

THE PROJECT MANAGER AS A TEAM LEADER—THE ROLE OF TEAM DEVELOPMENT PRACTICES

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1. Introduction

Human resource management (HRM) practices are considered critical to organizational success. However, its importance in the project environment is still unclear. On the one hand, HRM is an important part of any project management body of knowledge. On the other hand, several recent empirical studies in the area of project management have found HRM to have a very limited effect on project success. The motivation for this study was to further investigate the effectiveness of HRM in the project environment.

This paper focuses on one of the most important HRM processes in projects, called project team development. Team development is under the responsibility of the project manager, who is expected to engage in particular team development activities, such as training, rewarding, and collocation. In spite of the above, project managers tend to invest a majority of their effort in other types of project management activities such as scheduling, budgeting, risk management, controlling, and other project management practices (Zwikael & Globerson, 2004).

In order to further explore this area, the objectives of this paper are: (1) to explore the effectiveness of team development on project success, (2) to identify specific practices that have positive influence on project success, and (3) to investigate potential moderator variables that may influence the relationship between team development and project success. As a result, this paper may contribute to better understand the uniqueness of team development practices in the project environment and the effectiveness of current practices in several scenarios. In the following sections, the relevant literature is reviewed, and the research model, hypotheses, results, and contribution of this study to theory are presented.

2. Literature Review

This section reviews the relevant literature in the areas of teams, project teams, and project team development.

2.1 Teams

With the growing complexity of the work environment, many organizations have reconstructed individual work procedures into team processes to increase productivity and enhance organizational effectiveness (Katzenbach & Smith, 1993; Mohrman, Cohen, & Mohrman, 1995; Banker, Field, Schroeder, & Sinha, 1996; Dulebohn & Martocchio, 1998). A team is defined as “a small number of people with complementary skills who are committed to a common purpose, performance goals and approach for which they are mutually accountable” (Katzenbach & Smith, 1993). Team members have specific roles or functions and the life span of membership is limited (Cannon-Bowers & Salas, 1998).

The HRM literature identifies particular types of team development activities to have an impact on team work and team performance (Mohrman et al., 1995; Dulebohn & Martocchio, 1998). Weinkauff and Hoegl (2002), for example, identify seven types of team development activities and recommend that these be executed by project managers in order to enable successful accomplishment of the project at hand. These include controlling, securing information flow, conflict resolution, coaching, and development, rewarding, granting of autonomy, and feedback. The latter was found to be most effective when it was provided on rational processes, rather than on interpersonal processes, but only for high-ability groups (Kernaghan & Cooke, 1990). Additional activities such as providing direction, defining clear organizational goals, engaging in effective communication, autonomy, recognition, and rewarding have also been identified as having a strong influence on innovative team performance (Thamhain, 2004a; Ochi, 2006).

Six types of work teams have been identified in the group and team literature (Hackman, 1990; Sundstrom, De Meuse, & Futrell, 1990; Sundstrom, McIntire, Halfhill, & Richards, 2000). These include project, production, service, action/performing, management, and advisory teams. Due to its complexity and uniqueness, this current

paper focuses on the first team type - project teams. Developing collaborative project teams is challenging because it requires participants to shed dated views, unlearn old habits, develop new theories of action, and adopt new behaviors.

2.2 Project teams

Project teams are referred to as teams that carry out defined, specialized, time-limited projects that disperse upon completion of project (Chen, Donahue, & Klimoski, 2004). Members of project teams tend to come from different departments or units within the organization, as is apparent in project and new-product development teams (Sundstrom et al., 2000). In many instances, project teams are comprised of white-collar professionals who collaborate on an assigned or original project; their output may be somewhat complex and unique. Furthermore, the tasks that project teams engage in usually involve the application of considerable knowledge and expertise (Simpson, 2006). Such project teams have been associated with high levels of innovation and autonomy (Sunstrom et al., 1990).

Project teams are generally cross-functional (Cohen & Baily, 1997; Chen et al., 2004; Cunningham & Chelladurai, 2004). Research has supported many positive outcomes to cross-functional project teams. These include greater external communication and technical quality (e.g., Keller, 2001), creativity (Jassawalla & Sashittal, 1999), and group performance (Pelled, Eisenhardt, & Xin, 1999). However, the literature has also demonstrated negative outcomes for these teams, including lower levels of cohesion (Jehn, 1997), slower reaction times (Hambrick, Cho, & Chen, 1996), increased costs (AitSahlia, Johnson, & Will, 1995), and employee stress (Keller, 2001). Few researchers have gone as far as to suggest that cross-functional teams have the potential to “worsen morale, exacerbate divisiveness, and elevate cynicism among participants” (Jassawalla & Sashittal, 1999).

There are three phases in development of project teams (Weinkauff & Hoegl, 2002). The first phase is referred to as the “conceive phase.” During this phase, the project manager and team are focus on project goal setting, determination of approach, and resource planning. This is followed by the “organizing phase” in which the manager and team members engage in boundary establishment, delineation of relationships, team task design, determination of values and norms, and the securing of resources. Finally, during the “accomplish phase,” most of the activities are directed toward enabling the team members to work together as effectively as possible in order to successfully complete the project at hand. The activities included in this phase are managerial control and security of information flow, conflict resolution, coaching and development, rewarding, granting of autonomy, and the provision of feedback. Research findings show the latter to be most effective when provided on rational processes, rather than on interpersonal processes, but only for high-ability groups (Kernaghan & Cooke, 1990). Leadership roles, such as direction, effective communication, autonomy, accomplishment, and recognition, and the defining of clear organizational objectives, have been shown to have a strong influence on innovative team performance (Thamhain, 2004b; Ochi, 2006).

2.3 Projects and Project Team Success

A project is defined as any series of activities and tasks that have a specific objective to be completed within certain specifications, have defined start and end dates, and have funding limits (Kerzner, 2006). A project has four phases: initiation, planning, execution, and closure (PMI, 2004). This paper focuses on the execution phase of the project, which team development is part of it. During this phase, team members engage in actual work and team related activities in order to advance and successfully complete the project at hand. As a result, a large amount of effort is directed toward the coordination of people and resources in order to enable effective performance (PMI, 2004).

Both technical skills and interpersonal competencies are associated with being an effective team member, and they influence team performance. The latter competencies refer to all of the knowledge, skills, and abilities required working effectively with others, while pursuing a common goal (Cannon-Bowers & Salas, 1998). Thus in order to enable technically skilled members to work effectively as a team, it is recommended that team development be pursued.

Project success is usually measured according to four dimensions: (1) schedule overrun, (2) cost overrun, (3) project performance, and (4) customer satisfaction of project outputs (Kerzner, 2006; Wu & Wang, 2006). Research has shown that the impact of each variable on project success is dependent on the life cycle stage of the project (Belout & Gauvreau, 2004; Pinto & Slevin, 1988; Shenhar, Tishler, Dvir, Lipovetsky, & Lechler, 2002). Hence it is important to clearly identify which one of the four project phases is under investigation in a given project team study. This study focuses on team development which is a major activity identified in the execution phase of the

project (PMI, 2004). Project execution methods have been found to have a positive correlation with project success (Tatikonda & Rosenthal, 2000).

The literature also mentions some factors that help to distinguish among different project scenarios, and hence influencing project management practices and project success. For example, Dvir, Sadeh, and Malach-Pines (2006) use risk oriented variables such as complexity, technology, pace, and novelty in order to analyze projects. However, this study uses three other factors - project duration, project cost, and project risk - that are being used in many studies to analyze project management practices and effort (e.g. Kerzner, 2006; Meredith & Mantel, 2006; Oltra, Maroto, & Segura, 2005). For example, Swink, Talluri, and Pandepong (2006) found project cost to influence project efficiency. Thamhain (2004b) analyzed the affect that project size and project duration have on team performance. Johnson, Karen, Boucher, & Robinson (2001) analyzed project success as dependent upon project cost. As a result, this paper uses this project duration, project cost, and project risk as potential variables to moderate the effect team development has on project success in different project scenarios.

2.4 Project team development

Project team development is a major effort that a project manager is responsible for in any project. Project team development is defined as the process of taking a collection of individuals with different needs, backgrounds, and expertise and transforming them into an integrated, effective work unit (Thamhain & Wilemon, 1987).

Project team development is included in most project management textbooks and bodies of knowledge (e.g. Kerzner, 2006; Meredith & Mantel, 2006; PMI, 2004). In addition, some studies have found team development very critical to project success and failure. For example, Todryk (1990) revealed that a well-trained project manager is a key factor linked with project success because as a "team builder" a project manager can create an effective team; Tampoe and Thurloway (1993) found that encouraging mutuality, a sense of belonging, providing rewards, and enabling creative autonomy is likely to result in improved project performance; Barczak and Wilemon (1992) found that goal setting, autonomy, and senior management support are significant discriminators of more and less successful new product development team leaders. Thamhain (2004b) suggests project team development to be an ongoing process in order to achieve and sustain high project performance. All these findings emphasize the importance of team development in the project management environment.

However, the literature also suggests some contrasting views. Pinto and Prescott (1988) identify the personnel factor as being only a marginal variable in project success. Belout and Gauvreau (2004) found personnel factors to have an insignificant impact on project success. Ebtehaj and Afshari (2006) did not find HRM practices to have a significant impact on project success in 12 large oil and gas large projects. Huemann, Keegan, and Turner (2007) identified a missing link between the project management literature and the HRM literature regarding the projects as a working form and the project-oriented company. These research findings may explain why HRM practices are rarely performed by project managers (Zwikael & Globerson, 2004). Fortune and White (2006) investigated 15 different studies analyzing critical factors for project success. Team development was not included in any of the project success factors mentioned. Dilts and Pence (2006) investigated the major reasons for project termination. HRM was found as one of the 13 reasons for project termination.

Furthermore, in line with the research findings indicated above, the project management research has not found clear and strong support regarding the impact of HRM practices on project performance and success. Thus, when a project manager has to choose in which activities to engage, in order to bring the project to a successful completion, team development practices may indeed not be of high priority.

Many team development practices appear in the general group and team literature, including the development of communication systems, empowerment, negotiation, problem solving, time management, auditing, creativity, collaboration, focusing on task functions, team maintenance functions, general management skills, setting ground rules, collocation, and others (Stokes, 1990; Richards & Moger, 2000; Williams, 2002; PMI, 2004; Thamhain, 2004b). The majority of these practices are included in this study, which investigates the effect of these team development practices on project success.

However, one team development practice is continuously mentioned as a very important factor in team development. This practice involves setting project goals. Kerzner (2006) emphasizes the importance of the organization to define clear objectives for measuring project success. Zwikael, Shimizu, and Globerson (2005) found that identifying project success measures is a highly executed practice, mainly in Japanese projects. Masters and Frazier (2007) suggest that goal setting has high importance in projects, and mediates the relationship between

project quality activities and project performance. As a result, it is expected to find in this study high correlation between goal setting and project success.

3. Conceptual Framework

In line with the literature, this section introduces three research hypotheses, and the model developed for their investigation.

3.1 Research Hypotheses

1. The impact of team development effort on project success – Due to inconsistencies in the literature, the first hypothesis deals with the level that project success is correlated with the amount of effort invested by project managers in team development practices. Therefore, the first research hypothesis is:

H₁: There is a positive correlation between the effort made towards project team development and project success.

H₀: There is no correlation between the effort made towards project team development and project success.

2. The impact of goal setting practices on project success – In case the first hypothesis is rejected, the literature suggests that team development practices directly related to goal setting still have positive impact on project success.

H₂: Goal-setting team development practices have a positive impact on project success.

H₀: Goal-setting team development practices have no impact on project success.

3. The interaction of project duration, project cost, and project risk with team development on project success – Even if there is no correlation between team development effort and project success, we may find specific scenarios in which the correlation is positive. Three factors, identified in the literature review, are considered important while analyzing projects. These are project duration, project cost, and project risk. In line with the latter, it is proposed to investigate if these three variables serve as moderators between team development effort and project success. Hence, the last research hypothesis is:

H₃: There is a significant interaction between project duration, project cost, and project risk and team development on project success.

H₀: There is no interaction between project duration, project cost, and project risk and team development on project success.

3.2 The Research Model

In order to test the research hypotheses, a model was developed. The model investigates the impact of team development on project success in different scenarios. The independent variable in this model is project team development.

The dependent variable, "project success," is traditionally measured using the "golden triangle," i.e., that the project be completed on time, within budget, and to specification (PMI, 2004). This is the operational mindset, which is influenced by the "get the job done" approach (Dvir et al., 2006). However, several studies support the inclusion of customer satisfaction as a fourth dimension of success (e.g. Lipovetsky *et al.*, 1997; Lim and Mohamed, 1999; Voetsch, 2004; Kerzner, 2006; Zwikael and Sadeh, 2007). Consequently, four project-success variables were used as the dependent variables of this research: schedule overrun, cost overrun, project performance, and customer satisfaction.

Project duration, project cost, and project risk are included as three moderating variables. As a result, the research model is described in Figure 1.

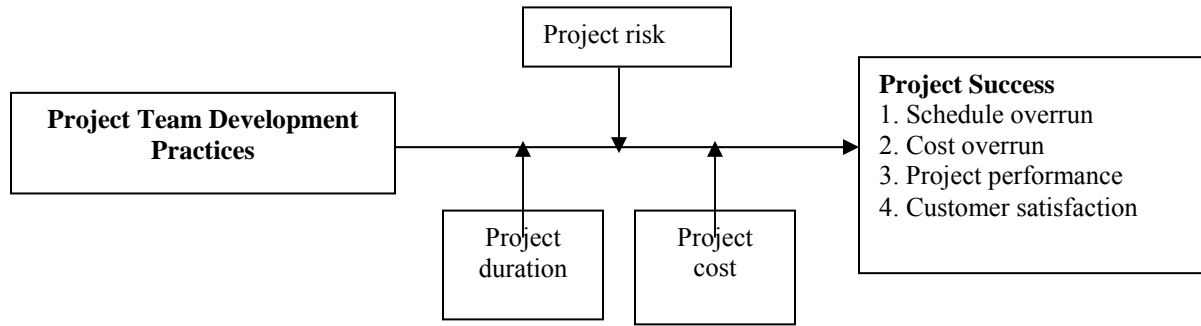


Figure 1: The Conceptual Framework

3.3 The Questionnaires

For each project, two questionnaires were administered: one to the project manager, and the other to his/her supervisor. The questionnaire distributed to project managers focused on the amount of effort he/she had invested in team-development practices. In this questionnaire, project managers were asked to rate the relative amount of effort they extended in each of the particular team development practices during the last project completed. Thirty-two of the major team development practices identified in the management literature (e.g., Stokes, 1990; Richards & Moger, 2000; Williams, 2002; PMI, 2004; Kerzner, 2006) were included in the questionnaire. Goal setting practices, such as defining the project output, quality, and schedule were included among these independent variables to enable the testing of the second hypothesis. Each item was rated on a seven-point Likert scale ranging from one (never) to seven (always) - see Appendix A.

The second questionnaire, distributed to the project manager's supervisor, focused on project success (see Appendix B). The supervisor was asked to refer to the same project that had been referred to by the project manager. This questionnaire included five items pertaining to project success dimensions and level of project risk. Project success results were reported by supervisors in order to avoid "same-source bias" with data supplied by project managers. Project success results were reported by the supervisors using the following four project success dimensions:

1. Cost overrun was measured in percentages from the original plan.
2. Schedule overrun was measured in percentages from the original plan.
3. Project performance was measured on a scale of one (low performance) to seven (high performance).
4. Customer satisfaction was measured on a scale of one (low customer satisfaction) to seven (high customer satisfaction).

Data for the three moderating variables was collected from the questionnaires. Information regarding project duration and project cost was obtained from project managers report on the duration of the project in months and its final cost (indicated in New Israel Shekel (NIS) currency). Level of project risk was determined by the project manager's supervisor according to the estimated level of risk at the beginning of the project, on a scale of one to seven.

3.4 Data Collection

Data was initially collected via 99 project teams from 37 different organizations in Israel during the years 2004-2005. Organizations were chosen from a sample to include both small and large companies and to relatively reflect different industrial sectors across the country. For each organization, a research assistant was assigned to personally visit the organization, meet with top management, explain the importance of the research, deliver the questionnaires, and clarify unclear items. All of the projects included in this study had already been completed, so all of the project

success measures could be evaluated. All questionnaires were anonymous and were personally collected by the research assistants.

Only questionnaires with less than 10% of missing data are included in this study. In addition, based on the team literature, only those project teams that consisted of 15 members at the most were included in this study. This resulted in 63 project teams that were included in this current study. The distribution of the team size in projects included in the research sample is presented in Figure 2.

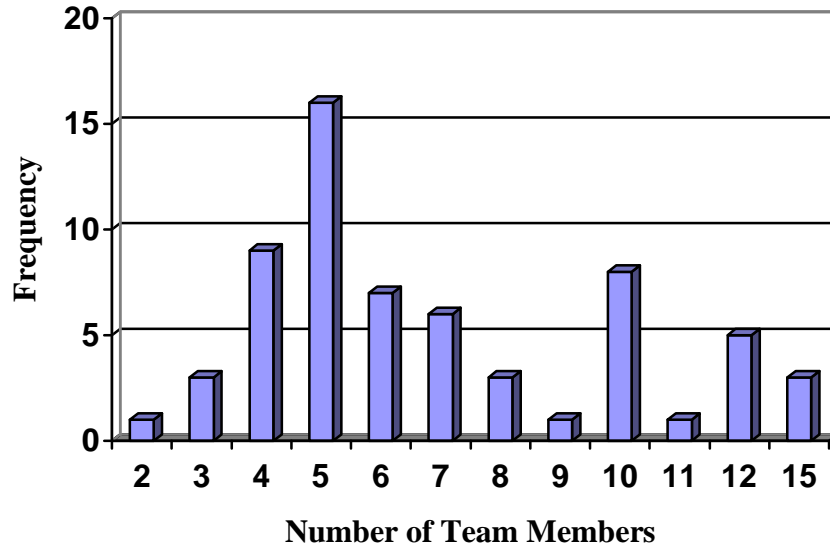


Figure 2 – Distribution of number of team members in the research sample

As can be seen in Figure 2, many projects include small teams with around five members. In fact, 67% of the teams ranged from 2-7 members, whereas the remaining 33% of the teams ranged from 8-15 members projects.

Additional analyses of organization type indicated that 67% of the project teams included in this study came from organizations in the private work sector, whereas 33% came from public sector organizations. Table 1 shows frequency of organization and project type of the 63 projects included in the study.

Table 1 – The distribution of organizations and projects in the research sample

Sector	Organization type	Project type
Software	46%	54%
Communications	11%	3%
Services	13%	6%
Production	11%	0%
Engineering	14%	35%
Others	5%	2%

As can be seen in Table 1, the software industry is highly represented in this study. In this sample, there is also a large number of engineering projects which have been executed in engineering, production, and communications organizations. However, this distribution is representative of the sectors in the local Israeli industry.

The average schedule overrun in these projects was 13%, ranging from 0% ahead of time up to a schedule overrun of 50%. The average cost overrun was 10%, and ranged from 0% to 30% of its original budget. Project performance average was 6.0, ranging from three to seven, while customer satisfaction average was 5.8, ranging from two to seven. These results are similar to other studies (e.g., Zwikael & Globerson, 2004).

4. Results

The objective of this section is to test the three research hypotheses. While analyzing the data, high correlation levels among some of the 32 team development practices have been noticed. Moreover, some practices had a high percentage of missing data. As a result, five items were removed from the analyses in this paper, which consist of 27 team development practices presented in appendix A.

The reliability of the questionnaire was calculated using Cronbach alpha. The index value for all team development items is $\alpha = 0.871$, reflecting high reliability (Cronbach, 1951; Garmezy, Harlow, Jones, & Stevenson, 1967). In the following sections below, we present each of the hypotheses and report the results.

4.1 Hypothesis 1 – The direct impact of team development effort on project success

The first hypothesis claims that there is a positive correlation between the extent of use of project team development practices and project success. A multiple linear regression was conducted to examine the impact team development has on project success measures. In this analysis, the 27 team development practices acted as the independent variables. For each regression run, one project success measures acted as the dependent variable. Table 2 presents the R^2 and F values, and the significance value for each of these regression runs.

Table 2 – Correlations between project team development and project success dimensions

Project Success Measure \ Independent Variables	Index	Schedule Overrun	Cost Overrun	Project Performance	Customer Satisfaction
27 team development practices	R^2	0.45	0.61	0.54	0.58
	F value	1.03	1.52	1.50	1.75
	Sig. value	0.47	0.14	0.13	0.06

* $p \leq 0.05$; ** $p \leq 0.01$

Table 2 shows that there is no significant impact of team development practices on any of the four project success measures.

4.2 Hypothesis 2 - The impact of goal setting team development practices on project success

The second research hypothesis claims that team development practices that are directly related to goal setting have high impact on project success. In order to examine this hypothesis, the impact of all 27 team development practices on project success was analyzed. All 63 projects were divided into “successful” and “unsuccessful” projects. A successful project was identified as one that scored the highest possible result in at least one of the four success dimensions, that is a project with no schedule overrun, or with no cost overrun, or with maximum level of project performance (seven out of seven), or with maximum level of customer satisfaction (seven out of seven). This exercise ended with 25 successful projects and 38 unsuccessful projects in the study sample. These groups of projects were compared according to the level of team development effort invested by project managers. For this purpose, the average effort invested in each team development practice in all successful projects was calculated (on the 1-7 scale). This value was compared with the average effort value in all unsuccessful projects. An ANOVA analysis for mean comparison was conducted and the significance level of the difference in means between successful and unsuccessful projects was calculated for each team development practice using an F test. Eight of the

27 practices were found to be used with significantly higher effort in successful projects than in unsuccessful projects, and are presented in Table 3.

Table 3 – Average extent of use of team development practices between successful and unsuccessful projects

Team development practice	Average extent of use (1-7)		Difference	Sig. Level
	Successful projects	Unsuccessful projects		
(6) Worked towards group cohesion	5.00	4.28	0.72	0.042*
(12) Rewarding individual team members according to individual accomplishments	2.53	1.52	1.01	0.017*
(13) Rewarding the team given goal attainment and additional accomplishments	3.21	1.92	1.29	0.011*
(14) Social recognition of contributions and achievements of individual members	3.58	2.40	1.18	0.018*
(16) Decisions regarding what kind of training is required for team members	4.32	3.36	0.96	0.040*
(19) Project final output	6.47	5.92	0.55	0.009**
(20) Project quality	6.39	6.00	0.39	0.048*
(21) Project schedule	6.42	5.92	0.50	0.038*

* $p \leq 0.05$; ** $p \leq 0.01$

Results in Table 3 show that there are eight team development practices, which are executed significantly more frequently in successful projects, as compared to unsuccessful projects. These team development practices are: (1) group cohesion, (2) rewarding individual team members, (3) rewarding the team, (4) social recognition to individuals, (5) training, and goal setting regarding (6) final output, (7) quality, and (8) schedule. Analysis of these eight team development practices that make the difference between successful and unsuccessful projects reveals that seven practices can be grouped into two areas: (1) reward and recognition – the first four practices are related to rewarding and recognizing the contribution of individuals and the team, and (2) goal-setting – the last three practices are related to defining project objectives. As a result, the second hypothesis can be rejected, meaning that a clear definition of project and team goals significantly improves project success. In addition, reward and recognition also contribute to project success.

4.3 Hypothesis 3 – project duration, project cost, and project risk interact with team development to influence project success

The third hypothesis examines the moderating role of three variables – project duration, project cost, and project risk - on the relationship between team development and project success. For this purpose, a Project Team Development Index (PTDI) was calculated for each project, as the average of all team development practices. This index, also based on a 1-7 scale, measures the overall team development effort in a project.

A linear regression was executed with the each of the four project success measures acting each time as the dependent variable. The independent variables included: (1) the PTDI, representing team development practices (2) project duration, (3) project cost, (4) project risk, and interactions between these two groups of variables. The following model has been developed:

$$\text{Project success} = a_0 + b_1 * \text{PTDI} + b_2 * D + b_3 * C + b_4 * R + b_5 * \text{PTDI} * D + b_6 * \text{PTDI} * C + b_7 * \text{PTDI} * R$$

Where:

PTDI - Project Team Development Index (measured between 1 and 7)

D – Project duration (in months)

C – Project cost (in New Israeli Shekels)

R – Project risk

Table 4 presents R^2 and significance levels for each regression run. For each variable, it also presents significant value for impacting each success measure.

Table 4 – The impact of the interactions among project characteristics and team development practices on project success

Independent variable \ Project Success Measure	Schedule Overrun	Cost Overrun	Project Performance	Customer Satisfaction
Regression R^2	0.30	0.34	0.37	0.21
Regression significance level	0.256	0.184	0.208	0.572
Intercept (a_0)	0.129	0.441	0.233	0.013*
PTDI (b_1)	0.227	0.627	0.934	0.086
Project duration (b_2)	0.944	0.721	0.398	0.599
Project cost (b_3)	0.383	0.490	0.409	0.670
Project risk (b_4)	0.150	0.286	0.961	0.069
PTDI * Project duration (b_5)	0.940	0.729	0.403	0.628
PTDI * Project cost (b_6)	0.758	0.941	0.670	0.521
PTDI * Project risk (b_7)	0.193	0.347	0.917	0.074

* $p \leq 0.05$; ** $p \leq 0.01$

Table 4 shows no significant interactions to influence project success. This means that under these circumstances, project team development has no influence on project success. The next section identifies the potential reasons for these results.

5. Discussion

The initial motivation for this study was to further explore the contradictory results that appear in the literature regarding the impact of project team development on project success. As a result, a model which specifies the effect of team development practices on project success was developed. The results of this study indicate that team development has no significant impact on project success. Only eight team development practices, focusing on reward, recognition, and goal setting, have a positive impact on project success. While these findings are aligned with some other studies (e.g. Ebtehaj & Afshari, 2006; Belout & Gauvreau, 2004), this study has also found that even in long, expensive or high risk projects, there is no significant influence of team development practices on project success.

Investigating the causes for this phenomenon, several reasons may be raised, which include:

1. Lack of authority. In many cases project team members are not directly managed by project managers, but by their functional supervisor. Most employees pay more attention to their functional manager, who is responsible for their promotion, training, and work schedule. Moreover, most project managers have no authority in many team development areas, such as reward and training, which are decided by the functional manager. As a result, team

development practices that work well in other areas are not effective in the project environment (Kerzner, 2006; Zwikael & Globerson, 2004).

2. Time-limited projects. Team development efforts takes time to give fruit, while a project is a temporary time-limited endeavor. Therefore, the positive effect of team development efforts may not manifest themselves by the end of the project. Because of the time limits of projects, project team members are rarely sent to training sessions during a busy project (Herroelen, 2005; Anderson & Joglekar, 2005).

3. Team members' availability. Unlike in other organizational teams, a project team may include employees who participate in several projects. Hence, it is more complicated to develop a team based on team members who spend only part of their time on the project (Kavadias & Loch, 2003; Kerzner, 2006).

4. Heterogeneous teams. Most project team involves members from different disciplines. For example, a software development project may include a programmer, database analyst, quality assurance manager, as well as an account manager, a lawyer, and a training-department representative. Hence, it is more difficult to develop employees with different background into one cohesive team (Globerson & Zwikael, 2002).

5. Project manager assignment. In some cases the project manager is assigned to the project only after it has already started (Foti, 2005). In these cases, the project manager must rush into project planning and execution, which leaves him or her no time for team development activities.

6. Job oriented. In many technological organizations, project managers are assigned to projects due to their aligned technical skills. As a result, many project managers are job oriented, rather than people oriented, having too little team development skills (Meredith & Mantel, 2006).

7. Non-suitable team development practices. Most team development practices that can be used by project managers are generic and have been imported from the general HRM literature. This means that they do not always fit the unique project environment.

8. Lack of proper training. Project managers "do" what project managers know how to do! In other words, project managers know how to perform project management activities, such as scheduling, budgeting, and risk management that are supported by software packages. Therefore, they prefer to engage in such activities, rather than to deal with team development practices. Thus, even if project managers dare to engage in team development activities, they may lack the knowledge and skills to do so effectively. Therefore, engagement in team development activities will not necessarily result in better team performance or project success. Potential evidence is the limited number of team development tools that are provided to project managers in the project management literature (e.g., PMI, 2004).

The following reasons may explain the findings of this paper. The next section will discuss what can be done to make team development an influencing area in project management.

6. Conclusions

Although previous studies, as well as this one, have found team development practices to have low influence on project success, the authors believe that team development practices can and should be performed in the project environment. Yet, project-tailored approaches should be used. These approaches may focus on the team development practices that in this study were found to have a positive impact on project success. These include reward and recognition, and goal-setting practices. The importance of these practices should be strengthened, as has been indicated in the literature (e.g. Masters & Frazier, 2007).

Based on findings from this study, we suggest in the following paragraphs some practical advice, on both the organizational level and the project manager level, to improve team development effectiveness. An organization may better support project managers to improve team development in the unique project environment, as follows (with the support from the literature shown):

1. Assigning the right project manager. Among the desired characteristics, a good project manager should also have characteristics which support him or her in team development, that is, communication skills and leadership (Kerzner, 2006).

2. Assigning the project manager on time. It is critical that the organization brings the project manager into the project as soon as possible, that is, during its initiation phase, if possible (Foti, 2005). This may give the project manager more time to plan and to implement team development practices.

3. Team selection. The organization can increase the authority of project managers in the team member selection process (Foti, 2005). This may result in a more united team.

4. Setting project success measures. Clear and quantitative project success measures help the project team unite behind agreed project objectives (Zwikael et al., 2005). The importance of goal-setting on project success has also been identified in this study.

In addition, some advice is directed towards the project manager in order to improve team development, as follows (literature support in parentheses):

1. Improve relationship with the functional manager. The project manager should establish a better relationship with the functional manager who owns the project resources in a matrix organization (Foti, 2005).

2. Encourage team members to become more involved. Use techniques that encourage team members to actively engage and participate in problem solving, goal setting, and decision making. Participation in these activities influences commitment to team task and goals, resulting in higher levels of motivation and performance (Locke & Latham, 2002). One such technique is "brainstorming," which has been found to bring members closer and get them more involved in the project (Kerr & Tindale, 2004).

3. Choose a team name. This unites the team and identifies their uniqueness, aligned with project objectives (Kerzner, 2006).

4. Improve project personnel management. Clearly discuss with team members their roles in the project (Kerzner, 2006).

5. Define team objectives. These objectives focus on the team members, and are derived from project objectives. This approach may unite the team towards one goal (Masters & Frazier, 2007).

6. Invest more effort in reward and recognition. As has been found in this study, it is very effective when project managers reward the team and individuals during the project. Even when budget is limited, or when project manager's authority is limited, it is still useful to socially recognize the contribution and achievements of individual team members.

7. Define clear goals to your team members. As has been found in this study, it is very effective when project managers present a clear project goal to their team members. This goal may include the required deliverable, expected quality, and timetable for the project. In addition, project managers may work towards the definition of a group goal.

We would like to conclude this paper by commenting on some of the limitations of this current research. First, the generalization of these results and conclusions are somewhat limited, as all of the projects surveyed and data originated in one country. It would be interesting to investigate the effect of cultural values on project team management and success. Thus, future studies may include data collected from different countries. Findings of this study also point to the need of developing new and more efficient team development tools to be used by project managers. Project-tailored team development practices and their potential effect on project success can be developed and tested in future studies. Finally, further research should also investigate team member, project team manager, and top management perceptions of team development activities and project success in different types of organizations, sectors, and projects.

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APPENDIX A - The Team Development Questionnaire

I. Team Building

Please indicate the extent to which you engaged in the following team development practices:

	Never		Sometimes			Always	
(1) developing communication among team members	1	2	3	4	5	6	7
(2) coordination among team members	1	2	3	4	5	6	7
(3) Helping team members in conflict solving	1	2	3	4	5	6	7
(4) Defining role descriptions of each team member	1	2	3	4	5	6	7
(5) Defining status of each team member	1	2	3	4	5	6	7
(6) Worked towards group cohesion	1	2	3	4	5	6	7
(7) Setting common goals for the team	1	2	3	4	5	6	7
(8) Giving formal performance feedback to team members	1	2	3	4	5	6	7
(9) Setting group norms	1	2	3	4	5	6	7

II. Reward and Recognition Practices

Please indicate the extent to which you personally engaged in the following practices:

	Never		Sometimes			Always	
(10) Decisions regarding pay of team members	1	2	3	4	5	6	7
(11) Decisions regarding the job security of team members	1	2	3	4	5	6	7
(12) Rewarding individual team members according to individual accomplishments	1	2	3	4	5	6	7
(13) Rewarding the team given goal attainment and additional accomplishments	1	2	3	4	5	6	7
(14) Social recognition (public recognition and praise) of contributions and achievements of individual members	1	2	3	4	5	6	7
(15) social recognition (public recognition and praise) of team contributions and achievements to the overall organization	1	2	3	4	5	6	7

III. Training Practices

To what extent did you engage in the following practices?

	Never		Sometimes		Always		
(16) Decisions regarding what kind of training is required for team members	1	2	3	4	5	6	7
(17) Selecting who will be trained	1	2	3	4	5	6	7
(18) Deciding the training content	1	2	3	4	5	6	7

IV. Mission Goal Clarity Practices

To what extent did you emphasize the following expectations relating to team mission clarity with reference to?

	Never		Sometimes		Always		
(19) Project final output	1	2	3	4	5	6	7
(20) Project quality	1	2	3	4	5	6	7
(21) Project schedule	1	2	3	4	5	6	7

V. Physical Environment (Collocation) Practices

To what extent did you engage in decisions regarding the physical group environment:

	Never		Sometimes		Always		
(22) Providing the team with an appropriate work setting enabling them to work together as a team.	1	2	3	4	5	6	7
(23) To enable the team members to initially meet with each other at the beginning of the project.	1	2	3	4	5	6	7
(24) To enable the team members meet with each other regularly during the project.	1	2	3	4	5	6	7
(25) Developing a distribution list of all team members of the project	1	2	3	4	5	6	7
(26) To obtain resources to enable team members work at the same physical location	1	2	3	4	5	6	7
(27) To have organizational permission of actually gather most of project team members at the same physical location	1	2	3	4	5	6	7

APPENDIX B - Project Manager's Supervisor Questionnaire

Please Indicate:

1. Time overrun from original planned time schedule approved by customer: _____%
2. Cost overrun at end of project in comparison the budget approved by customer: _____%

Please evaluate the following factors on a 1-7 scale (1=low, 4=middle, 7=high):

	Low		Medium		High		
	1	2	3	4	5	6	7
(3) The extent to which project objectives were obtained in comparison to client approved plans							
(4) The satisfaction level of the client at the end of the project							
(5) The risk level of the project							