



Does Military Integrated Product Team Performance Predict Commercial Cost Reduction Program Success?

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Abstract In the early 1990s, U.S. military leaders began to copy commercial enterprises by assembling integrated product teams (IPTs) to adapt and implement commercial cost reduction programs (CCRPs) for military organizations. However, no evidence was present in the literature that military IPT performance was related to CCRP success. A non-experimental, quantitative correlational study was conducted to determine whether or not a relationship existed between military IPT performance and CCRP success. A questionnaire distribution yielded 80 acceptable responses, and Spearman's rank order correlation and ordinal regression were employed for correlation and predictor significance analyses, respectively. The Spearman's correlation coefficient analysis revealed a strong positive relationship between the IPT Performance and CCRP Success ($r_s = 0.70$, $p < 0.01$). The correlation coefficients between each of the six variables of IPT Performance and CCRP Success were IPT Communication ($r_s = 0.64$, $p < 0.01$), IPT Coordination ($r_s = 0.57$, $p < 0.01$), IPT Balance of Member Contributions ($r_s = 0.51$, $p < 0.01$), IPT Mutual Support ($r_s = 0.65$, $p < 0.01$), IPT Effort ($r_s = 0.36$, $p < 0.01$), and IPT Cohesion ($r_s = 0.67$, $p < 0.01$). The ordinal regression analysis yielded three significant predictors, IPT Coordination (Estimate = 0.23), IPT Effort (Estimate = -0.40), and IPT Cohesion (Estimate = 0.24). Military managers should first assess whether or not their organizational systems are conducive to hosting IPTs and whether or not their organizations contain the necessary resources for hosting IPTs. Future researchers should employ a larger sample and a qualitative study to observe team interactions for identifying the characteristics of teams and team members.

Keywords- Commercial cost reduction programs; integrated product teams; military; team performance; program success; integrated product; and process development.

1. Introduction

Increased global market competition and cuts in military budgets have led business and military leaders to develop and implement programs to reduce costs. These leaders used different approaches such as Lean, Just-in-Time, Six Sigma, warehouse management systems, transportation management systems, equipment redesign, and critical chains to implement cost reduction programs. To facilitate knowledge sharing, the U.S. Department of Defense (DOD)

initiated the concept of integrated product and process development (IPPD) in the early 1990s.

The IPPD is a management technique that: (a) utilizes multidisciplinary teams to simultaneously integrate all activities to optimize the design, manufacturing, and supportability processes; (b) is implemented using integrated product teams (IPTs), which are teams established by organizational managers; and (c) consists of employees well qualified in their particular areas of required expertise (Blanchard & Fabrycky,

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2011). Military IPTs in this study were ad hoc teams assembled by a program manager or other management official to address certain well-defined designated issues as suggested by Blanchard and Fabrycky (2011). Knowledge sharing through communication channels and high-quality teamwork may be crucial for the success of military organizations adapting and implementing commercial cost reduction programs (CCRPs).

2. Research Problem and Purpose

U.S. government leaders agreed to cut \$350 billion from the military budget for 10 years starting in 2011 (The White House, 2011). However, as a result of the Budget Control Act, the reduction may become much higher (U.S. Congress, 2011). On March 1, 2013, President Obama signed a presidential order implementing the Budget Control Act, resulting in employee furloughs in 2013 (Robins Air Force Base, 2013). On December 26, 2013, President Obama signed a budget for 2014 (The White House, 2013), negating the Budget Control Act of 2014. The problem addressed in this study was that the U.S. military required programs that would accommodate smaller budgets (U.S. Congress, 2011) and fewer personnel (Howe, Theole, Pendley, Antoline, & Golden, 2009). The use and levels of performance of IPTs may be crucial for the successes of military CCRPs; however, U.S. military leaders were not sure whether IPT performance is a good predictor of the success of CCRPs.

The purpose of this non-experimental, quantitative correlational study was to determine the existence, strength, and direction of a probable relationship between IPT Performance levels and the success levels of military adapted CCRPs. A research instrument, HGMIL, was used to measure the variables IPT Performance and CCRP Success. The IPT Performance variable consisted of six predictor variables: IPT Communication, IPT Coordination, IPT Balance of Member Contributions, IPT Mutual Support, IPT Effort, and IPT Cohesion. The IPT Performance variable, containing 37 items, was created from the six facets of team work quality (TWQ) (Hoegl & Gemuenden, 2001). The CCRP Success variable, containing 15 items, was created from team performance (Hoegl & Gemuenden, 2001). The Spearman's correlation was used to assess the relationship between IPT Performance and CCRP Success, and between each predictor variable and

CCRP Success. Ordinal regression was used to identify which predictor variables were significant.

3. Research Question and Method

Q1. What is the relationship, if any, between the IPT Performance level and the CCRP Success level in military organizations?

From this research question, the hypotheses were:

H₀. There is no statistically significant relationship between the IPT Performance level and the CCRP Success level in military organizations.

H_a. There is a statistically significant relationship between the IPT Performance level and the CCRP Success level in military organizations.

The survey request reached more qualified respondents within a shorter timeframe than would have been possible with any other means of distribution. The following were the steps employed in accomplishing the study:

1. An existing web-based instrument, HGMIL, was hosted by SurveyMonkey to collect data.
2. A convenience sample of subjects from Northcentral University, the International Society of Logistics, Embry-Riddle Aeronautical University, Robins Chiefs Group, and LinkedIn was selected. The targeting of organizations most likely to contain members or students with experience as IPT members or leaders in CCRP adaptation appeared to be the best method of identifying qualified respondents. The use of organizational email and organizational web site postings also appeared to be the most expedient methods of obtaining qualified respondents.
3. Approval to invite subjects and to collect data was requested to and obtained from leaders of the participating organizations.
4. Approval to collect data was requested and obtained from an Institutional Review Board (IRB) prior to data collection.
5. A pilot study of the HGMIL was accomplished at the Robins AFB, Ga. campus of Embry-Riddle Aeronautical University Worldwide. The pilot study was necessary in order to find and correct any problems prior to administering a larger HGMIL distribution. HGMIL was emailed to the Assistant Director, faculty, and students using Embry-Riddle Aeronautical University email with the intention of receiving 10 to 15 completed responses. The pilot study had to include

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respondents covering the three branches of the U.S military. The pilot study ran for 10 days and 12 useable responses were received. There were no HGMIL problems identified by the respondents.

6. The data collection time period was four months, during which 80 useable responses were received.

7. Data were analyzed using Spearman's correlation, individual and item mean averages, and ordinal regression, and then the findings were composed.

The population for this study was limited to personnel who previously served as IPT leaders or IPT members for adapting CCRPs in U.S. military organizations. These members and leaders served as military personnel, government civilians, and/or contractor civilians during IPT functions. As suggested by Blanchard and Fabrycky (2011), IPT members should possess qualities such as having the appropriate discipline(s) necessary to investigate a specific segment of design, the ability to effectively work together in order to provide solutions for outstanding problems, and the ability to design activities.

4. Assumptions, Limitations, and Delimitations

The population of former IPT leaders and members adapting CCRPs is assumed to be extremely small in comparison with the total population of current or former U.S. military and civilian personnel serving on IPTs. One reason for the small population is that team leaders and members must be highly knowledgeable in the specific fields that are required for IPT membership (Blanchard & Fabrycky, 2011). In order to achieve accurate responses, response bias, which occurs when a respondent consciously or unconsciously misrepresents the truth (Zikmund, Babin, Carr, & Griffin, 2013), should be minimized. Response bias may be problematic in military cultures by the reporting of a more positive view of program success, as opposed to how the program actually fared (McAneny, 2010). In order to mitigate response bias, HGMIL did not include a request for the respondent's name or the name of the program, and the use of SurveyMonkey ensured confidentiality. In order to mitigate a relatively small sample, steps were taken to limit bias and sample error.

The seminal study captured both task-related and social interactions within teams; however, the contents of team tasks or activities, such as measuring the content of communications, were not measured (Hoegl & Gemuenden, 2001). Leadership processes such as goal setting, task planning, task controlling, performance

appraising, and feedback were not within the scope of the TWQ concept (Hoegl & Gemuenden, 2001). These limitations were, therefore, present in this study.

The limitation of team size to a minimum of three persons was necessary in defining a team. The limitation of respondents to first tier IPT members and leaders was necessary for accurately rating CCRP Success. These respondents should have first-hand knowledge of the IPT that produced the CCRP plan and the resulting CCRP Success. Sub-tier members may only have knowledge of their particular team, and these teams may disband prior to CCRP plan execution without the members learning whether, overall, the CCRP was successful or less than successful.

5. Operational Definitions of Variables

IPT Performance (X). The IPT Performance variable consisted of the Hoegl and Gemuenden (2001) Teamwork Quality facets for IPT Communication, IPT Coordination, IPT Balance of Member Contributions, IPT Mutual Support, IPT Effort, and IPT Cohesion. There were 37 items in this scale. The items were rated on a 5-point Likert scale as Strongly Agree = 5, Agree = 4, Neutral = 3, Disagree = 2, and Strongly Disagree = 1. The total IPT Performance scale was computed as the sum of the responses of the 37 items after reverse scoring items 13, 15, 16, 23, 26, 38, and 42. This variable was measured on an interval scale.

CCRP Success (Y). CCRP Success, the criterion variable, represented the results of how CCRPs fared after approximately one year following implementation. CCRP Success was measured by Team Performance items (Hoegl & Gemuenden, 2001), which were items 47 through 61 in Section II of Appendix B. Each of the 15 items was rated on a 5-point Likert scale as Strongly Agree = 5, Agree = 4, Neutral = 3, Disagree = 2, and Strongly Disagree = 1. CCRP Success did not contain any items that were reverse scored.

6. Literature Review

This study concerns the U.S. military management success of CCRP adaptations through the use of IPTs. In the current study, the six TWQ facets (Hoegl & Gemuenden, 2001) were used to measure teamwork performance. IPT Performance consisted of IPT Communication, IPT Coordination, IPT Balance of Member Contributions, IPT Mutual Support, IPT

Effort, and IPT Cohesion. Hoegl and Gemuenden (2001) tested TWQ only within the software development industry. A later study by Dayan and Di Benedetto (2009), however, used the Hoegl and Gemuenden (2001) TWQ facets to measure teams in telecommunications, food, material, software, machinery, chemical, and service technology industries. In both of these studies, the researchers apparently assumed that all team members had sufficient qualifications to achieve product success.

In the Hoegl and Gemuenden (2001) study, the participants included team leaders, team members, and project managers; however, the managers were external to the teams. The inclusion of team member, team leader, and project manager study participants enabled a direct measurement of TWQ. Dayan and Di Benedetto (2009), however, used only product managers for respondents. The success criterion included items such as, scope, schedule, and customer satisfaction (Hoegl & Gemuenden, 2001).

Integrated Product and Process Development

The IPPD concept includes integrated design and production practices, such as concurrent engineering (CE) objectives and team member empowerment (Blanchard & Fabrycky, 2011). Industry leaders' initial implementations of IPPD in the early 1980s expanded CE concepts to include all disciplines associated with the design, development, manufacture, distribution, support, and management of products and services (Blanchard & Fabrycky, 2011). In the early 1990s, the DOD initiated the concept of IPPD, which promotes communication and integration of key functional areas that apply to various phases of program activity (Blanchard & Fabrycky, 2011).

The IPPD process may be tailored for each program, which may lead to different types of phases in which a CCRP may be deployed. For example, only two phases, implementation and post-implementation, were required for the deployment of a non-developmental enterprise resource planning system (Jean-Baptiste, 2009). The implementation phase referred to all necessary effort to place the system into use, including installation, testing, and debugging, while the post-implementation phase referred to the period following successful system installation, implementation, and subsequent requirements for maintenance and improvements (Jean-Baptiste, 2009). Other developmental requirements may be unique to the particular product or process designed.

Integrated Product Teams

A reason for assembling teams is that increasing technical complexities in the business world have caused managers to solicit employee input prior to making decisions (Schein, 2009). An IPT is a multidisciplinary group with the objective of addressing certain designated, well-defined issues, and IPTs consist of qualified individuals who are able to work together (Blanchard & Fabrycky, 2011). The reasons for establishing teams include investigating a specific design, problem solving, and other functions (Blanchard & Fabrycky, 2011).

The benefits of using the CE team method of problem solving include reductions in development cycle time, product life-cycle costs, and engineering changes in the later stages of product development (Boyle, Kumar, & Kumar, 2006). CE success requires team member representation throughout the entire program design process to maximize team member understanding of all relative information (Belay, Helo, Takala, & Kasie, 2011). The extent of functional representation on CE teams had a positive effect on communication quality, and the use of CE teams enhanced communication within organizations (Boyle et al., 2006). A commercial form of an IPT is the new product development team, which focuses on speed-to-market and product success (Dayan & Di Benedetto, 2009).

The U.S. government may use IPTs for both problem solving and contracting services. A contracting team is composed of government employees referred to as contracting officer representatives, who may serve during contract planning, contract formation, and contract management (U.S. Merit Systems Protection Board, 2005). The duties of the contracting officer representatives include serving on panels (i.e., IPTs) for evaluating proposals and bids, performing technical reviews of contractor proposed changes, and providing technical information (U.S. Merit Systems Protection Board, 2005).

Teamwork Quality Facets

Communication. Communication has been defined as "the extent to which there is sufficient frequent, formal, informal, direct, and open communication" (Dayan & Di Benedetto, 2009, p.131). Communication is the most elementary facet of TWQ, and team members should have direct communication with all other team members (Hoegl & Gemuenden, 2001). A lack of team member openness (i.e., withholding important

information) hinders the integration of team member knowledge and experience (Hoegl & Gemuenden, 2001). The reduction of informal communication within a team will lead to reduced frequency of communication, and may harm TWQ since teams will not be able to acquire the full set of information possessed by individual team members (Dayan & Di Benedetto, 2009). The object of communication is to ensure that all team members understand each team member's statements or proposals (Fruchter & Courtier, 2011).

Coordination. Coordination has been defined as "the extent to which individual efforts are well structured and synchronized within the team" (Dayan & Di Benedetto, 2009, p.131). Coordination means that teams must develop and agree on a common task-related goal structure that has clear subgoals for each team member that is free of gaps and overlaps (Hoegl & Gemuenden, 2001). The coordination of project activities, such as team autonomy and flexibility to adapt, related strongly to organizational support (Drouin, Bourgault, & Gervais, 2010).

Balance of Member Contributions. Balance of member contributions has been defined as "the extent to which team members are able to bring in their expertise to their full potential" (Dayan & Di Benedetto, 2009, p.131). The interrelatedness and current status of team member contributions also determines the quality of teamwork performed, and many activities should be delegated to individual members working on parallel tasks (Hoegl & Gemuenden, 2001). The sharing of task-related knowledge is critical for teams with innovative tasks, as these teams often have members whose expertise is in different areas (Hoegl & Gemuenden, 2001). A cross-functional team may not function properly if some members could not share ideas; therefore, idea sharing is essential to TWQ in that team member contributions are balanced with respect to each member's specific knowledge and experience (Hoegl & Gemuenden, 2001).

Mutual Support. Mutual Support has been defined as "the extent to which team members help and support each other in carrying out their tasks" (Dayan & Di Benedetto, 2009, p.131). The intensive collaboration of team members depends on a cooperative rather than competitive mind set, and competitive behavior in a team leads to distrust and frustration (Hoegl & Gemuenden, 2001). Mutual Support in teams fosters

the integration of team member expertise and is, therefore, a critical aspect of quality team collaboration (Hoegl & Gemuenden, 2001). Mutual Support within a team is more likely to occur in a climate where team members feel that decision makers are unbiased and free of deception (Dayan & Di Benedetto, 2008).

Effort. Effort has been defined as "the extent to which team members exert all efforts to the team's tasks" (Dayan & Di Benedetto, 2009, p.131). It is important for everyone on the team to know and accept the work norms concerning sufficient efforts in order to achieve high TWQ and avoid conflict among team members (Hoegl & Gemuenden, 2001). A uniformly high level of effort by all team members is fundamental to the quality of collaboration (Hoegl & Gemuenden, 2001). Team leaders have an effect on team effort, as team leader knowledge and consistency were antecedents of authentic leadership. These factors affected team member satisfaction with the leader, improved organizational commitment, and, as a result, promoted extra effort by team members (Peus, Wesche, Streicher, Braun, & Frey, 2012).

Cohesion. Cohesion has been defined as "the extent to which team members are motivated to maintain the team" (Dayan & Di Benedetto, 2009, p.131). High TWQ may not be achieved without an adequate amount of team cohesion, and the members' desires to keep the team going will decrease if team members lack cohesion (Hoegl & Gemuenden, 2001). An adequate level of cohesion is also required for team members to collaborate (Hoegl & Gemuenden, 2001). Team cohesion links team member contribution and effort with team ability to reach a timely decision (Dayan & Di Benedetto, 2009). Cohesiveness between team members was positively related to intelligence and skills (Al-Rawi, 2008).

7. Results and Evaluation of the Findings Power, Reliability, and Test of Normality

In order to determine if the number of useable responses received was sufficient, a post hoc G*Power analysis using a medium effect size estimate (equal to a G*Power calculated odds ratio of 2.33), a two-tailed test, an alpha level of 0.05, and a total sample size of 80 yielded a power level of approximately 0.88. An a priori G*Power analysis using a medium effect size estimate (equal to a G*Power odds ratio of 2.33), a two-tailed test, an alpha level of 0.05, and desired power of 0.80 indicated that 67 participants would be required.

Cronbach's Alpha was used to determine the reliability for IPT Performance, CCRP Success, and for each of the six predictor variables. IPT Performance reliability was $\alpha = 0.90$, and CCRP Success reliability was $\alpha = 0.98$. For the six predictor variable reliabilities: (a) IPT Communication was $\alpha = 0.79$, (b) IPT Coordination was $\alpha = 0.81$, (c) IPT Balance of Member Contributions was $\alpha = 0.69$, (d) IPT Mutual Support was $\alpha = 0.89$, (e) IPT Effort was $\alpha = 0.74$, and (f) IPT Cohesion was $\alpha = 0.89$.

The Kolmogorov-Smirnov (K-S) test was employed to test CCRP Success results for normal distribution. The K-S test yielded evidence that CCRP Success data were not normally distributed; therefore, non-parametric tests used were Spearman's correlation coefficient analysis. The Spearman analysis was used to find the correlation between IPT Performance and CCRP Success and the correlation between individual predictor variables and CCRP Success. Ordinal regression was used to determine which, if any, predictor variables were significant.

HGMIL Responses Regarding Team Member Information and Demographics

Item 1 was the respondent agreement to complete the questionnaire. Item 2 concerned team member statuses in which 38 participants responded as military, 20 participants responded as civil service employees, and 13 participants responded as contractor employees. Nine participants claimed a combined service of two or all three categories. All three military branches were represented in item 3. Item 4 eliminated responses for teams with less than three members. Item 5 concerned the type of program planned, and 33 participants listed more than one type of program. Thirty-five respondents were IPT leaders (item 6), and item 7 was used to ensure that members of sub-level teams would not respond. Item 8 and item 9 concerned respondent age during IPT membership and respondent gender, respectively. Eight of the respondents were female.

Program Responses and Respondent Age Brackets

Table 1 provides the programs identified by the respondents, each program's response frequencies, and each program's percentage of total responses. Table 2 provides respondent age during team membership.

Table 1

Program Response Frequency

Program	Frequency	Percentage of Total
Lean	23	18.0
Equipment redesign	21	16.4
Six Sigma	15	11.7
Outsourcing to implement a cost reduction program	15	11.7
Critical Chain	11	8.6
Workload location centralization	11	8.6
Enterprise resource planning system	7	5.5
Just-in-Time	6	4.7
Radio Frequency Identification	5	3.9
Transportation management system	4	3.1
Warehouse management system	4	3.1
<i>Other</i>		
Training software	3	2.3
Toyota Business Process (productivity)	1	0.8
IETM (Electronic training manuals)	1	0.8
Information systems	1	0.8
Totals	128	100

Table 2

Respondent Age Brackets

Age	Number of Respondents	Percentage of Total
Under 25	1	1.25
25-35	16	20.00
36-45	33	41.25
46-55	22	27.50
Over 55	8	10.00
Totals	80	100.00

Correlation between IPT Performance and CCRP Success

The correlation coefficient between IPT Performance and CCRP Success was $r_s = 0.70$, which indicated a high positive correlation between IPT Performance and CCRP Success ($p < 0.01$). The null hypothesis was, therefore, rejected, and the alternative hypothesis was accepted. The following figure is a scatterplot of the correlation.

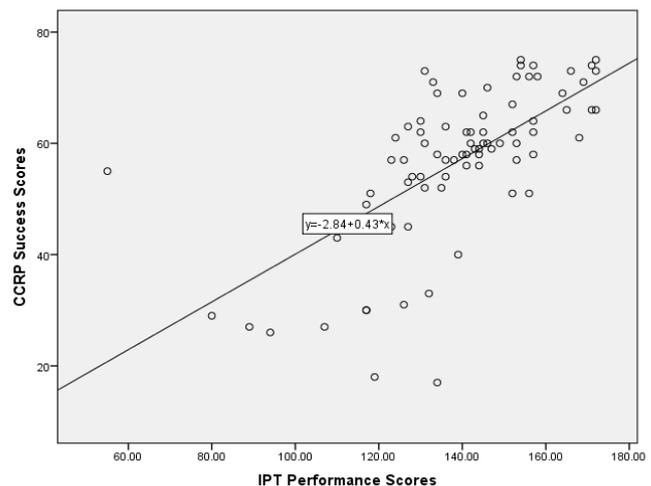


Fig 1. IPT Performance versus CCRP Success.

Predictor Variable Results

IPT Performance consisted of six predictor variables: IPT Communication, IPT Coordination, IPT Balance of Member Contributions, IPT Mutual Support, IPT Effort, and IPT Cohesion.

The correlation coefficient between the IPT Communication performance and CCRP Success was $r_s = 0.64$, which indicated a high positive correlation between IPT Communication and CCRP Success ($p < 0.01$).

The correlation coefficient between the IPT Coordination performance and CCRP Success was $r_s = 0.57$, which indicated a high positive correlation between IPT Coordination performance and CCRP Success ($p < 0.01$).

The correlation coefficient between the IPT Balance of Member Contributions and CCRP Success was $r_s = 0.51$, which indicated a high positive correlation between IPT Balance of Member Contributions and CCRP Success ($p < 0.01$).

The correlation coefficient between IPT Mutual Support and CCRP Success was $r_s = 0.65$, $p < 0.01$, which indicated a high positive correlation between IPT Mutual Support and CCRP Success.

The correlation coefficient between IPT Effort and CCRP Success was $r_s = 0.36$, $p < 0.01$, which indicated a moderate positive correlation between IPT Effort and CCRP Success.

The correlation coefficient between IPT Cohesion and CCRP Success was $r_s = 0.67$, $p < 0.01$, which indicated a high positive correlation between IPT Cohesion and CCRP Success.

Ordinal Regression Analysis

Ordinal regression analysis was performed to determine which of the six predictor variables were significantly predictive of CCRP Success. Although the predictor variables had statistically significant bivariate relationships with the CCRP Success criterion variable in the Spearman's correlation analyses, only three of the six predictor variables had a statistically significant effect on CCRP Success. First, IPT Coordination was significantly predictive of CCRP Success (Estimate = 0.23, Wald = 5.29, $p = 0.021$). Second, IPT Effort was significantly predictive of CCRP Success (Estimate = -0.40, Wald = 11.10, $p = 0.001$). Third, IPT Cohesion was significantly predictive of CCRP Success (Estimate = 0.24, Wald = 11.71, $p = 0.001$). The

negative effect of IPT Effort on CCRP Success was unexpected given the positive Spearman correlation between IPT Effort and CCRP Success.

8. Evaluation of the Findings and Recommendations

IPT strengths and weaknesses can be noted by analyzing the means of the IPT Performance items. The relative military IPT strengths ($M > 4.00$) were: communicating frequently, spontaneously, and directly; sharing program-relevant information; establishing goals; reaching consensus; putting forth great team effort; understanding the importance of being a team member; and the program being important to the team. The relative military IPT weaknesses ($M < 3.50$) concerned team member conflict resolutions, team members fully pushing the program, and team members making the program their highest priority.

Two reverse scored items' response means scored close to neutral (3). The first concerned much communication being conducted through mediators ($M = 2.96$). Thirty-four percent ($n = 27$) of the respondents chose Agree (4) or Strongly Agree (5) that much communication was conducted through mediators. Thirty-five percent ($n = 28$) of the respondents selected Disagree (2) or Strongly Disagree (1) that much communication was conducted through mediators. From further analyses of the individual results, highly successful, successful, and unsuccessful military IPTs were found to employ mediators; therefore, the results were inconclusive regarding mediator impacts on military IPTs. The current study, however, did not contain findings for the number of mediators employed between the organization and the IPT. A higher number of mediators would result in more biased communication. Information being transmitted through serial reproduction changes to reflect the biases of the people transmitting the information (Xu & Griffin, 2010).

A second reverse scored item concerned conflicting interests regarding subtasks and subgoals (item 23, $M = 2.88$). Twenty-six respondents (32.5%) chose Agree (4) or Strongly Agree (5) that conflicting interests regarding subtasks and subgoals existed within their IPTs, while 35 respondents (44%) chose either Disagree (2) or Strongly Disagree (1) that such conflicting interests existed. The higher scores appear to be in contradiction with item 21, in which there were clear and comprehensive goals for subtasks within the respondents' IPTs ($M = 4.03$).

Although the goals for subtasks were clear and comprehensive, the goals also appeared to be in conflict with team member subtask interests in approximately one-third of all the teams. From previous studies, conflicting interests in subgoals and subtasks stemmed from teams with self-efficacious or low-skilled members. Teams containing members with expertise positively predicted a contribution to problem analysis and goal specification, while teams containing self-efficacious team members had a negative predictor of problem analysis and goal specification (Sonnetag & Volmer, 2009). Low expertise members might influence important decisions, as those members do not possess the necessary skills and knowledge (Sonnetag & Volmer, 2009). In addition, teams experiencing problems with goal specifications may contain a high percentage of team members with low skills. When teams include individuals with low job-related skill levels, these individuals are only able to participate under the specific circumstances that conform to their skills, while in other situations they become a burden on their teammates (De La Torres-Ruiz, Aragón-Correa, & Ferrón-Vílchez, 2011).

CCRP Success contained 15 items. Two item response means in CCRP Success scored between Agree (4) and Strongly Agree (5), which were the program can be regarded as successful (item 47, $M = 4.01$) and team performance advancing the team's image to the program users (item 50, $M = 4.03$). The lowest item response mean concerned the program requiring little rework (item 54, $M = 3.30$). This relatively low CCRP item response mean concerning rework appeared to have little effect regarding CCRP implementation, as the item mean program response for the CCRP being within schedule scored relatively high (item 60, $M = 3.70$). From the CCRP individual response means, 50% of the CCRPs were highly successful, 35% of the CCRPs were successful, and 15% of the CCRPs were unsuccessful.

Ordinal regression analysis was performed in which the six IPT variables were entered as predictors of CCRP Success. IPT Coordination and IPT Cohesion were found to be significant predictors of CCRP Success, while IPT Effort was found to be a negative significant predictor of CCRP Success. Considering all IPT variables together, therefore, the highest CCRP Success scores would be found when IPT Coordination and IPT Cohesion were high and when IPT Effort was low.

The lack of team member effort may be a characteristic of military IPT members with particular experience and expertise in producing a successful CCRP. From the findings, at least two explanations exist for the negative significant predictor, IPT Effort. First, individual team member efforts were not related positively to team performance when team members had previous experience in the current subject matter (Brown & O'Donnell, 2011). For example, team members experienced in computer simulation should exert less effort over those team members who must learn simulation while serving as a team member (Brown & O'Donnell, 2011). In the current study, approximately 79% of the military IPT members were at least 36 years of age, which indicates a possibility of some IPTs in the current study containing the necessary team member experience. Second, if IPT members with experience exert only a small amount of effort in creating successful or highly successful CCRPs, then a military IPT with members who lack experience and expertise, such as self-efficacious members, may have to exert large amounts of effort but still produce a less than successful CCRP. Self-efficacious team members will pose more questions and elicit information because they will assume that their questions are important for the team and not just reflect their own lack of knowledge or understanding (Sonnetag & Volmer, 2009). Additional studies should include findings of whether or not a relationship exists between military IPT member age and military IPT member subject matter experience, and whether or not experienced military IPT members expend small amounts of effort for a resulting negative significant predictor, IPT Effort.

Recommendations for military organizational managers include organizational assessments to determine whether or not their organizational characteristics are conducive to hosting IPTs, and whether or not their organizations contain the necessary number of qualified personnel. The difference between successful and unsuccessful IPT performances may depend on organizational characteristics, and previous studies linked organizational characteristics with team performance. For example, a strong link exists between organizational employee involvement and teamwork performance and effectiveness (Judeh, 2011). Future research should focus on a larger sample to increase the representation of military IPT leaders and members adapting CCRPs for organizational implementation. A qualitative study to observe team interactions for

identifying characteristics of teams and team members is also desired.

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