

# Trust's Impact on Collective Efficacy

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## Abstract:

E-business becomes a hot topic recently. Because e-business adopts new organization form, some issues arise from this kind of new form. While e-business often adopts more flattened structure, trust becomes a critical issue in e-organization. The present study serves as an initial step to understand trust's role in team context. Trust has been found to be important in teamwork. However, there is no research to examine if trust has relationship with collective efficacy. In addition, there are few research analyzing the sub-dimension of trust. This study wants to find out if trust, classified into trust in team leader and trust in team members, has any influence on collective efficacy. The result shows that both trust in team leader and trust in team members significantly impact collective efficacy with trust in team members being more significant.

Key words: trust, collective efficacy, team performance, e-business

## 1. Introduction

Today e-business becomes a hot issue in academic and business fields. E-business has been viewed as providing a very different situational context to those traditional bricks and mortar businesses. In place of traditional hierarchical structures, e-business has tended to adopt flat decentralized structures to provide the speed of response and flexibility required by their business environment [58]. Co-operative working and teamwork are essential to almost all organizations. Another organizational trend toward the self-managing

team, which arises in response to the competitive challenges of the past two decades [10], suggests that the notion of team-level constructs deserve increased study. Many researchers have begun studying team-level issues and found some important variables that impact team performance. Trust is one of those variables that underpins effective co-operative behaviors and therefore has a significant effect on change processes and associated risks [19].

Working together often involves interdependence and trust, and people must therefore depend on others in various ways to accomplish their personal and organizational goals. Current trends in both workforce composition and the workplace of the organization suggest that the importance of trust is likely to increase during the coming years. One important trend related to organization work change will lead to an increased interest in the study of trust [50]. Lawler [42] cited continuing changes in the workplace in the direction of more participative management styles and the implementation of work teams. The emergence of self-directed teams and a reliance on empowered workers greatly increase the importance of the concept of trust [23][41] as control mechanisms are reduced or removed and interaction increases.

### 1.1 Trust

Scholars have long been interested in the study of trust in organizations. During the past few years this interest has turned into a major focus of organizational literature and research, leading to a renewed emphasis

on the nature, causes and consequences of trust [13][30][39][65][61]. Organizations have become flatter and more collaborative approaches, emphasizing co-ordination, sharing of responsibilities and worker participation in the decision process [37]. New emphasis is given on both interpersonal and group dynamics at workplace, where trust is seen as one of critical elements. If trust is absent, no one will risk moving first and all members will sacrifice the gains from collaboration and co-operation in increasing effectiveness [62]. Where there is a lack of trust, there will be failings in communication, delegation, empowerment, and quality [19].

Although trust for employees [71], trust for management [57][60], interorganizational trust [26], and trust in leadership [1][46][53] have all been examined in recent scholarly literature, studies on trust in team members still remains very few. Normative literature has been emphasized that trust among team members is important, but there are sparse research studying what factor will impact that trust. Also, few research separated trust into trust in team leader and trust in team members, which should be different constructs. In the present study, trust is categorized into trust in team leader and trust in team members. Leadership styles, that has been found a critical factor impacts trust in the team leader, is chosen to examine if they had any influence on trust toward team leader and trust among team members.

## **1.2 Collective Efficacy**

In addition to trust, collective efficacy is another important issue in team-level research. Collective efficacy has become an important construct in team-level research because several prior studies indicted a strong, positive relationship between collective efficacy and group performance in various work group settings [7][28][34][35]. Compared with

plenty of studies examining the relationship between collective efficacy and performance, there are few research studying the collective efficacy's antecedents. In the present study trust would be examined to see if it has any influence on collective efficacy.

The present study is composed of five sections. The first section introduces the research context, motivations and purposes, and research questions of the present study. The second section is the review of related literature about construct in the research framework. After reviewing related literature, hypotheses proposed based on theoretical inferences are also in second section. The third section describes the research framework and research method, which are followed by the data analysis in the section fourth. Finally, the fifth section indicates the conclusions on the research findings, the application and limitations of the present study.

## **2. Literature Review**

In the present study, there are some main constructs: trust, collective efficacy and team performance. Trust is the focus of this study. In this section, literature review about trust, and the relationships between trust and other constructs will be summarized.

### **2.1 Trust**

The topic of trust is generating increased interest in organizational studies [50]. The importance of trust has been cited in such areas as communication [22], leadership [2], management by objectives [64], negotiation [6], game theory [56], performance appraisal [14], labor-management relations [70], and implementation of self-managed work teams [42].

### 2.1.1 Definition of Trust

To date no definition of trust has been universally accepted. “The willingness to be vulnerable” defined by Mayer et al. [50] is one of the most cited definition of trust and has played a central role in many conceptualizations. For example, McKnight, Cummings and Cherany [54] refer to trust as the belief and the willingness to depend on another party. Jones and George [32] associate the willingness to become vulnerable to a set of behavioral expectations that allows individuals to manage the uncertainty or risk associated with their actions. Rousseau et al. [61] proposed the definition of trust: “a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another”. This definition was also adopted by Dirks and Ferrin [16] in their meta-analysis in trust in leadership.

### 2.1.2 Trust’s Dimensions

Although “the willingness to be vulnerable” is the most common conceptual core, individual researchers have used different operational definitions, which has resulted in the measurement of potentially different definitions of trust. These potential differences have been recognized by scholars, suggesting that trust comprised multiple dimensions [8][12][52]. McAllister [52] suggested that interpersonal trust could be categorized into two different dimensions: cognitive and affective. Cognitive forms of trust reflect issues such as the reliability, integrity, honesty, and fairness of a referent. Trust is cognition-based in that “we choose whom we will trust in which respects and under what circumstances, and we base the choice on what we take to be ‘good reasons,’ constituting evidence of trust-worthiness [45]. The amount of knowledge necessary for trust is somewhere between total knowledge and total ignorance [67]. Given total knowledge, there is no need to trust, and given total

ignorance, there is no basis upon which to rationally trust. Available knowledge and “good reasons” serve as foundations for trust decisions, the platform from which people make leaps of faith, like those involved in trusting [48][67].

Affective foundations for trust also exist, consisting of the emotional bonds between individuals [45]. Affective forms of trust reflect a special relationship with the referent that may cause the referent to demonstrate concern about one’s welfare. Ultimately, the emotional ties linking individuals can provide the basis for trust [52].

This two-dimensional trust’s concept was adapted in most research studying trust in virtual teams [31][3]. Dirks and Ferrin [16] divided trust into affective definition, cognitive definition and overall definition. Overall trust also included “willingness to be vulnerable” and “general trust”. This perspective is much complete than only one dimension definition. Therefore, in the present study Dirks and Ferrin’s definition would be adopted.

### 2.1.3 Trust’s Importance

Scholars found that trust positively affects team’s performance [52][13]. Trust is a kind of “ hygiene factor ” for team performance, a necessary underpinning but not sufficient in itself [19]. It is a hygiene factor in that, in a collective effort that is not based on trust, team members will be unable to explain their ideas fully and sincerely, unable to display their actions intimately and will refrain from helping others willingly [19]. In virtual teams, trust is also be recognized an important factor affecting virtual team’s performance [36].

## 2.2 Collective Efficacy

Collective efficacy is another construct in team-level research. Collective efficacy refers to group members' shared perceptions about how capable their group is regarding a specific task [4].

### **2.2.1 Definition of Collective Efficacy**

In recognition of the fact that success in many activities and tasks requires the combined efforts of people working in groups, Bandura [5][4] proposed collective efficacy as an extension of self-efficacy. Bandura suggested that collective efficacy is more than just the sum of individual efficacy levels within the group [38]. Collective efficacy involves the individuals' perceptions regarding the group's performance capabilities [38]. Collective efficacy becomes so critical because several prior studies indicted a strong, positive relationship between collective efficacy and group performance in various work group settings [7][28][34]. Campion et al [7] tested 19 group characteristics and found that collective efficacy was the strongest predictors of six effectiveness criteria. In recent meta-analysis based on 53 empirical studies, collective efficacy was found to be positively related to performance [27].

In previous studies, collective efficacy was defined in a variety of ways. Bandura [5] referred to it as people's perceptions of the groups' efficacy to effect change. Zaccaro, Blair, Peterson and Zaznis [73] defined collective efficacy as "a sense of collective competence shared among individuals when allocating, coordinating, and integrating their resources in a successful concerted response to specific situational demands."

Shea and Guzzo [66] described a very similar construct, called group potency, as "the collective belief of a group that it can be effective". The difference between group potency and collective efficacy is that

group potency is the general group efficacy or group members' shared beliefs about general effectiveness across multiple tasks encountered by the group [28]. Unlike group potency, collective efficacy is specified to one task or one competence, not referred to general confidence. For example, one team may feel confident to deal with the task they are facing now (collective efficacy), but they might not be so confident about the next task they will face (group potency).

### **2.2.2 Trust and Collective Efficacy**

Scholars have found that collective efficacy has influence upon team performance, but what is the collective efficacy's antecedent is still remain unclear. However, there might be hint behind some research. Dvir, Eden, Avolio and Shamir [17] mentioned that given the strong group cohesiveness developed in groups empowered by transformational leadership, group members are more likely to share common expectations and stronger collective efficacy [17][33]. Spink [69] also found that group cohesion is an important factor associated with task-specific group efficacy. However, some research indicates that there are no direct relationship between group cohesion and collective efficacy. For example, Lee, Tinsley and Bobko [43] found that group cohesion didn't significant impact team's collective efficacy in their research. This may be confused what is the real relationship between this two construct, and what is the factor really influence collective efficacy. Trust might be the answer. Because a primary factor leading to team cohesion is the degree of trust among team members [9], it might be trust, not cohesiveness, that influences collective efficacy. And also if the whole team gains trust to each other by interacting, it seems natural that they will be more confident about the team's ability to deal with the task they're facing. In this study, trust would be checked to see if it has any influence upon collective efficacy.

Therefore, even though there is no research studying the relationship between trust and collective efficacy, based on the literature review above, it was found that trust among team members might have positive impacts on collective efficacy. Because collective efficacy is about the whole team's self confidence, trust in team member therefore has much possibility to influence collective efficacy. Trust in team leader, however, only refers to team leader alone, not to the whole team, thus its influence to collective efficacy should be weaker than trust in team members. Therefore in the present study it is supposed that trust in team members would have stronger positive affect on collective efficacy than trust in team leader does.

H1: Trust in team members has stronger positive impacts on collective efficacy than trust in team leader does.

## 2.3 Performance

Performance is the final construct in the present study's framework. To team leader or manager, team performance is the most important issue that he/she should try to find out how to promote performance. When one construct is found to have positive impacts on team performance, this construct interests both scholars

and managers. Therefore, it is important to examine if constructs in the present study have positive impacts on team performance.

### 2.3.1 Collective Efficacy and Performance

Collective efficacy has been found to have positive impacts on team's performance [7][28][34]. Scholars have examined that when team's collective efficacy is high, usually its performance would be good. Therefore, in the present the relationship between collective efficacy and team performance would be examined again to prove the scholars' findings.

H2: Collective efficacy has positive impacts on team performance.

## 3. Research Framework and Research Method

The present study's framework is developed based on the literature review.

This study wants to find out the relationships among trust, collective efficacy and team performance. Trust can be categorized into two sub-categories: Trust in team leader and trust in team members. Figure 1 depicts research framework of this study.

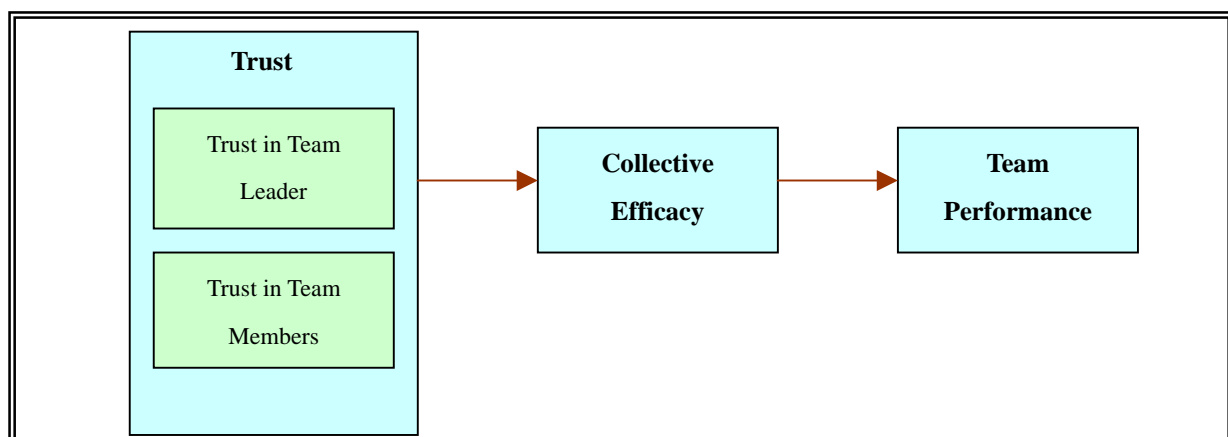


Figure 1. Study Framework

### 3.1 Research Design

This study is aimed to find out what relationship between trust and collective efficacy. The model specifies trust's impact on collective efficacy, and also specifies collective efficacy and team performance's relationship. Structured questionnaire was developed to measure constructs included in the research framework. Scales to measure constructs were adapted from previous literature.

### 3.2 Measure

The team is used as the unit of analysis, therefore the scales are measured at the team level. The first section in the questionnaire is aimed to collect team's background information, such as the number of members in this team, how long this team has been lasting, what kind of this team, etc. The following four sections are aimed to measure the degree trust in the team leader, trust in team members, collective efficacy, and team performance. Next the sources of operational measures are discussed in detail.

#### 3.2.1 Trust

In this study trust is divided into two sub-constructs: trust in the team leader and trust in team members. The questionnaire in this study adopted Dirks and Ferrin's [16] classification. Dirks and Ferrin [16] thought measuring trust could be approached through these parts: affective trust, cognitive trust and overall trust. Overall trust could also be divided into "willingness to be vulnerable" and "general trust". The first two parts, affective trust and cognitive trust, were refined from McAllister's [52] and Kanawattanacai and Yoo's [36]. Willingness to be vulnerable adopted Mayer and Davis's [51] and Aubert and Kelsey's [3] questionnaire. General trust adopted Dirks and Ferrin's [16] questionnaire. Wordings were refined to adapt both two sub-constructs: trust in team leader and trust in team

members.

There are 11 items in total in each sub-construct. All items are measured with five-point Likert scale (from 1 = "strongly disagree" to 5 = "strongly agree"). Cronbach coefficient of trust in leader construct is 0.9381, demonstrating high reliability. Cronbach coefficient of trust in team members construct is 0.9234, which is also high.

#### 3.2.2 Collective efficacy

The questionnaire measuring collective efficacy adopted Edmondson's [18] and Jung and Sosik's [35] questionnaire. The latter scholar's questionnaire was refined from Bandura [5], who brought out the idea of collective efficacy. Wordings were refined to adapt team context. There are 8 items in total. All items are measured with five-point Likert scale (from 1 = "strongly disagree" to 5 = "strongly agree"). Cronbach coefficient is 0.8718, demonstrating high reliability.

#### 3.2.3 Performance

Questions from Gemuenden and Lechler [21] and Hoegl and Gemueden [29] were employed to measure the effectiveness and efficiency of team performance. There are six items in total. The effectiveness dimension of team performance measured the quality of team's performance after the project finished. Questions such as "From the company's prospective, all project goals were achieved" were used. On the other hand, the efficiency dimension measured the team's project progress and whether the budgets this team used within constraint. Each question is measured on a five-point Likert scale (from 1 = "strongly disagree" to 5 = "strongly agree"), and the reliability of the measurement scale is strong (Cronbach coefficient is 0.9278).

## 4. Data Analysis

There were 87 teams answering the questionnaire, which means the total return questionnaires are 174. Among these questionnaires, there are 8 teams' responses that are not valid, which means these 8 team members' answers are not highly correlated. The average number of team members is about 9. The team's lasting time is about 25 months in average. Most teams (35 teams) are product-development teams. And most teams (59 teams) are temporary teams.

#### 4.1 Validity

Factor analysis was used to measure the validity of constructs. While using factor analysis, KMO value must be checked first. If KMO value is smaller than 0.5, it is not suitable to use factor analysis [72]. All constructs' KMO value is larger than 0.5, which means it is suitable to use factor analysis.

Because trust is also divided into trust in team leader and trust in team members these two sub-constructs, the number of extracting factor is 2. Therefore rotation method was used here. The cumulative variance explained percentage after rotation is 61.093%. Items were perfectly loading into two factors. In other words, items in trust in team leader construct all fall in one factor, while items in trust in team members construct fall in another factor.

The cumulative variance explained percentage of collective efficacy is 53.547%. While extracting one factor, all items in collective efficacy construct all fall in this factor, implying the high validity of collective efficacy construct. Team performance's cumulative variance explained percentage is 73.682 %. While extracting one factor, all items in performance construct fall in this factor. This implies that the validity of performance construct is high. After ensuring validity,

next the reliability of operation measure would be tested.

#### 4.2 Reliability

All scales employed in the present study demonstrate strong reliability (the Cronbach's coefficients are between 0.8710 and 0.9688). After ensuring that both validity and reliability of operation measure are high, next the hypotheses in the present study would be tested.

#### 4.3 Descriptive Statistics

Table 1 shows the summary of all constructs' descriptive statistics, including mean and standard deviation. Moreover, Table 1 shows the correlation of each construct. The correlation coefficient was using Pearson's correlation. All constructs are highly correlated with each other, which suggest there might be some relationships among these constructs. To find out more clear relationships, regression method was used in the next section.

**Table 1. Summary of descriptive statistics**

	Mean	S.D.	TF	TC	TL	TM	CE	TP
TF	123.19	23.66	1					
TC	44.42	11.37	0.619**	1				
TL	79.42	11.46	0.890**	0.520**	1			
TM	78.71	9.23	0.663**	0.458**	0.583**	1		
CE	57.96	6.01	0.564**	0.420**	0.532**	0.710**	1	
TP	42.51	6.14	0.550**	0.298**	0.525**	0.529**	0.707**	1

\*\* p<0.05

TF: Transformational leadership style

TC: Transactional leadership style

TL: Trust in team leader

TM: Trust in team members

CE: Collective efficacy

TP: Team performance

#### 4.4 Hypothesis Testing

The relationship among constructs in the present study would be empirically tested. Simple and multiple regression methods would be used to confirm if the hypotheses are empirically supported.

#### 4.4.1 Trust's effects on Collective Efficacy

Before testing the hypothesis about trust's mediating effects, trust's direct effects would be examined first to know more clearly about trust's importance. Here trust in team leader's effect on collective efficacy would be tested first. The result is shown in Table 2.

Table 2. Trust in team leader's impacts on collective efficacy

Dependent Variable: Collective Efficacy		
Independent Variable		t
Trust in Team Leader	0.532	5.512***
$R^2=0.283$ Adj- $R^2=0.274$		
*** p<0.001		

The result shows trust in team leader has significant impact on collective efficacy, which points out the importance of trust in team leader. Next, trust in team member's effect on collective efficacy would be tested. The result is shown in Table 3.

Table 3. Trust in team members' impact on collective efficacy

Dependent Variable: Collective Efficacy		
Independent Variable		t
Trust in Team Members	0.710	8.852***
$R^2=0.504$ Adj- $R^2=0.498$		
*** p<0.001		

The result shows trust in team member also has strongly significant impact on collective efficacy, which means both trust in team leader and trust in team

members are very important to collective efficacy.

After testing the simple effect of trust on collective efficacy, the impacts from two kinds of trust—trust in team leader and trust in team members—would be both considered on collective efficacy to see if hypothesis one is supported. Before looking at the *t* values of regression result, first the collinearity statistic must be checked. If collinearity is too high, the regression result would be useless because two independent variables' collinear problem would affect analysis strongly.

Table 4. Regressing collective efficacy on trust in team leader and trust in team members

Dependent Variable: Collective Efficacy			
Independent Variable		t	Collinearity Statistic (VIF)
Trust in Team Leader	0.178	1.835*	1.515
Trust in Team Members	0.606	6.231***	
$R^2=0.525$ Adj- $R^2=0.513$			
* p<0.1      *** p<0.001			

The results were summarized as Table 4. We found the collinearity statistic is low, which means there is no collinearity problem. The result shows that when considering both trust in team leader and trust in team members' impacts, these two constructs still have significant impacts on collective efficacy, and trust in team members has more impact than trust in team leader.

Then the hypothesis three would be tested here, which means the collective efficacy's impact on team performance would be examined. The result is shown in Table 5. As the result shows, collective efficacy has positive significant impact on team performance, which



is consistent with prior literatures. Collective efficacy is confirmed to be an important factor to team performance.

Table 5. Collective efficacy's impact on team performance

Dependent Variable: Team Performance		
Independent Variable		t
Collective Efficacy	0.707	8.763***
$R^2=0.499$ Adj- $R^2=0.493$		

\*\*\*  $p < 0.001$

## 5. Discussion

Trust is an important key factor in teamwork [19]. The present study serves as in initial step to understand the clear role that trust plays in team context, and the relationships among different leadership style, trust, collective efficacy, and team performance. The present study is aimed to understand the trust's impact on collective efficacy. Trust was divided into two sub-constructs: trust in team leader and trust in team members. Several interesting results were found. These including both trust in team leader and trust in team member are important to collective efficacy, and compared to trust in team leader, trust in team members had more impact on collective efficacy. Therefore, even though there is no research studying about trust and collective efficacy's relationship, trust—both in leader and in members—does have great impact on collective efficacy. Moreover, it was also found that collective efficacy has positive impact on team performance, means high collective efficacy leads to high team performance.

### 5.1 Trust's Direct and Mediating Effect

Although there is no research to study about the relationship between trust and collective efficacy, in the

present study, analyses showed that both trust in team leader and trust in team members are important in the team context. They are all found to have significant impacts on collective efficacy. And trust in team members has more impact than trust in team leader on collective efficacy. These findings indicate trust and collective efficacy do have strong relationship, and deserve more research studying on it.

The direct impact on collective efficacy indicates that trust, including both trust in team leader and trust in team members, is an important issue and has great impact in team context.

### 5.2 Collective Efficacy's Impact

In the present study, collective efficacy's impact on team performance was also confirmed. Because team performance is the important issue in team level research, while trust was found to have great impact on collective efficacy, it's natural to test if collective efficacy would have positive impact on team performance. The result shows that collective efficacy has great impact on team performance, indicating collective efficacy's importance in team context.

The present study provides the initial step to understand more clearly about the trust's role in team-level research. It was found that both trust in team leader and trust in team members have significant positive impacts on collective efficacy. Future research should focus on how different dimension of trust affect collective efficacy. The present study used four dimensions of trust from Dirk and Ferrin's [16] research, and future research should find out if these four dimensions makes different on collective efficacy. Future study may try to find out if there are different dimensions other scholars have suggested.

The present study has confirmed that trust would be a critical issue in team context. Since collective efficacy has positive impact on team performance, team leader or manager should be more aware of trust inside the team, especially trust in team members—it has more impact on collective efficacy than trust in team leader. Team leader and company managers have to pay more attention on trust inside the team, focus on building high trust in team leader and team members.

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