

**EXPLAINING TEAM PERFORMANCE: A STUDY OF THE EFFECTS OF
COMMUNICATION MEDIUM AND TEAM COHESION**

LI MAN LIN

A thesis submitted in fulfillment of the
requirement for the award of the Degree
of Master of Science (Human Resource Development)

The Faculty of Management
University Technology Malaysia

May 2013

For my beloved father and mother

ACKNOWLEDGEMENTS

Writing my dissertation was an experience for me and it was impossible to complete it without the encouragement and support for numerous people. I would like to give my thanks to them for assisting me during the writing of my dissertation.

First of all, I would especially like to thank Dr. Lily Suriani Mohd Arif, my supervisor, for your encouragement and wise guidance. Your knowledge and kindness led me successfully to complete this dissertation. Moreover, I would like to thank my examiners, Dr. Hashim Fauzy Yaacob and En. Mohd Fauzy Othman, for your professional insights and suggestions.

Next, I must also thank also to all the lecturers and staffs at the Faculty of Management, Universiti Teknologi Malaysia.

Last but not least, a very special thanks goes to my parents. Their continuous prayer, love, kindness, support and encouragement have been the primary inspiration source of inspiration of my life. Thanks also must be given all of my friends, both in Malaysia and China, who have assisted and supported me during my studies. Finally, I would like to share my entire honor with all of you.

ABSTRACT

This study is conducted to determine the relationship between communication medium use, team cohesion and team performance. The purpose of this study is to determine whether team cohesion mediates the relationship between communication medium use and team performance at Property and Casualty Company Ltd. sub-branch of Shi Jiazhuang (PICC-SJZ). The communication medium use is the independent variable of this study. The team performance is the dependent variable. Meanwhile, the team cohesion is placed as the mediator variable. Data was collected using a questionnaire composed of 43 questions measuring the three main variables of the study. 200 employees at PICC-SJZ were the respondents of the study. Descriptive analysis, such as mean and frequency were used to analysis the background information of respondents. Meanwhile, correlation test using the Pearson Correlation Coefficient was conducted to determine the relationship between the independent and dependent variables. And multiple regression analysis was conducted to analyze the study's mediation hypothesis. The findings indicates that there is a significant positive relationship between communication medium use and team performance, and team cohesion was found to partially mediate the relationship between communication medium use and team performance.

ABSTRAK

Kajian ini dijalankan untuk mengenalpasti hubungan antara penggunaan media komunikasi, kejelikitan pasukan dan prestasi pasukan. Tujuan kajian ini adalah mengenalpasti samaada kejelikitan pasukan mengantara hubungan antara penggunaan media komunikasi dan prestasi pasukan di property and casualty company ltd. cawangan Shi Jiazhuang. Penggunaan media komunikasi merupakan pembolehubah bebas dan prestasi pasukan merupakan pembolehubah bersandar di dalam kajian ini. Sementara itu, kejelikitan pasukan merupakan pembolehubah yang mengantara hubungan diantara penggunaan media komunikasi dan prestasi kumpulan. Pengumpulan data kajian menggunakan borang kaji selidik yang mengandungi 43 soalan merangkumi soalan mengenai ketiga-tiga pembolehubah kajian. Responden kajian adalah 200 pekerja di PICC-SJZ. Analisis deskriptif, seperti min dan frekuensi digunakan untuk menganalisis maklumat latar belakang responden. Ujian korelasi menggunakan Pekali Korelasi Pearson telah dilakukan untuk mengenal pasti hubungan antara pembolehubah bersandar dan pembolehubah bebas. Analisis regresi berganda juga telah dijalankan untuk menganalisis hipotesis pengantara kajian. Dapatan kajian menunjukkan hubungan positif yang signifikan diantara penggunaan media komunikasi dan prestasi pasukan, manakala kejelikitan pasukan pula didapati mengantara hubungan diantara penggunaan media komunikasi dan prestasi pasukan.

TABLE OF CONTENTS

CHAPTER	TITLE	PAGE
	DECLARATION	ii
	DEDICATION	iii
	ACKNOWLEDGEMENTS	iv
	ABSTRACT	v
	ABSTRAK	vi
	TABLE OF CONTENTS	vii
	LIST OF TABLES	xii
	LIST OF FIGURES	xv
	LIST OF SYMBOLS AND ABBREVIATIONS	xiii
1.	INTRODUCTION	
	1.1. Background of Study	1
	1.2. Statement of Problems	3
	1.3. Research Question	6
	1.4. Purpose of Study	7
	1.5. Objectives of the Study	7
	1.6. Hypothesis	8
	1.7. Significance of the Study	9
	1.8. Scope of the Study	10
	1.9. Place of Study	10
	1.10. Limitation of the Study	11
	1.11. Conceptual Definition	12
	1.11.1. Team	12

1.11.2. Team Performance	12
1.11.3. Communication Medium	13
1.11.4. Team Cohesion	14
1.12. Operational Definition	15
1.12.1. Team	15
1.12.2. Team Performance	15
1.12.3. Communication Medium Use	16
1.12.2.1 Computer Mediated Communication and Face to Face Communication	16
1.12.4. Team Cohesion	19

2. LITERATURE REVIEW

2.1. Introduction	21
2.2. Team Performance-the Motowidlo and Van Scotter	21
2.3. Perception of Media Effectiveness	23
2.3.1. Media Characteristic Theory	23
2.3.2. Social Presence Theory	24
2.3.3. Media Richness Theory and Computer Mediated Communication	26
2.4. Communication Medium and Team Performance	28
2.4.1. Computer Mediated Communication and Team Task Performance	28
2.4.2. Face to Face Communication and Team Contextual Performance	30
2.5. Communication Medium, Team Cohesion and Team Performance	32
2.5.1. Communication Medium and Team Cohesion	32
2.5.1.1. Computer Mediated Communication and Team Task Cohesion	32
2.5.1.2. Face to Face Communication and Team Social Cohesion	34

2.5.2.	Team Cohesion and Team Performance	35
2.5.2.1.	Team Teak Cohesion and Team Task Performance	36
2.5.2.2.	Team Social Cohesion and Team Contextual Performance	37
2.6.	Previous Research	39

3. METHODOLOGY

3.1.	Introduction	42
3.2.	Research Design	42
3.2.1.	Conceptual Framework	44
3.3.	Research Population and Sampling	46
3.4.	Data Collection	51
3.4.1.	Primary data	51
3.4.2.	Secondary Data	51
3.5.	Research Instrument	52
3.5.1.	Content of Questionnaire	53
3.5.2.	Research Rating System	54
3.6.	Pilot Test	55
3.6.1.	Reliability	55
3.6.2.	Validity	57
3.7.	Data Analysis	57
3.7.1.	Statistical Frequency Analysis	58
3.7.2.	Descriptive Analysis	59
3.7.3.	Person Correlation Analysis	61
3.7.4.	Multiple Regression Analysis	62
3.8.	Conclusion	63

4. DATA ANALYSIS

4.1.	Introduction	64
4.2.	Demographic Data	64
4.2.1.	Gender	66
4.2.2.	Age	66
4.2.3.	Education Level	67
4.2.4.	Department	67
4.2.5.	Years of Employment	68
4.3.	Analysis of Team Performance in PICC-SJZ	69
4.3.1.	Team Task Performance	69
4.3.2.	Team Contextual Performance	71
4.4.	Analysis of Communication Medium Use in PICC-SJZ	72
4.4.1.	Computer Mediated Communication	73
4.4.2.	Face to Face Communication	74
4.5.	Analysis of Team Cohesion in PICC-SJZ	76
4.5.1.	Team Task Cohesion	76
4.5.2.	Team Social Cohesion	77
4.6.	Conclusion	83

5. CONCLUSION

5.1.	Introduction	84
5.2.	Findings and Discussion	85
5.2.1.	Relationship between Communication Medium Use and Team Performance in PICC-SJZ	86
5.2.1.1.	Relationship between Computer Mediated Communication and Team Task Performance	86

5.2.1.2.	Relationship between Face to Face Communication and Team Contextual Performance	87
5.2.2.	Relationship between Communication Medium Use and Team Performance Mediated by Team Cohesion in PICC-SJZ	88
5.2.2.1.	Relationship between Computer Mediated Communication and Team Task Performance Mediated by Team Task Cohesion	89
5.2.2.2.	Relationship between Face to Face Communication and Team Contextual Performance Mediated by Team Social Cohesion	90
5.3.	Recommendations	91
5.3.1.	Recommendations for Organizations	91
5.3.2.	Recommendation for Future Study	92
5.4.	Conclusion	94
REFERENCES		96
APPENDIX A		111
APPENDIX B		116
APPENDIX C		121
APPENDIX D		122

LIST OF TABLE

TABLE NO.	TITTLE	PAGE
1.1	Comparison of email, groupware, web and Face to Face Communication	17
3.1	Likert scale for questionnaire of Team Performance/ Communication Medium/Team Cohesion	55
3.2	Alpha Cronbach reliability range	56
3.3	Summary of Reliability	57
3.4	Data analysis techniques	58
3.5	Score of items	59
3.6	Distribution of Positive and Negative Question in Team Cohesion Questionnaire (Part D)	60
3.7	Score Transformation of Negative Items	60
3.8	The Mean Score	61
3.9	Classification of Pearson Correlation Values(r)	61
4.1	Frequency Distribution of Background of Respondents	65
4.2	Frequency and percentage distribution of gender	66
4.3	Frequency and percentage distribution of age	66
4.4	Frequency and percentage distribution of education level	67
4.5	Frequency and percentage distribution of department	67
4.6	Years of Employment	68
4.7	Frequency, percentage and mean score of respondents toward team task performance	69
4.8	Frequency, percentage and mean score of respondents toward team contextual performance	71
4.9	Frequency, percentage and mean score of respondents toward	73

	Computer Mediated Communication	
4.10	Frequency, percentage and mean score of respondents toward Face to Face Communication	74
4.11	Frequency, percentage and mean score of respondents toward team task cohesion	76
4.12	Frequency, percentage and mean score of respondents toward team social cohesion	77
4.13	Regression Result between Team Task Cohesion, Computer Mediated Communication and Team Task Performance	80
4.14	Regression Result between Team Social Cohesion, Face to Face Communication and Team Contextual Performance	82
5.1	Summary of Finding	94

LIST OF FIGURES

FIGURE NO.	TITLE	PAGE
3.1	Conceptual Framework	44
3.2	Location of Shi Jiazhuang City in Hebei Province	48
3.3	Organizational Chart of Property and Casualty Company Ltd. (PICC)	49
3.4	Location of Hebei Province in China	50

LIST OF SMYBOLS AND ABBREVIATIONS

CMC	- Computer-Mediated Communication
FTF	- Face to Face Communication
<i>f</i>	-...Frequency
PICC	- Property and Casualty Company Ltd.
PICC-SJZ	- Property and Casualty Company Ltd. sub-branch of Shi Jiazhuang, China
PSZ	- Perpustakaan Sultanah Zanariah
R	- Pearson Correlation
P	- Significant
B	- Beta
R^2	- R Square
SPSS	- Statistical Package for the Social Sciences
UTM	- Universtiti Teknologi Malaysia

LIST OF APPENDICES

APPENDIX	TITLE	PAGE
A	Questionnaire (English)	111
B	Questionnaire (Chinese)	116
C	Correlation Analysis (SPSS)	121
D	Multiple Regression Analysis (SPSS)	122

CHAPTER I

INTRODUCTION

1.1 Background of the Study

According to Piña, Martínez and Martínez, (2008), more and more companies are increasingly using teams. When organizations are confronted with complex and difficult tasks, the strategy of choice is teams. Teams are widely used in organizations, such as when teams are used due to errors that have led to severe consequences; when the task complexity exceeds the capacity of an individual; when the task environment is ill-defined, ambiguous, and stressful; when multiple and quick decisions are needed; and when the lives of others depend on the collective insight of individual members (Salas, Cooke and Rosen, 2008).

In the globalised rapidly developing economy of today, the success of an organization fundamentally depends on team performance. Teams have been significantly used in various domains such as in aviation, the military, health care, financial sectors, nuclear power plants, engineering problem-solving projects, manufacturing, and countless other domains. As the complexity of the workplace continues to grow, organizations increasingly depend on teams (Salas, Cooke and Rosen, 2008).

In an organization, a team can be defined as two or more members working together for specific purposes, roles or functions to achieve a common goal (Savelsbergh, Heijden and Poell, 2010). Passos and Caetano (2005) assert that teams are an important component in a company, for it helps improve organizational

effectiveness. This is because the high level of team performance can help improve organizational performance or outcomes, for instance, by saving cost and time at work (Martínez-Moreno, González-Navarro, Zornoza and Ripoll, 2009). In contrast, a low level of team performance may lead to the waste of organizational resources and time (Ross, Jones and Adams, 2008).

Communication is imperatively important in ensuring the effective performance of a team. For example good communication leads to good understanding; and good understanding among members hastens team productivity as well as ensures quality discussion that leads to good decision making (Marques, 2010). Much research has been conducted to test how various communication mediums affect team performance (Hollingshead, McGrath and O'Connor, 1993; Bordia, 1997; Rhoads, 2010; Triana, Kirkman and Wagstaff, 2012). This includes previous studies on the effect of Face-to-Face communication and Computer-Mediated Communication on tasks and contextual performance. According to Pissarra and Jesuino (2005), the researchers found that employees working with each other either use Face to Face communication (FTF) or Computer Mediated Communication (CMC). In this case study, Computer Mediated Communication will be referred to simply as CMC and Face to Face communication simply as FTF.

Another key element that is significant to team performance is team cohesiveness. The connection between communication and team cohesion is without doubt that they inter depend on each other. Team members need to improve their communication and interaction processes in order to make the team more cohesive. Effective communication can improve the roots of cohesion, such as team members with common goals, and the satisfaction of members with others (Cartwright, 1968 in Campbell and Martens, 2009). Besides that, according to Fullagar and Egleston (2008), team cohesion is a precondition for successful team performance. Thompson et al. (1998) indicated that a cohesive team can easily succeed in achieving their goals and objectives as compared to teams that are non-cohesive team (Thompson, Kray and Lind, 1998 cited in Wang, Ying, Jiang and Klein, 2006).

Team cohesion is a very important factor contributing to team or organizational performance or outcome. Langfred and Shanley (1997) in Campbell and Martens (2009) stated that “task interdependence and social support appear to provide a context that may be critical for determining the effects of cohesion on group effectiveness”.

As part of teamwork, people pay great attention to the task and contextual performance (according to Motowidlo and Van Scotter Theory, team performance refer to team task performance and team contextual performance), but they ignore the functions of cohesion such as the members having a tacit/common understanding, and common goals and values. Today, more and more people want to gain promotion or push themselves forward, but they lack collective consciousness, common goals and values. This situation though is a positive influence on individual performance but is negative in terms of the team performance. Consciousness, common goals and values are nested within team cohesion (Campbell and Martens, 2009 and Robbins and Mukerji, 1990). Cartwright (1968) in Campbell and Martens (2009) stated that “cohesion is believed to improve the communication between group members, which in turn results in greater participation as well as increased goal, task and role acceptance”.

1.2 Statement of the Problem

Team performance refers to the collected individual efforts that help achieve group’s objectives and goals, and it is achieved when individuals in a team recognise their roles and responsibilities that can help the team achieve their targets and consequently, attain success (Martínez-Moreno et al., 2009). Organizations rely greatly on teams to help improve the efficiency and performance of an organization. For example Ross et al. (2008) state that an organization is able to save resources and time when unnecessary reworking of a design is avoided, and this directly helps expedite the market process. Therefore, it is not surprising that more and more organizations believe that effective team performance has a clear impact on

organizational results and outcomes. Similarly Property and Casualty Company Ltd. (PICC) use its teams to achieve its organizational goals and objectives.

PICC is a government linked company, comprises of 30 branches that are located all over the mainland of China. PICC was established by the People's Insurance Company (Group) of China in July 2003, with a registered capital of above MYR61.2799 billion. PICC in 2011 was the 7th largest public non-life insurance company in the world, and among of the top raking company in Asia. PICC operates by structuring, it workforces into effective teams. This is evidenced when in year of 2007, the direct premiums income is MYR41,041.32 million. And is premiums income continues to grow when in 2008, the direct premiums income is MYR 50 billion.

Teams in PICC are divided by types of services, for example, Vehicle Insurance Team, claim centre, credit insurance department, office, Financial Team, Human Resources Team, IT Team, Law Team, the Property Insurance Team Customer Services Team and Online Services Team.

However, in the end of 2008, PICC's financial status was hard-hit, is employees' turnover rates, as well as demission rate had fluctuated due to global financial crisis that happened in that year. The direct premiums income of the PICC for the period from 1 January 2009 to 30 November 2009 was only MYR 55,819 million which is significantly reduce from its MYR 50 billion income in 2008.

Even through PICC survives financial crisis in 2009, and still maintain its position as market leader it has yet able to topple his previous achievement in 2008. According to Robbins and Mukerji (1990) and Campbell and Martens (2009), one of the implication of the financial crisis is employees are now more competitive and lack collective consciousness. Employees are now more individualistic and held no common goal and values.

Therefore, in this study we hope to explain team performance and factors that affect it. Two factors are proposed, team cohesion and communication medium use. Cartwright (1968) in Campbell and Martens (2009) stated that “cohesion is believed to improve the communication between group members, which in turn results in greater participation as well as increased goal, task and role acceptance”.

With today social development, there are more and more new communication technologies or software are used at work. Ean (2011) indicated that Computer Mediated Communication is now pervasively used in the organizations. Face to Face communication is no longer the sole communication method used by teams within organizations. Over the past 20 years, the integration of computers and communication technologies has revolutionized communication and made possible new and expanded forms of team work. (Baltes, Dickson, Sherman, Bauer, and LaGanke, 2002). According to Pissarra and Jesuino (2005), employees working with each other either use Face to Face communication (FTF) or Computer Mediated Communication (CMC).

Using CMC at workplace has a number of advantages such as it increases speed of interaction (save time); it enable communication with other at remote location and different time zones; and reduces misunderstandings and problems when information is transfer or share; and providing clear and written instructions (Ean, 2011).

Meanwhile, the advantages of FTF communication are that it can give direct feedback, it involves two-way communication, it allows use both verbal and non-verbal (facial expressions, nodding, smiling, and body language) messages, and its argued to be a good tool for relationship building. (Bubas, 2001 and Ean, 2011)

Today’s employees are now working in a very fierce competitive and individualistic environment. Therefore, interaction between employees with each other is significantly altered which consequently, affects team performance. A balance usage of Computer-Mediated Communication (CMC) and Face to Face

Communication (FTF) is greatly expected, since it is argued to affect teams' effectiveness.

In relation to PICC as previously mentioned, after the financial crisis that had happened, it has yet able to reach its 2008's performance. It is therefore argued that the fierce competitive and individualistic behaviors of employees due to the financial crisis have changed the way team operates. It is also argued that direct consequences of this, is that employee's communication as well as their cohesiveness have changed the way they work with each other. According to Cartwright (1968) in Campbell and Martens (2009), cohesion is believed to improve the communication between group members, which in turn results in get better performance. Therefore this research wants to determine what is the relationship between communication medium use and team performance; and what is the relationship between communication medium use, team cohesion and team performance.

1.3 Research Question

The research questions of this research are:

1. What is the relationship between communication medium and team performance at Property and Casualty Company Ltd. a sub-branch of Shi Jiazhuang in China.
2. What is the role of team cohesion in the relationship between communication medium use and team performance at Property and Casualty Company Ltd. A sub-branch of Shi Jiazhuang in China.

1.4 Purpose of Study

The purpose of this study is to investigate the relationship between communication medium use and team performance; the study will also investigate whether team cohesion mediates the relationship between communication medium use and team performance in Property and Casualty Company Ltd. sub-branch of Shi Jiazhuang (PICC-SJZ). This will help members to increase their awareness of the importance of communication medium use and team cohesion in teamwork, and how to teamwork in the Chinese context. Meanwhile, by analyzing the opinions and feelings of the respondents, the researcher may be able to determine the relationship among communication medium, team cohesion and team performance in PICC-SJZ. This study also aims to determine the whether PICC-SJZ has cohesion and the communication medium used is applied in a positive way or otherwise.

1.5 Objectives of the Study

The objectives of this study are:

1. To determine the relationship between communication medium used and team performance at Property and Casualty Company Ltd. sub-branch of Shi Jiazhuang in China.
2. To determine whether team cohesion mediates the relationship between communication medium use and team performance at Property and Casualty Company Ltd. sub-branch of Shi Jiazhuang in China.

1.6 Hypothesis

The hypotheses of this study are:

H₁: There is a significant relationship between communication medium use and team performance in Property and Casualty Company Ltd. sub-branch of Shi Jiazhuang in China.

H_{1a}: There is a significant relationship between CMC and team task performance in Property and Casualty Company Ltd. sub-branch of Shi Jiazhuang in China.

H_{1b}: There is a significant relationship between FTF communication and team contextual performance Property and Casualty Company Ltd. sub-branch of Shi Jiazhuang in China.

H₂: The relationship between communication medium use and team performance will be partially mediated by team cohesion in Property and Casualty Company Ltd. sub-branch of Shi Jiazhuang in China.

H_{2a}: The relationship between CMC and team task performance will be partially mediated by team task cohesion in Property and Casualty Company Ltd. sub-branch of Shi Jiazhuang in China.

H_{2b}: The relationship between FTF communication and team contextual performance will be partially mediated by team social cohesion in Property and Casualty Company Ltd. sub-branch of Shi Jiazhuang in China.

1.7 Significance of the study

This study can provide information about communication medium use related to team performance, and how team cohesion mediates the relationship between communication medium use and team performance. The information can help increase team performance in the organization by informing team members of the best way to share their knowledge, experience and insights, as well as to help create a good relationship with others in the team (Salas, Cooke and Rosen, 2008).

By knowing which communication medium is best to use for a particular or specific task or condition, and by understanding the role of team cohesion in the relationship between communication medium and team performance this may provide the organization with a better understanding in order to encourage an effective team process. This includes (1) team cohesiveness can improve the tacit/common understanding, goals and values of members. It can help a team collect individual efforts to assist team performance. Improving team cohesion also can help participation as well as increase goal, task and role acceptance to achieve the team goals (Cartwright 1968 in Campbell and Martens, 2009). (2) This study also informs staff of which specific communication medium is best used for a specific purpose as part of teamwork (e.g. CMC is best used for task performance and FTF communication is best used for contextual performance). Effective usage of a particular medium is argued to increase team performance (Pissarra, Jorge and Jesuino, 2005).

This study will allow the organization to pay more attention on improving the communication environment and to motivate members to become more cohesive. The organization can then conduct programmes to improve the awareness of the employees and the importance of communication medium use and significant of team cohesion.

In addition, this study is also essential to help the researcher to understand the knowledge of organizational behaviour in the workplace. The results of this study can help the researcher to understand the concept of management including team

performance, team cohesion, and communication medium as part of a successful company. Meanwhile, it also aids the researcher to prove whether or not the theories and concepts are applicable in an actual company and to examine if the theory and concepts are suitable in an actual working environment or otherwise.

1.8 Scope of the Study

The study focuses on the effects of communication medium use and team cohesion on team performance in Property and Casualty Company Ltd. a sub-branch of Shi Jiazhuang Company in Hebei province of China (PICC-SJZ).

The team performance in this study uses the measurement by Borman and Motowidlo (1994), Sonnentag and Frese (2002), and Shin and Song (2011) which includes task performance (referring to individuals using their knowledge and skill to achieve tasks) and contextual performance (referring to behaviours that contribute to the culture and climate of the organization).

The communication medium use is referring to Computer Mediated Communication and Face to Face communication. Team cohesion will focus on Carron et al. (1985) in Nikos and Yannis (2004) and Shin and Song (2011) which includes team task cohesion (referring to team members working together and sharing commitment in team tasks, and team social cohesion(referring to the level of the social relationship between members of the team).

1.9 Place of the Study

This study will be conducted at Property and Casualty Company Ltd. (PICC) This is a government linked company, the sub-branch of company by choose which located in Shi JiaZhuang in the Hebei Province in China Mainland (PICC-SJZ).

PICC is the largest non-life insurance company in mainland China. It was established by the People's Insurance Company (Group) of China in July 2003 under the validation and approval of the China Insurance Commission, with a registered capital of above MYR61.2799 billion. The company used to be known as the People's Insurance Company of China, which was founded on 20th October 1949, approved by the People's Bank of China. In 2011, PICC was the 7th largest public non-life insurance company in the world, and was top of the rankings in Asia. The profit of this company has exceeded MYR 50 billion which has achieved its highest level to date. However, PICC has many sub-branch companies in China.

The researcher focused on the PICC sub-branch of the Shi Jiazhuang Company in the Hebei province of China, because of PICC-SJZ is the most outstanding of all the branches. Besides that, PICC-SJZ is easy to process data collection.

1.10 Limitation of the Study

1. The study will be undertaken in a Government Linked Organization in China, therefore may not be generalized to other different industries.
2. Due to the large number of employees in PICC, this study will only investigate the branch of PICC in the regional capital city of Shi Jiazhuang in Hebei Province. The data collected might not reflect the situation of the whole population in PICC.
3. There are many theories and models concerning communication medium use, but in this study, the communication medium use is only based on CMC and FTF.
4. The self-appraisal of team performance that this study applied could possibly lead to some inaccuracy concerning the actual team performance, as some

respondents might conceal some deficiencies or over rate some index of the team performance.

1.11 Conceptual Definitions

The conceptual definitions are very important to define the detail constructs of the research topics that will be carried out by the researcher. Several important concepts are defined, there are include the definitions of team performance, communication medium use and team cohesion.

1.11.1 Team

A team is a social entity that is composed of members with a high task interdependency with shared and valued common goals (Dyer, 1984). A team is a combination of two or more individuals. These individuals work together in order to achieve the same common and valued objective. In a team, individuals are interdependent, interact and dynamic with each other. Each individual is assigned specific functions to perform, and is also confined to the life-span of a membership (William et al., 1992).

A work team is a group of members with interdependent interactions and mutually shared responsibility for achieving specified outcomes (Cohen et al., 1997).

1.11.2 Team Performance

Team performance is “the degree to which a team accomplishes their goals or mission” (Bell, 2007 cited in Zhang, Waldman and Wang, 2012). To improve team performance it is required to consolidate the efforts of the team members (Dirks,

1999 cited in Mach, Dolan and Tzafirir, 2010). In order to make a team work effectively and efficiently, it is necessary to improve decision quality and create new ideas in the work (Garrison, Wakefield, Xu and Kim, 2011).

According to Reilly and McGourty, (1998) cited in Chiochio and Essiembre (2009), team performance includes good team behaviour (team satisfaction and team motivation by Higgs, Plewnia and Ploch in 2005) and interdependent units. Those two factors can help teams achieve goals, and make team performance more effective.

Team performance is a process of combining theoretical and interpersonal based processes in the team work, such as how to manage communication, conflicts and cohesion. (Dionne, Yammarino, Atwater and Spangler,2004).

1.11.3 Communication Medium

According to Gray (2004) the main purposes of communication within an organizational context are to: (1) satisfy the need for information, and (2) to satisfy relational needs among organizational members. These needs are satisfied via face to face communication as well as through computer-mediated communication.

Computer-mediated communication refers to communication via the computer. In this context, messages and information are forms of exchange and are transferred using computers (December, 1997 cited in Bubas, 2001).

Computer-mediated communication is also defined as any human verbal or nonverbal interaction used by some facilities which use digital-based technologies such as the Internet, instant messages or email (Spitzberg, 2006).

Face to face communication refers to teams of a manageable size in which participants can see and hear one another (Burkhalter ,Gastil and Kelshaw, 2002). Face to face communication allows for immediate correction if the message is not understood because face to face communication is biologically based (refer to communication face to face). The participants utilise the cognitive, sensory and sensorimotor parts of the information in the communication process (Kroger, Kopp and Lowit, 2010). Koskinen (2003) cited in Salis and William (2010) describes face to face communication as the richest medium to transmit information. Face to face communication can receive immediate feedback.

1.11.4 Team Cohesion

Cohesion in this context is the degree by which individuals in a team stick together. The members are working with common goals and objectives (Campbell and Martens, 2009; Wang, Ying, Jiang and Klein, 2006). The characteristics of cohesive teams are: (1) the members interact with others frequently, and (2) they want to share their knowledge so as to achieve the goals of the team (Robbins and Mukerji, 1990).

According to O'Reilly, Caldwell and Barnett (1989), team cohesion is an important component of the social integration of a team. The perceptions of the members will affect team cohesion, and the dissatisfaction of the employees with others will affect social interaction in the team.

Team cohesion affects members who are close or attracted to a team (Ocker and Morand, 2002cited in Shin and Song, 2011) or a team task (Kozlowski and Bell, 2003cited in Garrison et al., 2011).

In this study, team cohesion will be described from two aspects, namely social and task aspects (Carron, Brawley, and Widmeyer, 1985cited in Shin and Song, 2011).

1.12 Operational Definitions

An operational definition is to explain the actual implementation of team cohesion and team performance. An operational definition can be illustrated with actual conditions. The following are some of the operational definitions:

1.12.1 Team

In this study, team can be defined as two or more members working together for specific purposes, roles or functions to achieve a common goal (Savelsbergh, Heijden and Poell, 2010). Such as in vehicle insurance department, there are five teams which are insurance underwriting team (8 employees), data analysis team (sources of premium, types of car; 18 employees), Market analysis team (14 employees), evaluation team (5). Besides that, company always team at work, such as, meeting discussion, training activity, workshop, and work design.

Teams can help improve organizational effectiveness. Team members contribute to the efforts, which contribute towards team performance (Steiner, 1972 in Chang et al.2012). Team performance contributes to the organizational performance. Therefore, this study will discuss team performance.

1.12.2 Team Performance

In this study, team performance refers to task and contextual performance (Motowidlo and Van Scotter, 1994, Sonnentag and Frese, 2002, Befort and Hatstrup, 2003, Shin and Song, 2011).

Task performance refers to individuals using their knowledge and skills to achieve tasks (Borman and Motowidlo,1993cited in Sonnentag and Frese, 2002;

Befort and Hatstrup, 2003), such as producing products, selling merchandise, acquiring inventory, managing subordinates, or delivering services.

Contextual performance can be described as an organizational, social, and psychological environment that is needed in order to achieve the organizational vision and mission. This means the contextual performance refers to behaviours that contribute to the culture and climate of the organization. In other words, this is the context within which transformation and maintenance activities are carried out. Befort and Hatstrup stated that “Volunteering for extra work, persisting with enthusiasm, helping and cooperating with others, following rules and procedures, and supporting or defending the organization are all examples of contextual performance behaviors”. (Motowidlo and Van Scotter, 1994)

There are two basic assumptions to explain the difference between task based and contextual performance (Borman and Motowidlo, 1997; Motowidlo and Schmit, 1999 cited in Sonnentag and Frese, 2002), namely, (1) the team provides activities or programmes related to job and task performance, but the contextual performance is different with activities to focus on improving the relationship between members; and (2) task performance is more focused on ability, but contextual performance concentrates on the personality and motivation of members.

1.12.3 Communication Medium Use

1.12.3.1 CMC and FTF Communication

Computer Mediated Communication (CMC) refers to communication between team members via computer, for example communication using email, groupware or the web. Table 1.1 shows the different characteristics of CMC and Face to Face (FTF) communication.

Table 1.1: Comparison of email, group ware, web and Face to Face communication

	Computer-Mediated communication			Face-to-Face communication
	Email	Groupware	Web	
Physical arrangement of Groups supported(a)	Members are dispersed	Members may be dispersed or co-located	Members are dispersed	Members are co-located
Communication style(b)	Very asynchronous	Synchronous Asynchronous	Very asynchronous	Very synchronous
Communication model(c)	One-to-one One-to-many	One-to-many Many-to-many	One-to-many Many-to-many	One-to-one One-to-many Many-to-many
Social context cues (b)	Low	Medium	Medium	High

(a) Poole and DeSanctis, (1990), (b) Rice, (1993) and (c) DeSanctis, (1993) as cited in Peters (2006)

Email—is used when people are in different locations and have different social distances. Email is very asynchronous as it can send and receive despite different time lags. Email can be used to make the business process faster, to quickly obtain information from managers, and to allow individual knowledge to be shared with the wider organization members (Peters, 2006).

Groupware- is software that facilitates a group of people working within the same system or application, no matter where they happen to be physically. Different groupware systems may support different tasks, so groupware is more complex than other systems. Groupware can help an organization to control

operations and recapture efficiencies of scale across global borders, archive knowledge and experience, and impact the relationship between suppliers and buyers. For instance, under work team document management and collaboration, groupware can be used to share documents, email messages, database data, and any ongoing discussion (Peters, 2006).

Web- characteristics are such that it is hypertext friendly and allows connectivity and flexibility of information. The impact/value creation activities highlighted in groupware are also available to web users, and in addition its global availability makes penetration of new markets possible. The team members in dispersed space can use corporate intranets or the Internet. The web uses asynchronous communication and can support links that can be both one-to-many and many-to-many (Peters, 2006).

From the above, it can be determined that e-mail and the web allow members to work in different locations (separate offices, homes or other locations) (DeSanctis and Gallupe, 1987), and this is asynchronous which means communication can take place at different times (Rice, 1993 cited in Peters, 2006). However, groupware is more comprehensive because groupware refers to members who are working in different locations or co-locations and communication takes place at almost the same time (synchronous communication) or communication at different times between sending and responding. Furthermore, the social cues of groupware and the web are at a medium level. The members using groupware or the web can communicate using one-to-many or many-to-many. However the social cues of email are at a low level.

Therefore, Computer Mediated Communication (CMC) require members to be at the same and different physical locations. The communication can take place at the same or different time, but the social cues are lower than for Face To Face communication (FTF).

In order for FTF communication to occur, this requires members to be at the same physical location. Table 1.1 indicates that FTF communication is more

comprehensive than email, groupware and the web as part of CMC, and FTF communication has a high level of social cues.

According to DeSanctis and Monge (1998) CMC is not beneficial to improve social cues as it focuses more on task related activities. Traditionally, email (text only media) would focus less on social relations, but FTF communication could improve social relations (Rice, 1993 cited in Peters, 2006).

As a consequence, CMC can be observed for use in task-oriented behaviours, and FTF communication is best used for social/contextual-oriented behaviours as part of teamwork. (According to social presence theory and the media richness theory in Chapter 2)

1.12.4 Team Cohesion

In this study, team cohesion is divided into team task cohesion and team social cohesion (Carron, Brawley, and Widmeyer, 1985, Nikos and Yannis, 2004 cited in Shin and Song, 2011, Chang and Bordia, 2011).

Carron et al. (1985) cited in Nikos and Yannis (2004) and Shin and Song (2011) stated that task cohesion means team members work together and share commitment in team tasks, and social cohesion is the level of the social relationship between members of the team.

According to Chang and Bordia (2011), Blanchard, Poon, Rodgers and Pinel, (2000), the types of cohesion are namely:

- (a) Team integration-social characteristics that include closeness and cohesiveness within the team, and focuses on the social aspects of the team

(b) Team integration - task aspects that includes closeness and bonding within the team, and focuses on achieving team/task goals and objectives.

Reference

- Andersen, T.J., (2005), The performance effect of computer-mediated communication and decentralized strategic decision making, *Journal of Business Research*, 58, 1059– 1067
- Babbie, E. (2001). *The Practice of Social Research: 9th Edition*. Belmont, CA: Wadsworth Thomson.
- Baker, H.K. and Mukherjee, T.K. (2007), Survey research in finance: views from journal editors, *International Journal of Managerial Finance*, 3(1), 11 – 25
- Baltes, B. B., Dickson, M. W., Sherman, M. P., Bauer, C. C., and LaGanke, J. S., (2002) Computer-Mediated Communication and Group Decision Making: A Meta-Analysis *Organizational Behavior and Human Decision Processes* 87 (1), 156–179
- Baralt, M. and Gurzynski-Weiss, L., (2011), Comparing learners' state anxiety during task-based interaction in computer-mediated and face-to-face communication *Language Teaching Research*, 15(2) 201–229
- Baron, RM. and Keeny, D.A. (1986), The moderator-mediator variable distinction in social psychological research: conceptual, strategic and statistical considerations, *Journal of Personality and Social Psychology*, 51(3), pp 1173-1182
- Befort, N. and Hatstrup, K., (2003), Valuing Task and Contextual Performance: Experience, Job Roles, and Ratings of the Importance of Job Behaviors *Applied H.R.M. Research*, 8(1), 17-32

- Blanchard, C., Poon, P., Rodgers, W. and Pinel, B., (2000), Group Environment Questionnaire and Its Applicability In an Exercise Setting, *Small Group Research*, 31(2), 210-224
- Blair, C. A., Thompson, L. F. and Wuensch, K. L. (2005)., Electronic helping behavior: The virtual presence of others makes a difference, *Basic and Applied Social Psychology*, 27 (2), 171–178.
- Bordia, P., (1997), Face –to-Face Versus Computer-Mediated Communication: A Synthesis of the Experimental Literature, *Journal of Business Communication*, 34(1), 99-120
- Borman, W. C., and Motowidlo, S. J. (1997). Task performance and contextual performance: The meaning for personnel selection research, *Human Performance*, 10, 99–109.
- Bubas, C. (2001), CMC theory and phenomena: Factors that influence collaboration over the internet, 3rd Carnet Users Conference, Zagreb 24-26
- Burkhalter, S., Gastil, J. and Kelshaw, T. (2002), A Conceptual Definition and Theoretical Model of Public Deliberation in Small Face-to-Face Groups, *International Communication Association*, 12(4), 398-422
- Caballer, A., Gracia, F. and Peiro, J. M. (2005), Affective responses to work process and outcomes in virtual teams-Effects of communication media and time pressure, *Journal of Managerial Psychology* ,20(3/4), 245-260
- Campbell, M. C.and Martens, M.L.(2009), Sticking it all together: A critical assessment of the group cohesion performance literature, *International Journal of Management Reviews*, 11(2), 223–246

- Carlson, J.R. and Zmud, R.W., (1999), Channel expansion theory and the experiential nature of media richness perceptions, *Academy of Management Journal*, 42(2), 153–70.
- Chang, A. and Bordia, P., (2001) A Multidimensional Approach to the Group Cohesion-Group Performance Relationship *Small Group Research*, 32(4) 379-405
- Cheung, G. (1999). Multifaceted conceptions of self-other ratings disagreement, *Personnel Psychology*, 52 1-35.
- Chiocchio, F. and Essiembre, H., (2009), Cohesion and Performance A Meta-Analytic Review of Disparities between Project Teams, Production Teams, and Service Teams, *Small Group Research* 40(4) 382-420
- Connell, J.B., Mendelsohn, G.A., Robins, R.W. and Canny, J. (2001). *Effects of Communication Medium on Interpersonal Perceptions: Don't Hang Up on the Telephone Yet!* Paper presented at the 2001 International ACM SIGGROUP Conference on Supporting Group Work, Boulder, Colorado, USA.
- Cronbach, L.J. (1951), Coefficient alpha and the internal structure of tests, *Psychometrika*, 16, 297-334
- Daft, R.L. and Lengel, R. H. (1986), Organizational information requirements, media richness and structural design, *Management Science* 32 (5) 554-571
- Davis, J. H. (1969). *Group Performance*. Reading, MA: Addison-Wesley.

- Dennis, A. R., Hilmer, K. M., and Taylor, N. J. (1998). Information exchange and use in GSS and verbal group decision making: Effects of minority influence, *Journal of Management Information Systems*, 14(3), 61-88.
- DeSanctis, G., and Monge, P. (1998), Communication process for virtual organizations *Journal of Computer Mediated Communications*, 3(4).
- Dionne, S. D. ,Yammarino, F. J., Atwater, L. E. and Spangler, W. D., (2004), Transformational leadership and team performance, *Journal of Organizational Change Management* 17(2) 177-193
- D'Urso, S. C., and Rains, S. A. (2008). Examining the scope of channel expansion: A test of channel expansion theory with new and traditional communication media, *Management Communication Quarterly*, 21, 486–507.
- Ean, L. C. (2011) Computer-Mediated Communication and Organizational Communication: The Use of New Communication Technology in the Workplace *the journal of the South East Asia Research centre for Communication and Humanities*, 3, 1-12
- Ehrhart, M. G., Bliese, P. D. and Thomas, J. L. (2006). Unit-level OCB and unit effectiveness: Examining the incremental effect of helping behavior, *Human Performance*, 19 (2), 159–173.
- Ehsan N., Mirza E., and Ahmad M., (2008), Impact of Computer-Mediated Communication on Virtual Teams' Performance: An Empirical Study, World Academy of Science, *Engineering and Technology*, 42 694-703

- Enache, M., Sallan, J. M., Simo, P., Fernandez, V. (2011), Career attitudes and subjective career success: tackling gender differences, *Gender in Management: An International Journal*, 26 (3), 234 – 250
- Ensley, M.D., Pearson, A.W. and Amason, A.C. (2002), Understanding the dynamics of new venture top management teams cohesion, conflict, and new venture performance, *Journal of Business Venturing*, 17 365-86.
- Fullagar, C.J. and Egleston, D.O.,(2008), Norming and Performing: Using Microworlds to Understand the Relationship Between Team Cohesiveness and Performance, *Journal of Applied Social Psychology*, 38(10) 2574–2593.
- Garrison, G., Wakefield, R. L., Xu, X. B. and Kim, S.H., (2011), Globally Distributed Teams: The Effect of Diversity on Trust, *Cohesion and Individual Performance*, 41(3) 27-48
- Gray, J. (2004). Improving measurement of communication satisfaction *Management Communication Quarterly*, 17(3), 425–448.
- Gully, S.M., Devine, D.J. and Whitney, D.J. (1995), A meta-analysis of cohesion and performance: effects of level of analysis and task interdependence, *Small Group Research*, 25 497-520.
- Guo, Z.X., D'Ambra, J., Turner, T., And Zhang, H. Y., (2009), Improving the Effectiveness of Virtual Teams: A Comparison of Video-Conferencing and Face-to-Face Communication in China, *IEEE Transactions on Professional Communication*, 52(1)

- Hattrup, K., O'Connell, M. S., and Wingate, P. H. (1998). Prediction of multidimensional criteria: Distinguishing task and contextual performance, *Human Performance*, 11, 305–319.
- Higgs, M., Plewnia, U. and Ploch, J., (2005), Influence of team composition and task complexity on team performance, *Team Performance Management* 11(7/8), 227-250
- Hackman, J. R. (1976). Group influence on individuals. In: M. D. Dunnette, ed. *Handbook of Industrial and Organizational Psychology*, Chicago, IL: Rand-McNally. pp. 1455–1525.
- Hackman, J. R. & Morris, C. G. (1975). Group tasks, group interaction process, and group performance effectiveness: A review and proposed integration. In: L. Berkowitz, ed, *Advances in Experimental and Social Psychology*, 8, pp. 45–99.
- Hollingshead, A. B., McGrath, J. E., O'Connor, K. M., (1993), Group Task Performance and Communication Technology—A Longitudinal Study of Computer-Mediated Versus Face-to-Face Work Groups, *Small Group Research*, 24(3) 307-333
- Hofstede, G. (1991), *Cultures and Organizations: Software of the Mind*, New York, NY: McGraw-Hill.
- Huang, C.C., (2009), Knowledge sharing and group cohesiveness on performance: An empirical study of technology R&D teams in Taiwan, *Elsevier Ltd. All rights reserved*, 29 786–797

- Huntley, B., (2008), *Media richness, social presence, group cohesion and content of computer mediated and face-to-face communication*, degree thesis, University of the Witwatersrand,
- Hunton, J.E., Arnold, V. and Gibson, D.,(2001), Collective user participation: a catalyst for group cohesion and perceived respect, *International Journal of Accounting Information Systems* 2 1-17.
- Jarvenpaa, S. L., and Leidner, D. E. (1999). Communication and trust in global virtual teams *Organization Science*, 10, 791-815.
- Jehn, K.A. and Chatman, J.A. (2000), The influence of proportional and perceptual conflict composition on team performance, *International Journal of Conflict Management*, 11(1) 56-73.
- Jehn, K.A. and Mannix, E. (2001), The dynamic nature of conflict: a longitudinal study of intra group conflict and group performance, *Academy of Management Journal*, 44(2) 238-51.
- Keller, R.T. (1986), Predictors of the performance of project groups in R&D organizations, *Academy of Management Journal*, 29 715-26.
- Kroger, B. J., Kopp, S., and Lowit, A, (2010), A Model for Production, Perception, and Acquisition for Action in FTF communication, *Cogn Process* 11 187-205
- Kira, A., Nichols, D. M., Apperley, M., (2009), Human communication in customer-agent-computer interaction: Face-to-face versus over telephone, *Computers in Human Behavior*, 25 8–20

- Labarere, J., Fourny, M., Phillippe, V.J., Pache, S. M. and Patrice, F. (2004), Refinement and validation of a French in-patient experience questionnaire, *International Journal of Health Care Quality Assurance*, 17 (1), 17 – 25
- Leonard, K. M., Scotter, J. R. V., Pakdil, F., Chamseddine, N. J, Esatoglu, E., Gumus, M., Koyuncu, M., Wu, L. L., Mockaitis, A. I., Salciuviene, L., Oktem, M. K., Surkiene, G., and Tsai F. S., (2011), Examining media effectiveness across cultures and national borders: A review and multilevel framework, *International Journal of Cross Cultural Management* 11(1) 83–103
- Lin, C. C. (2010), Studying Chinese culture and conflict: a research agenda, *International Journal of Conflict Management*, 21 (1), 70 – 93
- Lott, A. J. and Lott, B. E. (1965). Group cohesiveness as interpersonal attraction: A review of relationships with antecedents and consequent variables, *Psychological Bulletin*, 64, 259–309.
- Lowry, P. B., Roberts, T. L., Romano, N. C., Cheney, P. D. and Hightower, R. T., (2006), The Impact of Group Size and Social Presence on Small-Group Communication-Does Computer-Mediated Communication Make a Difference?, *Small Group Research* 37(6) 631-661
- Luppicini, R.,(2007), Review of computer mediated communication research for education, *Instructional Science*,35 141–185
- Mach, M., Dolan, S. and Tzafirir, S., (2010), The differential effect of team members' trust on team performance: The mediation role of team cohesion, *Journal of Occupational and Organizational Psychology*, 83, 771–794

- Marques, J. F., (2010), Enhancing the quality of organizational communication-A presentation of reflection-based criteria, *Journal of Communication Management* 14(1) 47-58
- Martínez-Moreno, E., González-Navarro, P. , Zornoza, A. and Ripoll, P., (2009), Relationship, task and process conflicts on team performance—The moderating role of communication media *International Journal of Conflict Management*, 20(3) 251-268
- McGrath, J. E. (1991), Time, interaction, and performance (TIP): A theory of groups, *Small Group Research*, 22(2) 147–174.
- Miranda, S., and Saunders, C. (2003), The social construction of meaning: An alternative perspective on information sharing, *Information Systems Research (ISR)*, 14(1), 87-106.
- Mohammed, S., Mathieu, J.E. and Bartlett, A. L., (2002), Technical-administrative task performance, leadership task performance, and contextual performance: considering the influence of team- and task-related composition variables, *Journal of Organizational Behavior*, 23, 795–814
- Motowidlo, S. J., and Van Scotter, J. R., (1994), Evidence that task performance should be distinguished from contextual performance, *Journal of Applied Psychology*, 79 475–480.
- Mullen, B. and Copper, C., (1994), The relation between group cohesiveness and performance: an integration, *Small Group Research*, 25(2) 189-204

- Mullen, B. & Copper, C. (2004). The relation between group cohesiveness and performance: An integration, *Journal of Applied Psychology*, 115 (2), 210–227.
- Ngwenyama, O.K. and Lee, A.S. (1997), Communication Richness in Electronic Mail: Critical Social Theory and the Contextuality of Meaning, *MIS Quarterly*, 21(2), 145 – 167.
- Nikos N. and Yannis, A., (2004), A Psychometric Evaluation of the Group Environment Questionnaire in a Sample of Elite and Regional Level Greek Volleyball Players, 10(3) 261-278
- O'Reilly, C. A., Caldwell, D. F. and Barnett, W. P., (1989), Work Group Demography, Social Integration, and Turnover, *Administrative Science Quarterly*, 34 21-37
- Passos, A. M. and Caetano, A., (2005), Exploring the effects of intragroup conflict and past performance feedback on team effectiveness, *Journal of Managerial Psychology*, 20(3/4) 231-244
- Peter, C. D. (2006), Conceptualizing Computer-Mediated Communication Technology and its Use in Organization International, *Journal of Information Management*, 26 142-152
- Pina, M. I. D., Marti'nez, A. M. R. and Marti'nez, L. G., (2008), Teams in organizations: a review on team effectiveness, *Team Performance Management* 14(1/2)7-21
- Pissarra, J. and Jorge, C. Jesuino, (2005), Idea generation through computer-mediated communication—The effects of anonymity, *Journal of Managerial Psychology* 20(3/4) 275-291

- Revelle, W. and Zinbarg, R., (2009), Coefficients Alpha, Beta, Omega, and the glb: Comments on Sijtsma, *Psychometrika*, 74(1), 145-154
- Ross, T. M., Jones, E. C. and Adams, S. G., (2008), Can team effectiveness be predicted?, *Team Performance Management* 14(5/6), 248-268
- Rhoads, M., (2010), Face-to-Face and Computer-Mediated Communication: What Does Theory Tell Us and What Have We Learned so Far?, *Journal of Planning Literature*, 25(2) 111-122
- Robbins, S., and Mukerji, D. (1990), *Managing Organizations New challenges and Perspectives*, Prentice Hall, Inc., 246-248.
- Roberts, T. L., Lowry, P. B., and Sweeney, P. D. (2006). An evaluation of the impact of social presence through group size and the use of collaborative software on group member voice in face-to-face and computer-mediated task groups. *IEEE Transactions on Professional Communication*, 49(2), 28-43.
- Rucker, D. D., Preacher, K. J., Tormala Z. L., and Petty R. E., (2011), Mediation Analysis in Social Psychology: Current Practices and New Recommendations, *Social and Personality Psychology Compass*, 5/6, 359–371
- Salas, E., Cooke, N. J. and Rosen, M. A., (2008) On Teams, Teamwork, and Team Performance: Discoveries and Developments *The Journal of the Human Factors and Ergonomics Society*, 2008 50: 540
- Salis, S. and Williams, A. M., (2010), Knowledge Sharing through FTF Communication and Labor Productivity: Evidence From British Workplace, *Journal of Industrial Relations*, 48(2) 436–459

- Savelsbergh, C. M.J.H., Heijden, B. I.J.M. V. D. and. Poell, R. F., (2010), Attitudes towards factors influencing team performance—A multi-rater approach aimed at establishing the relative importance of team learning behaviors in comparison with other predictors of team performance, *Team Performance Management*, 16(7/8), 451-474
- Shin, Y. and Song, K. (2011), Role of face-to-face and computer-mediated communication time in the cohesion and performance of mixed-mode groups, *Asian Journal of Social Psychology*, 14 126–139
- Shin, H. K. and Kim, K.K. , (2010), Examining identity and organizational citizenship behavior in computer-mediated communication, *Journal of Information Science*, 36 (1) 114–126
- Shu-Chu, L. S., (2007), Computer-Mediated Communication and Group Decision Making, *Small Group Research*, 38(5) 593-614
- Sonnentag, S. and Frese, M., (2002), Performance Concepts and Performance Theory, *Psychological Management of Individual Performance*. Edited by Sabine Sonnentag
- Spitzberg, B. H., (2006), Preliminary Development of a Model and Measure of CMC Competence, *Journal of Computer-Mediated Communication*, 11 629-666
- Triana, A.D.C., Kirkman, B.L. and Wagstaff, M. F., (2012), Does the Order of Face-to-Face and Computer-Mediated Communication Matter in Diverse Project Teams? An Investigation of Communication Order Effects on Minority Inclusion and Participation, *Journal of Business and Psychology*, 27(1) 57–70

- Tan, B.C.Y., Wei, K., Sia, C. & Raman, K.S. (1999). A Partial Test of the Task Medium Fit Proposition in a Group Support System Environment. *ACM Transactions on Computer- Human Interaction*, 6 (1), 47 – 66.
- Tung, H.L. and Chang, Y.H., (2011), Effects of empowering leadership on performance in management team-Mediating effects of knowledge sharing and team cohesion, *Journal of Chinese Human Resource Management*, 2(1) 43-60
- Van Scotter, J.R., (2000), Relationships of task performance and contextual performance with turnover, job satisfaction, and affective commitment, *Human Resource Management Review*, 10 (1) 79–95.
- Van Vianen, A. E. M. & De Dreu, C. K. W. (2001)., Personality in teams: Its relationship to social cohesion, task cohesion, and team performance. *European Journal of Work and Organizational Psychology*, 10 (2), 97–120.
- Walther, J.B. (1994), Interpersonal Effects in Computer Mediated Interaction *Communication Research*, 21(4), 460 – 487.
- Wang, E.T.G, Ying, T.C., Jiang, J.J. and Klein, G., (2006), Group cohesion in organizational innovation: An empirical examination of ERP implementation, *Information and Software Technology*, 48 235–244
- Werner, J.M., (2000), Implications of OCB and contextual performance for human resource management, *Human Resource Management Review*, 10 (1) 3–24.
- Westmyer, S.A., DiCioccio, R.L. and Rubin, R.B., (1989), Appropriateness and Effectiveness of communication channels in competent interpersonal interaction, *journal of communication*, 48 (3), 27-48

- Williams, E.A. and Castro, S.L. , (2010), The effects of teamwork on individual learning and perceptions of team performance-A comparison of face-to-face and online project settings, *Team Performance Management*, 16(3/4) 124-147
- Witt, L.A., Kacmar, K.M., Carlson, D.S., Zivnuska, S., (2002), Interactive effects of personality and organizational politics on contextual performance, *Journal of Organizational Behavior* 23, 911–926.
- Young, D. P. (1995), The relationship between electronic and face-to-face Communication and its implication for alternative workplace strategies, *Facilities*, 13(6), 20 – 27
- Zhang, Z., Waldman D. V. and Wang Z., (2012), A Multilevel Investigation Of Leader–Member Exchange, Informal Leader Emergence, And Individual And Team Performance, *Personnel Psychology*, 65 49–78
- Zmud, R., (1978), An empirical investigation of the dimensionality of the concept of information, *Decision Sciences* 9 187–95.
- Zornoza, A., Ripoll, P. And Peiró, J. M.,(2002), Conflict Management In Groups That work In Two Different Communication Contexts-Face-To-Face And Computer-Mediated Communication, *Small Group Research*, 33(5) 481-508

Previous research

- Chang, A. and Bordia, P. (2001), A multidimensional approach to the group cohesion-group performance relationship, *Small Group Research*, 32 379-405.

- Ehsan, N., Mirza, E., and Ahmad, M., (2008), Impact of Computer-Mediated Communication on Virtual Teams' Performance: An Empirical Study, *World Academy of Science, Engineering and Technology*, 42 694-703
- Fullagar, C.J. and Egleston, D.O.,(2008), Norming and Performing: Using Microworlds to Understand the Relationship Between Team Cohesiveness and Performance, *Journal of Applied Social Psychology*, 33(10) 2574–2593.
- Martínez-Moreno, E., González-Navarro, P., Zornoza, A. and Ripoll, P.(2009) Relationship, task and process conflicts on team performance- The moderating role of communication media *International Journal of Conflict Management*, 20(3), 251-268
- Pazos, P. and Beruvides, M. G. (2011) Performance patterns in face-to-face and computer-supported teams *Team Performance Management*, 17(1/2) 83-101
- Shin, H. K. and Kim, K.K., (2010), Examining identity and organizational citizenship behavior in computer-mediated communication, *Journal of Information Science*, 36 (1) 114–126