57%	**6.40%**
Nationality					
	Count	11		18	**29**
UAE	%	27.50%	0.00%	51.43%	**23.20%**
	Count	8	20	6	**34**
India & Pakistan	%	20.00%	40.00%	17.14%	**27.20%**
	Count	10	11	4	**25**
North Arabia	%	25.00%	22.00%	11.43%	**20.00%**
	Count	9	11	4	**24**
Africa	%	22.50%	22.00%	11.43%	**19.20%**
	Count		5	3	**8**
Philippines	%	0.00%	10.00%	8.57%	**6.40%**
	Count	2	3		**5**
Others: Yemen and Oman	%	5.00%	6.00%	0.00%	**4.00%**

Table 4: Factor analysis

Rotated Component Matrix	Component					
	1	2	3	4	5	6
EIB Q1		.817				
EIB Q2		.863				
EIB Q3		.880				
EIB Q4		.811				
EIB Q5		.911				
EIB Q6		.945				
KS Q2				.641		
KS Q3				.793		
KS Q4				.869		
KS Q5				.820		
KS Q6				.771		
KA-Inter				***.560***		
KA-Ext						.694
KA-Pat						.732
KA-Supp						.712
IM Q9	.728					
IM Q13	.817					
IM Q26	.806					
IM Q36	.839					
IC Q15	.762					
IC Q19	.761					
IC Q29	.506					
IC Q31	.751					
IIA Q10	.749					
IIA Q18	.820					
IIA Q21	.834					
IIA Q25	.703					
IIB Q6					.699	
IIB Q14	.827					
IIB Q23	.735					
IIB Q34	.864					
IS Q8	.662					
IS Q2	.714					
IS Q30	.654					
IS Q32	.761					
TR Q1			.832			
TR Q2			.743			
TR Q3			.846			
TR Q4			.871			
TR Q5			.795			
TR Q6			.855			

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalisation.

***Abbreviations**: Employee Innovative Behaviour (EIB); Knowledge Sharing (KS); Knowledge Acquisition (KA); Knowledge Acquired from Internal Sources (KA-Inter); Knowledge Acquired from External Experts (KS-Ext); Knowledge Acquired from patients and their representatives (KS-Pat); Knowledge Acquired from Suppliers (KS-Supp); Inspirational Motivation (IM); Individualised Consideration (IC); Idealised Influence-Attributed (IIA); Idealized Influence-Behaviour (IIB); Intellectual Stimulation (IS); Team Reflection (TR).*

Table 5: Descriptive statistics, Cronbach's alpha, and correlations

		mean	SD	n	α	1	2	3	4	5	6	7	8	9	10	11	12
1	EIB	4.60	1.33	125	0.942												
2	KS	5.77	1.09	122	0.810	.093											
3	TFL	5.79	1.04	125	0.963	.135	.415**										
4	Sex	0.78	0.42	125	NA	-.170+	-.050	.066									
5	Age	40.82	9.55	125	NA	.171+	.155+	-.026	-.333**								
6	Dr	0.32	0.47	125	NA	.122	-.046	.114	-.495**	.087							
7	Nurse	0.40	0.49	125	NA	-.294**	.036	-.068	.282**	.018	-.560**						
8	Allied	0.28	0.45	125	NA	.195*	.010	-.044	.207*	-.110	-.428**	-.509**					
9	Edu	1.73	0.97	125	NA	.326**	.089	.073	-.365**	.106	.588**	-.686**	.138				
10	Org Ten	10.86	7.13	124	NA	.164+	.144	-.028	.121	.565**	-.209*	.125	.082	-.135			
11	Arabic	0.74	0.44	125	NA	-.007	-.050	.057	-.051	-.061	.285**	-.419**	.162+	.260**	-.130		
12	Indian/ Urdu	0.19	0.40	125	NA	-.090	.016	-.014	-.030	.069	-.204*	.431**	-.259**	-.221*	.095	-.831**	
13	Tagalog	0.06	0.25	125	NA	.157+	.062	-.080	.140	-.002	-.179*	.053	.128	-.107	.079	-.446**	-.127

Bivariate Correlation, 2-tailed. +p<0.1 level. *p<0.05 level. **p< 0.01 level.

***Abbreviations**: Employee Innovative Behaviour (EIB); Knowledge Sharing (KS); Transformational Leadership (TFL); Transactional Leadership (TSL); Doctor (Dr); Education (Edu); Organisational Tenure (Org Ten).*

Table 6: Collinearity diagnostics

	Model	Dimension	Eigen value	Condition Index
	1	1	6.035	1
Sex		2	1.363	2.104
Age		3	0.812	2.726
Dr		4	0.319	4.348
Nurse		5	0.236	5.057
Edu		6	0.126	6.926
Org Ten		7	0.069	9.386
Arabic		8	0.033	13.516
Indian/ Urdu		9	0.008	26.915
a Dependent Variable: EIB				

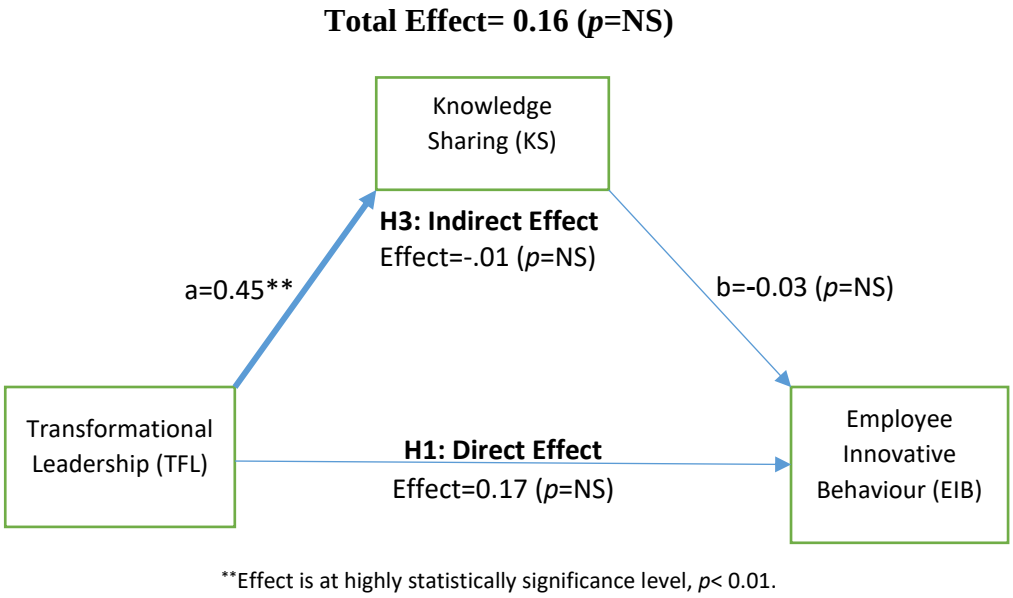
***Abbreviations**: Doctor (Dr); Education (Edu); Organisational Tenure (Org Ten).*

4.4.2. Inferential Analysis

I started by looking at the association between transformational leadership and employee innovative behaviour; transformational leadership and knowledge sharing; and knowledge sharing and employee innovative behaviour, see Table 5. There is no significant association between transformational leadership and employee innovative behaviour (r = 0.135, nonsignificant), and no significant association between knowledge sharing and employee innovative behaviour (r = 0.093, nonsignificant). However, there is a statistically significant association between transformational leadership and knowledge sharing (r = 0.415, p<0.001). According to Hayes (2009), even in the absence of evidence of a simple association, indirect effects can still exist, I therefore subjected the study data to the mediation analysis methods outlined in Hayes (2013) using SPSS version 22, see Table 7. The null hypothesis stating that the direct effect of transformational leadership's influence on employee innovative behaviour is equal to zero cannot be rejected because the 95% confidence interval estimate for the direct effect is -.0690 to .4125, which includes zero. The null hypothesis that the indirect effect of transformational leadership's influence on employee innovative behaviour mediated via knowledge sharing is equal to zero, therefore it cannot be rejected because the confidence interval estimate (bootstrapped 1,000 times) for the indirect effect is -.1039 to .0855, including zero.

Therefore, I can confidently reject **hypothesis 1** 'Transformational leadership is positively related to employee innovative behaviour' and **hypothesis 3** 'Knowledge sharing mediates the relationship between transformational leadership and employee innovative behaviour' in favour of the null hypothesis.

Figure 9, Mediation Effect of Knowledge Sharing (KS) at Individual level (H3).



**Effect is at highly statistically significance level, $p < 0.01$.

Table 7: Mediation effect of knowledge sharing (KS) at individual level

Model = 4 **Outcome Variable:** Employee Innovative Behaviour (EIB)
Independent Variable: Transformational Leadership (TFL)
Mediator: Knowledge Sharing (KS)
Statistical Controls: Physician (Dr), Nurse (Nurse), Educational level (Edu), Organizational Tenure (OrgTen)
Sample size: 121

Outcome: KS
Model Summary

R	R-sq	MSE	F	df1	df2	p
.4829	.2332	.9624	6.9937	5.0000	115.0000	.0000

Model

	coeff	se	T	*p*	LLCI	ULCI
Constant	2.2475	.6370	3.5285	.0006	.9858	3.5092
TFL	.4476	.0858	5.2184	.0000	.2777	.6176
Dr	-.2999	.2455	-1.2216	.2243	-.7863	.1864
Nurse	.3539	.2581	1.3711	.1730	-.1574	.8651
Edu	.2829	.1337	2.1159	.0365	.0181	.5478
OrgTen	.0235	.0130	1.8113	.0727	-.0022	.0492

Outcome: EIB
Model Summary

R	R-sq	MSE	F	df1	df2	p
.4224	.1784	1.5621	4.1262	6.0000	114.0000	.0009

Model

	coeff	se	T	*p*	LLCI	ULCI
constant	2.7049	.8543	3.1663	.0020	1.0126	4.3972
KS	-.0252	.1188	-.2123	.8322	-.2606	.2101
TFL	.1717	.1215	1.4128	.1604	-.0690	.4125
Dr	-.3510	.3148	-1.1149	.2672	-.9746	.2727
Nurse	-.4566	.3315	-1.3775	.1711	-1.1132	.2000
Edu	.4052	.1736	2.3334	.0214	.0612	.7492
OrgTen	.0394	.0168	2.3473	.0206	.0061	.0726

Outcome: EIB
Model Summary

R	R-sq	MSE	F	df1	df2	*p*
.4220	.1781	1.5491	4.9838	5.0000	115.0000	.0004

Model

	coeff	se	T	p	LLCI	ULCI
constant	2.6482	.8081	3.2771	.0014	1.0475	4.2489
TFL	.1604	.1088	1.4741	.1432	-.0551	.3760
Dr	-.3434	.3115	-1.1025	.2725	-.9604	.2736
Nurse	-.4655	.3274	-1.4218	.1578	-1.1141	.1830
Edu	.3981	.1697	2.3463	.0207	.0620	.7341
OrgTen	.0388	.0165	2.3545	.0202	.0062	.0714

TOTAL, DIRECT, AND INDIRECT EFFECTS

Total effect of	**Effect**	**SE**	**t**	***p***	**LLCI**	**ULCI**
X on Y	.1604	.1088	1.4741	.1432	-.0551	.3760
Direct effect	**Effect**	**SE**	**t**	***p***	**LLCI**	**ULCI**
of X on Y	.1717	.1215	1.4128	.1604	-.0690	.4125

Indirect effect of X on Y	**Effect**	**Boot SE**	**BootLLCI**	**BootULCI**
KS	-.0113	.0482	-.1039	.0855

ANALYSIS NOTES AND WARNINGS

Number of bootstrap samples for bias corrected bootstrap confidence intervals: 1000
Level of confidence for all confidence intervals in output: 95.00.

4.5.Team Level Study Results

4.5.1. Descriptive Statistics

The total number of team leaders that enrolled onto this study is 32. Leaders were rated with an average of 3.91 (SD.39) by their followers, whilst simultaneously they rated their team members for collective team innovativeness. Followers also provided their rating of their collective team reflection, as well as, their impression of their collective level of knowledge acquisition from four sources external to the team, namely: from other hospital departments, patients and patient representatives, external experts, and suppliers.

Of the 32 leaders, 41% are nurses, 37% are physicians, and 22% are allied health professionals such as pharmacists, laboratory technicians, physiotherapists and nutritionists. The average leader age is 47.5 (SD 9.9) years, with an average organisational tenure of 15.5 (SD 7.6) years. The overall gender distribution of leaders is 75% female, and 59.3% of all leader respondents have some kind of postgraduate qualification (MSc and PhD). There are striking demographic differences between leading physicians and leading nurses in terms of gender distribution (50.0% of leading physicians vs. 100% of leading nurses are females); education (100% of leading physicians vs. 15.4% of leading nurses have postgraduate degrees); and ethnicity (91.6% of leading physicians vs. 53.8% of leading nurses speak Arabic as their mother tongue) (see Table 8).

The descriptive statistics of study measures, correlations and Cronbach's alpha appear in Table 10 and Table 11. The within group agreement (Rwg) calculated value for transformational leadership was 0.87 (.29), hence allowing me to aggregate values to team level. Employees' assessed their perception of the extent of their team reflection using six questions (see Table 1). All team reflection items fell exclusively into factor 3 (see Table 4) with a good Cronbach's alpha of .884 (see Table 10), which allowed me to aggregate these items into one value indicative of the

individual's own perception of his/her team reflection. The within group agreement (Rwg) calculated value for team reflection was also good at 0.70 (.37), hence allowing me to aggregate values to team level. Employees' evaluated the level of their knowledge acquisition from four different sources using one direct question for each source, see Table 1. Knowledge acquisition is a formative construct, where knowledge acquired from different sources provides employees with exposure to different ways of doing things and different ways of seeing the world (Cheetham and Chivers, 2001 - p.271). According to research of Cheetham and Chivers (2001), different professions give different weights to the same source of competency depending on their professional characteristics. In this study, each member of the team will be bringing in some sort of knowledge independent of other team members. This is notable in a healthcare setting where nurses are usually the main point of contact with patients; heads or deputy heads of the department are the main target of suppliers; junior members of staff have a lot of their training within the hospital; and Senior members of staff are more likely to take the opportunity to attend conferences and to be in touch with external experts (Kannampallil et al., 2011; Sibbald and Kothari, 2015; Cheetham and Chivers, 2001). Therefore, within team agreement (Rwg) of knowledge acquisition items is not expected to be high (see Table 10).

Table 8: Leaders' profile distributed by profession

		Physicians	Nurses	Others	Total
N	Count	12	13	7	**32**
	%	37.50%	40.63%	21.88%	**100.00%**
Male	Count	6	0	2	**8**
	%	50.00%	0.00%	28.57%	**25.00%**
Age	average	46.67	50.00	44.14	**47.47**
	SD	7.05	9.20	14.85	**9.93**
Org Ten	average	14.54	18.85	10.86	**15.48**
	SD	7.64	6.62	6.99	**7.55**
Team size	average	26.58	19.77	23.00	**23.03**
	SD	42.26	8.08	19.25	**27.20**
Leadership Training	Count	4	9	2	**15**
	%	33.33%	69.23%	28.57%	**46.88%**
Education					
PhD	Count	9		1	**10**
	%	75.00%	0.00%	14.29%	**31.25%**
Post Graduate	Count	3	2	4	**9**
	%	25.00%	15.38%	57.14%	**28.13%**
B.Sc.	Count		6	2	**8**
	%	0.00%	46.15%	28.57%	**25.00%**
Diploma	Count		5		**5**
	%	0.00%	38.46%	0.00%	**15.63%**
Language					
Arabic	Count	11	7	6	**24**
	%	91.67%	53.85%	85.71%	**75.00%**
Indian Languages & Urdu	Count	1	5		**6**
	%	8.33%	38.46%	0.00%	**18.75%**
Tagalog & Polish	Count		1	1	**2**
	%	0.00%	7.69%	14.29%	**6.25%**
Nationality					
UAE	Count	9	2	4	**15**
	%	75.00%	15.38%	57.14%	**46.88%**
India	Count	1	5		**6**
	%	8.33%	38.46%	0.00%	**18.75%**
North Arabia & Iran	Count	2	3	1	**6**
	%	16.67%	23.08%	14.29%	**18.75%**
Others: Egypt, Sudan, Philippines, Poland	Count		3	2	**5**
	%	0.00%	23.08%	28.57%	**15.63%**

Table 9: Profile of knowledge acquirers

Pearson Correlations	KA- Inter	KA-Ext	KA-Pat	KA-Supp
Sex	.033	-.094	-.143	-.035
Age	.233*	-.001	.155	.093
Edu	-.024	-.142	-.067	-.099
Dr	-.108	-.019	.098	.012
Nurse	.094	.054	.195*	-.048
Allied	.012	-.039	-.315**	.040
Org Ten	.214*	.046	.159+	.090

+. Correlation is near significant at the $p< 0.10$ level (2-tailed).
**. Correlation is significant at the $p< 0.01$ level (2-tailed).
*. Correlation is significant at the $p< 0.05$ level (2-tailed).

***Abbreviations**: Education (Edu); Doctor Leader (Dr); Nurse Leader (Nurse); Allied Health Professional Leader (Allied); Organisational Tenure (Org Ten). Knowledge Acquired from Internal Sources (KA-Inter); Knowledge Acquired from External Experts (KS-Ext); Knowledge Acquired from Patients and their Representatives (KS-Pat); Knowledge Acquired from Suppliers (KS-Supp).*

Table 10: Descriptive statistics of team members' rated scales

Followers' perception	N	α	ICC (1)	ICC (2)	RWG Mean	RWG SD	N of Items
Team Reflection (TR)	121	.884	.879 (.841-.910)	.884 (.849-.914)	0.70	0.37	6
Transformational Leadership (TFL)	100	.963	.958 (.945-.969)	.960 (.947-.970)	0.87	0.29	20
KA- sum of median all items	117	.701	.704 (.600-.786)	.729 (.634-.805)	0.48	0.34	4

***Abbreviations**: Team Reflection (TR); Transformational Leadership (TFL); Sum of Knowledge Acquisition (KA).*

Table 11: Scales descriptive statistics and Pearson's correlations

	Mean	SD	N	TI	TR	KA	TFL	Dr
TI	4.8594	1.02378	32	1				
TR	5.1309	.82217	32	.297+	1			
KA	16.9688	4.54181	32	.146	.326+	1		
TFL	5.7825	.65850	32	.354*	.344+	.323	1	
Dr	.3333	.44951	32	-.093	.070	.036	.200	1
Nurse	.3932	.48278	32	.056	-.024	.060	-.122	-.572**

+. Correlation is near significant at the $p< 0.10$ level (2-tailed).
*. Correlation is significant at the $p< 0.05$ level (2-tailed).
**. Correlation is significant at the $p< 0.01$ level (2-tailed).

***Abbreviations**: Team Innovativeness (TI); Team Reflection (TR); Sum of Knowledge Acquisition (KA); Transformational Leadership (TFL); Doctor Leader (Dr); Nurse Leader (nurse).*

4.5.2. Inferential Analysis

Bivariate correlation analysis results indicate that team aggregated transformational leadership is statistically significant when associated with team innovativeness (.354, $p<0.05$), see Table 11. Further tests were conducted using Hayes (2013) Process Macro method which also indicated that the direct effect of transformational leadership on team innovativeness is statistically significant (effect= 3.8418, $p<0.05$), see Table 12. Therefore, in testing hypothesis 2 'Transformational leadership is positively related to team innovativeness', and so, the null hypothesis that transformational leadership does not influence team innovativeness can be rejected, hence **hypothesis 2 is supported**.

Conditional Process Analysis: Moderated Mediation

Bivariate correlation analysis results indicate that team aggregated transformational leadership associated with team reflection is marginally significant (.344, $p<0.10$), and team reflection, in turn, is marginally significant when associated with team innovativeness (0.297, $p<0.10$). These simple associations are indicative of the possible moderation effect of team reflection on the relationship between transformational leadership and team innovativeness. I subjected the study data to mediation analysis methods outlined in Hayes (2013) using SPSS version 22. Using the Bootstrap Confidence Intervals method, "*indirect effects are considered significant when confidence intervals do not overlap zero*" (Hayes, 2013 - chapter 11). The mechanism of linking X (independent variable) to Y (outcome variable) can be said to be conditional if the indirect effect of X on Y through M (mediator) is contingent on a moderator (Hayes, 2013 - p.327). Preacher et al. (2007) defined a conditional indirect effect as "*the magnitude of an indirect effect at a particular value of a moderator"* (p.186). The results of this study provide evidence for a

conditional indirect (moderated mediation) effect of team reflection by knowledge acquisition, on the influence of transformational leadership on team innovativeness.

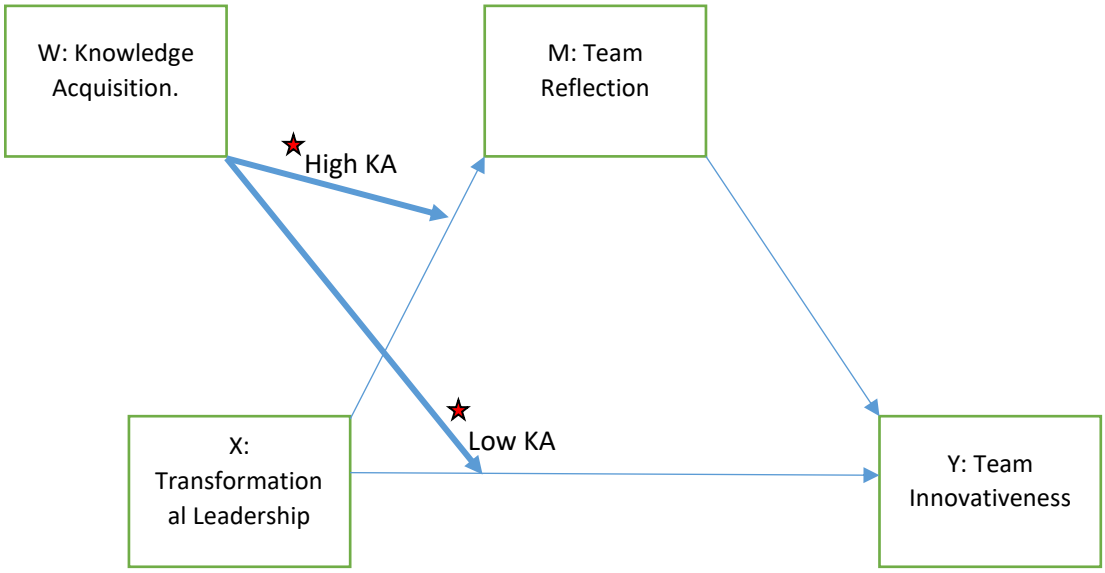
According to process macro model 8, outlined in Table 12, knowledge acquisition moderates the direct and the indirect effects of transformational leadership on team innovativeness. Starting the analysis interpretation with the null hypothesis; that the transformational leadership influence on team innovativeness is not mediated via team reflection, I can reject this null hypothesis because at the indirect effect of the highest order product (index of moderated mediation), the 95% confidence interval estimate (bootstrapped 1,000 times) for the indirect effect is .0135 to .3878, i.e., it is entirely above zero. Hence, **hypothesis 4 is supported**.

Furthermore, by carefully inspecting Table 12, I can deduce the following about the direct and the indirect effects:

- Direct Effect: When knowledge acquisition is low, the direct effect of transformational leadership on team innovativeness is statistically significantly positive (effect= 1.3095, $p<0.05$). However, when knowledge acquisition is moderate to high, the direct effects of transformational leadership on team innovativeness are not no longer statistically significant (effects= .4520 and -.4054, respectively). Therefore, I can confidently accept **Hypothesis 5a,** whereby the direct relationship between transformational leadership and team innovativeness is stronger in teams with lower knowledge acquisition from external sources and weaker in teams with higher knowledge acquisition from external sources.
- Indirect Effect: The interaction between transformational leadership and knowledge acquisition on team reflection is statistically significant (β =.1905, $p<.01$). Further inspection of the indirect effects at different values of knowledge acquisition suggests that when knowledge acquisition is low and moderate, the indirect effects are not significant (effects= -.2723 and .1520,

respectively). However, when knowledge acquisition is high, the indirect effects become significant (effect= .5764, 95CI [.0924 to 2.2217], bootstrapped 1,000 times). Therefore, I can confidently accept **Hypothesis 5b:** team knowledge acquisition from external sources will moderate the indirect effect of transformational leadership on team innovativeness through team reflection. Specifically, I predicted that among teams with higher levels of team knowledge acquisition from external sources, there will be a positive indirect effect of transformational leadership on team innovativeness, through team reflection.

Figure 10, Schematic representation of the team level conditional process analysis (H5a &b)



★Denotes that the 1000 bootstrapped confidence intervals do not overlap zero, therefore the effect is considered significant (Hayes, 2013).

Table 12: Moderated mediation at team level

Model = 8

Y = Team Innovativeness (TI) X = Transformational Leadership (Tfl) M = Team Reflection (TR) W = Knowledge Acquisition (KA).
Statistical Controls: Dr Nurse
Sample size: 32
****

Outcome: TR
Model Summary

R	R-sq	MSE	F	df1	df2	p
.6181	.3821	.4980	3.2151	5.0000	26.0000	.0216

Model

	coeff	se	t	p	LLCI	ULCI
constant	20.5842	6.4091	3.2117	.0035	7.4096	33.7587
Tfl	-2.8531	1.1198	-2.5480	.0171	-5.1549	-.5514
KA	-1.0401	.3779	-2.7521	.0106	-1.8170	-.2632
int_1	.1905	.0658	2.8940	.0076	.0552	.3258
Dr	-.2154	.3576	-.6024	.5521	-.9505	.5197
Nurse	-.0248	.3388	-.0732	.9422	-.7213	.6717

Product terms key: int_1 Tfl X KA
****

Outcome: TI
Model Summary

R	R-sq	MSE	F	df1	df2	p
.5395	.2911	.9214	1.7106	6.0000	25.0000	.1600

Model

	coeff	se	t	p	LLCI	ULCI
constant	-19.4412	10.3028	-1.8870	.0708	-40.6609	1.7785
TR	.5347	.2668	2.0043	.0560	-.0147	1.0841
Tfl	3.8418	1.7026	2.2564	.0330	.3350	7.3486
KA	1.1575	.5842	1.9814	.0587	-.0457	2.3606
int_2	-.2058	.1030	-1.9992	.0566	-.4179	.0062
Dr	.0372	.4898	.0759	.9401	-.9716	1.0459
Nurse	.0014	.4609	.0031	.9975	-.9479	.9507

Product terms key: int_2 Tfl X KA

********** DIRECT AND INDIRECT EFFECTS **********

Conditional direct effect(s) of X on Y at values of the moderator(s):

KA	Effect	SE	t	p	LLCI	ULCI
12.3035	1.3095	.5028	2.6045	.0153	.2740	2.3451
16.4698	.4520	.2899	1.5595	.1315	-.1450	1.0491
20.6360	-.4054	.5322	-.7619	.4533	-1.5015	.6906

Conditional indirect effect(s) of X on Y at values of the moderator(s):
Mediator

	KA	Effect	Boot SE	BootLLCI	BootULCI
TR	12.3035	-.2723	.2933	-1.1862	.0884
TR	16.4698	.1520	.1734	-.0739	.6300
TR	20.6360	.5764	.4872	.0924	2.2217

Values for quantitative moderators are the mean and plus/minus one SD from mean.
Values for dichotomous moderators are the two values of the moderator.

Indirect effect of highest order product: Index of Moderated mediation
Mediator

	Effect	SE(Boot)	BootLLCI	BootULCI
TR	.1019	.0871	.0135	.3878

********** ANALYSIS NOTES AND WARNINGS **********
Number of bootstrap samples for bias corrected bootstrap confidence intervals: 1000
Level of confidence for all confidence intervals in output: 95.00

Figure 11, Knowledge acquisition moderates the direct effect of transformational leadership on team innovativeness (H5a).

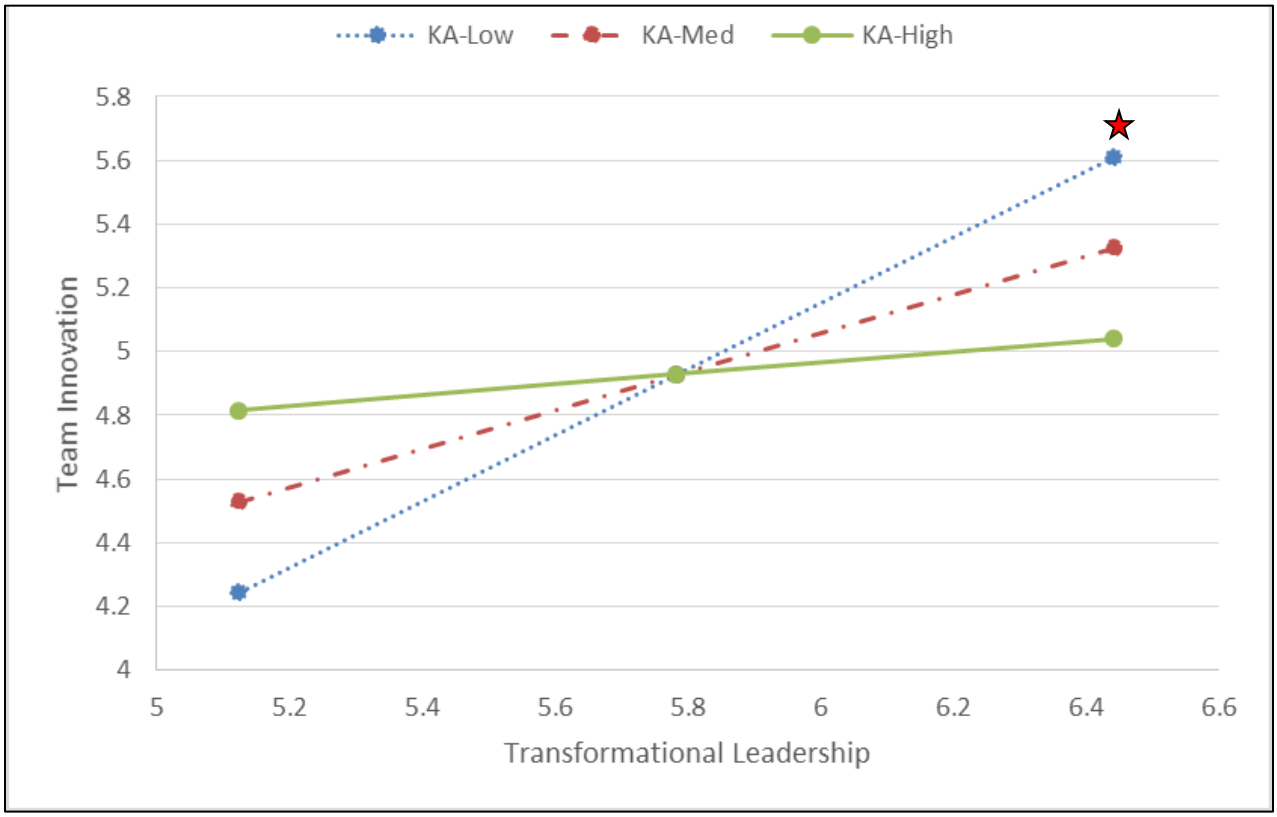


Figure 12, Knowledge acquisition moderates the effect of transformational leadership on the mediator team reflection (H5b)

5. Discussion

This study investigated the mechanisms that drive innovativeness in the work place in one of the oldest and largest comprehensive tertiary hospitals (more than three hundred beds) in the United Arab Emirates. This hospital is one of numerous hospitals managed by the Ministry of Health where a central Human Resources Department is responsible for the training and development of all members of staff. The current human resource situation is not well developed as it is not permissive for job promotions, a notion last seen in the hospital 13 years ago (Source: personal correspondence). For a member of staff to seek a training opportunity at the Ministry of Health level, they would require the nomination of their head of department. Clinical members of staff are also encouraged to seek external knowledge acquisition opportunities by attending at least one conference within the UAE and two international conferences annually. However, their employer (the Ministry of Health) does not provide ample financial support for conference attendance, and more often than not, those who wish to attend a particular conference would need to arrange their own budget, either by personally financing it or via sponsorship from suppliers (Source: Interview with the hospital HR manager).

5.1. Individual Level Results

The results of this study show that transformational leadership positively influences knowledge sharing among employees working in the same department. Employees' rating of their within-department knowledge sharing was in high correlation with their rating of their leader's transformational behaviour. This particular finding is quite robust and consistent with earlier empirical research that was carried out in different industries and locations (see for example,

(Sheehan, 2016; Carmeli et al., 2013; Bednall et al., In Prep; Zhang et al., 2011; Hunter et al., 2007; Zhang and Bartol, 2010; García-Morales et al., 2008).

A number of studies supported the notion that knowledge sharing per se, is positively associated with innovativeness (see for example, Hu et al., 2009; Wang and Wang, 2012; Liao et al., 2007; Lin, 2007; Liu et al., 2005; Leiponen, 2006; Leiponen, 2005; Hu and Randel, 2014; Zhou and Li, 2012), and that it acts as a mediator between transformational leadership and innovativeness (Sheehan, 2016: Carmeli et al., 2013; Bednall et al. In prep; Zhang et al, 2011; Zhang et al., 2007). However, drawing on the idea that knowledge sharing is a complex behaviour that is affected by a number of factors related to personal, organisational work climates, and organizational characteristics (Mumford and Gustafson, 1988; Černaitė and Sudintaitė, 2012; Mumford et al., 2002; Wang and Noe, 2010), it is plausible that under certain circumstances, knowledge sharing would not be positively associated with innovativeness (Yesil et al., 2013; Park et al., 2014). Personal factors that could influence knowledge sharing intentions include employee enjoyment in helping others, anticipated reciprocal relationships, knowledge self-efficacy, and sense of self-worth (Lin, 2007; Cabrera et al., 2006; Bock et al., 2005; Seers et al., 1995). Organisational work climate factors that could influence knowledge sharing intentions include open leadership, top management support, trust, learning from mistakes, fairness, affiliation, innovativeness and organisational commitment (Vong et al., 2016; Lin, 2007b; Bock et al., 2005; Lin, 2007a; Cabrera et al., 2006; Taylor and Wright, 2004; Kim and Lee, 2006). Informational-processing failures are aggravated in the absence of a positive work climate, where individuals could even engage in counterproductive work behaviour, e.g., lack of trust could lead to knowledge hoarding or even hiding (Connelly et al., 2012; Cerne et al., 2014). Knowledge sharing is also affected by organisational characteristics, in particular centralisation and formalisation structures that are abundant in the public sector, could

negatively influence employee knowledge sharing intentions (Kim and Lee 2006). Individuals, working alone or in teams, often use suboptimal or dysfunctional information-processing strategies that could led to common errors that will eventually be amplified in teams (e.g., Hinsz et al., 1997; Senge, 1990).

In this study, our results show that at the individual level transformational leadership did not have a statistically positive influence on employee innovative behaviour, regardless of the level of knowledge sharing **(Hypothesis 1 and Hypothesis 3).** It is therefore possible that contextual factors beyond the control of the middle manager came into play. I can think of four reasons (acting jointly or separately) that could have contributed to this lack of effect:

The first is organisational type. The unique positioning of subject organization of this research, as a not-for-profit government managed hospital, could be described to have a quasi-public organisational characteristics (see section 1.2), where centralisation and formalisation were found to negatively affect knowledge sharing (Kim and Lee, 2006; Vong et al., 2016). This public-sector attribute could have contributed to capping middle managers' direct influence on employee innovative behaviours (Willem and Buelens, 2007; Arora, 2011).

The second is organisational factors. In the light of the "*Componential Theory of Creativity*", one could suspect that organisational reasons beyond the direct manager's control, such as lack of resources, high workload pressure, or organisational inhibition to creativity, could hamper employee innovative behaviours (Amabile, 2012; Amabile et al., 1996; Amabile, 1998; Amabile, 1997).

Third is the type of knowledge shared. It is possible that the knowledge that was shared was not in the anticipated direction. Sibbald and Kothari (2015) were critical of knowledge seeking in healthcare as they observed that it is often done in an ad hoc manner. Van Woerkom (2003)

expressed her scepticism about the effectiveness of knowledge sharing per se, because it could take place in a direction that can be described as desirable (positive work-related learning) or undesirable (counterproductive learning activities such as erroneous emphasis, distortion, or critical omissions of important work-related information, see for example Schippers et al., 2014; Flores et al., 2012). It is difficult to know what exactly goes on among colleagues' because it largely takes place under the surface. Mueller and Kamdar (2011) are also sceptical about the beneficial effects of knowledge sharing to the individual's innovativeness, as this depends on whether the individual is a giver or a recipient of knowledge. Hoffman (2005) suggested that knowledge sharing is an effective and inexpensive way of helping employees gain new insights into the organisational goals and the "*way of doing things*". Therefore, the question remains; what is the way of doing things inside the hospital context of this study?

Fourth is the usefulness of internal knowledge. There are speculations about how useful it is to share internal knowledge among colleagues working in close proximity. Ven (1986) argued that organisational factors may not influence innovativeness as evenly as extra organisational contexts, which is also recognised by a number of other scholars (see for example, Jensen et al., 2007, Darroch and McNaughton 2002). In fact, the view that external and internal opportunities of knowledge sharing as being complementary seems to receive little agreement (Rothwell, 1992).

The above-mentioned potential obstacles indicate that middle managers' influence on employee innovative behaviour is constrained by numerous factors beyond the control of the team leader.

5.2. Team Level Results

5.2.1. The Influence of Transformational Leaders is Amplified in Teams.

Early scholars argued that effective leaders often adjust to a situation or adjusts the situation to suite him or herself (House, 1996 - p.323). Drawing on Yukl (1999) criticism of the static assumptions of the early transformational leadership theory, that the underlying process and outcomes are the same in all situations. In this study, I provide evidence that transformational leadership- innovativeness nexus in healthcare organizations does adjust to situations according to a specific environmental factor, namely varying levels of external new knowledge acquisition by team members**.** At one end of the spectrum, the result of this study indicates that in teams with lower levels of knowledge acquisition opportunities from external sources, the direct influence of transformational leadership on team innovativeness is prevalent **(Hypothesis 5a)**. At the other end of the spectrum, in teams with higher levels of knowledge acquisition opportunities from external sources, the indirect influence of transformational leadership on team innovativeness mediated through team reflexivity is prevalent **(Hypothesis 5b)**.

This study outcomes are in line with Wang et al., (2011) finding that the positive influence of transformational leadership is stronger at team-level than at individual-level outcome. It is also in line with "*Transformational Leadership Theory"*, where the role of the creative leader is more than an enabler of the work of others (Mumford et al., 2002). The amplification of the transformational leader's influence at team level (in comparison to individual level) is expected given the transformational leader's role in creating an overriding innovativeness-friendly work climate for the whole team (Bass et al., 2003; Bass, 2006). Such that transformational leaders are capable of instilling team psychological safety, trust, emotional links, shared vision, team identity, a sense of purpose, and a common goal. Through these attributes, team members' sense of threat would

diminish, enabling them to volunteer their tacit knowledge towards higher work values and better collective team performance (Mumford et al., 2002, Colbert et al., 2014; Dollard and Bakker, 2010; Dutton, 1993; Edmondson, 1999; Golembiewski and McConkie, 1975; Kramer, 1999; West and Farr 1990). Ultimately leading to higher team efficacy, cohesion, potency, and innovativeness **(Hypothesis 2)** (Bass and Avolio, 2000; Gully et al., 2002; Klein and House, 1995; Schaubroeck et al., 2007; Shamir et al., 1993)

5.2.2. At Lower Levels of External New Knowledge Acquisition

The most obvious consequence of having consistently lower levels of external new knowledge supplied to highly educated teams is the failure to refresh human capital, that could result in team members' falling into competency trap by using knowledge and expertise that is somewhat outdated (Al-Laham et al., 2011). As time goes by, team members become increasingly similar in their professional skills, knowledge, and abilities, with increasing pressure on members to conform to habitual routines and the status quo, resulting in decreased opportunities for discussing conflicting ideas and suggestions (West, 2002; Gersick and Hackman, 1990). These could cause an overall build-up of employee job dissatisfaction due to their inability to pursue latest developments in their field, and possibly leading to difficulty in achieving team objectives (Zhou and George, 2001). Under conditions of lower levels of employee development, a number of studies advocated that leaders' direct communication style is appropriate in order to drive team cognitive processes. Such that, where the leader's skills, knowledge, and expertise is communicated to group members, it contributes to their task knowledge (see for example: House, 1996; Larson et al., 1998; Larson et al., 1996; Murphy et al., 1992; Sagie et al., 2002; Sosik et al., 1997; Fiedler, 1986). Transformational leaders' inspirational motivation behaviour serves to initiate the questioning of assumptions, voice

unshared information, and encourage members to embrace them (Larson et al., 1998; Larson et al., 1996; Hirst et al., 2009). At the same time, elaborate on a clear vision to align members' actions and decision making (Sagie, 1997). The more an employee develop a relational self-concept leading to identification with the charismatic transformational leader, his or her acceptance of the leaders' direct influence becomes satisfying (Kark and Shamir, 2002; Kark et al., 2003). Moreover, the leader's wellbeing becomes a priority to followers, who are motivated to exert extra effort in order to receive his/her approval by complying with, and adhering to leader's requests and set task objectives (Kark and Shamir, 2002; Brewer and Gardner, 1996).

5.2.3. At Higher Levels of External New Knowledge Acquisition

The external new knowledge acquisition measured in this study is of a formative nature, i.e., different members of the team acquire external knowledge from different sources, hence their knowledge and skills diversity increases. For example, nurses acquire significantly higher levels of external knowledge sourced mainly from patients and their families; whilst allied health staff (such as laboratory technicians, pharmacists and nutritionists, etc) have significantly lower level of contact with patients and their families (see Table 9). The advantages of this process are that it increases team diversity and the overall pool of knowledge of the whole team. Wilson et al. (2007) reasoned that "*Individuals can learn within the context of a group, and their learning may improve the group's performance, but it still is individual learning unless shared by members of the group"* (p.1043). This suggest that the knowledge acquired (learned) by different members of the group will have different effect on the collective outcome, depending on the extent of processing it amongst group members. In this study, I looked at team reflexivity as the collective social interaction mechanism that act as a medium for good team information processing (Schippers et al., 2014). This will lead

us with two possibilities: if adequate social interactions by members of the group exist, then we will expect an increase in team innovativeness, where the new knowledge will be processed adequately through the group information processing system (Huber, 1991; Dahlin and Weingart, 1996; Woodman et al. 1993; Cohen and Levinthal 1990). In this case, members of the group could identify and utilise the knowledge of their most expert member for any particular issue (Libby et al., 1987). Collectively, they have a freedom to evaluate and learn from feedback for every task (Hackman, 2004). Alternatively, where there are no adequate social interactions among team members, the probability for positive influence on team innovativeness will not materialise due to sub-optimal team information processing. Such that, as team knowledge and skills diversity increases, so would the chances for practical failures in team information processing. For example, failure to develop shared understanding, increased social categorisation, relationship conflicts, and substantive disagreements among team members (West, 2002; Cronin and Weingart, 2007; Pelled et al., 1999: Jehn, 1997). These are aggravated further in healthcare organizations due to the inherent social boundaries that exist between differently ranked professionals (doctors/nurses/technicians) (Scott and Bruce, 1994; Ferlie et al., 2005). Team information processing shortfall could increase stress, and harm group cohesiveness, and damage performance and satisfaction, this in turn can be harmful to collective innovative behaviour (Jehn, 1997; Sanders and Shipton, 2012).

I argue that under circumstances where there is a substantial influx of external new knowledge into the team, transformational leaders can unlock the full potential of external knowledge acquired by different team members by enabling team reflexivity **(Hypothesis 4 and 5b)**. For new knowledge to be appropriately and efficiently exchanged, incubated, and processed by the whole team, the team leader is ought to embrace team members' collective knowledge, skills, expertise, views and opinions (DeDreu et al., 2008; Wong et al., 2007; Hülsheger et al., 2009; Nonaka, 1991). Therefore,

as the level of formative knowledge acquisition among team members increases, the effective transformational team leader should modify his/her approach accordingly: Firstly, the *"Cognitive Resource Theory*" and the "*Path-Goal Theory*" of leadership (Fiedler, 1978; House and Mitchell, 1974) argue that, under conditions of higher followers' development, it is no longer appropriate for team leaders to adopt a directive approach. Under these conditions the leaders' technical knowledge and expertise are most likely not superior to the followers' any more (Murphy et al., 1992), and the group is not in need of the leader's guidance to accomplish an ambiguous task (House and Mitchell, 1974). Rather the effective leader should opt for adopting a 'music director' approach in order to orchestrate group activity towards a common goal, improving their adaptability in the face of a changing environment by supporting, disciplining, stretching, and trusting the group members (Gibson and Birkinshaw, 2004). Secondly, Leaders' success in this quest lie in the cognitive realm they create (Sagie et al., 2002) that will encourage team members with different backgrounds and knowledge to contribute their tacit and explicit knowledge to the team (Curral et al., 2001). Through bestowing a psychologically safe environment, members of the team will be able to exchange ideas comfortably (Edmondson, 1999; Chen et al., 2016; Sagie, et al., 2002; Durham et al., 1997), and openly challenge the status quo with new and conflicting suggestions and perspectives (West, 2002; Bradley et al., 2012). Such that, team members will reconsider, reflect on their personal points of view, and take into account factors not previously considered (Drach-Zahavy and Somech, 2001). Finally, the effective transformational team leader could modify the way member of the team members identify with the work unit. Such a leader can shape positive team processes by fostering followers' identification with the team (Kark et al., 2003). By highlighting the positive attributes of the group and the high self-esteem of its members (Tajfel and Turner, 1986), the leader can increase the attractiveness of the group that will ultimately augment collective efficacy (Shamir et al., 1998)

and resulting in enhanced cooperative behaviours towards shared problems (Brewer and Gardner, 1996). A number of studies asserted that transformational leadership influence on group members' willingness to contribute to group objectives is mediated through raising followers' identification with the group (Kark and Shamir, 2002; Kark et al., 2003; Shamir et al., 1998). As transformational leaders encourage team reflexivity, they further contribute to the development of the employee collective self-concept and identification with the team by promoting team autonomy (Kark et al., 2003). By granting team members the opportunity to reflect on, infer accomplishments so far, and plan for future action (LePine et al., 2008; Marks et al. 2001), the leader will act towards freeing the team from over-dependence on the transformational leader's persuasive style.

A gap in the literature that I address touches on the boundary conditions which influence whether the transformational leadership evokes the team's collective social identify (represented by reflexivity) or personal identification with the leader (Kark et al., 2003). This study provides empirical evidence supporting Schippers et al. (2014) conceptual framing that team reflexivity "*can function as an antidote to team-level biases and errors in decision making*" (p.731).

5.3 Study Contribution

Maier's (1967) wisdom had clearly pointed out the key to the innovativeness jackpot "*If the potentials for group problem solving can be exploited and if its deficiencies can be avoided, it follows that group problem solving can attain a level of proficiency not ordinarily achieved*" (p.239). West (2002) warned us that although diversity of knowledge and skills is a powerful predictor of innovativeness, harvesting its fruit is conditional to the efficiency of integrating group competences.

This study has uniquely highlighted the powerful influence of transformational leaders on team innovativeness through different pathways depending on the circumstances. On one hand, in the case of limited new external knowledge acquisition, leaders positively influenced team innovativeness in a direct manner by utilising their own cognitive resources and promoting social identification with the leader. On the other hand, as new external knowledge was acquired by the team, the leader's positive influence on team innovativeness was an indirect one mediated via team reflection in order to unlock the full potential of team members' collective cognitive resource and control any possible challenges to team information processing. Transformational leaders are able to drive followers towards team reflexivity pathway by promoting team members social identification with the team.

This study provided real life empirical evidence from a healthcare setting and it present one of the first empirical evidence in support of Schippers et al. (2014) prediction that team reflexivity could indeed act as an antidote to information processing irregularities.

5.4 Study Limitations, and Suggestions for Future Research

This study is limited by its cross-sectional design and the relatively low number of participating teams (n=32). Its generalisability is also limited to the healthcare sector of the United Arab Emirates. To conduct a longitudinal study, with a larger number of teams, and across a number of sectors and locations is needed in order confirm the results of this study and to generalise these outcomes across sectors and cultures.

This study highlights the need for more specific understanding of what the transformational leader does to stimulate collective social identification with the team that enable effective team reflexivity process. I agree with Dinh et al. (2014) that more research is needed to understand the dynamics of leadership influence on subordinates. I also agree with Schipper's (2014) suggested questions for future research:

- Is there an ideal level of team reflection, too much or too little?
- At which stage of a team's life cycle: before starting a project; at the mid-point during a project (Gersick, 1989; Okhuysen and Waller, 2002); or after project completion should team reflection be introduced in order to improve future projects (Schippers et al., 2013).

Whilst top-down leadership influences were discussed at length (see section 2.3), less is known about the bottom-up process, such as the influence of followers and intrapersonal dynamics on leadership practices. Although many bottom-up processes were discussed in view of the development of social networks into valuable organisational resources such as social capital (Balkundi et al., 2011; Polyhart and Moliterno, 2011), less is known about the influence (bottom-up) of teams on leaders. Therefore, I would suggest the following questions to be addressed further:

- How does team reflexivity start in reality: Do team leaders and/or senior management decide to empower their team members to be more reflexive, or is it the team members who demand regular reflexive sessions as a result of new knowledge and challenges that come to their attention?
- Do teams decide to acquire new knowledge in response to their ongoing reflection on their team performance that elaborates their inconsistencies, or is it the new knowledge that comes to light that prompts team members to discuss and reflect on their current inconsistencies and the way forward?
- What do we know about the negative aspects of knowledge diversity within the healthcare sector? A qualitative study is needed to elaborate the exact team dynamics in the face of high new knowledge acquisition.

One way to open the black-box of processes is by videotaping team processes (Weingart, 1997) and planning a qualitative longitudinal study.

5.5 Management Implications

Healthcare senior managers, who are aspiring a position in knowledge creation should carefully consider planning their investments. Without proper planning, investing in external knowledge acquisition could result in lower levels of team creative outcomes.

In line with the outcome of this study, a pro-innovativeness management plan should consider two investments. The first is to provide middle managers with transformational leadership training, mentoring, and continuous assessment. This investment should be prioritised since transformational leaders provide team members with the psychological safety and trust needed to enable sharing of team members' existing knowledge, and to encourage the positive utilisation and internalisation of

the leader's knowledge resource. The second investment is to grant teams enough resources (time, training, and external learning opportunities, etc) in order to conduct efficient and sufficiently frequent reflexivity sessions. Reflexivity sessions supplemented with new knowledge from different sources would enable the sharing of uniquely held knowledge by individuals, the internalization and reformulation of collective knowledge, the focused evaluation and discussion of team goals, and the collective decision-making processes. Over time, efficient team reflexivity sessions would encourage team members to assess a 360^{o} view of their work environment, and to identify gaps in their current knowledge, hence they will be able to target relevant external team knowledge acquisition. Ideally, team leaders should help the team members to develop reflexivity routines at the appropriate pace in accordance to the team lifecycle, and to evaluate these routines regularly (Gersick and Hackman, 1990). Of course, reflexivity is not a means to an end; it is merely the means to enabling the team to achieve favourable targets (West, 2000).

Management should be aware of a number of pitfalls that can render their investments in knowledge acquisition opportunities, e.g., attending external trainings, seminars, exhibitions, etc, for named team members, counterproductive. Without providing means for the team to pre-assess their need of such knowledge, this investment could be viewed as individual's development rather than overall collective team development, whereby the developed individual will, over time, be disconnected from the rest of the team hence pausing a threat to team coherence. Another pitfall is in situations that do not encourage the safe and efficient communication of newly acquired knowledge. Even if the particular knowledge was assessed as needed by team members, it will not be communicated efficiently if the individual acquiring it feel threatened or undermined by other team members. It is important to note that employees value their image, the cost of losing their image could, in severe cases, lead to losing a promotion opportunity or even loss of their job.

According to this study, by implementing these investments and being aware of the pitfalls, middle managers will be able to drive their team towards higher levels of innovativeness.

5.6 Why is this Study Unique?

To date, little empirical work has been conducted in the precise area investigated by this research project. There are several unique points about this study context.

1- **Scarce leadership and innovation studies in healthcare**: The number of studies that investigated transformational leadership and its effect on clinical team innovativeness in healthcare organisations are limited, with the exception of few including Sanders and Shipton (2012) and Somech (2006).

2- **The role of the middle manager in encouraging team innovativeness**. As the healthcare industry is confronting new challenges to deliver better, safer, and faster services (Richardson, 2001; Herzlinger, 2006; Thakur et al., 2012; Ferlie et al., 2012; Currie et al., 2008). The focus of scholars and senior management seems to be on how to achieve better knowledge dissemination and decision-making practices through knowledge management (see for example, Thakur et al., 2012). In my view, this way of thinking leaves the role of the healthcare middle manager largely ignored. Birken et al. (2012) proposed a theory of "*how middle managers may influence the effectiveness of healthcare innovation implementation*" (p.2). This thesis contributes further to the understanding of the role of the middle manager in influencing team innovativeness and in addition, the results are in line with the general management literature.

3- **Domination of evidence-based healthcare management literature.** Ferlie et al. (2012) commented on using the clinical trials order of evidence as a point of reference "*There is a well-established literature on implementing clinical evidence into practice, but less consideration of*

how management and organisational knowledge gets into practice in healthcare organisations" (p.1297) (see also Dopson et al. 2001; Niessen et al., 2000). In a critique of Evidence Based Management by Freeman and Sweeney (2001), it was argued that clinical evidence-based management implementation was unrealistic because it did not necessarily align with the patient's life. Since healthcare organisations are affected by the fast-changing dynamics of health knowledge (Richardson, 2001), they too need to ensure that they have the "*ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments*" (Teece et al., 1997 - p.516). Considering this, applying this concept to healthcare organisations could potentially produce value through considering knowledge as an asset (Ferlie et al., 2012).

4- **The quasi-public healthcare organisational orientation**: This research setting is a government-funded facility, hence there may exist some elements of the public sector in terms of values, such as honesty and fairness as compared to the more economic values of the corporate world, such as cost control, and goal orientation (Posner and Schmidt, 1996). Indeed, innovation and knowledge sharing are emphasised more in the private sector for the sake of gaining competitive advantage through maximising their abilities to meet customer's changing needs (Argote and Paul, 2000; Sanders and Shipton, 2012). The public sector is predominantly centralised and formalised and these organisational structures influence knowledge sharing among employees negatively (Kim and Lee, 2006). Centralisation was found to be negatively associated with innovation (Damanpour, 1991) because it weakens the middle manager's influence due to their positional constraint in the organisational hierarchy.

Currie et al. (2008) do not think that it is appropriate to apply private sector models into the National Health Service in the UK: "*Inappropriately imported models of private sector*

management take little account of the distinctive properties of public sector organizations…. [N]aïve application of external, business sector and managerial policies… are ill suited for the complexities and cultures of the NHS" (p.282). On a similar note, Ferlie et al. (2012) commented that "*the generic management literature is underpinned by the assumption that organisations are firms seeking competitive advantage*" (p.1302) when in fact healthcare organisations are more like "*quasi-firms*" positioned in between classic private and public sectors, healthcare organisations are different from private ones in terms of market, incentive and value.

5- **The United Arab Emirates:** Since creativity and innovation theories have been developed and tested mostly in western countries, Shalley et al. (2004) suggested that *"research identifying what contextual conditions would be most relevant to individuals in different cultures is warranted*" (p.948). The United Arab Emirates is an emerging economy that is developing at fast speed, incorporating workforces from all over the globe. This unusual mix of the United Arab Emirates workforce calls for research into contextual conditions prevailing in diverse culture interfaces in the work place (Forstenlechner, 2010; Khan et al., 2010; Neal, 2011; Yaghi and Yaghi, 2013).

5.7 Conclusion

The positive influence of transformational leadership on team performance was reiterated in many studies, across sectors, industries, and countries. In this study I provide evidence that transformational leadership behaviours of middle managers positively influence team innovativeness. I also looked at the influence of new external knowledge acquisition on team innovativeness. Under low levels of new knowledge acquisition by the team, transformational leaders utilise their cognitive resource in a direct manner and positively influenced team innovativeness. However, as the amount of new knowledge acquisition by team members increases, the indirect influence of transformational leadership on team innovativeness mediated via team reflexivity is emphasised. Team reflexivity provides the transformational leader with the process option to orchestrate and unlock team members' diverse knowledge, skills, and expertise towards achieving collective targets.

6 Appendices

6.1 Informed Consent Form.

Leadership influence on employee innovative behavior, and the moderating effects of exploratory learning, training and professional development

Date 07 April 2015

Final version 3

Informed consent form

HOSPITAL NAME: _____

STUDY PARTICIPANT NUMBER: _____

You are invited to participate in (Study manager will discuss you participation)

☐ Pilot study Or

☐ Main Study

Acting as

☐ Leader Or

☐ Subordinate.

Informed Consent Form

PROJECT TITLE: Leadership influence on employee innovative behavior, and the moderating effects of exploratory learning, training and professional development.

SPONSOR: This research is part of a 'Doctorate of Management Administration' thesis, which is being conducted under the supervision of Professor Helen Shipton, at Nottingham Business School, UK.

You are being invited to take part in a management research study. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether (or not) you wish to take part. Thank you for reading this

What is the background of the research project?

In today's fast paste advancement of technological innovation, it is vital for organizations to be abreast with the latest developments in order to gain competitive advantage, by seeking a position at the frontline of knowledge or even by becoming a producer of knowledge and innovations.

Healthcare Innovations helps practitioners focus on the patient, by helping them work smarter, faster, better and more cost effectively. Innovations are the product of **Employee Innovative Behaviors**, which starts with problem recognition and the suggestion of possible solutions, which can be new or adopted. However, the **success of an idea requires** a person or a team to develop it further beyond its inception stage under permissible **management support that advocates employee professional development, training and exploratory learning activities**.

What is the purpose of the research Project?

We are aiming to investigate the link between Leadership style and employee innovative behaviors in healthcare Institutes located in the United Arab Emirates. To our knowledge, no prior such investigation took place in Hospitals located in the UAE.

What is the duration of the study?

- If you decide to participate in this study, you will be asked to complete a survey questionnaire which is expected to take approximately 30 minutes of your time.
- A limited number of participants (about 5 individuals) will be invited to evaluate each questionnaire. If you are one of those 5 then please allocate 1-2 hours to discuss your understanding of the questionnaire with the researcher.

Why have I been chosen?

You are invited to participate in this project because you are currently working as a professional employee in a hospital department in the UAE.

Do I have to take part?

It is up to you to decide whether (or not) to take part. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part, you are still free to withdraw at any time and without giving a reason. A decision to withdraw at any time, or a decision not to take part, will not affect your rights or situation as an employee at your firm.

What will happen to me if I take part?

If you decide to volunteer your opinion for this project, the research staff will review this consent form with you and ask you to sign it. You will be given a questionnaire to complete; the questions are different depending on whether you are a manager of 4 or more, or a subordinate.

- If you are a manager, you will be asked questions about your management style, Organizational Learning cycle, and about 4 of your subordinates' innovativeness behaviors.
- If you are a subordinate, you will be asked about your direct manager's leadership styles, Organizational Learning cycle, and HRM training and development.

Under what circumstances may / will I be removed from the project?

You may be removed from the project at any time for any of the following reasons: If you decide to withdraw your consent to participate; If the research team decides to stop the project; or If there are a significant imperfection in completing the forms.

What are the possible risks and discomforts of taking part?

There are no discomforts expected for participating in this study.

What are the possible benefits of taking part?

Although you will not receive any direct benefit from participating in this project, your participation may help improve management practices in the UAE.

Will the information collected be confidential?

All information that is collected about you during the course of the research will be kept strictly confidential. Any information about you that leaves the hospital will have your name and address removed so that you will not be recognize. The study team will take every possible precaution to ensure the confidentiality of responses received from all questionnaire respondents. Particular attention given to subordinate members' responses that will be collected by the study team directly from respondents and will not be disclosed to other members of the team nor will it be disclosed to members of the management. All Data collected will be pooled together and analyzed without referring to particular individuals/ teams/ hospitals/ or institutes.

What are the costs of participating?

There are no costs to you for taking part in this survey.

Who has reviewed the study?

The Research Ethics Committee had reviewed and approved this study.

What happens now?

You are free to choose whether (or not) you want to take part in this project. You may talk to the research team, your work colleagues, family or friends before you make your decision. If you do wish to take part in this project, kindly inform the study team. Thank you for reading this. Please make sure you fully understand what will happen if you agree to take part in this project. Please keep your copy of this information and consent form.

Who should I contact if I need more information or help?

For more information please contact the study researcher Maha AlFarhan. Tel: 0504829025, Email: maha.alfarhan@gmail.com.

If you have questions about your rights as study participants, please contact the Research Ethics Committee, Qassimi Hospital, UAE. Tel: 06 518 8702; Email: moh.rec@moh.gov.ae

PARTICIPANT CONSENT FORM

Project Title: Leadership influence on employee innovative behavior, and the moderating effects of exploratory learning, training and professional development

You are requested to read the participant information sheet carefully before you sign this consent form. You are free to ask questions at any time before, during or after your participation in this research

I, (name of respondent, in print)_____have read and understood all the information given to me about my participation in this management study and have been given the opportunity to discuss it and ask questions. All my questions have been answered to my satisfaction and I voluntarily agree to take part in this project. I understand that the information that I provide will be processed and analyzed as is required by this project and will be presented in an anonymous manner to maintain confidentiality.

I understand that I will receive a copy of this signed Written Informed Consent form.

I have read the written information for this project:

_____ _____

Signature of Subject Date

_____

Printed name of Subject

Person obtaining the consent: I have explained the nature and purpose of the project to the respondent named above. An explanation of the research was given and questions from the subject were solicited and answered to the subject's information. A copy of the signed consent form has been provided to the participant

_____ _____

Signature of person conducting consent Date

_____

Printed name of person conducting consent

6.2 Data collection form, Leaders.

Leadership influence on employee innovative behavior, and the moderating effects of exploratory learning, training and professional development.

Leader Number: ___ ___ ___

Data Collection Form
Leaders and Supervisors.

General Information

1) My year of birth is ☐☐☐☐ (YYYY)

2) My first language is _____ and I come from _____ (Country).

3) I am ☐Male ☐Female

4) My highest education level is:

☐ Diploma degree;

☐ Bachelor's degree;

☐ Master's degree;

☐ Ph.D. degree;

☐ Others:_____.

5) My Current Position is: _____.

6) I spent a total of _____ years in this organization.

7) The total number of employee in my department is _____.

8) Did you receive Leadership training: ☐ Yes; ☐ No.

If yes, which year did you receive it:_____.

9) Date of completing this form: ☐☐-☐☐-☐☐☐☐ (DD-MM-YYYY).

Team Innovation.

Innovation in healthcare is defined as: "*those changes that help healthcare practitioner focus on the patient, by helping healthcare professionals work smarter, faster, better and more cost effectively"*[1].

	Please rate your team on the extent to which:	***1- Not at all***						***7-To an exceptional degree***
1	Team members often implement new ideas to improve the quality of our products and services.	1	2	3	4	5	6	7
2	This team gives consideration to new and alternative methods and procedures for doing their work.	1	2	3	4	5	6	7
3	Team members often produce new services, methods, or procedures.	1	2	3	4	5	6	7
4	This is an innovative team.	1	2	3	4	5	6	7

Date of completing this form: ☐☐-☐☐-☐☐☐☐ (DD-MM-YYYY).

In the following section, we would like to receive your rating of at least 4 or your followers.

Follower Number- ___ ___ Please use a separate page for each follower/Subordinate

Employee Innovative Behavior.

Innovation in healthcare is defined as: "*those changes that help healthcare practitioner focus on the patient, by helping healthcare professionals work smarter, faster, better and more cost effectively*"[2].

	Please rate your subordinates on the extent to which he or she:	***1- Not at all***						***7-To an exceptional degree***
1	Generate new ideas.	1	2	3	4	5	6	7
2	Searching out new working methods, techniques, and new ideas.	1	2	3	4	5	6	7
3	Promotes and champions ideas to others. Making important hospital members enthusiastic for new ideas.	1	2	3	4	5	6	7
4	Investigates and secures funds needed to implement new ideas.	1	2	3	4	5	6	7
5	Develops adequate plans and schedules for the implementation of new ideas.	1	2	3	4	5	6	7
6	Is Innovative.	1	2	3	4	5	6	7

[2] Thakur et al 2012

6.3 Data Collection Form, Followers

Leadership influence on employee innovative behavior, and the moderating effects of exploratory learning, training and professional development.

Leader-follower Number: ___ ___ ___- ___ ___

Data Collection Form: Followers.

General Information

1) My year of birth is ☐☐☐☐ (YYYY)

2) My first language is _____ and I come from _____ (Country)

3) I am ☐Male ☐Female

4) My highest education level is:

☐ High school;

☐ Some college;

☐ Diploma

☐ Bachelor's degree;

☐ Master's degree;

☐ Ph.D. degree.

☐ Other Degree: _____

5) My Current Position is: _____

6) I spent a total of _____ years in this hospital.

7) Did you receive Leadership training: ☐ Yes; ☐ No.

If yes, which year did you receive it:_____

8) Date of completing this form: ☐☐-☐☐-☐☐☐☐

DD-MM-YYYY

Leadership Questionnaire

This questionnaire is used to describe the leadership style of your **direct supervisor** when dealing with you and you colleagues, as you perceive it.

You should be at a lower organizational level than the person you are rating. Answer all items on this survey. If an answer is irrelevant, or if you are unsure or do not know the answer leave it blank. There are descriptive statements listed below, judge how frequently each statement fits the person you are describing.

Use the following rating scale.

1-Not at all 7-Frequently, if not always

The person I am rating

1	Provides me with assistance in exchange for my efforts	1 2 3 4 5 6 7
2	Re-examines critical assumptions to question whether they are appropriate	1 2 3 4 5 6 7
4	Focuses attention on irregularities, mistakes, exceptions, and deviations from standards	1 2 3 4 5 6 7
6	Talks about his/her most important values and beliefs	1 2 3 4 5 6 7
8	Seeks differing perspectives when solving problems	1 2 3 4 5 6 7
9	Talks optimistically about the future	1 2 3 4 5 6 7
10	Instills pride in me for being associated with him/her	1 2 3 4 5 6 7
11	Discusses in specific terms who is responsible for achieving performance targets	1 2 3 4 5 6 7
13	Talks enthusiastically about what needs to be accomplished	1 2 3 4 5 6 7
14	Specifies the importance of having a strong sense of purpose	1 2 3 4 5 6 7
15	Spends time teaching and coaching	1 2 3 4 5 6 7
16	Makes clear what one can expect to receive when performance goals are achieved	1 2 3 4 5 6 7
18	Goes beyond self-interest for the good of the group	1 2 3 4 5 6 7
19	Considers me as an individual rather than just as a member of a group	1 2 3 4 5 6 7
21	Acts in ways that builds my respect	1 2 3 4 5 6 7
22	Concentrates his/her full attention on dealing with mistakes, complaints, and failures	1 2 3 4 5 6 7

23	Considers the moral and ethical consequences of decisions	1	2	3	4	5	6	7
24	Keeps track of all mistakes	1	2	3	4	5	6	7
25	Displays a sense of power and confidence	1	2	3	4	5	6	7
26	Articulates a compelling vision of the future	1	2	3	4	5	6	7
27	Directs my attention toward failures to meet standards	1	2	3	4	5	6	7
29	Considers me as having different needs, abilities, and aspirations from others	1	2	3	4	5	6	7
30	Gets me to look at problems from many different angles	1	2	3	4	5	6	7
31	Helps me to develop my strengths	1	2	3	4	5	6	7
32	Suggests new ways of looking at how to complete assignments	1	2	3	4	5	6	7
34	Emphasizes the importance of having a collective sense of mission	1	2	3	4	5	6	7
35	Expresses satisfaction when I meet expectations	1	2	3	4	5	6	7
36	Expresses confidence that goals will be achieved	1	2	3	4	5	6	7

Knowledge Sharing

In the following section, we would like to find out about your opinion of the extent of knowledge sharing within your team. Kindly review all items and give your first answer on this survey sheet. If an answer is irrelevant, or if you are unsure or do not know the answer, leave the answer blank.

1-Not at all 7-Frequently, if not always

1.	Our team unit has forums for meeting with and learning from	
	a. Colleagues from other units, teams, departments, or divisions.	1 2 3 4 5 6 7
	b. Experts from outside the hospital.	1 2 3 4 5 6 7
	c. Patients and their representatives, patient groups.	1 2 3 4 5 6 7
	d. Suppliers such as pharmaceutical and medical companies.	1 2 3 4 5 6 7
2.	I share my knowledge and experiences with my team members/ colleagues on a regular basis.	1 2 3 4 5 6 7
3.	I discuss with my team members/ colleagues what I think is important in my job	1 2 3 4 5 6 7
4.	We discuss as a team our criteria for functioning well.	1 2 3 4 5 6 7
5.	We discuss problems in our team unit in order to learn and improve.	1 2 3 4 5 6 7
6.	I discuss my development with my team members/ Colleagues	1 2 3 4 5 6 7

Team Reflection

Please rate your Team:	***1- Strongly Disagree….7- Strongly Agree***	
1	In the team, we always look for different interpretations and perspectives to confront a problem	1 2 3 4 5 6 7
2	In the team, we criticize each other's work in order to improve team effectiveness.	1 2 3 4 5 6 7
3	In the team, we are prepared to reflect on the way we act.	1 2 3 4 5 6 7
4	In the team, we engage in evaluating our weak points in attaining effectiveness	1 2 3 4 5 6 7
5	In the team, we openly challenge each other's opinions.	1 2 3 4 5 6 7
6	In the team, we reassess any proposed solution.	1 2 3 4 5 6 7

Date of completing this form: ☐☐-☐☐-☐☐☐☐ (DD-MM-YYYY).

6.4 The study research and ethical approval process

UNITED ARAB EMIRATES
MINISTRY OF HEALTH

الإمارات العربية المتحدة
وزارة الصحة

AL QASSIMI CLINICAL RESEARCH CENTRE
RESEARCH ETHICS COMMITTEE
Al-Qassimi Hospital
Wasit Road
PO Box 3500
Sharjah – United Arab Emirates

Date: 21/APRIL/2015

Dr Maha Al Farhan
Doctorate of Business Administration (Nottingham Trent University)
P.O. Box 725
Sharjah, UAE
Telephone No: +971 50 482 9025
Email address: maha.alfarhan@gmail.com

Dear Dr Maha,

Full title of study: Leadership influence on employee innovative behavior, and the moderating effects of exploratory learning, training and professional development.
REC Reference Number: 212 / 2015-03-01 **Please quote this number on all correspondence**

The Research Ethics Committee has reviewed the above application at its meeting held on 15/APRIL/2015.

Ethical Opinion
A favourable ethical opinion was given for the above research on the basis described in the application form, protocol and supporting documentation subject to the conditions:

1. The understanding that the research team complies with ICH-GCP guideline and all applicable regulations governing the conduct of clinical studies
2. The favourable opinion applies only to the following research site(s):
   - All Ministry of Health Hospitals, Dr Maha Al Farhan
3. Management permission or approval must be obtained from each site prior to the start of the study at the site concerned.
4. Annual progress reports from the date of approving the study must be submitted to the REC.
5. Study Termination:
   a. In case of premature termination of the study, the REC should be notified within 15 days of termination.
   b. In case of a planned termination/end of study, the REC should be notified within 90 days of its conclusion.
6. Study should commence within 6 months of the approval date.

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7. End of Study Report/Summary of study outcome should be submitted within 6 months of end of study.
8. The REC should be notified of serious breaches of the protocol or of the conditions or principles of Good Clinical Practice (GCP) within 15 days.
9. **NOTE:**
   Before the commencement of the main study:
   - **The revised questionnaire based on the pilot study should be submitted to the committee for review and approval .**
   - **Weaknesses/mistranslations in the Arabic to English back translation should be addressed.**

The approval of your study expires on **21/APRIL/2016**. Should you wish to continue the study after this date, please submit an application for renewal together with the Annual Study Progress Report no later than 30 days prior to the expiry date.

Approved documents

The final list of documents reviewed and approved by the Committee is as follows

Document	Version	Dated
Study Protocol	2.0	22 February 2015
Participant Information Sheet and Informed Consent Form (English and Arabic)	3.0	07 April 2015
Data Collection Forms Leaders(English and Arabic): • General Information • Multifactor Leadership Questionnaire • Organizational Learning Cycle • Employee Initiative Behavior	Final	23 February 2015
Followers(English and Arabic): • General Information • Multifactor Leadership Questionnaire Rater Form • Organizational Learning Cycle • HRM-Training and Development	Final	23 February 2015
Leaders Data Collection Form (Arabic back translation):		
CV and ICH GCP certificate of Ms. Maha Al Farhan		01 March 2015
University Approval Letter		10 December 2014

Committee Members

The following committee members were present at the meeting and voted

Member Name	Designation	Attended	Voted
Dr. Ghada Al Tajir	Chair	✓	✓
Sr. Nariman Ghader	Deputy	✓	✓
Ms. Khalida Al Amiri	Member	✓	✓
Dr. Jacqueline Tiba	Member	✓	✓
Mr. Jamal Al Najjar	Member	✓	✓
Mr. Mohammad AbdulSattar	Member	✓	✓
Dr. Mohammed Roshan	Member	✓	✓
Dr. Mona Al Yammahi	Member	✓	✓

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Dr. Munnaza Bukhairi	Member	✓	✓
Dr. Suad Sajwani	Member	✓	✓
Dr. Yasir Al Rawi	Member	✓	✓

Statement of Compliance

The Committee is registered with the Office for Human Research Protection and authorized to conduct the ethical review of clinical studies. The committee is fully compliant with the regulations as they relate to Ethics Committees and the conditions and principles of good clinical practice. The committee is constituted in accordance with the WHO and ICH-GCP guidelines and works according to written Standard Operating Procedures.

The Committee wishes for the success of this study.

Yours Sincerely

Dr. Ghada Al-Tajir
Chair

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