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Full Length Research Paper

Moderating role of team working environment between team implicit coordination and performance

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Team working environment is of critical importance in current literature. The processes of coordination in work teams based on schedules, targets, etc. have been heavily relied upon without realizing the importance of team working environment. The study was conducted in the environment where teams of emergency wards of public hospitals of Lahore and Rescue 1122 are in operation. It explores the moderating role of task routineness, task interdependence and virtuality between team implicit coordination behavior and team performance. The data on team working environment is collected after development of a measurement tool. The study shows that there exists positive relationship between team performance and implicit coordination behaviors while task routineness and task interdependence have positive moderating role. The study provides guidance to team managers and researchers to enhance the team implicit coordination behaviors in team working environment and resultantly, the team performance.

Key words: Team implicit coordination, team performance, task routineness, task interdependence and virtuality.

INTRODUCTION

Team working environment has been of crucial importance even when the ancient ancestors first banded together to hunt animals, play games, raise families and defend their communities (Graslund, 1987). Human history is a story of people coordinating together with the preliminary knowledge of the situation and with the purpose to explore, achieve and conquer. Yet, the concept of work in large organizations that developed in the late 19th and early 20th centuries is a collection of individual jobs working in proper environment (Kozlowski, 2006).

Team working environment include coordination, which in work teams composed of two or more people provide better outcomes while aligning it to the team tasks and objectives. Team members allow potential coalition formation and hidden communication to take place (Bettenhausen, 1991). Team members engage in a variety of interdependent activities such as working with shared tasks inputs, processes, goals and reward distributions (Wageman, 1995). Team members may temporarily adopt different strategies to stay coordinated and achieve their goal. Researchers have mostly focused on planning and communication mechanism, that is, explicit coordination (Espinosa et al., 2004). This explicit coordination includes deadlines, plans, schedules and programs (Faraj and Sproull, 2000). Team coordination encompasses the exchange of information between team members through formal or informal transaction in order to integrate their respective contributions (Kraut and Streeter, 1995). The present era requires a shift from input process output model to implicit coordination.

Rico et al. (2008) conducted a study presenting an integrated theoretical framework that models the development of team situation models and implicit coordination behaviors. They further examined the role of several teams and context variables in facilitating the emergence of implicit coordination pattern. Khan et al. (2010) explore the relationship between longevity, knowledge diversity, group efficacy, trust and sharedness accuracy and found

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positive relation among them. Khan and Lodhi (2010) explored the relationship between the factors affecting team implicit coordination and the relationship between team implicit coordination and team performance. They explored this relationship through factor analysis and finally with correlation matrix. They proved that team implicit coordination process has positive impact on team performance. This research work provides realization of team working environment with its moderating role on team performance in order to ensure effective management of work teams.

Research question

Team implicit coordination (TIC) is a multi-disciplinary area for research. The study is based on the argument that team performance is an outcome of TIC behavior. It views TIC as an agent to bring about extra ordinary performance in teams. In order to find out this extra ordinary performance in teams, the basic question is to measure the impact of team working environment between TIC and performance. More specifically, the objective of this study is confined to develop tools to collect data for team working environment and performance; and study the moderating role of team working environment between team implicit coordination and team performance.

Team working environment

Team-working environment comprising of task routineness, task interdependence and virtuality with moderating role in team performance is considered important. Task routineness has been conceptualized as a continuum; with highly routine tasks being well defined, highly structured and encompassing predictable situations that can be resolved using standardized procedures (Rico et al., 2008). The variance of value of implicit coordination for team performance is dependent on the levels of routineness involved in the specific task, a team faces.

Task interdependence refers to the interconnections among the tasks of team members (Saavedra et al., 1993). In a performance environment, it is dependent on appropriateness of team coordination mechanisms (Argote, 1982; Malone and Crowston, 1994; Kraut and Streeter, 1995). Studies of action teams (medical emergency units, military teams, flight crews) indicate that implicit coordination facilitates smooth performance most of the time, except when highly unusual situations arise (Hutchins, 1995; Smith et al., 2005; Xiao et al., 2001).

Implicit coordination may be partially useful for the effective performance of teams working under conditions of high virtuality (Rico et al., 2008). Team virtuality includes the extent to which team members rely on virtual tools to coordinate and execute team processes; the amount of informational value provided by such tools, and the synchronicity of team member interaction. Virtuality notably alters interactions among team members (Gibson and Cohen, 2003; Kirkman et al., 2004), making team coordination especially difficult. Task routineness, task interdependence and virtuality form team working environment for implicit coordination. Implicit coordination is originally applied to explain the capacity of decision-making and to maintain optimum levels of performance under critical working situation by reducing intra team communication (Cannon-Bowers and Salas, 2001). Knowledge processes in teams define aspects of team knowledge distribution and then match team knowledge structures to the task to which they are most suited (Vikas et al., 2003). Implicit coordination finds its basis in predicting the needs of the task and team members and adjusting their behavior accordingly. In team implicit coordination, the behaviors are mainly on the basis of task relevant information, knowledge or feed back to other team members proactively without a formal request. It finds its way in sharing a workload or helping colleague proactively (MacMillan et al., 2004). It monitors the progress of activity and performance of team members who adapt behaviors according to the expected actions of others (MacMillan et al., 2004). Ismail et al. (2009) suggest that a properly designed and administered program may invoke feelings, and this may enhance commitment and performance. They further emphasized that these positive outcomes may lead to increased organizational competitiveness.

Implicit coordination is dependent upon team knowledge and habitual routines. Team knowledge includes the team mental models (Langan et al., 2000; Marks et al., 2002; Mohammad and Dumville, 2001 and Stout et al., 1999) and team situation models (Cooke et al., 2000; MacMillan et al. 2004). Team mental models are team level stable mental representation comprising of the dynamic knowledge structures that team develop when engaged in a task. Team situation models develop team's powerful force driving individual cognition in such a way as to combine and amplify through interaction processes and dynamic reaction to manifest a team level phenomenon (Endsley and Jones, 2001). Khan et al. (2010) found a positive relationship between longevity, knowledge diversity, group efficacy, trust and sharedness accuracy. The sharedness accuracy develops in team implicit coordination which has its effect on team performance. The current study views team performance after seeing the moderating role of team working environment in order to ensure effective management of work teams.

HYPOTHESES AND METHODOLOGY

The situations keep on emerging in emergency wards of hospitals and on the spot where rescue teams have to rush for immediate help. These situations normally occur in identical fashion but their handling each time requires a different attention. Team implicit coordination and team performance relationship in such emerging situations needs to be looked into. Accordingly the following

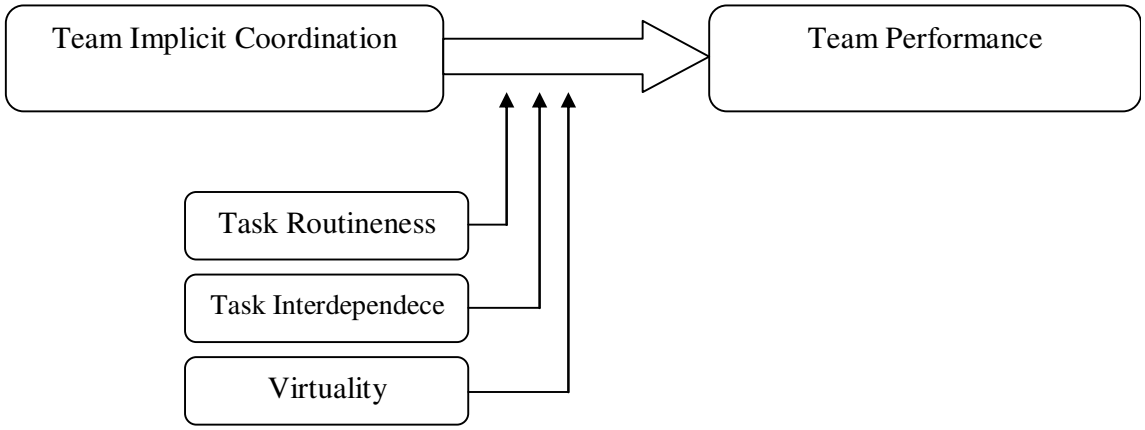

Figure 1. A framework for team working environment derived from Rico et al. (2008).

hypothesis has been developed:

H_1: There is a relationship between implicit coordination and team performance.
H_2: Task routineness will change the relationship between implicit coordination and team performance.
H_3: Task interdependence will change the relationship between implicit coordination and team performance.
H_4: Virtuality will change the relationship between implicit coordination and team performance (Figure 1).

Designing the questionnaire

The team implicit coordination processes can be measured by using ex post facto research design primarily aimed at hypothesis testing or relationship determination in studying organizations and groups in real world situation (Krishnaswamy et al., 2006). In this research design, a researcher may visit the teams, sit with them, observe their working but in no way intervene in the process.

Based on the advantages of ex post facto research design, a self report questionnaire was designed for gathering data on team implicit coordination from the team members. It is argued that only team members can be the best judge to determine how other team members are coordinating with them. Based on their experiences in the team, they can report on the coordination processes and team performance.

The questionnaire was developed by going through a three phase process. The first phase of preliminary observation was carried out in order to find out the working environment of the teams and the setting in which the teams are functioning. In the second phase, interviews of individual and teams in a particular setting after performing a specific task were conducted and in the third phase, a questionnaire was developed for pilot testing. The final questionnaire was developed by incorporating the information collected during the earlier phases and repeatedly, consulting the literature.

All these three phases help in understanding the formation of teams, their participation in the specific events and understanding the application of team mental models, team situation models, and knowledge based learning of the team members, and finally proactive adjustment of team members in accordance with the requirements of team members and the tasks.

Preliminary observations, consisting of one to two hours in emergency wards of six public hospitals at Lahore and one hour with six Rescue 1122 teams, are made on particular attributes of team composition by personal visits of the researcher. The information was collected as to how the teams are formed. During this phase, preliminary data of the teams was also collected for total population and for further sampling of the teams for field study.

Interviews and questionnaire

Interviews follow the preliminary observation to precisely establish a measurement scale necessary to answer the question of measuring team implicit coordination. Accordingly, literature review, preliminary observation notes were revisited and it was decided to conduct interviews of team members individually and collectively.

The teamwork measure captures team processes based on behaviors that can be observed during the execution of a task. In these interviews, a particular event or time in the execution of a task is focused and posed a set of questions to understand matters such as what factors the individuals are considering at that time, what pieces of information they are weighing, what information they are seeking, and why they made a particular decision or took a particular action. The particular questions that are posed are determined both by the nature of the task and the purpose of the investigation.

Based on the process followed so far, a questionnaire was designed and launched for pilot testing on five teams of emergency wards of public hospitals and two teams of rescue 1122. The results showed that the questionnaire was in line with the study. However, minor amendments were made before finally launching it for data collection. Guided by the process followed for designing the questionnaire and encouraged by the results of launching the questionnaire for pilot study, the final questionnaire was designed for measuring the items. To develop comprehension of the questionnaire, it was further divided into five sections (Table 1).

Questionnaire validity

As the respondents of the questionnaire are well-educated individuals, therefore there was no need to translate the questionnaire into the native language. Accordingly, English language was considered good enough for the questionnaire.

The reliability of the questionnaire was strengthened by discussing the contents with a professor/psychiatrist, and secondly, the pilot testing of the questionnaire was conducted on five teams of emergency wards and two teams of Rescue 1122 for reliability purposes. The results of pilot testing of the questionnaire were

Table 1. Summary of questionnaire.

Section	Item	Description
One	Demographic	Size of team, gender, working hours, qualification and experience of respondents.
Two	Implicit coordination	Anticipate the actions and needs of team member and change, adjust and adopt to attain goals. Proactively, share a workload, monitor the progress and coordinate the team behavior.
Three	Task routineness	Highly routine and structured tasks, standardized procedures, certainty about acts and source of information.
	Task interdependence	Interconnected, coordinated and indivisible tasks, predict the acts and needs of team members.
	Virtuality	Reliance on virtual tools and tools of low information value i.e. E-mail, infrequent interpersonal communication; no physical meeting and common working place.
Four	Team performance	Ranking of team on the basis of processes objectives, team objectives, organizational objectives, timeliness performance, number of events, successful achievements and cost.

encouraging and did not show any inconsistency.

Population and sample

The teams of emergency wards of the public hospitals under Health Department, Government of the Punjab, Lahore and the teams of Rescue 1122 constitute the population of this study. The teams of Rescue 1122 and the teams of emergency wards of public hospitals attend the emergencies; the former extend their services on the spot; while the later provide their services as soon as the emergency cases are received in the hospitals. Visiting the hospitals personally, the researcher collected the basic data as to the number of the teams in each hospital performing duty in the emergency wards. From the total population of 319 teams, all the 15 teams with different attributes such as dental surgery, gynae, night cover and Sunday cover were made part of the sample in order to ensure their representation. Samples from amongst the rest of the 304 homogenous teams of the population were drawn on the basis of confidence level at 0.95 shown in Table 2.

Data collection

The medical superintendents of the respective hospitals allowed the researcher to go to the emergency wards of the hospitals and get the required information. Similarly, the Director General of Rescue 1122 formally allowed visiting the Rescue 1122 stations and getting the questionnaire completed from the sample.

The purpose of the study and terminology was explained to the respondents. The staff of the emergency wards of public hospitals particularly for six main hospitals was awfully busy and a lot of time was spent in the emergency wards, which helped not only in completing the questionnaire but also observing the process of these emergencies. The doctors and nurses in case of public hospitals and rescuers in case of medical and fire teams of Rescue 1122 stations completed the questionnaire. The researcher, along with the facilitator, visited the offices of Rescue 1122 teams and emergency wards of public hospitals; however, they conducted the sample and collected all data by September, 2008. The data on all variables pertaining to team implicit coordination behaviors are collected through likert scale ranging from 1(strongly disagree) to 5 (strongly agree). SPSS and Statistica are used for data analysis.

Data analysis

Factor analysis about the structure of the factor loadings and inter-correlations for implicit coordination are performed according to standard factor analysis. Several different fit indices for two facets of implicit coordination are compared in Table 3.

This level of goodness-of-fit proves that the implicit coordination is a two facets model for this data on the scales used. Implicit coordination is an aggregate of two facets (F1 and F2) explaining the needs and actions of team members without communication, and monitor performance respectively.

The factor loadings for each variable on the components or factors after rotation have been reported. For final analysis only significantly high loaded items are included. Task routineness is an aggregate of two facets (F1 and F2) explaining the certainty about acts and highly structured tasks respectively (Table 4). Factor loading of task inter dependence is an aggregate of two factors (F1 and F2) explaining the interconnected and coordinated tasks input and indivisible team respectively. All the items have significantly high factor loading as shown in Table 5. Facet one is represented by no interpersonal communication and no common physical working place. Its direct relation is with physical presence and physical communication, whereas facet two explains the reliance of team member on virtual tools. Only two items from F1 are opted for final measurement of virtuality and one item from F2. Thus all the three measures have significantly high factor loading as shown in Table 6. Among the seven items for team performance only four with objectives and no. of events have factor loading above 0.7 i.e. significantly high factor loading as shown in Table 7.

The factor analysis help in understanding the relevance of developed questionnaire to the items. After factor analysis, only those items are considered for further analysis

Table 2. Distribution of the population and sample.

Teams	Emergencies					
	1122		Public hospitals		Total	
	Pop	Sam	Pop	Sam	Pop	Sam
Ambulance	57	6	---	---	57	6
Fire vehicles	30	4	---	---	30	4
Medical	---	---	115	13	115	13
Surgical	---	---	102	8	102	8
Dental surgery	---	---	3	3*	3	3
Gynae	---	---	6	6*	6	6
Night cover	---	---	3	3*	3	3
Sunday cover	---	---	3	3*	3	3
Total	87	10	232	36	319	46

Table 3. Factor analysis of implicit coordination.

	F1	F2
1. Anticipate the action of team members without communication	0.813	-0.102
2. Anticipate the needs of team members without communication	0.806	0.065
3. Change adjust and adopt contribution to attain common goals	0.695	-0.065
4. Provide task relevant information without request	0.579	0.284
5. Proactively share a workload	-0.007	0.686
6. Monitor the progress of activity and performance	0.013	0.738
7. Adopt behavior to the expected action	0.009	0.677
8. Coordinate the team interaction behaviour	0.590	0.126
Principal component analysis with varimax (Kaiser Normalization)		

Table 4. Factor analysis of task routineness.

	F1	F2
1. Perform routine task	0.675	-0.066
2. Task highly structured	0.006	0.930
3. Predictable task	0.653	0.020
4. Standardized procedures to resolve the situation	0.573	0.503
5. Certain about acts	0.750	0.083
6. Certain about source of information	0.543	0.344
Principal component analysis with varimax (Kaiser Normalization)		

Table 5. Factor analysis of task interdependence.

	F1	F2
1. Inter connected tasks	0.834	0.086
2. Share and coordinate task input	0.719	-0.079
3. Indivisible team	0.024	0.967
4. Work together	0.608	0.245
5. Know the need of team member	0.585	-0.136
Principal component analysis with varimax (Kaiser Normalization)		

Table 6. Factor analysis of virtuality.

	F1	F2
1. Rely on virtual tools	0.138	0.814
2. Do not meet regularly	0.483	0.567
3. Rely on email	0.602	0.343
4. No interpersonal communication	0.790	-0.039
5. Do not share common physical work place	0.716	-0.143
Principal component analysis with varimax (Kaiser Normalization)		

Table 7. Factor analysis of team performance (F1).

1. Ranking in process objectives	0.816
2. Ranking in achievement of team objectives	0.809
3. Ranking in achievement of organization objective	0.777
4. Ranking in achievement of timeliness performance	0.672
5. Ranking in achievement of no. of events	0.722
6. Ranking in successful achievement	0.697
7. Ranking on the basis of cost	0.443
Principal component analysis with varimax (Kaiser Normalization)	

Table 8. Comparison on gender basis.

Item	Male		Female		Combined		Sig. (2-tailed)
	Mean	S.D	Mean	S.D	Mean	S.D	
Implicit coordination	3.680	.711	3.728	.700	3.703	.704	0.644
Task Routineness	3.872	.663	3.925	.642	3.898	.652	0.581
Task Interdependence	3.738	.632	3.778	.687	3.757	.658	0.678
Virtuality	1.932	.524	1.943	.486	1.937	.504	0.884
Team Performance	3.814	.732	3.914	.7247	3.863	.728	0.343

analysis, whose factor loading is above 0.70 in order to validate the argument of relevance of construct for measurement. The factor analysis also helps in determining the various facets from which the item has been approached.

Group comparisons

Group comparisons are made on the demographic variables. Typical demographic information gathered for empirical research includes age, sex, race, education, tenure and previous work experience (Fisher et al. 1994). Demographics are often used as control variables (Chen 2001). Mean of implicit coordination, task routineness, task interdependence, virtuality and team performance are commuted. Mean values of sample are compared on the basis of male and female population, large and small teams, fixed shift and rotated shift, undergraduate and graduate and above. Detailed discussion is available in the remaining section along with Tables 8, 9, 10 and 11.

Comparison on gender basis

Gender is a very common variable used in research literature. Equivalence of variance is assumed and verified through Levenza test before conducting independent sample t-test for comparing means of implicit coordination, task routineness, task interdependence, virtuality and team performance. It is found that female and male category is very much similar relative to all these measures ($p>.05$) (Table 8). It is also observed that mean of virtuality is moderately low. Low virtuality is due to sharing of common physical working place by specific teams.

Comparison on team size basis

Team size can have its effect on overall team performance. This may serve as a good basis of differentiation. Means of all measures were commuted and equivalence of variance was verified through Levenza before comparing

Table 9. Comparison on team size basis.

Item	Small team		Large team		Combined		Sig. (2-tailed)
	Mean	S.D	Mean	S.D	Mean	S.D	
Implicit coordination	3.72	.72	3.66	.67	3.70	.70	0.592
Task Routineness	3.90	.70	3.89	.54	3.90	.65	0.945
Task Interdependence	3.79	.646	3.68	.68	3.76	.66	0.325
Virtuality	1.93	.49	1.93	.53	1.94	.50	0.963
Team Performance**	3.75	.73	4.14	.64	3.86	.73	0.000

*p< 0.05, **p<0.01, ***p<0.001.

Tables 10. Teamwork on shift basis.

Item	Fixed shift		Rotated shift		Combined		Sig (2-tailed)
	Mean	S.D	Mean	S.D	Mean	S.D	
Implicit coordination*	3.63	.61	3.74	.744	3.703	.704	0.019
Task Routineness***	3.64	.69	4.01	.601	3.898	.652	0.000
Task Interdependence	3.73	.71	3.77	.636	3.758	.658	0.733
Virtuality*	2.02	.45	1.90	.524	1.937	.504	0.021
Team Performance	3.75	.85	3.91	.663	3.863	.728	0.164

*p< 0.05, **p<0.01, ***p<0.001.

Tables 11. Comparism on qualification basis.

Variable	Under Graduate		Graduate and above		Combined		Sig.(2-tailed)
	Mean	S.D	Mean	S.D	Mean	S.D	
Implicit coordination	3.85	.583	3.65	.732	3.70	.70	0.114
Task Routineness	3.97	.698	3.87	.638	3.89	.65	0.369
Task Interdependence*	3.98	.572	3.69	.667	3.75	.65	0.009
Virtuality	1.86	.483	1.95	.510	1.93	.50	0.309
Team Performance	3.78	.708	3.88	.735	3.86	.73	0.428

*p< 0.05, **p<0.01, ***p<0.001.

comparing means on the basis of team size. Then independent t-test was applied for comparing means of implicit coordination, task routineness, task interdependence, virtuality and team performance. It is observed that value of team performance in small team (3.75) is relatively less than large team (4.14) (Table 9). Low team performance of small team is due to more work to be performed by them. It is also found that large and small teams are very much similar relative to all these measures (p>.05) except team performance (p = 0.002).

Comparison on shift basis

Shift working can have its effect on overall team performance. This may serve as a good basis of differentiation. Means of all measure were commuted and equivalence of variance was verified through Levenza before comparing means on the basis of shift working. Then independent t-test was applied for comparing data of implicit coordination, task routineness, task interdependence, virtuality and team performance. It is observed that value of implicit coordination in fixed shift (3.62) is relatively less than rotation shift (3.74); value of task routineness in fixed shift (3.64) is relatively less than rotation shift (4.01); value of virtuality in fixed shift (2.01) is relatively more than rotation shift (1.9). The above comparison in respect of implicit coordination and task routineness shows that fixed shift has less mean than rotation shift whereas for virtuality the trend is opposite. This is mainly because the teams were physically sharing work place and team members were not used to the use of virtual tools. It is also found that workers of rotated shift have more implicit coordination than fixed shift (p = 0.019); workers of rotated shift have more task routineness than fixed shift (p=.000); whereas workers of

Tables 12. Correlation matrix of model items.

	Variable	1	2	3	4	5
1	Implicit coordination					
2	Task routineness	0.098				
3	Task interdependence	0.21**	0.37**			
4	Virtuality	-0.11	-0.13	-0.23**		
5	Team performance	0.11	0.15**	0.17**	-0.15**	
	Mean	3.79	3.86	3.78	2.28	3.76
	Standard Deviation	0.53	0.55	0.57	0.48	0.64
	Reliability	0.64	0.62	0.52	0.45	0.7

* Significant at the 0.05 level. ** Significant at the 0.01 level.

fixed shift have more virtuality than rotation shift (p=.021) (Table 10).

Comparison on qualification basis

Qualification of a team member can have its effect on overall team performance. This may serve as a good basis of differentiation. Means of all the measures were commuted and equivalence of variance was verified through Levenza before comparing means on the basis of shift working. Then independent t-test was applied for comparing data of implicit coordination, task routineness, task interdependence, virtuality and team performance. It is also found that undergraduate have more task interdependence than graduate and above (p=.009) (Table 11).

Correlation analysis

The null hypotheses are formulated for testing the empirical relationship between variables. Bivariate correlation table significantly shows the relationships of the variables of the models and confirms that team working environment of implicit coordination behavior has something more to explain than the explicit coordination. Means, standard deviation, bivariate correlations and reliability estimates are presented in Table 12. It can be seen that all reliability estimates (Cronbach's alpha) are above 0.66 cutoff, except for virtuality alpha = 0.45.

Hypotheses 2, 3 and 4 stated the moderating role of task routineness, task interdependence and virtuality on team performance. Task routineness has positive role at 0.01 level and task interdependence has positive role at .05 level whereas virtuality has negative impact on team performance. The reason for this negative impact on the part of virtuality is in line with the literature on virtuality. The virtual teams do not share a common physical working place whereas the teams representing the population are sharing common physical working place and hence, do not need to rely on virtual tools for their performance. Hypotheses 2 and 3 are supported and hypothesis 4 is not supported (Table 12).

Conclusion

This empirical study is conducted in team setting of Rescue 1122 and emergency wards of public hospitals at Lahore. The primary reason for this dissertation is to find out the moderating role of team working environment between team implicit coordination and team performance. The study brought about a broader array of variables of performance in a new setting. The use of team implicit coordination is to materialize individuals as well as team performance in a unique perspective for achieving organizational performance.

Team working environment is of interest from an organizational performance perspective. This phenomenon has been studied from various angles. These angles are organizational, psychological and sociological. The organizational perspective explains it in terms of the benefits of dynamically adjusting in the organization for developing sharedness accuracy. The psychological perspective focuses on the affective responses of employees to task requirement, team members' requirement and organization. Finally, the sociological perspective incorporates dimensions relating to the team working environment.

The study explored the moderating role of team working environment, which centers on task routineness, task interdependence and virtuality. Task interdependence and task routineness have positive moderating role on team performance whereas, virtuality has negative moderating role on the team performance. The simple reason for negative relation on the part of virtuality rests with the fact that teams in the sample shared a common physical working place, whereas this item is more relevant in cases of virtual teams.

The study would contribute towards TIC research in future. The contribution of this research is important for both academic researchers and team managers. Understanding TIC view is beneficial for deciding the potential role of TIC efficiency in team performance. Managers are

benefited by learning that TIC should convert human efficiencies into performance in a specific situation particularly with knowledge based decision.

Keeping the significant role of Team working environment on team performance in view, the study emphasizes the need to draw the guidelines for measuring TIC in specific situation. Administrators, managers, consultants and researchers can take an initiative in this regard to meet the information thrust of stakeholders. The procedure adopted for measurement of team implicit coordination may prove useful for practically assessing the team performance in view of the situation wherein team members anticipate the situation and dynamically adjust themselves according to the task requirements and the needs of team member.

Findings of the study highlight the importance of the role of TIC to gain competitive advantage in emerging and pre-existing teams of public and private sectors. It can also be used as an indicator for future team performance. Potential managers will be benefited after having new idea of TIC modeling as better measure of evaluating the team performance than traditional approach of performing organizational objectives, processes and successful achievement through explicit coordination. They can observe the impact of TIC not only on individual but also on team as a whole.

As the world is facing the challenges of performance, there is a great need to develop organizational structure on team formation and the teams' performance may be measured in emerging team specific situations. In a global environment, if information related to TIC is disclosed to the team members, it may enhance the value of the team in the eyes of managers. The availability of information related to Team working environment, potential executives would be in a better position to estimate the benefit associated with its introduction and may go for practical utilization of the study and ultimately reduction in weighted average cost of capital for the teams and organizations.

Limitations of the research

This study is based on teams of Rescue 1122 and emergency wards of public hospitals at Lahore. The results of this model need to be further validated on a wider data set. The measures may further be improved with the help of the results of this study.

The validity of the study can be criticized on the grounds of TIC method, which is used in research for measuring TIC for the first time. However, reliability of the study is good, which is based on sample population representing 46 teams. The data used in the study was collected by researcher. The results of this study are limited to the population and its results may not be generalized to other population.

Further research avenues

The size of team, commitment and the role of leadership can be added to the team formation and team working environment for developing sharedness accuracy. The virtuality may be excluded for teams enjoying common physical working place. The item of virtuality for virtual teams will enable the researcher to find strong proof of existence of virtuality in teams and its relation to performance. This will help in the development of a new framework for potential managers and researchers use in future.

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