From Project Management to Project Leadership

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From Project Management to Project Leadership

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ABSTRACT
It is virtually a truism that good leadership practices can help project managers with attaining the desired project outcome. However, a better understanding of which leadership practices enable project managers to be more effective warrants further investigation. Subsequently, in this study, we investigate project leadership in the context of IT and its consequences on project work and project outcome. Project Leadership is conceptualized as a second order construct consisting of Project Management, Autonomy Support, and Emotional Intelligence. Survey data from 327 project team members across 15 industries suggests that skillful project managers who demonstrate good leadership practices can foster among team members individual learning and team relatedness as well as higher job satisfaction that ultimately contributes to perceived project success.

Keywords
Project Leadership, Individual Learning, Relatedness, Job Satisfaction, Project Management, Project Teams, IT Projects

INTRODUCTION
A project is perceived as a temporary endeavor undertaken to meet objectives that are unique and limited in scope. Nonetheless, in spite of its temporality, and maybe because of its temporality, project work has become ubiquitous in organizational life, especially in the context of IT organizations. Many IT professionals spend their workdays as teammates in multiple projects that run concurrently. In spite of its inherent temporal nature, project work has become a very permanent form of work for a large segment of the IT workforce. This largely ignored phenomenon invites further investigation of project work.

Project management practices are designed to ensure that the appropriate project metrics are developed and managed to achieve the desired project outcome. Many studies demonstrate their positive effect on project success (Jugdev and Muller, 2005). However, the effect of project management practices outside the immediate objectives of a particular project and their unanticipated impact on the project team environment have not been explored fully. In fact, they are largely ignored given the misguided assumption regarding the temporality and limited scope of projects. In this study, we investigated the potential and validity of expanding the measurement of prescribed project management processes (Fong, 2003) to a socio-technical project leadership approach. This socio-technical project leadership approach consists of project leaders' social practices that address the needs of the individual and of the team as well as technical practices that address project task engineering and control needs.

A second-order construct representing the socio-technical project leadership approach and consisting of Project Management, Autonomy Support, and Emotional Intelligence, was developed as a measure of Project Leadership. We then investigated the effect of this project leadership construct on team member learning, relatedness and job satisfaction in IT project team environments, and perceived project outcome. Building on survey data that were collected from 327 teammates in a variety of environments in 15 industry sectors, the developed Project Leadership construct was validated and found to have a positive influence on all dependent variables in the model—individual learning, relatedness, job satisfaction, and perceived project outcome. This suggests that expanding the investigation of project management to project leadership is likely to provide further insight regarding project work and its impact on organizational life.

Next, we explore the literature on project leadership that underlies our conceptual model, then we describe the data collection and analysis, and subsequently discuss the findings and their implications.
PROJECT LEADERSHIP

The objective of any project manager should be to create an environment that provides personal incentives and motivation for individuals to cooperate and collaborate with their team members and collectively learn to better understand and enable the team to produce timely project deliverables and the achievement of project goals and objectives. Leveraging the appropriate management tools, techniques and methodologies alone may not yield the desired results. Wateridge (1995) found that non-technical factors such as cultural issues play a crucial role in determining the outcome of an IT project. A successful project requires more than sound organizing and controlling management skills, it requires leadership. John Kotter (2001) stated that leadership is different from management. Traditionally, management is defined as planning, organizing, controlling, staffing, evaluating and monitoring (Shriberg and Kumari, 2005). These aspects are more technical in nature and focus on the engineering of a project. Although management and leadership tend to overlap, leadership centers on vision, motivation, direction and serving as a role model (Kouzes and Posner, 2002). Thite (2000) compared similar concepts of transactional and transformational leadership in which transformational leadership is a necessary augmentation for project success. While transactional leadership deals more with project engineering, transformational leadership addresses the social factors (i.e., attributed charisma, idealized influence, intellectual stimulation, inspirational motivation, and individualized consideration) as identified by Bass and Avolio (1990). Faraj and Sambamurthy (2006) compared related concepts of directive and empowering leadership. Jiang et al. (2001) investigated the task-related and people-related aspects of a project leader’s performance. The practices of the project leader deal with both the technical and social aspects of projects and are concern with both the tasks at hand and the people involved. Clearly, both management and leadership practices are needed for effective IT project management.

John Adair (1973) held that the effectiveness of a team leader is determined by their ability to meet three overlapping “Action-Centered” areas of need: the needs of the team, of the task, and of the individual. The following Table 1 outlines the three overlapping dimensions of an Action-Centered IT project leader:

<table>
<thead>
<tr>
<th>Task</th>
<th>• define the task</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• make the plan</td>
</tr>
<tr>
<td></td>
<td>• allocate work and resources</td>
</tr>
<tr>
<td></td>
<td>• control quality and rate of work</td>
</tr>
<tr>
<td></td>
<td>• check performance against plan</td>
</tr>
<tr>
<td></td>
<td>• adjust the plan</td>
</tr>
<tr>
<td>Team</td>
<td>• maintain discipline</td>
</tr>
<tr>
<td></td>
<td>• build team spirit</td>
</tr>
<tr>
<td></td>
<td>• encourage, motivate, give a sense of purpose</td>
</tr>
<tr>
<td></td>
<td>• empower the team</td>
</tr>
<tr>
<td></td>
<td>• ensure communication within the team</td>
</tr>
<tr>
<td></td>
<td>• develop the team</td>
</tr>
<tr>
<td>Individual</td>
<td>• attend to personal problems</td>
</tr>
<tr>
<td></td>
<td>• praise individuals</td>
</tr>
<tr>
<td></td>
<td>• give status</td>
</tr>
<tr>
<td></td>
<td>• recognize and use individual abilities</td>
</tr>
<tr>
<td></td>
<td>• develop the individual</td>
</tr>
</tbody>
</table>

Table 1. Action-Centered Leadership Model Components (Adair 1973)

Cadle and Yeates (2004) stated that the Action-Centered Leadership model is very useful to connect management and leadership in the context of IT project management. Adair’s model is also in line with the Socio-Technical approach to IT project management as discussed by Marchewka (2006). The integration of these three action-centered leader dimensions can be achieved when both social and technical project leadership practices are employed during an IT project. In the following paragraphs we discuss each of the social and technical aspects of project leadership and the integration of task, team and individual needs. Project leader social practices address the needs of the team and of the individual and technical practices...
related to aspects of project task management. These combined practices form the social-technical approach to project leadership.

Project Leader Social Practices

In the context of this study we focused on two dimensions of project leadership: the social or human and the technical or process side of project management. For the project leader to be effective, he or she must effectively demonstrate such attributes as: 1) the ability to communicate, 2) the ability to deal with people, 3) the ability to create and sustain relationships, and 4) the ability to organize (Marchewka, 2006). Three of these four attributes deal with the human side of project management and also coincide with the team and individual component needs outlined by Adair. People are the most important resource of an IT project. Human resource management focuses on creating and developing the project team members as well as understanding and responding appropriately to the behavior side of project management.

In this social context, the Self-determination theory proposes that the interpersonal context (such as the project team environment) influences the extent to which individuals are autonomous. The concept of autonomy support (Deci & Ryan, 1985) means that an individual in a position of authority (i.e., a project manager) takes the other’s (i.e., a team member’s) perspective, acknowledges the other’s feelings, and provides the other with pertinent information and opportunities for choice, while minimizing the use of pressures and demands. An autonomy-supportive project leader might, for example, provide team members with necessary information and insights while encouraging them to use this information in solving problems or to achieve an objective in their own self-directed way. Furthermore the project leader is autonomy supportive when he encourages team members to ask questions and then responds to those questions fully and carefully along with listening to how team members would like to accomplish their tasks. Edward Deci (1996) affirmed "The evidence is clear that if people in one-up positions act to facilitate a sense of autonomy and competence in others whom they teach or supervise, those others will remain interested and energized."

A related important human resource project management practice is to be emotionally intelligent. It is important for a project manager to understand and manage their own emotional triggers and also know how to control their emotions. As a project leader, they must model the behavior that they want to see in other team members. They must also understand the emotions of others and have empathy for others which implies thoughtfully considering team member feelings when making decisions and develop the ability to see situations through the eyes of others. Team members must also feel comfortable in sharing their feelings with the project leader and in turn feel understood. Empathy is particularly important today as a component of leadership for at least three reasons: the increasing use of teams; the rapid pace of globalization; and the growing need to retain talent (Goleman, 2004). Empathy plays a key role in the retention of talent, particularly in today's information economy. Leaders have always needed empathy to develop and keep good people, but today the stakes are higher. When good people leave, they take the company's valuable knowledge with them. When project leaders exhibit a high level of "emotional intelligence," they will know and practice the best way to influence, motivate, and inspire others to follow them. Emotional intelligence with effective communication skills creates the "presence" of leadership (O'Brien, 2006).

Project Leader Technical Practices

Marchewka outlined the four project leader attributes needed for effectiveness (of which the first three were human or socially oriented). The fourth attribute, the ability to organize, is also an essential attribute as it is the main and most documented project leadership practice that defines and manages the scope, schedule and budget of the project. These three project technical activities create project team objectives and associated levels of the work breakdown structure to enable effective task management. The project leader must therefore establish, initiate, administer and communicate effective project team organizational processes and control mechanisms to ensure that all defined project tasks are completed and deliverables are achieved as expected.

The project leader must make decisions and provide a sense of direction for the project team while serving as a stable hub for project communications (Michalski, 2000). By effectively establishing and communicating a detailed project plan to the project team, members will understand their objectives and goals and what is needed to achieve them. The organization, planning, communication and reporting methods developed and utilized by the project leader appear to have a noteworthy influence on team collectiveness and collaboration. The more orderly, organized and well documented the project is, the more likely project team members are to cooperate, collaborate and share knowledge. The organization and reporting mechanisms utilized relate to aspects of control whereby the project leader can make team members responsible for given project tasks and deliverables along with the associated timeline to accomplish them. Defining roles and responsibilities provides a mechanism for clearly assigning accountability to those responsible for carrying out a task at all levels of the organization. When roles and responsibilities remain unclear, multiple untested assumptions often displace them. Clear
definition of roles and responsibilities promotes autonomy, ownership, and accountability. According to Karl Weick, accountability is enacted and reenacted in organizations forming interlocking routines, mutually reinforcing interpretations, and patterns of communication (Weick, 1995). When individuals are confident about what is in their control and what is not, they can step forward to accept responsibility with full knowledge of what is expected from them. Roles and responsibilities exercised out of a sense of ownership inspire commitment. Defining roles and responsibilities identifies the interdependencies of team members’ tasks and the specific benchmarks for performance and creates boundaries circumscribing the project work to be done.

The most commonly used reporting and control mechanisms are the project plan and Gantt chart. A Gantt chart is a graphical illustration that communicates and compares a project’s planned tasks and activities with actual progress of the associated individuals over time. Through the methodical use of work breakdown structures, Gantt charts and project plans, the project leader must thoroughly define and communicate the role and participation of each team member including their project tasks, the corresponding completion dates, team member and task interdependencies in an overall systemic view of the project and its deliverable objectives.

RESEARCH STUDY CONCEPTUAL DESIGN

Good project leadership practices as discussed previously are important in achieving collaboration and commitment in the project team environment. The project leadership concept is constructed as a second order latent variable and is hypothesized in the context of this study to include the social and technical dimensions discussed previously, consisting of: project management, autonomy support, and emotional intelligent competencies.

The Project Leadership concept is constructed as a second-order latent variable to improve overall measurement model fit and is hypothesized in the context of this study to consist of: project management, autonomy support, and emotional intelligence.

A component of good project leadership practices is Project Management which exists when the project leader has developed and conveyed a comprehensive project plan where project team members thoroughly understand the overall project goals and objectives, along with how their tasks fit into the big picture.

H1.1: Project Management has a positive effect on project leadership.

Autonomy Support exists when the project leader is supportive of each team member providing necessary information and choices, along with encouraging team members to ask questions and pursue self-directed tasks.

H1.2: Autonomy Support has a positive effect on project manager leadership.

Emotional Intelligence exists when the project leader is emotionally aware of their own and their team member emotions and feelings and is empathetic and understanding of those emotions and feelings.

H1.3: Emotional Intelligence (E.I.) has a positive effect on project leadership.

The following Figure 1 outlines the hypothesized component model of good project leadership.
Project Leadership Effect on Team Members

The effect of good project leadership can be greater than successful project outcomes. Benefits from action-centered project leadership include personal growth of individual project team members. The ability to increase their knowledge, feel connected to their fellow team members, and enjoy their experiences, all of which add to the perceived impact and organizational value of the project.

Team Member Learning

Continuous individual and organizational learning is a necessary objective for building intellectual capital if an organization expects to stay competitive in a dynamic global economy. In the context of IT project teams it is hypothesized that good project leadership will enable team members to learn new things or enhance their comprehension and knowledge of a domain of interest.

How supportive and emotionally intelligent a project leader is along with how thorough and comprehensive they are in defining and communicating the project plan to team members, will influence the perceived level of learning of project team members.

H2: Good Project Leadership has a positive effect on his or her individual learning.

Team Member Relatedness

Relatedness refers to the need for belongingness or the desire to feel connected to others. As outlined by Ryan and Deci (2000), relatedness is a basic human need. It is as fundamental as the need to be loved or cared for (Baumeister & Leary, 1995). A connected project team offers an environment for an individual that enhances personal growth, both socially and intellectually.

How supportive and emotionally intelligent a project leader is, along with how thorough and comprehensive they are in defining and communicating the project plan to team members, will influence the level of integration into the perceived relatedness in project team members.

H3: Good Project Leadership has a positive effect on team member Perceived Relatedness.

H4: The level of team member Perceived Relatedness has a positive effect on his or her individual learning.

H5: The level of team member perceived Relatedness has a positive effect on his or her job satisfaction.

Continuous individual and organizational learning is a necessary objective for building intellectual capital if an organization expects to stay competitive in a dynamic global economy. In the context of IT project teams it is hypothesized that when a team member learns new things or enhances their comprehension and knowledge of a domain of interest, the individual will perform better and enjoy their job more.

The degree to which a team member perceives that they have learned something and their personal knowledge has grown will have an effect on their overall disposition and job satisfaction.

H6: The level of a team member’s perceived individual learning has a positive effect on his or her job satisfaction.

The degree to which a team member perceives that they have learned something and their personal knowledge has grown will affect their perception of how well they performed and lived up to their own expectations on the project team.

H7: The level of a team member’s perceived individual learning has a positive effect on his or her perception of the project outcome.

We have hypothesized that project leadership creates a foundation of collaborative relationships and a project team environment that enhances individual learning, relatedness and ultimately job satisfaction. It is also hypothesized that the degree of relatedness and job satisfaction of each team member also contributes to their perception of the overall project outcome.

The degree to which a team member perceives that they are connected to their fellow team members will affect their perception of how well they have performed and lived up to their own expectations on the project team.

H8: The level of a team member’s perceived Relatedness has a positive effect on his or her perception of the project outcome.
How satisfied a team member is with their job and their overall disposition on the project team will influence their assessment of the project outcome.

**H9:** The degree of team member job satisfaction has a positive effect on his or her perception of the project outcome.

The following Figure 2 outlines in detail the complete hypothesized model of the causal relations for good project leadership practices on individual learning, relatedness, and job satisfaction. It also depicts the hypothesized mediation effects of individual learning and relatedness on project leadership for individual learning and job satisfaction. Additionally, the mediation effects of job satisfaction on individual learning for perceived project outcome are illustrated.

![Figure 2. Project Leadership Hypothesized Model](image)

**DATA COLLECTION AND RESEARCH DESIGN**

For the sake of generalizability, data were collected from a variety of environments in 15 industry sectors including financial services, software, manufacturing, retail, government and universities. A sufficient sample of each industry sector was obtained to detect any variance among sectors. All types of team members were surveyed including IT and business professionals who have participated in a recent IT related project. The survey instrument was developed based on a combination of literature review and the results of a preliminary qualitative study. The instrument was thoroughly tested and fine-tuned to ensure construct validity and appropriateness. Upon completion of instrument development and refinement, the survey was administered online. A qualified e-mail invitation was sent to approximately 3000 referrals who indicated that they either work in the IT field or rely on information technology in their daily work activities. Over 800 individuals completed the survey of which 378 identified themselves as team members who had participated in a recent IT related project, which they specifically named and described. The other respondents were mainly project managers, sponsors, auditors or other administrative positions. Special attention was given to selecting only individuals who served as team members because the survey items of interest specifically asked questions relating to their observations of the practices of the project leader on their specific project.

**DATA ANALYSIS**

Data collected was analyzed using descriptive statistic methods and exploratory factor analysis (EFA) using SPSS 15 and measurement invariance testing, confirmatory factor analysis (CFA) and structural equation modeling using AMOS 7 to determine the validity and reliability of the model and its associated constructs. The 378 respondent records were scrutinized for missing data items and limited variation pattern responses and subsequently trimmed to 327. Through the EFA and CFA measurement model procedures, seven factors emerged from this dataset which aligned with the survey design expectations. From three of these factors, a second order factor was constructed for Project Leadership. The item loadings of all factors passed convergent and discriminate validity tests along with a measurement equivalence test evaluating a randomly split dataset and were highly significant. All factors exceeded the Crombach Alpha reliability threshold of .70 including the second order factor. See Table 2 for the number of items per construct and corresponding reliability statistic.
A structural equation model was built in AMOS to test the hypothesized IT Project Leadership conceptual model. Paths for mediation testing were also added to determine whether the applicable direct effects were significant (i.e. Project Leadership to the dependent variables. The model fit statistics were CFI .952, AGFI .835, RMSEA .068, and SRMR .042. The fit statistics clearly indicate that the structural construct relations of the conceptual model represent well the underlying perceptions of the 327 team members regarding their respective project leadership practices and the project team environment.

<table>
<thead>
<tr>
<th>Construct</th>
<th>Items</th>
<th>Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Leadership</td>
<td>3</td>
<td>.89</td>
</tr>
<tr>
<td>Project Management</td>
<td>4</td>
<td>.79</td>
</tr>
<tr>
<td>PM Autonomy Support</td>
<td>3</td>
<td>.86</td>
</tr>
<tr>
<td>PM Emotional Intelligence</td>
<td>3</td>
<td>.90</td>
</tr>
<tr>
<td>Individual Learning</td>
<td>4</td>
<td>.89</td>
</tr>
<tr>
<td>Relatedness</td>
<td>3</td>
<td>.87</td>
</tr>
<tr>
<td>Job Satisfaction</td>
<td>3</td>
<td>.90</td>
</tr>
<tr>
<td>Project Outcome</td>
<td>3</td>
<td>.89</td>
</tr>
</tbody>
</table>

Table 2. Construct number of survey items and factor reliability

Table 3 lists the Project Leadership second-order factor loadings.

<table>
<thead>
<tr>
<th>PM Leadership Practices Construct</th>
<th>Item Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Management</td>
<td>.910</td>
</tr>
<tr>
<td>PM Autonomy Support</td>
<td>.961</td>
</tr>
<tr>
<td>PM Emotional Intelligence</td>
<td>.912</td>
</tr>
</tbody>
</table>

Table 3. Project Leadership Second-Order Factor Loadings

**FINDINGS**

All but two of the hypothesized IT Project Leadership conceptual model construct casual relations were statistically significant. It is also insightful to note in table 4 that the statistically significant paths were highly significant (.001 level or better). The second order construct (Project Leadership) developed was found to be a good collective representative of the social-technical approach to project management, and has a positive influence on all dependent variables in the model (individual learning, relatedness, job satisfaction, and perceived project outcome). The strongest positive influence of Project Leadership was on team member relatedness which indicates that the project leader is able to create a true “team” environment. Team member relatedness also has a positive influence on individual learning and job satisfaction. This implies that the team environment created by the action-centered project leader promotes knowledge collaboration and job satisfaction. The mediation effects of individual learning and relatedness were also confirmed. The effect of Project Leadership on team member job satisfaction is partially mediated both by individual learning and relatedness. This indicates that project leader practices that influence team member job satisfaction are enhanced by the social-technical approach which positively influences individual learning and relatedness. The effects of team members’ perceived project outcome is directly affected by project leadership and is enhanced by a team member’s job satisfaction. This implies that a team member will think more favorably about the results of a project when he or she reflects on the project from a positive disposition. Surprisingly, the hypothesized link between individual learning and perceived project outcome was not supported, and therefore in this context is fully mediated by team member job satisfaction. Also surprising is that hypothesis 8 was not supported, indicating that team member relatedness does not directly influence their perceived project outcome, and therefore is also fully mediated by job satisfaction. Thus it can be inferred that action-centered social-technical project leader practices during IT projects is essential for promoting learning, relatedness among members and especially job satisfaction in a project team environment.

The following Table 4 lists these hypothesized path relations and regression statistics.
The following Figure 3 outlines in detail the complete model of the causal relations for good project leadership practices.

![Figure 3: Project Manager Leadership Practices Complete Model](image)

**DISCUSSION AND IMPLICATIONS**

This quantitative research study explored factors that influence individual learning and relatedness among team members during information technology related projects. Based on the noteworthy findings in this study it is reasonable to state that good project leadership and communication foster a collaborative project team environment that yields more than just favorable project outcomes. This environment increases the likelihood of information and idea exchange among team members which provides stimuli for collaboration and individual learning. Furthermore, the increased level of project team relatedness will positively influence both individual learning and job satisfaction. We were not able to measure project team employee retention in this study; however, the positive effects of job satisfaction and employee disposition suggests that a
higher retention level is probable for skilled team members during IT projects, which have been plagued by the loss of valuable employees during long term projects.

The concept of an Action-Centered project leader which included task, team, and individual was discussed. The Action-Centered leader concept is a generalization of the variability of human interaction, but is a useful tool for thinking about what constitutes an effective leader in relation to the job that he or she must do to be an effective project manager. Situational and contingent elements in an IT project team environment call for different responses by the leader. The effective project leader carries out the social and technical practices and exhibits the Action-Centered behaviors defined by Adair to achieve the desired project objectives. The practices of an effective project leader should therefore follow a social-technical approach to project management. The second order Project Leadership construct developed in this study is a good measure of what is required in order to be an effective leader in an IT project team environment.

CONCLUSION

Information Technology Project Leadership is a Social-Technical approach that will have a noteworthy positive influence on the project team environment. The Project Leadership construct dimensions of Project Management, Autonomy Support, and Emotional Intelligence define the social and the technical practices that when followed, have a more encompassing influence on an information technology project team and environment than project success alone.

REFERENCES

