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Leading to the Success: Assessing the Impact of Leadership Skill of Project Managers on Success of a Software Project

Nidhi S. Natrajan*, Tuhin Chattopadhyay**

Abstract

Software projects are getting complex and dynamic in the current global scenario and consequently understanding the factors which affect the success of such complex projects becomes critical. The impact of leadership styles of the project managers on the success of the software projects is considered for this study. This study compares the differences in the impact generated by task-oriented leadership, relation-oriented leadership, change-oriented leadership, and boundary-spanning leadership on the success of the software project. ANOVA was applied to compare the difference among the four leadership styles exhibited by project manager in bringing success to the software project. The result of the study shows that Task Behaviours, Relation Behaviours, Change Behaviours, and Boundary-spanning Behaviours aspects of leadership exhibited by project manager are significantly different from each other. The mean of relationship behaviour is significantly different from that of other three-task behaviour, change behaviour, and boundary spanning behaviour; the mean of task behaviour is significantly different from that of change and boundary spanning behaviours and the mean of change and boundary spanning behaviour is not significantly different from each other. The data were collected from 150 respondents; the size of data can be increased for better result. Thus the result of the study emphasizes the use of people skill by the project manager.

Keyword: Software Project Success, Leadership Quality, Task Behaviours, Relation Behaviours, Change Behaviours and Boundary-Spanning Behaviours

Introduction

Study and research of critical factors affecting the success of a software project have been important for academicians and practitioner. Role of organisational factors and especially leadership skill of a project manager have huge impact on the success rate of the project (Thite, 2009). Project managers are involved during all the phases of projects and also bridge the gap between technical task force and the management. A manager's people skills are essential for achieving the ultimate business goal (Thamhain, 2008). The software projects which have reported success by delivering defect free software give credit to the mutual support in the team and display of leadership skills by the project managers (Nasir & Sahibuddin, 2011). As highlighted by Brown (2008), improper alignment of organisational leadership and leadership style of project is also one of the reasons for the failure of software projects. The recent studies have highlighted the importance of leadership behaviour which helps in managing the teams in an effective manner, leading to the success of the project (Whitley, 2006).

The leadership behaviour can be broadly classified into four categories: Task behaviour, Relationship behaviour, Change behaviour, and Boundary spanning behaviour. Yukl, Gordon & Taber (2002) have shown in their study that the task behaviours are related to goals of improving efficiency, the relations behaviours have the primary objective of improving human resources and relations, and the change behaviours are aimed at improving innovation and adaptation. All three categories of leadership behaviours have an important role to play in effective leadership. Similarly Burke, Stagl, Klein,

* Assistant Professor, Galgotias Business School, Greater Noida, Uttar Pradesh, India. E-mail: nidhi.natarajan@gmail.com
** Architect - Decision Science, ValueLabs, Hyderabad, Andhra Pradesh, India. Email: dr.tuhin.chattopadhyay@gmail.com

Goodwin, Salas, & Halpin (2006) also established the importance of task behaviour, relationship behaviour, and change behaviour. Apart from this they also introduced the concept of boundary spanning behaviour, which helps in managing global virtual teams while protecting the team and handling external environmental factors.

Significance of the Study

The failure rate of software projects motivates to understand the factors responsible for the success of the software projects. People skills of a manager are essential for achieving the ultimate business goal, by successful implementation of the project. Improper alignment of organisational leadership and leadership style of project are also some of the reasons for the failure of software projects. Hence it is important to understand the four different leadership behaviours which a project manager must exhibit as per the need and phase of the software project.

Literature Review

The importance of leadership was well recognised for the success of project as a result of effective team performance since nineties (Bass, 1990) but research on the importance of different leadership style has emerged recently (Foels, Driskell, Mullen, & Salas, 2000).

The behavioural aspects of leadership were indicated by the charismatic leadership theory developed by Conger & Kanungo (1988). The theory relies on leader's effect on followers and society in general and stemmed from their radical vision of a new world, the exhibition of their own behaviour for followers to imitate, and the confidence expressed in the followers' capacity to achieve challenging goals.

So it's not only the leadership quality of the project manager but his personality traits that help in managing the team in an effective manner. Personality of a project manager which includes leadership quality is directly correlated to the project success (Malach-Pines, Dvir & Sadeh, 2009). Rajagopalan (2009) emphasized that emotional intelligence and leadership traits of a project manager are very important to understand the software project success. He also highlighted that these qualities become all the more important when project teams are virtual. PMBOK Guide also emphasizes on flexibility, good judgment, and negotiation skill of project manager for the success full implementation of a software project.

The identification of behavioural categories started with the concept of two factor model of leadership behaviour proposed by Bass *et al.* (2003), the categories being task-oriented leadership and relation-oriented leadership. Importance of leadership skills for engineers and technical professionals is strongly professed by practitioners. Neumeyer (2012) Manager, Artex Aircraft, Kumar, Business Alliances Manager, HLL (2007), and Smith, Project Leader, A-Dec, Inc (2007) emphasize on the need of developing leadership skills. According to them technical proficiency without leadership skill have undesirable project results. It is important to built rapport with the team members. These skills help project managers in exercising influence and authority to direct the team for working towards the ultimate goal and also enable them to act as bridge between business need and results of technical team. Hence for a project manager it is vital to have a balance between the relation-oriented and task-oriented behaviours (Avolio, Sosik, Jung, & Berson, 2003; Bass, 1990; Clark & Clarck, 1990; Munduate & Medina, 2004; Yukl, 2002).

The term Technical Leadership Style has been discussed by Korrapati & Rapaka (2009). They did the survey by using referral sampling. Results established the importance of Technical Leadership Style in the project success. Effectiveness of leadership and team process was studied by Randeree & Ninan (2010) for 42 projects across various organisations in UAE. The data were collected by using instrument given by Cohen & Baily (1997). The result which was prepared by computing average score, suggested the need to address issues related to inappropriate leadership skills, for project success. In a qualitative investigation done by Jablokow, Jablokow & Seasock (2010) to understand the relation between leadership styles and team process, data were collected using interview method and descriptive analysis was performed to analyze the data. 26 CIOs and Vice Presidents responded and the interview notes were transcribed, reviewed, and analyzed collaboratively by two of the authors, using standard coding techniques.

Leadership not only requires the manager to control and monitor the task properly, while maintaining a good rapport with the employees, but it is also required by them to possess or develop the ability to bring about changes and innovations. The importance of change

management is the modern organisation's response to global competition. The project based work in software development is susceptible to changes and the project manager should be able to anticipate the change and guide the team accordingly.

A transformational leader is the one not limited by his or her followers' perception, the main objective being to bring about change and transformation in the followers' thinking, in order to handle changing environmental and project need. To bring about change it's important for the project manager to challenge and inspire the team members (Schultz & Schultz, 2010). According to them the project manager must possess broad knowledge of field, has a self-promoting personality, high/great energy level, and willing to take risk and use irregular strategies in order to stimulate his team members to think independently. He should show individualised consideration and provide intellectual stimulation.

Gradually emerged a model with three categories of leadership behaviour, namely task-oriented, relationship-oriented and change-oriented. Relevance of change-oriented leadership has been highlighted by numerous studies (Ervall & Arvonen, 1991; Gil, Ares & Barrasa, 2003; Yukl, 1998; Yukl, Gordon & Taber, 2002). This category emphasize that it's important for the project manager to monitor the environment, encourage the innovative thinking, explain the need for change to the team members and to take personal risk.

In an exploratory study conducted by Oz & Sosik (2000) data were collected from chief information officers and their immediate subordinates, for understanding the reason for abandonment of information system in the United States. And lack of corporate leadership was identified as one of the factors responsible for project failure. Factor analysis was applied on the 30 items considered in the study, with a sample size of 151. In an article on High Failure Rate of Information System Projects, Shore (2005) suggests that in order to counter leadership challenges in such project at different stages of project different leadership styles have to be displayed like charismatic, task oriented and relationship style . This balanced approach is important as different stages of a project as well as different projects need different approach of leadership, to make it successful.

Most of the global projects have virtual team and hence understanding the reasons for the success of these projects is very essential. In a virtual team appropriate leadership style contributes a lot to the success of a project, as in such teams collaboration and communication become complex (Arnold, 2008). Thite (2009) conducted a study on importance of leadership skills of a project manager by using Multi-factor Leadership Questionnaire (Bass & Avioli, 1990). Responses were obtained from 36 organisations, where 70 managers and 228 subordinates filled the questionnaire. One-Tail test was used to analyze the data and result reflected upon importance of different leadership styles for different phases of a software project. Leadership skills are all the more important in the global projects. Effective management of onshore and offshore resources is critical for project success. Leadership model based on Bass (1990) was also used by Korrapati & Rapaka (2009) in their study for understanding impact of leadership skills on project success. The study analyzed 110 responses from offshore software developers. The result confirmed the importance of leadership skills on offshore data centers too. Thus in projects having virtual teams, appropriate leadership skills of project manager is vital (Erdem & Ozen, 2003). Importance of people skill, along with the use of appropriate project management tools and applications has been emphasized by them.

As the software projects are spanning across the geographical boundaries, the role of manager in handling and managing virtual teams is becoming complex. The success does not come with just assigning the task and clarifying the roles but with proper communication, empowerment of team, and relationship building with the team. This collaboration must be topped with innovative thinking and readiness, to bring change to accommodate new team dynamics in global scenario. Considering the needs of global projects another category of leadership behaviour is recommended for the success of the software projects i.e. boundary spanning leadership.

Burke, Stagl, Klein, Goodwin, Salas, & Halpin (2006) conducted a meta-analysis of 50 empirical studies to understand the relationship between team leadership behaviours and team performance. The result not only emphasized on the importance of task-oriented and relationship-oriented leadership but also highlighted the importance of boundary spanning communication behaviours, which include project manager's role in acting as a buffer to protect the team, leadership behaviouras an ambassador to represent the team and communicate the team's achievements to outsiders, collaborating and coordinating with others outside the team, scanning the environment, and negotiating resources for the team.

Ancona & Caldwe (2007) too supported the boundary spanning behaviour of a leader in the organisations.

According to the new research, not only understanding of leadership skill, but that of leadership behaviour is important for effective team performance (Ancona & Caldwe, 2007). As per Yukl, leadership behaviour can be divided into four categories - task behaviours, relation behaviours, change behaviours, boundary-spanning behaviours.

This study focuses on the importance of these four different categories of the project manager's leadership behaviour, where the four categories are defined as follows:

Task Behaviours: Clarifying roles, Short-term planning, Monitoring operations, and Developing

Relation Behaviours: Supporting, Consulting, Recognising, Empowering, and Developing

Change Behaviours: Envisioning change, Taking risks for change, Encouraging innovative thinking, and External monitoring

Boundary-spanning Behaviours: Buffering, Representing, Collaborating, Negotiating, and External monitoring

Research Design

The studies conducted till now definitely emphasize the need of leadership skills for technical people specially project managers. But most of the studies fail to empirically establish the results or do not cover all the aspects which evaluate impact of leadership skill of a project manager on the success of a software project. Our study uses questionnaire based on the leadership behaviour described by Yukl, Gordon & Taber (2002), Burke, Stagl, Klein, Goodwin, Salas, & Halpin (2006), and Ancona & Caldwe (2007) for collecting data.

Sampling Design

The research was carried out in the software organisation of India. We have taken the sample of IT professionals by dint of stratified random sampling resulting into total sample of 150. Respondents were given the self-administered questionnaire over electronic-mail and were required to rate the questions on a seven-point Likert scale. Thirty questionnaires were sent to each IT organisation and the number of final respondents who participated in the study by returning the self-administered questionnaire was 150. Korrapati & Rapaka (2009), in their study for understanding impact of leadership skills on project success, analyzed 110 responses from offshore software developers. Bakhsheshi & Najed (2011) also used Likert scale to measure leadership skill of project managers.

Data Collection Design

The data were collected from five leading IT firms of the country through a questionnaire where each item was measured in Likert scale.

The leadership behaviour is measured through a composite score of following items which are as follows:

Task Behaviours:

1. Clarifying roles
2. Short-term planning
3. Monitoring operations
4. Developing

Relation Behaviours:

1. Supporting
2. Consulting
3. Recognising
4. Empowering
5. Developing

Change Behaviours:

1. Envisioning change
2. Taking risks for change
3. Encouraging innovative thinking
4. External monitoring

Boundary-spanning Behaviours:

1. Buffering
2. Representing
3. Collaborating
4. Negotiating
5. External monitoring

Statistical Design

ANOVA was used to compare the difference between the four different leadership behaviours on software project success.

Model and Variables Definition

The following model is used for testing hypotheses:

H_0: There is no significant difference among the mean of four leadership behaviour.

$\mu_1=\mu_2=\mu_3=\mu_4$

H_1: At least one of the mean is significantly different from others.

$\mu_1=\mu_2=\mu_3\neq\mu_4$

The variables are explained as following:

Success of the Software Project

Successful software projects are often defined as meeting business objectives, delivering on time and within budget, and meeting requirements (Nasir & Sahibuddin, 2011).

Leadership Behaviour

Task Behaviours

- Clarifying roles: Assigning tasks and explaining job responsibilities, task objectives, and performance expectations
- Short-term planning: Determining how to use personnel and resources to accomplish a task efficiently, and determining how to schedule and coordinate unit or team activities efficiently
- Monitoring operations: Checking on the progress and quality of work, and evaluating individual and unit or team performance
- Developing: Providing coaching and advice, providing opportunities for skill development, and helping people learn to improve their skills

Relations Behaviours

- Supporting: Acting considerately, showing sympathy and support when someone is upset or anxious, and providing encouragement and support when there is a difficult, stressful task.
- Consulting: Checking with people before making decisions that affect them, encouraging participation in decision making, and using the ideas and suggestions of others
- Recognising: Providing praise and recognition for effective performance, significant achievements, special contributions, and performance improvements
- Empowering: Allowing substantial responsibility and discretion in work activities, and trusting people to solve problems and make decisions without getting prior approval
- Developing: Providing coaching and advice, providing opportunities for skill development, and helping people learn to improve their skills

Change Behaviours

- Envisioning change: Presenting an appealing description of desirable outcomes that can be achieved by the unit or team, describing a proposed change with great enthusiasm and conviction
- Taking risks for change: Taking personal risks and making sacrifices to encourage and promote desirable change in the organisation
- Encouraging innovative thinking: Challenging people to question their assumptions about the work and consider better ways to do it
- External monitoring: Analyzing information about events, trends, and changes in the external environment to identify threats and opportunities for the organisational unit or team

Boundary-spanning Behaviours

- Buffering: Protecting the team from outside pressures and interference and filtering external communications to the team
- Representing: Acting as an ambassador for the team, promoting and communicating the team's achievements to others outside the team
- Collaborating: Collaborating with others outside the team and managing and coordinating external relationships, schedules, and tasks

Table 1: Tests of Between-Subjects Effects

Dependent Variable: Project Success					
Source	*Type III Sum of Squares*	*Df*	*Mean Square*	*F*	*Sig.*
Leadership Styles	50.307	3	16.769	18.473	.000

- Negotiating: Negotiating resources for the team and negotiating goals with internal and external stakeholders
- External monitoring: Analyzing information about events, trends, and changes in the external environment to identify threats and opportunities for the organisational unit or team

Empirical Results

Descriptive Statistic

Descriptive statistic only portraits variables distribution and does not give information as to the relationships between variables. Research descriptive statistic is shown in Table 1.

Discussion

Leadership quality is vital for project managers which finally lead to success of a software project (Gouws & Gouws, 2004). It helps in addressing issues related to people like attitudes, desires, motivations, behaviour in groups, etc. The importance of leadership behaviour of a project manager has been established (Yukl, Gordon & Taber, 2002) and it's been emphasized that if the project manager does not possess these qualities he must acquire them. From the result it is clear that all the four leadership behaviours are important from the point of view of managing and controlling the project team. The mean of relationshipbehaviours is significantly different from that of other three -task behaviour, change behaviour, and boundary spanning behaviour. It is reflected that relative importance of relationship behaviour is more as compared to other three behaviours. Definitely in today's scenario where projects are global and virtual, it becomes extremely important for a manager to build a relation of trust and support, while empowering the team members. As in this type of project there is less face to face interaction, which creates team related complexities. But definitely the efficient and clear distribution of task has to be done, for effective results, which is reflected from the result as the mean of task behaviour is significantly different from that of change and boundary spanning behaviours. If the task is not been managed properly then the results will not be good. As per the result the mean of change and boundary spanning behaviour is not significantly different from each other. Next priority is of change management/ behaviours as the manager needs to inspire the team to be flexible and innovative to counter global competition. Last and not the least, the manager must exhibit boundary spanning behaviours, in order to take care of the external environment of the project.

Limitations and Future Work

The data were collected from 150 respondents; the size of data can be increased for better result. Leadership behaviouris only one of the factors affecting the software project success; other technical and people-related factors could also be combined to understand the success of software projects in a better way. It could be studied in other countries as well.

Conclusion

With the new insights coming in the field of software project management, the importance of team and project managers quality have been realised for its success. The results from our study also show the same. The study of the four different leadership behaviours is reflecting that the task-oriented approach is no more sufficient for the good results, but efficiency can be increased by presence of good leadership skills in a project manager. Even if the skills are not inherent, it is required to develop them. In projects, the leadership role of the project manager must be focused on action and relationship leadership behaviour. Apart from taking care of the technical aspect, it is very important to manage a team effectively. A good team can only deliver desired outcome in presence of able leader. A good leader inspires a shared vision, is a good communicator, exhibits integrity, display enthusiasm, show empathy, has ability to delegate tasks, remains cool under pressure, have team-building skills, and exhibits problem solving skills. All these qualities help in

addressing issues related to people like attitudes, desires, motivations, behaviour in groups.

Apart from this it is extremely important for a project manager to understand which style of leadership is effective in various stages of the software project. As the software projects are spanning across the geographical boundaries, the role of manager in handling and managing virtual teams is becoming complex. The success does not come with just assigning the task and clarifying the roles but with proper communication, empowerment of team, and relationship building with the team. This collaboration must be topped with innovative thinking and readiness to bring change to accommodate new team dynamics in global scenario. Relationship behaviour is a must for the project manager to enhance team performance so as to make the project successful. Once a good relationship is established between the manager and the team members, it is easy to assign task, bring about innovative changes and collaborate and negotiate in a global project by exhibiting boundary spanning behaviour.

The study not only emphasizes on the importance of leadership but the different leadership behaviour that a project manager must exhibit, in order to make the team work more effective and hence achieve the success in the project. It is evident from the result that the mean of relationship behaviour is significantly different from that of three - task behaviour, change behaviour, and boundary spanning behaviour. As in the present scenario the project teams are global, hence apart from delegating the task it is extremely important for a project manager to build a good rapport with the team. The team must be able to trust the manager and feel empowered with the right consultation & motivation provided to them. Thus a project manager apart from possessing task behaviour leadership must also possess relationship behaviour, which is most important. After relationship and task behaviours, a manager must exhibit change behaviours for innovative and flexible approach and then the boundary spanning behaviour to manage the global virtual projects. Hence most important behaviour that managers must exhibit is relationship behaviour, then comes the task behaviour and the lowest priority is of change and boundary spanning behaviour.

Reference

Ancona, D., & Caldwell, D. F. (1992). Demographyand design: Predictors of new product team performance. *Organization Science*, 3, 321-341.

Arnold, G. E. (2008). Examining the relationship between leadership style and project success in virtual projects. *Dissertation abstracts international*, 70(01), 150. (UMI no: 3345049)

Avolio, B. J., Sosik, J. J., Jung, D. I., & Berson, Y. (2003). Leadership models, methods, and applications. In W. C. Borman, D. R. Ilgen, & R. J. Klimoski (Eds.), *Industrial and Organizational Psychology* (pp. 277-307). Noboken, NJ: John Wiley & Sons.

Bakhsheshi, A. H. F., & . Nejad, S. R. (2011). Impact of Project Managers' Personalities on Project Success in Four Types of Project. 2nd International Conference on Construction and Project Management IPEDR vol.15 (2011). IACSIT Press, Singapore 181.

Bass, B. M. (1990). From transactional to transformational leadership: Learning to share the vision. *Organizational Dynamics*, 18(3), 19-31.

Bass, B. M., & Avolio, B. J. (1990). *Transformational leadership development: Manual for the multifactor leadership questionnaire*, Palo Alto, California: Consulting Psychologists Press.

Bass, B. M., Avolio, B. J., Jung, D. I., & Berson, Y. (2003). Predicting unit performance by assessing transformational and transactional leadership. *Journal of Applied Psychology*, 88 (2), 207-218.

Burke, C. S., Stagl, K. C., Klein, C., Goodwin, G. F., Salas, E., & Halpin, S. M. (2006). What type of leadership behaviors are functional in teams? A meta-analysis. *The Leadership Quarterly*, 17, 288-307.

Brown, O. (2008). Business and it leaders' behaviorial affects on alignment and project outcome: A comparative leadership study. Dissertation.

Clark, K. E., & Clarck, M. B. (1990). Measures of Leadership.Creensboro, NC: CCL.

Conger. & Kanungo. (1988). The Empowerment Process - Integrating Thery and Practice. *The Academy of Management Review*, 13(3).

Cohen, S. G., & Bailey, D. E. (1997). What makes teams work: Group effectiveness research from the shop floor to the executive suite. *Journal of Management*, 23(3), 239-90.

Erdem, F., & Ozen, J. (2003). Cognitive and effective dimensions of trust indeveloping team performance. *Team Performance Management*, 9(5/6), 131-135.

Ervall, G., & Arvonen, J. (1991). Change-centered leadership: An extension of the two dimensional model. *Scandinavian Journal of Mangement*, 7, 17-26.

Foels , R., Driskell, J. E., Mullen, B., & Salas, E. (2000). The effects of democratic leadership on group mem-

ber satisfaction: An integration. small group research, 31, 676. Retrieved from www.sagepub.com/gastil-study/articles/.../Foels_Driskell_Mullen_Salas.pd...

Gil, F., Ares, A., & Barrasa, A. (2003). Dirección yliderazgo organizacional: gestión y cambio [Management and Organizational Leadership: Administration and Change]. Encuentros*en Psicología Social,* 5, 95-100.

Gouws, J., & Gouws, L. E. (2004). Fundamentals of software engineering project management. Published by Melikon Pvt Ltd.

Jablokow, K. W., Jablokow, A. G., & Seasock, C. T. (2010). IT leadership from a problem solving perspective. *Information Technology and Management, 11, 107-122.* DOI 10.1007/s10799-010-0071-4.

Korrapati, R., & Rapaka, S. R. (2009). *Successful Leadership Styles in Software Projects in Offshore Centers in India.* Las Vegas, Proceedings of the Academy of Information and Management Sciences, 13(2).

Kumar, M. (2007). *All engineers need leadership skills.* Retrieved from: http://toostep.com/insight/all-engineers-need-leadership-skills.

Malach-Pines, A., Dvir, D., & Sadeh, A. (2009). Project manager-project (PM-P) fit and project success. *International Journal of Operations & Production Management,* 29(3), 268-291.

Munduate, L., & Medina, F. J. (2004). Power, Authority and Leadership. In Ch. Spielberger (Ed.), *Encyclopedia of Applied Psychology.* San Diego: Academic Press.

Nasir, Mohd H. N., & Sahibuddin, S. (2011). Critical success factors for software projects: A comparative study. *Scientific Research and Essays*, May, 6(10), 2174-2186. Retrieved from http://www.academic-journals.org/SRE ISSN 1992-2248 ©2011 Academic Journals.

Neumeyer, W. (2012). Leadership for Engineers Auxilium, Inc Retrieved from: www.auxilium-inc.com/leadership-for-engineers/.

Oz, E., & Sosik, J. J. (2000). Why information systems projects are abandoned: A leadership. *The Journal of Computer Information Systems,* 41(1), 66. ABI/INFORM Global.

Rajagopalan, S. (2009). Relationship between emotional intelligence and transformational, transactional, and laissez-faire leadership styles of information systems project managers in virtual teams. Dissertation, Capella University.

Randeree, K., & Ninan, M. (2011). Leadership and teams in business: A study of IT projects in the United Arab Emirates. *International Journal of ManagingProjects in Business,* 4(1), 28-48. Emerald Group Publishing Limited1753-8378DOI 10.1108/17538371111096872.

Shore, B. (2005). Failure Rates in Global IS Projects and the Leadership Challenge. *Journal of Global Information Technology Management*, 8(3). ABI/INFORM Global pg. 1

Schultz, D. P., & Schultz S. E. (2010). *Psychology and work today: An introduction to industrial and organizational psychology.* 10th edition, Pearson.

Smith, J. (2007). *Engineering project management*. Retrieved from http://www.auxilium-inc.com/engineering-project-mgmt/.

Thamhain, H. (2008). Team leadership effectiveness in technology-based project environments. *IEEE Engineering Management Review,* 36(1), 165-180.

Thite, M. (2009). Leadership: A critical success factor in IT project management. Retrieved from http://spiral.kaist.ac.kr/courses/2009/fall/ICE0538/Reading.Materials/Thite_leadership_critical.pdf, IEEE

Whitley, R. (2006). Project-based firms: New organizational form or variations on a theme? *Industrial and Corporate Change,* 15(1), 77-99.

Yukl, G. (1998). *Leadership in organizations.* (4th Ed.). Englewood Cliffs, NJ: Prentice-Hall.

Yukl, G. (2002). *Leadership in organizations*. (5th ed.). Upper Saddle River: Prentice-Hall.

Yukl, G., Gordon, A., & Taber, T. (2002). A hierarchical taxonomy of leadership behavior: Integrating a half centuryof behavior research. *Journal of Leadership and Organizational Studies,* 9(1). 15-32.