**THREE SETS OF MEDIATORS BETWEEN
TRANSFORMATIONAL LEADERSHIP AND TEAM
PERFORMANCE**

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DISSERTATION

to obtain
the degree of doctor at the University of Twente,
on the authority of the rector magnificus,
Prof. dr. T. T. M. Palstra,
on account of the decision of the graduation committee,
to be publicly defended
on Thursday, the 26th of April, 2018, at 12.45 hrs.

by

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in Karbala, Iraq

This PhD dissertation has been approved by

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The days of life pass away like clouds, so do good while you are alive.

Knowledge gives life to the soul.

Humility is the product of knowledge.¹

¹ These three sayings are attributed to Imam Ali Ibn Abi Talib:
<https://www.al-islam.org/printpdf/book/export/html/43892>

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Haider Muhammad Abdul Sahib

Enschede, the Netherlands, April 2018

CHAPTER 1.

INTRODUCTION

Chapter 1: Introduction

This Ph.D. thesis is about predictors of high team performance. Its overall research question is: *How* is transformational team leadership related to high team performance? The reported tests of the mediational-type hypotheses are derived from combining transformational leadership theory, group theory, social cognitive theory, psychological-empowerment theory, goal-setting theory, social exchange theory and various other (theoretical) insights in the field of Organizational Behavior.

The ‘heart’ of this thesis comprises three parts, consisting of the three separate papers that have been submitted to international conferences and journals. These three papers (i.e., chapters 2, 3, and 4) share the same overall aim: examining group-level mediators between transformation team leadership and high team performance. Six team mechanisms were tested: cohesion, team efficacy, empowerment, goal clarity, trust and knowledge sharing. Through a total of 16 hypotheses, I show in this thesis that transformational leadership contributes -directly and indirectly- to high team performance: each via at least two of the mentioned set of six mechanisms.

The empirical database was collected in Iraq, covering various organizational units in the educational sector. In terms of sampling and data collection, two large, survey-based data sets were amassed. The first dataset was gathered in 2015, from the members of 177 departments/teams (i.e., 78 academic and 99 non-academic units) within nine Iraqi universities in two large Iraqi cities. The second dataset was collected in 2016 from the members of 148 school teams (100 primary, 21 intermediate, and 27 secondary schools) that operate in the same two cities in Iraq. When collecting each of the two large data sets, two surveys were used: one distributed to the participating team members and the other to their team

leaders. This was done to mitigate common-source bias, something that plagues most survey research.

Figure 1. The main questions addressed in the three core chapters of this Ph.D. thesis

Research Question per Chapter

I developed the set of questions shown in Figure 1 before the data were collected. In chapter 2, I focused on two team mechanisms (cohesion as an affective group mechanism and efficacy as a cognitive group mechanism) that are hypothesized to mediate the relationship between transformational leadership and high team performance. The specific 5 hypotheses of this chapter were derived from transformational leadership theory, social cognitive theory and other relevant prior studies. Chapter 2 reports two tests of the hypotheses: with both Iraqi data sets. Thus, Chapter 2 is not only based on the data from academic and non-academic university teams, but I replicated its model for the teams constituting Iraqi's primary, intermediate, and secondary schools.

In chapter 3, I essentially replaced the two group mechanisms examined in chapter 2 with two other important group mechanisms: empowerment and goal clarity. Chapter 3 suggests that team empowerment is indeed an important behavioral-type team mechanism, whereas team goal clarity is a cognitive one, through which transformational leaders co-create high team performance. Also, these team mechanisms are shown to mediate, in a series, the relationship between transformational team leadership and performance. I tested the 5 specific hypotheses of this study only with the data from the primary, intermediate, and secondary school team samples. A related question, also derived from my literature review of prior team-level studies, shaped the foundation of the third empirical study reflected in chapter 4 of this thesis.

In chapter 4, I expanded the research by testing *three* mediating team mechanisms in a series between transformational leadership and team performance. I examined affective, behavioral and cognitive type team mechanisms in a series. Team trust is clearly an affective type team variable; team knowledge sharing represents an important behavioral aspect of a team; and team efficacy represents cognitive group functioning. This substantive chapter *integrated* the first dataset with the second one whereby the composite sample consisted of 314 school and university teams in total, including their members and direct supervisors or leaders.

By using the split sample technique (Rousseau, 1985) on all three field studies, I drastically reduced common method bias that would otherwise have plagued this survey-based research. When applying this technique in chapter 4, I first excluded teams with less than 8 members. Then, the sample was divided into four groups. Therefore, the actual sample size used in the analyses in chapter 4 was 207 teams. In chapter 2, the first study entailed 176 academic and non-academic teams while the second study included 138

primary, intermediate, and secondary schools/teams. The second Chapter 2 sample was analyzed further in chapter 3.

This thesis' Discussion, or chapter 5, presents a set of summaries and concluding points. Firstly, they reflect on the specific findings of the three studies reported in chapters 2, 3, and 4. Secondly, the practical implications of the key findings of this thesis are discussed. Thirdly, a number of additional suggestions for future research are offered. All the chapters of this thesis, with the exception of the present and last chapters (# 1 and 5), are currently under review at various international journals. Most of the findings have already been submitted, accepted and presented at international management conferences, as noted at the start of each chapter.

Contributions

The major contributions of this Ph.D. thesis are summarized below:

1) This thesis contributes to teamwork theory and practice by reporting evidence of six team mechanisms which enable the transformational style of leader behavior to drive high team performance. The thesis hypothesizes six mediating mechanisms between transformational team leadership style and team performance. These six mechanisms are seen to reflect three types of team processes (affective, behavioral and cognitive) through which effective leaders attain or co-construct high team performance. This thesis strives to show their importance at the team level. The cross-sectional studies in chapters 2, 3, and 4 will pave the way for new, longitudinal, multi-level studies that disentangle the causal pathways between transformational leadership style (and the relative weight) of the team mechanisms and high team performance. I built my study's assumptions on the findings in literature reviews and meta-analytical and other empirical studies (e.g., Braun, Peus, Weisweiler, & Frey, 2013; Liu and Zang, 2010; Castaño, Watts, & Tekleab, 2013; Cole, Bedeian, & Bruch, 2011; Kleingeld, van Mierlo, and Arends, 2011; Palanski, Kahai, & Yammarino, 2011; Srivastava,

Bartol, & Locke, 2006). I believe that team performance increases through the support of a transformational leader to team members. If team members do not get such support, they will encounter unnecessary difficulties in their work and will not achieve high team performance.

2) The findings of this thesis' research aim to enrich managerial practice in Iraq and beyond.

3) This thesis examined 16 hypotheses with two large data sets collected in the Middle East, in Iraq. Zahra (2011) points out a dearth of empirical field studies on Middle Eastern organizations. I focused on various types of organized settings in Iraqi's educational sector because this sector is most crucial in the rebuilding of this nation.

On a personal note, in approximately five years from now, my two 'Dutch-born' daughters will begin their journey through the Iraqi educational system. Even though parents tend to have little to say about the (style of) leadership at school, I sincerely hope their schools will be led by transformational leaders. In this thesis, I show that this style is associated with high team performance, and I am assuming that this pattern of leader behavior will also be reflected in the students' educational results/careers (through the ways in which the teachers behave vis-à-vis their daily work). In due course, I hope to be able to report anecdotal evidence on this key assumption that underlies this thesis. The degree to which educational leader behavior indirectly affects the students' results needs much more systematic O.B. type research in the future (Ross & Gray, 2006a; Ross & Gray, 2006b; Paracha, Qamar, Mirza, Hassan, & Waqas, 2012; Jyoti & Bhau, 2016; Lin & Osman, 2017). I close by expressing my hope that those twin daughters will someday become my best assistants in my future research endeavors in that direction.

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CHAPTER 2.

TEAM COHESION AND EFFICACY AS MEDIATORS BETWEEN TRANSFORMATIONAL LEADERSHIP AND TEAM PERFORMANCE

This chapter is accepted and presented:

- At the 77th Annual Meeting of The Academy of Management Conference, Atlanta, Georgia, United States, (2017). *Transformational Leadership, Team Cohesion, Efficacy and Performance*, and
- At the 31st Annual British Academy of Management Conference, Coventry, United Kingdom, (2017). *How Team Transformational Leadership and Performance are Related: Team Cohesion and Team Efficacy as Mediators in a Series*.

Team Cohesion and Efficacy as Mediators between Transformational Leadership and Team Performance

Abstract

How is transformational team leadership related to team performance? We answer this question by testing a model, guided by transformational leadership and social cognitive theory. In the model, the transformational style of a team leader is hypothesized to explain team performance directly and through the mediation of team cohesion and efficacy in a series. Study 1 reports the results of a survey administered to 1517 members of 177 teams within 9 Iraqi universities. The three-path mediation model was supported by Study 1. We replicated the support for this model with another Iraqi sample in the educational sector, involving: 2168 members of 138 teams of school teachers and their immediate leaders. Common-source/method bias was reduced in both studies, through the split-sample technique and by assessing two different sources. Practical implications of the results point especially to the team performance-enhancing effects of transformational team leaders through the two mediators which appeared equally relevant. Longitudinal studies are needed to examine the suggested causal effects, also given our alternative-model explorations. Such new research must look as well into the precise timing of the constituting micro-behaviors of team members, led by transformational leaders, that embody the two mediational mechanisms toward high team performance.

Keywords

transformational leadership, team cohesion, team efficacy, team performance

Introduction

Transformational team leadership can positively impact team mechanisms, thereby improving team performance (Dvir, Eden, Avolio, & Shamir, 2002; Kozlowski & Ilgen, 2006; Stoker, Grutterink, & Kolk, 2012). *How* this style works, i.e., through which mechanisms in a team, is not yet well known (Chi, Chung, & Tsai, 2011; Zaccaro & Klimoski, 2002; Dionne, Yammarino, Atwater, & Spangler 2004), and it is the focus of this paper. Transformational team leaders inspire their teams to unite and help team members to execute their tasks well (Eisenbeiss, van Knippenberg, & Boerner, 2008). Transformational leadership theory offer behaviors that enhance such cooperation between the team members (Kark & Shamir, 2002). The transformational style of leadership is assumed not only to enhance a team's performance but also other team states, such as team "cohesiveness" and "efficacy" (Kark & Shamir, 2002, p. 4). Despite the old age of these variables, large-scale research showing both mechanisms to be associated with both transformational team leadership and performance, is surprisingly rare.

Jung and Sosik (2002) published an empirical test of the four variables. However, they had neither derived mediational type hypotheses nor examined their overall model, and with 47 teams only, no significant link was established between team cohesion and efficacy. Recently, Nubold, Dorr, and Maier (2015, p. 250) concluded their related study by pleading for more study "of explanatory mechanisms of transformational leadership effectiveness and their interconnections among one another". With a number of small team sports samples, significant links between team cohesion and efficacy are reported (e.g., Filho, Tenenbaum, & Yang, 2015; Leo, Gonzalez-Ponce, Sanchez-Miguel, Ivarsson, & García-Calvo, 2015). Team efficacy (i.e., the degree of self-confident readiness to perform team tasks)

has been shown to be high in many other cohesive sports teams, ranging from basketball, volleyball, soccer to (ice) hockey (Table 1). There is thus already evidence that sports teams perform significantly better when they feel cohesive (e.g., Carron, Colman, Wheeler, & Stevens, 2002) and efficacious (e.g., Keshtan, Ramzaninezhad, Kordshooli, & Panahi, 2010). But, can we generalize this link to other teams, and generalize the often merely assumed positive effect of transformational leaders on team performance? Table 1 list the pertinent studies on this score. It include also educational-team studies that reported significant links between two or three of the four focal variables of the present research. To the best of our knowledge, other large-scale studies that examined these four core variables are relevant but missing.

TABLE 1.
Relevant Empirical Studies Prior to this Study.

Authors	Year	Sample Size	Transformational Leadership	Team Cohesion	Team Efficacy	Team Performance
<u>Sports Teams</u>						
Filho, Tenenbaum, & Yang	2015	17/340 ⁽¹⁾		*	*	
Leo, Gonzalez-Ponce, Sanchez-Miguel, Ivarsson, & García-Calvo	2015	36/576 ⁽²⁾		*	*	
Leo, Sanchez-Miguel, Sanchez-Oliva, Amado, & Garcia-Calvo	2014	203 ⁽³⁾		*	*	*
Leo, Sánchez-Miguel, Sánchez-Oliva, Amado, & García-Calvo	2013	15/235		*	*	*
Price & Weiss	2013	41/412 ⁽¹⁾	*	*	*	
Price & Weiss	2011	191	*	*	*	
Keshan, Ramzaninezhad, Kordshooli, & Panahi	2010	13/153 ⁽⁴⁾			*	*
Heuzé, Raimbault, & Fontayne	2006	154		*	*	*
Myers, Feltz, & Short	2004	10/197 ⁽⁴⁾			*	*
Kozub & McDonnell	2000	96		*	*	

<u>Educational Teams</u>					
Braun, Peus, Weisweiler, & Frey	2013	39	*		*
Dumay & Galand	2012	50	*		*
Lent, Schmidt, & Schmidt	2006	56		*	*
Arnold, Barling, & Kelloway	2001	42	*		*
<u>Other Teams</u>					
Stoker, Grutterink, & Kolk	2012	38	*		*
Zhong, Huang, Davison, Yang, & Chen	2012	66			*
Lee, Cheng, Yeung, & Lai	2011	32	*		
Zhang, Tsui, & Wang	2011	163	*		*
Gupta, Huang, & Niranjana	2010	28		*	*
Liu & Zang	2010	31			*

¹ This study tested hypotheses at the individual and team level.

² Longitudinal study; It tested hypotheses at both the individual and the team level.

³ Longitudinal study; It tested hypotheses at the individual level only, even though the conceptual frame was at the team level.

⁴ This study engaged data at the team level; most other studies in this table analyzed their data at the individual level.

In our hypothesized three-path mediational model (Figure 1), team cohesion pertains to a relational or affective type of team mechanism while team efficacy refers to a more cognitive, task-based mechanism (Behrendt, Matz, & Goritz, 2017). There are other empirical studies that have shown that transformational team leaders have both affective and cognitive effects on their followers and through them on their team performance (e.g., Chou, Lin, Chang, & Chuang, 2013; Bass, Avolio, Jung, & Berson, 2003; Braun, Peus, Weisweiler, & Frey, 2013; Dionne et al., 2004). We are arguing in this paper that it is through both affective, team-cohesive and cognitive, team-efficacy mechanisms that the transformational style of a team leader is related to high team performance.

In terms of this paper's contributions we, firstly, examine two *new* mediational hypotheses (in a model with four relatively *old* variables). We suggest that team cohesion and efficacy can raise a team's performance if the team is led by a transformational leader. Both team mechanisms represent affective and cognitive type processing that goes on in teams on a daily basis (Pirola-Merlo, Hartel, Mann, & Hirst, 2002; Burke, Stagl, Klein, Goodwin, Salas, & Halpin, 2006). Secondly, with two large samples (Study 1: 177 teams; Study 2: 138 teams) from an under-researched part of the world, Iraq, we examine the three-path mediational model in a sector that is regarded with high esteem in the Middle East: education. With both studies we illustrate Zahra's point (2011) that the Middle East can enrich management scholarship. Thirdly, Study 1 combines academic and non-academic Iraqi university departments, which is a rare but valuable combination in practice. In Study 2 there is no separate administrative staff; its sample constitute of teams of school teachers and their principal or leader. Before reporting on the methods used, the specific empirical results and a discussion of them, we will present the five hypotheses of Figure 1.

FIGURE 1.
The Hypotheses of the Three-Path Mediation Model.

Notes: The straight arrows represent the hypothesized relationships. The curved arrows represent relationships that have been controlled for during their testing. X is an independent variable; Y is the dependent variable; and M, M1, and M2 are the mediators.

Theory and Hypotheses

Transformational Leadership and Team Performance

Transformational leadership is rooted in “the work of Bass (1985) and is defined in terms of leader behaviors and their effect on followers” (Dionne, Chun, Hao, & Serban, Yammarino & Spangler, 2012, p. 1014). Leadership theory has shown the important role of these behaviors in

enhancing performance in many work situations (Wang, Oh, Courtright, & Colbert, 2011). Transformational team leadership “heightens consciousness of collective interest among the team members and helps them to achieve their collective goals” (Sun, Xu, & Shang, 2014, p. 127). This style motivates followers to exert greater team effort into their jobs (e.g., Bernhard & O’Driscoll, 2011). Followers exceed their self-interests through various forms of leader support and encouragement (Huang, Kahai, & Jestice, 2010) for the sake of achieving collective goals (Lim & Ployhart, 2004).

Transformational leadership consists of four dimensions. Through so-called idealized influence (in the form of attributions and behavior), a leader affects team members by awakening their positive emotions and loyalty from them. Inspirational leader behavior encourages followers’ teamwork and sets high expectations, for instance by using symbols and imagery: to express the worth of collective goals. A transformational leader heightens members’ awareness of problems through intellectual stimulation and encouragement to view problems from new angles. Through individualized consideration, transformational leaders provide followers with useful support. Such leader behavior also pays attention to individual needs of the followers (Hoffman, Bynum, Piccolo, & Sutton, 2011).

Judge and Piccolo’s (2004) meta-analysis yielded a significant link between transformational team leadership and performance. Consequent studies have shown the positive influence of this style on team performance such as the Braun et al.’s (2013) investigation in a large German research university (see, also, Keller, 2006; Lim & Ployhart, 2004; Wang et al., 2011; Wang & Howell, 2010). Also in Taiwan a direct link was established between the 61 transformational leaders of R & D teams and their performance (Chi & Huang, 2014). Hence:

Hypothesis 1: Transformational team leadership is related to team performance.

Team Cohesion Mediates between Transformational Leadership and Performance

Cohesion is considered a crucial ingredient of effective teams (Hoyt & Blascovich, 2003; Carron & Brawley, 2000). It is defined as “a dynamic process that is reflected in the tendency of a group to stick together and remain united in the pursuit of its instrumental objectives and/or for the satisfaction of member affective needs” (Carron, Brawley, & Widmeyer, 1998, p. 213). Lawler, Thye, and Yoon (2000), for example, showed that group exchanges based on mutual interdependencies can release a positive emotional process that generates cohesion.

Team cohesion is significantly associated with transformational leadership (Lee, Cheng, Yeung, & Lai, 2011; Wang & Huang, 2009; Conger & Kanungo, 1998). Pillai and Williams (2004) found that firemen teams feel cohesive when they are led by transformational leaders. This is not only because such leaders pay attention to the needs of their followers (Bormann & Rowold, 2016). Such “leaders who engage in behaviors targeted toward the whole group —highlighting group commonalities and expressing attractive and desirable organizational images and a vision-- will prime the collective level of followers’ self-identity, leading to social identification with the work-unit” (Kark & Shamir, 2002, p. 4). Thus, transformational team leaders can get supreme outputs from their members when they appeal to so-called higher order motives (Sparks & Schenk, 2001). At the same time, transformational leaders are known to place high importance on members’ feelings (Dionne et al. 2004; Smith, Arthur, Hardy, Callow, & Williams, 2013). This may explain why Shields, Gandner, Bredemeier, and Bostro (1997, p. 196-197) concluded that “leaders who are less directive and

exhibit more personal warmth have groups with higher cohesiveness”. Also by urging followers to coordinate their contributions well amongst each other, transformational team leadership play a role in creating or reinforcing cohesion (Forsyth, 1999).

The link between team cohesion and performance is substantiated by a number of meta-analytic studies (e.g., Mullen & Copper, 1994; Beal, Cohen, Burke, & McLendon, 2003; Castaño, Watts, & Tekleab, 2013). Highly cohesive teams can thus significantly outperform their low cohesive counterpart teams (see, also, Wilderom, Hur, Wiersma, van den Berg, & Lee, 2015). Hopton, Phelan, and Barling (2007) noted that cohesive teams have a low level of social loafing. Yet, Langfred (2000) did not find a relationship between team cohesion and performance in a social service agency and, furthermore, he reported a negative association in a Danish military unit. These inconsistent results on the team cohesion-performance link might be due to varying definitions of cohesion and their measures (Casey-Campbell & Martens, 2009), as well as to different types of group performance norms (Langfred, 1998). In most teams, transformational leaders tend to affect the level of team cohesion, which in turn, lead to changes in their performance (Hambley, O’Neill, & Kline, 2007). Hence, team cohesion can mediate the effect of leadership on performance (Dvir et al., 2002). Bass et al. (2003) found that cohesion *partially* mediates the relationship between transformational leadership and team performance. Various subsequent empirical studies established full mediation. Thus, transformational team leadership can impact team performance through a cohesive mechanism that is co-fostered among the team members (e.g., Wu, Neubert, & Yi, 2007; Gupta, Huang, & Niranja, 2010). Hence:

Hypothesis 2: *Team cohesion mediates the relationship between transformational team leadership and team performance.*

Team Efficacy Mediates between Transformational Leadership and Performance

The concept of team efficacy is rooted in Bandura's social cognitive theory (1997): as an extension of self-efficacy (Zhong, Huang, Davison, Yang, & Chen, 2012). Team efficacy defines a team's collective belief that it can perform a given task successfully (Lindsley, Brass, & Thomas, 1995). Gibson (1999) found that when team members feel much ambiguity toward their tasks, they will work independently while collective work will then be limited. Under that condition, team efficacy is not significantly related to team performance. Conversely, "the higher the sense of collective efficacy, the better the team performance" (Stajkovic, Lee, & Nyberg, 2009, p. 814). The evidence for this hypothesis has been established in various contexts, including financial firms (Campion et al., 1993); academic institutions (Parker, 1994); health organizations (Gibson, 1999); and athletic settings (Kozub & McDonnell, 2000; Keshtan et al., 2010). When team members attain a high level of team efficacy, they are better able to perform the tasks collaboratively, thus leading to better performance outcomes for the team (Chou et al., 2013). Also, according to Rapp, Bachrach, Rapp, and Mullins (2014, p. 977), "outcomes generated by high performing teams are attributable in part to team efficacy" (see, also, Srivastava, Bartol, & Locke, 2006). Consistent with social cognitive theory, team performance and efficacy correlated significantly in a study of 50 self-managing student teams, by Tasa, Seijts, and Taggar (2007) while Liu and Zang (2010) established a significant association between team efficacy and performance in their 31 university student teams in Eastern China. In a study of 56 student teams at a large Eastern university, Lent, Schmidt, and Schmidt (2006) found that collective efficacy is significantly associated with team

performance. Yet, Kellett, Humphrey, and Sleeth (2000) reported a negative link between team efficacy and performance.

The transformational style of team leaders has been shown to affect collective efficacy levels of teams (Chen & Lee, 2007). This style is supposed to enhance a “sense of a collective identity and collective efficacy” (Bass, 1998, p. 25). In a study of 37 bank branches in China, India and United States, Walumbwa, Lawler, Avolio, Wang, and Shi (2005, p. 8) found that “the relationship between transformational leadership and collective efficacy was marginally significant in Chinese and Indian samples and insignificant in the U.S. sample”. In another study of 660 teachers in 50 primary schools, Dumay and Galand (2012) showed that transformational leadership was significantly associated with teachers’ collective efficacy. Wang and Howell (2012) found transformational team leader behavior to be related to collective efficacy in a large multi-industry Canadian company.

In the present study, we assume that when a team leader displays adequate attention to the needs of individual team members *and* provides them with collective support, this facilitates positive interaction between the members of the teams (Zhang, Tsui, & Wang, 2011), with a significant impact on team efficacy (Srivastava et al., 2006). Thus, both foci of transformational leadership styles (i.e., the situational needs of the individual followers and those of their unique group task) are forces that these leaders then use productively. Transformational leaders are assumed also to move team members’ collective sense of optimism toward the best possible performance outcomes and buffer the experience of frustration which otherwise would affect team performance (Bass & Riggio, 2006). Transformational leadership has thus been amply shown to boost collective efficacy (or ‘potency’) and performance (Sosik, Avolio, Kahai, & Jung, 1998).

Few empirical studies have established team efficacy as an explicit mediator in the relationship between transformational leadership and team performance. Extending the available evidence, we propose that team efficacy is a mediator between transformational leadership and team performance (Arnold, Barling, & Kelloway, 2001). Jung and Avolio (1998) found already that collective efficacy mediated the relationship between transformational leadership and performance among Asian Americans but not Caucasians. Hoyt and Blascovich (2003) found no support for the mediating role of teams' collective efficacy in the link between transformational leadership style and performance. Other researchers have reported that the largely overlapping construct of team potency mediates between transformational leadership and team performance (Bass et al., 2003; Sivasubramaniam, Murry, Avolio, & Jung, 2002; Schaubroeck, Lam, & Cha, 2007). Amid the mixed evidence, we do expect that:

Hypothesis 3: Team efficacy mediates the relationship between transformational team leadership and team performance.

Team Cohesion Mediates Between Transformational Leadership and Team Efficacy

According to Zaccaro and Klimoski (2002), effective leaders facilitate the emergence or maintenance of team cohesion and a team's sense of collective efficacy; they are frequently assumed to play a vital role in team goal attainment (Ruggieri & Abbate, 2013). Although Hargis, Watt, and Piotrowski's (2011) empirical results showed that transformational leadership plays a significant role when taking team cohesion and efficacy into consideration, the possible mediating role of team cohesion has hardly been tested. Yet, in the area of team sports, Beauchamp (2007) proposed a collective-efficacy model, with as antecedents leadership and team cohesion. In two empirical studies, of female soccer teams, transformational leadership

was associated with cohesion and collective efficacy (Price & Weiss, 2011; Price & Weiss, 2013). Neither of both studies had large team samples, and only a few team-sports studies have examined their data at the proper, team level of analysis (Table 1). In some empirical sport team studies cohesion and efficacy are reported to play a key role (e.g., Kozub & McDonnell, 2000; Leo, Sánchez Miguel, Sánchez Oliva, & García Calvo, 2010). Leo, Gonzalez-Ponce, Sanchez-Miguel, Ivarsson, and García-Calvo (2015) reported, for example, that varying team-cohesion levels among football players in Spain are associated with alterations in their levels of collective efficacy. Also Chow and Feltz (2007) advanced the idea that team members who feel their team is cohesive see their team as efficacious, and vice versa. Cohesion in sports teams is therefore often assumed a predictor, not only of collective efficacy but also of the so-called team mental model (Carron & Hausenblas, 1998; Filho et al., 2015).

Team mental model is defined as the “collective task and team-relevant knowledge that team members bring to a situation” (Cooke, Kiekel, Salas, Stout, Bowers, & Cannon-Bowers, 2003, p. 153). Filho et al. (2015) developed a framework for sport teams that can be used, in our view, for all teams. While cooperating with each other, peer rivalry tends to occur, at the same time in teams as team-level comparisons with other, similar teams. Because of those parallel emotion-loaded or affective mechanisms within and across teams, the *mental-model* label is too narrow. This is especially the case when trying to co-explain team performance. Then also team (-member) affective mechanisms have been shown important (Kozlowski & Ilgen, 2006). When trying to explain how team efficacy can be enhanced through team cohesion, the behaviors of the transformational team leader are key. This is because a transformational leader engages members not only at the cognitive level but also at the emotional level (Ashkanasy & Daus, 2002;

Ashkanasy & Ashton-James, 2007). Transformational leaders use their own “emotions to persuade their followers to engage in positive thinking in terms of developing both a vision and new ideas” (McColl-Kennedy & Anderson, 2002, p. 548). Through their emotions they awaken followers’ motivation (Peterson, Walumbwa, Byron, & Myrowitz, 2009). Hence, a new mediational hypothesis can be formulated:

Hypothesis 4: Team cohesion mediates the relationship between transformational leadership and team efficacy.

Team Efficacy Mediates between Team Cohesion and Performance

Remarkably, mainly scholars in the area of team sports have addressed the importance of both team cohesion and efficacy in ensuring team outcomes (e.g., Carron et al., 2002; Heuzé, Raimbault, & Fontayne, 2006; Myers, Feltz, & Short, 2004; Heuzé, Sarrazin, Masiero, Raimbault, & Thomas, 2006; Heuzé, Bosselut, & Thomas, 2007). Athletes of teams with high cohesion levels hold shared beliefs which drives their teams to success (Heuzé et al., 2006). Positive changes related with cohesion should foster team performance and promote high collective efficacy (Heuzé et al., 2007). For instance, Leo, Sanchez-Miguel, Sanchez-Oliva, Amado and Garcia-Calvo (2013) reported that when soccer teams feel highly cohesive and have high collective efficacy levels they complete the season with top-level scores. A high level of team cohesion contributes to enhancing collective efficacy, which, in turn, enhances team performance (see, also, Carron, Bray, & Eys, 2002). Also Leo, Sanchez-Miguel, Sanchez-Oliva, Amado, and Garcia-Calvo (2014) demonstrated that task cohesion is a significant predictor of collective efficacy, which in turn predicted team performance. We argue that this mediation occurs, because in cohesive teams their members have strong positive feelings about their team mates and feel that they accomplish their tasks together or that they combine their capabilities

well, which increases their team efficacy, resulting in higher team performance. Theoretically, it is of interest to note that team efficacy may not only mediate the relationship between transformational leadership and team performance but also the relationship between team cohesion and team performance. The following mediation is hypothesized:

Hypothesis 5: Team efficacy mediates the relationship between team cohesion and team performance.

To test the hypotheses twice, two large cross-sectional survey studies were conducted. Study 1 involves academic and non-academic teams in Iraqi higher-education organizations. Study 2's data is from teachers and their leaders within other types of Iraqi educational teams.

Study 1

Two surveys were used: one for team members and the other for their leaders. The original surveys were in English. An expert translated them into Arabic and another one translated the Arabic version back into English. The purpose of back translation was to ensure close correspondence with the original instruments. To refine the Arabic version of the surveys linguistically so that the questions fit the cultural context, a pilot was administered to 10 members and 4 leaders of academic and non-academic departments in Iraqi higher-education settings. Both surveys passed this test with a few minor, presentational-type adjustments.

Sample and Data Collection

Data for this study were collected from 177 teams (99 non-academic departments and 78 academic ones) within 9 Iraqi universities (two public- and seven private-sector universities), located in 2 Iraqi cities, not being the capital. The 78 academic teams were from, for instance, Physics, Math and History departments; the 99 non-academic teams (or: non-scientific support staff departments) were operating within the same Iraqi universities (for

instance the departments of administrative, financial, and student affairs).

The survey was handed out by me. The team member survey was distributed to the 1869 members of these teams, and the leader survey was distributed to their direct leaders. The total number of team-member respondents was 1517 (a response rate of 81%). The leaders' response rate was 99% (of the 177 leaders, 176 of them sent their survey back to us). Participation was voluntary and the responses were kept confidential.

Academic department sizes ranged from 3 to 54 members whilst non-academic department sizes ranged from 3 to 22. Among the leaders of the academic departments, 14% of them had a Master's degree and 86% a PhD degree. With regard to the leaders of the non-academic departments, 2% of them had a secondary-school certificate; 6% had a technical degree awarded by a technical institute (i.e., two years of schooling, with six weeks of practical training each summer); 72% of the leaders had a Bachelor's degree; 12% of them held a Master's degree; and 8% had a PhD degree. The percentage of males in the entire group of respondents was 60%. The percentage of males in this study's leader sub-sample (i.e., the academic and non-academic leaders) was 80%. The age of the members of the academic and non-academic departments ranged from 26 to 52 years ($M = 37.98$, $SD = 5.30$). The age of the leaders of the academic and non-academic departments ranged from 26 to 75 ($M = 45.40$, $SD = 10.37$). The number of years the departmental members had been employed ranged from 9 months to 21 years ($M = 7.98$, $SD = 3.89$) while the leaders' tenure ranged from 1 to 38 years ($M = 10.51$, $SD = 6.23$). The mean number of years that both academic and non-academic team members had worked with their current bosses was 2.5 years ($SD = 1.32$). The mean number of years the leaders had occupied their current positions was 3.58 ($SD = 3.21$).

Measures

Transformational leadership. Twenty items were adopted from Bass and Avolio (1995). Eighteen items were selected based on confirmatory factor and reliability analyses. The deleted two items had low loadings and also have confusing meaning in the context of Iraq. Cronbach's alpha of the overall scale of transformational leadership, at the individual team-member level, was .95 while at the departmental level it was .96. The items were measured on a 7-point Likert-type scale, ranging from 1 (*very strongly disagree*) to 7 (*very strongly agree*).

Team cohesion. Eight items from Wilson, Hansen, Tarakeshwar, Neufeld, Kochman, and Sikkema (2008) were used to measure the member-felt cohesion within their own department, by means of a 7-point Likert-type scale ranging from 1 (*very strongly disagree*) to 7 (*very strongly agree*). The Cronbach's alpha of this scale at the individual level was .93, while at the departmental level it was .95.

Team efficacy. In the team-member survey, we combined two existing team efficacy scales (Zhong et al., 2012; Edmondson, 1999). Both of them consisted of three items which were measured on a 7-point Likert-type scale ranging from 1 (*very strongly disagree*) to 7 (*very strongly agree*). After factor and reliability analyses, we deleted one item. The Cronbach's alpha of the resulting 5-item scale at the individual level was .86, while the one at the departmental level was .89.

Team performance. Team performance was rated by the team leaders with 10 items adopted from Bhatnagar and Tjosvold (2012). The items were altered slightly (e.g., "What proportion of the members of your department feels that most departmental tasks are accomplished quickly and efficiently?"). Responses ranged from 10% to 100%. The Cronbach's alpha of this scale was .94.

Data-analytical Procedures

The hypotheses were tested with the aggregated data at the team level. To test if these aggregations were acceptable, intraclass correlation coefficients (ICC1 and ICC2) and $rwg(j)$ were computed. The ICC1 is not affected by team size or by the number of teams (Castro, 2002). When an ICC1 is “large, a single rating from an individual is likely to provide a relatively reliable estimate of the group mean” (Klein & Kozlowski, 2000, p. 356). An ICC1 of at least .08 demonstrates aggregation (LeBreton & Senter, 2008). The ICC1 is thus a measure of within-group consensus and the median value in organizational research is typically .12 (James, 1982). The ICC1 values in this study were .13 for transformational leadership, .12 for team cohesion and .08 for team efficacy. The ICC2 is the reliability of the group mean that is created when individual scores are aggregated. Ostroff and Schmitt (1993) suggest that the reliability of group means is acceptable when the ICC2 values exceed .60. Here, the ICC2s of transformational leadership, team cohesion, and team efficacy were .57, .54, and .43, respectively. Thus, the ICC1s were high enough and the ICC2s of transformational leadership and team cohesion nearly reached the required level while the ICC2 of team efficacy was a bit low. The rwg^2 values in this study were .92 for transformational leadership, .91 for team cohesion, and .93 for team efficacy. These values backed up the aggregating of the data to the team level for all the studied variables.

To test if the hypothesized relationships differed between the academic and the non-academic teams, we calculated the correlations among

² The rwg value is an index of interrater agreement relative to random distribution within each group (James et al., 1993). Usually, this index is considered an important indication of the suitability of data aggregation to the group level and should be at least .70 (Castro, 2002).

the aggregated scores on the variables in both groups and tested the differences between corresponding correlations using Fisher's z -transformation. None of them were significant and, therefore, the data were collapsed into one overall sample for further analysis.

To test individual percept-percept bias we performed a one-factor analysis with all the items used (Harman, 1976). The resulting factor explained 45% of the variance in the item scores showing that this bias was strong. Therefore, the item scores of the team members were aggregated within each of the 176 teams. The leaders' team performance ratings were added to this file. To test the measurement model, we performed confirmatory factor analysis. The aggregated scores were quite stable because they were based on the mean scores of many individuals, thus fewer cases were required for factor analysis than would have been the case for individual scores (Hofstede, Neuijen, Ohayv, & Sanders, 1990). The following fit indices were selected based on the recommendations of Fan, Thompson, and Wang (1999): the standardized root mean square residuals (SRMR), and the comparative fit index (CFI), the root mean square error of approximation (RMSEA). RMSEA and SRMR values up to .05 indicate a close fit between the data and the model, and values up to .08 represent a reasonable fit. The CFI should be .90 or higher.

We performed a second-order confirmatory factor analysis on the aggregated item scores. The first-order factors were the five dimensions of transformational leadership, and the second-order factors were transformational leadership, team cohesion, team efficacy, and team performance. The fit statistics were: $\chi^2 (843) = 1335$, SRMR = .06, CFI = .89, and RMSEA = .06. We deleted the factor loadings of two transformational-leadership items because they were lower than .30. Moreover, we correlated the error terms of some items within the each of the

four second-order factors because the scores on these items were affected by common method variance. The fit statistics of this modified model were $\chi^2(762) = 1170$, SRMR = .06, CFI = .91, and RMSEA = .06, indicating a reasonable to close fit. The first-order confirmatory factor analysis with four factors yielded the following fit statistics: $\chi^2(767) = 1205$, SRMR = .06, CFI = .90, and RMSEA = .06, and a one-factor solution gave the following results: $\chi^2(756) = 2887$, SRMR = .18, CFI = .52, and RMSEA = .13. These results showed that the second and the third measurement models had the best fit. We used the second model because this transformational-leadership scale is a well-established measure with five dimensions.

In order to control for percept-percept bias (Ostroff, Kinicki, & Clark, 2002), the members of each department were randomly divided into three equal groups (random split-data technique). Then, in order to test the hypotheses, transformational leadership was measured using the responses from the first group; team cohesion was assessed with data drawn from the second group; and team efficacy with data from the third group only. The dependent variable of team performance was assessed by the team leaders.

The test of joint significance was used to test the two hypothesized mediation effects (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). A mediation effect is present when two conditions are fulfilled: (1) the relationship between the independent variable and the mediator is significant, and (2) the relationship between the mediator and the dependent variable, while controlling for the independent variable, is significant. The authors studied several methods to test mediation effects and concluded: “The best balance of Type I error and statistical power across all cases is the test of joint significance of the two effects comprising the intervening variable effect” (MacKinnon et al., 2002, p. 83).

In addition, a three-path mediation model (Figure 1) was tested. In

such a model, two mediators (M1 and M2) intervene in a series between an independent and a dependent variable (X and Y). Taylor, MacKinnon, and Tein (2008) indicated that three conditions need to be fulfilled to conclude that such a model is supported: (1) the relationship between X and M1 is significant, (2) the relationship between M1 and M2, while controlling for X, is significant, and (3) the relationship between M2 and Y, while controlling for X and M, is significant.

FIGURE 2. Study 1's Three-Path Mediation Model With Standardized Path Coefficients.

* $p < .05$. ** $p < .01$. *** $p < .001$

TABLE 2.

Study 1: Correlations Among the Variables at the Individual Level, incl., Means, Standard Deviations and Reliabilities.

Variables ¹	M	SD	1	2	3
1. Transformational leadership	4.97	1.02	(.95)		
2. Team cohesion	5.18	1.05	.51**	(.93)	
3. Team efficacy	5.06	.96	.45**	.56**	(.86)

¹ These variables ($N = 1517$) were assessed by each member of the academic and non-academic departments at the individual level. Their answering scales ranged from 1 to 7. Cronbach's alphas are in parentheses along the diagonal. * $p < .05$. ** $p < .01$.

TABLE 3.

Study 1: Correlation Among the Variables at the Team Level, incl. Means, Standard Deviations, and Reliabilities.

Variables ¹	M	SD	1	2	3	4
1. Transformational leadership	5.03	.70	(.96)			
2. Team cohesion	5.30	.84	.27**	(.95)		
3. Team efficacy	5.15	.68	.20*	.25**	(.83)	
4. Team performance (leaders)	7.62	1.43	.21**	.03	.20**	(.94)

¹ The answering scale of the first three variables ranged from 1 to 7. Team performance was assessed by each leader with a scale ranging from 1 to 10 ($N = 176$). Cronbach's alphas are in parentheses along the diagonal.

* $p < .05$. ** $p < .01$

TABLE 4.

Study 1: Results of Structural Equation Modeling.

Hypotheses	χ^2	<i>df</i>	SRMR	CFI	RMSEA
H1: TFL → TP	533	338	.06	.93	.06
H2: TFL → TC → TP	913	580	.06	.92	.06
H3: TFL → TE → TP	707	481	.06	.93	.05
H4: TFL → TC → TE	719	423	.06	.90	.06
H5: TC → TE → TP	418	224	.06	.93	.07
The three-path mediation model: TFL → TC → TE → TP	1170	762	.06	.91	.05

Notes: TFL = Transformational Leadership; TC = Team Cohesion; TE = Team Efficacy; TP = Team Performance

Results Study 1

Table 2 shows the means, standards deviations, correlations, and Cronbach's alpha reliabilities of the scales at the individual level. The correlation between transformational leadership and team cohesion was significant ($r = .51, p < .01$). Transformational leadership was significantly related to team efficacy ($r = .45, p < .01$). The correlation between team cohesion and team efficacy was significant as well ($r = .56, p < .01$).

Table 3 shows the means, standards deviations, correlations, and Cronbach's alpha reliabilities of the scales in this study. The reliabilities of all the scales were high, ranging from .83 to .96. The correlation between transformational leadership and team performance (as rated by department leaders) was significant ($r = .21, p < .01$). Transformational leadership was

significantly related to team cohesion ($r = .27, p < .01$). Also, the correlation between transformational leadership and team efficacy was significant ($r = .20, p < .01$). Team cohesion was significantly related to team efficacy ($r = .25, p < .01$) but was not significantly related to the team performance ratings ($r = .03$). Finally, team efficacy was significantly related to team performance ($r = .20, p < .01$).

Testing the Hypotheses

Table 4 shows the results of structural equation modeling used to test the hypotheses. Hypothesis 1 stated there is a direct relationship between transformational leadership and team performance. The fit statistics of the model with a single path from transformational leadership to team performance showed a reasonable fit: $\chi^2 (338) = 533$, SRMR = .06, CFI = .93, and RMSEA = .06 and the standardized coefficient of the path from transformational leadership to team performance was significant ($\beta = .24, p < .01$). These results showed that Hypothesis 1 was supported.

According to Hypothesis 2, the relationship between transformational leadership and team performance is mediated by team cohesion. The fit statistics of the model to test this mediation were: $\chi^2 (580) = 913$, SRMR = .06, CFI = .92, and RMSEA = .06. The path from transformational leadership to team cohesion was significant ($\beta = .31, p < .001$); thus, the first condition for mediation was met. However, the path from team cohesion to team performance was not significant, whilst controlling for transformational leadership ($\beta = -.03, ns$), which was the second condition for mediation. Hence, Hypothesis 2 was *not* supported.

Hypothesis 3 stated that the relationship between transformational leadership and team performance is mediated by team efficacy. The structural equation model analyses of this hypothesis resulted in the following fit statistics: $\chi^2 (481) = 707$, SRMR = .06, CFI = .93, and RMSEA

= .05, whereby the last statistic indicated a close fit. The path from transformational leadership to team efficacy was significant ($\beta = .19, p < .05$) which, in turn, was significantly linked to team performance whilst controlling for transformational leadership ($\beta = .18, p < .05$). Accordingly, Hypothesis 3 was supported.

Hypothesis 4 posited that the relationship between transformational leadership and team efficacy is mediated by team cohesion. The fit statistics were: $\chi^2 (423) = 719$, SRMR = .06, CFI = .90, and RMSEA = .06. The path from transformational leadership to team cohesion was significant ($\beta = .31, p < .001$), meeting the first condition for establishing mediation. In turn, the path from team cohesion to team efficacy was significant while controlling for transformational leadership ($\beta = .18, p < .05$), thereby meeting the second mediation condition. Therefore, Hypothesis 4 was supported.

Hypothesis 5 proposed that team efficacy mediates the relation between team cohesion and team performance. The fit statistics used to test this mediation were $\chi^2 (224) = 418$, SRMR = .06, CFI = .93, and RMSEA = .07. The path from team cohesion to team efficacy was significant ($\beta = .22, p < .01$), meeting the first condition for mediation. Also, the path from team efficacy to team performance was significant while controlling for team cohesion ($\beta = .22, p < .01$), meeting the second mediation condition. These results showed that this last hypothesis was supported.

In addition, the three-path mediation model presented in Figure 1 was tested. The standardized estimates among the latent variables are presented in Figure 2. The fit statistics were $\chi^2 (762) = 1170$, SRMR = .06, CFI = .91, and RMSEA = .05. Since the path from transformational leadership to team cohesion was significant ($\beta = .31, p < .001$) and the path from team cohesion to team efficacy that controlled for transformational leadership was significant ($\beta = .18, p < .05$), the first two of the Taylor et al.'s (2008)

conditions were met. The third condition is that team efficacy has to be related to team performance, while controlling for transformational leadership and team cohesion. The analyses showed that this was indeed the case ($\beta = .19, p < .05$). Therefore, the results support the three-path mediation model: the relationship between transformational leadership and team performance is mediated serially by team cohesion and team efficacy.

We tested an alternative three-path mediation model in which we changed the positions of the two mediational variables (team cohesion and efficacy). The fit statistics of this model were $\chi^2(762) = 1170$, SRMR = .06, CFI = .91, and RMSEA = .06. The path from transformational leadership to team efficacy was significant ($\beta = .19, p < .05$). Also, the path from team efficacy to team cohesion was significant, while controlling for transformational leadership ($\beta = .17, p < .05$). However, the path from team cohesion to team performance was not significant, while controlling for transformational leadership and team efficacy ($\beta = -.06, ns$). Hence, the *alternative* model was not supported which reinforces the assumptions embedded in the model (Figure 1) of Study 1 and 2.

Study 2

In order to replicate the model tested in Study 1, two identical surveys were used to collect another cross-sectional dataset. This time we surveyed the members of regular educational teams in schools in the same cities in Iraq, including their leaders. We used the same procedures as in the first study but our aim was to obtain a longitudinal dataset. Most of the Study 2 participants were, however, unwilling to offer personal information with which they could be identified later. Therefore, the three-path mediation model was replicated by Study 2, with a special emphasis on Hypothesis 2.

Sample and Data Collection

Data were collected from 148 Schools (100 primary, 21 intermediate and 27 secondary schools). One survey was distributed to the 3008 teachers, and the other survey was distributed to their direct leaders. The total number of school-teacher respondents was 2168 (a response rate of 72%) while the total number of school-leader respondents was 138 (a response rate of 93%). Participation was voluntary and individual and team responses were kept confidential. Each individual survey was distributed by hand by me.

School sizes ranged from 7 to 60 teachers ($M = 22.30$, $SD = 7.37$). Among the leaders of the schools, 47% of them had a Diploma³ and 53% had a Bachelor's degree. Among the teachers, 0.2% of them had a Secondary School Certificate, 44% had a Diploma, 53% had a Bachelor's degree, 2 % had a Master's degree, and 0.8% had a PhD degree. The percentage of males in the entire group of respondents was 47%. The percentage of males in this study's leader sub-sample was 72%. Their ages ranged from 30 to 71 ($M = 46.93$, $SD = 8.47$). The tenure as school leader ranged from 1 to 20 years ($M = 6.44$, $SD = 4.41$). The age of the school teachers ranged from 21 to 70 years ($M = 39.49$, $SD = 8.71$). The number of years the school teachers had worked with their leaders ranged from 1 to 31 years ($M = 4.48$, $SD = 3.48$).

Measures

Transformational leadership. To measure transformational leadership we adopted all twenty items from Bass and Avolio (1995). The Cronbach's

³ In 1984/1985 the Ministry of Education began to upgrade the role of primary-school teachers whereby so-called Teacher Training Institutes accepted graduates of intermediate schools. The program lasted 5 years divided into: 3 years of general education and two years of specialization. After completing the program, the students were awarded a Diploma.

alpha of this overall scale at the individual level was .95 while at the school level it was .98.

Team cohesion. At the individual level, the Cronbach's alpha of the Wilson et al.'s (2008) eight-item team cohesion scale was .93 while at the school level it was .97.

Team efficacy. To measure team efficacy, we used all the items of two existing team efficacy scales (Zhong et al., 2012; Edmondson, 1999). The Cronbach's alpha of the 6-item scale at the individual level was .84 while at the school level it was .94.

Team performance. Team performance was rated by the school leaders with the same 10 items as Study 1. The Cronbach's alpha of this sample's team performance scale was .95.

Data-analytical Procedures

The original sample entailed 148 schools. We deleted 10 schools because their school leaders did not fill out the questionnaire. The other leaders' team performance ratings were added to the teachers' aggregated team scores.

To test if the team level aggregations were acceptable or not, we computed ICC1, ICC2 and *rwg (j)*. The ICC1 values were .27 for transformational leadership, .20 for team cohesion and .18 for team efficacy. The ICC2 values were .86 for transformational leadership, .80 for team cohesion and .79 for team efficacy. The *rwg* values were .92 for transformational leadership, .91 for team cohesion, and .92 for team efficacy. Hence, Study 2's ICC1, ICC2, and *rwg* values were acceptable. These values support the data aggregation at the team level for all of Study 2's variables.

To test the measurement model, we performed the same confirmatory factor analyses as in Study 1. The model with five first-order factors and four second-order factors fitted the data best and the inclusion of the transformational-leadership dimensions as first-order factors was in

accordance with previous studies using this scale. Therefore, this measurement model was used in this study. The fit statistics of the model were: $\chi^2 (869) = 1341$, SRMR = .06, CFI = .92, and RMSEA = .06.

The single factor of a one-factor analysis with all the items used (Harman, 1976) explained 40% of the variance. Although this percentage did not exceed the cut-off score of 50%, the result showed that the individual percept-percept bias was rather strong. Therefore, to test the hypotheses, we applied the same random split-data technique as in Study 1. The data from the 138 schools were used in all Study 2's analyses. To test the hypotheses and three-path mediation model, we used the same procedures as in Study 1. Before we did that, we performed a multi-group analysis, i.e., we examined if the three-path mediation model, as tested with the university sample, differs from the model that was tested with the school sample. The difference was: $\chi^2 (6) = 14.99$, $p < .05$, which indicated that the model in Study 1 indeed differed from the model in Study 2. This prompted us to analyze the data from both samples separately.

FIGURE 3. Study 2' s Three-Path Mediation Model With Standardized Path Coefficients.
 * $p < .05$. ** $p < .01$. *** $p < .001$

TABLE 5.

Study 2: Correlations Among the Variables at the Individual Level, incl. Means, Standard Deviations, and Reliabilities.

Variables ¹	M	SD	1	2	3
1. Transformational leadership	5.03	1.03	(.95)		
2. Team cohesion	5.23	1.07	.55**	(.93)	
3. Team efficacy	5.05	.99	.55**	.60**	(.84)

¹ These variables ($N = 2168$) were assessed by each school teacher at the individual level. The answering scale of these variables ranged from 1 to 7. Cronbach's alphas are in parentheses along the diagonal.

* $p < .05$. ** $p < .01$.

TABLE 6.

Study 2: Correlation Among the Variables at the Team Level, incl. Means, Standard Deviations, and Reliabilities.

Variables ¹	M	SD	1	2	3	4
1. Transformational leadership	5.09	.64	(.98)			
2. Team cohesion	5.21	.70	.57**	(.97)		
3. Team efficacy	5.10	.62	.54*	.55**	(.94)	
4. Team performance (leaders)	7.36	1.40	.33**	.43**	.41**	(.95)

¹ For the independent variables ($N = 138$), their answering scales ranged from 1 to 7. Team performance was assessed by each leader of the school teams with a scale ranging from 1 to 10 ($N = 138$). Cronbach's alphas are in parentheses along the diagonal.

* $p < .05$. ** $p < .01$.

TABLE 7.

Study 2: Results of Structural Equation Modeling.

Hypotheses	χ^2	df	SRMR	CFI	RMSEA
H1: TFL → TP	634	379	.05	.93	.07
H2: TFL → TC → TP	1014	635	.06	.92	.07
H3: TFL → TE → TP	871	565	.06	.93	.06
H4: TFL → TC → TE	872	509	.07	.92	.07
H5: TC → TE → TP	304	233	.05	.98	.05
The three-path mediation model: TFL → TC → TE → TP	1321	868	.06	.92	.06

Notes: TFL = Transformational Leadership; TC = Team Cohesion; TE = Team Efficacy; TP = Team Performance

Results Study 2

Table 5 shows the variable means, standards deviations, correlations, and Cronbach's alpha reliabilities at the individual level. These reliabilities ranged from .84 to .95. The correlation between transformational leadership and team cohesion was significant ($r = .55, p < .01$). Transformational leadership was significantly related to team efficacy ($r = .55, p < .01$). Also, the correlation between team cohesion and team efficacy was significant ($r = .60, p < .01$).

Table 6 shows the means, standard deviations, correlations, and Cronbach's alpha reliabilities at the team level. These reliabilities were: .98 for transformational leadership, .97 for team cohesion, .94 for team efficacy, and .95 for team performance. The correlation between transformational leadership and team cohesion was significant ($r = .57, p < .01$).

Transformational leadership was significantly related to team efficacy ($r = .54, p < .01$). Also, the correlation between transformational leadership and team performance rated by the school's leader was significant ($r = .33, p < .01$). Team cohesion was significantly related to team efficacy ($r = .55, p < .01$). Unlike Study 1, team cohesion was significantly related to the team performance ratings ($r = .43, p < .01$). Also, team efficacy was significantly related to team performance ($r = .41, p < .01$).

Testing the Hypotheses

Table 7 shows the results of the hypotheses tests. Hypothesis 1 stated that transformational leadership is related significantly to team performance. The statistics of this model showed a reasonable to good fit: $\chi^2 (379) = 634$, SRMR = .05, CFI = .93, and RMSEA = .07 and the standardized coefficient of the path from transformational leadership to team performance was: $\beta = .35 (p < .001)$. These results show that Hypothesis 1 was supported.

Hypothesis 2 proposed that team cohesion mediated the relationship between transformational leadership and team performance. The fit statistics of the model were: $\chi^2 (635) = 1014$, SRMR = .06, CFI = .92, and RMSEA = .07. The analysis demonstrated that the path from transformational leadership to team cohesion was significant ($\beta = .57, p < .001$); thus, the first condition for mediation was met. Also, the path from team cohesion to team performance was significant, whilst controlling for transformational leadership ($\beta = .34, p < .001$); thus, the second condition for mediation was met as well. Hypothesis 2 was supported.

Hypothesis 3 reported that the relationship between transformational leadership and team performance is mediated by team efficacy. The statistics of this model indicated a reasonable fit: $\chi^2 (565) = 871$, SRMR = .06, CFI = .93, and RMSEA = .06. The analysis showed that the path from transformational leadership to team efficacy was significant ($\beta = .54, p < .001$). In turn, while controlling for transformational leadership, the path

from team efficacy to team performance was significant ($\beta = .34, p < .001$). Hypothesis 3 was supported as well.

Hypothesis 4 stated that team cohesion mediates the relationship between transformational leadership and team efficacy. The fit statistics of this model were: $\chi^2(509) = 872$, SRMR = .07, CFI = .92 and RMSEA = .07. The path from transformational leadership to team cohesion was significant ($\beta = .57, p < .001$); thus, the first condition for mediation was met. In turn, the path from team cohesion to team efficacy was significant while controlling for transformational leadership ($\beta = .46, p < .001$), meeting the second condition for mediation. Thus, Hypothesis 4 was supported.

Hypothesis 5 suggested that the relationship between team cohesion and team performance is mediated by team efficacy. The fit statistics of the model were $\chi^2(233) = 304$, SRMR = .05, CFI = .98, and RMSEA = .05. The path from team cohesion to team efficacy was significant ($\beta = .62, p < .001$). Also, the path from team efficacy to team performance was significant while controlling for team cohesion ($\beta = .27, p < .05$). Hence, this last hypothesis was also supported.

Additionally, we tested the three-path mediation model of Figure 1. The standardized estimates among the latent variables are shown in Figure 3. The fit statistics of this model were $\chi^2(868) = 1321$, SRMR = .06, CFI = .92, and RMSEA = .06. The path from transformational leadership to team cohesion was significant ($\beta = .57, p < .001$). Also, the path from team cohesion to efficacy, on controlling for transformational leadership, was significant ($\beta = .46, p < .001$). In turn, while controlling for transformational leadership and team cohesion, the path from team efficacy to performance was significant ($\beta = .24, p < .05$). Therefore, the results of Study 2 support the three-path mediation model as well: the relationship between transformational team leadership and performance is mediated by team cohesion and efficacy.

We tested the alternative three-path mediation model in which we changed the positions of the two mediational variables (team cohesion and efficacy). This alternative model shows that efficacy mediates between transformational leadership and cohesion. Transformational leadership is significantly related to team efficacy. In turn, team efficacy is significantly correlated with team cohesion, which is, in turn, associated to team performance. In Study 2, the fit statistics of this model were $\chi^2(868) = 1321$, SRMR = .06, CFI = .92, and RMSEA = .06. The path from transformational leadership to team efficacy was thus significant ($\beta = .54, p < .001$). Also, while controlling for transformational leadership, the path from efficacy to cohesion was significant ($\beta = .44, p < .001$). In turn, while controlling for transformational leadership and cohesion, the path from team cohesion to performance was significant ($\beta = .23, p < .05$). Therefore, unlike the results of Study 1, those of Study 2 support an alternative ordering of the two team mechanisms in the overall model.

Discussion

The two large field studies of work-floor teams in the educational sector in a Middle-Eastern country establish two significant relationships between transformational team leadership and team performance. This style of leadership is also found to be significantly related to team cohesion. Such cohesion is shown to be significantly associated with team efficacy which, in turn, is significantly linked to team performance. Thus, the three-path mediational model depicted in Figure 1 is supported twice. The model explains the relationship between transformational leadership and team performance by the mediating effects of team cohesion and team efficacy in a series and therefore contributes to transformational leadership theory.

Even though Hypothesis 2 is not supported in Study 1, this does *not* jeopardize Study 1's support for the overall model. Study 2, on the other hand, establishes support for Hypothesis 2 and also for the entire model. In

light of the relatively many meta-analyses of the team cohesion-performance link, we attribute Study 1's lack of support for Hypothesis 2 to the specific team context. Not all of the university teams may have been operating at the so-called "performing" stage of team development (Tuckman & Jensen, 1977). The leaders in Study 1 had been in their positions, on average, for only 3.58 years. The mean tenure of Study 2's leaders was 6.44 years. A leader's tenure may affect how well team members understand him or her; When they are enabled to 'read' him or her well, they are more likely to achieve a high level of team performance. This may explain why only Study 2 demonstrates that cohesion in teams led by transformational leaders is associated with high team performance. Furthermore, high cohesion among the university team members may not have been focused on high *team task* performance; in this context cohesion may have been due to members *feeling* connected with each other but not for the sake of shared *instrumental* objectives. This explanation is tenable because the team-cohesion measure used here did not include so-called task cohesion (Rosh, Offermann, & van Diest, 2012); we tapped only the affective side of team cohesion. This operationalization, in combination with the highly bureaucratic and politicized context of Iraqi university teams, may have also affected Study 1's lack of support for Hypothesis 2.

The results of Study's 2 alternative model suggest that team efficacy may also affect team cohesion. This idea is consistent with the insights derived from some other studies (Zaccaro, Blair, Peterson, & Zazanis, 1995; Lent et al., 2006). Moreover, Paskevich, Brawley, Dorsch, and Widmeyer (1999) noted that the relationship between team efficacy and cohesion might be reciprocal. Task cohesion has been shown to mediate between collective efficacy and team performance (Gonzalez, Burke, Santuzzi, & Bradley, 2003). Athletes who perceive their teams as having a high level of collective efficacy are seeing their teams as cohesive which is seen as accountable for

their success (Heuzé et al., 2006). Thus, team cohesion can be a mediator in the relationship between team efficacy and performance. The cross-sectional nature of our research prevents a conclusion on the temporal ordering of both team mechanisms.

Practical Implications

The results of our two-large scale team-level studies imply that transformational team leaders must be selected, promoted and/or trained: not only in Iraqi universities in both academic and non-academic teams but also in other educational settings in that country (see, also, Al-Husseini and Elbeltagi, 2016) and beyond. Given that our two samples constitute a cross-cut of the educational sector in this country, we urge its Ministry of Education to start (quasi-experimental) field research involving culturally-appropriate training of school/university leaders in the transformational style (Dvir et al., 2002; Zhang, 2017).

Transformational leaders ensure that the performance of their units is stepped up or maintained through a high level of affective cohesion and team efficacy: i.e., through a high degree of liking and solidarity among the team members *and* them being confident about their team's ability to task-perform well. Transformational leaders create or maintain cooperative communication (Lee, 1997) which helps to improve team cohesion (e.g., Huang et al., 2010). Those leaders can positively unite group feelings; by doing so, their team members will be more likely to be up to their (team) tasks and will then execute them very well. Our research thus substantiates the idea that positive team emotions serve "as an intervening mechanism between leader behavior and performance-related outcomes" (Hmieleski, Cole, & Baron, 2012, p. 1480). Through various emotional group-binding effects, team members feel better equipped when supported by their leader and their team's peers; this support will make them feel better able to

perform than without that support: resulting in heightened team performance.

Apart from the shown effects of transformational leadership on team performance, independent effects were established of cohesion on performance, via efficacy. This finding suggests that high team efficacy and subsequent performance could come about through team cohesion and not necessarily through transformational leadership. Future research that shows how leaderless teams may step up their performance is called for; it is likely that the two team mechanisms examined in the present research are involved in such efforts.

Strengths, Limitations and Future Research

This research comprises two studies that show that transformational team leadership can be directly associated with team performance as well as through the mediation of team cohesion and efficacy. Both studies have strengths and limitations: First, the sizes of the two samples and the survey-response rates are unusually high. Secondly, Study 1 includes both academic and non-academic departments within the same universities, which is rare. Equally uncommon, both studies entail a variety of teams engaged in regular activities in the educational sector of a non-Western country. Thirdly, both studies use two surveys, one for team members and the other for their leaders. The split-sample technique was applied in both studies to curb further survey-response bias.

However, in this cross-sectional research we could not avoid response bias at the team level, e.g. highly performing teams may give higher ratings on all items. Another weakness, only in Study 1, is its relatively low ICC2 values. Yet, their relatively high *rwg* indexes compensate for them. All in all, both studies within a country which is still devoid of team research support the team performance model built from Western theorizing.

The results of the research, give rise to the generic thesis that team

leaders with the transformational behavioral style, independent from their work context, can significantly lift their team's performance through team cohesion and efficacy. A similar model should be tested with various educational, sports and other types of teams on other continents. New longitudinal research will need to establish to what extent the model can be applied to all teams in every stage or only in their so-called performing stage of development. Such new research would need to incorporate also cross-level links among the team- and individual-level behaviors denoted in the model. The roles of transformational team leader and member micro-behaviors in relation to the two team mechanisms and performance does need more research attention as well: e.g., through objective video-taping and subsequent reliable behavioral coding or experimentation. Thus, we must dig deeper –at both individual and team levels- to illuminate in more detail how *affective*, *behavioral* and *cognitive* (team) mechanisms gel within high versus lower performing teams (Kozlowski & Ilgen, 2006). This is important because, just as with sports teams, knowing about how to “play” and “win” at work, together with one's team, is seldom an easy game. Particularly in the educational sector, we cannot afford losing due to poor team leadership.

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CHAPTER 3.

TEAM EMPOWERMENT AND GOAL CLARITY AS MEDIATORS BETWEEN TRANSFORMATIONAL LEADERSHIP AND TEAM PERFORMANCE

This chapter has been submitted to:

- European Management Review (EMR) and it is currently under review, and
- The 78th Annual Meeting of The Academy of Management Conference, Chicago, Illinois, United States, (2018). *Team Empowerment and Goal Clarity as Mediators between Transformational Leadership and Team Performance.*

Team Empowerment and Goal Clarity as Mediators between Transformational Leadership and Team Performance

Abstract

This paper reports the testing of hypotheses within a model derived from transformational-leadership, psychological-empowerment and goal-setting theory. The survey-based data came from 2168 teachers in 138 primary, intermediate, and secondary schools, as well as their leaders. The split-sample technique was used in all analyses. A direct relationship is established between transformational leadership and team performance, and the hypothesized three-path mediation model is supported: transformational leadership is significantly associated with team empowerment which, in turn, is linked to team goal clarity, which relate significantly to team performance. Two alternative models are explored. Practical implications drawn from the results point to the performance-enhancing potential of transformational leaders who not only empower teams but, perhaps simultaneously, ensure high team goal clarity. Longitudinal, multilevel studies are recommended of the model's underlying micro behaviors. Such examinations would benefit transformational team-leader training programs that are in need of being re-designed and more often deployed and examined.

Keywords:

transformational leadership, team empowerment, team goal clarity, team performance

Introduction

Team leadership is a known “central driver of team processes and team performance” (Wang, Chou, & Jiang, 2005, p. 176). *Transformational* team leadership can particularly impact team mechanisms positively, which, in turn, can enhance team performance (Dvir, Eden, Avolio, & Shamir, 2002; Kozlowski & Ilgen, 2006; Stoker, Grutterink, & Kolk, 2012). But as to *how* transformational leadership works, i.e., which team mechanisms, is not fully known yet (e.g., Chi, Chung, & Tsai, 2011; Zaccaro & Klimoski, 2002; Dionne, Yammarino, Atwater, & Spangler 2004).

This paper focuses on two of those types of team-process mechanisms: 1) action-oriented team *empowerment* and 2) cognition-oriented team *goal clarity*. We examine them as two mediating mechanisms in the link between transformational leadership and team performance. Transformational leaders have been shown to empower teams so that their members become more enabled as well as responsible in their work (Boerner, Eisenbeiss, & Griesser, 2007; Bouwmans, Runhaar, Wesselink, & Mulder, 2017). Seibert, Wang, and Courtright’s (2011) meta-analytic review noted that future research would need to explore the greater integration between the psychological empowerment theory and theories of motivation based on a self-regulatory framework, such as the goal setting theory (Locke & Latham, 2002). This gave us the impetus to examine another key team mechanism that, according to the goal setting theory, matters for team performance. It was suggested that transformational leadership can increase the level of goal clarity (Leithwood, Jantzi, & Fernandez, 1993; Wright, Moynihan, & Pandey, 2012), but as to how that mechanism works, vis-a-vis team empowerment and performance, is still under-examined.

Parolia, Goodman, Li, and Jiang (2007, p. 635) suggested that a team’s performance improves not only through empowering team members but also

through “specifying clear mission and project objectives”. We know from goal setting theory that specific team goals lead to high performance (Locke & Latham, 2002) through “energizing behavior, encouraging persistence, and fostering problem solving” (Paarlberg & Lavigna, 2010, p. 713). It is known that teams with clearly specified goals can outperform other teams (Sivasubramaniam, Liebowitz, & Lackman, 2012). Whether both team empowerment and goal-clarity can be beneficially induced by transformational leaders have not been empirically examined before. Hence, we built a mediational model: Figure 1.

FIGURE 1.

The Study's Hypotheses and the Three-Path Mediation Model.

Notes: X is an independent variable; Y is the dependent variable; M, M1, and M2 are the mediators. While the four variables on their own are fairly old, the lower half of this Figure is new or has not been reported in the literature before.

The model describes the two important mechanisms that associate team inputs and team performance in an input–mediator–output (IMO) framework (Mathieu, Maynard, Rapp, & Gilson, 2008). An input-mediator-output model assumes that “mediating mechanisms exist between inputs and outcomes that better explain the transformation from inputs to outputs” (Chang, Sheu, Klein, & Jiang, 2010, p. 673). IMO aims to explain how team inputs affect team outcomes such as effectiveness/performance (Ilgen, Hollenbeck, Johnson, & Jundt, 2005), but relies on other more substantive theories for its testing. In this study we wanted to know: What role do the two team mechanisms (i.e., team empowerment and goal clarity) play between a team leader’s transformational leadership and team performance? This study’s model is mainly derived from transformational leadership, psychological empowerment and goal setting theories. We will argue in this paper that transformational team leaders empower the members of their team and inspire them to attain clear team goals while feeling more responsible for them. Even though both mediating variables have been around for a while, they have not been examined in unison yet. We examined two old and three *new* hypotheses in a new model with four relatively *known* variables.

In terms of this study’s contributions, we enrich the literature on the link between the transformational style and team performance: by demonstrating two (types of) team mechanisms (an action-oriented one and a cognitive one) that mediate this relationship. We use the split-sample technique to curb common-method bias in the set of three independent variables. Common-source bias is not an issue in this study, and thus our results add substantially. Secondly, we aim to predict the performance of Iraqi educational teams. By combining the examined primary, intermediate, and secondary school team behaviors with team-performance data from two separate sources (the teachers and their leaders), we also contribute to the

area of educational studies (Berkovich, 2017). Thirdly, our large-scale data set was collected in a non-Western, Middle-Eastern setting, which is rare in team-management research (Zahra, 2011). The study offers support for the three-path mediational model, including its five hypotheses. Before reporting on the methods used, the results and a discussion of the findings, we will review the theorizing that underpins the hypotheses.

Theory and Hypotheses

Transformational Leadership and Team Performance

Transformational leadership is rooted in “the work of Bass (1985) and is defined in terms of leader behaviors and their effect on followers” (Dionne, Chun, Hao, Serban, Yammarino, & Spangler, 2012, p. 1014). Transformational *team* leadership is seen as “the style of leadership that heightens consciousness of collective interest among the team members and helps them to achieve their collective goals” (Sun, Xu, & Shang, 2014, p. 127). There is an known performance-enhancing role of transformational leaders in many work situations (Wang, Oh, Courtright, & Colbert, 2011). Precisely *why* and *how* a team may exceed its performance level with a leader with such a style is not entirely clear. It is assumed that this style motivates followers to exert greater team effort into their jobs (Bernhard & O’Driscoll, 2011): followers transcend their immediate self-interests through various forms of leader support and encouragement (Huang, Kahai, & Jestice, 2010) for the sake of achieving collective team goals (Lim & Ployhart, 2004).

Transformational leadership works, firstly, through so-called idealized influence (behavior and attributions); such a leader affects team members by awakening their positive emotions and loyalty. Secondly, inspirational leader behavior encourages teamwork and sets high expectations among the team members, for instance by using symbols and imagery: to express the worth

of collective goals in order to guide followers' work efforts. Thirdly, a transformational leader heightens team members' awareness of problems through intellectual stimulation and encourages them to view problems from new angles. Fourthly, via individualized consideration, a transformational leader offers his or her followers useful and timely support. Such leader behaviors also pay attention to the individual needs of the followers by, for instance, offering them help and advice (Hoffman, Bynum, Piccolo, & Sutton, 2011).

Judge and Piccolo's (2004) meta-analysis yielded a significant relationship between transformational leadership and team performance. Subsequent studies have shown the significant and positive influence of this style on team performance such as the Braun, Peus, Weisweiler, and Frey (2013) study in a large German research university (see, also, Keller, 2006; Lim & Ployhart, 2004; Wang et al., 2011; Wang & Howell, 2010). Hence:

Hypothesis 1: Transformational team leadership is related to team performance.

Transformational Leadership, Team Empowerment and Performance

Team empowerment is defined as "the extent to which team members have the freedom to choose how they perform their tasks, are competent to perform their tasks well, sense that their work is meaningful, and believe that their work will impact the effectiveness of their employing organization" (Cole, Bedeian, & Bruch, 2011, p. 386). When team members have a collective sense of team empowerment (including potency, meaningfulness, autonomy, and impact), the collective actions of those team members will be more proactive than of members of less empowered teams (Kirkman, Rosen, Tesluk, & Gibson, 2004). Team empowerment also involves "team members' collective belief that they have the authority to control their proximal work environment and are responsible for their team's functioning"

(Mathieu, Gilson, & Ruddy, 2006, p. 98). Empowered teams could thus be motivated by activating a sense of responsibility whilst working. They tend to search for continuous improvement at work and innovation in order to solve problems while striving to produce higher quality work products (Seibert et al., 2011; Gibson & Vermeulen, 2003).

Previous studies located leadership as a main antecedent of team empowerment (Chen, Kirkman, Kanfer, Allen, & Rosen, 2007; Kirkman & Rosen, 1999). The transformational leadership style is especially known to empower teams (Stewart, 2006). Such leaders give opportunities to their teams to share in the decision making (Bouwman, Runhaar, Wesselink, & Mulder, 2017). This engages and stimulates the team members (Hirst, van Knippenberg, Chen, & Sacramento, 2011), because such leaders distribute leadership across teams, thereby enhancing the so-called interactive impacts among team members (Bouwman et al., 2017). By giving more attention to individual needs, transformational leaders foster team members' desire to gain responsibility (Ling, Simsek, Lubatkin, Lyon, & Veiga, 2008). These leaders can energize followers by creating a unique vision of the team's future through which they can create a collective unit in which members use their authority to take action to realize the vision (Ozaralli, 2003). Transformational leaders thus make them go beyond their self-interests for the team's sake: by providing idealized influence, inspirational motivation, intellectual stimulation and individualized consideration (Eagly, Johannesen-Schmidt, & van Engen, 2003).

Studies at the individual level established that psychological empowerment mediates the relationship between transformational leadership and work outcomes (e.g., Avolio et al., 2004). Psychological empowerment theory also contributed to team motivation (Seibert et al., 2011). According to this theory, empowerment can play an important role in fostering

performance “because people go above and beyond the call of duty and are more influential and innovative in their work” (Spreitzer, 2008, p. 62). Empowered teams are stimulated to perform well because they have the autonomy and ability to work in a way that positively influences their organization (Chen et al., 2007). This was further shown by Cole *et al.* (2011) in their study of 108 work teams in an international automotive component manufacturing company in Germany. Transformational leaders’ role in increasing empowerment raises their followers’ performance motivation (Boerner, Eisenbeiss, & Griesser, 2007). Those leaders bring out the best in each team member and they empower to reach personal and collective goals (Stokols, Misra, Moser, Hall, & Taylor, 2008). Team leaders who empower their members by delegating responsibility and encouraging teamwork are also boosting member self-development which creates better work circumstances (Tuckey, Bakker, & Dollard, 2012). Based on the theoretical arguments and evidence in the above, it is likely that:

Hypothesis 2: Team empowerment mediates the relationship between transformational team leadership and team performance.

Transformational Leadership, Team Goal Clarity and Performance

Goal clarity is seen as important condition for effective teamwork (Conti & Kleiner, 1997). It is defined as “the extent to which members of a team have a shared understanding of the goals and objectives they should pursue as a team” (Sonnentag & Volmer, 2010, p. 118). A high level of goal clarity helps team members to gear up for their prospective team results (Conti & Kleiner, 1997). Individual members can then link their own jobs to the goals of the team (Hu & Liden, 2011). Insights into the goals that team members have does help them to recognize their duties and responsibilities (Sonnentag & Volmer, 2010). When team members are “provided such clarity, they communicate more effectively with each other, which in turn

serves to integrate each team member's tasks with those performed by others on the team" (Hu & Liden, 2011, p. 852).

Clearly defined goals are thought to be crucial to team performance (Gladstein, 1984; Guzzo & Shea, 1992; Hackman, 1987; Hackman & Walton, 1986). Doolen, Hacker, and van Aken (2003), for instance, found in a unit of a Fortune 50 high-technology company a significant positive relationship between goal clarity and team performance. This linkage is supported also by the meta-analytic study of Kleingeld, van Mierlo, and Arends (2011) and of Mento, Steel, and Karren (1987). The goal-setting theory suggests that clear goals "lead to improved team performance due to their role in directing team members' attention and encouraging members to be persistent" (Hu & Liden, 2011, p. 852).

Leaders "emphasize clarity of goals and rewards associated with successful completion of tasks" (Walumbwa, Lawler, & Avolio, 2007, p. 218). When team members are very close to their leaders, they tend to embrace the goals set by them (Hu & Liden, 2011). Some authors have stressed that effective team leaders encourage their members to have explicit discussions to clarify how their mission and purpose contribute to the strategic plan objectives (Sivasubramaniam et al., 2012). Transformational leaders in particular are known to affect such team goal clarity. First, they demonstrate a vision and describe the desirable team behaviors by articulating an ideology that boosts high goal clarity (Rafferty & Griffin, 2004). Secondly, they encourage the team to accept these goals (Podsakoff, Mackenzie, Moorman, & Fetter, 1990). They also tend to use collective (i.e., team-based) work structures to support team members' efforts in realizing the team vision (Sosik, 2005). Transformational leaders make followers "understand the ends to which they are working: the leader formulates clear goals and facilitates the achievement of these" (Nielsen, Randall, Yarker, &

Brenner, 2008, p. 18) so that ambiguity in members' sense of team goals is mitigated (Nemanich & Keller, 2007). At the individual level, transformational leadership is known to relate positively to individual goal clarity (Moynihan, Pandey, & Wright, 2011). At the organizational level, transformational leadership is found to relate directly to organizational goal clarity (Wright et al., 2012). However, we have not found large-scale empirical studies that examined the relationship between transformational leadership and team goal clarity, especially at the unit level. Peralta, Lopes, Gilson, Lourenc, and Pais (2015) indicated that management should help team members to clarify team goals, including the desired performance outcomes. Thus, based on goal-setting as well as transformational leadership theory, the link between transformational leadership and team performance is indirect: mediated by team goal clarity. Hence, one may expect that:

Hypothesis 3: Team goal clarity mediates the relationship between transformational team leadership and team performance.

Transformational Leadership, Team Empowerment and Goal Clarity

Transformational leadership empowers followers (Kark, Shamir, & Chen, 2003) by engagement enhancement of individual workers; they listen to their ideas and motivate them (Warrick, 2011). Effective team leaders are also known to share power and information with their members and support them to be autonomous; they ensure that they stick to extant policies while supporting them in their decisions (Carless, Wearing, & Mann, 2000). Members of empowered teams will thus get more autonomy, self-direction, and insights into their larger work environment (Arnold, Arad, Rhoades, & Drasgow, 2000). Teams with more autonomy are given more liberty to make decisions; they will have the possibility to plan their own work activities better and to adapt to changing circumstances: "so that they experience heightened self-determination" (Stewart, 2006, p. 34).

The empowerment construct has been used by many researchers and is often labeled as autonomy (e.g., Holland, Gaston, & Gomes, 2000). Autonomy “arises from organizational structures and practices that clarify goals, procedures, and areas of responsibility” (Hempel, Zhang, & Han, 2012, p. 480). Gonzalez-Mule, Courtright, DeGeest, Seong, and Hong (2016) hypothesized that autonomy relates significantly to organizational goal clarity; when teams work for a longer period, they may have higher autonomy and greater goal clarity than teams that have been formed more recently (Gonzalez-Mule *et al.*, 2016). Sonnentag and Volmer (2010) noted that when team members are empowered through impact, competence, meaningfulness, and choice, they are more likely to identify their team goals. Empowered teams tend to “have the authority and responsibility to make and implement their own decisions based on local information rather than wait for senior management approval” (Chen, Damanpour, & Reilly, 2010, p. 20). Herrenkohl, Judson, and Heffner (1999) pointed out, in this context, that empowered team members who accept the responsibility that goes with empowerment expect more goal clarity than their less empowered members.

Even though no previous empirical studies have examined this, there is ground to propose that team empowerment plays a mediating role in the relationship between transformational leadership and team goal clarity. The significance of clear goals on teamwork can be explained through the mediating role of team empowerment (Proenca, 2007). Jung, Wu, and Chow’s (2008, p. 591) findings gave rise to the idea that “empowerment may imply a need for transformational leaders to maintain a balance between letting people feel empowered, and providing structure and control by defining goals and agenda”. Based on the theoretical arguments above, we expect that:

Hypothesis 4: Team empowerment mediates the relationship between transformational team leadership and team goal clarity.

Team Empowerment, Goal Clarity and Performance

To the best of our knowledge, no prior studies have tested team goal clarity as a mediator between team empowerment and performance. In the literature we only find studies that support *direct* links between team empowerment and performance or between team goal clarity and performance (e.g., Chen et al., 2007; Kirkman et al., 2004; Kirkman, Tesluk, & Rosen, 2001; Hu & Liden, 2011; Weldon & Weingart, 1993). Empowerment “may affect performance indirectly by generating cooperation among team members, which, in turn, may lead to faster decision-making and higher quality products” (McDonough, 2000, p. 224). Gonzalez-Mule *et al.* (2016) found that at high levels of performance feedback an indirect influence of organizational goal clarity on the relevance between autonomy and team performance was significant. Hence, one may see team goal clarity as a team mechanism that plays a vital role in the relationship between team empowerment and performance. Mathieu et al. (2006) established that “team process” significantly mediates the impact of team empowerment on team effectiveness. According to goal setting theory, goal setting processes play an important role in boosting and maintaining team members’ motivation, performance, and satisfaction (Hertel, Konradt, & Orlikowski, 2007). Hence, when the team members are empowered, they should have high team-goal clarity before a high level of team performance can be obtained. Based on the studies cited above, we expect that:

Hypothesis 5: Team goal clarity mediates the relationship between team empowerment and performance.

Methods

Two surveys were used to empirically test the model presented in Figure 2: one survey was administered among members of regular educational teams in primary, intermediate and secondary schools in two large cities in Iraq (not being the capital) and the other was administered to their leaders/principals. The original survey items were in English. The authors used two translation experts, the first to translate the English into Arabic and the second to translate the Arabic versions back to English. The purpose of the back-translation was to ensure 100% correspondence with the original versions.

Sample and Data Collection

The data were collected from 148 Schools (100 primary, 21 intermediate and 27 secondary schools). One survey was distributed among 3008 teachers and the other among their direct leaders. The total number of school teacher respondents was 2168 (a response rate of 72%) while the total number of school leader respondents was 138 (a response rate of 93%). The participation of the leaders and teachers in the study was voluntary and their responses were kept confidential. All surveys were distributed and collected by hand by the first author.

The size of each school ranged from 7 to 60 teachers ($M = 22.30$, $SD = 7.37$). Among the leaders of the primary, intermediate and secondary schools, 47% had a Diploma⁴ and 53% had a Bachelor's degree. Among the school teachers, 0.2% had a Secondary School Certificate, 44% had a

⁴ In 1984/1985 the Ministry of Education began to upgrade the role of primary-school teachers; Teacher Training Institutes accepted graduates of intermediate schools and ran 5 year programs, divided into 3 years of general education and two years of specialization. After completing the program the students were awarded a Diploma.

Diploma, 53% had a Bachelor's degree, 2% had a Master's degree, and 0.8% had a PhD degree. The rate of males in the total group of respondents was 47%. The rate of males in the entire group of the leader sub-sample was 72%. The ages of the leaders ranged from 30 to 71 ($M = 46.93$, $SD = 8.47$). The average leaders' tenure in the schools ranged from 1 to 20 years ($M = 6.44$, $SD = 4.41$). The age of the teachers ranged from 21 to 70 years ($M = 39.49$, $SD = 8.71$). The number of years the teachers had worked with their leaders ranged from 1 to 31 years ($M = 4.48$, $SD = 3.48$).

Measures

Transformational leadership. Twenty items were adopted from Bass and Avolio (1995). The Cronbach's alpha for transformational leadership, at the individual team-member level, was .95 while at the team level it was .98. The items were measured on a 7-point Likert-type scale, ranging from 1 (*very strongly disagree*) to 7 (*very strongly agree*). A sample item is: "My manager emphasizes the importance of having a collective sense of mission".

Team empowerment. Twelve items, adopted from Spreitzer (1995), measured the empowerment of the teams with a 7-point Likert-type scale, ranging from 1 (*very strongly disagree*) to 7 (*very strongly agree*). A sample item is: "we have considerable opportunity for independence and freedom in how we do our jobs". The Cronbach's alpha for team empowerment, at the individual level was .92, while at the team level it was .96.

Team goal clarity. Four items from Lee, Bobko, Earley, and Locke (1991) measured goal clarity. The items had a 7-point Likert-type scale, ranging from 1 (*very strongly disagree*) to 7 (*very strongly agree*). The Cronbach's alpha of the scale at the individual level was .87, while at the team level it was .94. A sample item is: "we, as teachers in this school, understand exactly what we are supposed to do in our jobs".

Team performance. This scale was rated by the team leaders, with 10 items adopted from Bhatnagar and Tjosvold (2012). The items were changed slightly (e.g., “What proportion of the teachers of your school feel that most school tasks are accomplished quickly and efficiently?”). The rates of responses ranged from 10% to 100%. The Cronbach's alpha of this measure was .95.

Data Analysis

A one-factor analysis (Harman, 1976) was performed on all the items to test the individual percept-percept bias. The factor explained 38% of the variance in the item scores which showed that there was bias in the individual scores. In order to control for this rater bias (Ostroff, Kinicki, & Clark, 2002), we randomly divided the teacher data of each school into three equal groups (random split-sample technique) (Rousseau, 1985). The transformational leadership scores were aggregated in the first group; the team empowerment scores were aggregated in the third group; and the team goal clarity scores were aggregated in the second group. These data were merged into one file, together with the team performance ratings by the leaders. Hence, each study variable was rated by different participants as a result of which common-source bias was drastically curbed. Adopting the split-sample technique meant multilevel analysis was not possible.

To test the measurement model we performed a second-order confirmatory factor analysis with the aggregated item scores from the teachers and the team-performance scores from the leaders. The first-order factors consisted of the five dimensions of transformational leadership and the second-order factors were transformational leadership, team empowerment, team goal clarity, and team performance.

In terms of factor analysis, the number of cases was low compared to the number of items: 138 versus 44. However, the aggregated scores were

quite stable, because they constituted the mean scores of several individuals. Therefore, fewer cases were required for factor analysis than would have been the case for individual scores (Hofstede, Neuijen, Ohayv, & Sanders, 1990). Fan, Thompson and Wang (1999) recommended using the following fit indices: the standardized root mean square residuals (SRMR), the comparative fit index (CFI) and the root mean square error of approximation (RMSEA). RMSEA and SRMR values of up to .05 indicate a close fit between the data and the model and values from .05 to .08 represent a reasonable fit. The CFI should be .90 or higher.

The fit statistics of the second-order confirmatory factor analysis were $\chi^2 (928) = 1386$, SRMR = .06, CFI = .92, and RMSEA = .06 indicating that the measurement model had a reasonable fit with the data. The single-level confirmatory factor analysis with four factors yielded the following fit statistics: $\chi^2 (851) = 1382$, SRMR = .06, CFI = .90, RMSEA = .07 and a one-factor solution gave the following results: $\chi^2 (857) = 2579$, SRMR = .15, CFI = .68, and RMSEA = .12. These results showed that the intended measurement model, with the five transformational-leadership dimensions as first-factors and the four variables as second-order factors, was the best.

The hypotheses were tested with the aggregated latent variables at the team level. To test if these aggregations were acceptable, we computed ICC1, ICC2 and r_{WG} . To allow aggregation, the ICC1 should be at least .08 (LeBreton & Senter, 2008). The ICC1 value for transformational leadership was .19, for team empowerment was .10 and for team goal clarity was .10. Ostroff and Schmitt (1993) suggested that ICC2 values of .60 or above indicate that the group means are reliable and that subsequent analyses are warranted. The ICC2 values of the study variables were .84 for transformational leadership, .72 for team empowerment and .73 for team goal clarity. Generally, an r_{WG} greater than .70 is desirable and higher values

of r_{WG} reflect stronger within-group agreement (James, Demaree, & Wolf, 1984). The r_{WG} values were: .92 for transformational leadership; .93 for team empowerment; and .91 for team goal clarity. Hence, the ICC1, ICC2, and r_{WG} values were acceptable and supported the data aggregation at the team level for all the studied variables.

To investigate the mediation effects, the test of joint significance was used (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). Following this test, a mediation effect is present when the relationship between the independent and mediator variables is significant, and the relationship between the mediator and the dependent variable, while controlling for the independent variable, is also significant. In addition, the entire three-path mediation model was tested, as recommended by Taylor, MacKinnon, and Tein (2008). In such a model, two mediators (M1 and M2) intervene between an independent and a dependent variable (X and Y). We tested the following steps: (a) the relationship between X and M1, (b) the relationship between M1 and M2 while controlling for X, and (c) the relationship between M2 and Y while controlling for X and M1.

Results

Descriptive Statistics

Table 1 shows the correlations, means, standards deviations, and Cronbach's alpha reliabilities of the study's scales at the individual level. The reliabilities of all the scales were high, ranging from .87 to .95. The correlations among transformational leadership, team empowerment and team goal clarity were significant.

TABLE 1.

Correlations among the Main Variables at the Individual Level, incl.
Means, Standard Deviations, and Reliabilities

Variables	M	SD	1	2	3
1. Transformational leadership	5.03	1.03	(.95)		
2. Team empowerment	5.31	.93	.56**	(.92)	
3. Team goal clarity	5.27	1.04	.50**	.56**	(.87)

Note. The answering scale of variables #1 to 3 ranged from 1 to 7.

Cronbach's alphas are in parentheses along the diagonal.

****** $p < .01$.

TABLE 2.

Correlations among the Main Variables at the Team Level, incl. Means,
Standard Deviations, and Reliabilities

Variables	M	SD	1	2	3	4
1. Transformational leadership	5.09	.64	(.98)			
2. Team empowerment	5.34	.55	.47**	(.96)		
3. Team goal clarity	5.29	.60	.51**	.45**	(.94)	
4. Team performance (manager)	7.36	1.40	.33**	.41**	.40**	(.95)
5. Team size	22.30	7.37	-.09	-.04	-.11	-.16

Note. The answering scale of variables #1 to 3 ranged from 1 to 7, while those of team performance ranged from 1 to 10. Cronbach's alphas are in parentheses along the diagonal.

****** $p < .01$.

Table 2 presents the correlations, means, standard deviations, and Cronbach's alpha reliabilities of the study scales at the team level. The transformational leadership, team empowerment and team goal clarity scores were derived from the split groups. The reliabilities of the scales ranged from .94 to .98. All the correlations among the main variables were significant. The control variable, team size, was not significantly related to the variables.

Hypotheses Testing

The hypotheses were tested using Amos, structural equation modeling. All the paths were controlled in terms of the number of team members (teachers) within each school. Table 3 presents the main fit statistics of the models representing the hypotheses. Hypothesis 1 states that transformational leadership is significantly related to team performance. The fit statistics of this model showed a reasonable good fit: $\chi^2 (407) = 672$, SRMR = .06, CFI = .93, and RMSEA = .07 and the standardized coefficient of the path from transformational leadership to team performance was: $\beta = .34$ ($p < .001$). These results show that Hypothesis 1 is supported.

TABLE 3.
Fit Statistics of the Structural Models

Models	χ^2	df	SRMR	CFI	RMSEA
H1: TFL → TP	672	407	.06	.93	.07
H2: TFL → TEM → TP	1186	800	.06	.93	.06
H3: TFL → TGC → TP	834	530	.06	.93	.07
H4: TFL → TEM → TGC	916	582	.07	.92	.06
H5: TE → TGC → TP	345	276	.05	.98	.04
The three-path mediation model:					
TFL → TEM → TGC → TP	1434	970	.06	.92	.06

Notes: TFL = Transformational Leadership; TEM = Team Empowerment; TGC = Team Goal Clarity; TP = Team Performance.

Hypothesis 2 proposes that team empowerment mediates the relationship between transformational leadership and team performance. The fit statistics of the model were: $\chi^2(800) = 1186$, SRMR = .06, CFI = .93, and RMSEA = .06. The analysis showed that the path from transformational leadership to team empowerment was significant ($\beta = .45$, $p < .001$); thus, the first condition for mediation was met. Also, the path from team empowerment to team performance was significant, whilst controlling for transformational leadership ($\beta = .36$, $p < .001$); thus, the second condition for mediation was met as well. Besides, the path from transformational leadership to team performance was not significantly higher ($\beta = .18$, *ns*). The above support hypothesis 2.

Hypothesis 3 states that the relationship between transformational leadership and team performance is mediated by team goal clarity. The fit statistics of this model indicated a reasonable fit: $\chi^2(530) = 834$, SRMR = .06, CFI = .93, and RMSEA = .07. The analysis showed that the path from transformational leadership to team goal clarity was significant ($\beta = .51$, $p < .001$). In addition, the path from team goal clarity to team performance was significant while controlling for transformational leadership ($\beta = .32$, $p < .01$). The path from transformational leadership to team performance was not significant ($\beta = .18$, *ns*). These results support hypothesis 3.

Hypothesis 4 states that team empowerment mediates the relationship between transformational leadership and team goal clarity. The fit statistics of this model were: $\chi^2(582) = 916$, SRMR = .07, CFI = .92 and RMSEA = .06. The path from transformational leadership to team empowerment was significant ($\beta = .45$, $p < .001$); thus, the first condition for mediation was met. In turn, the path from team empowerment to team goal clarity was significant while controlling for transformational leadership ($\beta = .29$, $p < .01$), meeting the second condition for mediation. The path from

transformational leadership to team goal clarity was also significant ($\beta = .38$, $p < .001$). Thus, Hypothesis 4 is supported.

Hypothesis 5 proposes that the relationship between team empowerment and team performance is mediated by team goal clarity. The fit statistics of the model were $\chi^2 (276) = 345$, SRMR = .05, CFI = .98, and RMSEA = .04. The path from team empowerment to team goal clarity was significant ($\beta = .45$, $p < .001$). Also, the path from team goal clarity to team performance was significant while controlling for team empowerment ($\beta = .26$, $p < .01$). Moreover, the path from team empowerment to team performance remained significant ($\beta = .32$, $p < .001$). Hypothesis 5 is thereby supported.

Additionally, we tested the three-path mediation model. The standardized estimates among the latent variables are presented in Figure 2. The fit statistics of this model were $\chi^2 (970) = 1434$, SRMR = .06, CFI = .92, and RMSEA = .06. The path from transformational leadership to team empowerment was significant ($\beta = .45$, $p < .001$). Also, the path from team empowerment to team goal clarity, while controlling for transformational leadership, was significant ($\beta = .28$, $p < .01$). In turn, team goal clarity was significantly related to team performance, while controlling for transformational leadership and team empowerment ($\beta = .23$, $p < .01$). Therefore, the results support the three-path mediation model: The relationship between transformational leadership and team performance is mediated by team empowerment and team goal clarity in a series.

FIGURE 2. The three-path mediation model with standardized path coefficients. The observed variables are omitted for reasons of simplicity.

We tested an alternative model of the hypothesized one. We changed the positions of the two mediational variables. In this model the paths go from transformational leadership to team goal clarity, from team goal clarity to team empowerment and from team empowerment to team performance. The fit statistics of this model were $\chi^2(970) = 1434$, SRMR = .06, CFI = .92, and RMSEA = .06. The path from transformational leadership to team goal clarity was significant ($\beta = .51, p < .001$). Also, the path from team goal clarity to team empowerment was significant, while controlling for transformational leadership ($\beta = .31, p < .01$). In turn, the path from team empowerment to team performance was significant, while controlling for transformational leadership and team empowerment ($\beta = .30, p < .01$). Therefore, the results also support this alternative model. In other words, goal clarity may facilitate feelings of follower empowerment (Lee & Wei, 2011). The alternative model is in accordance with only one prior study: collective goal setting “increases team member autonomy by transferring the goal-setting responsibility from management to employees” (Kirkman & Rosen, 1999, p. 60).

After testing the alternative model that showed that the alternative ordering of both mediators is tenable, another alternative model came to mind. This is a model in which transformational leadership is split into two factors: a group- and an individual-focused one. Figure 3 shows that, instead of just one three-path mediational model, two of those same path models are tenable as well. In figure 3, we suggest that both mediational variables may occur simultaneously. In other words, transformational leadership may induce both team empowering and goal-clarity enhancing effects at the same time. This idea is based on earlier support for a two-factor model of transformational leadership (Wu, Tsui, & Kinicki, 2010; Jiang, Gu, & Wang, 2015; Chun, Cho, & Sosik, 2016; Cai, Jia, & Li, 2017). We surmise that

goal-clarity enhancements may be a function of the three group-focused transformational-behavior dimensions while the two more individually-focused team leader behavioral dimensions are likely to induce team-member empowerment.

FIGURE 3. An alternative for the tested model: suggesting that the mediating variables may be induced at approximately the same time.

Discussion

The present team level field study in a Middle-eastern country establishes a direct significant relationship between transformational leadership and team performance. The findings also support the other four hypotheses, including 3 new mediational hypotheses (H3, H4 and H5): Transformational team leadership is found to be significantly related to team empowerment which in turn, is significantly associated with team goal clarity and then to team performance. Hence, the three-path mediational model (as in Figures 1 and 2) is supported. We show *how* the two mediating mechanisms play a role within this relationship, as they are shown to be stringed: in a series.

Alternative model analyses show that the temporal order of both mediating mechanisms is an issue for future, fine-grained longitudinal and/or experimental research. Figure 3 presents the mediating mechanisms of two transformational-leadership substyles, i.e., group- or team-focused and individual-focused. Our results support the mediation patterns of these substyles. Group-focused transformational leadership is related to team goal clarity, which is positively related to performance. Individual-focused transformational leadership is positively related to team-member empowerment, which in turn, is associated with team performance.

The action or behavioral nature of team empowerment, pooled with the more cognitive goal-clarity type mediator, is uniquely combined here with the team transformational-performance link. Team leaders with this behavioral style empower members of their team to be more pro-active. They are made responsible not only for their own job performance but also for the performance of the team as a whole (Cole et al., 2011). Thus, the members of a highly performing team are more likely to be led by a transformational leader; bestowed with a large amount of responsibility; and interested in finding out more about the tasks assigned to them. Being

empowered by a transformational leader seems to evoke more interest among team members to seek for more team goal clarity. However, the time-span between empowering- and goal clarity-enhancing messages from a transformational leader may be short. A possible simultaneous occurrence of both mediational mechanisms is underpinned by the outcome of the second alternative modelling effort, reflected in Figure 3. Future research must scrutinize both team mechanisms, ideally through examining even finer-grained behaviors of both team leaders and their followers, including their temporal effects.

Practical Implications

The current study has several practical implications. They may aid future team leaders and their followers, including teachers of Iraqi schools (i.e., primary, intermediate, and secondary) to accomplish their tasks more effectively. This is because we have not only shown that the transformational leadership style of team leaders is associated with high levels of team performance: directly and indirectly. Their behaviors may establish a high level of empowerment among the members of a team which, in turn, is likely to enhance team goal clarity, thereby impacting team performance. The leaders with such a style induce both team mechanisms either sequentially or approximately at the same time.

This study suggests that Iraqi school teacher teams do better if they are led by individuals with a transformational style. Such teams will show a greater level of responsibility for their tasks as well as a greater level of clarity about what goals the teams must reach. Team goals are reached more effectively if a team works under such circumstances. Hence, Iraqi school leaders clearly need to receive (culturally appropriate) transformational leadership training: to gain skills on how to behave vis-à-vis the teachers in their schools in order for them to perform even better (Litz & Scott, 2017). Worldwide, the transformational leadership style is becoming the standard in

leadership training in educational settings (Berkovich, 2017). Moreover, promotion policies for becoming a team leader must include the transformational style as a requirement.

Strengths, Limitations and Future Research

The design of this study has the following strengths: First, the sample size and the rate of response of the teams of followers and their leaders are high. Secondly, the study uses two different surveys: one distributed among the teachers of the school teams and the second among their direct leaders. Thirdly, the data was analyzed at the aggregated team level and we used the split-sample technique through which we drastically curb the frequently occurring common-method bias in survey-based research. Fourth, although recommendations must be made for cross-cultural and longitudinal studies of the here examined two team mechanisms, this cross-sectional study tested two theory-invoked linkages in a model that has not been tested before in its entirety. We find support for all the hypotheses, including evidence of a direct relationship between the relatively old team empowerment and goal clarity variables that had not been investigated jointly before.

The cross-sectional nature of this study's design does not allow for causal claims; the results cannot exclude reverse causation either. Quasi-experimentation with this model must address this limitation. Recently, multilevel tests of the effects of transformational leadership on outcomes have received a lot of attention (e.g., Braun et al, 2013; Wang & Howell, 2012; Chun et al., 2016). Such tests of our supported model are highly recommended. Had we engaged in multi-level data analyses, we would have reduced one of its main strengths: the use of the split-level technique before testing the joint effects of the three independent variables. By employing this technique, given the sufficient number of respondents per team, we ensured independent testing of these variables.

Future research on the link between team leadership and performance

must take into consideration not only *action* or behavioral and *cognitive* type team mechanism variables but also variables that work at the *affective* level of a team, such as team cohesion or trust (Bass, Avolio, Jung, & Berson, 2003; Schaubroeck, Lam, & Peng, 2011). Those *abc*-type variables (Kozlowski & Ilgen, 2006; Zaccaro, Rittman, & Marks, 2001; Marks, Mathieu, & Zaccaro, 2001) should also be examined in other sectors, i.e., not only in educational team settings. We urge also that new research must aim for a better understanding of the micro behaviors of transformational leaders and their effects. Unveiling more of those behaviors will help to enrich leadership training. More understanding of the affective, behavioral, and cognitive impact of transformational-team leaders' training on its various outcomes is urgently needed as well

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CHAPTER 4.

TEAM TRUST, KNOWLEDGE SHARING, AND EFFICACY AS MEDIATORS IN A SERIES BETWEEN TRANSFORMATIONAL LEADERSHIP AND TEAM PERFORMANCE

This chapter has submitted to:

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Team Trust, Knowledge Sharing, and Efficacy as Mediators in a Series between Transformational Leadership and Team Performance

Abstract

Transformational team leadership has been shown to be positively related to team performance. The specifics of how improved team performance is achieved, however, and the mediating mechanisms involved, remain underexplored. In this empirical field study, we examine the ‘ABC’s’ of transformational team leadership—i.e. the affective, behavioral and cognitive aspects, as manifested in the mediating variables of a) team trust, b) team knowledge sharing, and c) team efficacy. A matched dataset of 207 teams with 3,169 surveyed responses (from both leaders and followers) tested the 6 hypotheses (using the split-sample technique), resulting in support of a four-path mediational model, showing how these mediating variables work in series to achieve improved team performance. Through inducing/maintaining team trust, transformational leaders contribute to team performance, through team members who share relevant, task-related knowledge which, in turn, contributes to team efficacy and subsequent team performance. We sketch the theoretical and practical implications of the results and the limitations of this field study’s research design, and call for additional longitudinal/quasi-experimental team-level research, to understand in particular the specific and trainable team leader *and* follower behaviors that lead to higher team performance.

Keywords:

transformational leadership, team trust, team knowledge sharing, team efficacy, team performance

Introduction

Transformational *team* leadership—an extension of Bass' transformational leadership—has been shown to have a positive influence on various team attributes and activities, that in turn lead to improved team performance. Our understanding of precisely *how* transformational team leadership leads to improved team performance, however, remains limited. Leaders play a vital role in building trust between team members (Nubold, Dorr, & Maier, 2015). Transformational leaders in particular are known to embed trust in their teams (Bai, Lin, & Li, 2016). In turn, a high trust level among team members has an influence on a team's collective efficacy (Chuang, Chou, & Yeh, 2004). Such efficacy has been shown a determinant of team performance (Gibson, 1999).

Apart from both affective and cognitive sides of effectively leading teams with a transformational style, we are assuming in this study that also *behavioral or action-oriented forces* are propelling teams led by transformational leaders to obtain performative results; such leaders unleash not only affective and cognitive but at the same time also behavioral team forces (Kozlowski & Ilgen, 2006; Zaccaro, Rittman, & Marks, 2001; Marks, Mathieu, & Zaccaro, 2001). Indeed, transformational team leadership has been found related to team knowledge sharing (Dong, Bartol, Zhang, & Li, 2017; Jiang, Gu, & Wang, 2015; Xia & Ya, 2012), and due to its influence on team coordination (Srivastava, Bartol, & Locke, 2006), knowledge sharing has been shown to positively influence team performance (Bryant, 2003; Choi, Lee, & Yoo, 2010; Wang, Liang, & Chen, 2010).

Assuming that these three *abc* types of team forces (trust, knowledge sharing and efficacy) are being induced or sustained by a transformational leader, the present study tests *how* these three mediators between transformational leadership and team performance work *jointly* to improve

team performance. Attempts to design effective practical training in transformational leadership have shown that we do not know yet how such leaders generate desirable team effects (Bass, 1990; Dvir, Eden, Avolio, & Shamir, 2002; Mullen & Kelloway, 2009; Berkovich, 2017). The purpose of our study, therefore, is to explicate the linkage between transformational team leadership and team performance, with a four-path mediation model that integrates the affective (trust), behavioral (knowledge sharing) and cognitive (efficacy) aspects of transformational leadership—i.e. the ABCs of transformational team leadership as drivers of team performance. By focusing at the team-level of performance we also seek to expand the scope of current studies of transformational leadership, most of which are focused at the individual level. The main question of this study thus is: *How* do the three team mechanisms (i.e., trust, knowledge sharing, and efficacy) mediate between transformational team leadership and team performance? This paper contributes by showing *how* the mechanisms may *jointly* drive team performance. To the best of our knowledge, the *entire* serial constellation of the five variables, even though perhaps frequently assumed by team scholars, has not yet been empirically substantiated.

To begin, we hypothesize the three mediating mechanisms between transformational team leadership and team performance. Next, we describe the methods used in carrying out our large-scale study in a non-Western country. Our results confirm a significant association between transformational team leadership and team performance, and show a positive test of the hypothesized *four-path mediation model*. Given that our research was carried out with a crosscut of many and various educational teams in Iraq, we contribute to the general team leadership-performance literature (Zahra, 2011). Most reported studies on the effects of transformational leadership have been carried out at the individual team-member level and suffer from common-method/source biases. The present study drastically

curbed those biases through tapping two type of sources and applying the split-sample technique.

Theoretical Framework and Hypotheses

Transformational Team Leadership and Team Performance

Transformational leadership is rooted in the work of Bass (1985). It is defined in terms of leader behaviors and their impact on members (Dionne, Chun, Hao, Serban, Yammarino & Spangler, 2012). Transformational *team* leadership, an extension of Bass' work, is focused specifically on the collective team interests and the achievement of their collective goals (Sun, Xu, & Shang, 2014). Transformational leaders have a key role in enhancing team performance in many work situations (Wang, Oh, Courtright, & Colbert, 2011).

Effective transformational leaders motivate followers to work harder on team tasks (Bernhard & O'Driscoll, 2011). With the leader's support and encouragement, followers can transcend their immediate self-interests (Huang, Kahai, & Jestice, 2010) to achieve collective goals (Lim & Ployhart, 2004). Through inspirational behavior, transformational team leaders seek to encourage teamwork and raise expectations of team members. They make use of symbols and imagery to demonstrate the worth of the team's collective goals that guide followers' work efforts. The 'idealized influence' of a transformational team leader tends to affect team members' positive emotions and loyalty. A transformational team leader also heightens members' awareness of problems, through intellectual stimulation, and encourages them to view problems from different angles. Through individualized consideration, a transformational team leader offers followers useful and timely support. Such leader behavior also pays attention to the individual needs of members, for instance by offering them sound advice (Hoffman, Bynum, Piccolo, & Sutton, 2011).

Judge and Piccolo's (2004) meta-analysis yielded a significant link between transformational team leadership and performance. Consequent studies have replicated the positive influence of this style on team performance, such as the Braun, Peus, Weisweiler, and Frey's (2013) investigation in a large German university (see, also, e.g., Keller, 2006; Lim & Ployhart, 2004; Wang et al., 2011; Wang & Howell, 2010). Hence:

Hypothesis 1: Transformational team leadership is related to team performance.

Transformational Team Leadership, Trust and Performance

Team trust is defined by Mayer, Davis, and Schoorman (1995, p. 712) as “the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party”. Transformational leaders have been shown to impact on the level of trust between team members (Chou, Lin, Chang, & Chuang, 2013). Transformational leaders “lead subordinates to have greater confidence in the ability of the leader to guide and enable their task efforts” (Zhu, Newman, Miao, & Hooke, 2013, p. 98). They raise members' trust levels thus through attention to their individual needs, respecting of agreements, and enhancing their ability and perseverance to overcome obstacles, make sacrifices for the sake of their team, and achieve the team vision (Jung & Avolio, 2000).

Various empirical studies have shown the significant impact of trust not only on individual performance (McAllister, 1995; Podsakoff, MacKenzie, Moorman, & Fetter, 1990) but also on group performance (Costa, Roe, & Taillieu., 2001; Erdem, Ozen, & Atsan, 2003; Shen & Chen, 2007; Palanski, Kahai, & Yammarino, 2011). High trust thus plays a significant role in increasing the capability of team members to work together, which in turn is expected to increase team performance (Dirks,

1999). Team members with a high level of team trust attempt to engage in high-quality work and then share the work with the team, seeking out both feedback and improvement. In contrast, team members with a low level of perceived team trust spend relatively more time on procedures, attempts to evade responsibility and shifting work to others (Jarvenpaa, Knoll, & Leidner, 1998). In other words, when the level of trust between team members increases, a team *expects* a high level of team performance. Conversely, when the level of trust decreases, a team expects a low level of team performance (Dirks, 1999).

Few studies, however, have empirically examined team trust as a mediator between transformational leadership and team performance. Braun et al. (2013) showed that team trust did *not* mediate the relationship between team perceptions of supervisors' transformational leadership and team performance. On the other hand, Schaubroeck, Lam, and Peng (2011) found evidence of a link between trust in their transformational leaders, and team performance. Gundersen, Hellesøy, and Raeder (2012), in a study of 286 international assignees in multinational project teams in an oil and gas company, found that the link between transformational leadership and team performance is mediated by trust in the team. A team member's trust motivates to exert additional effort, resulting in enhanced follower performance (Casimir, Waldman, Bartram, & Yang, 2006). Accordingly to Drescher, Korsgaard, Welpe, Picot, and Wigand (2014), trust spreads within a team, creating a virtuous cycle of improved team performance. If members trust their leaders, both are likely to put forth additional effort and obtain higher levels of accomplishment. This is due, most likely to members' positive emotions related to this trust (Casimir et al., 2006). Thus,

Hypothesis 2: *Team trust mediates the relationship between transformational team leadership and team performance.*

Transformational Team Leadership, Efficacy, and Performance

The concept of team efficacy is rooted in Bandura's social cognitive theory (1997), as an extension of self-efficacy (Zhong, Huang, Davison, Yang, & Chen, 2012). Team efficacy is defined as a team's collective belief that it can perform a given task successfully (Lindsley, Brass, & Thomas, 1995).

Team efficacy has been significantly and positively related to team performance in various contexts, for example, in academic institutions (Parker, 1994); health organizations (Gibson, 1999); and financial firms (Campion et al., 1993). However, Kellett, Humphrey, and Sleeth (2000) reported a negative association between team efficacy and performance, although this could have been due to sampling error (Gully, Incalcaterra, Joshi, & Beaubien, 2002). Keshtan, Ramzaninezhad, Kordshooli, and Panahi's study of volleyball teams (2010) also revealed that teams with high efficacy levels performed better.

Transformational team leader behavior can affect the collective efficacy of teams (Chen & Lee, 2007). It can enhance a "sense of a collective identity and collective efficacy" (Bass, 1998: 25; Walumbwa, Wang, Lawler & Shi, 2004). Yet, in a study of 37 bank branches in China, India and United States, Walumbwa, Lawler, Avolio, Wang, and Shi (2005, p. 8) found that "the relationship between transformational leadership and collective efficacy was marginally significant in Chinese and Indian samples and insignificant in the U.S sample". Wang and Howell (2012) reported a significant relation between such leadership and collective efficacy in a large multi-industry Canadian company. In the present study, we assume that when a transformational team leader displays adequate attention to the needs of individual team members and provides them with specific team-level support, this facilitates the interaction between the members (Zhang, Tsui, & Wang, 2011), with a significant impact on their efficacy (Srivastava et al.,

2006). Thus, both foci of transformational leadership styles (i.e., the unique group task as well as the situational needs of the followers) are forces that these leaders use productively. Transformational leaders have the ability to move members' collective sense of optimism toward the best possible performance outcomes and buffer the experience of frustration which otherwise would affect team performance (Bass & Riggio, 2006). Thereby, such leaders boost or maintain collective efficacy (or potency) and performance (Sosik, Avolio, Kahai, & Jung, 1998).

Few empirical studies have established team efficacy as a mediator in the relationship between transformational leadership and team performance. Jung and Avolio (1998) found that collective efficacy mediated the relationship between transformational leadership and performance among Asian Americans but not Caucasians. Hoyt and Blascovich (2003) found no support for the mediating role of teams' collective efficacy in the link between leadership style (including the transformational one) and performance. Other researchers reported that team potency mediates the relationship between transformational leadership and team performance (Bass et al., 2003; Sivasubramaniam, Murry, Avolio, & Jung, 2002; Schaubroeck, Lam, & Cha, 2007). Amidst this mixed evidence, we propose:

Hypothesis 3: Team efficacy mediates the relationship between transformational team leadership and team performance.

Transformational Team Leadership, Trust, and Efficacy

As the outcome of interactions among team members, team trust tend to develop over time as team members come to share values and situational understandings (Prati, Douglas, Ferris, Ammeter, & Buckley, 2003). In cases of positive team affect (i.e., when team members like each other and have a great desire to trust each other), the team members tend to develop shared understandings with the other team members (Klimoski & Mohammed, 1994). This in turn often leads to high team efficacy (Chuang et al., 2004).

Cuadrado and Tabernero (2015) proposed that team trust and efficacy could create a significant and positive team atmosphere, leading to strengthened team relationships and prosocial behavior. At the individual level, Cheung and Chan (2000) found a link between trust and self-efficacy in an international relief organization. Lau and Liden's results (2008, p. 1135) suggest that leaders should "establish strong norms for trusting capable team members", thereby enhancing team's collective efficacy. Wahlstrom and Louis (2008, p. 467) noted in their literature review that leadership practices are "credited with creating greater motivation, increased trust and risk taking, and building a sense of community and efficacy among its members". Transformational leadership is found to predict team trust and team efficacy (Arnold, Barling, & Kelloway, 2001). Chou et al.'s (2013) results pointed out also that the impact of transformational leadership on team efficacy is positively mediated by team trust. Transformational leadership is found also by Chuang et al. (2004) to affect collective efficacy: through team trust. Based on the above empirical and theoretical insights, one may expect that:

Hypothesis 4: Team trust mediates the relationship between transformational team leadership and team efficacy.

Transformational Team Leadership, Trust, and Knowledge Sharing

When strong social bonds exist between team members and their leader, team trust is likely to result (Pillai, Schriesheim, & Williams, 1999). A leader who encourages cooperation and open communication and promotes sincere behaviors by team members increases trust among team members (Carmeli, Tishler, & Edmondson, 2011). Moreover, "leader behaviors that encourage group members' involvement and participation in the decision making process and promote sharing of information are also likely to enhance group members' trust" (Walumbwa, Luthans, Avey, & Oke, 2011, p. 9). Through developing a shared vision that group members

can collectively identify with, transformational team leadership typically builds team trust as well. This includes setting the goal of jointly creating shared products (Pillai, Williams, Lowe, & Jung, 2003). According to meta-analytical evidence, transformational leadership has an important relationship with trust (Dirks & Ferrin, 2002). Hsu and Mujtaba (2007) found that team transformational leadership is strongly related to team trust in software development teams in the United States. Transformational leadership has been found to relate positively and significantly to trust in a study of 25 teams from six manufacturing plants in South Africa (Schlechter & Strauss, 2008).

Trust is not only known as a “critical lubricant in social systems” (Nonaka, 1994, p. 29), it can be also an important determinant of knowledge sharing (Nelson & Coopridge, 1996). Knowledge sharing is the process in which people reciprocally exchange both tacit and explicit knowledge and thereby produce, jointly, new knowledge (De Vries, Van Den Hooff, & De Ridder, 2006). Knowledge sharing among team members is not something that happens automatically (Lee et al., 2010). Trust is considered “one of the underlying precepts of an effective social exchange” that “may also affect workers’ knowledge-sharing behaviours” (Staples & Webster, 2008, p. 620). Trust thus plays a key role in knowledge sharing in teams. Because of the complexity and ambiguity of knowledge, when the members of a team trust each other, they will take risks in sharing knowledge (Huang, 2009). Mutual interactions between team members may foster trust among them and enable them to share knowledge within the team (Jiang et al., 2015). Nahapiet and Ghoshal (1998) proposed that when parties trust each other they are more likely to engage in cooperative action. According to social exchange theory, trust relates significantly to participation (Staples & Webster, 2008). Trust can also create and maintain reciprocity relationships which, in turn, drive knowledge sharing (Chiu, Hsu, & Wang, 2006). Mutual trust is a condition

for team members to become highly effective (Fransen, Kirschner, & Erkens, 2011). Mutual trust among team members is assumed to drive increased knowledge sharing (Nelson & Coopride, 1996). Consistent with social exchange theory, team members' trust is indeed found to relate to knowledge sharing within the team (Staples & Webster, 2008). Lee, Gillespie, Mann, and Wearing (2010) showed that leadership has both a direct and indirect impact on team knowledge sharing through team trust. We suggest that when a *transformational* leader gives ample opportunities to team members to express their ideas, this will create trust among team members which, in turn, enhance team knowledge sharing. Based on the foregoing, we expect that:

Hypothesis 5: Team trust mediates the relationship between transformational leadership and team knowledge sharing.

Transformational Team Leadership, Knowledge Sharing, and Performance

Generally, leadership can play “a central role in inspiring and supporting knowledge sharing behaviors” (De Vries, Bakker-Pieper, & Oostenveld, 2010, p. 4). This role will be stronger if the leaders have a transformational style (Ji & Maulani Utami, 2013). Bryant (2003) argued that transformational leaders encourage team members to share knowledge among each other. Transformational leaders encourage team members to think broadly; to review problems from various viewpoints; to find alternative solutions to problems; and to express their own ideas. All of these behavioral effects on followers enhance knowledge sharing among members of a team (Zhang et al., 2011).

The relationship between transformational leadership and knowledge sharing has been examined at different levels. Li et al. (2014) found that, at both the group and individual level, transformational team leadership is related to knowledge sharing in five Chinese companies. Al-Husseini and

Elbeltagi (2014) found, at the individual level, that transformational leadership was positively linked to knowledge sharing in public higher education institutes in Iraq. Ji and Maulani Utami (2013) also found that, at the individual level, transformational leadership style is positively related to explicit knowledge sharing.

Knowledge sharing is an important determinant of team performance (Lee et al., 2010). Wang et al. (2010) showed that knowledge sharing between team members can improve a team's appreciation of knowledge capital, which, in turn, can improve team performance. Nelson and Coopridge (1996) noted that the absence of shared knowledge inside a team is likely to lead to weak team performance; sharing perceptions may lead to better performance. Knowledge sharing can lead to better team performance for numerous reasons: improved decision making; better problem solving; fostered creativity (Lee et al., 2010); and more efficient coordination (Srivastava et al., 2006). Wang et al. (2010) found that knowledge sharing can predict team performance. Liu, Keller, and Shih (2011), for example, found that team knowledge sharing intention has a positive relationship with the performance of R&D project teams in technology-driven companies in Taiwan. However, there were studies showing knowledge sharing *not* related to team performance: e.g. in R&D teams in Taiwan (Huang, 2009).

We argue, nevertheless, that transformational leadership is positively related to team knowledge sharing, which in turn, is positively related to team performance. Through the transformational leadership style, team leaders make information and resources available to all team members, and promote shared beliefs (Hirunyawipada, Beyerlein, & Blankson, 2010). These beliefs “enable team members to be proactive in learning-oriented action, which in turn fosters effective performance” (Edmondson, 1999, p. 377). Lee et al. (2010) documented that team leaders who facilitate knowledge sharing can contribute to team performance. In our view,

transformational leaders in particular encourage their members to share knowledge which serve their team's performance (Zhang et al., 2011). Even though, to the best of our knowledge, no prior team-level studies have examined team knowledge sharing as a mediator between transformational team leadership and performance.

Hypothesis 6: *Team knowledge sharing mediates the relationship between transformational team leadership and team performance.*

Methods

Participants

To test the hypotheses, the data from two large samples were combined. The total number of the two large samples was 3,685 respondents while the total number of leaders in the two samples was 314. The first sample consists of members of academic and non-academic departments in Iraqi higher-educational organization, including their formal leaders. The participants of the second sample were teachers and their leaders from primary, intermediate and secondary schools in Iraq. In both samples, two surveys had been used to collect the data—one for the team members and the other for their leaders. The surveys, originally in English, were translated into Arabic, and then back to English to ensure correspondence with the original instruments. To linguistically refine the Arabic version of the surveys, a pilot study was administered to 10 members and 4 leaders of university departments (both academic and non-academic), leading to a few, minor, presentational-type adjustments.

In the first sample, the surveys were administered to the members of 177 teams within nine Iraqi universities (two public- and seven private-sector universities), located in two cities in Iraq (not being its capital). The 78 academic teams in the sample were from, for instance, Business Administration and Engineering departments; the 99 non-academic teams

(from administrative departments) were operating within the same Iraqi universities. Participation in the study was voluntary and the responses were kept confidentially. The response rate of the team members was 81% (out of the 1,869 members of these teams) while the leaders' response rate was 99% (176 out of 177 distributed). Because we wanted to curb the common-method bias in the answers of the team members, we used a split-sample technique. Therefore, we had to exclude the teams with less than eight members and then split the respondents of each of the remaining teams into four groups (see, Data Analysis). By also excluding teams with missing values, the number of teams in the first sample was reduced to 75.

The size of these academic and non-academic university departments ranged from 8 to 54 members ($M = 17.53$, $SD = 8.86$). Among the members of these departments, 31% had a PhD degree, 40.1% a Master degree, 23.7% a Bachelor degree, 2.5% a Diploma, 2.3% a secondary school certificate and .4% had finished only primary school. The age of these members ranged from 23 to 78 years ($M = 39.02$, $SD = 10.04$). The percentage of male team members was 63.4%. The number of years the members worked in their department ranged from 9 months to 30 years ($M = 5.91$, $SD = 5.01$). The mean number of years that team members had worked with their present leaders was 2.37 years ($SD = 2.35$). Among the leaders of the departments, 64% had a PhD degree, 20% of them had a Master degree, 14.7% of the leaders had a Bachelor degree and 1.3% of them had a secondary-school certificate. The percentage of male leaders was 80%. The age of the university team leaders ranged from 27 to 74 ($M = 44.88$, $SD = 10.30$), and the leaders' tenure ranged from 1 to 30 years ($M = 11.27$, $SD = 6.15$). The mean number of years the leaders had stayed in their present positions, on average, was 2.91 ($SD = 2.43$).

In the second sample, the questionnaires were administered to teachers and directors of 148 Iraqi schools (100 primary, 21 intermediate and 27

secondary schools) located in the same two large cities as the first study. Again, two surveys were used. The first survey was distributed to the 3,008 teachers, and another was distributed to their direct leaders. Each individual survey was distributed also by hand by me. Participation was voluntary and anonymity of their responses was guaranteed. The aggregate number of teacher respondents was 2,168 (a response rate of 72%) while the aggregate number of their leader respondents was 138 (a response rate of 93%). Because we used the split-sample technique, the number of teams included in the analyses was reduced to 132.

School sizes ranged from 10 to 60 teachers ($M = 22.67$, $SD = 7.37$). Among the teachers of these primary, intermediate and secondary schools, 0.5% had a PhD degree, 1.9% had a Master degree, 53.9% had a Bachelor degree, 43.4% had a Diploma, and 0.2% of them had a secondary school certificate. The percentage of males in the group of team members was 47.2%. The age of the school teachers ranged from 21 to 70 years ($M = 39.47$, $SD = 8.72$). The number of years the teachers had worked with their leaders ranged from 1 to 31 years ($M = 4.47$, $SD = 3.47$). Among the leaders of the schools, 47% had a Diploma and 53% of them had a Bachelor degree. The percentage of males in the leader subsample was 72%. The ages of leaders of the schools ranged from 30 to 71 ($M = 47.02$, $SD = 8.48$). The tenure of the school leaders or principals ranged from 1 to 20 years ($M = 6.51$, $SD = 4.39$).

Measures

Transformational leadership. Twenty items were adopted from Bass and Avolio (1995). The items were measured by a 7-point Likert-type scale, ranging from 1 (*very strongly disagree*) to 7 (*very strongly agree*). Cronbach's alpha of transformational leadership scale, at the individual team-member level, was .95 and at the team level (in the split groups: see, Data Analysis) was also .95. A sample item was "My Manager expresses

confidence that goals will be achieved”.

Team trust. Eight items from Jarvenpaa and Leidner (1999) were used to measure the member-felt trust within their own team, by means of a 7-point Likert-type scale ranging from 1 (*very strongly disagree*) to 7 (*very strongly agree*). A sample item was “Overall, the people in my team are very trustworthy.” The Cronbach’s alpha of this scale at the individual level was .84, while at the team level, in the split groups, it was .84.

Team knowledge sharing. Team knowledge sharing was measured with six items from Hsu, Wu, and Yeh (2011). The items were scored on a 7-point Likert-type scale ranging from 1 (*very strongly disagree*) to 7 (*very strongly agree*). An example of the items was “Usually, I am willing to share my knowledge and experience with others in the team.” The Cronbach’s alpha of this scale at the individual level was .89, and at the team level, in the split groups, it was also .89.

Team efficacy. In the team-member survey, we integrated two team efficacy scales (Zhong et al., 2012; Edmondson, 1999). Each scale consisted of three items which were measured on a 7-point Likert-type scale, ranging from 1 (*very strongly disagree*) to 7 (*very strongly agree*). A sample item was “I feel confident that my team members will be able to manage effectively unexpected troubles.” The Cronbach’s alpha of this scale at the individual level was .84, and at the team level, in the split groups, was .88.

Team performance. Ten items were adapted from Bhatnagar and Tjosvold (2012) and rated by the team leaders. The scale items were changed slightly (e.g., “What proportion of the members of your team feel that most team tasks are accomplished quickly and efficiently?”). Response options ranged from 10% to 100%. The Cronbach’s alpha of this total scale was .94.

Control variables. Team size was controlled for, due to size being a well-known factor that may affect team performance (Cosse, Ashworth, & Weisenberger, 1999; Stewart, 2006; Peters & Karren, 2009). Also, we

controlled for the type of sample (university or school) or the context in which the teams are embedded. The university sample was scored as 0 and the school sample as 1.

Data Analysis

To examine the common-rater bias in the measurement of the independent variables we used Harman's (1976) single factor technique. This method involves a factor analysis on the items, in which only one factor is extracted. When this factor explains more than 50% of the variance, common-rater bias is a problem. In this case 45% of the variance in the item scores was explained by the single factor. Nevertheless, to control for the remaining common-rater bias, the members of each team were randomly divided into four equal groups (random split-data technique). As a result of this procedure, a smaller part of the large dataset has been used for testing the set of mediators. The transformational leadership scores were aggregated in the first group; the team trust scores were aggregated in the second group; the team knowledge sharing scores were aggregated in the third group; and the team efficacy scores were aggregated in the fourth group. These data were integrated in one file together with the team performance ratings by the leaders. So, each study variable was rated by different participants. Another factor analysis, with one extracted factor on the aggregated item scores, showed that the single factor explained 31.38% of the variance. This indicated that the common-rater bias was strongly reduced.

To test the measurement model we performed a confirmatory factor analysis on the variables of the split-sample file. Fan, Thompson, and Wang (1999) recommended the following fit indices: the standardized root mean square residuals (SRMR), the comparative fit index (CFI), and the root mean square error of approximation (RMSEA). Values of the RMSEA and the SRMR up to .05 indicate a close fit between the data and the model, and values from .05 to .08 represent a reasonable fit. The CFI should be .90 or

higher. The fit statistics of the confirmatory factor analysis were $\chi^2 (1146) = 1730$, SRMR = .06, CFI = .92, and RMSEA = .05, indicating that the measurement model had a reasonable fit with the data.

The hypotheses were tested by aggregating the item scores to the team level and using these aggregated scores in structural equation modeling to calculate latent variables. To test if the aggregation of the variables was acceptable, we computed ICC1, ICC2 and r_{WG} ⁵. To allow aggregation, the ICC1 should be at least .08 (LeBreton & Senter, 2008). The ICC1 values of the study variables were .23 for transformational leadership, .16 for team trust, .12 for team knowledge sharing and .15 for team efficacy. Ostroff and Schmitt (1993) have suggested that ICC2 values of .70 or above indicate that group means are reliable and that subsequent analyses are warranted. The ICC2 values of the study variables were .83 for transformational leadership, .76 for team trust, .69 for team knowledge sharing and .74 for team efficacy. Generally, an r_{WG} greater than .70 is desirable and higher values of r_{WG} reflect stronger within-group agreement (James, Demaree, & Wolf, 1984). The r_{WG} values of the study's variables were 0.92 for transformational leadership, 0.92 for team trust, 0.93 for team knowledge sharing and 0.92 for team efficacy. Hence, the ICC1, ICC2, and r_{WG} values were acceptable and support the data aggregation at the team level for all studied variables.

To examine the mediation effects the test of joint significance was used (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). Following this test, a mediation effect is present when the relationship between the

⁵ ICC1 explains the amount of variance in a variable and is calculated as the proportion of among-team mean square variance to overall variance, while ICC2 estimates the reliability of the team-level means, pointing out how reliably the total mean estimation (across team members) distinguishes among the teams (Biemann, Cole, & Voelpel, 2012). The r_{WG} is an index to estimate interrater agreement with respect to the possible scores on each item (Burke, Finkelstein, & Dusig, 1999).

independent variable and mediator is significant, and the relationship between the mediator and the dependent variable, while controlling for the independent variable, is also significant. In addition the entire four-path mediation model was tested. Taylor, MacKinnon, and Tein (2008) described a method to test a three-path mediation model. In such a model two mediators (M1 and M2) intervene in a series between an independent and a dependent variable (X and Y). To test our hypothesized four-path mediation model this method was extended by adding a third mediator and testing the following relationships: (a) the relationship between X and M1, (b) the relationship between M1 and M2 while controlling for X, (c) the relationship between M2 and M3 while controlling for X and M1, and (d) the relationship between M3 and Y while controlling for X, M1 and M2 (Figure 1).

FIGURE 1.

This Study's Hypotheses and Four-Path Mediation Model

Notes: X is an independent variable; Y is the dependent variable; and M, M1, M2, and M3 are the mediating variables in this study.

Results

Descriptive Statistics

Table 1 presents the correlations, means, standards deviations, and Cronbach's alpha of all scales at the individual level. The Cronbach's alpha of the scales were high, ranging from .84 to .95. The correlations among transformational leadership, team trust, team knowledge sharing and team efficacy were significant and positive.

TABLE 1.

Correlations Among the Main Variables at the Individual Level, Means, Standard Deviations, and Reliabilities (N = 3169)

Variables	<i>M</i>	<i>SD</i>	1	2	3	4
1. Transformational leadership	4.94	1.00	(.95)			
2. Team trust	5.13	.99	.46**	(.84)		
3. Team knowledge sharing	5.54	.92	.41**	.49**	(.89)	
4. Team efficacy	5.07	.99	.51**	.51**	.56**	(.84)

Note. Cronbach's alphas are in parentheses along the diagonal.

** $p < .01$.

Table 2 shows the correlations, means, standard deviations, and reliabilities of all scales at the team level. The scores of transformational leadership, team trust, team knowledge sharing and team efficacy were derived from the split groups. The reliabilities of the scales ranged from .84 to .95. All correlations among the variables were significant and positive. In terms of the control variables, team size was not significantly related to the main variables, but the control variable of 'university or school' had a significant positive relationship with transformational leadership

and a significant negative relationship with team knowledge sharing indicating that school teams rated their leaders as higher on transformational leadership, but were lower on team knowledge sharing than university teams.

TABLE 2.

Correlations Among the Main Variables at the Team Level, Means, Standard Deviations, and Reliabilities (N = 207)

Variables	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
1. Transformational leadership	4.97	.54	(.95)					
2. Team trust	5.18	.63	.41**	(.84)				
3. Team knowledge sharing	5.54	.60	.30**	.24**	(.89)			
4. Team efficacy	5.09	.64	.51**	.27**	.27**	(.88)		
5. Team performance (by leader)	7.31	1.38	.35**	.16*	.21**	.33**	(.94)	
6. Team size	20.82	8.16	.01	-.10	-.08	-.05	-.05	
7. University vs. school	.64	.48	.20**	-.10	-.15*	-.01	.05	.30**

Note. The answering scale of variables #1 to 4 ranged from 1 to 7, while those of team performance ranged from 1 to 10. University was coded as 0 and school as 1. Cronbach's alphas are in parentheses along the diagonal.

* $p < .05$; ** $p < .01$.

Hypotheses Testing

The hypotheses were tested by using Amos, structural equation modeling. All paths were controlled by team size and type of organization (university or school). Table 3 shows the main fit statistics of the hypothetical models. Hypothesis 1 reports that transformational leadership is related to team performance. The fit statistics of this model showed a reasonable good fit: $\chi^2 (446) = 769$, SRMR = .05, CFI = .93, and RMSEA =

.06 and the standardized coefficient of the path from transformational leadership to team performance was: $\beta = .22$ ($p < .01$). These results displayed that hypothesis 1 was supported.

TABLE 3.

Fit Statistics of Structural Models

Models	χ^2	df	SRMR	CFI	RMSEA
H1: TFL → TP	769	446	.05	.93	.06
H2: TFL → TT → TP	1158	716	.06	.92	.06
H3: TFL → TE → TP	1067	641	.05	.92	.06
H4: TFL → TT → TE	1024	575	.06	.91	.06
H5: TFL → TT → TKS	971	576	.06	.92	.06
H6: TFL → TKS → TP	1013	642	.06	.93	.05
The four-path mediation model:					
TFL → TT → TKS → TE → TP	1874	1236	.06	.91	.05
The alternative model:					
TFL → TKS → TT → TE → TP	1874	1236	.06	.91	.05

Notes: TFL = transformational leadership; TT = team trust; TKS = team knowledge sharing; TE = team efficacy; TP = team performance.

Hypothesis 2 proposes that team trust mediates the relationship between transformational leadership and team performance. The fit statistics of the model were $\chi^2(716) = 1158$, SRMR = .06, CFI = .92, and RMSEA = .06. The path from transformational leadership to team trust was significant ($\beta = .31$, $p < .001$). However, the path from team trust to team performance was not significant while controlling for team transformational leadership ($\beta = .05$, *ns*). Thus, hypothesis 2 was not supported. Besides, the path from transformational leadership to team performance remained significant ($\beta = .21$, $p < .05$).

Hypothesis 3 reports that the relationship between transformational leadership and team performance is mediated by team efficacy. The fit statistics of this model indicated a reasonable fit: $\chi^2 (641) = 1067$, SRMR = .05, CFI = .92, and RMSEA = .06. The analysis presented that the path from transformational leadership to team efficacy was significant ($\beta = .44$, $p < .001$). In addition, the path from team efficacy to team performance was significant while controlling for transformational leadership ($\beta = .33$, $p < .001$). The path from transformational leadership to team performance was not significant ($\beta = .07$, *ns*). These results showed that hypothesis 3 was supported.

Hypothesis 4 reported that the relationship among transformational leadership and team efficacy is mediated by team trust. The fit statistics of this model denoted a reasonable fit: $\chi^2 (575) = 1024$, SRMR = .06, CFI = .91, and RMSEA = .06. The path from transformational leadership to team trust was significant ($\beta = .31$, $p < .001$). Additionally, the path from team trust to team efficacy was significant while controlling for transformational leadership ($\beta = .19$, $p < .01$). The path from transformational leadership to team efficacy was also significant ($\beta = .39$, $p < .001$). Thus, hypothesis 4 was met with support.

Hypothesis 5 proposes that team trust mediates the relationship between transformational leadership and team knowledge sharing. The fit statistics of the model were: $\chi^2 (576) = 971$, SRMR = .06, CFI = .92, and RMSEA = .06. The analysis showed that the path from transformational leadership to team trust was significant ($\beta = .31$, $p < .001$); thus, the first condition for mediation was met. Also, the path from team trust to team knowledge sharing was significant, whilst controlling for transformational leadership ($\beta = .16$, $p < .05$); thus, the second condition for mediation was met and hypothesis 5 was supported. However, also the path from

transformational leadership to team knowledge sharing was significant ($\beta = .17, p < .05$).

Hypothesis 6 states that team knowledge sharing mediates the relationship between transformational leadership and team performance. The fit statistics of this model were: $\chi^2(642) = 1013$, SRMR = .06, CFI = .93, and RMSEA = .05. The path from transformational leadership to team knowledge sharing was significant ($\beta = .22, p < .01$); thus, the first condition for mediation was met. In turn, the path from team knowledge sharing to team performance was significant while controlling for transformational leadership ($\beta = .17, p < .01$), meeting the second condition for mediation. Thus, Hypothesis 6 was supported. The path from transformational leadership to team performance was also significant ($\beta = .18, p < .05$).

Additionally, we tested the four-path mediation model presented in Figure 2. The fit statistics of this model were $\chi^2(1236) = 1874$, SRMR = .06, CFI = .91, and RMSEA = .05. The path from transformational leadership to team trust was significant ($\beta = .31, p < .01$). Also, the path from team trust to team knowledge sharing controlled, for transformational leadership, was significant ($\beta = .16, p < .05$). In turn, team knowledge sharing was significantly related to team efficacy, while controlling for transformational leadership and team trust ($\beta = .17, p < .05$). At last, the path from team efficacy to team performance was significant while controlling for transformational leadership, team trust and team knowledge sharing ($\beta = .31, p < .001$). Therefore, the results supported the four-path mediation model: The relationship between transformational leadership and team performance was mediated by team trust, team knowledge sharing and team efficacy in a series.

FIGURE 2 The four-path mediation model with standardized path coefficients: The control variables are omitted for reasons of simplicity.

* $p < .05$; ** $p < .01$.

We also explored an alternative model, in which the order of team trust and knowledge sharing was reversed. The fit statistics of this model were $\chi^2(1236) = 1874$, SRMR = .06, CFI = .91, and RMSEA = .05. The path from transformational leadership to team knowledge sharing was significant ($\beta = .22, p < .01$). Also, the path from team knowledge sharing to trust, controlled for transformational leadership, was significant ($\beta = .16, p < .05$). In turn, team trust was significantly linked to team efficacy, while controlling for transformational leadership and team knowledge sharing ($\beta = .17, p < .05$). Finally, the path from team efficacy to team performance was significant while controlling for transformational leadership, team knowledge sharing and team trust ($\beta = .31, p < .001$). Therefore, the results also support the alternative four-path mediation model, even though no earlier evidence is reported for this reversed model in the literature to date.

Discussion

This cross-sectional team-level field study confirms empirically that transformational leadership is directly and indirectly related to team performance. Transformational team leadership is also found to relate significantly to team trust. Team trust is found significantly associated with team knowledge sharing which, in turn, is significantly related to team efficacy and, in turn, to team performance. Hence, the hypothesized four-path mediational model, as in Figure 2, is supported. These results provide evidence for *how* transformational team leadership is related to team performance, and also *how* the three mediating team-mechanisms play a role in a series, to influence team performance.

Even though the overall model was supported, Hypothesis 2 was not supported. While we establish a direct and significant association between transformational leadership and team trust, no direct effect between team trust and team performance was observed. These results are similar to those

reported by Braun et al. (2013). An explanation for this lack of association could be that team trust influences team performance indirectly, i.e. through knowledge sharing, for example. In other words, An explanation for the non-significant mediation of team trust between transformational leadership and team performance might be that team trust is just a feeling (of team members) that by itself cannot logically affect team performance: only through some team processes such as knowledge sharing here. No support for hypothesis 2 could also be attributed to the specific sample obtained: when team members in Iraqi universities and schools feel enough trust in their work teams in order to talk freely about sensitive topics (such as political, economic and perhaps even religious subjects), they are more likely to discuss these topics, given that in their recent past, in the Saddam era, such kind of talk (at work) was deemed impossible. If members of a team with a high level of trust engage in such personally fascinating topics, it is likely to distract them from their daily work, resulting in a loss of team performance. This may be a reason why in our sample team trust was not significantly related to team performance when controlled for transformational leadership.

Transformational team leaders are shown here to capitalize on teams' latent resources. These leaders can thus enable their teams to cultivate their resources (Walsh, Dupré, & Arnold, 2014). They thereby offer their teams resource gains: through idealized influence, inspirational motivation, intellectual stimulation and individual consideration they co-create productive team settings (Nijstad, Berger-Selman, & De Dreu, 2014; Bakker, 2017). According to conservation of resources (COR) theory, when leaders generate an abundance of resources, they will flexibly use the behavioral strategies suited to their goals (Arnold, Connelly, Walsh, & Ginis, 2015). COR theory proposed also that leaders can offer teams new resources to

perform their roles well (Michel, Pichler, & Newness, 2014). Transformational team leadership is suggested here to invoke in a team a great variety of *abc*-type resources that together lead to high team performance.

Practical Implications

Our study of the relation between transformational leadership and team performance differs from previous studies in at least two important aspects. First, while previous studies explored at most two mediating mechanisms, we hypothesize, and find support for, a *four*-path mediational model. Secondly, while most previous studies have focused on only the affective and cognitive variables, we add a third behavioral variable (knowledge sharing). These unique aspects of the paper carry practical implications for researchers and practitioners alike. From a research perspective, this four-path model enables a richer understanding of possible causal relations, and indicates pathways for future productive research, as we explore further in the next section.

From a practitioner perspective—including both leaders and followers—the model provides a framework for areas that need to be considered for improving team performance. More specifically, our results suggest that transformational team leaders should attend to the affective aspects of teamwork, including trust. They should attend to behavioral aspects enabled and encouraged by a trusting environment—including knowledge sharing; and they should attend to the cognitive aspects as well, working to improve the confidence and efficacy of both individual members and the team as a collective (see, also, Nielsen, Yarker, Randall, & Munir, 2009).

Although the assumed causal order of the mediating variables is in need of further investigation, the four-path model also suggests that

transformational team leaders can take advantage of a kind of ripple effect, where the benefits of trust, knowledge sharing and efficacy work in series toward improved team performance. Finally, because we could support five of the six hypotheses that are tested based on earlier theorizing and empirical results, these implications are likely to be generalizable beyond Iraqi educational teams.

Strengths, Limitations and Future Research

Regarding this study's strengths, survey data is based on two sources: on from team leaders and another from members in those teams. The team performance data is offered by the team leaders while the data for the independent variables is collected from the employees in the teams. We also make use of the split-sample technique, thereby significantly reducing common method bias. The sample size is high: the number of examined teams in total are 207, while the number of individual participants involved in those teams are 3,169. An important limitation of this study is that the established relationships amongst the variables cannot be interpreted as causal. Moreover, we could not control rater bias at the team level, i.e. some teams may have been inclined to give more positive responses than other teams.

Regarding future research, we advocate for quasi-experimental and/or longitudinal type field studies on the affective, behavioral and cognitive aspects of transformational leadership, and their impact on team performance. The relative weight of our four independent variables must be advanced as well. We also advocate for explication of the precise micro-behaviors—of both leaders and followers—that lead to improved team performance. New studies might also identify and explore other sets of team-level mediating variables that work together in series: cohesion-empowerment-efficacy, for example. Such studies should also examine the

causal order of these mediating mechanisms, and could be preceded by qualitative, micro-behavioral studies on the motivational sources that transformational team leaders are suggested to evoke from their teams. In such studies, team-context variables should be identified as well (Lee & Edmondson, 2017; Kerr, 2017). These variables might act as substitutes for, or higher-order moderators of, the affective-behavioral-cognitive variables examined here.

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CHAPTER 5.

SUMMARY AND DISCUSSION

Chapter 5: Summary and Discussion

The specific findings of the three studies in chapters 2, 3, and 4

How do transformational leaders affect the six ABC- type team mechanisms that lead to high team performance? The thesis offers different answers to this question. In this chapter, I reflect on the several answers reached in the three empirical field studies reported in chapters 2, 3, and 4.

In chapter 2, I developed a model which explains the mediating roles of both team cohesion and team efficacy in linking transformational team leadership to team performance. I use transformational leadership and social cognitive theory as the basis of this model. Two separate empirical studies are reported: testing the same set of generic hypotheses in various Iraqi educational settings (university type teamwork and teamwork in other schools). The results of both studies do not only replicate the direct link between transformational leadership and team performance but support indirect, serial links between these two core variables; As hypothesized, transformational leadership is found to be positively related to team cohesion which is positively associated with team efficacy which, in turn, is positively linked to team performance. Hence, the overall, hypothesized model is supported in both studies of chapter 2.

Even though the overall three-path mediational model was supported twice, there is one missing piece of evidence relating to the second hypothesis in this first key thesis paper: team cohesion does not significantly mediate the relationship between transformational and team performance in the university sample, even though this same mediational hypothesis is supported by the school sample; there, team cohesion appears to be a mediating mechanism between transformational leadership and team performance. No direct significant relation is obtained for the university sample regarding the link between team cohesion and performance. I

attribute this difference to the specific university context to the fact that not all cohesive teams in Iraqi universities perform highly. Thus, even though I establish a direct relationship between transformational team leadership and team cohesion (as well as support for this paper's overall model). The high cohesion among the team members in Iraqi universities may not be *focused* on achieving high performance. This explanation fits the distinction Rosh, Offermann and Van Diest (2012) made in terms of the differential effects of affective and cognitive or task-related team cohesion. The university teams seem to consist of members who *feel* connected with each other, but not always for the sake of attaining the team objectives. Hence, a high cohesion level within an Iraqi university team does not necessarily imply that its members are all focused on achieving high joint performance. This explanation, in turn, fits the high degree of autonomy that scholars traditionally tend to demonstrate when carrying out their work. We return to this point again later in this Discussion.

In chapter 3, the study builds on the model developed in chapter 2. I use the same independent and dependent variables but vary the mediating variables, using team empowerment and goal clarity in the hypothesis. The overall chapter 3 model is derived from transformational leadership, psychological empowerment and the goal-setting theory. I thus tested the mediating impacts of team empowerment and team goal clarity on the relationship between transformational leadership and team performance on a sample from Iraqi primary, intermediate, and secondary schools. (Indeed, this chapter made good use of the second dataset reported in chapter 2.) The results support all the tested hypotheses, including Chapter 3's overall, three-path mediational model; Transformational leadership is found to be positively associated to team empowerment. Such team empowerment is positively related to team goal clarity which, in turn, is positively linked to team performance.

My third team-level field study, reported in chapter 4, is built with the same independent and dependent variables as in the two foregoing chapters. In this third empirical study, I used the following *three* mediating variables, team trust, knowledge sharing, and efficacy between transformational leadership and team performance. The study's overall model derives from transformational leadership, social cognitive and social exchange theories. The influences of these three mediating variables were tested in a series to demonstrate the link between transformational leadership and team performance. The transformational style is found to be positively related to team trust. Such team trust is found to be positively related to team knowledge sharing, which is positively linked to team efficacy which, in turn, is positively associated with team performance. Hence, the results of this third study also support the overall model. Hypothesis 2 (on trust as a mediator between leadership and performance) in the four-path mediational model is not supported. This outcome is similar to the university results reported by Braun, Peus, Weisweiler, and Frey (2013) but are in contrast to Schaubroeck, Lam, and Peng's (2011) results. Even though this third study does not support hypothesis 2 in terms of a direct link between team trust and team performance, a direct effect between transformational team leadership and team trust is obtained. We attribute this missing link to the following reasons:

- 1) Team trust is a feeling about the team shared by team members that by itself cannot impact team performance: only through behavioral and/or cognitive mechanisms at the team level, such as team knowledge sharing and team efficacy. Other combinations of the ABC-type team mechanisms may fit the specific circumstances of this particular sample better.
- 2) When team members in Iraqi educational settings feel confident to talk freely about important topics (such as political, economic and religious subjects) at work, this may distract them from performing highly in their

actual work. Given that in the recent past, Iraqi organizational team members could *not* talk freely about these topics (in the Saddam era), organizational members may need to get used to channeling their productive energies now to satisfying their work rather than the daily set of difficulties they encountered or had to endure and overcome, with the help, sometimes, of trusted colleagues. All these reasons may have a contextual effect on the lack of support for hypothesis 2 (that team trust and performance are not significantly related, albeit at a level that does not jeopardize the support for the study's overall model).

In sum, the results of this set of three empirical studies in chapters 2, 3, and 4 show that transformational team leaders and a number of mediating team mechanisms play an essential role in achieving high team performance in Iraqi universities and schools. Accordingly, team leaders with a transformational behavioral style in Iraqi educational organizations enable their team members and their team to perform highly through the three tested team mechanisms: schematically summarized in Table 1 below.

TABLE 1.

Schematic Overview of the Three Tested Team Mediators between Transformational Leadership and Team Performance

Thesis Chapters	Independent Variable	Combinations of the ABC Type of Mediators			Dependent Variable
#2	TFL	A		C	TP
#3	TFL		B	C	TP
#4	TFL	A	B	C	TP

Note:

A : Affective: Team Cohesion and Team Trust

B : Behavioral: Team Empowerment and Team Knowledge Sharing

C : Cognitive: Team Efficacy and Team Goal Clarity

TABLE 2.

Schematic Overview of the Alternative Ordering of the Team Mediators between Transformational Leadership and Team Performance

Thesis Chapters	Independent Variable	Alternative Combinations of the ABC Type of Mediators			Dependent Variable
#2	TFL	C		A	TP
#3	TFL		C	B	TP
#4	TFL	B	A	C	TP

Note:

A : Affective: Team Cohesion and Team Trust

B : Behavioral: Team Empowerment and Team Knowledge Sharing

C : Cognitive: Team Efficacy and Team Goal Clarity

In chapter 2, I found that university and school teams are not operating only through AC-type team mechanisms but also through CA-type team mechanisms. In chapter 3, I also reported, as an alternative model, a CB-type ordering of the two team mechanisms between transformational leadership and team performance. In chapter 4, I reported an alternative model: a BAC-type ordering of team mechanisms between transformational leadership and team performance. This BAC-type ordering may occur not only in educational setting but also in other sectors. Also, longitudinal research may test a CAB, BAC, and CBA ordering of team mechanisms between these two key variables. Based on my reading of the literature; how plausible are these 3 other combinations?

The Practical Implications of the Results of this Thesis

Several practical implications can be drawn from the results of the three empirical studies. As fourteen of the sixteen hypotheses (including three direct hypotheses and thirteen mediating hypotheses) are supported, as well as all the three hypothesized models derived from earlier theorizing and empirical analyses, the practical implications are likely to apply beyond Iraqi educational teams. Teams in (Iraqi educational) organizations are found to operate through the six team mechanisms that are induced by leaders with a so-called transformational behavioral repertoire. In this thesis, I highlight these six mediating team mechanisms and how they may relate to each other and to transformational leadership and team performance. The results of my three studies imply that (members of) teams (in Iraqi educational organizations) work better if they are led by transformational leaders.

The results of this thesis also highlight the impact of team trust and cohesion on the link between transformational leadership and team performance. Leaders must thus be trained to pay more attention to establishing trust and cohesion between team members in (Iraqi educational) organizations. Transformational leaders are able to impact team trust and

cohesion at a level where the team is performing higher, especially due to the two other types of interrelated mediating type team variables (behavioral and cognitive ones). Some transformational leaders may need to become more aware of these effects so that they persist in this style and they should recommend this style when recruiting new leaders for their organizations. Clearly, transformational leadership plays a vital role in helping the members of work teams to confront their unexpected challenges during the process of executing their daily tasks. Thus, when transformational leaders are promoted, selected, recruited, trained and developed, they are more likely to help their team members achieve high performance (Bass, 1990). When leaders are trained well in this style, they will be able to convey their messages to their members clearly, confidently and easily. Such training of transformational leaders will eventually help the members of teams to develop their various capabilities in unison, which in turn will improve their team performance. These leaders will also be more effective in terms of team performance due to their orientation toward continuous learning and development. The positive linkages amongst the mediators between transformational leadership and team performance can be explained, finally, also by the fact that transformational leaders encourage their team members to exceed their self-interests for the sake of achieving the shared team tasks (Howell & Avolio, 1993; Avolio, Kahai, Dumdum, & Sivasubramaniam, 2001). Finally, Transformational leadership is “well suited to education because it helps empower instructors and gives them hope, optimism and energy, as it defines the mission of how to accomplish goals” (Litz & Scott, 2017, p. 570).

Suggestions for Future Research

I enjoyed writing this subsection because future research will take my new insights into consideration in the field of OB. In turn, these new insights may help to improve the quality of organizational life in and around work

teams, contributing to better organizational and societal effects. What would more and better scholarly attention to transformational leadership, team mechanisms, and team performance entail? I already sketched, in the three chapters, various opportunities for future research. One necessity is to conduct a large longitudinal study of the relationship between transformational team leadership and performance with various plausible combinations of the ABC-type mediating mechanisms, for instance, team cohesion, team empowerment and team goal clarity. In addition, multilevel studies should explore the relationship between leaders' transformational style and team performance by using not only various team-level but also individual level mediating and/or moderating variables, such as for example, individual and team feelings of psychological safety, psychological capital, etc. These projected studies will help show how transformational leaders, through mediating/moderating variables, may enhance team performance as well as individuals' jobs at all relevant levels of analysis. A large-scale future study could add other group and individual variables to this thesis's models, such as team engagement and so-called organizational citizenship behavior. Future research would need to examine if and how other similar group mechanisms are at play, such as: "team synchronicity" (Salas, Stagl, & Burke, 2004) or "team emotional intelligence" (Chang, Sy, & Choi, 2012). New studies ought to also include a team's unanimity in terms of its own capability and desire to excel in challenging and specific goals. Furthermore, the tested models in studies 1, 2, and 3 reported in this thesis' chapters 2, 3, and 4 should be examined in the educational sectors in other countries. Such future research must not only be longitudinal and have even larger sample sizes than obtained here, I also recommend examining these ABC-type mechanisms in quasi-experimental research designs (Cook & Campbell, 1986). Moreover, I still aim to extend the here reported university research longitudinally. Such a longitudinal addition to this thesis' research

may not only replicate the results but need to establish the assumed causality among the key variables at play. This type of longitudinal study was recommended by Zahra (2011), especially in Arab or Middle Eastern organizations. In conclusion, all tested affective, behavioral and cognitive team mechanisms are shown to be significantly associated and play their hypothesized roles as mediators between transformational team leadership and team performance: an outcome that is frequently assumed in the team-performance predictors' literature, but has not been substantiated before.

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List of Acronyms

TFL	Transformational Leadership
TC	Team Cohesion
TE	Team Efficacy
TEM	Team Empowerment
TGC	Team Goal Clarity
TT	Team Trust
TKS	Team Knowledge Sharing
TP	Team Performance

List of Seminars, Courses, and Workshops during my Ph.D. research

Seminars

- EDEN Doctoral Seminar on Dissertation Writing and Publishing from June 30 until July 3, 2014, Vilnius, Lithuania.
- EDEN Doctoral Seminar on How to Design and Defend Your PhD from October 13-17, 2014, Brussels, Belgium.

Courses

- *Technical Writing & Editing Course* which was held in December, 2014, University of Twente, Enschede, The Netherlands.
- *Presentation Skill Course* from March 17 until March 31, 2015, University of Twente, Enschede, The Netherlands.
- *English Language Course: English for Lectures* from September 21 until November 2, 2016, University of Twente, Enschede, The Netherlands.
- *Designing a Lesson and Course* from April 26 until May 10, 2017, University of Twente, Enschede, The Netherlands.

Workshop

- *TGS 2 day Introductory PhD workshop* which held in the 3 & 4 December, 2014, University of Twente, Enschede, The Netherlands.

Summary of this Thesis

This thesis contributes to what we know about the mediation between transformational leadership and team performance in organizations through three sets of variables. The ideas within this Ph.D. thesis are based on an integration of a set of theories: transformational leadership theory, social cognitive theory, psychological empowerment theory, goal setting theory and social exchange theory. Each of the three core chapters describes a study addressing such a set.

The first study (second chapter) consists of two parts. Five hypotheses were tested on academic and non-academic teams in Iraqi universities. The sample size comprised 1,517 respondents and their 176 team leaders who worked in 176 university teams. In the second, a replication study tested the same five hypotheses on Iraqi primary, intermediate, and secondary school teams. The sample consisted of 2,168 team members and their 138 leaders. The third chapter tested another set of five hypotheses on the Iraqi primary, intermediate, and secondary schools (i.e., the second sample). The fourth chapter tested a set of different mediators on the combined, integrated dataset of the two samples; we merged the data of the academic and non-academic teams with the data of the other Iraqi schools. The sample in this third study tested the third set of hypotheses, consisting of 207 teams with a total of 3,169 respondents (i.e., all team members and their leaders). In all three studies, the team leaders were asked to rate the performance of their team, in an effort to curb the frequently occurring common-source bias.

The three sets of team mediators were tested empirically. The first set includes team cohesion and efficacy (as mediating in a series between transformational leadership and performance). As hypothesized, team cohesion and team efficacy mediates between transformational leadership and team performance in a series. This chapter not only supports the guiding three-path mediational model; it also reports a replication of the full model.

The second set of mediators consists of team empowerment and goal clarity (as mediating the transformational leadership-team performance relationship). The results of the study are reported in chapter 3. The findings support the guiding hypotheses and its 'different' three-path mediational model; team empowerment and team goal clarity mediate between transformational leadership and team performance in a series.

The last set of mediators, dealt with in chapter 4, involve: 1) team trust, 2) team knowledge sharing and 3) team efficacy: as mediators between transformational team leadership and performance. On empirically testing the hypotheses underlying the assumed four-path mediation model, the following results were obtained: Team trust, team knowledge sharing and team efficacy mediate between transformational leadership and team performance in a series.

The used mediators can be put into an ABC-model. The A pertains to the affective side of teams and stands for satisfying the affective needs while working with other people on a team task; the B stands for each person's need to behave as an autonomous person, even when subscribing to team goals and norms; the C refers to the more cognitive-rational side of functioning competently as an effective team member. This ABC-model explains to a large extent why transformational leadership is related to team performance and thereby contributes to the transformational leadership theory.

Besides the theoretical implications with regard to the here tested so-called ABC-mediators, this thesis also includes practical implications. Transformational leaders must be recruited, selected, appointed, promoted and/or trained as team leaders in (Iraqi educational type) organizations. Transformational leadership training may help them to adopt or perfect their behavioral skills so that they can cope effectively with unexpected or changed circumstances that reduce team performance. Transformational

team leaders can ensure that the performance of their teams is stepped up or maintained through the following three sets of team states: 1) cohesion and efficacy; 2) empowerment and goal clarity; 3) trust, knowledge sharing and efficacy. The positive relationships amongst these three sets of mediators (between transformational team leadership and performance) can be explained by the joint effects that transformational leaders can bring to a team: they encourage their members to transcend their self-interests for the purpose of achieving clearly articulated team tasks and priorities; unite team members' feelings and instill clear and reasonable norms around the shared goals, so that sufficient intra-team exchanges take place of team task-relevant information. This enables the members to demonstrate task competence, maturity and responsibility so as to attain the team's goals.

The thesis also offers suggestions for future research, like: 1) examining all the 6 mediators that were tested in one qualitative and quantitative longitudinal type study of teams before and after a transformational team leader is appointed. One would do this in order to get to know the relative weight of each of the ABC-type variables and their precise interrelationships; 2) replicating the three supported models in and across other countries and other economic or service sectors; 3) conducting quasi-experimental studies on the effects of training leaders in the transformational style on team performance through the same or similar ABC-type mediating team mechanisms.

Samenvatting van dit Proefschrift

Dit proefschrift draagt middels drie groepen van variabelen bij aan wat we weten over mediatie tussen transformationeel leiderschap en team prestaties binnen organisaties. De ideeën in dit proefschrift zijn gebaseerd op een integratie van een aantal theorieën: transformational leadership theorie (transformationele leiderschapstheorie), sociaal-cognitieve theorie, psychologische empowerment theorie, goal setting theory en social exchange theorie. De drie kernhoofdstukken van deze these geven een empirische studie weer, elk met een andere set van de uit deze theorieën voortvloeiende mediators.

De eerste studie (tweede hoofdstuk) bestaat uit twee delen. Allereerst zijn m.b.v. team data verzameld bij units van verschillende Iraakse universiteiten vijf hypothesen getest. De omvang van de steekproef bestond uit 1.517 respondenten en hun 176 teamleiders die in 176 universiteitsteams werkten. Ten behoeve van een replicatiestudie van dezelfde vijf hypothesen is een andere educatieve team-dataset verzameld in Irak. Deze tweede steekproef bestond uit 2.168 teamleden en hun 138 leiders. Met deze zelfde basis-, intermediaire- en middelbare- schoolteams is in hoofdstuk drie een andere set van mediatie-type hypothesen getest. Het vierde hoofdstuk testte een andere verzameling van mediators m.b.v. de samengevoegde of gecombineerde twee datasets. De derde groep van hypothesen is dus getoetst met 207 teams en een totaal van 3.169 respondenten (d.w.z. alle participerende Iraakse teams, inclusief hun leiders). In alle drie de studies werd de teamleiders gevraagd om de prestaties van hun teams te beoordelen, in een poging de vaak voorkomende zgn. common-source bias te minimaliseren.

De drie groepen team mediators werden steeds ook empirisch getest. De eerste set van team mediators omvatte team cohesie en 'efficacy' als

seriële mediatie tussen transformationeel leiderschap en teamprestaties. Het eerste empirische hoofdstuk rapporteert niet alleen ondersteuning voor het gehypothetiseerde drie-pad mediatie model; het presenteert ook een replicatie van het model.

De tweede groep mediators bestaat uit team empowerment en doelverduidelijking (als mediators tussen het transformationeel leiderschap van teams en de team prestaties). De resultaten van deze tweede studie worden in hoofdstuk 3 gerapporteerd. De bevindingen ondersteunen het alhier gehypothetiseerde andere three-path mediatie model; team empowerment en doel verduidelijking als seriële mediators tussen transformationeel leiderschap en team prestaties.

De laatste set mediators, die in hoofdstuk 4 worden bestudeerd, betreffen: 1) team vertrouwen, 2) het delen van team kennis en 3) team 'efficacy' als mediators tussen transformationeel team leiderschap en prestaties. Bij het empirisch testen van de hypothesen die ten grondslag lagen aan het hier veronderstelde four-path mediation model werden de volgende resultaten behaald: team vertrouwen, delen van team kennis en team efficacy mediëren de relatie tussen transformationeel leiderschap en team prestaties.

De gebruikte mediators passen in een ABC model. De A heeft betrekking op de affectieve behoeften van teams en haar leden tijdens het werken aan een teamtaak; de B staat voor de behoefte van ieder team lid om zich als een autonoom persoon te gedragen, zelfs bij het zich committeren aan team doelstellingen en normen; C refereert naar de meer cognitief-rationele kant van het bekwaam functioneren als een effectief teamlid. Dit ABC model verklaart grotendeels waarom transformationeel leiderschap gerelateerd is aan team prestaties en daarbij een bijdrage levert aan de transformationele leiderschapstheorie.

Naast de theoretische implicaties voor de hier geteste zogenaamde ABC-mediators omvat dit proefschrift ook praktische implicaties.

Transformationele leiders moeten worden geworven, geselecteerd en/of getraind als teamleiders in (Irakese onderwijs) organisaties. Transformationele leiderschapstraining zou hen kunnen helpen om zich de daarbij behorende gedragsvaardigheden eigen te maken of hen te perfectioneren zodat ze effectief kunnen omgaan met onverwachte of veranderende omstandigheden die de teamprestaties reduceren. Transformationele teamleiders kunnen er voor zorgen dat de prestaties van hun teams wordt verhoogd of gehandhaafd door de volgende drie groepen waarin de staat van het team verkeert: 1) cohesie en efficacy; 2) empowerment en helderheid van het doel; 3) vertrouwen, het delen van kennis en efficacy. De positieve relaties tussen deze drie groepen mediators (tussen transformationeel teamleiderschap en prestaties) kunnen worden verklaard door het gezamenlijk effect die transformationele leiders aan een team kan leveren: ze moedigen hun teamleden aan om hun eigenbelang te overstijgen d.v.m. duidelijk geformuleerde team taken en prioriteiten; het verenigen van het positieve teamgevoel en het teweeg brengen van duidelijke en redelijke normen rondom de gezamenlijke doelstellingen zodat er voldoende intra-team uitwisselingen van relevante teamtaak informatie plaatsvinden. Dit maakt het mogelijk voor de leden om taak-kundigheid, -volwassenheid en -verantwoordelijkheid te tonen om de teamdoelstellingen te verwezenlijken.

Het proefschrift draagt ook suggesties aan voor toekomstig onderzoek, zoals: 1) het onderzoeken van alle 6 mediators die werden getest: in een kwalitatieve en kwantitatieve longitudinaal onderzoek van teams voordat en nadat een transformationele teamleider is aangesteld. Men zou dit kunnen doen om vast te stellen wat de relatieve impact en de precieze relatie van ieder van de ABC-type variabelen is; 2) repliceren van de drie ondersteunende modellen tussen landen of economische sectoren binnen en

buiten de publieke dienstverlening; 3) uitvoeren van quasi-experimentele studies naar de effecten van het trainen van leiders in de transformationele stijl met betrekking tot team prestaties middels dezelfde of soortgelijke ABC ‘mediating’ team mechanismen.

About the Author

Haider Muhammad Abdul Sahib was born in Karbala, Iraq, on 16 November 1978. He received a Bachelor's (B.Sc.) degree in Business Administration from the University of Kufa in 2001. In 2004, he obtained a Master's (MSc) degree in Business Administration, also from the University of

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- 1- The 77th Annual Academy of Management Meetings, 2017, Atlanta, Georgia, United States.
- 2- The 31st Annual British Academy of Management Conference, 2017, Coventry, United Kingdom.

Haider is married and has two daughters, and will return to Iraq right after obtaining his Ph.D. degree where he will continue his research and teaching at the University of Karbala. **Email: aljashami1978@yahoo.com**