

**THE EFFECT OF TEAM PROPERTIES ON TEAM'S PERFORMANCE AS
PERCEIVED BY TEAM MEMBERS OF MULTINATIONAL MANUFACTURING
COMPANIES IN PENANG**

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ABSTRAK

Kerja berpasukan menjadi semakin penting bagi sesebuah firma tanpa mengira saiz dan industrinya. Para pengurus syarikat percaya bahawa manfaat yang diperolehi melalui kerja berpasukan lebih besar berbanding kerja secara individu. Walaubagaimanapun, bagi mencapai prestasi pasukan yang tinggi, adalah sesuatu yang sukar dikecapi oleh kebanyakan organisasi. Ini disebabkan oleh kegagalan organisasi itu dalam mengenalpasti kriteria utama yang mempengaruhi prestasi sesebuah pasukan. Kajian ini mengkaji sama ada ciri-ciri sesebuah pasukan seperti penglibatan pekerja, saiz pasukan, norma pasukan, kepelbagaian dalam pasukan dan perpaduan pasukan dapat mempengaruhi prestasi pasukan, yang terdiri daripada proses pasukan dan pencapaian pasukan. Di samping itu, kajian ini juga melihat bagaimana sistem luaran, seperti pemilihan ahli pasukan, latihan serta penghargaan terhadap pasukan mempengaruhi hubungan tersebut. Seramai 265 responden terdiri daripada ahli pasukan, daripada lima buah syarikat pengeluaran multinasional di Pulau Pinang terlibat dalam kajian ini. Kertas soal selidik diedarkan melalui ketua pasukan dan pengurus syarikat berkenaan. Kajian ini mendapati penglibatan pekerja, norma pasukan dan kepelbagaian dalam pasukan mempunyai hubungan yang jelas terhadap proses pasukan, manakala terdapat hubungan yang ketara antara saiz pasukan serta norma pasukan terhadap pencapaian pasukan. Di samping itu, sistem luaran didapati turut mempengaruhi hubungan tersebut. Kajian ini memberi implikasi terhadap pembentukan model yang mudah, yang menunjukkan faktor-faktor prestasi pasukan, di mana dapat menyumbang ke arah prestasi pasukan yang tinggi.

ABSTRACT

Teams have become increasingly popular in firms of all sizes and industries. Managers believe that teams often provide better outcomes than individual, but high performance teams are rarity due to failure of organization in identifying the critical criteria that influence performance of a team. This study explored whether team properties, includes employee involvement, team size, team norms, team diversity and team cohesiveness affect the team's performance in term of team's process and team's result. In addition, this study also would like to see if the external systems consist of team member selection, team training and rewards system moderates the relationship. 265 respondents comprising team members, from five multinational manufacturing companies in Penang were involved in this study. Data were gathered through self-administered questionnaire distributed through team leaders and managers of the respective companies. It was found that employee involvement, team norms and team diversity have significant relationship with the team's process, whereas team size and team norms have significantly related to team's result. In addition, it was found that external system moderates the relationship between team properties and team's performance, which is between employee involvement, team norms and team diversity with team's process and the relationship between team size and team norms with team's result. The implication of this study is the development of simple model of factors of team's performance, which could contribute to high team's performance.

Chapter 1

INTRODUCTION

1.1 Background of Research

As managers search for strategies that will help them compete, boost productivity, satisfy an increasingly educated workforce and negotiate an increasingly hostile environment, more and more organizations have come to believe that teams are the answer. Whether this involves managers assigned to self-managed teams or shop-floor workers participating in self-directed teams, a group approach to work has become an integral part of the formal structure at most organizations. Few studies have definitively established a clear connection between teaming and higher performance and even fewer have quantitatively assessed the impact of teaming on corporate performance (Wisner & Feist, 2001).

While we have witnessed an increased reliance on work teams over the last 25 years, not all observers agree that the use of teams is a guarantee of greater organizational effectiveness (Trent, 2003). As mentioned by social psychologist, Renesis Likert, groups can accomplish much that is good, or they can do great harm (Trent, 2003). Hackman (1987), a leading authority on work teams, has argued that while teams can yield the benefits envisioned by their use, they often have a less-than-desirable side. They can waste the time and energy of members, enforce lower performance norms, create destructive of conflict within and between teams and make notoriously bad decisions (Hackman, 1987).

We know that high-performing teams, in theory, should provide benefits that far outweigh their cost. Teams benefit firms by improving productivity, enhancing creativity, reducing response times and improving decision-making (Hartenian, 2003).

Conversely, we also know that poorly designed teams can create serious organizational stress. Therefore, if we believe that using work teams does not guarantee greater effectiveness, then the challenge becomes one of creating an environment that increase the likelihood that teams will be successful. Much of the success or failure of teams rest on an organization's ability to plan, structure and support their use. Managers need to consider characteristics of a good team that have impact on the team's organizational behavior, such as the composition of a team. Besides, the importance of designing external system should not be underestimated, such as training and rewards (Hellriegel, Jackson & Slocum, 2002).

As teams increase in popularity, firms have begun to concentrate on the factors that contribute to the team's performance, which will lead to overall performance of an organization. How to build a successful team and how to measure individual performance have been areas of great interest for many researchers and practitioners, but still, measuring the performance of a team as a whole is an area that needs to be better studied.

1.2 Problem Statement

Recent studies used several outcome measures of a team's performance, typically culled from production records, for example, technical repair, response times, target shooting rating, tons of coal mined per crew per shift, with aggregated measures of overall performance generally reported as well (Cohen & Bailey, 1997). Besides, there was much research done on team and performance by looking at team composition or organizational performance measured by return on assets (ROA), return on equity (ROE), sales margin and market position, rather than looking at other team's performance factors, such as reward system, training and team member selection that could contribute to team's performance (Hendriks, Boone & Brabander,

2002). Survey questions focused on perceptions of overall team's performance, with responses gained nearly as often from team members themselves as from managers (Cohen & Bailey, 1997). Many attitudinal and behavioral measures were also captured. Most common among these were satisfaction, commitment to the organization, absenteeism and turnover (Cohen & Bailey, 1997). Only few studies were done in investigating the effect of team composition on team's performance.

Thus, it is of considerable importance in determining what are the internal and external factors affecting the performance of a team. This study is conducted to investigate the effect of team properties (employee involvement, team size, team norms, team diversity and team cohesiveness) on team's performance (team's process and team's result) as perceived by employees of multinational manufacturing companies in Penang. This study will also investigate how the external system (member selection, training and rewards) could moderate the relationship.

1.3 Research Objectives

With reference to the problem statement, the objectives of this research are as follows:-

1. To determine the effect of team properties on the performance of a team as perceived by the employees.
2. To investigate does external system moderates the relationship between team properties and team's performance.

1.4 Research Questions

This study is conducted to answer the following research questions:

1. How employees perceived team properties could influence their team's performance?

2. Does external system moderates the relationship between team properties and team's performance?

1.5 Definition of Terms

1.5.1 Team

A team is defined as a small number of individuals with complementary skills holding themselves mutually accountable for a commitment to quality, customer service and productivity (Natale, Libertella & Rothschild, 1995).

Hackman (1987), and Alderfer (1977) defined team as a collection of individuals who are interdependence in their tasks, who share responsibility for outcomes, who see themselves and who are seen by others as an intact social entity embedded in one or more larger social systems (for example, business unit or the corporation), and who manage their relationships across organizational boundaries. In more understanding definitions, a team is a group of two or more people joined in cooperative activity for work or play.

1.5.2 Team member

A small number of people with complementary skills, who work together on a project, are committed to a common purpose and are accountable for performing tasks that contribute to achieving an organization's goals.

1.5.3 Team properties

Team properties are defined as several characteristics that serve to differentiate teams from one another, consist of employee involvement, team size, team norms, team diversity and cohesiveness and have an impact on the teams' effectiveness and performance.

- (a) Employee involvement – authority and scope of work completed.
- (b) Team size – number of members in a team.
- (c) Team norms – code of conduct, shared beliefs and value that are collectively held expectations of member behavior.
- (d) Team diversity – dissimilarity of job categories and skills of a team member.
- (e) Team cohesiveness – how well group members “hang together”.

1.5.4 Team’s performance

Team’s performance results from the interaction of the team members (ability, motivation) and the situation (resources, role perceptions) in which they perform their tasks (Pierce & Gardner, 2001). Hertzbach and Lebing (1995) defined this team’s performance in term of team’s processes and team’s results.

- (a) Team’s processes – the team can be measured on its internal group dynamics, such as how well the team works together as a group, the effectiveness of team meetings, the ability of the team to reach consensus, and the team’s problem solving techniques.
- (b) Team’s results – the team can be measured on its work results or products, customer satisfaction with the team product, the number of cases the team completed, and the cycle time for the team’s entire work process.

However, for this purpose of study, team’s performance as perceived by the employees was used. According to Pierce and Gardner (2001), perceived is what individuals experience through one or more of the human sense, and the meaning they ascribe to those experiences. This study investigated how employees perceived all the

team properties stated could lead to their team's performance. In another word, in what criteria they judged the team as high performance team.

1.5.5 External systems

External systems are defined as factors outside a team, such as team member selection, team training and reward systems that if managed carefully by organization, could lead to a successful team (Hellriegel, Jackson & Slocum, 2002).

1.6 Significance of the Study

This study might create deep understanding on how several factors such as employee involvement, team size, norms, diversity and cohesiveness could lead to the success of a team in an organization. The findings from this research will specify the characteristics of a good team that contribute to high team's performance that perceived by the team members. The manager might get some ideas on how to improve the team's performance by taking into account the favorable characteristics of a team perceived by their employees or team members.

Besides, the result of this study will allow the manager to take steps to minimize the unfavorable behavior that could impede the team effectiveness. In addition, by knowing that there are other external systems such as training, rewards, member selection and culture which also has an impact on team's performance, manager could plan a good structure of a team to be effective. As for the company as a whole, this research could help to reduce work team conflict among team members, thus contribute to organizational excellence.

1.7 Organization of the Report

This report consists of five categories. The first chapter introduces the background of the research, problem statement, research objectives, definition of terms and significance of the study. The literature related to this study and the development of theoretical framework are discussed in Chapter 2. Research methodology applied for gathering data and information is discussed in Chapter 3. Chapter 4 presents the results and data analysis of this study. Discussions and conclusion are discussed in Chapter 5 of this report.

Chapter 2

LITERATURE REVIEW

2.1 Introduction

Measuring team's performance is one of the critical parts in team development stages. Many authors such as Katzanbach and Smith, 1993; Robbins and Finley, 1996; Kur, 1996, refer to high performance teams as the goal of team development because of the correlation between team and performance (Castka et al, 2001). As part of their directing activity, managers are keenly interested in individual and team's performance. According to Pierce and Gardner (2001), the determinants of team's performance appear to parallel those of individual performance, that is work team behavior (performance) results from the interaction of the team (its characteristics – norms, size) and the situation (resources, supervision) in which the group performs its task.

In order to ensure continued organizational performance, managers need to be aware of critical criteria that contribute to high level of team's performance. This chapter discusses the relevant literature on the relationship between the variables of this study that are team properties, team's performance and external system.

2.2 Team Properties

2.2.1 Employee involvement

Organizations committed to high-involvement management have adopted self-managing work teams as a key element in empowering employees. Employees involved in these teams work together to resolve issues regarding productivity, quality and safety issues. Organizations transmitting from a traditional hierarchical structure to a flatter management approach utilize extensive training in team communications,

group decision making and problem solving to get the team-oriented structure off to a solid start.

Work teams vary significantly in their level of involvement. At the lowest level of involvement, team members share information only, while management continues to make all of the operational decisions. Managers meet regularly with employees, inform them about what is going on and why, and respond to questions. But managers who think that true employee involvement can be achieved through such efforts are unlikely to achieve anything other than a “quick and short-lived fix” for their organizational woes (Kilman, 1984). Orsburn, Moran, Musselwhite and Zenger (1990), highlighted the eight level of employee involvement in a team as moving along a continuum. They are information sharing, dialogue, special problem solving, intra-group problem solving, inter-group problem solving, focused problem solving, limited self-direction and total self-direction (Pierce & Gardner, 2001).

Pierce and Gardner (2001) reported that employee involvement or worker participation of either form is theorized to enhance team’s performance but according to Locke and Schweiger (1979) employee involvement improves satisfaction, not team’s performance. In addition, a recent meta-analysis however shows that participation has a positive relationship to team’s performance (Wagner, 1994).

2.2.2 Team size

Team size becomes an issue when the number of members increases beyond a point that allows the effective coordination of activities, although teams that are too small present their own challenges (Trent, 2003). Past research suggests that size has a curvilinear (Steiner, 1972) or inverted U-shaped (Nieva, Fleishman & Reick, 1985) relation to effectiveness such that too few or too many members reduce performance.

Two studies done by Cohen and Bailey (1997) found that increasing group size actually improved performance without limit.

Teams should be small enough to form a social unit, but large enough to get the task done. Teams should include just enough members to accomplish their task but not more can be effectively managed (Hackman, 1987). The ideal size of a team is thought to be five to seven members, but in practice teams commonly range from three to fifteen members (Pierce & Gardner, 2001). Sundstrom et al. (1990) mentioned, for innovative decision making, the ideal work team size is probably between five to nine members. However, Hellriegel et al. (2002) mentioned that the optimal team size seems to be from four to eight members, depending on the team's task.

According to Cummings, Huber and Arendt (1974), size affects such factors as team development and performance as well as member attitude, motivation and behavior. Members of larger teams report less personal satisfaction from participation indicate they have less opportunity to influence decisions and complain of poor coordinator of activities (Wicker et al., 1976). Katzenbech and Smith (1993) summarized team size as one of the best characteristics to all superior-performing teams. They mentioned that most successful teams have between 2 to 25 members, and less than ten being optimal size – members of larger groups often have decision-making and interacting problems. However, a small group of people will find it easier to overcome personal, social and political differences toward a common purpose.

2.2.3 Team norms

Team norms are standards shared by group members, which when crystallized, that are highly agreed upon by group members; permit the group to regulate and

standardize behaviors within the team (Cohen & Bailey, 1997). Hellriegel et al. (2002) mentioned that norms are the rules of behavior that are widely shared and enforced by members of a work team. A team norm exists when three criteria have been met – (1) there is a standard of appropriate behavior for team members, (2) members agree on the standard and (3) members aware that the team supports the particular standard through a system of rewards and punishments (Hellriegel et al., 2002).

Cohen et al. (1997) found team's performance norms to have positive association with the team ratings on performance. The relationship cohesiveness and team's performance in terms of productivity depends on the performance-related norms established by the group (Reilly et al., 1981). According to Robbins (1991), there are several group performance factors that affect the success of the group in fulfilling its goals; they are group composition, size, norms and cohesiveness. Norms considered as a standard against the appropriateness of a behavior judged, is important factors in determining the performance of a team.

2.2.4 Team diversity

Magjuka and Baldwin (1991) who measured team diversity as the proportion of various job categories within teams in manufacturing company found that teams with greater diversity evaluated their effectiveness more positively. However, Campion et al. (1993) found skill heterogeneity to have no relationship to productivity, employee satisfaction and manager ratings on performance in a service setting.

Cohesiveness has an important impact on group performance in organizations (Szilagyi, 1990). Organizational behavior principle stated that highly cohesive groups and teams are good performers. In addition, a research done in 1991 on group

cohesion and performance found that the relationship between highly cohesive teams and performance was particularly straightforward, as no moderator variables were found (Evans & Dion, 1991). Research has generally shown that highly cohesive groups are more effective than those with less cohesiveness (Reilly et al., 1981).

In a recent study of group characteristics and productivity, group cohesiveness was the only factor that was consistently related to high performance for research and development engineers and technicians (Keller, 1986). However, cohesiveness may also be a primary factor in the development of certain problems for some decision making groups, such as groupthink, which occurs when a group's overriding concern is a unanimous decision rather than the critical analysis of alternatives (Janis, 1982).

Highly cohesive groups often have less tension and hostility and fewer misunderstandings than less cohesive groups do (Sears, Freedman & Replau, 1985). The results of the Schachter's study (1989) implied that highly cohesive groups have very powerful dynamics, both positive and negative, for group performance. On the other hand, the low-cohesive groups are not so powerful (Hellriegel et al., 2002).

2.3 Team's performance

2.3.1 Team's process and team's result

Recent studies have found that different constituencies judge team's performance by using different criteria (Cohen & Ledford, 1994). Team members tend to rate their team's performance high if their team has engaged in healthy internal processes, whereas managers who are less familiar with the team's internal dynamics are more likely to use measures of productivity and team's external communication through its leader or members to evaluate effectiveness (Cohen & Bailey, 1997).

Performance is broadly understood as the purpose of teamwork. In general, team's performance can be determined by three factors; ability, work environment and motivation (Castka, et al., 2001). According to Hertzbach and Lebing (1995), team's performance can be measured in term of team's processes (runs effective meetings, communicates well as a group, allows all opinions to be heard and comes to consensus on decisions) and team's result (customer satisfaction with the team product, the number of cases or project the team completed and the cycle time for the team's entire work process). This is similar to team effectiveness model (TEM) proposed by Salas, Dickinson, Converse and Tannenbaum in 1992 which illustrated the team's performance is measured by quality, quantity, time, errors, coordination and communication (Pharmer, 2001).

2.3.2 Perceived team's performance

According to Barbara (1997), if members of a team are asked how they think of team's performance or what characteristics they think high performing and low performing team's process, they will describe these in terms of what is relevant to their experiences. This study measures team's performance using repertory grid technique to gain team member's view about the overall performance of a team (Barbara, 1997).

2.4 External system

2.4.1 External systems and team's performance

According to Kirtman et al. (2001), when human resources policies focus on team-based selection, training, evaluation and incentives, team members experience more team empowerment, which leads to team effectiveness.

The characteristics needed in an employee who works in relative isolation are different from those needed in an employee who must work in a team environment. Such people seek to find areas of common understanding with the members of the team. When areas of agreement are known, team members may also be able to accept their differences more easily (Hellriegel et. al, 2002).

According to Liden (2000), when teams fail to perform as well as they are supposed to, there may be many reasons for their failure. Typically, the first things that people think about are the internal process, which comprises of the composition or characteristics of a team itself. Effective teams and their leaders consider whether negative internal team's processes are responsible for poor performance, but they don't stop there (Liden et al., 2000). Teams do not exist in a vacuum and their internal processes do not unfold in isolation. The external forces acting on a team may also be the cause of team's performance problems. The external systems, comprises outside conditions and influences that exist before and after the team is formed. Important features of the external system to consider include team design, culture, team member selection, team training and the reward system (Adams & Kydoniefs, 2000).

According to Hellriegel (2002), when teams are ineffective, the source of the problem may be internal team's processes. However, poor internal processes may be caused by factors in the team's external system. Managers who accurately diagnose the causes of work team problems will be able to take appropriate corrective actions (Hellriegel et al., 2002). Therefore, from the literature, it was enough evidence to say that the external system highlighted in this study (team member selection, team training and reward system) could influence team's performance.

2.4.2 Team member selection

Of all the team planning activities, member and leader selection is perhaps the most critical and involved. Deciding who should be part of a team should take place only after identifying the skills and activities that a task requires. Unfortunately, member selection is often by convenience rather than objective assessment, increasing the possibility that the assembled group is unqualified or incompatible (Trent, 2003).

According to Trent (2003), when considering who should be part of a team, potential members should satisfy a number of criteria. Perhaps more importantly, members should have the knowledge and experience relevant to the task at hand along with the time to commit to team activities. Ginnet (1999) mentioned that, whether the assigned head of the team or the emergent leader in a team, there are two key ways in which leaders may affect performance of groups: (1) how they select members and (2) the tactics they use to affect those members.

2.4.3 Team training

Training in teamwork is crucial that it can create or destroy team direction. Teams without specially trained and skillful leaders run a high risk of failing (Zenger et al., 1994). Most team members and leaders would benefit from just-in-time training directed at individual knowledge and skill deficiencies. Examples of training areas include project management and conflict resolution techniques, creative and critical thinking and analysis, communication and feedback, goal setting and consensus decision making (Trent, 2003).

Brauchle and Wright (1993) mentioned that there is now enough research evidence and practical experience to indicate the following ways to enhance team's

performance: (1) team training, (2) collaboration, (3) leadership and (4) understanding of cultural issues in global situations.

According to Martin and Davids (1995), when organizations provide on-the-job training in team, it will lead to high performing team. Training could lead to effective management of complex technologies, quicker responses to rapidly changing environments, greater individual motivation, better quality decisions, higher individual commitment to their team and synergy that could result high performing team (Lawler, 1988).

2.4.4 Reward system

Another moderating variable that could influence the team's performance is reward system. Teams usually perform better when management rewards the entire team rather than providing differential rewards to each member (McGrath, 1964). Findings from a previous research dictated that group-based incentive given to a team member; positively affect effectiveness and productivity of a team, which affect the team's performance (Bullock & Lawler, 1984).

However, the results for rewards are somewhat mixed. Rewards were found to have no significant relationship with team ratings of performance (Magjuka & Baldwin, 1991), productivity (Campion et al., 1993) and process effectiveness (Wageman, 1995). However, Cohen et al. (1996) found that management recognition was positively associated with team's performance when joined with other contextual variables (training, resources and feedback).

2.5 Theoretical Framework

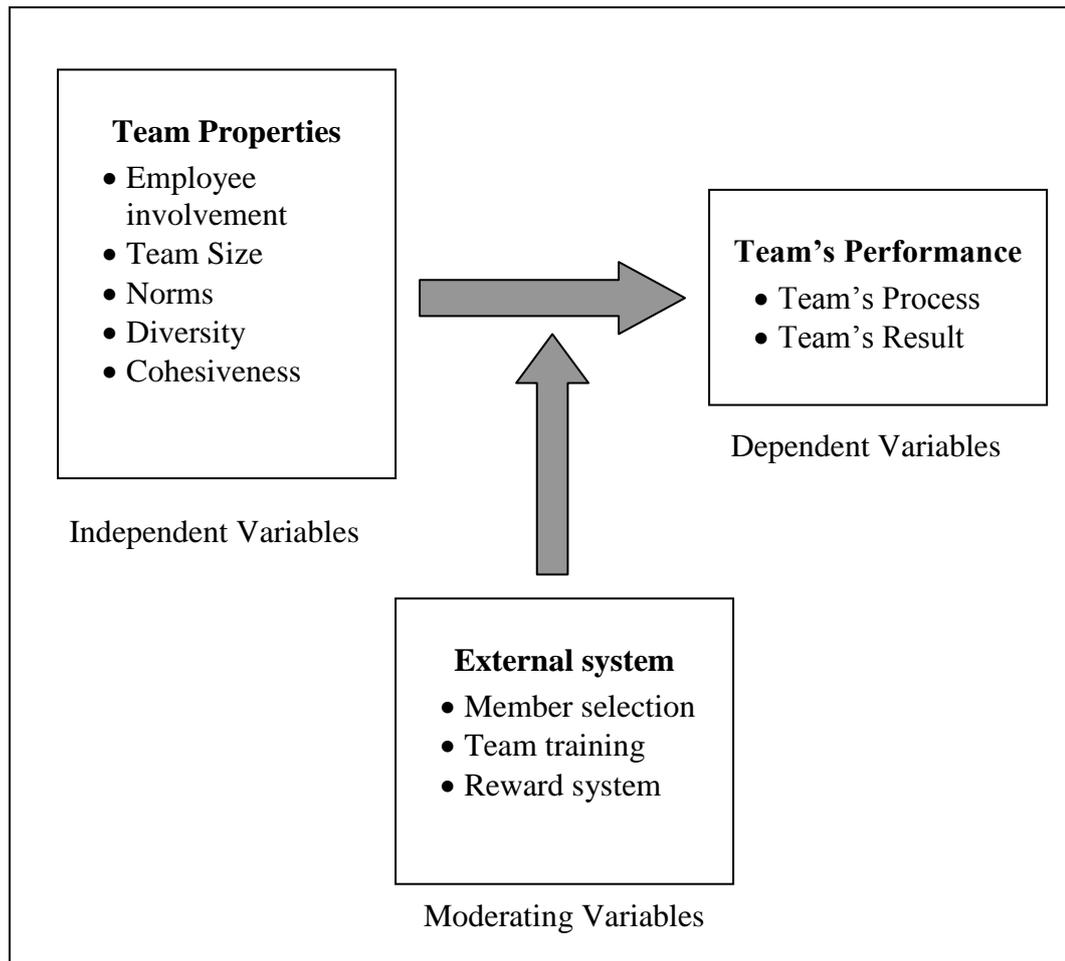


Figure 2.1. *Theoretical Framework*

Figure 2.1 presents the theoretical framework for this study. The variable of primary interest in this research is team's performance. The independent variables in this study are the team properties, i.e. employee involvement, team size, norms, diversity and cohesiveness; whereas the dependent variable is team's performance measured by process and result. External system is the moderator variable introduced in this study that might have a contingent effect on the relationship between the independent variables and the dependent variables.

Based on the literature review, these are some of the factors identified to have the greatest impact on the performance of a team – organizational culture, strategic alignment, leadership, communication, empowerment, team size, social interaction, reward and training. Pierce and Gardner (2001) have listed several characteristics that serve to differentiate the level of performance of a team which they named them as team properties, consist of employee involvement, team size, norms, homogeneity or heterogeneity and cohesiveness.

Salas, Dickinson, Converse and Tannenbaum (1992) have proposed the team effectiveness model (TEM) that illustrates the interrelationships between input variables (characteristics of the team, the work, individual team members and the task), throughput (communication, coordination and teamwork activities) and team’s performance output (Pharmer, 2001). From this model, the relationship between the characteristics of a team and the performance of the team is mediated by a number of intervening variables. Figure 2.2 shows the model.

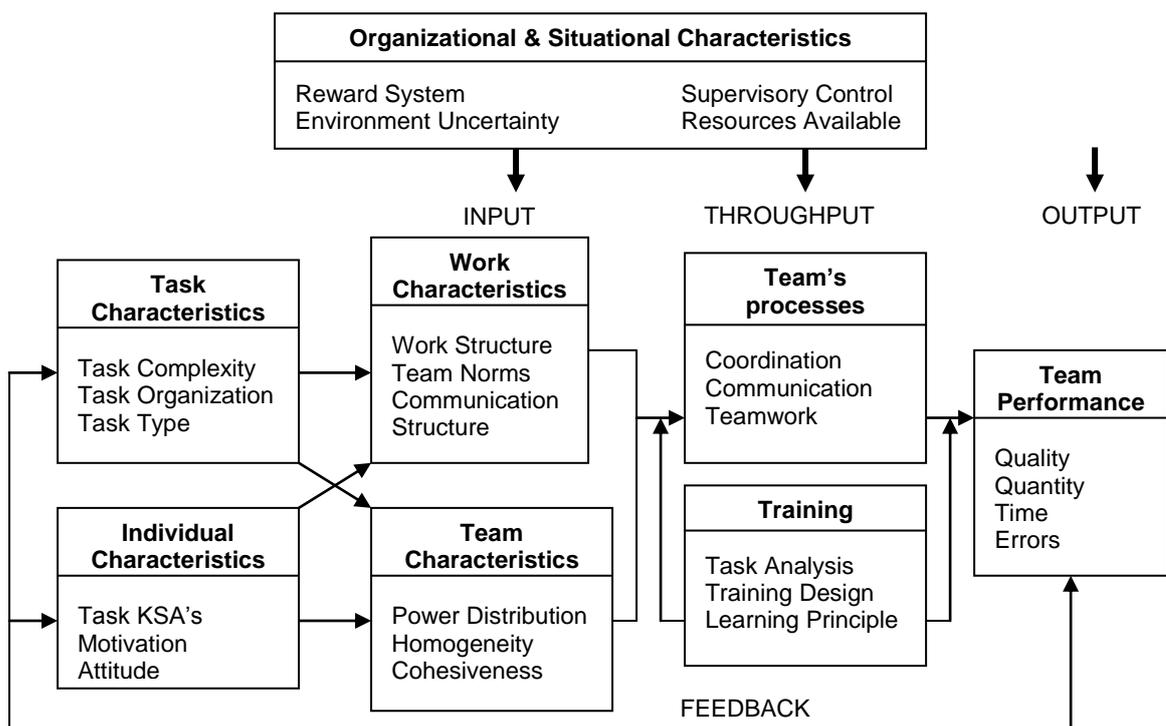


Figure 2.2. Team Effectiveness Model.

However, by taking the items listed by Pierce and Gardner (2001), this study just concentrates on work characteristics and team characteristics as exhibited in team effectiveness model (TEM), to have an impact on team's performance.

TEM did mention that there are organizational and situational characteristics that act as the external variables which contribute to team's performance. Besides, they determined ways to support good team's performance through training and design. This is similar with Hellriegel et al. (2002) with their Work Team Functioning Model, which includes external system (culture, member selection, team training and reward system) as the determinants of team effectiveness. Figure 2.3 illustrates several factors that work in combination to determine team effectiveness. Effectiveness is determined by three main sets of influences: the external system in which the team operates, team design and internal processes that can affect team's performance (Hellriegel et al., 2002).

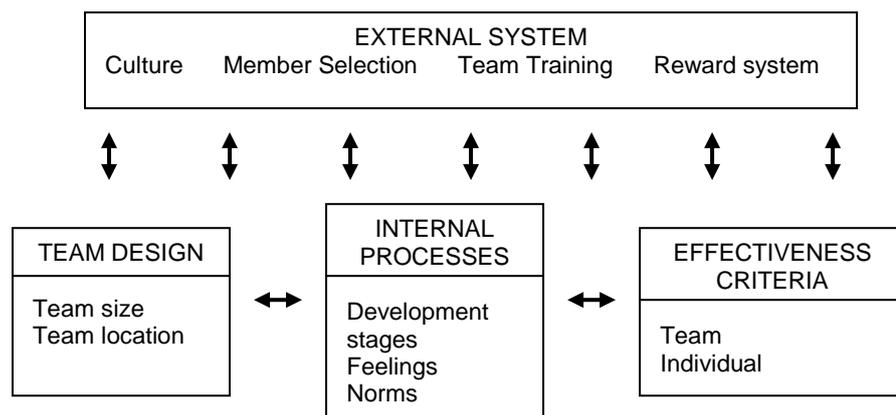


Figure 2.3. A Model of Work Team Functioning

From the theoretical framework, team properties are expected to affect team's performance either in term of process or result. In addition, the moderator variables such as member selection, team training and reward system are expected to influence the relationship between team properties and team's performance.

2.5.1 Underlying Theories

There are many theories that attempt to explain group formation underlying the development of framework for this study. One of them is Theodore Newcomb's balance theory of group formation. The theory states that persons are attracted to one another on the basis of similar attitudes toward commonly relevant objectives and goals (Andrews, 1969). The theory supports the expectation of this study in identifying the relationship between team norms and team cohesiveness with team's performance.

The group formation theory by George Homans lends a great deal to the understanding of group formation and process (Pinder, 1984). The major element in his theory is interaction, whereby persons in a group interact with one another not just in physical propinquity sense, but also to accomplish many group goals through cooperation and problem solving. This theory underlies the relationship between employee involvement and team's performance sought by this study.

Motivation theories have also propagated the needs that motivate humans in the workplace. One of them is the operant conditioning theory (Skinner, 1970). The theory states that people will be motivated to engage in behaviors for which they have been reinforced (rewarded). The theory parallel with this study, whereby the reward system is involved is one of the anticipated variables influencing team's performance.

2.6 Hypotheses of the Study

Based on the objectives of this study, the following hypotheses have been formulated for this research: -

- H1: There is a significant relationship between the employee involvement and the team's process.
- H2: There is a significant relationship between team size and the team's process.
- H3: There is a significant relationship between team diversity and the team's process.
- H4: There is a significant relationship between team norms and team's process.
- H5: There is a significant relationship between cohesiveness and team's process.
- H6: There is a significant relationship between the employee involvement and the team's result.
- H7: There is a significant relationship between team size and the team's result.
- H8: There is a significant relationship between team diversity and the team's result.
- H9: There is a significant relationship between team norms and team's result.
- H10: There is a significant relationship between cohesiveness and team's result.
- H11: External system moderates the relationship between team properties and team's process.
- H12: External system moderates the relationship between team properties and team's result.

2.7 Summary

This chapter explores the relation between team properties and team's performance and the intervening variables between them. The literature started by understanding what the factors of team's performance are. It was found that, there are other important external factors that contribute to team's performance, which could lead to high performing team. These external factors are team member selection, training and rewards. From the literature, it was also found that most of the authors take into consideration the team's processes and team's result in measuring the performance of a team. A Theoretical framework and hypotheses have been developed to explore the relationship between team properties and team's performance.

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the details about the research design, variables, sampling method, administration of questionnaires and statistical analyses used in this study.

3.2 Research Methodology

3.2.1 Research Design

At the first stage, broad area of research interest has been identified through literature reviews, including published and unpublished materials such as management journals, management handbooks, management textbooks and previous researchers' theses. After getting clear understanding on the research concept, specifically on the criteria of team's performance, exploratory research has been conducted in gathering preliminary data about the research interest. Relevant data has also been gathered through survey. Questionnaires have been distributed to the respondents in gathering information.

3.2.2 Variables

3.2.2.1 Independent Variables

The independent variables in this study were employee involvement, team size, norms, diversity and cohesiveness. All these variables are expected to affect the dependent variables, team's performance.

3.2.2.2 *Dependent Variables*

The dependent variables for this study are team's performance, measured by team's process and team's result. Hertzbach and Lebing (1995) have designed a team-related measures matrix that proposed team's performance could be measured on its process and its work results or products.

3.2.2.3 *Moderating Variables*

There are three moderating variables claimed to affect the relationship between the independent variables and the dependent variables, named as external system. They are member selection, team training and reward system.

3.2.3 Population

The target population of this study was the multinational manufacturing companies operating in Penang that practice team work.

3.2.4 Sampling Frame

The target population was chosen from the list of multinational manufacturing companies in Penang prepared by Penang Development Corporation (PDC) (2003). There are 35 leading multinational manufacturing companies in Penang, most of them are in electronic and electrical industry (PDC, 2003). From the list, only nine companies are considered as best practice company in practicing teamwork (PSDC, 2003). Table 3.1 shows the sampling frame.