Leadership, culture and team communication: analysis of project success causality – a UAE case

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Abstract: Many international studies linked project success to specific factors such as leader-member exchange relationship theory (LMX), project culture, and team communication. The study expands our efforts to examine team communication as a mediator for the project success factors relations. 186 responses collected from different private and public organisations that represent different international nationalities in Abu Dhabi emirate in UAE. The study uses a series of confirmatory factor analysis to test the measurement models, and structural equation modelling to test project success factors' model relations, hypotheses, and team communication's mediating impact. The study contributes to the understanding of international practices in project management field. Moreover, the findings reveal to what degree team communication, project leadership, and organisational culture influence the project success. In the future, organisations and project leaders responsible for projects will be able to apply the outcomes to reduce project failure.

Keywords: project success; organisation behaviour; leadership members exchange; LMX, team communication; structural equation model; SEM; UAE; Abu Dhabi.

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1 Introduction

In the 21st century, numerous researchers have attempted to understand project success determinants. Dominguez (2009) alarmingly presents that only 32% of information technology projects were successful, 44% faced challenges and 24% failed in the USA. Evidently, many projects fail to thrive not only due to mismanagement of planning and implementing but also due to lack of leadership and culture support (Conner, 2012).

Various factors contribute to the project success. Lee et al. (2012) revealed that leadership members exchange (LMX) has a significant impact on performance and creativity. Cerimagic (2010) pointed out that there is a positive significant relation between organisational culture and project success; simultaneously, there is a significant link with leadership and project success. The study of Isaac et al. (2010) confirms that leadership trust establishes an environment of support and mutual respect and has a positive effect on the organisation's objectives and success.

Aubry et al. (2010) study adds that project success depends on the organisational culture that supports and reinforces best practices in management. Meanwhile, the study of Sivasubramaniam et al. (2012), underlines the significance of internal communication in shaping the goals and strategies in the most holistic way. According to the *Global Competitiveness Report 2012–2013* (Schwab, 2012) ranks countries based on their national competitiveness, the UAE ranked 24th globally among 144 countries in the year 2012 compared with 27th overall in the previous year. This study designed to address the success factors of various projects in the UAE. The discussion explores different aspects that contribute to the success of projects and articulates issues that are essential for the implementation of the study's findings in this region. The following are two guiding objectives for this work:

- identify the determinants of project success factors
- understand the contribution of each determinant to project success.

2 Literature review

The following section describes leadership theory, project culture, project successes determines, team communication and mediating impact.

2.1 Leadership

Many leadership theories centred on the leader, the followers and the organisational process. Bennett's (2009) study revealed that there is a high correlation between transformational leadership and a team's extra effort. Di Schiena et al. (2013) suggest analysing leadership in three areas: the leader, the followers and the organisation. Liden and Maslyn (1998) explained LMX theory where the leaders develop a specific relation with followers and the focus on the result impact on the followers (i.e., trust, loyalty, respect and liking).

Leader focus: Overby and Suvanujasiri's (2012), Ping (2010), Cerimagic (2010), and De Vries et al. (2010) address an importance of personality, criteria or styles measures (e.g., task oriented, relation oriented and participative oriented. Organisation focus: Karemu and George (2014), Aubry et al. (2010) state that some leadership styles have significant impact on organisation level for example a transactional leadership by leading people based on maturity life cycle level of responsibility can be undertaken by someone in a specific situation.

Followers focus: Liden and Maslyn (1998) suggested using LMX and Isaac et al. (2010) recommended LMX theory four group evaluation items: loyalty, affect, contribution and professional respect. Potgieter (2013), underlines measures has impact

on followers: for example Lee et al. (2012) used the LMX model as a moderator of the relationship for software developers' creativity and emotional intelligence.

2.2 Culture

German automotive suppliers would not succeed in China market without adopting the culture (Drauz et al., 2013). Based on expected impact, organisational culture can be investigated at three levels: individual level, organisation or project level and national level. Ahimbisibwe and Nangoli (2012), Doloi (2009), Cerimagic (2010), Hofstede (1991), Mayfield and Mayfield (2009), Fernando et al. (2012), Boiral and Paille (2012), Liang and Picken (2011), Aldulaimi and Sailan (2012), Doyle et al. (1997) and Houghton and Yoho (2005) suggest measures or describe individual level behaviours, such as: lack of trust, increased confidence and trust, importance of trust and confidence, lack of confidence, effects on dispute resolution and delays, mutual confidence among partners, long-term working relationships and likelihood of disputes erupting. Organisational level: Aubry Aubry et al. (2010), Larson and Godeli (1988), Hong et al. (2004) and Lewis and Thornhill (1994), suggest measures applicable for the level of organisation such as Abbas et al. (1995) identifies six types for the organisation-culture level: tribalistic, egocentric, conformist, manipulative, sociocentric and existential. National level: Chow and Chen (2012), Lee et al. (2012), Hofstede (1991) and Tatum et al. (2003) suggest an approach applicable to the national level, such as Hofstede's model in order to measure organisational behaviour in five aspects: power distance, individualism, masculinity, uncertainty avoidance and long-term orientation.

2.3 Communication

Triantafyllidis and Papathanasio (2013) suggested for sustaining project quality assistance evaluating project information and communication. Based on the team communication literature; the measures focus can be grouped into three groups: performance measurement, preference and other factors. Communication performance: Ahimbisibwe and Nangoli (2012), Sivasubramaniam et al. (2012), Hong et al. (2004), Omerzel et al. (2011), Isaac et al. (2010) and Doloi (2009) define the importance of communication; for example, trust, confidence and joint risk management in achieving project success (DTF, 2006).

Communication preference: Knell and Chi (2012), Troth et al. (2012), Henderson (2008), Canary and Spitzberg's (1987), Chong et al. (2012), Hoegl and Gemuenden (2001), Mayfield and Mayfield (2009) and Liang and Picken (2011) suggest to analyse the mechanics of communications between leader and team members and how it affects the process and outcomes (De Vries et al., 2010). Other communication factors: Yaping et al. (2013), Abu-Elsamen et al. (2011), suggest measuring specific process or group form a part of the communication medium impact such as Parker-Raley et al. (2013), made an assessment of Pediatric Resuscitation Communication Team Assessment (APRC-TA) in assessing communication quality and effectiveness of trauma teams during resuscitations.

2.4 Project success factors

Stiakakis and Sifaleras (2013) suggested success or ranking system combined of number of employees, capital expenditure, research and development, net sale and operating profit. This system is not suitable for non-profit or public service organisations. Han et al. (2012) suggests measuring project success using eight items for three groups: success factors, success criteria and the relation between them. Although corporate portfolio management (CPM) very much related to current management needs; little is known about CPM application for unit's assignments and function limits (Untiedt and Pidun, 2013). Office of Government Commerce (OGC) define activities to mainly three levels: portfolio, programme and project (OGC, 2009).

Portfolio management is a higher level of managing a group of programmes, whereas programme management is meant for managing a number of projects. Based on the literature project success factor can be categorised in three levels: portfolio, programme and projects:

Portfolio-level success factors: Chow and Chen (2012), Jing et al. (2010) and Diallo and Thuillier (2004), recommend a holistic evaluation that is more suitable for portfolio-level evaluation (e.g., defining project management success factors in order to measure sustainable housing development or social development or stakeholder's opinion and international project coordination.). Programme-level success factors: Ahimbisibwe and Nangoli (2012), Fernando et al. (2012), Abu-Elsamen et al. (2011), Cerimagic (2010) and Isaac et al. (2010) define success factors at the programme level consisting of content needs, procedural needs, relationship needs, human resource management, formulating regulations, identifying a good system and conducting vocational training. Project-level success factors: Aubry et al. (2010), Doloi (2009), Bryde (2008), Doughty and Kliem (1987) and Larson and Godeli (1988) point out that factors reflect the project level performance or evaluation (e.g., on-time project delivery, on-budget project delivery, desired quality outcomes and cost saving).

2.5 Theory build and hypotheses

Henderson's (2008) study establishes the impact of leadership communication competencies on project factors: team productivity, member satisfaction, PM decoding, PM encoding and technology-mediated communication. The study proved that project manager communication competencies have a positive relation to employee performance and satisfaction, which can account for team productivity. This suggests the following hypothesis: H1: project leadership style (LMX) is positively related to project success.

The organisational culture impacts project success in a positive direction because it can help achieving project success by defining the project goal clearly, implement and evaluate the strategy on a regular basis (Lewis and Thornhill, 1994). This suggests the following hypothesis: H2: organisational culture is positively related to project success.

Liang and Picken's (2011) study proved that leadership communication and cognitive style have a strong impact on shaping the organisation. This phenomenon is justified by different aspects; the manager with an expansive experience in one function who is affected by the position's duties and obligations diagnoses and shares information differently. That suggests the following hypothesis: H3: project leadership style (LMX) is positively related to team communication.

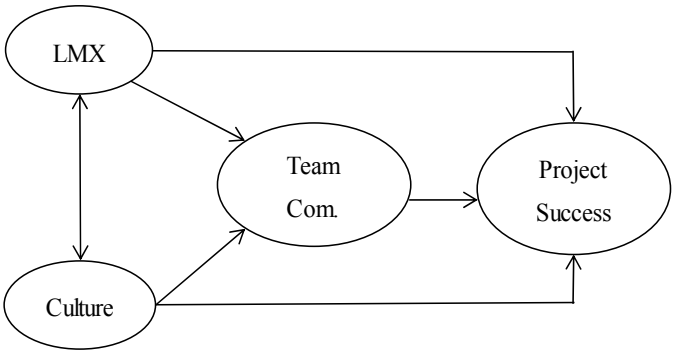
Team communication competency can improve customer loyalty and satisfaction. Abu-Elsamen et al. (2011) found that customer satisfaction and loyalty, besides the final result, are directly related to employee capabilities in dealing with customer complaints, competencies and skills. Likewise, expectations from peers and the organisation's reward system can influence communication frequency and quality. This suggests testing the following hypothesis: H4: organisational culture is positively related to team communication.

When the team communications are utilised in the most efficient way, the project execution benefits (Lee et al., 2012). Therefore, improving team communication can impact the relation of LMX and project success. This suggests the following hypothesis: H5: LMX and project success are fully/partially mediated by team communication.

Project culture has an impact on communication (Liang and Picken, 2011). Furthermore, team communication in a project that operates under high goal uncertainty and/or a low degree of freedom (*df*) impacts project success because the project team members exchange and format information and collaborate on the ideas via open communication. It is important to understand the mediating impact of communication medium on social assumption and project benefits. Ahimbisibwe and Nangoli (2012, p.1) explain an example on the need to study multi aspects relations impact on performance such as H6: the relation between organisational culture and project success is fully/partially mediated by team communication.

Doloi's (2009) study states that lack of communication will hinder the project's success and it is important to understand links between the factors associated with project success. This is suggests the following hypothesis: H7: team communication is positively related to project success.

Figure 1 Conceptual model



Combining data inable organisations to be more competitive in the market (Vijay Kumar, 2013). This research states that LMX and project culture as independent variables have a direct impact on project success. As it was mentioned team communication has an important impact on the relationship of leadership, culture and project success. Therefore, the research aims to investigate the expected role of communication mediating the independent variable and the dependent relation. That said, this study aims to investigate the mediating impact of team communication on the LMX and the impact of project culture on project success factors as depicted in Figure 1 and answer the following main questions and hypotheses:

What are the determinants of the project success factors?

What is the determinant significant impact to the project success?

H1 Project leadership style (LMX) is positively related to project success.

H2 Organisational culture is positively related to project success.

H3 Project leadership style (LMX) is positively related to team communication.

H4 Organisational culture is positively related to team communication.

H5 LMX and project success are fully/partially mediated by team communication.

H6 The relation between organisational culture and project success is fully/partially mediated by team communication.

H7 Team communication is positively related to project success.

3 Methodology

Data were collected from seven entities located in the emirate of Abu Dhabi, UAE. Represent different type banking, oil and gas, construction, IT, regulations and public service. The demographics of an organisation can describe the dynamics of project management and can explain the maturity, experience, or heterogeneity of the project (Aubry et al., 2010).

3.1 Data and sample

The primary data collection method used was a self-administered questionnaire sent by e-mail. The survey had 47-questions that encompassed two categories: demographic information and four groups of statements. Table 2 represents the short questionnaire form. The items were successfully reduced after passing the statistical tests. The short questionnaire used a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) to measure the results. Each part had to pass a number of structural equation modelling measures using confirmatory factor analysis (CFA). Furthermore, Nagelsmith et al. (2012) and Boiral and Paille (2012) explain the importance of CFA to define the significance of the factor items measuring the goodness of fit and confirming the structure accuracy.

186 responses were received equaling 93% of response rate, as shown in Table 1. Approximately 83% were males and 17% were females. UAE nationals represented 15.6%, Arabs represented 24.7%, westerners represented 7.5% and others represented 52.2%. The top management represented 15.1%; middle management, 40.3%; senior staff, 40.3%; and junior, 4.3%. The highest percentage of leaders' nationalities were Arab at 50%, others are 30.1%, UAE nationals 13.4% and westerners at 6.5%. The sample organisations' ownership representation varied; 29.6% represented government, 52.9% represented semi-government, 8.1% represented the private sector and 10.2% represented the public sector. Approximately 46.2% of the sample represented 16 or more years of experience in project management, approximately 48.4% were in the 41-years-or-more age-group and 66.1% had a bachelor's degree. 82% of the questionnaire respondents

were males and 18% were females. Moreover, 15.6% were UAE nationals, 24.7% were Arab, 7.5% were westerners and 52.2% were others. Also, 48.4% of the respondents belonged to the 41 and older group, 22% of them were 31–40 years old, 20.4% were between 21 and 30 years old and 9.1% belonged to the 20 and younger group. From the sample of respondents, 40.3% were from the middle management level and 40.3% were from the senior staff level. Top management makes up 15.1% and junior staff makes up 4.3%. Approximately 50% of the project leaders are Arab and 30% are of other nationality; 13.4% are from the UAE and 6.5% are of western nationality. Age, nationality and professional ranking were the control variables.

Table 1 Research sample characteristics

Item	*Frequency*	*Percent*	*Item*	*Frequency*	*Percent*
Gender			PM experience		
Male	154	82.8	Five years or less	40	21.5
Female	32	17.2	Six to ten years	27	14.5
Nationality			11 to 15 years	33	17.7
UAE	29	15.6	16 or more	86	46.2
Arab	46	24.7	Age group		
Western	14	7.5	20 or less	17	9.1
Other	97	52.2	21–30	38	20.4
Project position			31–40	41	22
Top management	28	15.1	41 or more	90	48.4
Middle management	75	40.3	Over all experience		
Senior	75	40.3	Five years or less	72	38.7
Junior	8	4.3	Six to ten years	40	21.5
Leader nationality			11–15 years	20	10.8
UAE	25	13.4	16 or more	54	29
Arab	93	50	Education		
Western	12	6.5	High school	9	4.8
Other	56	30.1	Diploma	2	1.1
Ownership			High diploma	9	4.8
Government	55	29.6	Bachelor degree	123	66.1
Semi-government	97	52.2	Diploma after BA	11	5.9
Private	15	8.1	Master degree	29	15.6
Public	19	10.2	Doctorate	3	1.6
			Total	186	100

52% formed semi-government sector ownership; 29% formed government sector; 10.2% formed public sector; and 8.1% formed private. Project management experience was divided into four groups: ranging from 16–plus more, 11–15, 6–10 and five years or less (46.2%, 17.7%, 14.5% and 21.5%, respectively). Approximately 38% had five or less years of experience in the same organisation, 21.5% had between six and ten years,

10.8% had between 11 and 15 years and 29% had 16 or more years of experience overall in the organisation. 4.8% were High school graduates, 1.1% were diploma graduates, 4.8% were higher diploma graduates, 66.1% had bachelor graduates, 5.9% had diploma after bachelor degree graduates, 15.6% were master's graduates and 1.6% were PhD graduates.

Table 2 SEM measurement identification

Sr.	*Code*	*Items*	*Standardise coefficient*	X_2	*df*	*P-value*	*RMSEA*
A LMX							
1	LMX1	I like my supervisor very much as a person.	0.79	9.18	5	0.10202	0.027
2	LMX4	My supervisor defends my work related actions to the top management.	0.87				
3	LMX5	My supervisor would defend me to others in the organisation if I made an honest mistake.	0.87				
4	LMX6	My supervisor would defend me if I were 'criticised' by others.	0.89				
5	LMX11	I respect my supervisor's knowledge and competence on the job	0.7				
B Culture							
6	Cult1	My working culture supports project management culture	0.68	2.25	2	0.32472	0.026
7	Cult2	feel strong synchronised energy among project managers	0.87				
8	Cult3	The project team are well equipped with project management skills	0.75				
9	Cult5	My work environment strongly supports work-home balance	0.3				
C Team communication							
10	TCM2	In most cases extensive communication is required for project successful delivery	0.57	2.29	2	0.22607	0.051
11	TCM5	Team communication provides an added value for decision makers	0.95				
12	TCM6	Team communication improves meeting expectation	0.86				
13	TCM7	There is harmony among team members	0.49				

Table 2 SEM measurement identification (continued)

Sr.	*Code*	*Items*	*Standardise coefficient*	X_2	*df*	*P-value*	*RMSEA*
D Project success measures							
14	PSUCC1	My organisation rank this project as a successful project	0.77	0.53	2	0.76553	0.0000
15	PSUCC3	The project is delivering/will deliver the expected benefits	0.77				
16	PSUCC4	The project delivered/will deliver the required outputs within the time constraints specified	0.79				
17	PSUCC5	The project was regarded/will be regarded as a success by the client	0.9				

3.2 Statistical analysis

This investigation adopts the work of Gerbing and Anderson (1988) in applying the following two-step procedure: 1. Conducting a CFA to test model measurement with an acceptable fit. 2. Conducting a structural equation model (SEM) to test the hypotheses' direct and indirect relation.

Confirmatory factor analyses were used to assess the scale of measurement and structure of the scale applied to LMX, project culture, team communication and project success. The SEM was used to assess the mediating effect of team communication in the indirect relation to the independent variable (LMX and project culture) ; and direct relation to the project success factors.

3.3 Measuring SEM

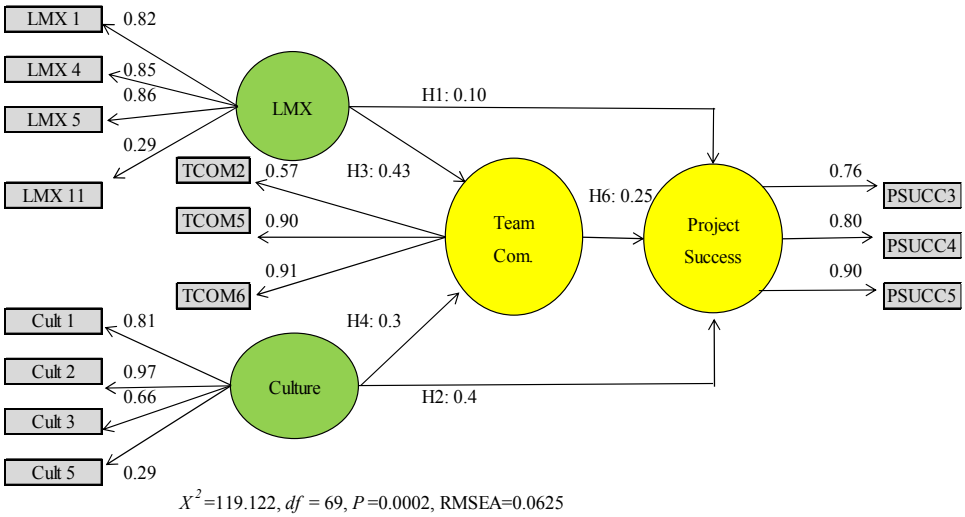
Applied LMX (12 items) adopted from Liden and Maslyn (1998) measured the strength of the relationship between the leaders and members. The remaining five items were averaged to form the following scores ($\chi^2 = 9.18$, $df = 5$, RMSEA = 0.067 and $P = 0.102$). The six items adopted from Aubry et al. (2010) were used to measure project culture. The remaining four items were averaged to form the following scores ($\chi^2 = 2.25$, $df = 2$, RMSEA = 0.026 and $P = 0.324$). Adopted from Doloi the eight criteria measure team communication factor (2009). The remaining four items scores were ($\chi^2 = 2.97$, $df = 2$, RMSEA = 0.051 and $P = 0.226$). Eleven items were adopted from Larson and Gobeli (1988) measure project success factor. The remaining four items scores were ($\chi^2 = 0.53$, $df = 2$, RMSEA = 0.7655 and $P = 0.000$).

4 Results

A complete model was tested using LISERAL software to construct SEM to validate the overall degree of model fit. 37 items were used to measure four main factors (LMX, project culture, team communication and project success). LMX factor variables were

entered and reduced from 12 to five at the first stage then to four items in the total model as shown in Figure 2. Project culture factor items were entered and reduced from six to dour items. Then team communication items were entered and reduced from eight to four. This was followed by project success items that were entered and reduced from 11 items to four items at first stage then three items in total relationship SEM test for the complete model relationship as shown in Figure 2. A similar approach was used by Abu-Elsamen et al. (2011) adopted from Gerbing and Anderson (1988).

Figure 2 Standardised residual and final model (see online version for colours)



4.1 The SEM and complete model

Figure 2 explains the construct of four factors (LMX, culture, team communication and project success factor) and the LISERAL result for the model CFA proposed to measure the mediating impact of team communication on the independent variables and its their relation to project success. LISERAL goodness-of-fit statistics results indicate a high validity of the model over all constructs: first, the covariance matrix test reported total variance = 12.169, generalised variance = 0.100176D-04, largest eigenvalue = 5.366 and smallest eigenvalue = 0.073 after the reduction of the remaining seven project success items for high negative value or interrelation correlation. Second, the maximum likelihood measurement reported within the allowed range of values. Third, $\chi 2 = 119.112$ with $P = 0.0002$ over 69 $df = 1.726$, which is less than 2 or the acceptable rage and RMSEA = 0.0625. Fourth, the following statistics fall within the acceptable range: CN, 156.021; RMR, 0.0522; GFI, 0.917; AAGFI, 0.873; parsimony goodness-of-fit index (PGFI), 0.602; NFI, 0.960; NNFI, 0.977; CFI, 0.983; IFI, 0.983; and RFI, 0.947. Overall the model results are plausible and present a clear consistency between the factors under study.

4.2 Hypotheses test

Table 3 explains the hypothesised model direct relation standard coefficient, t-value and significance level. The first hypothesis is not supported at low significance level.

H1 Project leadership style (LMX) is positively related to project success. LMX factor overall has 0.10 standardised coefficient, 1.07 t-values and 0.284 level of significance. That means that leader-member exchange has no significant impact on the success factor. The highest contribution for this factor was from LMX5 (I respect my supervisor's knowledge and competence in the job), scored 0.86.

Table 3 Direct effect table

From	*To*	*Standard coefficient*	*t-value*	*Significance level*
LMX	PSUCC	0.10	1.07	0.284*
LMX	TCM	0.43	4.47	0.000
Cult	PSUCC	0.40	4.47	0.000
Cult	TCM	0.30	3.22	0.001
TCM	PSUCC	0.25	2.82	0.005

Note: *Not significant at the level of 0.05

The second hypothesis is supported and scored acceptable significance level. H2: organisational culture is positively related to project success. This relation is supported by the model and scored a 0.4 standardised coefficient; (4.47 t-values and higher than 0.000 level of significance); That means project culture can explain 40% of the project success factors and four times more than the impact of LMX on project success factors. In this relationship the highest contribution came from Cult2 (feel strong synchronised energy among project managers) and scored 0.97.

H3 Project leadership style (LMX) is positively related to team communication. This relationship is supported by the model and scored 0.43 standardised coefficients, 4.47 t-values and higher than 0.000 level of significance. That means LMX is about 43% of the team communication impact.

H4 Organisational culture is positively related to team communication. This relation is supported by the model and scored 0. 30 standardised coefficients, 3.22 t-values and 0.001 level of significance. That means project culture weighs about 30% of the team communication impact.

H7 Team communication is positively related to project success. This relation is supported by the model and scored 0.25 standardised coefficients, 2.82 t-values and 0.005 level of significance. That means project culture contributes about 25% to project success. The highest contribution comes from TCOM6 (my supervisor would defend me if I were 'criticised' by others) and scored 0.91. This result is in line with the findings of Doyle et al. (1997) that explained that in order to make a positive change the team members have to communicate with leaders and suggest that new ideas and communicating may lead to discovery of unseen new problems.

Table 4 Indirect effect

From	*To*	*Toe*	*Standard coefficient*
LMX	TCM	PSUCC	0.1075
Cult	TCM	PSUCC	0.0750

Table 4 shows the indirect method for the calculation of the mediating impact of team communication. The mediating impact is calculated through the multiplication of the two factors on each path.

H5 LMX and project success is partially mediated by team communication and scored 0.1075 standard coefficients.

H6 Organisation culture and project success relation is fully/partially mediated by team communication and scored 0.0750 standard coefficients.

4.3 Testing control variable

Tables 5, 6 and 7 are examples of the MANOVA test results conducted for control variables. The reported data show what is recommended for small sample tests (Pillai's trace), which can explain the sample size error and is considered very reliable. The overall data reported high accuracy and accepted the results for all tests such as Wilks's lambda, Pillai's trace, Hotelling's trace, Roy's largest root and Levene's test of equality of error variances.

Table 5 LMX and control variables statistics

Multivariate tests (Pillai's trace)						
LMX effect	*Value*	*F*	*Sig.*	*Partial eta squared*	*Noncent. parameter*	*Observed powerb*
Gender	.166	9.020	.000	.166	36.078	.999
Nationality	.040	.611	.833	.013	7.335	.359
Project position	.111	1.740	.055	.037	20.878	.876
Leader nationality	.149	2.372	.006	.050	28.462	.966
Ownership	.091	1.419	.152	.030	17.034	.781
Project experience	.141	2.227	.010	.047	26.724	.953
Age group	.129	2.038	.019	.043	24.455	.930
Over all experience	.135	2.140	.013	.045	25.682	.944
Education level	.359	2.943	.000	.090	70.634	1.000

Table 6 Culture and control variables statistics

Multivariate tests (Pillai's trace)						
Culture effect	*Value*	*F*	*Sig.*	*Partial eta squared*	*Noncent. parameter*	*Observed powerb*
Gender	.120	6.160	.000	.120	24.641	.986
Nationality	.079	1.219	.266	.026	14.625	.700
Project position	.187	3.009	.000	.062	36.113	.992
Leader nationality	.093	1.446	.141	.031	17.354	.791
Ownership	.088	1.371	.175	.029	16.457	.763
Project experience	.152	2.414	.005	.051	28.973	.969
Age group	.171	2.727	.001	.057	32.722	.985
Over all experience	.148	2.347	.006	.049	28.167	.964
Education level	.329	2.672	.000	.082	64.132	1.000

Table 7 Team communication and control variables statistics

Multivariate tests (Pillai's trace)						
Culture effect	*Value*	*F*	*Sig.*	*Partial eta squared*	*Noncent. parameter*	*Observed powerb*
Gender	.088	5.822	.001	.088	17.465	.949
Nationality	.050	1.018	.424	.017	9.162	.512
Project position	.176	3.787	.000	.059	34.084	.994
Leader nationality	.136	2.884	.002	.045	25.957	.966
Ownership	.150	3.197	.001	.050	28.776	.981
Project experience	.101	2.108	.027	.034	18.972	.878
Age group	.119	2.498	.008	.040	22.486	.934
Over all experience	.058	1.206	.289	.019	10.852	.599
Education level	.546	6.644	.000	.182	119.600	1.000

Table 8 Project success and control variables statistics

Multivariate tests (Pillai's trace)						
Culture effect	*Value*	*F*	*Sig.*	*Partial eta squared*	*Noncent. parameter*	*Observed powerb*
Gender	.060	3.876	.010	.060	11.627	.818
Nationality	.173	3.703	.000	.058	33.328	.993
Project position	.138	2.917	.002	.046	26.254	.968
Leader nationality	.076	1.576	.119	.025	14.183	.742
Ownership	.104	2.180	.022	.035	19.616	.891
Project experience	.148	3.153	.001	.049	28.378	.979
Age group	.170	3.648	.000	.057	32.834	.992
Over all experience	.069	1.419	.176	.023	12.775	.687
Education level	.377	4.293	.000	.126	77.279	1.000

5 Discussion

Ping, (2010) and Thomas et al. (2012) place emphasis on the role of LMX as an important factor for achieving project success and creating a motivating working environment. LMX has a strong positive impact to project success. However, this study revealed LMX has no significant influence on project success compare to project culture and team communication (H1 = 0.1, H6 = 0.25 and H4 = 0.4 at $P = 0.0002$). This finding is consistent with the findings of Lee et al. (2012) which revealed that a high level of LMX is negatively correlated to team creativity. This could be justified by the LMX theory focus on trust, respect, loyalty and contribution and not the result of performance for project success. Moreover, the findings of Thomas et al. (2012) reveal that LMX has a positive relation to task performance for collectivist people in countries with a dominant Arab culture such as the UAE. It can be inferred that project success would not be achievable without leaders and members promoting good relationships and formulating proper strategies (Jing et al., 2010).

The studies of Liang and Picken (2011), Boiral and Paille (2012) and Ahimbisibwe and Nangoli (2012) explain the importance of culture as well its impact on project success. Culture have a strong influence that may hinder project success. This study proves that culture has the strongest relation in the model and scores four times stronger on project success than LMX on project success (H2 = 0.4, H1 = 0.1 at $P = 0.0002$). This finding is in line with most western literature; Bryde (2008), Aubry et al. (2010), Han et al. (2012) and Fernando et al. (2012) suggest measuring criteria for a successful project culture transformation.

Mayfield and Mayfield (2009) explains that organisational culture contributes to establishing team communication empathy, meaning, or tone. In this regard, organisational success is shaped by organisational communication of reward stories, turnover and people's opinions toward attendance. Furthermore, this study reveals that team communication has a partially mediating impact on project culture in relation to project success, which is in line with the literature.

Yaping et al. (2013) state that team information exchange is positively related to goal performance and goal learning. Similarly, this demonstrate that team communication has been proven to have a partially mediating impact on LMX relation to project success, which is in line with the literature (Sivasubramaniam et al., 2012) (H3 = 0.43, H5 = 0.025, $P = 0.0002$). Doloi (2009), Isaac et al. (2010) and Omerzel et al. (2011) explains that the construct of project communication depends on the effectiveness of leadership and team communication criteria.

The study finds that information exchange helps in solving complex problems, generating and sharing ideas and benefiting individual creativity. This study moreover, has demonstrated that team communication has a significant impact on project success and scored H6 = 0.25. The literature also explains that team communication and trust can help to reduce cultural conflict between team members, increase goal understanding and improve performance (Doloi, 2009). The study reveals that team communication has a mediating impact on project culture (H7: 0.108, $P = 0.0002$). This finding is consistent with the literature, as Doyle et al. (1997) explains that communication mediation channels using a typology of cognitive styles can explain individual differences in leading team communication. In line with the literature mentioned previously, the results support the hypotheses: that team communication has a partially mediating impact on the relation between LMX and project success and project culture and project success.

Fernando et al. (2012) points out that organisational culture heterogeneity is measured by the team members' values. An organisation with a strong project culture will confirm that team members are sharing the same values and, therefore, they will strengthen the project's success focus and achievement. This study showed that employees in the UAE context can benefit more and achieve project success if communication is properly monitored and facilitated within the project culture. This improvement can even enhance LMX and project culture impact on project success factors.

Future studies should cover the following: reflect the total population and represent a longitudinal study. Troth et al. (2012) shows that emotion-related skills have an impact on project success and communication within a project team, the adopted variables of this research represent an investigation of good management practices at the project level and do not reflect those at the organisation or national level. Finally, this research is limited by the geographical boundary of the Abu Dhabi emirate.

This study covers many aspects; the study investigates a new model structure where team communication plays the role of a mediating variable for LMX and the project culture relationship to project success. It proves that project success is more about project team communication and its impact on team productivity, team satisfaction and project management encoding or decoding (Henderson, 2008). As such, this study will adds to the understanding of structure of project success determinants, which are also improved by management's ability to create reliable and frequent communication and thus have a positive effect on reduction of conflicts, on informed decision-making and on improvement in expectations (Doloi, 2009).

In contrast, lack of communication may result in project outcome failure and limit the leadership capacity to take corrective action. The study has demonstrated that successful project delivery requires extensive communication more than leader member exchange. De Vries et al. (2010) study confirms that an employee with high LMX can be very sensitive to the culture and LMX is a negative predictor of creativity performance.

Knell and Chi (2012) have stated that communication and language can create barriers between team members. Building strong team communication has many benefits: first, it can resolve conflicts; second, it can improve the outcome expectations value; third, it can help teams share new ideas; fourth, it can help improve the working process and knowledge sharing; fifth, it can reduce the load on the leadership role to performance coaching; sixth, it can improves the understanding of team goals and responsibility. Finally, working in an environment with efficient communication can be an appealing aspect for employees and branding a successful organisation.

6 Research implications

This research investigated team communication's mediating role for LMX and looked at the relationship between project culture and project success for the first time in the UAE and the Middle East. The government of Abu Dhabi has set itself on a road map for success through the Abu Dhabi Economic Vision 2030 to improve the efficiency of its legal framework and speed up resolution mechanisms to further increase public confidence [Abu Dhabi Government, (2009), pp.53–54].

Projects success factors require strong team communication, LMX and project culture practices. This study improves our understanding of successful project management, turning organisations' attention to focusing on training project members about project

communication best practices. Literature findings explain that our understanding of successful project management include the important role of team communication project practices, project values in the culture and leader-member exchange relation (Chong et al., 2012; Troth et al., 2012).

Communication is not only verbal or always official. An organisation has to apply a number of lessons learned in communication sessions. Organisations should create better communication archiving practices and policies. This will improve knowledge sharing and create a better project culture, which will lead to project success and organisational growth. The leader's or management's role is not only limited to setting goals, rather, it is required they also communicate their expectations clearly and efficiently. Moreover, they should use empathy in their style of communication (Mayfield and Mayfield, 2009). The study proves that project culture has a four times greater impact on project success than LMX. Therefore, a project-supportive culture should reduce project uncertainty, improve communication archiving and knowledge sharing, reduce project complexity and improves processes (Hong et al., 2004). Employees must be encouraged to meet more often with their peers and communicate new ideas or discuss conflicts (Doloi, 2009).

Jing et al. (2010) explain that success determinants can be used before the start of a project, such as managing social responsibilities, formulating clear project missions and so on. Therefore, unsuccessful projects require one to step back for a moment, review the shortfalls and document them. Furthermore, since UAE organisations invest heavily in different projects it is recommended to assess areas of overall improvement in order to ensure appreciation of projects investments' value. As well, more focus should be given to address environment, culture and economical benefit projects.

Karemu and George (2014) explain that evaluating organisational performance in strategy implementation suggests that the theoretical framework should focuses on the Fiedler's contingency theory. Similarly, this study suggests procedures or processes of project management best practices and that communication best practices must be supported from the top management of any organisation. Ahimbisibwe and Nangoli (2012) explain that for a successful culture, performance organisations need a communication network and continuance commitment. This study shows that practices of team communication performance have an impact on project success, similar to that in western cultures and that they mediate LMX and project success or the relation between project culture and project success. To maximise project team performance, one has to both establish the project team mind-set and accept best-practice communication habits to address management benefits and clarify the social subsystem. The study shows that project success can be achieved by more focus on project team communication and culture and less focus on leader-member exchanges.

7 Conclusions and recommendation

The research investigated the effects of LMX, project culture and team communication on project success. Moreover, the study revealed the mediating role of team communication on the relationship between LMX and project culture and project success factors. Project success factors heavily dependents on project culture and team communication. Project teams with strong team communication capabilities share more new ideas, solve problems, deal with complex projects better, clarify project objectives and responsibilities and create an attractive organisational culture. Project success in the

UAE in terms of the study sample has proven to be dependent not only on LMX but project culture and team communication have a stronger impact on project success in this region. The result has implications for all government, semi-government, public and private sectors, managers and project team members.

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