

Analysis of Social Network and its Effect on Job Satisfaction and Employee Performance

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Abstract

This paper provides a brief introduction to the major concepts and measures in Social Network Analysis and their application to business problems. By investigating into social networks, an attempt has been taken to analyze its impact on employee productivity and job satisfaction. The results of this study are derived from organizations of Pharmaceuticals, Banking, Real Estate, FMCGs and Telecommunication sectors in Bangladesh. This makes the conclusions more sectors oriented. The results of this study provide strong support to the existence of a positive relationship among social network, job satisfaction, and employee productivity and commitment. With 95% confidence level of interval, the correlation between Social Network and Job Satisfaction is highly significant, amounting to 0.224. Supporting the rest of our hypothesis, a calculated correlation of 0.326 with 90% confidence level of interval the correlation between social network and employee performance is significant as well.

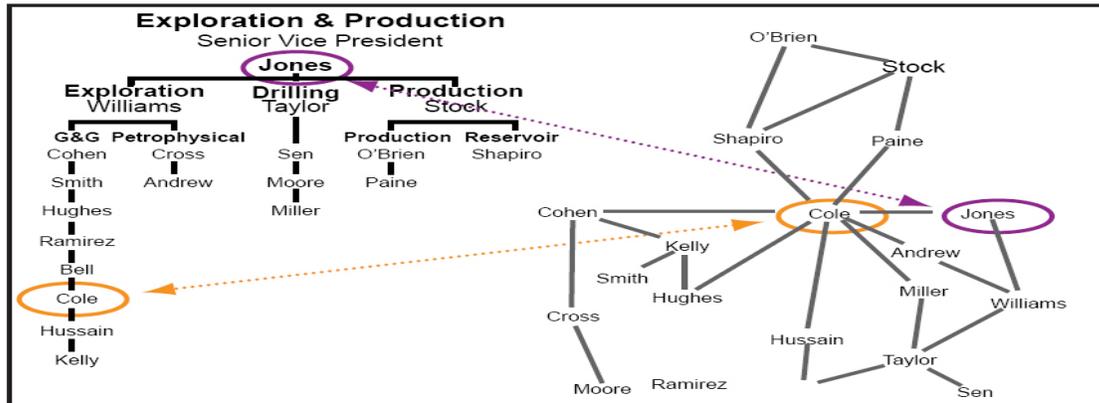
Key Words: Social Network Analysis (SNA), Job Satisfaction, Employee Performance, and Fast Moving Consumer Goods (FMCG)

Introduction

The information revolution has given birth to new economies structured around flows of data, information, and knowledge. In parallel, social networks have grown stronger as forms of organization of human activity. Social networks are modes of individuals, groups, organizations, and related systems that tie one or more types of interdependencies: these include shared values, visions, and ideas; social contacts; kinship; conflict; financial exchanges; trade; joint membership in organizations; and group participation in events, among numerous other aspects of human relationships. Indeed, it sometimes appears as though networked organizations compete with all other forms of organization — certainly; they outpace vertical, rigid, command-and-control bureaucracies. When they succeed, social networks influence larger social processes by accessing human, social, natural, physical, and financial capital, as well as the information and knowledge content of these things. (In development work, they can impact policies, strategies, programs, and projects— including their design, implementation, and results—and the partnerships that often underpin these.) To date, however, we are still far from being able to construe their public and

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organizational power in ways that can harness their potential. Understanding when, why, and how they function best is important. Here, social network analysis can help.



Source: Rob Cross, Andrew Parker, Laurence Prusak, and Stephen Borgatti. 2001. *Knowing What We Know: Supporting Knowledge Creation and Sharing in Social Networks. Organizational Dynamics. Vol. 30, No. 2, pp. 100–120. Elsevier Science, Inc*

Figure 1: Formal versus Informal Structure in a Petroleum Organization

In reference to Figure 1, Social Network Analysis (SNA) reveals that in contrast to the formal chart; mid-level managers and Cole in particular were playing a pivotal role in the group's communication network. Not only was Cole linked to many people, making him very central to the group, but he was also the only link between the cluster of people at the top who represented planning and the rest of the group who were involved in other distinct but critical activities. A social network analysis in a business setting has three important elements: Groups, Interactions and Attributes. Conducting the analysis in *groups* of people, classified by functions, power, age, or some other criteria allows us to look at the level of *interactions* between the group members. Interactions are also referred to as the links or ties between people. The pattern of interactions in a group is called a social network. In addition, *attributes* help to determine the presence of systematic factors that influence interactions between people. In business management cases, relevant attributes might include where someone works (e.g. country, geographic region), which business unit they are in (e.g. sales, marketing, and development), their level of seniority, and how long they have been with the company. Only attributes that are believed to influence interactions are included in SNA. The study has been so designed that its objectives could be accomplished to determine the presence of social network in different organizations from the above mentioned five industries. The specific objective of the study was to find how the employees will be satisfied with their organization and how the satisfaction is related to the presence of social network. The study adds to find how the presence of social network affects the performance of individual employees and to relate employee productivity and job satisfaction with the existing social network in the business organizations of Bangladesh.

Literature Review

With massive importance being given to the concept of Social Network Analysis in the recent times, a lot of scholarly work are being conducted by prominent authors and business professionals in this regard.

Miller and Monge, (1986) state that job satisfaction increases productivity through bringing high quality motivation and through increasing working capabilities at the time of implementation.

Blinder (1990) states that profit sharing programs are more effective when combined with employee participation in management. By allowing worker input into developing the mission statement, establishing policies and procedures, determining perks, etc., you can improve communication and increase morale and satisfaction.

Pfeffer, Wagner, and Verma (1994) state that employee participation is positively related to performance, satisfaction, and productivity of an employee.

Wasserman and Faust, (1994) states that the ability to access diverse and valuable information effectively promotes worker productivity in two ways. Primarily, accessing information related to work at hand can directly improve the quality of work, as it can increase the chance of finding solutions to difficult problems. Secondly, accessing diverse information makes it more likely that new opportunities and resources will be discovered more quickly. To be first to learn about new opportunities allows a person to enter the queue faster and prompt her to suitable position, and therefore improve her chance of winning the opportunity.

Brass (2000) argues that strong ties are characterized by frequent interaction, feelings of closeness, and multiple types of relationships. Employees with strong ties to managers who are often experts are also likely to perform better as they can access useful knowledge and subject area expertise. Receiving targeted and useful information directly from the manager with minimum information distortion, consultants with strong ties to management are even more likely to complete a project. This forms a virtuous cycle where strong connections to managers increase the chance of accomplishing a project which then enhances an employee's reputation and attracts even more connections to project managers. Similarly, we expect project teams with strong ties to managers outside the team to be more successful.

Wu et al (2009) says that one important aspect of human capital is status and power endowed to a person. Strong ties to powerful individuals can be beneficial. Authorities such as partners and executives in a consulting organization often have the discretion to pick specific consultants to staff important projects that have high earning potential. Most project managers prefer to choose consultants whom they trust to deliver excellent results and therefore, having a good relationship with project managers and gaining their trust is crucial to increase utilization and the likelihood to participate in high valued ventures. In addition to an individual's own human capital and network topology, we study how connections to power and status, and the strength of these connections are correlated with performance.

Methodology of the Study

For conducting the study the target population included employees from both local and multinational organizations. However the sample was categorized in terms of industry. The targeted people were from the Pharmaceutical, Real Estate, Telecommunication, FMCGs and Banking sector.

The sample size has been determined on the basis of two crucial components - time and money. The total population of our study was approximately 100,000 spread over five industry groups. The sample size has been set at 100, with 20 respondents representing each of the mentioned five industries to determine a perceptible level of satisfaction and productivity change with the social relations structure. Because of our time & resource limitations, we have selected only .10% sample of the population. Though the sample size is not representative part of the population, the present study might be focused on future study with big sample size. The sample size was selected by using judgemental sampling approach which is based on easy accessibility of the sample.

For measuring the productivity, job satisfaction, employee commitment and social network, a linear regression model has been developed. The data were analysed by using frequency distribution, descriptive statistics and correlation and regression.

The secondary data were collected from consulting various documents, reports, articles, case studies, books, internet and so on. The collected data were analyzed keeping in mind the objective of the study. The period of the study is January 2010 to April 2010.

Research Hypotheses

Hypotheses 1: The job satisfaction of individual employees is positively related to the presence of social network.

Hypotheses 2: The performance of employees is positively related to the level of social network present in that organization.

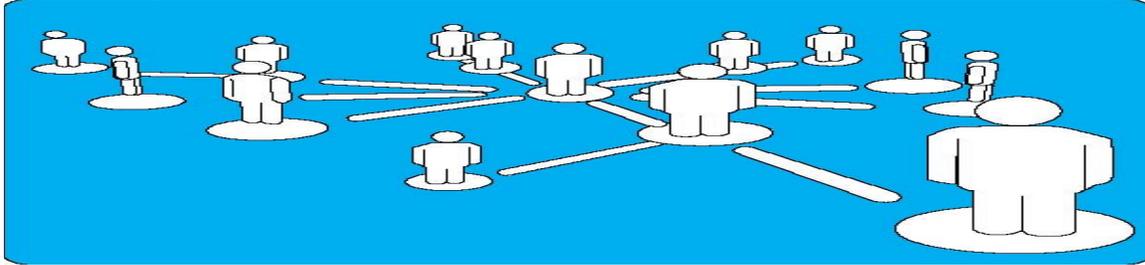
Hypotheses 3: The job satisfaction and performance of employees of an organization is positively related to the level of social network present in that organization.

An Overview of Social Network

Defining the Concept of Social Network

The defining feature of social network analysis is its focus on the structure of relationships, ranging from casual acquaintance to close bonds. Social network analysis assumes that relationships are important. It maps and measures formal and informal relationships to understand what facilitates or impedes the knowledge flows that bind interacting units, viz., who knows whom, and who shares what information and knowledge with whom by what communication media (e.g., data and information, voice, or video communications).⁹ (Because these relationships are not usually readily discernible, social network analysis is somewhat akin to an "organizational x-ray".) Social network analysis is a method which is being used more and more in the social

sciences and has been applied in areas as diverse as psychology, health, business organization, and electronic communications. More recently, interest has grown in analysis of leadership networks to sustain and strengthen their relationships within and across groups, organizations, and related systems.



Source: Source: Rachael King. 2006. *CEO Guide to Technology: Social Networks—Who’s Harnessing Social Networks?* Business Week. Available: http://images.businessweek.com/ss/06/09/ceo_socnet/source/1.htm

Figure 2: A Social Network

Mathematical Model of Social Network

The linear regression model has been used as the mathematical tool for the study purpose. Linear regression is a form of regression analysis in which the relationship between one or more independent variables and another variable, called the dependent variable, is modelled by a least squares functions, called a linear regression equation. This function is a linear combination of one or more model parameters, called regression coefficients. A linear regression equation with one independent variable represents a straight line when the predicted value (i.e. the dependent variable from the regression equation) is plotted against the independent variable: this is called a simple linear regression. However, note that "linear" does not refer to this straight line, but rather to the way in which the regression coefficients occur in the regression equation. The results are subject to statistical analysis. The regression equation used in the research is:

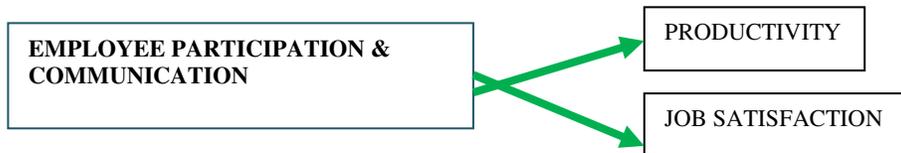
$$\text{Social Network} = b_0 + b_1 * X_1 + b_2 * X_2 + \text{error}$$

b_0 = Intercept

X_1 = Job Satisfaction

X_2 = Employee performance

b_1, b_2 are the Coefficients of X_1, X_2 respectively.



Source: Primary

Figure 3: Relating productivity, satisfaction and communication

Analysis of the Findings

The research was conducted on five different industries – Telecommunication, Pharmaceuticals, Real Estate, Banking and FMCGs-with the aim of understanding the effects of social networking on employee performance and job satisfaction. After the research it was uncovered that the patterns in the five different industries are similar. The nature of business affects job satisfaction and performance but that is not relevant to this research as it is based on the effects of social network. The presence of social network and employee attitude depends on the culture because the majority of the employees are Bangladeshi nationals and their responses are similar responses. Thus, the results have been combined and quantitative analysis on the average results was done. The following are the findings and interpretation from quantitative analysis of the effects of social network on employee performance and job satisfaction.

Qualitative Analysis

This section deals with the perception based general findings while conducting the survey and interviewing the concerned employees in five different industries.

Telecom

At present there are mainly six telecom operators running their business in Bangladesh amongst which the research had been conducted in four companies. Interestingly enough, there is more departmentalization in the telecom sector than in any other industry sector. For example: Grameen Phone(GP), under its Network Division, has many other sub-divisions like Network Quality Performance(NQP), Service Network, Radio Planning etc. and under its Information Technology(IT) Divisions also has many sub-divisions. Employees working in a particular sub-division have a very close relation with each members of the group and thus the social networking practice is very strong within that group. The peer to peer relation exists strongly within the group. The supervisors and the managers maintain strong ties with their sub-ordinates which make the workplace environment comfortable for all and thus increase the job satisfaction and employee performance. However, communication outside the group is not so strong as it is inside the group.

Banking

The banking sector follows a more rigid organizational structure. During the research conducted, two foreign banks and two local banks have been surveyed. While surveying, some of the managers revealed that they mostly hire employees with exceptional communication skills because their business depends greatly on effective communication with the clients. People with networking skills would be on the preference list of the employer. For example, a salesperson at a bank highly relies on his social network to achieve his sales target which results in earning him more sales commission and recognition from his supervisor, thereby increasing employee productivity and job satisfaction. Again another finding is that employees who regularly communicate with their colleagues and supervisors, maintain a professional and friendly relation, are rewarded with non-monetary privileges. If they cannot be promoted immediately due to strict

organization structure, they are usually compensated with better remuneration packages, which directly affect the job satisfaction of the employee.

FMCG

The impact of existing social network in the FMCG sector is also evident. While conducting the survey in companies like Unilever Bd. Ltd, Nestle Bangladesh Ltd., Akij Foods and Beverages Ltd, we found that the social networking skills of the employees of those companies specially in the sales, operations and distributions departments are directly impacting the individuals career growth as well as the expansion of the business of the company. An individual who maintains good communication with the retailer and the supplier proves to be more productive than an individual whose communication skill is poor. And this group of skilled employees is always generating more revenues for the company. Their managers are happy with them and thus they get reward either in terms of money or extra amenity which directly relates with the job satisfaction. Another important thing in this sector is that the mid and top level managers who maintain a strong network both inside the organization and outside the organization can gather information informally about the upcoming new products or the branding strategy and marketing policy of new products to some extent of the competitor companies through rumour or gossip of the people he knows outside his organization. He can then take necessary steps to promote his product. This is how they are increasing their productivity.

Pharmaceuticals

Social networking has the most significance influence in increasing the sales of the companies in the pharmaceutical sector. The medical promotion officers and the sales executives rely heavily on their individual connections to promote their products. Those who consistently maintain their personal network with the hospitals and doctors and those who concentrate on expanding their social networks has proven themselves to be more effective and successful sales persons.

Real Estate

The social network structures in real estate companies are a bit different from the other sectors. The real estate companies have two kinds of management. They are the corporate office management and the site office management. The corporate office management looks for people with good academic backgrounds and good inter-personnel communication skills. But the case is a bit different when it comes to site management. They not only have to communicate with their sub-ordinates, colleagues and supervisors but also with people outside the organization on a daily basis. They are suppliers, clients, contractors and many more people. So the existence of social network is very dense here compared to the other sectors as it is too essential for the site management to continue their function as a unit. But job satisfaction is lower in this sector as the remuneration is not up to the standard. But employee performance is very high in real estate companies as a person cannot survive without it if they want to continue their career for longer periods. The site management feels they are being overstressed at times and blame the corporate management for not providing them with enough incentives. On the other hand, the head office or

corporate management feels that the site management is not doing enough to keep the standards high at times. But there are exceptions to that. In middle sized or smaller real estate companies the job satisfaction and performance is higher and the social network is well defined. It is felt that the findings could vary if more in-depth survey was done and more companies were involved.

Quantitative Analysis

From the three dimensions (satisfaction, performance and communication), three most significant questions has been taken for general analysis in this section. All the questions were taken into consideration for the regression model analysis. Question 1 of the questionnaire asked the interviewee whether the interviewee was satisfied with the kind of future achievement by working in the organization. According to the frequency analysis of Table 1, most of the people are satisfied that working in the organization will lead to the kind of future they want.

Table 1: Frequency analysis of Question 1

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1	4	4.0	4.0	4.0
2	2	2.0	2.0	6.1
3	8	8.1	8.1	14.1
4	50	50.5	50.5	64.6
5	35	35.4	35.4	100.0
Total	99	100.0	100.0	

Source: Primary

In the questionnaire, there was a question on whether the employee's performance depends on the guidance from the supervisor. From the frequency analysis of Table 2, it is evident that most of the employees think that their performance is related to the guidance they receive from their supervisor.

Table 2: Frequency analysis of Question 29

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1	1	1.0	1.0	1.0
2	7	7.1	7.1	8.1
3	15	15.2	15.2	23.2
4	58	58.6	58.6	81.8
5	18	18.2	18.2	100.0
Total	99	100.0	100.0	

Source: Primary

In question 22, the respondents were asked about their communication level with the person sitting next. The frequency analysis of question 22 described in Table 3 shows that the communication level is significantly high with the person sitting next

Table 3: Frequency analysis of Question 22

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1	1	1.0	1.0	1.0
2	10	10.1	10.1	11.1
3	19	19.2	19.2	30.3
4	38	38.4	38.4	68.7
5	31	31.3	31.3	100.0
Total	99	100.0	100.0	

Source: Primary

Regression Analysis Model

The regression equation is as follows:

$$\text{Social Network} = b_0 + b_1 * X_1 + b_2 * X_2 + \text{error}$$

b_0 = Intercept

X_1 = Job Satisfaction

X_2 = Employee performance

b_1, b_2 are the Coefficients of X_1, X_2 respectively.

Table 4: Descriptive statistics

	Mean	Std. Deviation	N
Social Network	3.73990	.627464	99
Satisfaction	3.693	.6709	99
Performance	3.608	.6033	99

Source: Primary

From Table 4, it is visible that 99 data were inserted into SPSS. Each of the data entries consisted of three dimensions. One data item was excluded because the respondent did not answer some of the questions included in the questionnaire.

Table 5: Variables Entered/Removed

Model	Variables Entered	Variables Removed	Method
1	Performance, Satisfaction(a)	.	Enter

Source: Primary

a All requested variables entered.

b Dependent Variable: Social Network

From Table 5, it is visible that the variables entered in the calculation are performance and satisfaction. The dependent variable is social network.

Table 6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F Ratio
1	.364(a)	.133	.115	.590441	7.338

Source: Primary

a Predictors: (Constant), Performance, Satisfaction

b Dependent Variable: Social Network

From Table 6, it is quite obvious that the model that has been formed in determining the factors affecting the social network of an organization, is not quite considerable. Looking at the R-Square value, it is only 13.3%. It means 86.7% of the fraction of the variation in the dependent variable is unexplained. This is probably due to the fact the number of variables used in the analysis were not sufficient enough to deliver a better value of R-Square. There are many other factors that influence employee performance, job satisfaction and hence the social network such as – remuneration, internal conflict, personality, work environment, management style of organization and many other variables. The f value is 7.338 and the level of significance is 0.001. Thus the model has been accepted.

Table 7: Correlations

		Social Network	Satisfaction	Performance
Pearson Correlation	Social Network	1.000		
	Satisfaction	.224	1.000	
	Performance	.326	.198	1.000
Sig. (1-tailed)	Social Network	.		
	Satisfaction	.013	.	
	Performance	.001	.025	.
N	Social Network	99		
	Satisfaction	99	99	
	Performance	99	99	99

Source: Primary

Pearson Correlation was used in SPSS to determine the correlation between the variables. Two-tailed test of significance had been used. From Table 7, it is evident that the significance level of all the data is within range and is acceptable. All the variables are positively correlated.

Hypothesis Testing

Hypothesis 1 states that the job satisfaction of individual employees is positively related to the presence of social network in the organization.

Table 8: Correlations with significance level

		Satisfaction	Performance	Social Network
Satisfaction	Pearson Correlation	1	.198(*)	.224(*)
	Sig. (2-tailed)		.050	.026
	N	99	99	99
Performance	Pearson Correlation	.198(*)	1	.326(**)
	Sig. (2-tailed)	.050		.001
	N	99	99	99
Social Network	Pearson Correlation	.224(*)	.326(**)	1
	Sig. (2-tailed)	.026	.001	
	N	99	99	99

Source: Primary

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

As for the Table 8, social network is found to be positively correlated with job satisfaction (correlation coefficient= 0.224). With 95% confidence level of interval the correlation between social network (communication) and job satisfaction is highly significant. These results strongly support hypothesis 1.

Hypothesis 2 states that performance of employees in organizations is positively related to the level of social network present in organizations. From Table 9, social network is found to be positively correlated with employee performance (Correlation coefficient = .326). With 90% confidence level of interval the correlation between social network and employee performance is highly significant. These results support hypothesis 2.

Hypothesis 3 was about how performance and job satisfaction of the employees is positively related to the level of social network present in the organization. Table 9 shows that, social network is positively correlated with job satisfaction and employee performance. The correlation coefficient between job satisfaction and social network is 0.224 and the correlation coefficient between employee performance and job satisfaction is 0.326. These results support hypothesis 3. With 95% confidence level of interval, the correlation between social network and job satisfaction is more significant than that with employee performance, though the difference is not much.

Limitations of the Study

The study is dependent upon the answers based on the questionnaire survey. It has not validated the individuals' feedback to the questions bilaterally. So the reasoning could have been more

realistic if it had been done. However, collecting information about social network is not limited to surveys. This information could have also been inferred from a number of existing data sources, such as email exchanges, direct observations of group interaction, billable, professional citations, corporate board interlocks, consulting contracts, package transmission, or charitable donations. Any of these methods could generate relationships between two or more people which together can represent the social network for the whole group. Moreover, in order to run the linear regression model it was assumed that the two variables “Employee Productivity” and “Job Satisfaction” were not interdependent and inter-related which in fact is not always right.

Conclusion and Recommendations

This research brings into light the social networks present in some organizations in Bangladesh. It also shows in Bangladesh perspective how social networking impacts job satisfaction and performance. Social networks de-layer organizations and reduce functional boundaries and increase coordination. However, while organizations are moving to network forms through joint ventures, alliances and other collaborative relationships, executives generally pay little attention to assessing and supporting informal networks within their own organizations. Globalization and as a result increased competition have made the world economy fast paced where there is no room for lapses. Owing to the recent world recession and collapse of many large global organizations, work efficiency and effectiveness have been increasingly important. Among such fierce competition every employee has to put his or her best foot forward to achieve success. However besides individual caliber, job security, remuneration, nature of work, something else impacts the employees’ performance and job satisfaction, which in turn affects the organizations success. It depends on informal or social networks present in that organization. This research suggests that social networking can be effective in

- raising employee productivity and job satisfaction;
- promoting collaboration and co ordination within work groups;
- supporting the exchange of information between cross functional, hierarchical or geographic boundaries; and
- ensuring integrated work effort by supervisors, peers and subordinates.

By analyzing the social network present in organizations and relating them to job satisfaction and performance, managers can systematically assess and support strategically important collaboration and other business decisions. Much work of importance is increasingly accomplished collaboratively through informal networks. As a result, assessing and supporting strategically important informal networks in organizations can yield substantial performance benefits. In addition, network relationships are anchoring points for employees, whose loyalty and commitment may be more to sets of individuals in their network than to a given organization. The research has found that these informal networks are increasingly important contributors to the employee’s job satisfaction and performance. The research has shown that these are strongly affected by elements under management control, such as hierarchical levels and horizontal departments. Social network, although are often overlooked by the management can be critical to organizational effectiveness. Scarce resources ranging from funding and technology support to

executive recognition and promotions tend to go to those employees who can manage formal as well as informal networking.

Social network present in organizations are a powerful managerial tool as it affects the satisfaction and performance of employees. Personal relationships within the organization define and resolve issues impacting group performance. The study indicates that social network influences job satisfaction, employee commitment and employee performance in business organizations in Bangladesh from the following industries – Pharmaceutical, Real Estate, Telecommunication, Banking, FMCGs. In order to maintain a strong networking culture and to be benefited positively from this at both organizational and individual levels, the managers and the employees should:

- identify key influencers at all levels across the organization and outside the organization;
- identify informal networks where sensitive information is required;
- focus on expanding the informal network within and outside the organization; and
- specially, people from sales department of all business sectors should pay an extra attention to maintain their network in order to achieve personal as well as organizational success.

References

- Blinder, A.S. (1990). *Paying for Productivity*. Washington DC: Brookings.
- Brass, D. (2000). *Achieving Success through Social Capital: Tapping Hidden Resources in Your Personal and Business Networks*.
- Cross, R. et al. (2001). 'Knowing What We Know: Supporting Knowledge Creation and Sharing in Social Networks'. *Organizational Dynamics*. Vol. 30, No. 2, pp. 100–120. Elsevier Science, Inc
- Miller, K.I. and Monge, P. R. (1986). Participation, Satisfaction and Productivity: A Meta- Analytical Review, *Academy of Management Journal*, Vol. 29, No.4, pp. 727-753.
- Mintzberg and Heyden, L.V.D.(1999). 'Organgraphs: Drawing How Companies Really Work'. *Harvard Business Review*, September-October: pp. 87–94.
- Pfeffer, J. et al. (1994). *Competitive advantage through people: Unleashing the power of the work force*. Boston: Harvard Business School Press.
- Wasserman, S. and Faust, K. (1994). *Social Network Analysis: Methods and Applications*. Cambridge: Cambridge University Press.
- Wu et al. (2009). 'Value of Social Network: A Large-Scale Analysis on Network Structure Impact to Financial Revenue of Information Technology Consultants'. *Working Paper*.