

INVESTIGATING THE MODERATING EFFECT OF KNOWLEDGE INTENSIVE CULTURE ON KNOWLEDGE MANAGEMENT PROCESS CAPABILITY AND ORGANIZATIONAL PERFORMANCE

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ABSTRACT

In current era, firms require innovation and competitive advantage for sustained performance. Knowledge management is reported as most widely discussed mechanism for initiating innovation and developing competitive advantage in organizations. Therefore, this study empirically scrutinizes the effects of Knowledge Management Process Capability (KMPC) on organizational performance with interactive effect of Knowledge Intensive Culture (KIC). Multiple moderated regression analysis is applied on 271 valid responses and results clarify the positive impact of KMPC on organizational performance. Moreover, current study highlights the importance of KIC as strengthening element to enhance organizational performance through KMPC. In-depth investigation outlines that knowledge acquisition, sharing and application are more influencing processes to enhance organizational performance. Anyhow, knowledge conversion has less significant impact on developing organizational performance but helps other processes to perform better. To mature sustained performance, managers have to develop KMPC and flourish KIC in routine organizational life.

Keywords: Knowledge Management Process Capability, Knowledge Intensive Culture, Organizational Performance, Multiple Moderated Regression Analysis

INTRODUCTION

According to the Knowledge based View (KBV) knowledge is one of the most powerful strategic, socially complex and difficult to imitate resources that if managed properly, enable the success of organizations. Organizations in all settings nowadays have to deal with great amount of external and internal knowledge that must be managed in proper way to innovate and attain competitive advantage (Nickerson & Zenger, 2004; Soto-Acosta et al., 2015, 2016). Banking industry is one of the most promising pillars of Pakistani service sector (Rehman et al., 2011). In present knowledge incentive environment, where globalization and competition are paramount banks must focus on having strong resources to remain competitive (Hanif et al., 2014). Additionally, Curado (2008) exclaimed that having effective management of knowledge and intellectual

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capital is vital in banking sector success. As the present economy is knowledge-driven, the performance of organizations relies heavily on the knowledge possessed by employees (Gold et al., 2001) and its right application and management (Nasser, 2012). Organizations operating in all sectors have the core aim to be successful by attaining competitive advantage (Lee & Sukoco, 2007). Cohen and Olsen (2015) highlighted the importance of knowledge management as a potential source of effective organizational performance. This implies that, even though knowledge is an important resource held by organization yet it will only result in potential superior performance and competitive advantage if right knowledge management systems (KMS) are in place (Larsen & Salter, 2006).

One of the prime tool for effective management of knowledge is the Knowledge Management Process Capabilities (KMPC) allowing the knowledge to be channeled effectively within an outside the bounds of organizations (Imran et al., 2016). Multiple knowledge process come under the paradigm of KMPC such as, creation, sorting, conversion, application, selection, dissemination and selling of knowledge (Beckman, 1999). KMPC are found to be predictor of successful organizational performance (Nasser, 2012; Chen et al., 2002; Hossein et al., 2012; Gold et al., 2001, Nasser et al., 2012).

Although the direct link in KMPC and organizational performance is established yet the need for investigating underlying interactive mechanisms is still present (Cohen & Olsen, 2015). It is indicated by recent research studies, in order to reap superior organizational performance through KM and KMPC appropriate cultural mechanism should be created that facilitate the process. In presence of right culture the link of KMPC and organizational performance strengthens and vice-versa (Chang & Lin, 2015; Chennamaneni & Teng, 2012; Lee, 2001; Ling et al., 2009; Quigley et al., 2007). Furthermore, in spite of the important role of knowledge management in banking sector success, in Pakistan this factor has still received limited research attention (Ahmed et al., 2015).

Knowledge Intensive Culture (KIC) enables effective management of knowledge by sharing Lee (2001) socializing Nonaka et al. (2001) and in turn creates positive influence on organizational performance (Hossein et al., 2012). When KIC is present in organizations, they have fast modes of transferring knowledge by communities of practice (CoP), electronic repositories, expert systems and knowledge portals through which employees gain required knowledge form within and outside the organization and induce more creative and innovative behaviors, they make better decisions and develop problem solving capabilities that intern have positive impact on organizational performance (Nasser et al., 2012; Lee, 2001; Gold et al., 2001).

Thus, building on the identified research gaps we aim to examine the relationship in KMPC and organizational performance through moderating impact of KIC in banking sector of Pakistan. This study will add to the KM literature in theoretical terms by offering empirical evidence of moderating impact of KIC in fostering organizational performance by KMPC. Practically, it will shed light on the potential benefits of KMPC, and development of KIC in less focused banking sector of Pakistan.

LITERATURE REVIEW

Knowledge and Knowledge Management:

Knowledge is a complex term and cannot be exactly defined yet. However, Nonaka, Byosiere, Borucki, and Konno (1994) and Alavi and Leidner (1999) believed that knowledge is a set of information that lead to an action. There are two types of knowledge in a larger spectrum, one is tacit knowledge and other is explicit knowledge (Beckman, 1999; Blackler, 1995; Nonaka, 1994). Tacit knowledge is all about individuals and is tough to imitate unless and until the owner has willingly share it. On the other side, explicit knowledge is available in electronic or published forms i.e. manuals, handouts, picture, video or audio etc. In first one, the ownership rights belong to individual and later on owns by the organizations (Choi & Lee, 2000; Gold et al., 2001; Imran et al., 2017). Knowledge management is defined as the art and science of creating and managing knowledge (Chen et al., 2012). In earlier stage, Davenport and Prusak (1998) stated that knowledge management is an art of acquiring, converting, applying, managing, storing the desired knowledge for organizational wellbeing. Due to increase in organizational complexities and rapid changes in external environment, the importance of knowledge management is in increasing phase (Knippenberg et al., 2015). The continuous production of effective knowledge helps the human capital to perform better in their domain (Hsu, 2008).

Knowledge Management Process Capability and Organizational Performance:

The Knowledge Management Process Capability (KMPC) is one the basic prop of knowledge management charter and provides essential tools for effective channelizing of knowledge within and outside the boundaries of an organization (Imran et al., 2016). KMPC includes various knowledge processes i.e. creating, converting, storing, mapping, applying, selecting, sharing and selling of knowledge (Beckman, 1999). Extant literature has studied the linkage between KMPC and different organizational contextual outcomes i.e. leadership, learning, change, effectiveness, creativity, innovation, competitive advantage, intellectual capital and performance (Cardinal et al., 2001; Gold et al., 2001; Imran et al., 2017; Imran et al., 2016; Maimone & Sinclair, 2014). The contemporary literature has bifurcated the application of knowledge and importance of different knowledge processes with respect to industry i.e. acquisition, conversion, sharing and application are essentially important in service industry (Bess et al., 2010; Imran et al., 2016) and acquisition, storing, selling, mapping and application in manufacturing industry (Meihami & Meihami, 2014; Mirkamali et al., 2011). Based on the extant literature and context of the study as services sector organizations, researchers have emphasize on three types of processes; acquisition, conversion and storing.

Knowledge acquisition is defined as the methods by which individuals and organizations acquire new, already stored and updated knowledge that is used to performance specified tasks at different levels (Franco & Mariano, 2010; Zaied et al., 2012). The knowledge management starts working from acquiring of knowledge and ends in applying or storing of knowledge (Lee et al., 2012). In organizations, employees are performing various tasks simultaneously and encounters with different natures

of problems, to cope up these situations they need efficient, well directed and solution-oriented knowledge (Akhavan & Pezeshkan, 2014). The continuous knowledge acquisition process guarantees the provision of such knowledge and updating of the same in a timely manner (Andrews & Delahaye, 2000). Moreover, the acquisition process sets the basis for rest of the processes to function effectively (Gold et al., 2001). Merely, the acquisition of knowledge is not important until and unless such knowledge has been converted into useable form. Knowledge conversion is a process in which acquired or created knowledge has been converted into usable form (Herschel et al., 2001; Grinsven & Visser, 2011). The conversion of knowledge can be tacit to explicit, explicit to tacit, tacit to tacit and explicit (Nonaka et al., 2000). The ultimate objective of the conversion process is to simplify the acquired knowledge into actionable form (Carvalho, 2001). The actionable knowledge process is application of knowledge which uses the acquired and converted knowledge. Knowledge application is defined as the process where employees are actually using knowledge for performing routine tasks, problem solving and new ventures (Chang & Chuang, 2011; Chen et al., 2009).

In services sector organizations, organizational performance is based on service quality, response time, service justice, customer satisfaction and market oriented products (Delaney & Huselid, 1996; Ramarajan, Barsade et al., 2006). Extant literature has found out the relationship between knowledge management and organizational performance (Chen et al., 2012; Rasula et al., 2012; Sharma et al., 2010; Zaied, 2012). In capability perspective, KMPC is coupled with infrastructure capability results into performance (Emadzade et al., 2012). In contemporary literature, there are very rare studies that have investigated the impact of KMPC separately on performance. Based on the above discussion, the following hypotheses are drawn:

H1: KMPC has positive effect on organizational performance

H1A: Knowledge Acquisition has positive effect on organizational performance

H1B: Knowledge Conversion has positive effect on organizational performance

H1C: Knowledge Application has positive effect on organizational performance

KMPC, Knowledge Intensive Culture and Organizational Performance:

Knowledge culture is referred as the beliefs, shared norms, attitude and values that form knowledge acquiring and sharing environment (Hauschild et al., 2001). The knowledge culture is the integral part of the infrastructure capability of an organization (Gold et al., 2001). The contemporary studies have proved the linkage between knowledge management process capability (KMPC) and knowledge intensive culture (KIC) with learning (Easterby-Smith & Prieto, 2008; Imran et al., 2016). The cultural supportive can help the employees to acquire new knowledge, its conversion and application (Alsam et al., 2016). Moreover, Intezari et al. (2017) have investigated the positive effects of knowledge culture on performance. The above discussion ended up with following hypotheses:

H2: KIC strengthens the relationship between KMPC and organizational performance.

H2A: KIC strengthens the relationship between Knowledge Acquisition and OP.

H2B: KIC strengthens the relationship between Knowledge Conversion and OP.
 H2C: KIC strengthens the relationship between Knowledge Application and OP.

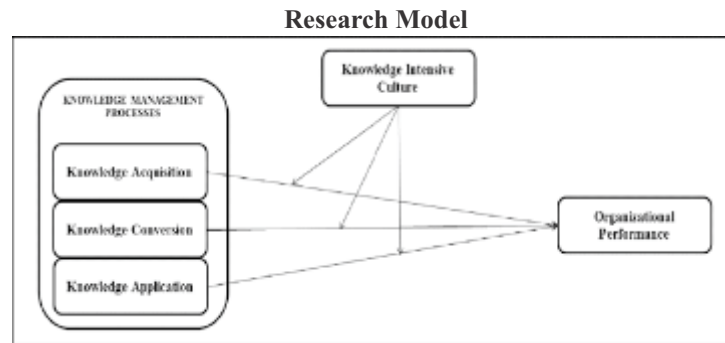


Fig 1: Research Model: The Moderating Role KIC in between KM Processes and OP

RESEARCH METHODOLOGY

Research Design and assumptions:

Broadly speaking, the current study followed the quantitative research design with positivistic research paradigm. Likewise, the deductive reasoning approach is used to form the hypotheses based on contemporary literature and context of the study (Creswell, 2013). Within the quantitative research design, explanatory approach is used to measure the cause and effect relationship among knowledge management process capability (KMPC) and organizational performance (Kim, 2003). Zikmund, Babin, Carr, and Griffin (2012) has explained the importance of underlying assumptions within the research design that is adequately fulfilled and complied with through proper formation of hypotheses based on literature review and later on tested with acceptable tools.

Sample Selection:

Within the services sector organizations, banking sector is one of the rapidly growing sectors with appropriate regulatory authorities i.e. State Bank of Pakistan (SBP) and Securities and Exchange Commission of Pakistan (SECP). There is stiff competition prevails among various national and foreign banks. To meet the industry requirements, every bank is interested to improve its performance. Therefore, the banking sector of Pakistan is the context of the current study. Currently, more than 35 banks are operating and providing banking services in Pakistan (Ahmed & Ahsan, 2011). The first desk employees and managers are the crucial employees whose are providing services to general public. Hence, the employees of banking sector are the unit of analysis in this study. Moreover, two-way sampling procedure is adopted, at first stage, simple random sampling is used to select five banks from thirty-five banks population and at second stage convenience sampling is used to select employees within each selected bank.

Instrument Development Data Analysis Techniques:

The structured questionnaire is prepared after completing the meaningful discussion from the banking experts on already developed scales. The experts have suggested exclusion and some modifications in the items of the scales. The most relevant scales are selected to form the questionnaire; i.e. Gold et al. (2001) for knowledge management process capability and knowledge intensive culture and Delaney and Huselid (1996) for organizational performance. All items in the questionnaire are evaluated at 7-point Likert scale from 1 to 7 (strongly disagree to strongly agree). To test the hypotheses and underlying assumptions, various statistical techniques have been applied and interpreted. Majorly, multiple regression analysis and Aguinis (2004) moderation technique have been used to test the main hypotheses.

DATA ANALYSIS***Main Study Sample Profile:***

An effective procedure was adopted to collect data from employees of banking sector. In each selected banks, 80 questionnaires have been circulated. After circulating questionnaire, rigorous follow-up method has been used to get maximum response i.e. reminder call, emails and contacts through regional human resource departments. From 400 circulated questionnaires 372 received returned (93% response rate), in which 9 questionnaire were discarded based on more than 10% missing values (Kline, 2011).

DESCRIPTIVE ANALYSIS**Table 1:** Descriptive Analysis Facts

Variable	Category	Frequency	Percentage
Gender	Male	281	77.4
	Female	82	22.6
Age	26-30	116	32.0
	31-35	80	22.0
	36-40	66	18.2
	41-45	44	12.1
	46-50	27	7.4
	51-55	22	6.1
	56-60	8	2.2
Bank Type	Public Sector	189	52.1
	Private Sector	174	47.9
Experience	1-5	111	30.9
	6-10	100	27.5
	11-15	56	15.4
	16-20	41	11.3
	21-25	23	6.3
	25-30	23	6.3
	31-35	9	2.5

In Table 1, basic information about sample is outlined. The majority of males have responded the questionnaire i.e. 281 (77.4%) majority has young banking life from 1-10 years. On the other hand, 189 (52.1%) respondents belongs to public and 174 (47.9%) belongs private sector banks.

Reliability and Correlation Analysis:

Table 2: Reliability Coefficient Cronbach's Alpha

Sr. No.	Dimension	No. of Items	Cronbach's Alpha
01	Knowledge Acquisition	5	0.844
02	Knowledge Conversion	5	0.786
03	Knowledge Application	5	0.868
04	Knowledge Intensive Culture	6	0.720
05	Organizational Performance	8	0.875

In Table 2, the results of internal consistency among constructs are given based on Cronbach's alpha values. The outcomes reveal that there is moderate to high reliability is prevailed among construct. The values are above the acceptable limits as defined biannually, Bernstein, and Berge (1967) that is above 0.6. Moreover, results are consistent with the existing studies conducted within same context (Gold et al., 2001; Rasula et al., 2012).

Table 3: Descriptive Statistics Results

Variables Descriptions	Mean	Std. D	1	2	3	4	5
Knowledge Acquisition	4.71	0.89					
Knowledge Application	4.93	0.93	.469**				
Knowledge Conversion	4.45	0.79	.599**	.485**			
Knowledge intensive Culture	4.87	1.39	.388**	.659**	.513**		
Organizational Performance	4.62	1.23	.580**	.560**	.511**	.617**	1

Note: According to Nuechterlein et al. (2008) small relationship is range from 0.10 to 0.29, medium 0.30 to 0.49 and strong 0.5 to 1, ** confidence level $\alpha = 0.01$

Table 3 consists of mean, standard deviation and correlation analysis values. Mean values indicate that majority of respondents have given "neutral to agree" responses as values are above 3.50 with deviation of 0.80 to 1.40. Further, the constructs have strong strength of relationship with correlation coefficient values above 0.5 except between knowledge acquisition and knowledge intensive culture ($r=0.388$).

Hypothesis Testing:

To test the core hypotheses (H1A, H1B& H1C) multiple regression analysis and moderation effect (H2A, H2B& H2C) Aguinis (2004) technique with Aiken et al. (1991) has been executed. Before applying regression analysis, all the relevant assumptions are tested to check the suitability of the data i.e. normality, multi-

collinearity, auto-correlation and outliers.

Table 4: Multiple Regression Analysis

Description				KA-KAP-KC & OP			
R ²				0.430			
Adjusted R ²				0.421			
Model Significance		0.000					
F-Value				108.21			
		KA & OP		KAP & OP		KC & OP	
Standardized Beta		0.32		0.41		0.21	
T Value		4.87		5.902.90			
Significance Value		0.001		0.002		0.005	

KA¹=Knowledge Acquisition, KA²= Knowledge Application, KC=Knowledge Conversion,
OP=Organizational Performance, Significance Level P<0.01

The values shown in table 4 are showing that KMPC has positive impact on organizational performance. The detailed analysis reveals that knowledge acquisition and application have moderate to strong impact on performance (acquisition $\beta=0.32$, $t=4.87$, $\rho=0.001$; application $\beta=0.41$, $t=5.90$, $\rho=0.002$). On the other hand, knowledge conversion has less responsive to generate organizational performance.

MODERATION ANALYSIS

Table 5: Moderation Test (Knowledge Acquisition, Knowledge Intensive Culture, Organizational Performance)

Model 1			
KA, KIC & OP			
R ²		.502	
Adjusted R ²		.471	
F-Value		60.71	
		KA	KIC
Beta Coefficient		.342	.370
Standard Error		.07	.03
T-Value		3.38	3.73
Significant Value		.000	.000

Model 2			
KA, KIC, KA*KIC & OP			
R ²	0.575		
Adjusted R ²	0.547		
F-Value	70.34		
	KA	KIC	KA*KIC
Beta Coefficient	0.381	0.411	.437
Standard Error	0.29	0.35	0.33
Significant Value	.000	.000	.000

KA= Knowledge Acquisition, KIC=Knowledge Intensive Culture, OP= Organizational Performance
 Note *P < .05, **P < .01, ***P < .001, 95% confidence level

Table 5 is showing the interaction effect of Knowledge Intensive Culture (KIC) on Knowledge Acquisition (KA) and Organizational Performance (OP). Model 1 is presenting the direct effect of KIC & KA on performance that presented significant positive results. Model 2 is showing the interaction results and revealed that KIC has strengthening effect in between KA and OP ($\Delta R^2=0.055$).

Table 6: Moderation Test (Knowledge Application, Knowledge Intensive Culture, Organizational Performance)

Model 1		
KAP, KIC & OP		
R ²	.712	
Adjusted R ²	.691	
F-Value	80.71	
	KAP	KIC
Beta Coefficient	.542	.450
Standard Error	.07	.03
T-Value	9.38	7.48
Significant Value	.000	.000

Model 2	
KA, KIC, KA*KIC & OP	
R ²	0.781
Adjusted R ²	0.737
F-Value	90.22

	KAP	KIC	KA*KIC
Beta Coefficient	0.682	0.603	.717
Standard Error	0.12	0.14	.04
Significant Value	.000	.000	.000

KAP= Knowledge Application, KIC=Knowledge Intensive Culture, OP= Organizational Performance Note *P < .05, **P < .01, ***P < .001, 95% confidence level

The H2B is about measuring the interactive effect of KIC in between Knowledge Application (KAP) and OP. The results revealed that model 1 is significant at $p < 0.001$ and interaction effect caused 6.9% positive variation in R2. Moreover, the AVONA statistics and t-values are also within acceptable range.

Table 7: Moderation Test (Knowledge Conversion, Knowledge Intensive Culture, Organizational Performance)

Model 1	KC, KIC & OP		
R ²	.312		
Adjusted R ²	.281		
F-Value	30.91		
	KC	KIC	
Beta Coefficient	.242	.290	
Standard Error	.02	.03	
T-Value	3.01	3.19	
Significant Value	.000	.000	
Model 2	KC, KIC, KC*KIC & OP		
R ²	0.375		
Adjusted R ²	0.331		
F-Value	90.22		
	KC	KIC	KC*KIC
Beta Coefficient	0.361	0.411	.471
Standard Error	0.37	0.45	.041
Significant Value	.000	.000	.001

KC= Knowledge Conversion, KIC=Knowledge Intensive Culture, OP= Organizational Performance Note *P < .05, **P < .01, ***P < .001, 95% confidence level

Table 7 is showing the moderating effect of KIC in between Knowledge Conversion (KC) and OP. The interaction results revealed that KIC has strengthening effect on KC and OP relationship ($\Delta R^2 = 0.063$). The combine findings indicate that KIC supports KMPC to perform better to enhance organizational performance.

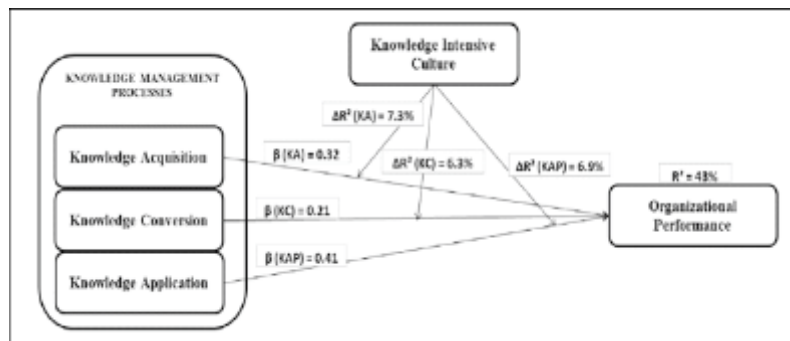


Fig 2: Revised Model

DISCUSSION

The results of research revealed that all KMPC i.e. KC, KA and KAP were positively linked to OP in banking sector of Pakistan. This confirms the notion that KMPC are a significant predictor of OP that is in line with the previous investigations (Akhavan & Pezeshkan, 2014; Nasser, 2012; Chen et al., 2002; Hossein et al., 2012; Gold et al., 2001, Nasser et al., 2012). However, it was found that KAP is most strong predictor of OP. The underlying reason for this result is that no matter the importance of acquiring knowledge (Franco & Mariano, 2010; Zaided et al., 2012) and conversion of knowledge into usable formats i.e. tacit to explicit, explicit to tacit, tacit to tacit and explicit (Nonaka, et al., 2000) is important in better organizational performance to some extent (Herschel, et al., 2001; Van Grinsven & Visser, 2011). Yet until the acquired and converted knowledge is effectively applied to take actions (de Carvalho, 2001) and performing routine tasks, problem solving and new venture creations (Chang & Chuang, 2011; Chen et al., 2009) it is not possible to effectively attain superior performance.

Additionally, the interactive impact of KIC in linking KMPC to OP was also supported strongly for KA and OP, while the moderating impact was weaker for KAP, KC and OP relationships in context of banking sector of Pakistan. It means that in presence of KIC employees have beliefs, shared norms, attitude and values facilitates knowledge acquiring and sharing environment (Hauschild et al., 2001) that creates positive organizational performance (Intezari et al., 2017). For KAP and KC some other kind of cultures i.e. Control cultures, result, job and profession oriented cultures (Chang & Lin, 2015); knowledge sharing culture (Aslam et al., 2016) can possibly play more amplifying impact that opens new avenues for future research studies. The role of KAP and KC with OP can also be investigated by examining the moderating impact of KIC in other business sectors that might offer different results.

Conclusion and Implications:

The study concludes that KMPCs, acquisition of knowledge, conversion of knowledge and specifically the application of knowledge are main predictors of organizational success in banking sector of Pakistan. The results also reveal that KIC strongly amplifies the link of KA and OP while increasing it to some extent for KAP and KC.

Theoretically, the present research has added to KM literature by offering empirical evidence of moderating impact of KIC in fostering organizational performance by KMPC in addition to the direct link of KMPC and OP. Practically, it has shed light on the potential benefits of KMPC for banking sector, such as the management of banks should strongly focus on application of knowledge for taking actions, performing routine tasks, problem solving and innovations along with taking actions of creating KIC for knowledge acquiring, sharing and application to reap benefits of KMPC.

Limitations and Future Research:

The research results are bound by limitations of cross-sectional data collection and use of single instrument that can cause causality and common bias variance. Only one moderating mechanism was tested i.e. KIC. Additionally, only subjective performance was measured and the focus was on banking industry in Pakistan beyond which the findings cannot be generalized. For future the researchers can collect data at multiple points and use multiple methods of data collection. Objective performance can be measured by ROE, ROI & ROA for more robust results. The study can be replicated in other sectors and geographical settings. Other forms of organizational cultures i.e. Control cultures, result, job and profession oriented cultures, knowledge sharing cultures etc can be tested as possible moderators.

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