

## Organizational Contexts, Team Designs and Process Variables: Factors Contributing to Team Effectiveness

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### ABSTRACT

*Much has been said and written about the importance of teams to the success of organizations and emphasis has been given to the benefits of team-building activities in achieving both team and organizational effectiveness. A lot of research describes attempts to move beyond team building and to link organizational development to team effectiveness in a coherent way. There is vast literature which addresses the topic on team effectiveness. The purpose of this paper is to investigate the team effectiveness factors which focus on the organizational contexts, team design and process variable within a manufacturing company involved in a cement industry. The results indicate that these three independent variables are major contributors to team effectiveness.*

**Keywords:** *Influence factors, organizational context, process variables, team designs, team effectiveness*

### Introduction

The word “team” can be defined as a reasonably small group of people, who bring to the table a set of complementary and appropriate skills, and who hold themselves mutually accountable for achieving a clear and identifiable set of goals (Hick, 1999). In many organizations, employees who are organized into progressively larger groups of teams and departments work together toward the achievement of organizational goals and objectives. There are several types of teams, for instance functional teams, cross-functional teams, problem solving teams, self-managed work teams and so on but the concept is still the same even though they might be different in terms of their types.

A team can be considered to be effective if its output meets or exceeds the expectations. However, producing quality output is not enough to judge the effectiveness of the team. There are also other criteria to be considered such as the team should still be able to position effectively after it has accomplished its task, the team should not be torn apart by dissension after the team has been disbanded and the team members should have an enhanced working relationship that benefits the organization. Finally, effectiveness is measured by whether the teams experience satisfaction in performing their roles and if the team members are satisfied with their efforts, then the experience has been worthy and the team has likely been effective.

Most of the top managements of any company continuously encourage all employees at all levels to work in teams and nurture the culture of working teams by using work teams as the basic unit of organization. Hence problem solving teams are used to improve the way the organization performs, and management teams are used to develop strategies and drive the changes. Teams can have their shady side and sometimes could be ineffective and highly dysfunctional. Theoretically, forming a team is much easier than ensuring it runs effectively with good coordination and solid cooperation implemented by team members as each employee has a unique personality and a different point of view. It is not easy to come up with a consensus in decision making. This will lead to a conflict. Consequently, ‘group think’ built on that will lead to serious bad decision-making. Since teamwork is viewed as an important aspect of organizational success, it is practically important to determine ways to enhance team effectiveness.

Thus, this study is carried out to investigate the link between team effectiveness and the three imperative factors namely organizational contexts, team design and processes, within a

manufacturing company involved in a cement industry in the North Region of Peninsular Malaysia.

To be specific, this research attempts to provide an academic insight into the link between team effectiveness and the three aspects; organizational contexts, team design and processes variables and underline the importance thereof with current results. The problem that is investigated therefore revolves around the specific factors to be considered in creating team effectiveness in an organization. Therefore, the research questions of this study are:

Do organizational contexts affect team effectiveness?

Do team designs affect team effectiveness?

Do process variables affect team effectiveness?

## Literature Review

### Team effectiveness, organizational contexts, team design and process variables – Previous study on the definitions and their relationship

There is vast literature which addresses the definition of team effectiveness. For example, Shane and Glinow (2002) defined team effectiveness as the extent to which a team achieves its objectives, achieves the needs and objectives of its member and sustains itself over time. A team is effective when all members are satisfied with the system and able to maintain the commitment of its members, particularly during the turbulence of the team's development. Without this commitment, people will leave and the team will fall apart.

To measure the effectiveness of a team, this study considers three variables, namely organizational contexts, team design and process variables.

The organizational context that surrounds a team has been identified by researchers as an important consideration in the study of work team effectiveness. Shane and Glinow (2002) presented a model of team effectiveness by looking at organizational and team environment factors that include reward systems, communication systems, physical space, organizational environment, organizational structure and organizational leadership. However, according to Robbins (2005), the four organizational contexts that appear to be most significantly related to team performance are the presence of adequate resources, effective leadership, a climate of trust and a performance evaluation and reward system that reflect team contributions. Doolen, Hacker and Aken (2003) in their study entitled "The Impact of Organizational Context on Work Team Effectiveness: A Study of Production Team" explored the relationships between nine organizational context variables, team processes and three measures of team effectiveness. Organizational systems that provide teams with the necessary information were found to have a significant and positive linear relationship with both team leader ratings of effectiveness and team member satisfaction.

Besides organizational contexts, team design is also one of the variables considered in this study. According to Robbins (2005), effective teams need to work together and take collective responsibility to complete significant tasks. They must be more than a "team in name only". The work design category includes variables like freedom and autonomy, the opportunity to use different skills and talents (skill variety), the ability to complete a whole and identifiable task or product (task identity), and working on a task or project that has a substantial impact on others (task significance). Evidence indicates that these characteristics enhance member motivation and increase team effectiveness. Shane and Glinow (2002) split team designs into two factors which are team composition and work design. The elements of team composition include abilities of members, personality, allocating roles, diversity, and size of teams, member flexibility and member preferences. The elements of work designs are autonomy, skill variety, task identity and task significance. According to Higgs, Plewnia and Ploch (2005), in their study entitled "Influence of Team Composition and Task Complexity on Team Performance", there is a clear relationship between team composition (diversity), complexity of task and team performance. The design of their study is based on team diversity which was operational using the Belbin Team Role model.

Diversity was found to be positively related to performance for complex tasks and negatively related for straightforward tasks.

The final category related to team effectiveness is process variable. According to Robbins (2005), these process variables include member commitment to a common purpose, establishment of specific team goals, team efficacy, and a managed level of conflict and minimized social loafing. As pointed out by Shane and Von Glinow (2002), elements of team process are team development, team norms, team roles and team cohesiveness. Janetta and Lisa (2001) indicated that items in the categories of team outcomes, team goals and team cohesion are ranked the most critical to team effectiveness. However, Dreu and Weingart (2003) discovered in their study entitled "Task Versus Relationship Conflict, Team Performance, and Team Member Satisfaction: A Meta-Analysis" that conflict has stronger negative relations with team performance in highly-complex (decision making, project, mixed) than less-complex (production) tasks. Lastly, task conflict is less negatively related to team performance when task conflict and relationship conflict are weakly, rather than strongly, correlated. Their study provides a meta-analysis of research on the association between relationship conflict, task conflict, team performance and team member satisfaction. Consistent with past theories, results revealed strong and negative correlations between relationship conflict, team performance, and team member satisfaction. In contrast to what has been suggested in both academic research and introductory textbooks, however, results also revealed strong and negative (instead of the predicted positive) correlations between task conflict, team performance, and team member satisfaction.

### Research Hypotheses

H<sub>1</sub> : There is a significant relationship between organizational contexts and team effectiveness

H<sub>2</sub> : There is a significant relationship between team designs and team effectiveness

H<sub>3</sub> : There is a significant relationship between process variables and team effectiveness

### Research Methodology

This is a descriptive study undertaken to identify the factors that contribute to team effectiveness among employees at a manufacturing company involved in a cement industry in Perlis. Information that the researchers gathered from the study concerned the relationship between organizational contexts, team designs and process variables, and the team effectiveness. Questionnaires were distributed to the respondents who were the employees from 13 departments. The questionnaire method was chosen because a large sample could be targeted. The questionnaire used five-point Likert Scale ranging from strongly agree to strongly disagree to measure each variable. Each item in the variable was measured from a range of 1 representing extremely dissatisfied, to 5 representing extremely satisfied. The questionnaire consists of five sections. Section A deals with personal background or demographic questions which include the employee's general information such as gender, age, marital status, length of services, educational background and others. Section B touches on the first independent variable which is the organizational context. As for Section C, it focuses on the second variable which is the team design. Section D consists of the third variable which represents the process variable. The last section is section E that represents the dependent variable which is team effectiveness. The researchers used probability sampling techniques in which every member of the population was known. It was based on random selection by the researchers. This research involved a population of 220 employees. Therefore, the researchers intended to use 140 of all the employees from 13 departments at the manufacturing company as a sample size. However, only 57 respondents completed the questionnaire given. The Statistical Package for Social Science (SPSS) version 13 for windows was used to analyze the information gathered. Descriptive analysis was used to obtain frequency distribution, mean, median, maximum and standard deviation. Cronbach's alpha coefficient was also obtained to indicate how well the items in a set were positively correlated to one another. Finally, the data were tested and analyzed using the Multiple Regression Analysis with hypothesis testing. This technique attempted to establish a functional relationship between

the dependant variable and a series of independent variables. This type of regression analysis was used because there was more than one independent variable in the research. Therefore, the estimated regression model based on team effectiveness should be developed and can be used to analyze the expected relationship between the dependant variable and independent variables

## Research Findings

The results of the study indicated that the highest respondents were males with the percentage of 63.2% represented by 36 respondents. The female respondents made up 36.8% which represented 21 respondents. Fourteen percent or 8 respondents from the total number of respondents represented the Electrical and Mechanical Departments; 12.3% or 7 respondents from the Finance and Human Resource Department; 5 respondents (8.8%) each from ICT and Purchasing Departments; Kiln, Material Handling and Cement Mill and Packing Plants Department 5.3% which was 3 respondents; and for the Corporate Communication; Safety and Health; Quarry and Engineering Services; and Internal Audit Departments represented 3.5% which was 2 respondents respectively. The respondents' age were mostly below 29 years old (49.1%, 28 respondents); 30 – 39 years old (29.8%, 17 respondents); 40 – 49 (15.8%, 9 respondents) and above 50 years old (5.3%, 3 respondents), including 87.7% (50 respondents) Malay, 10.5% (6 respondents) Chinese; and 1.8% (1 respondent) Indian. 29 out of 57 respondents were single, followed by 27 respondents who were married. This represented 50.9% and 47.4% respectively. Only 1.8% represented 1 respondent who was divorced. 28 respondents (49.1%) had less than 3 years of service and 19 respondents (33.3%) had serviced for more than 12 years. Most of the respondents (42.1%, 24 respondents) had SPM qualification.

The Cronbach's alpha testing on instrument reliability coefficient from 0.65 to 0.87 showed that the data collected were reliable because the value of Cronbach's alpha for the independent variables (organizational contexts, team designs, and process variables) was above 0.60. This showed that the independent variables in this study were acceptable and all the items in a set were positively correlated to one another. As such, the data collected did not show any bias and was reliable for the follow up testing, and the results were also expected to be reliable.

Table 5.1 presents the minimum, maximum, mean and standard deviation of the study variables – team effectiveness, organizational contexts, team designs and process variables. The number of cases in the dataset is recorded under the column labeled N. Information about the range of variables is given in the Minimum and Maximum columns. The table indicates that the minimum value of respondents' answers for the dependent variable which is team effectiveness is 2.60. Some respondents felt that the team is not effective. As for the independent variable – organizational contexts, a minimum of 1.40 indicates that some of the respondents had strongly disagreed that the organizational contexts at the workplace may contribute to team effectiveness. A minimum of 3.60 for the independent variable – team designs indicates that the respondents were not sure regarding this variable but most chose "agree" with the way designing the team may affect the effectiveness of the team. The minimum of process variable is 2.60 which shows that some respondents disagreed with the questions. The maximum of these four variables is 5.00 which indicates that the respondents strongly agreed. The average answer is contained in the Mean column. The mean for team effectiveness is 4.1614, organizational contexts (3.9789), team design (4.2351) and process variable (3.9754).

Variability can be assessed by examining the values in the Standard Deviation column. The Standard Deviation measures the amount of variability in the distribution of a variable. Thus, the more the individual data points differ from each other, the larger the standard deviation will be. Conversely, if there is a great deal of similarity between data points, the standard deviation will be quite small. The standard deviation describes how much the standard amount variables differ from the mean. The standard deviation for team effectiveness is .53377, organizational contexts (.58759), team design (.33832) and process variable (.41760).

Table 5.1: Descriptive Statistics

Variables	N	Min	Max	Mean	Standard Deviation
Team effectiveness	57	2.60	5.00	4.1614	.53377
Organizational Contexts	57	1.40	5.00	3.9789	.58759
Team Designs	57	3.60	5.00	4.2351	.33832
Process Variables	57	2.60	5.00	3.9754	.41760

### Pearson Correlation

The inferential statistics is used to analyze the correlations between variables in this study. For this purpose, the Pearson Correlation was conducted to see how variables are related to one another and to indicate the direction, strength and significance of bivariate relationship of all the variables. Table 5.2 shows a correlation matrix with three numbers for each correlation. The correlation between team designs and team effectiveness in this study is ( $r = .77, p < .01$ ) which represents strong relationship. The team designs shows the strongest relationship followed by process variables ( $r = .75, p < .01$ ) and organizational contexts ( $r = .68, p < .01$ ). From the table, it can be concluded that all the three independent variables are predicted to be significantly positively correlated to team effectiveness. The team effectiveness is high if organizational contexts, team designs and process variables are high.

Table 5.2: Pearson Correlation

		Total score dv	Total score iv1	Total score iv2	Total score iv3
Total score dv	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	57			
Total score iv1	Pearson Correlation	.68**	1		
	Sig. (2-tailed)	.00			
	N	57	57		
Total score iv2	Pearson Correlation	.77**	.46**	1	
	Sig. (2-tailed)	.00	.00		
	N	57	57	57	
Total score iv3	Pearson Correlation	.75**	.58**	.70**	1
	Sig. (2-tailed)	.00	.00	.00	
	N	57	57	57	57

\*\*Correlation is significant at the 0.01 level (2-tailed).

## Hypotheses Testing

Table 5.3 shows the results from the regression analysis in the SPSS. The value indicates that 74.7% of the variance in team effectiveness can be predicted from the variables of organizational contexts, team designs and process variables. The adjusted R-square attempts to yield a more honest value to estimate the R-squared for the population. The value of R-square is .747, while the value of Adjusted R-square is .733. Based on Table 5.3, all the three iv; organizational contexts ( $\beta = .30$ ,  $p < .001$ ), team designs ( $\beta = .69$ ,  $p < .001$ ) and process variables ( $\beta = .33$ ,  $p < .01$ ) are significant and positively related to team effectiveness. Hence,  $H_1$ ,  $H_2$  and  $H_3$  are all supported.

Table 5.3 : Multiple Regressions

Independent Variables, iv	Standardized $\beta$ Coefficients	Sig.
(Constant)	-1.23	
Organizational Contexts	.30	.00
Team Designs	.69	.00
Process Variables	.33	.02

Dependent variable: Team Effectiveness

N = 57  
R Square = .747  
Adjusted R Square = .733  
F Value = 52.153\*\*

## General Discussion

The overall findings showed that relationships exist between organizational contexts, team designs and process variables, and team effectiveness among employees at a manufacturing company involved in a cement industry in the state of Perlis. The organizational context that surrounds a team has been identified as an important consideration in the study of work team effectiveness. Shane and Glinow (2002) presented a model of team effectiveness by looking at organizational and team environment factors that include reward systems, communication systems, physical space, organizational environment, organizational structure and organizational leadership. However, Robbins (2005) argued that the four organizational contexts that appear to be most significantly related to team performance are the presence of adequate resources, effective leadership, a climate of trust and a performance evaluation and reward system that reflect team contributions. Therefore, in order to improve team effectiveness among employees, all team members must rely on resources inside and outside the group to sustain it. Scarcity of resources will directly reduce the ability of the team to perform its job effectively.

One of the most important characteristics of an effective team is the support it receives from the organization. This support includes timely information, proper equipment, adequate staffing, encouragement and administrative assistance. A team must receive the necessary support from management and the larger organization if it is going to succeed in achieving its goals. Besides that, team members must agree on who is to do what and ensure that all members contribute equally in sharing the workload. In addition, the team needs to determine how schedules will be set, what skills need to be developed, how the group will resolve conflicts and how the group will make and modify decisions. Agreeing on the specifics of work and how they fit together to integrate individual skills require team leadership and structure. Furthermore, members of effective teams should trust each other and also exhibit trust in their leaders. Interpersonal trust among team members facilitates cooperation, reduces the need to monitor each others' behavior,



and bonds members around the belief that others on the team won't take advantage of them. Team members, for instance, are more likely to take risks and expose vulnerabilities when they believe they can trust others on their team.

In the process of designing a team, Robbins (2005) believed that an effective team needs to work together and take collective responsibility to complete significant tasks. Each member in a team must have a teamwork spirit in carrying out a task. The work design category includes variables like freedom and autonomy, the opportunity to use different skills and talents (skill variety), the ability to complete a whole and identifiable task or product (task identity), and working on a task or project that has a substantial impact on others (task significance). It has been proven that these characteristics enhance team members' motivation and increase team effectiveness. To be more effective, heterogeneous teams are more likely to have diverse abilities and information. While diverse teams may have more conflicts, they still tend to outperform homogeneous teams. Besides that, the most effective teams have fewer than 10 members. When teams have excess members, cohesiveness and mutual accountability declines, social loafing increases, and more people do less talking compared with others. So, in designing effective teams, managers should try to keep team members fewer than 10. Teams made up of flexible individuals have members who can complete each other's tasks. This is an obvious plus to a team because it greatly improves its adaptability and makes it less reliant on any single member. Thus, selecting members who themselves value flexibility, and then cross-training them to be able to do each other's job, should lead to higher team performance over time.

Effective teams have a common and meaningful purpose that provides direction, momentum and commitment for members. This purpose is a vision which is broader than specific goals. Members of successful teams put a tremendous amount of time and effort into discussing, shaping and agreeing on a purpose that belongs to them both collectively and individually. Besides that, successful teams translate their common purpose into specific, measurable and realistic performance goals. It is because goals lead individuals to higher performance and also energize teams. These specific goals facilitate clear communication and help teams maintain their focus on getting results. This is called process variables. According to Robbins (2005), process variables include member commitment to a common purpose, establishment of specific team goals, team efficacy, and a managed level of conflict and minimized social loafing. As pointed out by Shane and Glinow (2002), elements of team process are team development, team norms, team roles and team cohesiveness. Then, effective teams should have confidence in themselves. They should believe they can succeed. This is called team efficacy. Teams that have been successful raise their beliefs about future success, which in turn motivates them to work harder. There are two possible options that management can do in order to increase team efficacy. The first is helping the team to achieve small successes and skill training. Small successes build team confidence. As a team develops an increasingly stronger performance record, it also increases the collective belief that future efforts will lead to success. In addition, managers should consider providing training to improve members' technical and interpersonal skills. The greater the abilities of team members, the greater the likelihood that the team will develop confidence and the capability to deliver based on the confidence.

This study contributes to the existing literature in several ways. First, this study extends beyond previous research by investigating the effects of organizational contexts, team designs and process variables. This study will benefit the manufacturing companies by providing them with a better understanding on the factors that contribute to team effectiveness among their employees. The second contribution of the study is that the use of various factors of the predictors will permit identification of which types of predictors that highly affect team effectiveness. This in turn will provide practical value for managers in formulating effective teams. Finally, this study contributes to current literature on team effectiveness, enriching the present knowledge and understanding on the building of an effective team.

The researchers faced several challenges in completing this research that resulted in some limitations of this study. At all times, the researchers had taken precaution in order to minimize these factors which can affect the results of this study. When viewed in this context, despite this study's limitations, it has provided the first empirically-based information concerning team effectiveness and performance relationships as well as expanded the available knowledge of

building effective team for the company. The major constraints that the researchers faced were time and financial aspects. This research was carried out with no budget from the university, thus the researchers had to make do with little information and limited financial support available. Due to the limited budget, the sample taken was small. Finally, information gained by the researchers was limited due to the unsatisfactory cooperation given by some of the respondents in completing the questionnaire.

The findings of this study revealed that all three independent variables may increase team effectiveness at the manufacturing company. All the recommendations in improving the team effectiveness among employees in terms of organizational contexts, team designs and process variables have been discussed thoroughly above.

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