

**The relationship between team
characteristics with team
performance
in Malaysian teams**

by

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CERTIFICATE OF AUTHORSHIP/ORIGINALITY

I certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree except as fully acknowledged within the text.

I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

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ABSTRACT

Organisations depend on teams to implement its strategies and enables organisations to be flexible and responsive in the competitive global environment. Teams contribute to the organisation while at the same time providing opportunities to team members to develop relationships within team. Teams are viewed as a major source of ‘environmental forces’ that help shape team members (McGrath and Kravitz, 1982). Previous research by Taggard and Brown (2001) shows that there is a statistically significant relationship between team members’ behaviour and team performance (e.g., participation and involving others, goal setting, feedback, team commitment, reaction to conflict, addressing conflict, averting conflict and communication). There is noticeably a lack of research on team behaviours in Malaysia.

The first objective of this thesis is to explore the relationships between team performance and ‘behavioural’ characteristics in the Manufacturing and Telecommunication industries in Malaysia. Past findings suggest that ‘behavioural’ characteristics of well developed team tend to possess certain ‘behavioural’ characteristics (e.g., Wheelan and Hochberger, 1996; Woodcock and Francis, 1996). The literature (e.g., Hoigaard, et. al., 2006; Stevens and Champion, 1994) has shown that that ‘behavioural’ characteristics such as role clarity, role satisfaction, liking, goal agreement, openness to change and differences, participative leadership style, division of task into sub-teams, informal leadership role, effective handling of intra-team conflict and inter-team conflict are critical in team performance.

The second objective seeks to investigate the relationship between team ‘structural’ factors (such as team size, team types, organisation size) and team behaviours. Team structure is viewed as ‘inputs’ to team behaviour (Gist et al., 1987). Goal contribution by teams (e.g., Hoegl and Parboteeah, 2003),

customers (e.g., Kaczynski and Ott, 2004) and management (e.g., Samson and Daft (2003) were also included in the study.

The third objective seeks to investigate the relationship between team members' demographic variables (such as gender, ethnicity, age and education) and team behaviour and team performance. Scholars suggest that there is a link between team's demography and team performance (e.g., Eisenhardt and Schoonhoven, 1990; Michael and Hambrick, 1992).

Questionnaire data were collected from 59 work teams comprising of 137 individual team members) from both small and large organisations located in four regions in Malaysia (Penang, Kuala Lumpur Seremban and Malacca). The respondents were mainly Malay (52.9 percent), followed by Chinese (31.4 percent), and Indian (15.7 percent). Data were analysed using descriptive statistics, Pearson's correlations and one way analysis of variance.

The findings suggest that 'behavioural' characteristics such as role clarity, role satisfaction and division of task into sub-teams are critical for all aspects of team performance. Goal agreement, role clarity, role satisfaction and division of task into sub-teams and participative leadership style correlate with the team performance indicator of downtime reduction. Role satisfaction and division of tasks into sub-teams correlates positively with waste reduction.

The findings indicate that team type and organisation size correlates with team performance. The findings suggest that involvement from team members drawn from cross-functional areas complement each other and these teams tend to have less conflict in task performance. Team members from large organisations seem to have a majority of effective team behaviours such as cohesiveness, liking for each other, goal agreement, role clarity, and openness to differences. These teams also have a preference for structured activities such as division of tasks into sub-teams, participative leadership style and are motivated to achieve team goals. Goal contribution by teams and customers

are critical for team performance. Celebrations of team success provide opportunities for reinforcing team values and bonding team members to one another, thus creating a cohesive team. However, team size does not impact team performance.

The findings show that teams with a majority of Malay members tend to be more cohesive, like each other more, agree to team goals, open to change and accept each other's differences. They also tend to prefer structured activities such as the division of tasks into sub-teams and participative leadership style. Teams with a majority of Chinese and Indian members tend to have higher inter-team conflict and tend to focus on the team's outcome.

The findings have important practical implication for managers and supervisors who need to be sensitive to the differences and needs of the multi-ethnic race team. Intra-team and inter-team conflict could be minimised by providing interpersonal training and conflict resolution skills for team members to communicate positively and build rapport. The findings show that there is a strong relationship between team performance and team type, and team membership composition. Therefore, teams need to be labelled accurately according to the different team expectations and needs of the team (e.g., training, supervision, motivation). The findings found that team involvement in team goals is associated with team performance. This finding suggests that managers need to involve team members in setting reachable goals which provide a sense of direction to teams.

In conclusion, the study found that there is a relationship between team 'behavioural' characteristics such as role clarity, role satisfaction and division of task into sub-teams and team performance in the Malaysian context. Ethnic values and cultural differences also influence team members' behaviour. The study suggests that goal contribution by team and customer provide a sense of direction to teams in achieving the teams' outcomes. Celebration of team success and team participation in convention enhances team performance.

CHAPTER 1 INTRODUCTION

1.1 Introduction

With increasing globalization and an increase in the usage of teams in Asian organisations, the behaviours and characteristics of such teams are of interest to managers and scholars. Organisations are trying to find ways to delegate authority and push responsibility further down the organisation (Samson and Daft, 2003). Most organizations today use teams to implement day-to-day activities to assist them in achieving their strategies, especially in meeting customers' demands and expectations.

Teams are seen as instruments for implementing strategies, influencing, shaping and changing team members' attitudes (McGrath, 1999) and communicating management values (Knights and McCabe, 2000). The challenges confronting modern organisations have become so complex that individuals need to work together to obtain the best possible solution (Samson and Daft, 2003, p.300). Boyer (1988) suggests that workforce flexibility has been effective in overcoming challenges encountered by the manufacturing industry. Samson and Daft (2003) suggest that teams contribute to organisations, while at the same time providing opportunities for team members to develop relationships within the team. Organisations that effectively use teams tend to earn more revenue and have a more sophisticated structure, that is, multiple departments, divisions and locations and more staff (Devine et al., 1999, p.703) to optimise organisational performance.

1.2 Rationale and Overview

Team members' perceptions change over time and the closeness of relationships, acceptance of differences, co-operation, and mutual support among team members are important factors influencing team performance (Tuckman, 1965; Wheelan and Hochberger, 1996; Woodcock and Francis, 1996). Most of the published research deals with teams in developed Western

economies. Additionally, only a very few researchers have included team characteristics and the nature of the team task in the design of their study (e.g., Molleman, Nauta and Jehn, 2004, p.516).

Previous studies suggest that 'behavioural' characteristics are critical in team performance (e.g., Guzzo and Shea, 1992; Stevens and Champion, 1999). These studies tend to focus on therapy teams, laboratory controlled situations, and sports teams in western economies (e.g., Bennis and Shepard, 1956; Smith, 1966). Teams are viewed as a major source of 'environmental forces' that help shape team members (McGrath and Kravitz, 1982, p.216).

The rising labour cost in Malaysia has eroded its competitiveness of manufacturing. As a result, many organisations have shifted to China and Thailand because of the abundant cheap labour and larger domestic market (Rahman Ismal, Ishak Yussof, 2003, p.380). To arrest the decline in manufacturing, Malaysia introduced legislation in 2000 which requires organisations to train their employees to be more efficient in generating and managing new technology (Ismail and Yussof, 2003).

The researcher worked with teams in large organisations in the 1990s, and observed that teams tend to have a short life-span as many organisations fail to sustain their teams' interest. The researcher seeks to investigate the relationship between team performance and 'behavioural' characteristics attempting to provide insights into the influence of 'behavioural' characteristics on team performance. The researcher also investigates the relationship between 'structural' factors (such as forms of management support to teams) and team performance. Of particular interest is the ethnicity of the team members as there is noticeably a lack of research on team behaviours in Malaysia.

The findings of this study would contribute to the literature on team performance and team members' attitude and behaviours' literature (e.g.,

Cohen and Bailey, 1997; Metcalfe and Lindstead, 2003). In particular, the findings contribute to the literature on team member's ethnicity and its effect on behaviours and team performance in the Malaysian context.

1.3 Research Objectives and Research Questions

The main objective of this thesis is to explore the relationship between team performance and 'behavioural' characteristics. Team performance measure is defined as quality, efficiency, productivity, defects reduction, downtime reduction and waste reductions. Past findings suggest that well developed team tend to possess certain effective team 'behavioural' characteristics (Wheelan and Hochberger, 1996; Woodcock and Francis, 1996).

A survey questionnaire, based on past findings identified from the literature review, has been used as the basis of this study. In view of the researcher's past involvement with teams, an empirical study using commercial teams in various industry groups in Malaysia was deemed appropriate for the study.

High levels of team characteristics associated with developed teams are found to be important in Western research (e.g., Cannon-Bowers et. al., 1995; Stevens and Campion, 1994). Cohesiveness is a strong predictor of team behaviour which is linked to team performance (Bettenhausen, 1991; Yang and Tang, 2004). Liking refers to personal attraction that encourages team members to remain in the team (Cartwright, 1968; Burgoon and Ruffner, 1978). Goal acceptance leads to goal clarity which leads to higher team performance (Hoegl and Parboteeah, 2003). Clear structure of roles promotes stable internal coordination (Choi, 2002; Molleman et al., 2004). Role satisfaction implies the fulfilment of social needs which leads to the willingness of members to stay in the group (Molleman et al., 2004). Change occurs when team members are motivated to alter their patterns of behaviour (Kaye, 1994). Team members' openness to each other's differences promotes

understanding and reduces conflict (Ensley, 2001). The division of tasks with clear definitions of authority, responsibility and expertise encourages optimal team performance (Steward and Barrick, 2000). Team members' participation in team decisions increases their commitment which in turn leads to improved team performance (Bettenhausen, 1991; Jackson et al., 2003). Goal motivated teams tend to achieve higher team performance (Beal, et al., 2003). Informal leaders perform functions that formal leaders fail to fulfil (Hackman, 1992) and act as an alternate to formal leadership (Kerr and Jermier, 1978). Intra-team conflict is viewed as an important team process which intervenes between team behaviour and team outcomes (Gladstein, 1984; Jehn, 1997). Teams with diverse roles and subgroups often experience inter-team conflict (Hogg et al., 2004). Therefore, the first research question is: What is the relationship between 'behavioural' characteristics and team performance in manufacturing and telecommunication teams in Malaysia?

The study investigates team 'structural' factors as 'inputs' into team behaviour (Gist et al., 1987). The opinions of members provide the knowledge that is required to improve team performance. Team 'structural' factors such as team size, team types, organisation size were identified for the study. Goal setting was included to obtain insights into the team process. Management support for team activities was also examined. Therefore, the second research question is: What is the relationship between team performance and 'structural' factors in manufacturing and telecommunication teams in Malaysia? Team performance measurement criteria identified for the study include quality, efficiency, productivity, defects reduction, downtime reduction and waste reductions.

Lincoln and Miller (1979) suggested that demographic variables such as gender, ethnicity, socioeconomic origins and age are also attributes which distinguishes team members' from one another and influence team interaction. Demographic similarities or differences affect turnover (Wagner et al., 1984), cohesion (O'Reilly et al., 1989) conflict (Pelled et al., 1999) and work group performance (Ancona and Caldwerll, 1992). Therefore, the third research

question is: What is the relationship between demographic variables, team performance and 'behavioural' characteristics in manufacturing and telecommunication teams in Malaysia? Of particular interest is ethnicity, the perception of the ethnic Malay, Chinese and Indian team members becoming a gauge of differences in their evaluation of their team's 'behavioural' characteristics.

1.4 Organisation of the Thesis

Chapter 1 provides the introduction, rationale and overview of the empirical research, followed by the research objectives. It also contains research questions and the summary of the hypotheses.

Chapter 2 presents the literature review on past research findings and theory and issues that are relevant to team performance. It contains the definition and team types and research findings on effective team 'behavioural' characteristics predictive of team performance. Team 'structural' factors are considered as 'inputs' to team behaviour (Gist et al., 1987) and are reviewed for their relevance in this study. Team structure including team size, team type, organisation size, goal setting and management support for team activities are described in this chapter. Demographic characteristics of team members including gender, race, age, education, previous team experience and past leadership experience have been included in the chapter. . Based on the literature review, hypotheses statements were formulated and are presented in this chapter.

Chapter 3 describes the data collection method, sample and instruments used for the thesis research. The chapter also describes the research sites, the procedures used for obtaining the sample and data collection. The questionnaire instruments used are described in detail. The formation of

'behavioural' characteristics scales, factor analysis and the reliability results for each scale are also described in this chapter.

Chapter 4 presents the major results of the field research study. The detailed descriptive statistics, correlations and one-way analysis of variance (ANOVA) are presented according to the three research questions.

Chapter 5 presents the summary of key findings and the evaluation of the hypotheses and a discussion of findings according to the three research questions which are set out as follows: What is the relationship between 'behavioural' characteristics and team performance in manufacturing and telecommunication teams in Malaysia? What is the relationship between team performance and 'behavioural' characteristics and 'structural' factors in manufacturing and telecommunication teams in Malaysia? What is the relationship between team demographic variables such as age, gender, ethnicity, education level and 'behavioural' characteristics in manufacturing and telecommunication teams in Malaysia?

Chapter 6 concludes the thesis with a discussion on the practical implications of the research findings for management in Malaysia. Research limitations and future research suggestions are discussed in this chapter.

CHAPTER 2 LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1 Introduction and Overview

as indicated, this chapter presents the literature review of previous studies which focus on the relationships between team performance and team members' attitudes and behaviours (e.g., Cohen and Bailey, 1997; Metcalfe and Linstead, 2003), team design features and team performance (Stewart, 2006), relationship between culture, and team diversity and intra-team conflict (e.g., Chuang et al., 2004).

Some past research used behavioural observations to identify teamwork behaviours (e.g., Stevens and Champion, 1994; Taggard and Brown, 2001) while others used team characteristics to relate to team performance (e.g., Gist et al., 1987; Levine and Moreland, 1990). 'Behavioural' characteristics such as cohesion with performance (Evans and Dion, 1991), team tenure and the verbal behaviour patterns of team members (Wheelan, 2003). Steven and Campion (1994) suggest that teams are more effective and productive if members have attributes such as trust; openness, helpfulness and supportiveness. Hartenian (2003) suggests that co-operation or collective behaviours promote goal achievement.

The thesis draws the list of 'behavioural' characteristics that may predict team performance from team development theory (e.g., Bennis and Shepard, 1956; Tuckman, 1965; Woodcock and Francis, 1996), past empirical studies (e.g., Janis, 1982; Choi, 2002) and meta-analytic reviews (e.g., Bettenhausen, 1991; Stewart, 2006). Past research findings on team structure such as team size, (Gist et. al., 1987; Levine and Moreland, 1990), team type (Kozlowski and Bell, 2003), team membership and organisation size were evaluated for their influence on team performance and 'behaviours'. Team demographic variables of gender (Gist et. al., 1987), age (Cohen and Bailey, 1997), ethnicity

(Kozlowski and Bell, 2003), educational level, team tenure (Cohen and Bailey, 1997), problem solving and past leadership experience on team performance and 'behaviours' were also investigated (Levine and Moreland, 1990).

Teams are defined as formal and organised groups of individuals who work interdependently, have common goals, are mutually accountable for task accomplishment (Hackman, 1987; Sundstrom et al., 1990), and meet regularly to accomplish the team's goals. A team comprises interdependent individuals organised to perform specific tasks (Guzzo and Dickson, 1996; Ilgen, 1999) and meet team goals such as productivity, quality and customer service (Jordon et al., 2002).

Katzenbach and Smith (1994) define teams as a small number of members who are committed to the team's goals or performance and are mutually accountable to each other. The team members interact and coordinate with each other to accomplish the team's goal, share and take turns to be the leader, attend meetings and discuss work and share out the team tasks. Levine and Moreland (1990) suggest that team members adapt their behaviours to the demands of the team task. For example, if a team encounters time constraints, they tend to focus on the team task and ignore social or emotional issues.

Quality Control Circles (QCC), Small Group Activity (SGA) teams, project teams and others (departmental teams) are included in the study. All these teams perform tasks related to tools, machines and systems (Bowers et al., 1997) and depend on the competence of team members to achieve team performance (Marks et al., 2001).

Quality Control Circles (QCC) were developed by Japan in the 1960s and 1970s, and it uses statistical quality control to monitor quality (Eunson, 1987) and focus on opportunities to raise productivity and quality standards (Guzzo and Dickson, 1996). Past research suggests that teams performing less

complex tasks require standard operational procedures (Campion et al., 1993; Choi, 2002) and thus standardised behaviour and discipline can be expected.

A Small Group Activity (SGA) team comprised of cross-functional members who work on a wide variety of tasks, such as being involved in product design and work process problems (Hackman and Wageman, 1995). SGA teams are viewed as a temporary, being assigned to solve short-term problems involving several departments (Guzzo and Dickson, 1996; Samson and Daft, 2003). Yeh and Chou (2005) found that cross functional teams are negatively associated with team performance due to the differences in team members' experiences, educational levels and/or values due to their different disciplines hindering the quality of teamwork.

Project teams work on non-repetitive tasks and members are drawn from different disciplines and functional units, so that their specialized expertise can be applied to the project (Cohen and Bailey, 1997). Past research suggests that multi-functional project teams are positively linked to rapid development time (e.g., Eisenhardt and Tabrizi, 1995; Cohen and Bailey, 1997).

A departmental team is usually made up of permanent members with functional specialty (Samson and Daft, 2003). This membership is stable as the members are full-time employees with well-defined job functions (Cohen and Bailey, 1997). Traditionally, departmental teams are directed by supervisors who make most of the decisions about what is done, how it is done, and who does it.

Woodcock and Francis (1996) categorize teams into 'individualised' or 'systematised' teams. The 'systematised' type requires supervision, training or indoctrination, motivation, communication and there is an 'intellectual standardization' within the team. The 'individualised' team requires individual viewpoints which will have a considerable impact on their structure as there is no universal format or a standardised process for such teams (Woodcock and Francis, 1996). Past research suggests that low-complexity tasks like assembly

work are highly routine and well-structured, and involve predictable situations that can be effectively managed within standard operational procedures (e.g., Hambrick et al., 1998; Choi, 2002).

From the literature review the researcher has categorised teams as follows:

Category of teams	Short Term Duration	Long Term Duration
Systemised	Small Group Activity (SGA)	Quality Control Circles (QCC)
Individualised	Project	Departmental/work teams

Teams that are well developed tend to rotate the team leader role, and shift and share leadership roles. This is viewed as a litmus test for performing team (Katzenbach, 1997). When team leaders are effective in implementing tactics they improve team performance (Durham et al., 1997). On the other hand, when there is a lack of leadership the quality of team is negatively affected (Burgoon and Ruffner, 1978).

When teams are given more autonomy and decision-making responsibility (Guzzo and Dickson, 1996) there is an increased reliance of informal leaders (Neubert, 1999). Past research suggests that leadership role is linked indirectly to team performance through its effects on goals (e.g., Durham et al., 1997; Locke et al., 1998). Goal setting by leaders promotes confidence in their subordinates and influences team self-efficacy in goal achievement (Kirkpatrick and Locke 1996).

Purpose of teams

Teams or groups are formed for two basic purposes: personal development (Bennis and Shepard, 1956; Wheelan, 1999) and task achievement (Gersick, 1988; Smith, 1966). The goal of personal development groups such as therapy group, T-groups and training groups is to develop individual member's skill and understanding in dealing with their personal circumstances. On the other hand, task achievement groups, such as those described above, are oriented

towards specific problems or tasks aimed at improving or implementing systems. Thus it could be expected that these two fundamentally different types of teams would have different characteristics. However, arguably a review of the research in these areas shows there is often little if any distinction made between the two. This study has focused on team behavioural characteristics drawn from team findings and theory which are described in the next section.

2.2 'Behavioural' Characteristics and Team Performance

Previous research by Taggard and Brown (2001) shows that there is a statistically significant relationship between team members' behaviour and team performance (e.g. participation and involving others, goal setting, feedback, team commitment, reaction to conflict, addressing conflict, averting conflict and communication. Other findings suggest that there is a positive correlation between team characteristics and team performance (e.g., Barrick et al., 1998; Carless and DePaola, 2000; Hoigaard et al., 2006; Neuman et al., 1999; Stevens and Campion, 1994).

Skills in interpersonal relations, leadership and coordination, adaptability, decision making, communication and shared situational awareness contribute to effective team work (Cannon-Bowers et al., 1995). Individual characteristics of knowledge, skills and abilities (KSAs) are critical for effective team work (Steven and Campion, 1999). Past research have shown that individual team-work behaviours have a positive and significant relationship to productivity (e.g., Brown and Latham, 1999; Latham and Wexley, 1977).

2.2.1 Hypothesis Development on 'Behavioural Characteristics and Team Performance

Teams that have good interpersonal relations tend to be effective because they are more productive as members do not have to deal with conflicts (Steven and Campion, 1994). Attributes of initiative, trust, openness, helpfulness, flexibility, and supportiveness are viewed as desirable team characteristics (Stevens and Campion, 1994). Co-operation or collective behaviours promote goal achievement (Hartenian, 2003). Past research points out that the attitudes and behaviours of team members and their concern for others are linked to team performance (Metcalf and Linstead, 2003). Past research also suggests that coordination of the team task and open sharing of relevant information among members enhances team effectiveness (Hoegl and Parboteeah, 2003).

However, the perception of team performance depends on the perspectives of the evaluators, that is, the team members, the team leader, customers and the company (Cohen and Bailey, 1997). Past research on graduate students suggest that team characteristics of team cohesion and conflict fluctuated in different team phases but in the later stages, the social cohesion increases (Yang and Tang, 2004).

Tuckman (1965) suggests that teams become a problem-solving instrument when members adopt and play roles that complete the team's task successfully. Teams become flexible, functional, and team energy is channelled into the team task. Members experience cohesiveness, achieve new standards, adopt new roles and feel comfortable in expressing their opinions.

Teams that have a clear roles and mutual expectations provide a stable internal coordination for the team which leads to improved team performance (e.g. Janis, 1982; Choi, 2002). Often teams are required to set goals, identify tasks and define team roles which may cause substantial pressure and stress for the team (Choi, 2002, p.196).

2.2.1.1 Cohesiveness

Festinger, Schachter and Black (1950) define cohesiveness as the need to belong because of certain attraction or because they like the other members (cited by Steers and Porter, 1975, p. 320). Turner (1987) reinforced the need for members to belong; it is fundamental for members to identify with a team otherwise individuals may self-categorise themselves into a group and develop more positive attitudes and liking for the group members that are similar to themselves. Team members who have similar attitudes, values and enjoy being together are also attracted to the team (Samson and Daft, 2003, p.599)

Others define cohesion as the extent in which teams are able to complete their goals and encourage higher productivity (e.g., Gibbard and Hartman, 1973; Hare, 1976). Past research suggests that cohesiveness leads to higher levels of performance (Hirokawa, 1983; Larson and LaFasto, 1988). Members of highly cohesive teams are committed to team activities, attend meetings and are happy when the team succeeds (Samson and Daft, 2003, p.599) whereas low cohesive teams tend to be more independent and have little concern for other team members (Shaw, 1976).

Team cohesiveness is considered a key factor in influencing team performance (Carless and DePaola, 2000; Hoigaard et al., 2006) and a strong predictor of team behaviour linked to team performance (Bettenhausen, 1991; Yang and Tang, 2004). Cohesion among team members tends to motivate them to coordinate and perform better (Cartwright, 1968; Weaver et al., 1997). Cohesive team members tend to use team resources more efficiently because they are familiar with each other and motivated to complete the task successfully (Beal et al., 2003). Teams with higher mean levels of social cohesion performed better on mental and physical task performance and receive higher ratings on team performance (Jordan et al., 2002, p.140). Hackman (1987) suggests that team members with high cohesion (team spirit) are more committed and willing to work harder for the team, thus leading to

better performance. Man and Lam (2003) argued that a cohesive team is able to improve team performance whereas a 'loosely knit' team is likely to lack the motivation to work together. Past research suggests that team cohesion is positively related to team performance but fluctuates in different phases with less cohesion at the later stages (Yang and Tang, 2004). On the other hand, past studies suggest that there is ambiguity in the relationship between team cohesion and team performance (Stogdill, 1972; Beal et al., 2003, p.989). Hence, we expect team cohesiveness to have a positive relationship with team performance.

Hypothesis 1a. Team cohesiveness is positively correlated with team performance

2.2.1.2 Liking each other

Similarity-attraction theory suggests that similarity between individuals in demography characteristics (Byrne, 1971) is related to interpersonal attraction (Liden et al., 1993). Liking is personal attraction that encourages team members to remain in the team (Cartwright, 1968; Burgoon and Ruffner, 1978). Thelen (1954) is of the opinion that if a team spends more time initially on interpersonal relationships, there will be greater efficiency (cited by Samson and Daft, 2003, p.599).

Past scholars suggest that if members talk to each other during the initial phases of group development, discuss their personal goals and get to know each other, they tend to build a common frame of reference and this enhances problem-solving (e.g., Samson and Daft, 2003). Liking encourages interaction among members (Williams, 2001; Jackson et al., 2003), and promotes the sharing of functional experiences (Bunderson, 2003). Team members tend to be more open and cooperative when there is a sense of belonging as familiarity promotes trust (Ensley et al., 2001) and become more cohesive leading to higher task productivity (Hare, 2003). Past studies suggest that there is a

positive relationship between similarities and liking, especially similar values (Dose and Klimoski, 1999) and the higher the attraction to the team, the more positive is the liking rating (Koomen, 1988; Bettenhausen, 1991).

On the other hand, Carless and Paola (2000) suggest that cohesion is assessed as members' liking for each other. In view of the literature findings suggesting that members' liking for each other encourages interaction and promotes the sharing of functional experiences, therefore liking will lead to more open and co-operative team which leads to team performance. Hence,

Hypothesis 1b. Team members' liking for one another is positively correlated with team performance

2.2.1.3 Goal Agreement

Scholars suggest that sharing team goals motivates team members to accomplish those goals and minimise goal conflict (e.g., Larson and LaFasto, 1989; Locke and Latham, 1990). Goal acceptance can be enhanced through the team's participation in goal setting (Pearson, 1987; Stevens and Campion, 1994) which in turn leads to goal clarity and higher team performance (Hoegl and Parboteeah, 2003) in quantity; accuracy or delivery of services (Guzzo and Dickson, 1996).

Past research also suggests that teams with high goal acceptance are likely to exhibit higher productivity (Bettenhausen, 1991), generate a team identity effective for team performance (Burgoon and Ruffner, 1978) and that members' commitment to the team's goals is positively related to team performance (Evans and Dion, 1991, p.181). Others indicated that goal agreement has a positive effect on team performance (Guzzo and Dickson, 1996).

Goal agreement generates team identity which is effective for team performance; therefore, goal agreement is expected to have a positive relationship with team performance. Hence,

Hypothesis 1c. Goal agreement is positively correlated with team performance

2.2.1.4 Role Clarity

Well-developed teams have a clear role definition and mutual expectations that offer stable internal coordination (Choi, 2002; Molleman et al., 2004). Role clarity is viewed as a major concern in work teams (House et al., 1996; Betts, 2005) and when members perform their functional roles well (Driskell et al., 1987) there is higher team performance (Pfeiffer, 1994). Past research suggests that role clarity is a critical characteristic of high performing teams (Burgoon and Ruffner, 1978). When team members understand their duties or spheres of responsibility and complement each other (Kaye, 1994, p.28) members tend to become more cohesiveness and cooperative (Bass, 1980) which significantly leads to team performance (Woodcock and Francis, 1996; Bradley et al., 2003). If team task autonomy is high, team members have opportunities to grow into different roles and shape their own work which consequently affects team performance (Molleman et al., 2004).

On the other hand, role ambiguity destabilises relationships, resulting in tasks being neglected due to the expectation of someone else will do it (Kaye, 1994). Role ambiguity creates stress and generates role conflict (Samson and Daft, 2003), increases tension and lowers productivity (Levine and Moreland, 1990, p.603) and consequently affects team performance (Salas et al., 1999).

Role clarity reduces the need for internal coordination, increases cohesiveness and cooperation. Hence, role clarity is expected to have a positive relationship with team performance.

Hypothesis 1d. Role clarity is positively correlated with team performance

2.2.1.5 Role Satisfaction

Samson and Daft (2000) describe roles as the set of behaviours expected of team members. When members complete a complex task or solve a problem that benefits others, they may experience a feeling of accomplishment, which is perceived as an intrinsic reward. The satisfaction derived in the process of performing the action is defined as role satisfaction.

Role satisfaction implies the fulfilment of social needs which leads to a willingness to stay in the group (Molleman et al., 2004). When team members have the ability to perform a variety of roles they contribute to team quality and productivity (Pfeiffer, 1994). Members obtain intrinsic reward when they are able to complete a complex task or solve a problem that benefits others. Hence, role satisfaction is expected to have a positive relationship with team performance.

Hypothesis 1e. Role satisfaction is positively correlated with team performance

2.2.1.6 Openness to Change

Kaye (1994) suggests that change occurs when individual members accept the necessity to change and are motivated for extrinsic or intrinsic reasons to alter their patterns of behaviour. Team members who are open to change tend to interact openly with other members (Molleman et al., 2004) as they are more

likely to trust, cooperate and commit to the team (Wheelan, 1999) leading to more effective work (Woodcock and Francis, 1996).

Team members who are open to change are likely to enjoy experimenting with new problem-solving strategies and new ideas (Molleman et al., 2004). Team members tend to be more effective in their work when they are open to change and enjoy experimenting with new problem solving strategies and ideas. Hence, openness to change is expected to have a positive impact on team performance.

Hypothesis 1f. Team members' openness to change such as experimenting new problem strategies is positively correlated with team performance

2.2.1.7 Openness to Differences

Experts suggest that, personal differences in values, attitudes and/or beliefs can be minimised by increased openness to ideas, feelings and willingness to accept differences in others (e.g., Bass, 1980; Stevens and Campion, 1994). When team members are open to each other's differences, they tend to participate actively in team activities and are open to regular feedback, leading to higher team performance (Wheelan, 1999). Openness to differences promotes understanding, reduces conflict (Ensley, 2001, p.70) and promotes a more effective response to threats and opportunities (Woodcock and Francis, 1996). In view of past findings suggesting that team members' openness to one another's differences enables a better response to threats and opportunities, openness to differences is expected to have a positive relationship with team performance, Hence,

Hypothesis 1g. Team members' openness to differences is positively correlated with team performance

2.2.1.8 Division of Task into Sub-Teams

Sub-teams are usually formed to enable members to acquire new skills and share information. They are then brought together into the original larger group to promote communication among the team (Hare, 2003, p.129). The division of tasks with clear definitions of authority, responsibility and expertise encourages optimal team performance (Steward and Barrick, 2000) and the coordination of effort and specialisation contributes to extra team productivity (Burgoon and Ruffner, 1978). Scholars suggest that identifying people who can work together creates successful teams (Harrison and Connors, 1984; Levine and Moreland, 1990). Teams are usually formed among similar people (e.g., Fontana, 1985; Levine and Moreland, 1990) or similar processes or specialisations which produces better work with the same amount of effort (Samson and Daft, 2003).

On the other hand, teams with heterogeneous membership have a range of abilities (Guzzo and Shea, 1992) and ‘when the variety of skills is complementary, the team is likely to achieve higher team performance’ (Stevens and Campion, 1994). However, when sub-teams are unwilling to compromise or when actions are taken without checking with or informing the whole group, the division of labour and sub-team can have a negative effect (Wheelan, 1999). The division of tasks with clear definitions of authority, responsibility and expertise encourages optimal team performance. Therefore, the division of task into sub-teams is expected to have a positive impact on team performance. Hence,

Hypothesis 1h. Division of task into sub-teams is positively correlated with team performance

2.2.1.9 Participative Leadership Style

Samson and Daft (2003) describe participative leadership as the leader seeking opinions, suggestions and encouraging participation in decision making. When team members are involved, their multiple perspectives enhance the accuracy of the problem diagnosis (Levine and Moreland, 1990; Stevens and Campion, 1994). If team task autonomy is high, team members are able to contribute to the team through their various team roles leading to members shaping their own work (Molleman et al., 2004). A participative leadership style empowers members and binds the team together (Choi, 2002, p.198), motivates and creates team spirit (Osterloh and Frey, 2000).

Past research suggests that team members' participation in team decisions increases their commitment, leading to improved team performance (Bettenhausen, 1991; Jackson et al., 2003). Findings from meta-analysis conclude that there is a positive relationship between participative leadership style and team performance (Cohen and Bailey, 1997; Lam et al., 2002) and participative leadership style is related with the duration of leader-member acquaintance (Somech, 2003).

Team members' active participation increases their commitment to the team and consequently leads to higher team performance. Hence, participative leadership style is expected to have a positive impact on team performance. Hence,

Hypothesis 1i. Participative leadership style is positively correlated with team performance

2.2.1.10 Goal Motivation

Weingart and Weldom (1991) suggest that when team members share responsibility for team task they may experience challenges which motivate

them to achieve team's performance. However, the tasks need to be coordinated in a goal oriented manner (Osterloh and Fey, 2000). Past research suggests that goal motivated teams tend to accomplish their goals and consequently have higher team performance (Beal et al., 2003).

However, teams must be given recognition for their contribution otherwise team members may be discouraged to contribute towards the team's performance (Weingart and Weldom, 1991). Goal motivated teams tend to achieve higher team performance (Beal et al., 2003). Hence, goal motivation is expected to have a positive impact on team performance.

Hypothesis 1j. Goal motivation is positively correlated with team performance

2.2.1.11 Informal Leadership Role

Katzenbach (1997) suggests that when team members take on leadership roles at different times and in different ways characterise a performing team. When team autonomy such as decision-making is given to team members (Guzzo and Dickson, 1996) there is a tendency to rely on informal leadership which hold great influence even when the team has a formally designated leader (Hackman, 1992, Neubert, 1999) because the informal leader perform team functions that formal leaders fail to fulfil (Hackman, 1992) or act as an alternate substitute for formal leadership (Kerr and Jermier, 1978).

Past research pointed out that informal leadership influences team performance (Neubert, 1999) through facilitating the team process and fulfilling the members' need (Luft, 1984). Informal leadership tends to fulfil the needs of the members when the formal leader fails to provide. Hence, informal leadership role is expected to have a positive impact on team performance.

Hypothesis 1k. Informal leadership role is positively correlated with team performance

2.2.1.12 Intra-Team Conflict

Past research suggests the need to manage intra-team conflict effectively to resolve team issues (Ilgen, 1999; Sims, 1995). Intra-team conflict is viewed as an important team process variable which serves as a mediator between antecedents of team behaviour and team outcomes (Gladstein, 1984; Jehn, 1997). Past research suggests that there is a link between diversity and intra-team conflict (Tsui et al., 2002) and when teams manage intra-team conflict effectively they are likely to work productively (Alper et al., 2000). A low level of conflict is positively associated with higher team performance (Devine et al., 1999).

Bettenhausen (1991) suggests that inequity among team members is strongly associated with intra-team conflict and is primarily managed by avoidance tactics. Avoidance to conflict is both culturally valued and useful within collectivist societies (Boisot and Child, 1996; Trompenaars, 1993). Past research suggests that in a collectivist society (China) avoiding conflict is helpful in creating positive relationship as relationship is highly valued (Ohbuchi et al., 1996; Tjosvold and Sun, 2002).

On the other hand, high levels of task conflict affects work standards and consequently have a negative effect on team performance (Jehn, 1995). Intra-team conflict relates negatively to cohesion but overtime it produces lingering resentment and avoidance (Ensley et al., 2001, p.370). Others suggest that intra-team conflict is not significantly correlated with overall performance (Yang and Tang, 2004). In collectivist society, intra-team conflict is avoided. This is due to the emphasis place on inter-personal relationship. Hence, intra-team conflict is expected to have a negative impact on team performance.

Hypothesis 11. Intra-team conflict is negatively correlated with team performance

2.2.1.13 Cliques (Sub-group)

Cliques tend to form in large teams because of poor communication (Bass, 1980, p.462) and unclear goals (Mc David and Harari, 1966; Bass, 1980) leading to members isolate themselves (Bass and Tyterband, 1978; Bass, 1980). Subgroups and coalitions may have negative effects when they are unwilling to compromise or when actions are taken without checking with or informing the whole group (Wheelan, 1999, p.35). Sub-grouping has a potential danger of affecting group morale and effectiveness. Subgroups tend to lead groups into an unproductive or perceived win/lose situations.

Although a subgroup is easy to identify, determining the underlying motivations of the team members is more difficult. It becomes a concern when the subgroup becomes habitual, with the same 'in groups' and 'out groups' or when subgroups hinder the group as a whole (Robson, 1995, p. 73-74). Subgroups are often perceived to experience inter-team conflict but it may not be always the case because the social diversity can contribute to team performance (Hogg et al., 2004). When teams view conflict as a common problem which requires common solution, the sub-group exchange of diverse ideas and perspectives are viewed more positively, minimising inter-team conflict (Alper et al., 2000). When subgroups integrate with the whole team, it is viewed as a positive partnership (Wheelan, 1999).

On the other hand, cliques (sub-group) become a concern when sub-groups view themselves differently and not as a part of the whole team (Robson, 1995). Clique (sub-group) formation impacts members' behaviours. Hence, clique (sub-group) is expected to have a negative impact on team performance.

Hypothesis 1m. Clique (sub-group) formation is negatively correlated with team performance

Table 1.1
Summary of Research Question One Hypotheses

Hypotheses	
H1a	Team cohesiveness is positively correlated with team performance
H1b	Team members' liking for one another is positively correlated with team performance
H1c	Goal agreement is positively correlated with team performance
H1d	Role clarity is positively correlated with team performance
H1e	Role satisfaction is positively correlated with team performance
H1f	Team members' openness to change such as new ideas and feedback is positively correlated with team performance
H1g	Team members' openness to differences is positively correlated with team performance
H1h	Division of task into sub-team is positively correlated with team performance
H1i	Participative leadership style is positively correlated with team performance
H1j	Goal motivation is positively correlated with team performance
H1k	Informal leadership role is positively correlated with team performance
H1l	Intra-team conflict is negatively correlated with team performance
H1m	Clique (sub-group) formation is negatively correlated with team performance

2.3 ‘Structural’ Factors, Team Performance and ‘Behavioural’ Characteristics

Gist et al. (1987) suggests that team size is considered as an ‘input’ into team behaviour. Hare (2003) suggests that team size influences team performance and behavioural outcomes. Others (e.g., Bettenhausen, 1991; Taggard and Brown, 2001) suggest that team size affects team performance.

2.3.1 Hypothesis Development on ‘Structural’ Characteristics and Team Performance and ‘Behavioural’ Characteristics

Team structure is viewed as an ‘input’ to team behaviour (Gist et al., 1987). To determine the effect of structure on team performance and ‘behavioural’ characteristics, team structure is operationalised as team size, team type, organisation size, goal setting and forms of management support and tested as a number of hypotheses.

2.3.1.1 Team Size

There is no consistent definition of what constitutes an effective team size in the literature. For instance, Hare (2003) considers ‘small’ team as 3 to 5 members and a ‘large’ team to comprise 8 to 12 members. Bass (1980) considers the best team size for a problem-solving team to be 5 to 6 members. Scholars are of the opinion that the optimal size of a team is moderated by the relationship between information, complexity and the number of knowledge domains required for the successful completion of the tasks (Nunamaker et al., 1989, cited by Valacich et al., 1995, p.320). Valacich et al. (1995, p.239) also suggest that team size of 8 to 10 members had the best performance. Team size affects team performance (Bettenhausen, 1991; Taggard and Brown, 2001),

numerical size enhances team's overall performance (Valaciah et al., 1995) and affects the interaction between team members as the larger teams are likely to form sub-teams and this creates difficulty in interacting with each other (Mayhew and Levinger, 1976; Lincoln and Miller, 1979). Team size mediates the nature and quality of discussion (Burgoon and Ruffner, 1974). On the other hand, size has a negative relationship with sub-team's efficiency. This is attributed to 'free riding' and 'social loafing' (Gist et al., 1987). Team size depends on the task as some tasks require only one person while others require more people (Hare, 2003).

Kozlowski and Bell (2003) suggest that larger team size is advantageous for management and project teams. Steward (2006) argues that the optimum team size differs across team type as it depends on the purpose and responsibilities of the team. On the other hand, large teams are viewed as dysfunctional as the size can hinder coordination among members (Gladstein, 1984; Campion, Medsker and Higgs, 1993) reduce member involvement (McGrath, 1984; Campion, et al., 1993) reduce cohesion/increase conflicts (Wheelan and McKeage, 1993).

Teams need to be small enough to do the work (Sundstrom, et al., 1990; Campion et al., 1993). Small team size is conducive to team productivity (Bass, 1980), resulting in higher team performance (Stevens and Campion, 1994). Optimum team size is dependent on task complexity, knowledge domains, purpose and responsibilities. Therefore, team size is expected to have a negative effect on team performance.

Hypothesis 2a. Team size is negatively correlated with team performance.

2.3.1.2 Team Types

Scholars recognise the need to classify teams to assist in organising and discussing of team findings (e.g., Devine et al., 1999; Guzzo and Shea, 1992).

Devine et al. (1999) classified teams into four types, namely; ad hoc project teams, ad hoc production teams, ongoing project teams and ongoing production teams. Project tasks teams tend to work on processing information (that is, planning, creating, choosing and deciding) while teams focused on production tasks involve some degree of hands-on physical and psychomotor ability or sequenced and synchronized activity. Ad hoc teams are formed for one task cycle and long-term, ongoing teams are continually assigned new tasks or perform the same task in a cyclical fashion.

A Small Group Activity (SGA) 'works on a wide variety of tasks, having a cross-functional involvement in product design or solving operation problems' (Hackman and Wageman, 1995, p. 314). Ad hoc production teams (Devine et al., 1999) are 'limited in their duration and disband upon the completion of the task' (Guzzo and Dickson, 1996, p.324).

Quality Control Circles involve all team members in improving team quality (Cheney, 1994; Guzzo and Dickson, 1996) and cost reduction (Guzzo and Dickson, 1996). Quality Circles usually 'meet on a regular and voluntary basis in order to discuss, propose and implement improvements to the production process in the work area' (Mueller, et. al., 2000, p. 1409) and are viewed as ongoing production teams (Devine et al., 1999). Woodcock and Francis (1996) views Quality Control Circles as 'systemized' teams because of the standardised work practices, expected behaviour and discipline of its members.

Project team tasks are non-repetitive in nature and involve considerable application of knowledge, judgment and expertise; drawing members from different disciplines and functional units and specialized expertise (Cohen and Bailey, 1997, p.242). Ad hoc project teams tend to solve quality problems, formulate business strategy and develop new products (Devine et al., 1999). Past research suggests that innovation work projects are positively associated with quality performance (Keller, 1986 cited by Bettenhausen, 1991, p.367). Project teams have more flexibility, having fewer technical, mechanical, and

workspace dependencies, being less closely attached to the organisation and potentially addressing an almost infinite set of intellectual tasks (Devine et al., 1999).

Departmental teams are permanent functional teams, with each team member bringing in their functional expertise (Samson and Daft, 2003). Past research shows that multiple departments or cross-functional teams are common in organisations (Devine et al., 1999). Woodcock and Francis (1996) view departmental teams as 'individualised' team because of the individual viewpoints which have considerable impact on the team's performance'.

Carron et al. (1988) suggest that team types moderate team performance (e.g., production teams interact with customers, assemble products and maintain services for machinery or equipment) (Devine et al., 1999). Long-term and ongoing teams that tend to be entrenched in the organisation's structure are considered costly to maintain in terms of planning, coordination, selection and training. Issues that are considered critical for such team include member satisfaction, motivation, attitude, value similarity, socialization, cohesion, norms and conflict resolution (Devine et al., 1999).

Different types of teams tend to work on different problems and are considered short-term or long-term teams. Therefore, different team types are expected to focus on different aspects of team performance.

Hypothesis 2b. Team type is positively correlated with different aspects of team performance criteria

2.3.1.3 Organization Size

Organisation size influences corporate strategy and performance because it is related to resources (Shrader and Simon, 1997, cited by Fernandez and Nieto, 2006, p. 340). Teams from large organisations tend to assemble products using automated and computer-controlled machinery that is manually monitored by operators (Groover, 2002) who are likely to receive training (Devine et al.,

1999). Past research (such as Hartenian, 2003) suggests that large organisations are likely to train teams on conflict resolution skills and have mentors, which enable team members to learn team skills or ‘soft skills’. Teams which have worked together for a longer time and in large organisations are more likely to possess strong team skills (Hartenian, 2003).

Past studies (e.g., Poza, 2004; Fernandez and Nieto, 2006) suggest that small organisations are usually family owned and tend to be flexible, quick in decision-making and take pride in the family culture. However, business and personal objectives are often combined, affecting business objectives (Davis and Tagiuri, 1991; Fernandez and Nieto, 2006). Small organizations lack strategic management and strategy formulation in their business (Tan, 1990). For example, small organisations tend to be less attentive to team activities because they are expensive to design and implement (Hartenian, 2003) and small organisations do not possess high technology. Large organisations have more resources. Therefore, team members from large organisations are given training on team skills. Hence,

Hypothesis 2c. Teams from large organisation are positively correlated with effective team ‘behavioural’ characteristics

2.3.1.4 Goal Setting

Goal setting promotes goal commitment and challenging goals leads to superior team performance (Locke and Latham, 1990; Brown and Latham 2000). Goals regulate behaviour and specific goals lead to higher performance (Brown and Latham, 2000). Locke et al. (1981) suggests that goal setting is a motivational experience.

Samson and Draft (2003) suggest that goals fit into a hierarchical structure. (e.g., strategic goals are considered the responsibility of top management and operational goals are the responsibility of first-line supervisors and workers).

Operational goals lead to the achievement of tactical goals, which in turn lead to the attainment of strategic goals. The goal setting process provides a sense of direction to teams and directs team members' efforts towards important outcomes. Wheelan (1999) pointed out that team members function better when the team goals and task are meaningful, interesting and challenging. Goal acceptance is important because lack of goal unity or clarity reduces team performance (Stevens and Campion, 1994).

Team members who set specific challenging goals and obtain feedback tend to develop more appropriate ways of accomplishing task goals (Buller and Bell, 1986). Hoegl and Parboteeah (2003) argued that goal setting is not the sole responsibility of the supervisor but requires the collaboration of team during the goal setting process as supervisor and managers are unable to control teamwork quality and goal setting process. Teams with high levels of co-operation between supervisors or leaders are more likely to trust their leader in accomplishing the team's goals.

Past research suggests that goal setting is positively related to team performance such as efficiency and effectiveness (e.g., Ilgen and Klein, 1988; Sims and Lorenzi, 1992) and quality and efficiency (Hoegl and Parboteeah, 2003). Goal setting is more effective when it is set at the team level (e.g. O'Leary-Kelly et al., 1994; Hoegl and Parboteeah, 2003). Team member's familiarity with the team task improves team performance when used in conjunction with goal setting (Dossett et al., 1979; Latham et al., 1978). Goal setting is strongly related to team performance; hence goal setting by teams is expected to have a positive impact on team performance.

Hypothesis 2d. Goal setting by team is positively correlated with team performance

Kaczynski and Ott (2004) pointed out that customers' expected standards are incorporated into the team goals to promote customer sovereignty. Samson and

Daft (2003) suggest that teams need to be flexible and adaptable in responding promptly to customers' expectations. Customers' key performance indicators of product service and/or quality are usually linked to operational goals. Teams performing complex tasks need to seek feedback from customers in order to adjust their services in accordance with their customers' standards (Choi, 2002). Teams need to be flexible and adaptable in responding to the customers' expected standards; hence goal contribution by customers to the team goals is expected to have a positive contribution to team goals.

Hypothesis 2e. Goal contribution by customer to team goals is positively correlated with team performance

2.3.1.5 Management support in the form of organising conventions

Past research suggests that management should provide clear direction and adequate material resources to enable teams to perform (e.g., Goodman, 1986; Hackman and Walton, 1986 cited by Samson and Daft, 2003, p.600). Samson and Daft (2003) suggest that teams are more productive when members feel that management is supporting them. The positive relationship between teams and management enhances team performance. Management can vary in its support to teams (Carew et al., 1986; Kormanski, 1988).

Celebrations reinforce team values, promote team cohesiveness and are symbolic of management support (Bolman and Deal, 1997), enabling teams to thrive (Woodcock and Francis, 1996). In view of the past findings suggesting that teams are more productive when team members feel management is supporting them, management support in the form of organising convention is expected to have a positive impact on team performance.

Hypothesis 2f. Organising convention to celebrate team success is positively correlated with team performance

2.3.1.6 Training

Training in relevant team skills positively affects team performance (e.g., Guzzo et al., 1993; Hartenian, 2003). O'Reilly (1992) suggests that training in the manufacturing sector is likely to enhance skill and provides functional flexibility to meet shortages and intensify work. Training enables team members to interact in a more positive and effective manner, collaborate with each other in solving team problems, manage conflict and facilitate team performance (Stevens and Campion, 1994). Team members' knowledge and creativity tend to promote open communication which consequently leads to higher levels of satisfaction and team performance (Molleman et al., 2004).

Training 'enables team members to interact with one another in a more productive manner, which leads to more effective team performance' (Salas et al., 1992 cited by Campion et al., 1996, p.432). Poor team skills tend to trigger conflict (Ayoko et al., 2002). Training enables team members to acquire new skills and reduce conflict in the workplace and consequently improve team performance. Therefore training is expected to have a positive impact on team performance. Hence,

Hypothesis 2g. Management support in the form of training is positively correlated with team performance

Table 1.2
Summary of Research Question Two Hypotheses

Hypotheses	
2a	Team size is negatively correlated with team performance
2b	Team type is positively correlated with different aspects of team performance criteria
2c	Team members from large organisation are positively correlated with effective 'behavioural' characteristics
2d	Goal setting by team is positively correlated with team performance
2e	Goal contribution by customers to team goals is positively correlated with team performance
2f	Organising convention to celebrate team success is positively correlated with team performance
2g	Management support in the form of training is positively correlated with team performance

2.4 Demography Variables and Team performance and ‘Behavioural’ Characteristics

Scholars suggest that there is a link between a team’s demography and team performance (e.g., Eisenhardt and Schoonhoven, 1990; Michael and Hambrick, 1992). To determine the existence of the relationship between demography and team performance, the study investigates demographic characteristics of age, gender, education level, tenure of members, team experiences and past leadership experience.

Team members tend to distinguish one another according to the demography characteristics such as sex, ethnicity, socioeconomic origins and age. Demography influences team interaction (Lincoln and Miller, 1979; Tsui et al., 2002). An individual’s gender, race, age and education influence social experiences, perceptions, attitudes and status (Hambrick and Mason, 1984; Pfeffer, 1983). Members with similar demographic characteristics tend to promote social identity, and treat each other favourably whereas demographically dissimilar members treat each other less favourably (Tsui et al., 2002). Pelled (1996) found that gender composition affects emotional conflict. Rentsch and Klimoski (2001) suggest that gender composition affects team performance.

2.4.1 Hypothesis Development on Demography Variables and Team Performance and ‘Behavioural’ Characteristics

Social identity theorists suggest that people tend to categorise themselves as belonging to the same or different social groups (Tsui et al., 2002). Individuals tend to view positively members of the same social category as more attractive and cooperative because of their demographic similarity in the team (Tsui et al., 2002). When team members spend more time working together, they

become more familiar with each other, identify more similarities among themselves, and become more cohesive (McGrath, 1991; cited by Sosik and Jung, 2002, p.9). The study determines the effects of demographic characteristics of age, gender, education, team membership tenure, previous team experience, past team leadership experience and ethnicity.

2.4.1.1 Age

Tsui et al. (2002) suggest that industries that rely heavily on technological innovation tend to recruit younger members who are more educated and possess a higher level of expertise. Pelled et al. (1999) argued that those of a similar age are likely to have similar work attitudes and higher emotional conflict in teams. Older members aged 36 years and above tend to be more satisfied with team membership (Tsui et al., 1992). Research conducted in Malaysia suggests that age affects conflict-handling behaviours (Wafa and Lim, 1997). Younger team members in Malaysia are expected to preserve 'face' and respect of the older team members (Asma, 1992; Wafa and Lim, 1997). Direct confrontation to older team members or 'power' figures is discouraged (Kirkman and Shapiro, 2001).

Age dissimilarity affects the quality of relationship (Tsui et al., 2002). Older team members are respected for their age. Therefore, older team members are expected to experience lower inter-team conflict

Hypothesis 3a. Teams with older team members (36 years and above) are positively correlated with lower inter-team conflict

2.4.1.2 Gender

Gender composition in work teams affect member's perception of quality and performance (Karakowsky et al., 2004). Teams with female members

encounter difficulty in working together, experience higher level of competition and tension; have lower levels of efficiency and cooperation (Gist et al., 1987). Team gender composition with 30 percent or more male members experience lower team performance whereas teams with 30 percent or more female members showed higher team performance (Knouse and Dansby, 1999).

In Malaysia, females are usually employed to perform assembly work in the manufacturing sector. Assembly work is highly routine and well-structured, involving predictable situations that can be effectively managed within standard operational procedures (e.g., Hambrick et al., 1998; Choi, 2002). Gender composition in work teams affects members' perception of quality and performance. Therefore, teams with a majority of female members are expected to rate lower their team performance.

Hypothesis 3b. Team with a majority of female members are likely to rate lower their team performance

Metcalf and Linstead (2003) pointed out that there is no literature linking team effectiveness and team behaviours to feminine sensibilities or debate the gendering process of the skill dynamics of teams (Metcalf and Linstead, 2003, p.101). (Karakowsky et al. (2004) suggest that gender role stereotypes affect the behaviour, feelings and perceptions of the team members and consequently lead to biased perceptions. Dickens (1988) argues that “HRM literature tend to theorise organisation as masculine and masculinise team behaviours” (cited by Metcalfe and Lindstead, 2003, p. 102). Men tend to perform work roles that shape relationships, offer opinions and suggestions (Bettenhausen, 1991) and are more tasks oriented (Taylor and Strassberty, 1986; Bettenhausen, 1991). Women tend to promote participation and communication (Rosener, 1990). Teams with majority female members are likely to behave differently from teams with a male majority. Hence,

Hypothesis 3c. Team with a majority of female members is likely to differ in its behaviour from team with a majority of male members.

2.4.1.3 Education refers to Year 10 (secondary education)

Members acquire skills to perform tasks effectively (West and Allen, 1997) and become effective team members (Athanasaw, 2003). Education influences members' perceptions and attitudes (Hambrick and Mason, 1984; Pfeffer, 1983). Members with higher levels of education tend to have a broader range of perspectives which contributes to strategic problem solving (Cohen and Bailey, 1997), tend to support each other (Tsui et al., 2002) and are likely to possess social skills. The majority of the team members are at the operator level. Therefore, team members with an education level of Year 10 or above are expected to have the basic skills of reading and writing (documentation). Hence,

Hypothesis 3d. Team members at the Year 10 education level or above are expected to learn to become effective team members

2.4.1.4 Team Membership Tenure

Team tenure is related to cohesion which promotes effective team performance (Hambrick and D'Aveni, 1992; Cohen and Bailey, 1997). Eisenhardt and Schoonhoven (1990) suggest that team tenure is an important antecedent of high performing team. When team members spend more time working together, they become familiar with each other, tend to identify similarities among themselves and are more cohesive (e.g. McGrath, 1991; Sosik and Jung, 2002). Time spent in the workplace correlates positively with the possession of team skills as cooperative norms take time to develop (Chatman and Flynn, 2001; Hartenian, 2003). Ensley et al. (2001) suggest that team tenure has a positive impact on a team's performance because members who work together closely for a period of time are more able to make accurate decisions.

Team members who hold a high position in the hierarchy usually have long tenure with the team and/or organisation and understand work processes better (Pfeffer, 1983), being likely to take on informal leadership (Neubert, 1999). Their views and opinions are likely to be viewed more positively by the new members (Tsui et al., 2002). When team members have longer team tenure than their team leader the former tends to show less participation and initiative (Tsui et al. 2002). Long team tenure members in large firms are likely to possess strong team skills of conflict resolution, goal setting, and planning (Hartenian, 2003). Teams with long team tenure are likely to develop a common identity, hence team members are expected to interact more positively with each other.

Hypothesis 3e. Long team tenure members expected to be more effective team members

2.4.1.5 Previous Team Experience

Team members with previous team experience have higher skills in problem solving and conflict resolution which leads to better team performance (Hartenian, 2003). They also acquire the expertise to complete their goals successfully (Hoegl and Parboteach, 2003) and team experience influences team performance and goal setting (Bandura, 1997).

Previous team experience enables team members to work together on a long term basis (Hackman, 1991; Pescosolidao, 2003). Members' competence and expertise can be optimised, saving time, as there is no need to set ground rules and operating guidelines (Pescosolidao, 2003). On the other hand, team members without team experience tend to have negative attitudes towards their team (Bushe, 1987). Previous team experiences promote members' competence in solving problem and managing conflict effectively. Hence,

Hypothesis 3f. Team members with previous team experiences are expected to become effective team members

2.4.1.6 Past Team Leadership Experience

Team leader's knowledge and expertise is viewed as a source of 'expert power' (Bunderson, 2003) as they have the ability to facilitate, formulate goals and promote open discussion within the team (Taggard et al., 1999). They are likely to possess effective behaviours such as collaboration in problem solving and task coordination (Taggar and Brown, 2001). The unique roles played by the team leader influences team performance (Taggard et al., 1999).

Past team leadership experience is beneficial for teams because of their ability to identify priorities and draw up contingency plans (Hambrick and Mason, 1984). Team members with past team leadership experience are able to facilitate and promote open discussion. Hence,

Hypothesis 3g. Team members with past team leadership experiences are expected to become effective team members

2.4.1.7 Ethnic diversity

Culture is defined as the reinforcement of key values, beliefs and behaviours and identity of a group (Hofstede, 1980). Adler (1997) suggests that cultural values are formed during early childhood. Cultural differences affect members' interactions, work orientation, the manner in which work is done (Ayoko et al., 2002; Smith et al., 1995) and the team's cooperation (Hofstede, 1984; McCarrey, 1988). Team members' satisfaction and commitment differences are attributed to cultural values (Dorfman and Howell, 1988 cited by Kirkman and Shapiro, 2001, p. 557).

Culturally heterogeneous teams tend to perform better in some aspects of task performance because of their differences in perspectives in analysing problems, leading to more accurate decision-making (Watson et al., 1991 cited by Guzzo and Dicks, 1996). Organisations can manage diversity by emphasizing values such as respect for people and team orientation to decrease

the negative effects of diversity on the team members (Chuang, 2004). Multi-cultural work teams offer numerous forms of diversity, including a diversity of values (Hofstede, 1984; McCarrey, 1988). Cultural diversity affects member's behaviours and team performance (Kirkman and Shapiro, 2001; Thomas, 1999). 'Diverse views and backgrounds must be successfully managed' (Jehn, Northcraft, and Neale, 1999, p. 741) in order to 'promote a higher degree of tolerance for uncertainty' (Hofstede, 1980, p. 318).

Malaysia -National culture

Liu et al. (2002) suggest that national identity and ethnic identity are examples of group identities that can be held concurrently. Ahmad (2005) pointed out that the majority ethnic Malay group are given special privileges but other ethnic values and differences are retained and respected. Tolerance of multi-ethnic differences is important for Malaysia's economic growth and prosperity (Prime Minister, 2006).

Hofstede (1997) suggests that Malaysia is considered a high power distance nation. In a high power distance situation, subordinates are often told what to do and relationships between subordinates and supervisors are often loaded with emotions. A direct confrontation with a 'power' figure is considered rude and undesirable. Subordinates tend to behave submissively to their supervisors (Kirkman and Shapiro, 2001). Team members feel comfortable working with a strong leader who can direct the team (Earley and Erez, 1997 cited by Kirkman and Shapiro, 2001).

Malaysians are characterised by underlying values of collectivism-orientation, teamwork, cooperation, respect for seniors/elderly people and preserving face, respect for authority and hierarchy and values of harmony (Asma, 1992; Wafa and Lim 1997). The spirit of collectivism is considered more important than the task which suggests there is a higher need for affiliation but a lower need for autonomy (Wafa and Lim, 1997). Ahmad (2005) suggests that leadership

practices in Malaysia tend to be paternalistic. For example, Chinese and Indian enterprises tend to adopt the 'father-son' relationship where employers are expected to behave like 'wise elders, caring and nurturing and employees are expected to be loyal and committed. The Malays prefer a leader whom they can trust and respect and the relationship between employer and employee is similar to that of an extended family that has mutual obligations.

Ethnicity

Malaysia has three major ethnic groups, the Malays who are politically dominant, the minority Indians and the economically dominant Chinese as a minority group (Liu et al., 2002). Ethnicity in Malaysia is unique because of the existence of multi-ethnic, race, religion and lingual groups in the country (Ahmad 2005). The ethnic groups have distinct beliefs, values and religious beliefs which are adopted from the country of origin. Some values are similar, for example, the emphasis on family life and a respect for hierarchical order of society (Hashim, 2002). The Malays are Muslim, the majority of the Chinese are Buddhist, Indians are Hindu and a number of Chinese and Indians are Christians. The spirit of 'muhibah' which refers to harmony, respect and courtesy are critical to maintaining peace in the country. Harmony among team members strengthens relationships (Leung, 1997; Leung et al., 2002).

According to Dahlan (1991), the Malay 'budi' culture refers to a structure of values such as 'murah hati' (generosity), 'hormat' (respect), 'iklas' (sincerely), 'mulia' (righteousness), 'timbang-rasa' (discretion), 'malu' (feelings of shame at the collective level and feeling of shame at the individual level). Malay team members tend to value harmony, respect authority, face-saving by expressing disagreements or criticism in an indirect manner (Taman, Hassan, and Said, 1996). The Malay team members view work as a necessity for life, not as a goal in itself and are less concerned with team performance.

Chinese team members tend to draw core values from Confucianism. The relationship with others is based on goodness and humanity (Storz, 1999). Emphasis is given to saving 'face', which refers to integrity, is critical to business dealings (Hamzah-Sendut, 1991). The Chinese members are 'action' oriented and tend to monitor the link between the level of effort they put in and the outcome they receive (Ahmad, 2005), when operating the team's goals (Hofstede, 1977).

Inter-ethnic tensions interfere with members' interactions and communication (Vaid-Raizada, 1985), members' level of participation and openness (Tang and Kirkbride, 1986), affecting attitudes and team performance (Townsend and Scott, 2001). Differences among racial and ethnic groups could be minimized if they are recognized and viewed as assets of the team (Thalhofer, 1993). Diversity can be a challenge or viewed as potentially enhancing team performance (Jehn et al., 1999). Management needs to promote respect for differences in cultural values (Adler, 1997; Kirkman and Shapiro, 2001). The work values adopted by the ethnic majority Malay are based on Islamic values. Therefore, the perception of team members on 'behavioural' characteristics will differ from each other.

Hypothesis 3h. Teams with a majority of Malay members will view team 'behavioural' characteristics differently from teams with a majority of Chinese and Indian members

Table 1.3
Summary of Research Question Three Hypotheses

Hypotheses	
3a	Teams with older members (36 years & above) are positively correlated with lower conflict
3b	Teams with a majority of female members are positively correlated with team performance
3c	Team with a majority of female members is likely to differ in its behaviour from team with a majority of male members
3d	Team members at the Year 10 education level or above are expected to become effective team members
3e	Long team tenure members are expected to become effective team members
3f	Team members with previous team experiences are expected to become effective members
3g	Team members with past team leadership experiences are expected to become effective members
3h	Teams with a majority of Malay members will view team 'behavioural' characteristics differently from teams with a majority Chinese and Indian team members

2.5 Team Performance Measurement

Team performance is defined as the extent to which a team is able to meet established quality, cost, and timing objectives (e.g., Lechler, 1997; Schracher and Goepfert, 1996) meet company objectives and customers' expectations (Hoegl and Parboteeah, 2003). Quality is referred to as zero deficiency or absence of defects (Groover, 2002).

Levine and Moreland (1990) suggest that team performance measures the tangible outcome of teams' activities. Team performance may be measured in terms of quantity, quality, efficiency, productivity, response time, customer satisfaction and attitudinal outcomes (Cohen and Bailey, 1997). Team performance is influenced by the complexity of the task, team structure, the knowledge, skills and abilities of the members (Bowers et al., 2000) and the characteristics of team members (Guzzo and Dickson, 1996). Customers are considered as a key variable in influencing team goals (Ancona and Caldwell, 1988; McGrath, 1997).

2.6 Chapter Summary

The literature review on teams suggests that there is a link between team members' attitudes and behaviours with team performance (Metcalf and Linstead, 2003). Teams are evaluated on several 'behavioural' characteristics such as cohesion (Evans and Dion, 1991), team tenure (Wheelan, 2003) and co-operation (Hartenian, 2003). Teams are more effective and productive if members have attributes of openness and supportiveness (Steven and Campion, 1994). Effective teams tend to share openly relevant information, have a good coordination in team tasks, members utilise each other's knowledge and expertise effectively, support each other, and focus effort on team task (Hoegl and Parboteeah, 2003; Williams, 2001). Team members have opportunities to grow into different roles and shape their own work when team

task autonomy is high (Molleman et al., 2004). Sharing team goals motivate members to accomplish team's goal and minimise conflict (Larson and LaFasto, 1989; Locke and Latham, 1990), direct team members' attention and action (Hoegl and Parboteeah, 2003) and generate team identity, which is effective for team performance (Burgoon and Ruffner, 1978). Teams with high goal acceptance exhibit higher productivity (Bettenhausen, 1991).

The types of teams studied in this research study include Quality Control Circles (QCC), Small Group Activity (SGA) teams, project teams and departmental teams. Team members tend to adapt their behaviours to the demands of the team task. For example, if the team encounters time constraints members tend to focus on the team task and ignore social or emotional issues (Levine and Moreland, 1990).

The aims and objectives of the study are presented in the form of three research questions.

Research Question One: What is the relationship between 'behavioural' characteristics and team performance in manufacturing and telecommunication teams in Malaysia?

Research Question Two: What is the relationship between 'structural' factors and team performance in manufacturing and telecommunication teams in Malaysia? Research Question Three: What is the relationship between the team's demographic variables such as age, gender and ethnicity and education level and 'behavioural' characteristics and team performance in manufacturing and telecommunication teams in Malaysia? Of particular interest is the influence of ethnicity on team performance and team behaviours.

CHAPTER 3 METHODS

3.1 Introduction and Overview

This chapter highlights how the study has been conducted. The study has investigated 'behavioural' characteristics of teams in the manufacturing and telecommunication sectors in Malaysia. The study covers teams from both small and large organisations.

Data were collected using self complete questionnaire. The questionnaire was used to identify behavioural characteristics from team members and their leaders. The quantified information is required as a source of information (Veal 2005, p.34). The survey questionnaire method was chosen because a large sample size could be taken for the study. The survey questionnaire provides a "quick, inexpensive, efficient, and accurate means of assessing information" (Zikmund, 1997, p.203). Moreover, the respondents could complete the survey questionnaire items at their own time and did not impact the productivity of team members. Questionnaire survey is "arguably the most commonly used technique in management research" (Veal, 2006, p.143).

Team members completed two questionnaires. Team Member Questionnaire (Part A) comprises questions relating to the background demography details of the members. Team Member Questionnaire (Part B) comprised a series questions on a range of team characteristics from the perceptions of team members and their leaders. In addition, team leaders were given another questionnaire on the teams' background.

In view of the multi-ethnic team memberships of Malay, Chinese and Indian members, a bilingual questionnaire, written in English and Bahasa Malaysia was distributed to all participating teams. A pilot study was not done prior to the actual study as it required the researcher to travel to Malaysia.

The 100 items listed in the Team Member Questionnaire (Part B) were grouped as a 'piori' of constructs and subjected to a factor analysis before confirming them as scales. Thirteen 'Behavioural' Scales were calculated as the average values of the responses to the items comprising each of the scales. The validity of each scale was examined using reliability analysis (Zikmund, 2003). Cronbach Alpha reliability coefficients were calculated for each of the scale (See Table 3.1). All scale items which had a reliability coefficient of less than .60 were excluded from the analysis. As noted by Hair, Anderson, Tatham and Black (1998, p.118), the generally agreed lower level for Cronbach alpha is .70, although values as low as .60 can be used in more exploratory research. The study is considered an exploratory research because there is noticeably a lack of research on team behaviours in Malaysia. Since the current study is of exploratory nature, it is decided that scales with Cronbach's alpha of .60 will be accepted for statistical analysis.

3.2 Data Collection and Sample

In the study, a broad range of teams were sampled from several organisational types in the ethnically diverse environment of Malaysia. The teams which participated in the survey are from both large and small organisations. They are active teams from the manufacturing and telecommunications industry. The large organisations are owned by the Japanese, German and American companies. The small organisations are owned by local entrepreneurs. The researcher used convenient, randomized samples from a networks of friends and past work colleagues located in three geographical regions, Penang (north region), Kuala Lumpur (capital city) and Seremban / Malacca (south region). Survey sample included General Managers, Departmental Managers, Executives, Engineers, Supervisors and Assembly workers.

Twenty-one organizations agreed to participate in this study (See Appendix A). The researcher visited all of the organisations to explain the purpose of the

research, supported by the approval letter issued by the Ethics Committee of UTS (Appendix B). Three questionnaires were used, the Team Leader Questionnaire (see Appendix C), Team Member Questionnaire Part A (see Appendix D), Team Member Questionnaire (Part B) (see Appendix E) required teams to respond to the 100 'behavioural' items. Team leaders were requested to complete the Six hundred (600) sets of bilingual Team Member Questionnaire (See Appendix F) and 220 sets of Team Leader Questionnaires were distributed to all the coordinators of the participating organisations. A written explanation on how to complete the questionnaire (Appendix G) and the information sheet (Appendix H) were given to all the coordinators. A total of 119 teams comprising of 550 members agreed to participate in the study. Four weeks later the researcher returned to the participating organizations to collect the completed questionnaires.

A total of 94 teams with 488 respondents returned their completed questionnaire. Nine (9) teams with 118 respondents were removed as they had less than 6 months of team experience. They were unable to determine their team's contribution as they had not completed their project. Twenty-six teams (26) with fifty-three (53) respondents were removed due to low team representation which is less than 60 percent representation. A total of fifty-nine (59) teams with three hundred and seventeen (317) respondents were usable. The response rate was sixty-five (65) percent.

3.2.1 Team Members' Characteristics

The majority of respondents are Malay (52.9 percent), male (58 percent), aged 26-35 years of age and have completed secondary school and certificate level (41.7 percent). Team members predominantly have a year's team experiences (36.5 percent). The majority of the members (44.4 percent) have worked in their organizations for six years or more. Team membership is made compulsory (72.8 percent) by team members' supervisor. About 37.5 percent of the team members have past team leadership experience. The characteristics of the respondents (team members) are summarized in Appendix I.

Since the main analyses for the study were carried out at the team level, race at the individual team member level (as shown in Appendix K) was used to establish ethnicity at the team-level. Team-level ethnicity is the proportion of responses in the team for each of the response options. Only teams with more than 60 percent of their members being represented in the study sample were considered for further analysis. The choice of 60 percent was a compromise between a desire for a greater number of teams to be included in the analysis, and the need for characteristics of the team members in the sample to be reasonably representative of the characteristics of the team as a whole. Using this criterion, 35 teams were removed, leaving a total of 59 from the original 94 teams to be used for the team-level analysis. The two clusters formed are the majority Malay cluster (38 teams) and the majority Chinese and Indian cluster (21 teams) (refer to Table 4.9).

Team ethnicity was studied using the ANOVA and post hoc tests to determine the impact of team's difference on 'behavioural' characteristics. Mean ratings for the two ethnicity clusters' 'behavioural' characteristics scales are reported in Table 4.9. Ethnic team membership composition is categorised into two clusters, one with a majority of Malay team members, and the second cluster with a majority of Chinese and Indian team members. For ethnicity the

entropy-based index recommended by Teachman (1980) and Ancona and Caldwell (1982) was used and the results are not statistically significant.

3.2.2 Team Leaders Sample Characteristics

The majority of the team leaders (76.3 percent) were selected by team members (see Appendix J). However, less than half of the team leaders (37.5 percent) had past team leadership experience. The team leaders' evaluation of team performance (See Appendix J) was used to measure the teams' performance.

3.2.3 Characteristics of Teams

The types of team labelled by the organisations are influenced by the company culture. Japanese companies tend to use Quality Circles, which focus on quality issues and the elimination of waste. Small Group Activity or Project teams are commonly used in American companies, where they focus on broader issues ranging from operations to documentation improvements. The fourth category is made up of Departments (refer to Appendix J).

Small Group Activity teams (40.7 percent) make up the largest category of team types. The majority of the team size ranged from 6 to 8 members (56 percent). About 35.6 percent of the teams were working on their first project. The teams surveyed were facilitated by their manager or executive (55.9 percent). Management support in the form of allocation of time for team meetings was (100 percent), training (93.2 percent) and organising conventions for teams to showcase their completed projects is (32.2 percent).

3.3 Instruments

3.3.1 Introduction

Three questionnaires were used; the Team Member Questionnaire (Part A) obtains information on the demography details of the team members. The Team Member Questionnaire (Part B) requires team members to respond to the 100 'behavioural' items using the Likert-type rating scale ranging from (1) strongly disagree to (7) strongly agree.

The team leaders were requested to complete the Team Leader Questionnaire. The Team Leaders Questionnaire obtained information on the team's background. The Team Leader Questionnaire obtains information on the team size, the number of project the team worked on, position of facilitator, resignation of team members and number of new members in their team. The second section gauged the form of management support, such as allowing time for meeting during work, providing training and paying overtime to attend meetings. The third section measures the team performance using six performance criteria, such as productivity, quality, defects reduction, efficiency, downtime reduction and waste reduction. Team contribution in terms of modifying work procedures and accreditation were also included. Dichotomous (yes-no) questions were used to determine the forms of management support and the different aspects of team performance. The fourth section examined the team and customers' involvement in goal setting. The fifth section obtained information on the team composition, organisation size and the teams were labelled.

3.3.2 Team Leader Questionnaire (information on team)

The Team Leader Questionnaire contains five sections. The first section obtained information on the team's background. Information on the selection of the team leader, number of projects the team had worked on, the position of their facilitator, data on the resignation of member(s) and number of new members was also obtained.

The second section of items gauged team leaders' opinions on whether the management supported the team such as allocating resources, allowing teams to conduct their meetings during work hours, providing training, paying overtime for meetings, and organising conventions for teams to showcase their completed projects. Past findings which suggest that leadership affects the team interaction process and, when teams are given autonomy in performing their task and supported by management, they tend to achieve higher productivity and quality performance (Miller, 1975; Asma, 1986).

The third section of items involved the perceptions of team leaders on their team's performance in terms of productivity, quality, defects reduction, efficiency, downtime reduction and waste reduction. Although the team leader is likely to affect team performance (Eden, 1990), and are considered reliable as they represented their team in completing the above team performance criteria. Past researchers have also used survey questions which focused on perceptions of overall team performance, with responses from team members and their managers (Cohen and Bailey, 1997) and obtained the rating for the whole team from the supervisor of the team or team leader (Alper, et al., 2000). Other contributions such as modifying work procedures, maintaining accreditation standards and suggestions for Human Resource policy revision, were also included. A summary of the information obtained from the team leader questionnaire, and the response options for each of the items, can be seen in Appendix J. A scale for team performance was formed. This included productivity, quality, defects reduction, efficiency, breakdown reduction and

wastage reduction. The team performance scale was calculated as the average of responses to the above six items (See Appendix I). This scale had a Cronbach Alpha value of .849.

The fourth section of the items gauged the teams' involvement in setting team goals. Scholars view goal setting as a motivational experience (e.g. Locke, 1968; Locke, Shaw, Saari and Latham, 1981). Team members' familiarity with their team task (behaviours) improves team performance when it is used in conjunction with goal setting (Dossett et al., 1979; Latham et al., 1978). Customers' goal contribution to the team goal setting was also investigated. The customers' perspective is critical for team performance because teams perform their tasks and maintain vitality through their relationships with customers (Sundstrom et al., 1990; Choi, 2002). Teams performing complex tasks tend to seek feedback from customers in order to adjust their course of action in accordance with customer demand (Choi, 2002).

The fifth section items obtained information on the 'structural' factors such as team size, composition, team type and organisation size. Past findings suggested that team size influenced the team's level of cohesion and performance/productivity (Evans and Dion, 1991). Team types are created for specific purposes (Guzzo and Dickson, 1996, p.322). Team composition was derived from past findings suggesting that heterogeneity in the kinds of jobs held by team members enhanced team effectiveness (Pollack, 1971). Differences in educational background, training and work experience increased diverse perspectives and opinions in a workgroup (Stasser, 1992).

3.3.3 Team Member's Questionnaire (Part A)

The Team Member Questionnaire (Part A) required respondents to complete their demographic details such as gender (male/female), race/ethnicity (Malay, Chinese, Indian), age and educational level. Team variables such as team experience, tenure in the team, whether current leader of team, past leader experience, number of days training received, position in the organization, tenure with the organization, and whether team membership was compulsory or voluntary was also obtained. Gender, ethnicity, socioeconomic origins and age are viewed as attributes which distinguish team members' from each another.

3.3.4 Team Member's Questionnaire (Part B)

Team Member Questionnaire (Part B) obtained team members' perceptions on a range of team characteristics by members and leaders. Questionnaire items were based on past empirical findings (Miller, 1996; Samson and Daft, 2003; Wheelan and Hochberger, 1996; Woodcock and Francis, 1996). A total of 100 behavioural characteristics were selected. (Appendix I) shows the list of items used and their sources. The Team Member Questionnaire was translated into Bahasa Malaysia. The Bahasa Malaysia version of Team Member Questionnaire was back-translated into English by a senior lecturer who is bilingual (speaks and writes in both English and Malay) with the knowledge of teamwork and another lecturer from a nursing school. The first translator was selected for the quality of translation, based on the language and the culture of the people under study (Vulliamy, 1990) and competence and fluency in the language of write-up (Birbili, 2000). The translation also took into consideration the fact that translation is not merely a technical matter but also needs to consider the conceptual issues (Temple, 1997). Taking into consideration the translation-related issues, the Team Member Questionnaire was printed in bilingual languages, that is, both English and Bahasa Malaysia

(See Appendix F). A 7-point Likert rating scale was used to estimate the magnitude of a characteristic (Zikmund, 2003, p.309), with '1' corresponding to 'strongly disagree' and '7' to 'strongly agree'.

3.4 Formation of Team 'Behavioural' Characteristics Scales

From the literature review, a list of constructs that represented 'mature' team members' characteristics such as team members cohesiveness, liking, role clarity, role satisfaction, openness to change, openness to differences, division of task into sub-teams, participative leadership style, goal motivation, intra-team conflict, inter-team conflict were identified. The 100 items were initially grouped as a 'piori' of constructs and subjected to a factor analysis before confirming them as scales. Scale scores were calculated as the average values of the responses to the items comprising each of the scales. The validity of each scale was examined using reliability analysis (Zikmund, 2003). Cronbach Alpha reliability coefficients were calculated for each of the scales (See Table 3.1). All scale items which had a Cronbach Alpha reliability of less than .60 were excluded from the analysis (See Appendix N) As noted by Hair, Anderson, Tatham and Black (1998, p.118), the generally agreed lower level for Cronbach alpha is .70, although values as low as .60 can be used in more exploratory research. Since the current study is of exploratory nature, it is decided that scales with Cronbach's alpha of .60 will be accepted for statistical analysis.

Table 3.1
Scales Contained in Team Member Questionnaire (Part B)

Questionnaire Items and Scales	Scale Label	Cronbach Alpha
Cohesiveness	S1	.897
Q16 The team is very cohesive		
Q1 There is a strong team spirit		
Q31 I tell my friends that it is a great team to work in		
Q46 I am very satisfied being a member of the team		
Q61 Members are glad to be a part of the team		
Q74 Individuals identify with the team		
Liking for each other	S2	.813
Q17 Members of the team enjoy each other's company		
Q32 Members of the team like and respect each other		
Q62 I can trust and rely on my fellow team members		
Q75 The team members are truthful and honest		
Q89 I consider my team members my friends		
Q44 We can rely on each other. We work as a team		
Role Clarity	S3	.809
Q92 Members are clear about their roles in the team		
Q98 Members understand their responsibilities in the team		
Goal Agreement	S4	.732
Q34 Members agree with the team's goals		
Q49 Team members share the same goals		
Role Satisfaction	S5	.698
Q20 The roles and tasks given to individual members are determined by their abilities, and not by external status or first impressions		
Q35 Members' roles and tasks are allowed to change in order to better achieve the team's goals		
Q50 Role given to individuals match their abilities		
Q65 Members accept their roles and status		
Q78 Members are happy with the roles that they have in the team		

Table 3.1 (continued)

Questionnaire Items and Scales		Scale Label	Cronbach Alpha
Openness to Change		S6	.772
Q7	The team is open to new ideas and is constantly improving		
Q22	The team encourages innovation		
Q37	The team receives and gives feedback that it uses to improve performance		
Openness to Differences		S7	.886
Q68	Helpful criticism is tolerated		
Q79	There is much open discussion of issues in the team		
Q80	Conflict is dealt with openly		
Q81	Different ways of doing things are accepted in the team		
Q94	Team members feel free to express differences in opinion		
Q67	We talk through disagreements until they are resolved		
Division of Task into Sub-teams		S8	.801
Q27	There is efficient division of labour within the team		
Q42	Subgroups are integrated into groups as a whole		
Q57	The team makes efficient use of subgroups to work on different tasks		
Q59	The group is able to form subgroups, or subcommittees to work on specific task		
Q30	The team has addressed all barriers to effectiveness and has found ways to resolve difficulties		
Participative Leadership Style		S9	.717
Q82	The team leader has a participative and consultative style		
Q85	Team members have a large amount of independence in determining the way they work		
Q69	The leader feels comfortable delegating responsibility to team members		

Table 3.1 (continued)

Questionnaire Items and Scales		Scale Label	Cronbach Alpha
Goal Motivation		S10	.866
Q10	Team expects to be successful in achieving its goals		
Q25	Individual commitment to group goals and tasks is high		
Q55	Team members are strongly motivated to achieve the goals of the team		
Q70	The team as a whole encourages high performance work		
Informal Leadership Role		S11	.643
Q63	Team members are working out who is really in charge		
Q76	It is unclear who is really in charge of the team		
Intra-team Conflict		S12	.721
Q6	There are damaging personality clashes between team members		
Q21	Lack of cooperation is a problem in this team		
Q83	There is quite a bit of tension in the team		
Q36	Underlying power conflicts between team members are preventing the team from performing well		
Q51	Conflict due to differences in values are common		
Q97	Most work is done by only some team members		
Cliques (sub-group)		S13	.681
Q64	Conflict between different cliques and factions in the team is a problem		
Q77	Subgroups have formed that have different goals and interests		
Q91	The team contains subgroups that do not cooperate well with each other		

Table 3.1 (continued)

	Questionnaire Items and Scales	Scale Label	Cronbach Alpha
	Team Performance	S14	.849
A	Productivity		
B	Quality		
C	Defects reduction		
D	Efficiency		
E	Downtime reduction		
F	Waste reduction		

3.5 Chapter Summary

The study includes teams from both small and large organisations. The survey questionnaires required team members to complete two Questionnaires. Team Member Questionnaire (Part A) required team members to complete their demographic details. Team Member Questionnaire (Part B) obtained perceptions on a range of team characteristics from the team members and team leaders. The team leaders were given three Survey Questionnaires, the additional Team Leader Questionnaire requesting information on their teams' background. The team leaders' evaluation of team performance (See Appendix J) was used to measure the teams' performance.

A 7-point Likert rating scale to estimate the magnitude of a characteristic was used to obtain team members' responses to the statements in the Team Member Questionnaire with '1' corresponding to 'strongly disagree' and '7' to 'strongly agree'. Scale scores were calculated as the average values of the responses to the items comprising each of the scales. The validity of each scale was examined using reliability analysis. Cronbach Alpha reliability coefficients were calculated for each of the scales

CHAPTER 4 RESULTS

4.1 Introduction and Overview

This chapter describes and analyses the data collected and presents the results relating to the research questions expressed in hypotheses statements. Fifty-nine (59) multi-ethnic teams were analysed for positive association of team ‘behavioural’ and demographic characteristics with team performance. Team structure and team involvement in goal setting were also examined for their relationship with team performance measurements.

4.2 Descriptive Statistics

Frequency Analysis for the Team Leader Questionnaire responses is reported in Appendix J. These give some basic properties of the teams, such as team size, the number of projects it has worked on, membership composition, team type, etc. as well as the leader’s evaluation of team’s performance in terms of quality, defect reduction, efficiency, downtime reduction and waste reduction. Goal setting contribution by the team and customers were also obtained. Team size for non-production teams was also calculated.

Frequency Analysis for Team-Level Variables obtained from the study sample is reported in Appendix K. The characteristics include gender, race, age and education level, member’s tenure with team, team experience, past leadership experience, position of members and whether membership was made compulsory or voluntary.

Since the main analyses for the study were carried out at the team-level, variables at the individual team member level (as shown in Appendix L) were used to form the corresponding variables at the team-level. For nominal-level variables at the individual level, the team-level variable represents the proportion of responses in the team for each for each of the response options.

For example, the variable 'gender' at the individual level was used to form the variable 'gender' at the team level that gives the proportion of females in each team. For variables at the individual level whose response options can be regarded as forming a scale, the variables at the team-level were obtained by averaging the coded responses of the members within each team. (The response codes are shown in Appendix L). For example, the variable 'Education' at the team-level was formed by averaging the responses to the item, 'Education' of the members within each team. A higher value of this team-level variable thus represents a higher level of education, on average, within the team. Appendix K shows the descriptive statistics for the team-level variables obtained from the individual team members' responses to the Team Member Questionnaire (Part A).

Team Leader Questionnaire reported in Appendix J listed six team performance criteria such as productivity, quality, defect reduction, efficiency, downtime reduction and waste reduction which were obtained from the team leader. Team-level variables were formed by averaging the rating-scale responses for members within each team. For example, the score of a particular team on the team-level variable, that is, 'cohesiveness' was calculated as the average of the individual members' score on that scale given by the individual members in that team.

The Team Member Questionnaire (Part B) obtained individual team members' subjective ratings of cohesiveness, clarity of goals, etc., as well as the leadership style of its leader. The findings reported in Table 4.1 shows the means and standard deviations for the team-level variables corresponding to the individual items in the Team Member questionnaire (Part B) items were used to form multi-item scales. (The formation of the multi-item scales, S1 to S14 was described in (Section 3.4). As mentioned earlier, the individual items comprising the scales have been listed under each of the scales (refer to Table 3.1) and items not forming any other scales have been listed under the heading 'Individual Items' (See Appendix N).

4.3 Correlations of Team ‘Behavioural’ Characteristics Scale and Team Performance

Table 4.1 shows the descriptive correlations with Team Performance. ‘Team Performance’ was calculated from the team leaders’ responses to six items such as productivity, quality, defects reduction, efficiency, downtime reduction and waste reduction in the Team Leader Questionnaire (Items 10 to 15 in Appendix J). To determine the team’ score on the ‘behavioural’ characteristics, the percentage of teams that score above the mid-point of 4.0 point on the Likert scale of 7.0 point obtained from Team Member Questionnaire (Part B) was calculated using the number of teams that are < 4.0 points and dividing it by 59 teams.

Table 4.1
 Descriptive Statistics for the Team ‘Behavioural’ Characteristics Scales
 obtained from the Team Members’ Questionnaires and Correlations with Team
 Performance Scale
 (N = 317)

Scales		mean	s.d.	Percentage of team score above 4.0 points	Correlations with Team Performance
S1	Cohesiveness	5.03	.72	97	.18
S2	Liking	5.40	.64	98	.20
S3	Goal Agreement	5.37	.73	98	.25
S4	Role Clarity	5.37	.57	98	.32*
S5	Role Satisfaction	5.14	.48	100	.29*
S6	Openness to Change	5.31	.72	100	.13
S7	Openness to Differences	5.27	.69	98	.23
S8	Division of Labour into Sub-teams	5.08	.69	92	.27*
S9	Participative Leadership Style	5.11	.65	98	.24
S10	Goal Motivation	5.55	.66	100	.09
S11	Informal Leadership Role	2.85	.91	93	.10
S12	Intra-Team Conflict	3.67	.74	73	.08
S14	Cliques (Sub-group)	3.17	.75	86	.09

* $p < 0.05$

Note: Team Performance criteria: Productivity, Quality, Defects Reduction, Efficiency, Downtime Reduction and Waste Reduction

The percentage of team score above 4.0 points on the Likert scale of 7.0 point is obtained by dividing the number of teams that exceed 4.0 point in the team members’ response with the total number of 59 teams

Primary results reported in Table 4.1 above show that ‘behavioural’ characteristics such as role clarity (S4), role satisfaction (S5) and division of task into sub-teams (S8) are positively correlated with all aspects of team performance. However, all teams experience role satisfaction, openness to change and goal motivated as seen in the 100 percent team score of above the mid-point of 4.0 point on the Likert scale of 7.0 point.

Table 4.2
Correlations of Team ‘Behavioural’ Characteristics Scales with all aspects of
Team Performance Criteria
(N = 59)

Various aspects of Team Performance ‘Behavioural’ Scale		A	B	C	D	E	F
S1	Cohesiveness	-.05	.13	.23	-.03	.17	.25
S2	Liking	-.18	.19	.31*	.10	.22	.19
S3	Goal Agreement	-.08	.24	.30*	.14	.29*	.20
S4	Role Clarity	-.06	.36**	.45**	.09	.28*	.23
S5	Role Satisfaction	-.04	.29*	.37**	.04	.26*	.29*
S6	Openness to Change	-.21	.18	.27*	-.07	.17	.16
S7	Openness to Differences	-.17	.21	.33*	.11	.24	.24
S8	Division of Task into Sub-teams	-.10	.10	.35**	.12	.27*	.31*
S9	Participative Leadership Style	.14	.13	.30*	.17	.30*	.26
S10	Goal Motivation	-.20	.08	.19	-.07	.16	.13
S11	Informal Leadership Role	.17	.03	.02	.06	.03	.17
S12	Intra-Team Conflict	.02	.04	-.04	.19	.06	.11
S13	Cliques(Sub-group)	-.14	-.02	-.03	-.17	.05	-.15

* p<0.05

** p<0.01

Team Performance Criteria

A: Productivity

C: Defects Reduction

E: Downtime reduction

B: Quality

D: Efficiency

F: Waste reduction

Note: Ratings on team performance are obtained from team leaders.

Table 4.2 results show that team performance criteria such as defect reduction (column C) correlate positively and significantly with majority of the ‘behavioural’ characteristics including liking (S2), goal agreement (S3), role clarity (S4), role satisfaction (S5) and division of task into sub-teams (S8) at p<0.01 level and with liking (S2), goal agreement (S3), openness to change (S6), openness to differences (S7), division of task into sub-teams (S8) and participative leadership style (S11). The performance criterion such as downtime reduction (column E) correlates with ‘behavioural’ characteristics

such as goal agreement (S3), role clarity (S4) and role satisfaction (S5). The 'Behavioural' characteristic such as role clarity correlates with team performance criteria such as quality (column B) and downtime reduction (column E). Role satisfaction (S5) and division of task (S8) correlate positively and significantly with waste reduction (column F).

4.4 Correlations between Demographic Variables with Team Performance and 'Behavioural' Characteristics

As described in the Methods Section 3.2.1, team demographic variables have been used in the analysis. These characteristics are listed in Appendix K and their relationship with the 'Team Performance' Scale with six items including productivity, quality, defects reduction, efficiency; downtime reduction, waste and reduction (see Table 4.3 were determined by using correlation coefficients.

Table 4.3
 Pearson Correlation between Demographic Variables and Various Aspects of
 Team Performance
 (N = 59)

Various aspects of team performance	A	B	C	D	E	F
Demographic variables						
1. Gender	.09	-.24	-.27*	.05	-.23	-.12
2. Age	.00	.00	.07	.02	.20	-.09
3. Education level	-.09	-.05	-.15	-.15	-.23	-.11
4. Tenure of members	-.08	.01	-.00	-.05	-.09	-.19
5. Team experience (project)	-.03	.09	.06	.06	.06	.07
6. Past leader experience	-.06	-.17	-.13	.14	-.00	.01

* p<0.05

** p<0.01

Team Performance Criteria

A: Productivity

B: Quality

C: Defects Reduction

D: Efficiency

E: Downtime reduction

F: Waste reduction

Table 4.3 shows that gender (1) is negatively correlated with team performance such as defects reduction (column C) (refer to Appendix K for code). The findings suggest that teams with female members tend to have lower performance for defects reduction. Correlations between demographic variables such as age (2), education level (3), tenure of membership (4), and team experience (5) and past team leader experiences (6) and team performance are not statistically significant. The results suggest that the above demographic variables do not impact team performance.

Table 4.4
 Pearson Correlation between Demographic Variables and
 Team ‘Behavioural’ Characteristics Scales
 (N = 59)

Demographic Variables		A	B	C	D	E	F
‘Behavioural’ Scales							
S1	Cohesiveness	.08	-.16	-.20	-.16	.11	-.19
S2	Liking	.19	-.22	-.28*	-.05	.10	-.21
S3	Goal Agreement	.15	-.25	-.33*	.03	.20	-.19
S4	Role Clarity	.12	-.28*	-.18	-.04	.17	-.30*
S5	Role Satisfaction	.09	-.31*	-.22	-.14	.20	-.33*
S6	Openness to Change	.15	-.16	-.19	.06	.04	-.18
S7	Openness to Differences	.15	-.26*	-.31*	-.01	.24	-.21
S8	Division of Task into Sub-Team	-.01	-.24	-.31*	-.11	.15	-.18
S9	Participative Leadership Style	.17	-.10	-.33*	-.00	.03	-.09
S10	Goal Motivation	-.14	-.18	-.32*	.05	.07	-.20
S11	Informal Leadership Role	-.26*	-.10	.15	.26*	.13	.12
S12	Intra-Team Conflict	-.21	.15	-.30*	.00	-.14	.45**
S13	Cliques(sub-group)	-.49**	.22	-.20	-.11	-.52**	.51**

* p<0.05

** p<0.01

Demographic Variables

A: age

B: gender

C: education level

D: tenure of members

E: team experiences (project)

F: past leadership experience

Note: Item responses are coded (see Appendix K)

Table 4.4 shows that age (column A) is negatively correlated with informal leadership roles (S11) and cliques (sub-group) (S13). The results suggest that older team members have lower inter-team conflict and rely less on informal leadership. Teams with a majority of female members (column B) have less role clarity (S4), less role satisfaction (S5) and openness to differences (S7). Team members with a higher education level (column C) have lower liking (S2), lower goal agreement (S3), and lower role satisfaction (S5), less openness to differences (S6), less preference for division of task into sub-teams (S8), participative leadership (S9); less goal motivation (S10) and low intra-team conflict (S12). Team member tenure (column D) of 12 months or

more tend to rely on informal leadership (S11) (See Appendix K for code). Those with team experience in 3 projects of problem solving (column E) have lower inter-team conflict (S13) (See Appendix L for code). Past leadership experience (column F) seems to result in less role satisfaction (S5), higher intra-team conflict (S12), clique (sub-group) formation (S13) and less role clarity (S4).

4.5 Correlations between ‘Structural’ Factors and Team Performance and ‘Behavioural’ Characteristics

As described in the Methods Section, ‘structural’ team properties such as team size, team type, team composition, organisation size and team membership (compulsory) are included in the analysis. These ‘structural’ team properties and their relationship with the different aspects of team performance are determined by using correlation coefficients. Only significant results are listed.

Table 4.5
Correlations between 'Structural' Factors and Team Performance
(N = 59)

Various aspects of Team Performance	A	B	C	D	E	F
Team structure						
1. Team size	-.15	.03	.07	.12	.06	.14
2. Team type	-.08	-.17	-.34*	-.16	-.46**	-.33*
3. Team membership composition	-.24	-.30*	-.29*	-.19	-.36*	-.15
4. Organisation size	-.03	.18	.35**	.18	.37*	.19

* p<0.05

** p<0.01

Team Performance Criteria

A: Productivity

C: Defects Reduction

E: Downtime reduction

B: Quality

D: Efficiency

F: Waste reduction

Note: Ratings on team performance are obtained from team leaders

Table 4.5 shows that correlations between team size (1) and all aspects of team performance (column A to F) are not statistically significant. Team type (2) suggests that project teams and departmental teams are negatively correlated with team performance criteria such as defects reduction (column c), downtime reduction (column E) and waste reduction (column F). This implies that Quality Control Circles and Small Group Activity are assigned to work on defects reduction; downtime reduction and waste reduction (See Appendix L). Team membership composition (3) suggests that team membership from similar processes is negatively correlated with quality (column B), defects reduction (column C) and downtime reduction (column E). Teams from large organisations (4) are positively correlated with defects reduction (column C) and downtime reduction (Column D) (refer to Appendix M for codes).

Table 4.6
Correlations between ‘Structural’ Factors and Team ‘Behavioural’
Characteristics Scales
(N = 59)

Team Performance		A	B	C	D
No	Scales				
S1	Cohesiveness	.02	.03	.13	.28*
S2	Liking	.08	-.11	.12	.31*
S3	Goal Agreement	.15	-.23	.10	.35*
S4	Role Clarity	.15	-.01	.04	.34*
S5	Role Satisfaction	.15	-.21	.16	.25
S6	Openness to Change	.05	.13	.14	.18
S7	Openness to Differences	.14	.17	.10	.36**
S8	Division of Task into Sub-teams	.24	.13	.17	.35*
S9	Participative Leadership Style	.04	.20	.15	.39**
S10	Goal Motivation	.09	.09	.13	.28*
S11	Informal Leadership Role	-.09	-.02	.04	-.15
S12	Intra-Team Conflict	-.04	-.26*	.05	-.00
S13	Clique (sub-group)	-.07	-.15	.08	-.08

* p<0.05

** p<0.01

‘Structural’ Factors

A: team size
organisation size

B: team type

C: team composition

D:

Table 4.6 shows that team size (column A) do not impact team ‘behavioural’ characteristics. Team type (column B) suggests that Small Group Activity teams seem to experience lower intra-team conflict (S12). Results suggest that team composition (column C) do not impact on ‘behavioural’ characteristics. Team members from large organisations (column D) seem to be more cohesive (S1), like each other (S2), have more agreement with team goals (S3), more role clarity (S4), more openness to differences (S7), openness towards the division of tasks into sub-teams (S8), prefer participative leadership style (S9) and are goal motivated to achieve team goals (S10) (See Appendix M for code).

4.6 Correlations between Management Support and Team Performance

The forms of management support provided to teams were provided by team leaders. Different forms of management support (item 6 to 9) derived from the Team Leader Questionnaire (refer to Appendix L) were determined by using correlation coefficients. Only significant results are listed.

Table 4.7
Correlations between Team Performance and
Forms of Management Support
(N = 59)

Various Aspects of Team Performance	A	B	C	D	E	F
Management Support:						
1 Provide Training	.09	.20	.41**	.29*	.33*	.17
2 Pay Overtime for Meeting	.08	-.06	.03	-.05	-.01	-.11
3 Organise Conventions	.27*	.35**	.38**	.27*	.50**	.30*

* p<0.05

** p<0.01

Team Performance Criteria

A: Productivity improvement reduction

C: Defects Reduction

E: Downtime

B: Quality

D: Efficiency improvement

F: Waste reduction

Table 4.7 shows that training (1) enables teams to contribute significantly to defects reduction (column C), efficiency improvement (column D) and downtime reduction (column E). The findings suggest that payment of overtime to members to attend meetings (2) does not influence team performance. Organising conventions (3) has a positive impact on all aspects of team performance.

4.7 Correlations between Team Performance and Team Goal Setting

The relationship between goal setting by the teams and customers' contribution to team goals (items 19 & 21) as listed in the Team Leader Questionnaire (refer to Appendix L) were determined using Correlation Coefficients.

Table 4.8
Correlations between Team Performance and Team Involvement
(N = 59)

Various Aspects of Team Performance	A	B	C	D	E	F
Goal Contribution:						
1 Team Involvement in goal setting	.14	.44**	.38**	.34**	.57**	.53**
2 Customers' contribution to team goals	.33*	.33*	.28*	.33*	.25*	.33**

* p<0.05

** p<0.01

Team Performance Criteria

A: Productivity reduction

B: Quality

C: Defects Reduction

D: Efficiency

E: Downtime

F: Waste reduction

Table 4.8 shows that the team's involvement in goal setting (1) impacts significantly on all aspects of team performance except productivity (column A). Customer contribution (2) to team goal impacts all aspects of team performances (column A to F).

4.8 Mean ratings for multi- ethnic membership with 'Behavioural' Characteristics

The one-way analysis of variance (ANOVA) on types of teams and ethnicity showed that there were no significant differences between the two clusters of ethnicity. The ethnicity of team members was classified into two clusters, one comprised of majority Malay and the second cluster comprised of majority Chinese and Indian team members. This cluster composition corresponds to the ethnic ratio population of Malaysia. Only scales that are statistically significant are presented.

Table 4.9
Mean ratings for Multi-Ethnicity Membership with 'Behavioural' Characteristics
(N = 59)

No	'Behavioural' Characteristics Scales	Majority Malay (N=38) Mean	Majority Chinese & Indian (N=21) Mean	F statistics
1	Team cohesion	5.43	4.31	73.99***
2	Liking for one another	5.76	4.74	87.92***
3	Goal agreement	5.72	4.74	40.77***
4	Role clarity	5.59	4.96	24.03***
5	Role satisfaction	5.23	4.49	39.05***
6	Openness to change	5.70	4.59	70.80***
7	Openness to differences	5.62	4.64	50.05***
8	Division of task into sub-teams	5.31	4.40	40.32***
9	Participative leadership style	5.43	4.53	46.95***
10	Goal motivation	5.90	4.91	62.08***

* p<0.05

** p<0.01

***p<0.000

Table 4.9 shows that teams with a majority of Malay members have a higher mean score for 'behavioural' characteristics such as team cohesion (1), liking (2), goal agreement (S3), role clarity (S4), role satisfaction (S5), openness to

differences (6), division of task into sub-teams (8), participative leadership style (S9) and goal motivation (10) in comparison with teams with a majority of Chinese and Indian members.

4.9 Descriptive statistics on team ethnicity membership composition by team types

Ethnic team membership composition is categorised into two clusters, one with a majority of Malay team members (n =38), and the second with a majority of Chinese and Indian team members (n=21).

Descriptive statistics on team ethnicity membership composition was obtained by using cross-tab analysis to compute the percentage of ethnicity by cluster, that is majority Malay and majority Chinese and Indian members involved in the various types of team activities (See Table 4.10)

Table 4.10
Team Ethnicity Membership Composition by Team Types
(N = 59)

No	Ethnicity cluster	Majority Malay (N=38)	(majority Chinese and Indian) (N=21)
	Team Types	Percent	Percent
1	Quality Control Circles	15.8	14.3
2	Small Group Activity	39.5	38.1
3	Project	36.8	33.3
4	Administration	7.9	14.3

Table 4.10 results show that the majority of Malay team members are in Quality Control Circle, Small Group Activities, Project teams, Departmental and Management. However, there are no majority Malay team members in the Administration team and no majority Chinese and Indian members in the Departmental teams.

To determine if there were ethnic differences in the behavioural and performance scales, we conducted an ANOVA, based on the two ethnicity clusters. Results are reported in the table below.

Table 4.11
Ethnicity Cluster Differences in Team Behavioural and Performance Scales
(N=59)

	Items within the 'Behavioural' Characteristic Scales	Majority Malay (N=38) Mean	Majority Chinese & Indian (N=21) Mean	F statistics
S1	Cohesiveness (alpha=.899)	5.43	4.31	73.993***
	This is a strong team	5.05	4.60	8.68**
	The team is very cohesive	5.41	4.34	40.05***
	I tell my friends that it is a great team to work in	5.45	4.33	39.84***
	I am very satisfied being a member of the team	5.67	4.71	44.63***
	Members are glad to be part of the team	5.50	4.51	40.85***
	Individuals identify with the team	5.28	4.63	19.74***
S2	Liking (alpha=.813)	5.76	4.73	87.921***
	Members enjoy each other's company	5.69	4.78	29.33***
	Members of the team like and respect each other	5.75	4.73	44.57***
	I can trust and rely on fellow members	5.77	4.85	36.59***
	My team members are truthful and honest	5.60	4.80	24.84***
S3	Goal Agreement (alpha=.732)	5.72	4.74	40.765***
	Members agree with the team's goals	5.71	5.00	19.00***
	Team members share the same goals	5.68	4.86	24.71***
S4	Role Clarity (alpha=.809)	5.59	4.95	24.033***
	Members are clear in their roles	5.45	4.90	12.06**
	Members understand their responsibilities in the team	5.74	5.01	29.37***

* p<0.05

** p<0.01

***p<0.000

Table 4.11 (continued)

	Items within the 'Behavioural' Characteristic Scales	Majority Malay (N=38) Mean	Majority Chinese & Indian (N=21) Mean	F statistics
S5	Role Satisfaction (alpha=.698)	5.34	4.78	26.592***
	The roles and tasks given to individual members are determined by their abilities and not by external status of first impression	5.12	4.57	6.85*
	Members' roles and tasks are allowed to change in order to better achieve the team's goals	5.81	5.28	9.67**
	Role given to individuals match their abilities	5.07	4.62	5.86*
	Members accept their roles and status	5.43	4.97	7.86**
	Members are happy with their roles that they have in the team	5.25	4.44	23.94***
	Everyone enjoys the team because objectives are achieved	5.67	4.52	45.89***
S6	Openness to change (alpha=.772)	5.70	4.59	70.798***
	The team is open to new ideas and is constantly improving	5.84	5.04	37.50***
	The team encourages innovation	5.57	4.64	35.00***
	The team receives and gives feedback that it uses to improve its performance	5.56	4.86	20.45***
S7	Openness to differences (alpha=.886)	5.62	4.64	50.050***
	Helpful criticism is tolerated	5.84	5.13	24.51***
	There is much open discussion of issues in the team	5.58	4.71	29.77***
	Conflict is dealt with openly	5.54	4.67	23.87***
	Different ways of doing things are accepted in the team	5.34	4.61	17.83***
	Team members feel free to express differences in opinion	5.57	4.76	23.81***
	We talk through disagreements until they are resolved	5.69	5.06	18.97***

* p<0.05

** p<0.01

***p<0.000

Table 4.11 (continued)

	Items within the 'Behavioural' Characteristic Scales	Majority Malay (N=38) Mean	Majority Chinese & Indian (N=21) Mean	F statistics
S8	Division of labour into sub-teams (alpha=.801)	5.31	4.40	40.322***
	There is efficient division of labour within the team	5.35	4.50	33.05***
	Subgroups are integrated into groups as a whole	5.25	4.77	4.82*
	The team makes efficient use of subgroups to work on different task	5.14	4.74	3.93*
	The group is able to form subgroups, or subcommittees to work on specific task	5.36	4.83	9.38**
	The team has addressed all barriers to effectiveness and has found ways to resolve difficulties	5.19	4.40	31.48***
	S9	Participative leadership style (alpha=.717)	5.43	4.53
The team leader has a participative and consultative style		5.73	4.88	22.45***
Team members have a large amount of independence in determining the way they work		5.01	4.35	12.61**
The leader feels comfortable delegating responsibility to team members		5.56	4.93	13.33**
Team members show initiative, without always depending on the leader for instructions		5.33	4.75	9.24**
S10	Goal motivation (alpha=.866)	5.90	4.91	62.081***
	Team expects to be successful in achieving its goals	5.88	5.43	10.24**
	Individual commitment to group goals and tasks is high	5.88	5.25	15.89***
	Team members are strongly motivated to achieve the goals of the team	5.70	4.83	52.35***
	The team as a whole encourages high performance	5.92	5.08	48.50***

* p<0.05

** p<0.01

***p<0.000

Table 4.11 (continued)

	Items within the 'Behavioural' Characteristic Scales	Majority Malay (N=38) Mean	Majority Chinese & Indian (N=21) Mean	F statistics
S11	Informal leadership role (alpha=.643)	3.10	2.71	2.516, ns
	Team members are working out who is really in charge	2.68	3.00	2.06, ns
	It is unclear who is really in charge of the team	2.61	2.72	.19, ns
S12	Intra-team conflict (alpha=.721)	3.56	3.86	2.167, ns
	There are damaging personality clashes between team members	3.08	3.24	.47, ns
	Lack of cooperation is a problem in this team	3.81	4.18	1.19, ns
	There is quite a bit of tension in the team	3.44	3.89	2.83, ns
	Underlying power conflicts between team members are preventing the team from performing well	3.45	3.81	1.65, ns
	Conflict due to differences in values are common	4.15	4.20	.05, ns
	Most work is done by only some team members	3.11	3.37	.95, ns
S13	Inter-team Conflict (alpha=.772)	3.04	3.42	10.362**
	Conflict between different cliques and factions in the team is a problem	3.60	3.97	1.42, ns
	Subgroups have formed that have different goals and interests	3.08	3.20	.336, ns
	The team contains subgroups that do not cooperate well with each other	2.45	3.09	7.99**

* p<0.05

** p<0.01

***p<0.000

ns – non significant

Table 4.11 shows that there are significant differences in how different ethnic groups view the behavioural characteristics. In general, teams with a majority of Malay team members tend to view behavioural characteristics such as cohesion, liking, goal agreement, role clarity and satisfaction, openness to change and differences, division of labour into sub-teams, participative leadership style, goal motivation, and informal leadership much higher than those teams with a majority of Chinese/Indian membership. With the exception of informal leadership, intra- and inter team conflict scales, the

mean of the other behavioural characteristics was greater than the mid-point of the 7-point Likert scale. Those teams with a majority of Chinese/Indian members tend to rate their teams higher in inter-team conflict than those with a majority of Malay teams. The mean ratings were less than the mid-point of the 7-point Likert scale.

An ANOVA based on the two ethnicity clusters was used to determine if there were ethnicity differences in the team performance scales. Results are reported in the Table 4.12 below.

Table 4.12
Mean ratings for multi-Ethnicity with Team Performance Scales
(N=59)

Team Performance Scales Items	Majority Malay (N=38) Mean	(majority Chinese & Indian (N=21) Mean	F statistics
1 Productivity	1.18	1.04	2.16, ns
2 Quality	1.16	1.29	2.16, ns
3 Defects reduction	1.18	1.52	8.12**
4 Efficiency	1.13	1.14	.014, ns
5 Downtime reduction	1.34	1.52	1.85, ns
6 Waste reduction	1.16	1.38	3.83*

* $p > .05$

** $p > 0.01$

ns –non significant statistically

Results show that there are significant differences in some aspects of team performance between the two clusters of ethnicity. Teams with majority of Chinese and Indian members tend to perform higher than those teams with a majority of Malay members in defects reduction and waste reduction.

4.10 Summary

The findings presented 'indicate that the team members represented in this study are relatively young, 47 percent of team members are aged 16 to 35 years. Team membership is made up of three ethnic groups, majority Malay (52.9 percent), Chinese (31.4 percent) and Indian (15.7 percent). The majority of the team members (54.8 percent) have only achieved Year 10 and a vocational certificate and usually work as production operators.

The findings reported in Table 4.1 show that three 'behavioural' characteristics such as role clarity, role satisfaction and division of labour into sub-teams correlate positively with all aspects of team performance including productivity, quality, defects reduction, efficiency, downtime reduction and waste reduction. The results are statistically significant at $p < 0.05$ level. A detailed correlation analysis in Table 4.2 shows that specific aspects of team performance criteria correlate with the 'behavioural' characteristics. For example, defects reduction correlates positively with majority of the 'behavioural' characteristics including liking, goal agreement, role clarity, role satisfaction, openness to change, openness to differences, openness to the division of task into sub-teams and participative leadership. The results are statistically significant at both $p < 0.01$ and $p < 0.05$ levels. Quality correlates positively with role clarity and role satisfaction. Downtime correlates positively with goal agreement, role clarity, role satisfaction, division of task into sub-teams and participative leadership style. Waste reduction correlates positively with role satisfaction and division of task into sub-teams. All the above results are statistically significant at $P < 0.01$ and $p < 0.05$ levels. However, the 'behavioural' characteristics such as cohesiveness, goal motivation, informal leadership role, intra-team conflict and cliques (sub-group) are not statistically significant in their correlation with all aspects of team performance.

Structural factors such as team size show that correlations between team size and team performance are not statistically significant. Team type is negatively correlated with team performance criteria of defect reduction, downtime reduction and waste reduction. The results suggest that defects reduction, downtime reduction and waste reduction are worked by Quality Control Circles and Small Group Activity teams (refer to Appendix L for code). The findings show that team membership composition is negatively correlated with performance criteria such as quality, defects reduction and downtime reduction. The results suggest that team members from process-related operation teams or teams with functional responsibility tend to focus on the performance criteria such as quality, defects reduction and downtime reduction. Team members from large organisation are positively correlated with defects reduction and downtime reduction (refer to Appendix L for code).

Team type is negatively correlated with 'behavioural' characteristics such as intra-team conflict. The results suggest that Small Group Activity and Project teams tend to have lower intra-team conflict (refer to Appendix L for code). Teams from large organisations are positively correlated with the majority of the 'behavioural' characteristics such as cohesiveness, liking, goal agreement, role clarity, openness to differences, division of task into sub-teams, participative leadership style and goal motivation. However, correlations between team size and team membership composition are not statistically significant.

Team membership composition (7) correlates negatively with quality (column B), defects reduction (column C) and downtime reduction (column E). The results suggest that team membership in teams that are process related operations or focused on functional responsibility tend to focus on quality, defects reduction and downtime reduction.

The forms of management support such as training and organising conventions for teams to present completed projects are positively correlated with the

different aspects of team performance. Training is positively correlated with defect reduction, downtime reduction and efficiency improvement. Organising conventions is positively correlated with all aspects of team performance. However, correlations between payment of overtime and team performance are not statistically significant.

These findings show that correlations between team involvement in goal setting and all aspects of team performance except productivity are statistically significant. Customer contribution to team goal and team performance is positively correlated with all aspects of team performance.

Correlations between demographic variable such as gender is correlated negatively with team performance criteria of defect reduction. The results suggest that teams with female members tend to have higher performance for defects reduction. Correlations between demographic variables such as age, education level, team membership tenure, team experience and past leader experience and team performance are not statistically significant.

Correlations between demographic variables such as age, gender, education level, tenure of team membership, team experiences and past leadership experience and some 'behavioural' characteristics are significant. Age is negatively correlated with informal leadership role and inter-team conflict. This suggests that teams with older members tend to have lower inter-team conflict and informal leadership. Teams with female workers have lower role clarity, lower role satisfaction and openness to differences. Teams with higher education levels tend to have lower liking, goal agreement, and role satisfaction, openness to differences, and division of tasks into sub-teams, participative leadership style, goal motivation and intra-team conflict. Teams with longer membership tenure are positively correlated with informal leadership roles. Team members with previous experience have lower clique (sub-group) formation. Team members with past team leadership experience have lower role clarity, lower role satisfaction higher intra-team conflict and clique (sub-group) formation.

The findings show that there are significant differences in how different ethnic groups view the behavioural characteristics. Teams with a majority of Malay team members have higher mean ratings for cohesion, liking, goal agreement, role clarity and satisfaction, openness to change and differences, division of labour into sub-teams, participative leadership style and goal motivation in comparison with the majority Chinese and Indian team members.

Results show that there are significant differences in the some aspects of team performance criteria by the two clusters of ethnicity. Teams with majority of Chinese and Indian members show higher mean ratings for team performance measures such as quality, defect reduction, downtime reduction and waste reduction in comparison with those teams with a majority of Malay members

CHAPTER 5 DISCUSSION

5.1 Introduction and Overview

This chapter summarises and discusses the main findings on the correlation between team performance and ‘behavioural’ characteristics, ‘structural’ factors and demographic variables including ethnicity. Frequency Analysis, correlations, ANOVA and mean ratings were used to evaluate the hypotheses identified in the Literature Review in Chapter 2.

The main objective of this thesis is to explore the relationship between team performance and ‘behavioural’ characteristics. Past findings suggest that well developed team tend to possess certain ‘behavioural’ characteristics (Wheelan and Hochberger, 1996; Woodcock and Francis, 1996). Individual characteristics are related to effective team work leading to improved team performance (e.g. Brown and Latham, 1999; Cannon-Bowers, et. al., 1995; Latham and Wexley, 1977; Steven and Campion, 1999). Taggard and Brown’s (2001) study showed that there is a statistically significant relationship between team members’ behaviour and team performance (e.g. participation and involving others, goal setting, feedback, team commitment, reaction to conflict, addressing conflict, averting conflict and communication). The current study investigates past findings suggesting that collectivists tend to exhibit a strong predisposition to work together as a team and have a more favourable perception of the working relationship (Wagner, 1995; Man and Lam, 2003).

The study investigates the impact of a team’s structural factors of team size, team type, organisation size, goal setting and management support on team performance and on teams’ ‘behavioural’ characteristics. Past findings suggest that team composition affects team performance (Campion et al, 1994). Team size also affects team performance as the number of opinions and ideas are viewed as a valuable resource (Taggard and Brown, 2001). Team size

influences team behaviour (Hare, 2003) as it mediates on the nature and quality of discussion (Burgoon and Ruffner, 1974).

Team members' demographic characteristics of age, gender, education level, tenure of membership, previous team experience and past team leadership experience were investigated for their influence on team performance and team behaviours. Williams and O'Reilly, (1998); Klein, et al. (2004) suggest that individuals who share similar demographic characteristics are drawn to one another and their similarity provides the familiarity, predictability, comfort and validation of behaviours. Past findings suggest that age and gender affect team performance (Taggard and Brown, 2001) and heterogeneity affects team performance (Jackson et al, 1995). Race affects performance-related attitudes (Townsend and Scott, 2001, p.317). Perceptual differences between team leaders and team members were also examined in the study. The study is presented through three (3) research questions.

5.2 Summary of Key Findings

Research Question One: What is the relationship between 'behavioural' characteristics and team performance in the manufacturing and telecommunication industry in Malaysia? The findings reported in Table 4.1 show that three 'behavioural' characteristics of role clarity, role satisfaction and the openness to the division of task into sub-teams are positively correlated with team performance. The results are statistically significant at $p < 0.05$ level.

Further analyses in Table 4.2 show that specific team performance criteria correlate with some significant 'behavioural' characteristics. For example, defect reduction correlates with 'behavioural' characteristics such as liking, goal agreement, role clarity, role satisfaction, openness to differences, division of task into sub-teams and participative management. Downtime reduction

correlates positively with goal agreement, role clarity, role satisfaction, the division of tasks into sub-teams and a participative leadership style. Waste reduction correlates with role satisfaction and division of task into sub-teams. Quality correlates with role clarity. The above findings support previous study suggesting that there is a significant relationship between team members' behaviour and team performance (Taggard and Brown, 2001; Metcalfe and Linstead, 2003).

Research Question Two: What is the relationship between team performance and the structural factors of team size, team type, team composition, organisation size and compulsory team membership in the manufacturing and telecommunication industry in Malaysia? The findings reported in Table 4.5 show that Quality Control Circles and Small Group Activity contribute significantly to team performance criteria such as defect reduction, downtime reduction and waste reduction. Members in similar process-areas correlate significantly with quality, defect reduction and downtime reduction. The findings support previous studies suggesting that teams are closer to the source of errors and variances in production (Pasmore et al. 1983; Alper et al. 2000) and are more effective in controlling their teamwork quality (Hoegl and Parboteeah, 2003)

Teams from large organisation are positively correlated with team performance criteria such as defect reduction and downtime reduction. This finding supports past findings suggesting that large organisation have greater resources (Shrader and Simon, 1997, cited by Fernandez and Nieto, 2006, p. 340), are likely to provide training (Devine et al., 1999, p.702) on skills conflict resolution and 'soft skills' for supervisory staff. Therefore, team members tend to possess strong team skills (Hartenian, 2003, p.27). However, correlations between team size, team performance and 'behavioural' characteristics are not statistically significant.

The findings reported in Table 4.7 show that management support in training is positively correlated with team performance criteria such as defect reduction, efficiency, downtime reduction and waste reduction. However, correlations between training and team performance criteria such as productivity, quality and waste reduction are not statistically significant. Organising conventions for teams to showcase their completed projects is positively correlated with all aspects of team performance. Correlations between payment of overtime to members to attend meetings and team performance are not statistically significant.

The relationship between goal setting and team performance was also explored in the second research question. The findings reported in Table 5.8 show that involvement in setting team goal is positively correlated with all aspects of team performance except productivity. The thesis finding suggests productivity is not appropriate as a team performance criterion. Goal contribution by customers to team goals is positively correlated with all aspects of team performance.

Research Question Three: What is the relationship between team performance and demographic variables of gender, age, education level and ethnicity, tenure of team members, team experience and past leadership experience? The findings reported in Table 4.3 show that teams with a majority of female workers correlates significantly with team performance criteria such as defect reduction. The findings suggest that the majority of female workers are assembly workers who have control over their work process quality and therefore are able to reduce the process defects. However, other demographic variables such as education level, tenure of team members, team experience and past team experience with team performance are not statistically significant.

Further analysis shows that demographic variables are correlated with specific 'behavioural' characteristics. Teams with older team membership correlates

with a lower level of cliques (sub-group) and a preference for informal leadership. Teams with a majority of female workers tend to have less role clarity and less openness to differences. Teams with a higher level of education correlates with a lower degree of liking one another, goal agreement, role satisfaction, openness to differences, preference for division of task into sub-teams, participative leadership style, less goal motivation and intra-team conflict. Teams with longer team membership tenure correlate with informal leadership roles. Teams with previous team experience correlate with lower clique (sub-group) formation. However, teams with past leadership experience correlate with a lesser degree of role clarity and a higher level of intra-team conflict and clique (sub-group) formation.

The impact of ethnic perceptions on team 'behavioural' characteristic items was examined by using one-way analysis of variance ANOVA (refer to Table 4.11). The results show that teams with a majority of Malay members have a higher mean ratings for cohesiveness, liking, goal agreement, role clarity, role satisfaction, openness to change, openness to differences, division of task into sub-teams, participative leadership style, goal motivation and informal leadership role. On the other hand, teams with a majority of Chinese and Indian members had higher team performance in terms of quality, defect reduction, downtime reduction and waste reduction. Team ethnic compositions by team types are not statistically significant.

5.3 Evaluation of Hypotheses: 'Behavioural' Characteristics and Team Performance

Research Question One set out as: What is the relationship between 'behavioural' characteristics and team performance in manufacturing and telecommunication teams in Malaysia? Scholars suggest that 'behavioural' characteristics such as cohesiveness, liking, goal agreement, goal motivation,

role clarity, role satisfaction, openness to change, openness to differences, openness to the division of task into sub-teams, participative leadership style, low intra-team and inter-team conflict levels are indication of well-developed teams and associated with team performance (Miller, 1996; Samson and Daft, 2003; Tuckman, 1965; Wheelan and Hochberger, 1996; Woodcock and Francis, 1996). The quality of teamwork is characterised as open sharing of relevant information, coordinating team tasks, utilising knowledge and expertise of team members, mutually supporting each other, exerting all efforts on the team task, promoting cohesion (Hoegl and Parboteeah, 2003). ‘Attitudes and behaviours of team members and their concern for others are linked to team performance’ (Metcalf and Linstead, 2003, p.105).

5.3.1 Evaluation of Hypothesis: Role Clarity and Team Performance

Hypothesis	Status
H1d. Role clarity is positively correlated with team performance	Supported

Note: ‘Supported’ status refers to role clarity having correlations with all aspects of team performance

In manufacturing companies, the assembly operations are made up of a number of processes. The quality of output is determined by the individual employee’s skill in handling the process either manually or assisted by machine. Role clarity is required for the individual member to contribute towards their team (Janis, 1982; Choi, 2002). The findings in Table 5.1 show that role clarity is positively correlated with all aspects of team performance criteria such as productivity, quality, efficiency, defects reduction, downtime reduction and waste reduction. Therefore, the results provide support to Hypothesis 1d.

Team members perform a variety of roles and can significantly increase team quality and productivity (Pfeiffer, 1994, p.110). When team members play their roles appropriately, there is a less need for internal coordination (Ginnett, 1990; Molleman et al., 2004) and more cooperation among members (Janis, 1982; Choi, 2002). Role clarity reduces role conflict and stress (Samson and Daft, 2003, p.484). Stable relationships promote team cooperation in performing the team task (Kaye, 1994, p.28). The functional roles of team members and the duties or spheres of responsibility complement each other (Kaye, 1994, p.28), contributing to team performance (Benne and Sheat, 1948 cited by Pfeiffer, 1994, p.110). Therefore, management needs to ensure a clear structure of roles and mutual expectations within teams (Janis, 1982; Choi, 2002).

5.3.2 Evaluation of Hypothesis: Role Satisfaction and Team Performance

Hypothesis	Status
H1e. Role satisfaction is positively related with team performance	Supported

Note: 'Supported' status refers to role satisfaction having correlations with all aspects of team performance criteria

Role satisfaction refers to the set of behaviours expected of team members when working as a team. If members' roles are ambiguous, team members may experience stress as they are torn apart by conflicting expectations (Samson and Daft, 2003, p.484). However, the completion of a complex task can generate pleasant feelings of accomplishment, or solving a problem that benefits - perceived as an intrinsic reward/ the satisfaction received in the process of performing the action (Samson and Daft, 2000, p. 525). The findings in Table 4.1 show that role satisfaction is positively correlated with all

aspects of team performance. Therefore, the results provide support to Hypothesis 1e.

Setting up teams in the workplace provides opportunities to team members to experience a feeling of dignity and self worth (Samson and Daft, 2003, p.606) and at the same time resolve work issues. Team members' ability to perform a variety of roles can significantly increase team quality and productivity (Pfeiffer, 1994, p.110). For example, team members performing administrative tasks related to the workplace or multi-tasks required to complete a job or solve work-related problem. The satisfaction received in the process of solving the workplace issues or contributing to team quality and productivity may be perceived as role satisfaction. When team members play their appropriate roles (Driskell, Hogan and Salas, 1987, p.107), they may receive recognition and appreciation from other team members (Samson and Daft, 2003, p.526) which promotes positive self-image and enhances self-esteem, membership and commitment to the team (Samson and Daft, 2003, p.587). Role satisfaction allows team members to experience fulfilment in their work as they are able to show creativity in resolving problems. Hence, the results reinforce Maslow's theory on self-actualisation needs.

5.3.3 Evaluation of Hypothesis: Division of task into sub-team and Team Performance

Hypothesis	Status
H1h. Division of task into sub-team is positively correlated with team performance	Supported

Note: 'Supported' status refers to division of task into sub-teams having correlations with all aspects of team performance criteria

Sub-teams are usually formed to enable team members to acquire new skills and share information, then being brought together into the original larger

group to communication what has been learnt (Hare, 2003, p.129). The findings in Table 4.1 show that the division of tasks into sub-teams is positively correlated with all aspects of team performance criteria such as productivity, quality, efficiency, defects reduction, downtime reduction and waste reduction. Therefore the results provide support to Hypothesis 1h.

Division of labour into sub-teams and members becoming specialists in performing the task is viewed as an aspect of manufacturing where people and equipment are organised to perform more efficiently (Groover, 20022, p.3). Task division along clear lines of authority, responsibility and expertise encourages optimal team performance (Webster, 1947, cited by Samson and Daft, 2003; Steward and Barrick, 2000, p.144). The division of tasks, coordination of effort and specialisation contributes to extra team productivity (Burgoon and Ruffner, 1978, p.228). Hence, the results reinforce the benefits of administrative principles of classical management theory and provide support to the above hypothesis.

Teams need to be organised according to specialisation in order to produce more and better work with the same amount of effort (Samson and Daft, 2000, p.54). When team members' exercise their variety of skills, they become very valuable to the team and this enhance team performance (Stevens and Campion, 1994, p.520). The division of tasks into sub-teams reinforces the characteristics of Weberian bureaucracy, that is, promoting clear definitions of responsibility, allowing the selection and identification of relevant team members' skills or expertise while still part of the larger team (Henderson and Parsons, 1947, cited by Samson and Daft, 2003, p.53). Thus, findings provide support to above hypothesis.

5.3.4 Evaluation of Hypothesis: Team Members' Liking and Team Performance

Hypothesis	Status
H1b. Team members' liking for one another is positively correlated with team performance	Partial Support

Note: 'Partial support' status refers to team members' liking having correlation with defects reduction at $p < 0.05$ level

Team members who like each other are attracted to the team (Jackson, et al., 2003). Team members who interact frequently and share functional experiences may facilitate liking (Bunderson, 2003, p.458). When team members perceive each other as friends they tend to become more interconnected (Hare, 2003, p.138) and more likely to complete tasks and help each other, fostering higher levels of self-efficacy (Bettenhausen, 1991; Hoegl and Parboteeach, 2003). The findings reported in Table 5.2 show that liking is correlated positively with defects reduction. Therefore, the results provide partial support to Hypothesis 1b.

Attitudes and behaviours of team members and their concern for others are linked to team performance. Teams working on reducing process defects tend to know the members of their team better and are able to use their team resources more efficiently (Beal et al., 2003, p. 991). The sense of belonging/acquaintance promotes trust which leads to more open and co-operative team behaviour (Ensley et al., 2001, p.370). Therefore, team membership/composition should include members who are able to identify with the team and become accepted members of the team (Evans and Jarvis, 1986).

5.3.5 Evaluation of Hypothesis: Team Members' Openness to Differences and Team Performance

Hypothesis	Status
H1g. Team members' openness to differences is positively correlated with team performance	Partial Support

Note: 'Partial support' status refers to team members' openness to differences having correlation with defects reduction at $p < 0.05$ level

Past findings suggest that openness to differences characterise a 'mature' team (Lakin and Constanzo, 1975, p.211). Team members are able to respond effectively to threats and opportunities (Woodcock and Francis, 1996, p.3), participate actively in team activities and obtain regular feedback on their team performance (Wheelan, 1999, p.43). The findings in Table 4.2 shows that members' openness to differences is positively correlated with team performance criteria such as defect reduction. Therefore, the findings provide partial support to Hypothesis 1g.

Although the exchange of ideas, objective assessment of alternatives, and a rigorous contrasting of perspectives may produce conflict, the creative ideas can lead to the creation of solutions (Ensley et al., 2001, p.365). The promotion of openness to differences provides team members the opportunity to learn (e.g. Neumann et al., 1999; Saavedra et al., 1993) especially in the manufacturing process where problems are attributed to man, machine and material.

5.3.6 Evaluation of Hypothesis: Goal Agreement and Team Performance

Hypothesis	Status
H1c. Goal agreement is positively correlated with team performance	Partial Support

Note: 'Partial support' status refers to goal agreement having correlation with defects reduction and downtime reduction at $p < 0.05$ level

Teams with common goals generate team identity, which is effective for team performance (Burgoon and Ruffner, 1978, p.247). Sharing of team goals motivates team members to achieve these goals and minimises goal conflict (Larson and LaFasto, 1989; Locke and Latham, 1990). The findings reported in Table 4.2 show that team goal agreement is positively correlated with team performance criteria such as defects reduction and downtime reduction. Therefore the finding provides partial support to Hypothesis 1c.

Operational goal agreement promotes a shared perception by team members and hence diminishes suspicion and improves teamwork (Samson and Daft, 2003, p.607). Moreover, teams working on defects reduction tend to be more familiar with each other and therefore tend to use their team resources more efficiently (Beal et al., 2003, p. 991). Goal agreement can be obtained through participation in goal setting (Pearson, 1987, cited by Stevens and Campion, 1994, p.515), promoting commitment to the team's goals (Evans and Dion, 1991, p.181).

5.3.7 Evaluation of Hypothesis: Participative Leadership Style and Team Performance

Hypothesis	Status
H1i. Participative leadership style is positively correlated with team performance	Partial Support

Note: 'Partial support' status refers to participative leadership style having correlation with defects reduction and downtime reduction at $p < 0.05$ level

Past study suggests that a participative leadership style allows the autonomy of members and binds the team together (Choi, 2002, p. 198). When the participative leader allows team members to participate in team decisions, team members' commitment increases and hence, performance is improved (Bettenhausen, 1991; Jackson et al., 2003). The findings reported in Table 5.2 show a positive correlation between participative leadership style and team performance criteria of defects reduction and downtime reduction. Therefore the findings provide partial support to Hypothesis 1i.

Participative leadership encourages teamwork (Athanasaw, 2003, p.1169), team leaders jointly pursuing team goals with team members (Wheelan, 1999, p. 73). Team members' participation in team decision making fosters their intrinsic motivation as self-determination increases and 'team spirit' established (Osterloh and Frey, 2000, p.9). Participation increases team members' sense of responsibility and ownership over the task (Campion, Medsker and Higgs, 1993, p.826). Therefore, a participative leadership style requires team leaders to seeks opinions, suggestions and encourage team members' participation in decision making (Samson and Daft, 2000, p.508).

5.3.8 Evaluation of Hypothesis: Openness to change and Team Performance

Hypothesis	Status
H1f. Team members' openness to change such as experimenting new problem strategies is positively correlated with team performance	Partial support

Note: 'Partial support' status openness to change having correlation with defects reduction at $p < 0.05$ level

Scholars suggest that team members who consciousness facilitate cooperation create an atmosphere in which team members are willing to learn from the input of other team members (Barrick et al., 1998; Neuman et al., 1999). Team members tend to be more effective in their work when they are open towards change (Woodcock and Francis, 1996, p.63), being more likely to trust, cooperate and commit to the team and consequently improve team performance (Wheelan, 1999, p.26). The findings reported in Table 5.2 show that openness to change is positively correlated with team performance criteria of defect reduction. Therefore, the results provide partial support to Hypothesis 1f.

Openness to change enables members to enjoy experimenting with new problem-solving strategies, new ideas and learning (Molleman et al., 2004) reducing the process defects. Therefore, the results provide partial support to the above hypothesis.

5.3.9 Evaluation of Hypothesis: Informal Leadership Role and Team Performance

Hypothesis	Status
H1k. Informal leadership role is positively correlated with team performance	Not Supported

Note: 'Not supported' refers to informal leadership role having no significant correlation with all aspects of team performance criteria

Informal leadership role refers to the leadership role being shifted informally amongst team members. Member's roles emerge and take over aspects of the formal leader's role (Wheelan, 1999, p.77). Leadership is shared amongst members and the leader (Wheelan, 1999, p.87). Past studies suggest that team members take on leadership roles at different times and in different ways in performing teams (Katzenbach, 1997, p.88). The findings in Table 5.2 show that correlations between informal leadership role and team performance are statistically not significant. Therefore the findings do not provide support to Hypothesis 1k.

Past findings suggest that a lack of leadership can significantly impede team discussion (Burgoon and Ruffner, 1978, p. 224). The descriptive statistics (refer to Appendix J) show that (56 percent) of the team types are Quality Control Circles and Small Group Activity of assembly workers. Production operator teams are usually led by a designated leader who facilitates team discussion. Therefore, informal leadership is unsuitable for operators' teams. Moreover, team members feel more comfortable working in teams that have a strong leader whose direction takes precedence over the team (Earley and Erez, 1997; cited by Kirkman, Shapiro, 2001, p. 601).

5.3.10 Evaluation of Hypothesis: Goal Motivation and Team Performance

Hypothesis	Status
H1j. Goal motivation is positively correlated with team performance	Not Supported

Note: 'Not supported' status refers to goal motivation having no significant correlation with all aspects of team performance criteria

Clear, specific and reachable goals encourage team members to feel strongly about these goals and become highly motivated (Beal et al., 2003, p. 989). When team members see a connection between what they do and why they are doing it, the goal becomes meaningful and members experience a high level of motivation. The findings reported in Table 4.2 show that correlations between goal motivation and team performance are not statistically significant. Therefore the results do not provide support to Hypothesis 1j.

Team membership in Malaysia is comprised of Malay, Chinese and Indian members. The Malay members tend to give emphasis to relationships and work is viewed as a necessity for life, not as a goal in itself; there is less concerned with team performance (Ahmad, 2005). The Chinese members are 'action' oriented and tend to link the level of effort to the team's output. The findings suggest that ethnicity influences the emphasis given to team goals. Therefore, the results do not provide support to the above hypothesis.

5.3.11 Evaluation of Hypothesis: Intra-team Conflict and Team Performance

Hypothesis	Status
H11. Intra-team conflict is negatively correlated with team performance	Not Supported

Note: 'Not supported' status refers to intra-team conflict having no significant correlation with all aspects of team performance criteria

Intra-team conflict is an important team process variable which serves as a mediator between antecedents of team behaviour and team outcomes (Gladstein, 1984; Jehn, 1997). Past studies show that inequity among team members is strongly associated with relationship conflict and is primarily managed by avoidance whereas task conflicts are managed via integrative tactics (Bettenhausen, 1991). The present findings reported in Table 4.2 show that correlations between intra-team conflict and team performance criteria are not statistically significant. Therefore, the results do not provide support to Hypothesis 11.

The findings in Table 4.1 show that the mean value of responses for intra-team conflict is 3.67, well below the mid-point of 4.0 on a Likert scale of 7.0 point. The results suggest that the collectivist values of the team members lead them to avoid conflict in order to support relationships and promote harmony (Cho and Park, 1998; Ohbuchi, 1998). However, the avoidance of intra-team conflict does not impact team performance. Therefore, the results do not provide support to the above hypothesis.

5.3.12

Evaluation of Hypothesis: Clique (sub-group) and Team Performance

Hypothesis	Status
H1m. Clique (sub-group) formation is negatively correlated with team performance	Not Supported

Note: 'Not supported' status refers to clique (sub-group) having no significant correlation with all aspects of team performance criteria

Subgroups and coalitions may have negative effects when they are unwilling to compromise or when actions are taken without checking with/informing the whole group (Wheelan, 1999, p.35). Sub-grouping has the potential of affecting group morale and effectiveness. Subgroups tend to lead to unproductive or perceived win/lose situations. The findings in Table 4.2 show that correlations between clique (sub-group) formation and team performance are not statistically significant. Therefore, the results do not provide support to Hypothesis H1m.

Hofstede (1997) suggests that Malaysia is categorised as a high power distance index where superiors and subordinates are unequal. This implies that the latter is expected to be told what to do. Therefore, younger team members are expected to respect older members in the team or older team leaders from other sub-teams. Thus, this behaviour is likely to lower cliques (sub-group) conflict. Therefore clique (sub-group) formation is likely to be insignificant and the findings do not provide support to the above hypothesis.

5.3.13 Evaluation of Hypotheses: Team Cohesiveness and Team Performance

Hypothesis	Status
H1a. Team cohesiveness is positively correlated with team performance	Not Supported

Note: 'Not supported' status refers to cohesiveness having no significant correlation with all of the team performance criteria

Cohesion refers to “an individual’s sense of belonging to a particular group...” (Bollen and Hoyle, 1990, p.482). Cohesion at the group level reflects the role of individuals in the team (Bollen and Hoyle, 1990, p.483). The findings reported in Table 4.2 show that correlations between team cohesiveness and team performance are not statistically significant. Therefore, the results do not provide support to Hypothesis H1a.

Malaysians derive their personal identity from being part of the group and tend to relate to clan or communities (Ahmad, 2005, p.36). Hence, the team members’ may view themselves as part of the ethnic group rather than the team. Therefore, the findings do not provide support to the above hypothesis.

Table 5.1

Evaluation of Research Question One Hypotheses

	Hypotheses	Status
H1a	Team cohesiveness is positively correlated with team performance	Not supported
H1b	Team members' liking for one another is positively correlated with team performance	Partial support
H1c	Goal agreement is positively correlated with team performance	Partial support
H1d	Role clarity is positively correlated with team performance	Supported
H1e	Role satisfaction is positively correlated with team performance	Supported
H1f	Team members' openness to change such as new ideas and feedback is positively correlated with team performance	Partial support
H1g	Team members' openness to differences is positively correlated with team performance	Partial support
H1h	Division of task into sub-team is positively correlated with team performance	Supported
H1i	Participative leadership style is positively correlated with team performance	Partial support
H1j	Goal motivation is positively correlated with team performance	Not supported
H1k	Informal leadership role is positively correlated with team performance	Not supported
H1l	Intra-team conflict is negatively correlated with team performance	Not supported
H1m	Inter-team conflict formation is negatively correlated with team performance	Not supported

5.4 Evaluation of Hypotheses: ‘Structural’ Factors and Team Performance and ‘Behavioural’ Characteristics

Gist et al. (1987) suggest that team structure in terms of size is considered an ‘input’ into team behaviours as the number of opinions and ideas impact team performance. Gooding and Wagner (1985) suggest that organisational size affects productivity as large organisations are likely to have more resources.

Research Question Two: What is the relationship between team performance and ‘structural’ factors of team size, team type, organisation size and voluntary team membership in the Malaysian context? Goal setting was adopted for the theoretical framework to understand the team process. Management support for team activities is also evaluated for its impact on team performance.

5.4.1 Evaluation of Hypothesis: Goal Setting and Team Performance

Hypothesis	Status
H2e Goal setting by customers to team goals is positively correlated with team performance	Supported

Note: ‘Supported’ status refers to goal setting by customers having correlations with all of the aspects of team performance criteria

Kaczynski and Ott (2004) pointed out that customer’s expected standards are incorporated into the team goals to promote customer sovereignty. Samson and Daft (2003) suggest that teams need to be flexible and adaptable in responding promptly to customer expectations. Customers’ key performance indicators of product service or quality are usually linked to operational goals. Teams performing complex tasks need to seek feedback from customers in order to adjust their course of action in accordance with their customers’ standards (Choi, 2002). Teams need to be flexible and adaptable in responding to the

customer expectations; hence goal contribution by customers to team goal is expected to have a positive contribution to team goals.

5.4.2 Evaluation of Hypothesis: Organising convention to celebrate team success and Team Performance

Hypothesis	Status
H2f. Organising convention to celebrate team success is positively correlated with team performance	Supported

Note: ‘Supported’ status refers to organising convention having significant correlations with all aspects of team performance criteria

Scholars suggest that management must support teams for their effective functioning (Sundstrom et al., 1990; Cheney, 1994). Celebrations of team success provide opportunities for reinforcing team values and bonding team members to one another, thus creating a cohesive team (Bolman and Deal, 1992, p.41). The findings reported in Table 4.7 show that the organising conventions by management is positively correlated with all aspects of team performance criteria such as productivity, quality, defects reduction, efficiency, downtime reduction and waste reduction. Therefore, the results provide support to Hypothesis 2f.

Although the percentage of teams participating in a convention is 32.2 percent (refer to Table 4.1) the teams’ participation in conventions provides a positive reinforcement in motivating teams to improve their performance (Samson and Daft, 2003, p.536). One possible reason for the significant correlation between organising conventions for teams and performance criteria is the recognition given to teams which motivates members to contribute more to achieve higher performance (Weingart and Weldom, 1991, p.35).

5.4.3 Evaluation of Hypothesis: Team Type and Team Performance

Hypothesis	Status
H2b. Team type is positively correlated with different aspects of team performance criteria	Partial support

Note1: 'Partial support' status refers to team type having significant correlation with defects reduction, downtime reduction and waste reduction

Quality Control Circles focus on opportunities to raise quality or productivity (Guzzo and Dickson, 1996, p.323). Small Group Activity teams work on a wide variety of tasks, for example cross-functional involvement in product design to solving within-unit workflow problems (Hackman and Wageman, 1995, p. 314). Project teams are used to respond to time-based completion tasks (Stalk and Hout, 1990, cited by Cohen and Bailey, 1997, p.242). The findings in Table 5.5 show that Quality Control circles and Small Group Activity teams tend to focus on defects, downtime and waste reduction. Therefore, the findings provide partial support to Hypothesis 2b.

Quality Control Circles and Small Group Activity teams tend to perform tasks related to tools, machines and systems (Bowers, et. al., 1997) and depend heavily on member competence to achieve team performance (Marks, et. al., 2001, p.357). Therefore, the findings provide partial support to the above hypothesis.

5.4.4 Evaluation of Hypothesis: Team members from large organisation and ‘behavioural’ characteristics

Hypothesis	Status
H2c. Team members from large organisation is positively correlated with effective ‘behavioural’ characteristics	Partial support

Note: ‘Partial support’ status refers to team from large organisation having correlations with ‘behavioural’ characteristics such as cohesiveness, liking, goal agreement, role clarity, openness to differences, division of task into sub-teams, participative leadership style and goal motivation

Large organizations are more likely to provide training in conflict resolution and to have mentors. Consequently, team members tend to possess strong team skills (Hartenian, 2003, p.27). The findings reported in Table 5.6 show that teams from large organisation are positively correlated with the majority of ‘behavioural’ characteristics such as team cohesiveness, liking, goal agreement, role clarity, openness to differences, division of task into sub-teams, participative leadership style and goal motivation. Therefore, the results provide partial support to Hypothesis H2d.

Training teams at the workplace enables members to acquire new skills and participate effectively in team discussions (Wheelan, 1999, p.4), resulting in a more cohesive team where members are able to use their resources more efficiently because they know each other better and are motivated to complete the task successfully (Beal et al., 2003, p. 991). The sense of belonging and familiarity promotes trust which leads to more open and co-operative team (Ensley et al., 2001, p.370). Cooperative actions facilitate goal achievement (Williams, 2001, p.8). Therefore the results provide partial support to the above hypothesis.

Role clarification increases cohesiveness and cooperation (Bass, 1980, p. 444) because team members understand their duties or spheres of responsibility,

complementing each other (Kaye, 1994, p.28). Goals must be chosen in accordance with a person's potential and, at the same time, fulfill basic existential human needs in order to make the goal meaningful (Buhler, 1968, p.40). Clear, specific and reachable goals encourage team members to feel strongly about their goals, resulting in a high level of goal motivation (Beal et al., 2003, p. 989). When people see a connection between what they do and why they are doing it, there is usually a high level of goal motivation (Beal et al., 2003, p.989). Therefore, the findings provide partial support to the above hypothesis.

Openness to differences enables team members to respond effectively to threats and opportunities (Woodcock and Francis, 1996, p.3), provides opportunity to learn (e.g. Neumann et al., 1999; Saavedra et al., 1993) and participate actively in team activities and get regular feedback on their performance (Wheelan, 1999, p.43). Therefore, the results provide support to the above hypothesis. Sub-teams are usually formed to enable team members to acquire new skills and share information, then returning to the original larger group (Hare, 2003, p.129). Therefore, the results provide partial support to the above hypothesis.

A participative leadership style empowers members and binds the team together (Choi, 2002, p.198). When team members interact with each other and share information, they are more likely to offer new and improved ways of working (Hare, 2003, p.144). Participation and personal relationships foster team members' intrinsic motivation because self-determination is raised and psychological 'team spirit' is established (Osterloh and Frey, 2000, p.9). A participative leadership style encourages teams to adjust to its operation, change short term goals or shift resources and skills (e.g., Dyer, 1994; Keil, 1985). Therefore, the results provide partial support to the above hypothesis.

5.4.5 Evaluation of Hypotheses: Goal setting by team and Team Performance

Hypothesis	Status
H2d Goal setting by team is positively correlated with team performance	Partial support

Note: 'Partial support' status refers to goal setting by team having correlations with all of the aspects of team performance criteria except productivity

Scholars (e.g. Evans and Fischer, 1992; Molleman, 2000) suggest that goal setting includes making decisions about goals (what), work methods (how), planning issues (when) and the distribution of work among team members (who). Goal setting is viewed as a motivational experience (Locke, 1968; Locke, Shaw, Saari and Latham, 1981). The findings reported in Table 4.8 show that team involvement in goal setting is positively correlated with all aspects of team performance except productivity. The results provide partial support to Hypothesis 2d.

Teams are closer to the source of errors and variances in production (Pasmore, et al. 1983; Alper, et al. 2000, p. 625) and are more effective in controlling their quality goals (Hoegl and Parboteeah, 2003, p.15). The findings support past findings suggesting that goal setting is positively related to team performance measured by efficiency (e.g. Illgen et al. 1988; Sims and Lorenzi, 1992). Therefore, the findings provide partial support to the above hypothesis.

5.4.6 Evaluation of Hypotheses: Management support in the form of training and Team Performance

Hypothesis	Status
H2g Management support in the form of training is positively correlated with team performance	Partial support

Note: 'Partial support' status refers to management support in the form of training having correlation with one or more aspects of team performance criteria, such as, defects reduction, efficiency, downtime reduction and waste reduction.

Training is aimed at skill enhancement and provides functional flexibility to meet shortages and intensify work (O'Reilly, 1992, p.370). Training also provides team members the opportunity to experience empowerment (Hartenian, 2003, p.23). The findings reported in Table 4.7 show that training is positively correlated with the aspects of team performance such as defects reduction, efficiency and downtime reduction. Therefore, the results show partial support to the Hypothesis 2f.

Teams that receive training are able to exchange information, (Beranek and Martz, 2005, p.200) including opinions (Gist et al., 1987, p.239) to better manage team performance. Providing training enhances members' knowledge, skills, and ability in operating production machinery, which has a significant impact on team performance (Stevens and Champion, 1994, p.508). Examples are defects reduction and downtime reduction resulting in less wastage and increasing efficiency. Therefore, the findings show partial support to the above hypothesis.

5.4.7 Evaluation of Hypothesis: Team Size and ‘Behavioural’ Characteristics

Hypothesis	Status
H2a Team size is negatively correlated with team performance	Not supported

Note: ‘Not supported’ status refers to team size having no significant correlation with all of the team performance criteria

Scholars (such as Hare, 2003) suggest that small teams of 3 to 5 members and large teams of 8 to 12 members had the best performance (Valacich, Wheeler, Mennecke and Wachter, 1995, p.239) because of their cognitive resources that may improve knowledge, creativity and performance (Haleblian and Finkelstein, 1991, Smith, et al. 1999, p.416). The findings reported in Table 4.5 show that correlations between team size and team performance is statistically not significant. Therefore, the findings do not provide support to Hypothesis 2a.

Past studies suggest that team size depends on the team members’ ‘generalist’ set of capabilities or ‘specialist’ skills that are particularly strong in a more limited set of areas (Morgeson, et. al., 2005, p.606). The ‘generalist’ parallel team members work in similar process operations and ‘specialist’ parallel team members are competent, experienced members in the current study. Moreover, team members are interdependent and work together to fulfil their tasks (Francis and Young, 1979, p.8). Therefore, the findings do not provide support to the above hypothesis.

Table 5.2
Evaluation of Research Question Two Hypotheses

Hypotheses	Status
2a Team size is negatively correlated with team performance	Not supported
2b Team type is positively correlated with different aspects of team performance criteria	Partial support
2c Team members from large organisation are positively correlated with effective 'behavioural' characteristics	Partial support
2d Goal setting by team is positively correlated with team performance	Partial support
2e Goal contribution by customers to team goals is positively correlated with team performance	Supported
2f Organising convention to celebrate team success is positively correlated with team performance	Supported
2g Management support in the form of training is positively correlated with team performance	Partial support

5.5 Evaluation of Hypotheses: Demographic Variables and ‘Behavioural’ Characteristics and Team Performance

Research Question Three: What is the relationship between team demographic variables of age, gender, ethnicity, and education level and ‘behavioural’ characteristics which predict team performance? Of special interest are ethnic values and beliefs which influence the perception of team ‘behaviours’. Race and age are important variables because they are ‘visible characteristics that may be used for social categorization’ (Tajfel, 1981; Timmerman, 2000, p.593). Demographic characteristics of organisations shape behaviour patterns (such as communication) and ultimately team performance. Scholars suggest that there is validity in measuring demographic variables based on similarity-attraction or social identification (Pfeffer, 1983 cited by Tsui et al., 2002, p.901).

5.5.1. Evaluation of Hypotheses: Team members of ethnic majority Malay and Behavioural Characteristics

Hypothesis	Status
H3h. Team members of ethnic majority Malay will view team ‘behavioural’ characteristics differently from the majority Chinese and Indian team members	Supported

Note: ‘Supported’ status refers to ethnic Malay members having differences in one more aspects of behavioural characteristics with the ethnic Chinese and Indian members. The behavioural characteristics are namely, cohesion, liking, goal agreement, role clarity, role satisfaction, openness to change, openness to differences, division of task into sub-teams, participative leadership style, goal motivation and lower inter-team conflict.

It has been suggested that “knowledge of cultural reality...” is always knowledge from a particular point of view” (Weber, 1949, p. 81-82 cited by Wilkinson, 2001, p.16). Diversity in teams may result in member prejudices,

biases, or stereotypes (Harrison et al., 2002, p.1042). “Demographic similarities accentuate the positive attributes of each other and derive a positive social identity whereas dissimilar individuals tend to view and treat each other less favourably” (Tsui et al., 2002, p. 901).

Result of the one-way analysis (ANOVA) reported in Table 4.9 shows a difference in ‘behavioural’ characteristics between the two clusters of team members according to their racial background, that is, teams with a majority of Malay members and the second cluster, those with a majority of Chinese and Indian team members. Teams with a majority of Malay members report a higher mean value (greater than the mid-point of Likert scale of 7.0 point) for ‘behavioural’ characteristics of cohesiveness, liking, goal agreement, role clarity, role satisfaction, openness to change, openness to differences, division of task into sub-teams, participative leadership style and goal motivation. This is attributed to the emphasis of harmonious relationships and equity principles of Islam which promote the equity of mankind by accepting individual differences (Ahmad, 2005, p.16). Therefore, the findings provide support to Hypothesis 3h.

The findings show that teams with a majority of Chinese and Indian members have a higher mean value for inter-team conflict (although it less than the mid-point of the 7-point likert scale) in comparison with teams with a majority of Malays members. This is due to the ethic values. For example, the majority Chinese tend to link effort to team outcomes whereas the majority Malay view work as a necessity of life but not as a goal in itself and are not too concerned over output performance (Ahmad, 2005, p.40). Therefore, the findings provide support to the above hypothesis.

5.5.2 Evaluation of Hypotheses: Teams with older team members (36 years & above) and ‘Behavioural’ Characteristics

Hypothesis	Status
H3a. Teams with older team members (36 years & above) are positively correlated with ‘behavioural’ characteristics	Partial support

Note: ‘Partial support’ status refers to teams with older team members having one or more significant correlations with ‘behavioural’ characteristic such as informal leadership role at $p < 0.05$ level and lower inter-team conflict at $p < 0.01$ level

Scholars suggest that age is likely to correspond with levels of experience, intelligence and wisdom which enable leadership (Tsui et al., 2002, p. 906). It is normal to expect teams with older team members to be given team autonomy in decision-making (Guzzo and Dickson, 1996) and it is normal for older members (36 years and above) to contribute to the team as informal leaders when their expertise is required by the team (Neubert, 1999, p.635). In addition, it is “normal” to expect that team members who are older and more experienced (Tsui et al., 2002, p.906) to become informal leaders. The findings show that teams with older team membership is positively correlated with informal leadership role. Therefore, the findings provide partial support to the Hypothesis 3a.

Past findings suggest that in high power distance cultures, subordinates tend to behave submissively in the presence of managers, avoid disagreements, and believe that by-passing their bosses is insubordination (Andres, 1985; Sison and Palma-Angeles, 1997 cited Kirkman, Shapiro, 2001, p. 601). Teams in Malaysia which are viewed as a high power distance culture are expected to respect older members in the team. This respect is likely to lower inter-team conflict.

5.5.3 Evaluation of Hypotheses: Team with a majority of female members is likely to rate lower their team performance

Hypothesis	Status
H3b. Team with a majority of female members is likely to rate lower their team performance	Partial support

Note: ‘Partial support’ status refers to teams with a majority of female team members having one or more significant correlations with team performance criteria such as defects reduction at $p > .05$ level.

Scholars suggest that gender sometimes has a positive effect on performance (e.g. Jackson and Joshi, 2003; Knouse and Dansby, 1999; Rentsch and Klimoski, 2001). This is attributed to the psychological minority phenomena (David, 1980) or the higher perceived value of the team (Levine and Moreland, 1995) (Kanter, 1977). The findings in Table 4.3 suggest that teams with a majority of female members rated lower in team performance criteria of defects reduction. Therefore the findings provide partial support to the above hypothesis H3b.

5.5.4 Evaluation of Hypotheses: Team with a majority of female member is likely to behave differently from teams with a male majority

Hypothesis	Status
H3c. Team with a majority of female members is likely to behave differently from teams with a male majority	Partial support

Note: ‘Partial support’ status refers to teams with a majority of female team members having one or more significant correlations ‘behavioural’ characteristics such as role clarity and openness to differences at $p > .05$ level.

Karakowsky et al. (2004) suggest that gender role stereotype affects the behaviour, feelings and perceptions of members on the team’s effort and

consequently leads to biased perception. The findings reported in Table 4.4 show that gender correlates negatively with role clarity and openness to differences. Therefore the above finding provides partial support to Hypothesis H3c.

Teams require members to play several roles so as to be able to substitute for each other in order to accomplish the team’s goals (Hare, 2003, p.129). However, due to new members joining the team or old members leaving the team, members are required to redistribute the team members’ role, which reduces role clarity. Therefore, the findings provide partial support to the above hypothesis.

5.5.5 Evaluation of Hypotheses: Team members with higher education level and ‘Behavioural’ Characteristics

Hypothesis	Status
H3d. Teams members with higher education level are positively correlated with effective behaviours	Partial support

Note: ‘Partial support’ status refers to teams members with higher education level having lesser degree in liking, goal agreement, role satisfaction, and openness to differences, division of task into sub-teams, participative leadership style, goal motivation and a lower intra-team conflict at p<0.01 level.

The level of education influences perceptions, attitudes and status (Hambrick and Mason, 1984; Pfeffer, 1983). Social skills are related to knowledge (Cortina et al., 2000) and it is likely that highly educated individuals will have less conflict (Klein et al., 2004, p.960). The findings reported in Table 4.4 show that teams comprised of members with high level of education (refers to Yr 6 and below) is 13.6 percent (see Appendix M for code), lower intra-team conflict. Therefore, the findings provide partial support to Hypothesis 3d.

5.5.6 Evaluation of Hypotheses: Long team tenure and ‘Behavioural’ Characteristics

Hypothesis	Status
H3e. Long team tenure members are positively correlated with effective team behaviours	Partial support

Note: ‘Partial support’ status refers to long team having one or more significant correlation with team’s behavioural characteristics such as informal leadership role at $p > .05$ level

The findings in Table 4.4 show a positive correlation between team tenure and informal leadership. The findings support past findings suggesting that team members who spend more time working together, become more familiar and identify more similarities amongst themselves (McGrath, 1991; Sosik and Jung, 2002), allowing members to lead informally. Therefore the results provide partial support for Hypothesis 3e.

Team members who hold a high position in the hierarchy usually have long tenure with the team or organisation. They have been in a position “long enough to learn” the work processes (Pfeffer, 1983, p.323) and their views and opinions are viewed more positively by the new members (Tsui et al., 2002, p.904) resulting in the newer members ‘giving in’ to members with longer tenure thus allowing them to become informal leaders (Neubert, 1999, p.635).

5.5.7 Evaluation of Hypotheses: Team members with previous team experiences and Team Performance

Hypothesis	Status
H3f. Team members with previous team experiences are positively correlated with effective team behaviours	Partial support

Note: 'Partial support' refers to previous team experience having one or more significant correlations with 'behavioural' characteristics such as lower inter-team conflict at $p > 0.05$ level.

Previous team experience could result in members feeling satisfied with their team both physically and psychologically. A feeling of competence is experienced when team members contribute to the team (Meyer and Allen, 1991, p.70). Previous team experience enables team members to continue working together long-term (Hackman, 1991; Pescosolidao, 2003, p.36), not requiring additional time and/or money to get to know each other, set ground rules, operating guidelines. Areas of competence and expertise can be optimised (Pescosolidao, 2003, p.36). This promotes greater understanding between teams and reduces inter-team conflict. Therefore, findings provide partial support to Hypothesis 3f.

The findings in Table 4.4 show that previous team experience in problem-solving is correlated with a lower inter-team conflict. The present findings support past findings suggesting that previous team experience enables team members to view problems as a mutual problem that requires a solution. They therefore tend to offer more effective, diverse ideas or perspectives during inter-team exchanges (Alper et al., 2000, p. 628). This inter-team information sharing is likely to reduce inter-team conflict. Therefore, the findings provide partial support to the above hypothesis.

5.5.8 Evaluation of Hypotheses: Team members with past team leadership experience and ‘Behavioural’ Characteristics

Hypothesis	Status
H3g. Team members with past team leadership experiences are positively correlated with effective team behaviours	Not supported

Note: ‘Partial support’ refers to the past team leadership experience having one or more significant correlations with ‘behavioural’ characteristics such as role clarity and inter-team conflicts at $p < 0.05$ level and intra-team conflict at $p > 0.01$

The findings in Table 4.4 show that team members with past leadership experience correlates positively with intra-team conflict but negatively with role clarity. This may be attributed to their many roles as a team leader. When they are no longer leaders, they may find difficulty in adapting to the member’s role (Taggard et al., 1999, p.901). For example, they are expected to follow the decisions of the formal team leader and/or may perceive a ‘loss of power’ in decision making. Perhaps the frustration of a lesser role affects their role clarity. Members with past team leadership experiences may consider their ideas to be superior (Batson et al, 1995) and project their own opinions and attitudes onto other team members. This is likely to cause tension between the members or team leader thus leading to higher intra-team conflict (Tsui et al., 2000) for the members with past leadership experience. Therefore, the findings do not provide support to hypothesis H3g.

Table 5.3
Evaluation of Research Question Three Hypotheses

Hypotheses	Status
3a Teams with older members (36 years & above) are positively correlated with lower conflict	Partial support
3b Teams with a majority of female members are positively correlated with team performance	Partial support
3c Team with a majority of female members is likely to differ in its behaviour from team with a majority of male members	Partial support
3d Team members at the Year 10 education level or above are expected to become effective team members	Partial support
3e Long team tenure members are expected to become effective team members	Partial support
3f Team members with previous team experiences are expected to become effective members	Partial support
3g Team members with past team leadership experiences are expected to become effective members	Not supported
3h Teams with a majority of Malay members will view team 'behavioural' characteristics differently from teams with a majority Chinese and Indian team members	Supported

5.6 Research Question One Findings: What is the relationship between ‘behavioural’ characteristics and team performance in the manufacturing and telecommunication industry in Malaysia?

The thesis examines the behavioural characteristics of 59 multicultural teams comprising of majority Malay, majority Chinese and Indians in Malaysia. The findings support past findings suggesting that ‘behavioural’ characteristics are linked to team performance (Metcalf and Linstead, 2003, p.105). The findings of Research Question One are summarised as (1) ‘behavioural’ characteristic correlated with all aspects of team performance, (2) ‘behaviours’ correlated with certain aspects of team performance and (3) ‘behaviours’ that are not statistically correlated with team performance.

‘Behavioural’ Characteristic correlated with all aspects of team performance

‘Behavioural’ characteristic such as role clarity, role satisfaction and division of task into sub-teams are positively correlated with all aspects of team performance. The present findings support previous studies suggesting that clarity in team roles and expectations are a major concern in work teams (House et al., 1996; Betts, 2005) as it promotes stable coordination amongst members (Janis, 1982; Choi, 2002). Clear roles and expectations team members with the opportunity to grow into different roles and shape their own work (Molleman et al., 2004) and consequently contribute to all aspects of team performance. Teams undergo different phases over time (Tuckman, 1965; Wheelan, 1999) which requires members to play different roles (Driskell, Hogan and Salas, 1987; Hare, 2003, p.129). Team members need to adjust their roles to match production requirements (Hare, 2003, p.143). Hence, role clarity is viewed as a critical characteristic of performing teams (Burgoon and Ruffner, 1978, p.224) as it contributes significantly to team performance (Woodcock and Francis, 1996; Bradley, et al., 2003).

The findings support previous research suggesting that team member's ability to perform a variety of roles significantly contributes to team performance (Pfeiffer, 1994). Team members experience a feeling of accomplishment or satisfaction with the team's outcome. This sense of achievement and joy may be described as role satisfaction as members are intrinsically rewarded. Role satisfaction in the context of teamwork provides fulfilment of social needs and increases a willingness to remain in the group (Molleman et al., 2004).

Team members are able to acquire new skills and share information, and are brought together into the original larger group to promote communication among team members (Hare, 2003, p.129). Selecting people who can work together creates successful teams (Harrison and Connors, 1984; Levine and Moreland, 1990, p.594). The thesis findings support previous studies suggesting that the division of tasks into sub-teams with clear definitions of authority, responsibility and expertise encourages optimal team performance (Steward and Barrick, 2000, p.144) as they become specialist at performing the task more efficiently (Groover, 20022).

'Behavioural' Characteristics correlates with certain aspects team performance

The thesis findings suggest that teams working on manufacturing problems such as defects reduction, downtime reduction and waste reduction require cooperation and interaction. Teams with good interpersonal relations of liking team members, agreeing to the team's goals, openness to change and other member's differences in opinions and ideas, participative leadership style in addition to role clarity, role satisfaction and division of tasks into sub-teams are all important in promoting cooperation and commitment in achieving the team' performance. Team members are more productive as they do not have to deal with conflicts (Steven and Campion, 1994).

A team member who identifies with their team and is accepted as a member of the team (Evans and Jarvis, 1986) is likely to remain in the team (Cartwright 1968; Burgoon and Ruffner 1978). Team members who feel a sense of belonging and familiarity will create trust, leading to more openness (Ensley et al., 2001) and acceptance of different opinions and ideas. The positive interaction among the team members (Williams, 2001) encourages the sharing of functional experiences (Bunderson, 2003, p.458). The promotion of openness to differences enables team members to participate actively in the team activities and obtain regular feedback on their performance (Wheelan, 1999, p.43). When the team leader involves team members in the setting of team goals, team members are likely to agree with these goals (Pearson, 1987; Stevens and Campion, 1994). The acceptance of team goals reduces goal conflict (Larson and LaFasto, 1989; Locke and Latham, 1990).

‘Behavioural’ Characteristics not statistically correlated with all aspects of team performance

The findings show that ‘behavioural’ characteristics such as team cohesiveness, goal motivation, informal leadership role, intra-team conflict and clique (sub-grouping) are not statistically correlated with team performance. This is attributed to the ethnic values of the majority Malay and majority Chinese members. For example, Malaysians derive their personal identity from being part of the group and tend to relate to clan or communities (Ahmad, 2005, p.36), therefore having the tendency to view themselves as part of ethnic group rather than with the team. The Malay respondents are more likely to give emphasis to interpersonal relationships and work is viewed as a necessity for life, not as a goal in itself. There is less concern with team performance (Ahmad, 2005). The Chinese members are ‘action’ oriented and tend to link the level of effort to the team’s output. Therefore, ethnic values influence the emphasis given to team goals.

Malaysia is considered a high power distance culture (Hofstede, 1997). Team members are expected to respect older members in the team. This respect is likely to lower clique (sub-grouping). Subordinates tend to behave submissively in the presence of managers, avoid disagreements, and believe that by-passing their bosses is insubordination (Andres, 1985; Sison and Palma-Angeles, 1997 cited Kirkman, Shapiro, 2001, p. 601).

5.7 Research Question Two Findings: What is the relationship between ‘structural’ factors, team performance and ‘behavioural’ characteristics in manufacturing and telecommunication industry in Malaysia?

Team structure was included in the study because of the growing trend of using team structure in the “production process in many organisations” (Devine et. al. 1999, p.680). The ‘structural’ properties of team size, team type, team membership composition and organisation size, the autonomy of teams in goal setting and the openness of management in encouraging teams to meet customer performance standards were evaluated. Management support in the form of training and organising conventions for teams to showcase their completed projects was analysed for their relationship with the different aspects of team performance.

As expected, the findings showed that Quality Control Circles and Small Group Activity teams tend to focus on team performance criteria such as defects reduction, downtime reduction and wastages. The findings support past finding suggesting that team types moderate types of team performance (Carron et al., 1988, p.138). For example, production teams are expected to work on problems that relate to process defects, equipment downtime or wastages in the usage of resources such as raw materials (Divine et. al., 1999, p. 697). The present findings also found that Small Group Activity teams have less intra-team conflict. This is probably due to cross-functional involvement

in solving operational problems (Hackman and Wageman, 1995, p. 314). The team has limited time to work on the problem and disbands upon the completion of the task (Guzzo and Dickson, 1996, p.324).

An interesting finding showed that team membership composition in process-related activity (refer to Table 4.1) is negatively correlated with team performance criteria of quality, defects reduction and downtime reduction. Team composition refers to individual skills, abilities or dispositions that will contribute to the team's performance (Driskell et al. 1987; Steward, 2006, p.30). The present findings suggest that teams of individuals who are experienced, competent or in supervisory and managerial positions (refer to Appendix L) are more effective in contributing to the above mentioned team performance criteria. This implies that manufacturing process problems tend to require higher team skills of problem solving, communication and conflict resolution for team performance (Hartenian, 2003, p.25). The finding contradicts past findings suggesting that team composition do not have any effect on team performance (Devine et. al., 1999, p.699).

The present findings show that teams from large organisation are positively correlated with the majority of 'behavioural' characteristics such as team cohesiveness, liking, goal agreement, role clarity, openness to differences, division of task into sub-teams, participative leadership style and goal motivation. Larger organisations have "more resources with which to staff teams, multiple departments involve coordination requirement that can be met through the use of various kinds of teams" (Devine, et al. 1999) and gave attention to work teams (Gordon, 1992; Lawler et al., 1995 cited by Devine, et al 1999, p.684). The thesis results also showed that teams from large organisation are positively correlated with team performance criteria such as defects and downtime reduction. The present findings support past findings suggesting that large organisation tend to assemble products using automated and computer-controlled machinery that is manually monitored by operators (Groover, 2002, p.2). The team's significant contribution to defect and

downtime reduction is consistent with the use of automation in the manufacturing sector. Training is positively correlated with team performance criteria such as defects reduction and efficiency. Training in the manufacturing sector is usually aimed at skill enhancement and providing functional flexibility to meet shortages and intensify work (O'Reilly, 1992). Skilled members are likely to produce quality products efficiently thus reducing in-process defects. Hence, training in relevant team skills positively contribute to team performance (e.g. Guzzo et al., 1993; Hartenian, 2003) and consequently providing knowledge, skill, and abilities to team members will have a significant effect on team performance (Stevens and Campion, 1994).

Management support to the team in the form of organising conventions to showcase completed projects is positively correlated with all aspects of team performance. The present findings support past findings suggesting that conventions reinforce team values, bond members to one another (Bolman and Deal, 1992, p.41) and symbolise management support for team activities (Bolman and Deal, 1997, p.217). This is consistent with previous studies suggesting that teams are more productive when team members feel that management is supporting them (Samson and Daft, 2003).

Team involvement in setting goals is positively correlated with all aspects of team performance. The results show that goal setting impacts all aspects of team performance except productivity. The teams' sense of direction and focus on specific targets by the team members (Samson and Daft, 2003) contributes to the team's accomplishment. Moreover, team members are more effective in controlling their teamwork quality goals (Hoegl and Parboteeah, 2003, p.15). Goal contribution by customers is positively correlated with all aspects of team performance. This implies that, when teams respond to customer feedback and demands (Choi, 2002, p.194), teams are likely to meet all aspects of team performance including customer performance standards.

The findings showed that team size has no significant impact on team performance and 'behavioural' characteristics. The present findings contradict past findings suggesting that a 'behavioural' characteristic such as conflict is associated with lower team performance and larger team size (Divine et al. 1999, p.708).

5.8 Research Question Three Findings: What is the relationship between demographic variables on team behaviours and performance in manufacturing and telecommunication industry in Malaysia?

Research Question Three investigates the demographic variables of age, gender, education level, tenure of members, team members' experience, and past leadership experience are viewed from the categorical approach (Tsui and Gutek, 1999). Of special interest is the examination of ethnic differences that may affect the quality of relationship intra-team and inter-team (Tsui et al., 2002).

The present findings suggest that demographic characteristics such as age, gender, education level, tenure of members, team experience (based on number of projects), past team leadership experience influences team behaviours. This is attributed to the cultural value and beliefs upheld by the team members. Older team members (above 36 years), tenure of membership, team experience and past team leadership experience correlates with 'behavioural' characteristics of informal leadership role, clique (sub-grouping), intra-team conflict, goal motivation and cohesiveness.

Team members at a higher education level are negatively correlated with the majority of the 'behavioural' characteristics. They tend to like each other less, be less agreeable to team goals, less satisfied with their team roles, less open to differences, less preference for structured work such as the division of labour

into sub-teams, less preference for participative leadership style, less goal motivated and have more intra-team conflict.

Team tenure is positively correlated with informal leadership. This is attributed to newer members 'giving in' to the longer tenure team members. The present findings provide support to past findings suggesting that opinions and views of team members with long team tenure are viewed more positively by new members (Tsui et al., 2002) resulting in the newer members 'giving in' to members with longer team tenure, allowing them to become the informal leader (Neubert, 1999, p.635). The results suggest that correlations between team tenure and team performance are not statistically significant.

When team members with previous team experience view inter-team exchanges as a platform to discuss common issues requiring solutions, they are likely to contribute their ideas from different perspectives (Alper et al., 2000). The sharing of information may lead to lower inter-team conflict. On the other hand, the findings show that correlations between team tenure and team performance is not statistically significant.

One would expect past leadership experience to be a positive 'behavioural' characteristic because team leaders are often older and more experienced than the team members (Tsui, et al., 2002). Surprisingly, members with past leadership experience show less role clarity but a higher level of intra-team conflict and clique (sub-grouping). This may be attributed to the previous role as team leader and difficulty in adapting to the member role (Taggard et al., 1999).. Perhaps the frustration of a lesser role affects their role clarity. Tsui, et al. (2002) suggest that members with past team leadership experiences may tend to "put higher value" on their ideas (Batson et al, 1995 cited by Tsui et al., 2002, p.807) and project their own opinions and attitudes onto other team members. This is likely to cause tension between the members/ the team leader resulting in higher intra-team conflict (Tsui et al., 2002, p.902) for the members with past leadership experience. The results shows that team

members with past leadership experience have no impact on team performance.

The thesis findings show that ethnicity impacts 'behavioural' characteristics. Two clusters, the majority Malay and the majority Chinese and Indian teams were used to identify differences in the 'behavioural' characteristics. The one-way analysis of variance (ANOVA) findings suggest that there are significant differences in the perception of team 'behavioural' characteristics between the two clusters. Teams with a majority of Malay team members showed a higher mean value (greater than the mid-point of the 7-point Likert scale) for cohesion, liking, goal agreement, role clarity, role satisfaction, openness to change, openness to differences, division of task into sub-teams, participative leadership style and goal motivation than teams with a majority of Chinese and Indian team members. The findings provide support to past findings suggesting that Malay team members tend to emphasise good relationships between the leader and members of the team, prefer the 'family-like' atmosphere and tend to be polite when communicating (Ahmad, 2005, p.38). The Malay team members reflect their Islamic values through the 'behavioural' characteristics such as openness to differences; openness to change, goal agreement and motivation which promotes harmonious relationship.

On the other hand, teams with a majority of Chinese team members experience higher clique (sub-grouping) in comparison with the majority Malay team members. This is attributed to the Chinese values of performing well when operating with a team's goal (Hofstede, 1977) and placing great emphasis on job performance whereas the majority Malay do not view work as a goal in itself and are not too concerned over output performance (Ahmad, 2005, p.40). The findings show that teams with majority Chinese and Indian team members have higher mean ratings for quality, defects reduction, downtime reduction and waste reduction.

CHAPTER 6 CONCLUSIONS

6.1 Major Findings

The study adopts a team development theory perspective to link 'behavioural' characteristics to team performance. The present findings support previous findings suggesting that 'behavioural' characteristics are linked to team performance (Metcalf and Linstead, 2003, p.105). The findings of Research Question One are summarised as (i) 'behavioural' characteristics such as role clarity, role satisfaction and division of task into sub-teams are correlated with all aspects of team performance; (ii) 'behavioural' characteristics are correlated with certain aspects of team performance such as defect reduction, quality, downtime reduction and waste reduction; and (iii) 'behavioural' characteristics such as team cohesiveness, goal motivation, informal leadership role and clique (sub-grouping) are not statistically correlated with team performance, which are attributed to the collectivist values of the team members.

Research Question Two findings show that 'structural' factors operationalised as team type, team membership composition and organisation size, goal setting by the team and customer contribution to team goals and management support for team activities influence team 'behaviours' were investigated to determine any link with 'behavioural' characteristics and team performance. The study of different team types showed that Small Group Activity team had the least intra-team conflict, which is attributed to the cross-functional involvement in solving operation problems (Hackman and Wageman, 1995, p. 314) and limited time duration, disbanding upon the completion of the team task (Guzzo and Dickson, 1996). The different types of teams also differed in the performance criteria of defects reduction, downtime reduction and waste reduction significantly correlated with Small Group Activity and Quality Control Circles.

Teams from large organisations are positively correlated with 'behavioural' characteristics of team cohesiveness, liking, goal agreement, role clarity, openness to differences, division of task into sub-teams, participative leadership style and goal motivation. This is attributed to the greater availability of resources in larger organisations (Devine et al., 1999; Gordon, 1992). For example, members are given training to enhance their team skills and participate effectively in team discussions (Wheelan, 1999, p.4). This results in more cohesive teams where members are able to use resources more efficiently because they know the members of the team better and are motivated to complete the task successfully (Beal et al., 2003, p. 991). This sense of belonging and familiarity promotes trust which leads to a more open and co-operative team (Ensley et al., 2001, p.370). Cooperative actions facilitate goal achievement (Williams, 2001, p.8) as evidenced in defects and downtime reduction. The knowledge, skill, and abilities of team members have a significant effect on team performance (Stevens and Campion, 1994).

Management's recognition of teams' accomplishment in the form of organising conventions to showcase completed projects is positively correlated with all aspects of team performance. The analysis suggests that conventions symbolise management support to teams (Bolman and Deal, 1992) which impacts performance. This is consistent with previous studies suggesting that teams are more productive when team members feel that management supports them. The positive relationship between management and teams enhances team performance (Samson and Daft, 2003).

Team involvement in setting goals is positively correlated with all aspects of team performance except productivity. When team members are involved in setting specific goals for their teams (Samson and Daft, 2003) they are committed to achieving these goals (Locke and Latham, 1990; Brown and Latham 2000). Goal contribution by customers to team goal is positively correlated with all aspects of team performance because customer key

performance indicators of product service or quality need to link to operational goals (Samson and Daft, 2003, p.222).

The study adopts a similarity-attraction theoretical perspective in interpreting the ethnic differences. The present findings show that ethnicity in team membership composition influences member perspective of their team's 'behavioural' characteristics. Teams with a majority of Malay members have a higher mean value for cohesion, liking, goal agreement, role clarity, role satisfaction, openness to change, openness to differences, division of task into sub-teams, participative leadership style and goal motivation. The 'behaviors' such as cohesiveness, openness to change, openness to other members' differences reflect the value of social harmony, respect for authority and face-saving of Malay workers (Taman et al., 1996, p.56).

Teams with a majority of Chinese and Indian members have a higher mean value of clique (sub-grouping) in comparison with the majority Malay team members. This is attributed to the attitude of the Chinese members who are 'action' oriented and tend monitor the effort they put in and the outcome received whereas the Malay members view work as necessity for life and not as a goal in itself and are not concerned over output performance (Ahmad, 2005, p.40). The present findings support previous studies suggesting that demographically similar members tend to promote social identity and treat each other favourably whereas demographically dissimilar individuals tend to view and treat each other less favourably (Tsui et al., 2002, p.901).

Other team demographic variables such as age, education level, tenure of membership and team experience have a positive influence on team member behaviour. Teams with older team members and members with previous team experience show lower inter-team conflict. Past findings suggest that in high power distance cultures, subordinates tend to behave submissively in the presence of managers and avoid disagreements (Andres, 1985; Sison and Palma-Angeles, 1997; Kirkman, Shapiro, 2001). Therefore in Malaysia, a high

power distance culture, the younger team members are expected to respect older members thus avoiding intra-team conflict.

Team members with higher education level experience lower intra-team conflict. The education provides members the capacity to “adjust their behaviour to different situational demands...” to effectively interact with other team members (Ferris et al., 2001, p.1076) thus reflecting the low intra-team conflict level.

Teams, being of a collectivist culture, are expected to give in to team members who are older and have longer team tenure. Tsui et al. (2002) argues that it is normal to expect older team members to be more experienced and have the authority (hierarchical position) to facilitate the team process (Neubert, 1999, p.636). The positive correlation between team tenure and older team members with informal leadership role is consistent with previous findings.

Team leaders often play many roles and when they revert back to being a member, they may find difficulty in adapting to a lesser role (Taggard et al., 1999, p.901) resulting in frustration having to follow instructions from team leader who may be younger or less experienced. This leads to role ambiguity and/or less role clarity. Moreover, members with past team leadership experiences may “put higher value” on their ideas (Batson et al, 1995 cited by Tsui et al., 2000, p.807) and project their own opinions and attitudes onto other team members, which is likely to cause tension between the members or team leader and lead to tension and more intra-team conflict (Tsui et al., 2000, p.902).

The present findings contradict previous studies suggesting demography is linked to sales growth (e.g., Eisenhardt and Schoonhoven, 1990; Michel and Hambrick, 1992). Cohen et al. (1997) argued that past studies tended to rely on archival data as measures (p.279). Demographic variables except gender (e.g., not ethnicity, age, education level, tenure of membership, team experience,

past team leadership experience) did not show any direct relationship with team performance. Teams with majority female workers contribute significantly to team performance criteria such as defects reduction. This is probably attributed to the extent of participation of the female members (42 percent) in the survey due to the majority of females working in the electronics/manufacturing companies.

6.2 Implications for Practice

The research findings have an important practical implication for managers and supervisors who have to be sensitive to the differences and needs of the multi-ethnic racial teams. Intra-team conflict and cliques (sub-grouping) could be minimised by providing interpersonal training and conflict resolution skills for team members to communicate positively and build rapport among team members from multi-ethnic racial backgrounds in Malaysia.

The Research Question One findings support previous studies suggesting that there is a link between 'behavioural' characteristics and team performance (Metcalf and Linstead, 2003). The three 'behavioural' characteristics of role clarity, role satisfaction and division of task into sub-teams are critical for all aspects of team performance. Therefore, managers need to establish mechanisms for clarifying role expectations (Egan, 1985; Steven and Campion, 1994) and tasks and roles of team members (e.g., Gladstein, 1984; Stevens and Campion, 1994) to avoid role ambiguity and reducing stress of team members (Samson and Daft, 2003, p.484).

Findings from Research Question Two contradict previous findings suggesting that team structure and composition do not have any effect on team performance (Devine et. al., 1999, p.699). The current findings show that team structure in terms of team type, team membership composition and organisation size show a strong relationship between 'structural' factors and

team performance criteria. Therefore, managers need to acknowledge the different team types according to their expectations of the team as this identifies the needs of the team for training, supervision, motivation and 'intellectual standardisation' versus 'individualised' teams which do not have a universal format or a standardized process (Woodcock and Francis, 1996, p.5).

Research Question Three findings support previous findings by Townsend and Scott, (2001) suggesting that racial composition affects team performance-related attitudes. The findings show that the majority Malay team members seem to be more cohesive, like each other more, are agreeable to team goals, and are open to change and differences of each other. They prefer structured activities such as the division of task into sub-teams and a participative leadership style. The majority of Chinese and Indian members tend to have a higher mean rating for quality, defects reduction, downtime reduction and waste reduction. Managers need to understand these multi-ethnic work values in order to facilitate members accepting each other's cultural differences (Adler, 1997; Kirkman and Shapiro, 2001).

Team involvement in team goal setting is associated with all aspects of team performance criteria except productivity. Managers need to involve team members in setting reachable goals as this provides a sense of direction and directs team efforts toward important outcomes (Samson and Daft, 2003, p.217). Goal acceptance is important in a team because the lack of goal unity or clarity reduces team performance (Stevens and Campion, 1994, p.515).

6.3 Limitations and Future Research Implications

The data gathered for the research study generalizes results for manufacturing and telecommunication sectors working on work quality and customer services issues. However, the findings could be used for the retail and hospitality sectors. The rationale for the study is that the retail and hospitality sectors also emphasis customer service in order to remain competitive in the global marketplace.

Another limitation is the small sample size. Data was collected from 90 teams with 488 respondents. Due to the criteria taken to analyse the data such as more than 60 percent team representation were considered for the cluster analysis, which allows the identifying of groups with common characteristics, and the teams had to complete a project. As a result of the approach taken the number of teams was reduced to 59 usable teams with 317 respondents.

The statistical techniques used in this research are limited to frequency analysis, correlations, and a one-way analysis of variance. Data for research is collected at one point in time. Correlations are used in this study and this prevents the drawing of conclusions regarding the casual relationships between the relationship variables or factors. In addition, future studies should develop a model to test the antecedents and consequences of team performance. Longitudinal or research action designs are needed to address this limitation.

The short team membership tenure of six months limits the generalising of the findings to other sectors. Future study should collect data from team membership tenure of more than 1 year. Despite the above limitations, this study represents a first step toward understanding the multi-ethnic race team composition in the manufacturing and telecommunication sectors in the Malaysian context.

The study shows that there are perceptual differences between ethnicity, the majority Malay and the majority Chinese and Indian members. This is attributed to the cultural values and beliefs of the team members. Future study may include other sectors such as retail and marketing, hospitality and banking which require the support of customers to remain competitive in the global market place.

Past team leadership behaviours showed a lesser role clarity but higher intra-team and clique (sub-grouping). Further study could examine the perception of unexpected 'behavioural' characteristics. An informal leadership style is associated with older team members and team tenure whereas participative leadership is associated with defects deduction. Further research could study the rationale for the different leadership styles.

Team size is not associated with team performance. Further studies need to identify reasons for the different team sizes and the key contributors to solving team problems or promoting innovation.

The findings suggest that 'behavioural' characteristics of team cohesiveness, goal motivation, intra-team conflict and clique (sub-grouping) are influenced by the cultural values and beliefs of the team members.

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Participating Organisations

	Company	Industry	Type of team	No. of Teams
1	Infineon Technologies	Semiconductor	Small Group Activity	11
2	S.E.	Manufacturing	Management	3
3	ON	Semiconductor	Small Group Activity	1
4	NS Auto Parts	Manufacturing	Quality Control Circles	1
5	United Bolt and Nut	Manufacturing	Departmental	1
6	Nestle Kit Kat	Manufacturing	Operations	1
7	Am Corp	Banking	Departmental	3
8	Freescale	Semiconductor	Small Group Activity	8
9	Master Pack	Manufacturing	Small Group Activity	3
10	MK Electric	Electrical	Small Group Activity Management	6
11	Celcom	Services	Departmental	1
12	OYL Manufacturing	Manufacturing	Small Group Activity	8
13	Maju Hydro	Services	Project	1
14	Harditech Engineering	Manufacturing	Quality Control Circles	1
15	Maxwell	Semiconductor	Quality Control Circles	2
16	YS Foam	Manufacturing	Departmental	7
17	SAM	Semiconductor	Small Group Activity	8
18	ASE	Manufacturing	Small Group Activity	3
19	OYL Steel	Manufacturing	Quality Control Circles	11
20	Nursing School	Hospitality	Project	9
Total				90

16th September 2005

Dr Stephen Teo
CMO5D.04.11
Faculty of Business
University of Technology

Dear Stephen,

UTS HREC 2003-130 – TEO, Dr Stephen, CRAWFORD, Dr John, (for HENG, Ms Siok Sim Agatha – Masters Student) – “The relationship between team characteristics with team performance in Malaysian teams”

As its meeting held on 13 September 2005, the UTS Human Research Ethics Committee considered and approved your request to amend the above application as follows:

1. project title changed from “The effectiveness of problem solving teams” to “The relationship between team characteristics with team performance in Malaysian teams” and
2. Chief Supervisor changed from Dr Tom Fisher to Dr Stephen Teo.

If you wish to make any further changes to your research, please contact the Research Ethics Officer in the Research and Commercialisation Office, Ms Hadiza Yunusa on 02 95149615.

In the meantime I take this opportunity to wish you well with the remainder of your research.

Yours sincerely,

Professor Jane Stein-Parbury
Chairperson, UTS Human Research Ethics Committee

Team Survey Questionnaire for Team Leader and Team Members

Thank you for completing the questionnaire. Your frank opinion is appreciated. Score the following statements strictly in relation to your team's current situation. Read each statement and circle a number to indicate your view of how the team is functioning now.

	Items	Disagree strongly			Agree strongly			
1	There is a strong team spirit.	1	2	3	4	5	6	7
2	There is no real warmth or affection between team members.	1	2	3	4	5	6	7
3	Team members know each other's point of view without needing to ask.	1	2	3	4	5	6	7
4	Individuals are trying to determine what needs to be accomplished.	1	2	3	4	5	6	7
5	Members' roles were established prior to entering the team and were not allowed to change.	1	2	3	4	5	6	7
6	There are damaging personality clashes between team members.	1	2	3	4	5	6	7
7	The team is open to new ideas and is constantly improving.	1	2	3	4	5	6	7
8	Members rarely express disagreement with initial group goals.	1	2	3	4	5	6	7
9	Members challenge the leader's ideas.	1	2	3	4	5	6	7
10	Team expects to be successful in achieving its goals.	1	2	3	4	5	6	7
11	The team uses time very effectively.	1	2	3	4	5	6	7
12	The team needs more structure and discipline to make it more efficient.	1	2	3	4	5	6	7
13	Members are concerned with personal safety in the group.	1	2	3	4	5	6	7
14	There is not much discussion about team goals.	1	2	3	4	5	6	7
15	Members of the team enjoy each other's company, but are ineffective when working as a team.	1	2	3	4	5	6	7
16	The team is very cohesive.	1	2	3	4	5	6	7
17	Members of the team enjoy each other's company.	1	2	3	4	5	6	7
18	We have a good understanding of each other's abilities.	1	2	3	4	5	6	7
19	Goals are not clear to members.	1	2	3	4	5	6	7
20	The roles and tasks given to individual members are determined by their abilities, and not by external status or first impressions.	1	2	3	4	5	6	7
21	Lack of cooperation is a problem in this team.	1	2	3	4	5	6	7
22	The team encourages innovation.	1	2	3	4	5	6	7

	Items	Disagree strongly				Agree strongly		
		1	2	3	4	5	6	7
23	Conformity to the group's way of thinking and behaving is expected.	1	2	3	4	5	6	7
24	The leader is relied upon to provide members with direction and encouragement.	1	2	3	4	5	6	7
25	Individual commitment to group goals and tasks are high.	1	2	3	4	5	6	7
26	The team's objectives are being achieved.	1	2	3	4	5	6	7
27	There is efficient division of labour within the team.	1	2	3	4	5	6	7
28	Members are concerned with their acceptance and inclusion in the team.	1	2	3	4	5	6	7
29	The team spends a lot of time on planning how to get its work done.	1	2	3	4	5	6	7
30	The team has addressed all barriers to effectiveness, and has found ways to resolve difficulties.	1	2	3	4	5	6	7
31	I tell my friends that it is a great team to work in.	1	2	3	4	5	6	7
32	Members of the team are comfortable with each other.	1	2	3	4	5	6	7
33	Team members are uncertain of each other's values and beliefs.	1	2	3	4	5	6	7
34	Members agree with the group's goals.	1	2	3	4	5	6	7
35	Members' roles and tasks are allowed to change in order to better achieve the team's goals.	1	2	3	4	5	6	7
36	Underlying power conflicts between team members are preventing the teams from performing well.	1	2	3	4	5	6	7
37	The team receives and gives feedback that it uses to improve its performance.	1	2	3	4	5	6	7
38	There is strong pressure to conform to team norms.	1	2	3	4	5	6	7
39	Members tend to go along with whatever the leader suggests.	1	2	3	4	5	6	7
40	This is a team which has lost its drive.	1	2	3	4	5	6	7
41	This is a high performing team.	1	2	3	4	5	6	7
42	Subgroups are integrated into the groups as a whole.	1	2	3	4	5	6	7
43	Members fear rejection by other members of the team.	1	2	3	4	5	6	7
44	We can rely on each other. We work as a team.	1	2	3	4	5	6	7
45	Frankly, the team members have become too comfortable with each other.	1	2	3	4	5	6	7
46	I am very satisfied being a member of the team.	1	2	3	4	5	6	7
47	Members of the team like and respect each other.	1	2	3	4	5	6	7

	Items	Disagree strongly				Agree strongly		
		1	2	3	4	5	6	7
48	Members of the team do not know each other very well as people.	1	2	3	4	5	6	7
49	Team members share the same goals.	1	2	3	4	5	6	7
50	Roles given to individuals match their abilities.	1	2	3	4	5	6	7
51	Conflict is due to differences in values and they are common	1	2	3	4	5	6	7
52	Team is inward looking and resists change	1	2	3	4	5	6	7
53	Differences of opinions are not encouraged	1	2	3	4	5	6	7
54	Cohesion and commitment to the team is based on identification with the leader	1	2	3	4	5	6	7
55	Team members are strongly motivated to achieve the goals of the team.	1	2	3	4	5	6	7
56	The team is accomplishing its goals.	1	2	3	4	5	6	7
57	The team makes efficient use of subgroups to work on different tasks.	1	2	3	4	5	6	7
58	Members communicate in tentative and very polite ways.	1	2	3	4	5	6	7
59	The group is able to form subgroups, or sub-committees to work on specific tasks.	1	2	3	4	5	6	7
60	Team members have not spent enough time with each other to know whether they are committed to being a part of the team.	1	2	3	4	5	6	7
61	Members are glad to be a part of the team.	1	2	3	4	5	6	7
62	I can trust and rely on my fellow team members.	1	2	3	4	5	6	7
63	Team members are working out who is really in charge.	1	2	3	4	5	6	7
64	Conflict between different cliques and factions in the team is a problem.	1	2	3	4	5	6	7
65	Members accept their roles and status.	1	2	3	4	5	6	7
66	There is very little conflict expressed in the group.	1	2	3	4	5	6	7
67	We talk through disagreements until they are resolved.	1	2	3	4	5	6	7
68	Helpful criticism is tolerated.	1	2	3	4	5	6	7
69	The leader feels comfortable delegating responsibility to team members.	1	2	3	4	5	6	7
70	The team as a whole encourages high performance and quality work.	1	2	3	4	5	6	7
72	A lack of group structure and organization is evident.	1	2	3	4	5	6	7
73	The team has been together so long that it needs a "shake-up".	1	2	3	4	5	6	7
74	The group acts on its decisions.	1	2	3	4	5	6	7
75	Individual identify with the team.	1	2	3	4	5	6	7
76	The team members are truthful and honest.	1	2	3	4	5	6	7
77	It is unclear who is really in charge of the team.	1	2	3	4	5	6	7

	Items	Disagree			Agree			
		strongly			strongly			
78	Subgroups have formed that have different goals and interests.	1	2	3	4	5	6	7
79	Members are happy with the roles that they have in the team.	1	2	3	4	5	6	7
80	There is much open discussion of issues in the team.	1	2	3	4	5	6	7
81	Conflict is dealt with openly.	1	2	3	4	5	6	7
82	Different ways of doing things are accepted in the team.	1	2	3	4	5	6	7
83	The team leader has a participative and consultative style.	1	2	3	4	5	6	7
84	There is quite a bit of tension in the team.	1	2	3	4	5	6	7
85	The team functions very efficiently.	1	2	3	4	5	6	7
86	Team members have a large amount of independence in determining the way they work.							
87	People seem to have a very different view on how things should be done in the team.							
88	Team members relate well to each other but do not achieve much.							
89	This is a group of individuals, not a team.							
90	I consider my team members my friends.							
91	The team is attempting to discover what has to be accomplished.							
92	The team contains subgroups that do not cooperate well with each other.							
93	Members are clear about their roles in the team.							
94	Although team members relate well, meetings are ineffective.							
95	Team members feel free to express differences in opinions.							
96	Conflict occurs frequently, but it is managed effectively and it is not a problem for the team.							
97	Team members frequently take on leadership roles.							
98	Most work is done by only some team members.							
99	Members understand their responsibilities in the team.							
100	Team members show initiative, without always depending on the leader for instructions.							
101	Everyone enjoys the team because objectives are achieved.							

Team Survey Questionnaire for Team Leader & Team Members
Kaji siasat untuk Ahli Kumpulan & Ketua Kumpulan

Thank you for completing the questionnaire. Your frank opinion is appreciated.
Terima kasih anda untuk mengambil masa untuk isikan kaji siasat. Pendapat yang ikhlas di hargai.

Score the following statements strictly in relation to your team's current situation. and circle a number to indicate your view of how the team is functioning now.
Memberi pendapat mengenai keadaan semasa kumpulan anda dan bulatan pilihan anda

Items	Disagree strongly				Agree strongly			
	Tidak Setuju				Sangat Setuju			
1	There is a strong team spirit.	1	2	3	4	5	6	7
2	There is no real warmth or affection between team members. <i>Semangat adalah tinggi untuk kumpulan.</i>	1	2	3	4	5	6	7
3	Team members know each other's point of view without needing to ask. <i>Perasaan antara ahli kumpulan tidak begitu mesra.</i>	1	2	3	4	5	6	7
4	Individuals are trying to determine what needs to be accomplished. <i>Ahli kumpulan cuba membuat anggaran untuk mencapai kehendak kumpulan.</i>	1	2	3	4	5	6	7
5	Members' roles were established prior to entering the team and were not allowed to change. <i>Peranan ahli telah ditentukan sebelum menjadi ahli kumpulan dan tidak dibenarkan membuat appa-apa pertukaran.</i>	1	2	3	4	5	6	7
6	There are damaging personality clashes between team members. <i>Kelakuan ahli kumpulan bercanggar dengan satu sma lain dan bawa kesan buruk.</i>	1	2	3	4	5	6	7
7	The team is open to new ideas and is constantly improving. <i>Kumpulan terbuka untuk cadangan baru dan sentiasa ingin memajukan.</i>	1	2	3	4	5	6	7
8	Members rarely express disagreement with initial group goals. <i>Ahli kumpulan jarang membuat bantahan atas gol yang diberi kepada kumpulan.</i>	1	2	3	4	5	6	7
9	Members challenge the leader's ideas. <i>Ahli kumpulan bercabar idea ketua kumpulan.</i>	1	2	3	4	5	6	7

Items		Disagree strongly Tidak Setuju				Agree strongly Sangat Setuju		
		1	2	3	4	5	6	7
10	Team expects to be successful in achieving its goals. <i>Kumpulan harap Berjaya dalam pencapaian gol</i>	1	2	3	4	5	6	7
11	The team uses time very effectively. <i>Kumpulan menggunakan masa dengan berkesan</i>	1	2	3	4	5	6	7
12	The team needs more structure and discipline to make it more efficient. <i>Kumpulan perlu panduan, peraturan untuk menjadi lebih berkesan</i>	1	2	3	4	5	6	7
13	Members are concerned with personal safety in the group. <i>Ahli kumpulan berasa bimbang dengan keselamatan dalam kumpulan</i>	1	2	3	4	5	6	7
14	There is not much discussion about team goals. <i>Kumpulan kurang berbincang mengenai gol kumpulan.</i>	1	2	3	4	5	6	7
15	Members of the team enjoy each other's company, but are ineffective when working as a team. <i>Ahli kumpulan berasa gembira antara satu sama lain, tetapi kurang berkesan bila bekerja sebagai satu kumpulan.</i>	1	2	3	4	5	6	7
16	The team is very cohesive. <i>Ahli kumpulan anda sangat rapat antara satu sama lain</i>	1	2	3	4	5	6	7
17	Members of the team enjoy each other's company. <i>Ahli kumpulan berasa gembira dengan satu sama lain</i>	1	2	3	4	5	6	7
18	We have a good understanding of each other's abilities. <i>Ahli kumpulan berasa gembira dengan kebolehan satu sama lain.</i>	1	2	3	4	5	6	7
19	Goals are not clear to members. <i>Ahli kumpulan kurang jeals dengan gol atau matlamat kumpulan.</i>	1	2	3	4	5	6	7
20	The roles and tasks given to individual members are determined by their abilities, and not by external status or first impressions. <i>Peranan dan kerja yang diberi kepada ahli kumpulan berikut dengan kebolehan ahli, dan bukan dari pihak lain atau persepsi pertemuan pertama</i>	1	2	3	4	5	6	7

Items		Disagree strongly			Agree strongly			
		Tidak Setuju				Sangat Setuju		
21	Lack of cooperation is a problem in this team. <i>Masalah kumpulan kami adalah kurang kerjasama</i>	1	2	3	4	5	6	7
22	The team encourages innovation. <i>Kumpulan mengalkan inovasi.</i>	1	2	3	4	5	6	7
23	Conformity to the group's way of thinking and behaving is expected. <i>Ahli kumpulan dikehendaki mematuhi peraturan dan tingkah laku kumpulan.</i>	1	2	3	4	5	6	7
24	The leader is relied upon to provide members with direction and encouragement. <i>Ahli kumpulan tunggu arahan dan galakkan dari ketua kumpulan.</i>	1	2	3	4	5	6	7
25	Individual commitment to group goals and tasks are high. <i>Ahli kumpulan memberi penuh semangat dan kerja untuk mencapai gol kumpulan</i>	1	2	3	4	5	6	7
26	The team's objectives are being achieved. <i>Matlamat kumpulan telah dicapai.</i>	1	2	3	4	5	6	7
27	There is efficient division of labour within the team. <i>Membahagikan kerja antara satu sama lain adalah berkesan</i>	1	2	3	4	5	6	7
28	Members are concerned with their acceptance and inclusion in the team. <i>Ahli kumpulan berasa bimbang tentang keahlian mereka diterima oleh ahli lain.</i>	1	2	3	4	5	6	7
29	The team spends a lot of time on planning how to get its work done. <i>Kumpulan mengambil banyak masa untuk merancang tugas.</i>	1	2	3	4	5	6	7
30	The team has addressed all barriers to effectiveness, and has found ways to resolve difficulties. <i>Kumpulan Berjaya mengatasi semua halangan yang ditemui oleh kumpulan.</i>	1	2	3	4	5	6	7
31	I tell my friends that it is a great team to work in. <i>Saya rasa seronok menjadi ahli kumpulan dan saya memberitahu kawan saya</i>	1	2	3	4	5	6	7
32	Members of the team are comfortable with each other. <i>Ahli kumpulan berasa selesai dengan satu sama lain</i>	1	2	3	4	5	6	7

Items		Disagree strongly				Agree strongly		
		Tidak Setuju				Sangat Setuju		
33	Team members are uncertain of each other's values and beliefs. <i>Ahli kumpulan kurang pasti nilai dan prinsip yang dipegang oleh ahli lain.</i>	1	2	3	4	5	6	7
34	Members agree with the group's goals. <i>Ahli kumpulan bersetuju dengan gol atau matlamat kumpulan.</i>	1	2	3	4	5	6	7
35	Members' roles and tasks are allowed to change in order to better achieve the team's goals. <i>Peranan dan kerja ahli dibenarkan bertukar untuk mencapai goal kumpulan</i>	1	2	3	4	5	6	7
36	Underlying power conflicts between team members are preventing the teams from performing well. <i>Konflik yang berbenam antara ahli kumpulan menghalang kerjayaan kumpulan.</i>	1	2	3	4	5	6	7
37	The team receives and gives feedback that it uses to improve its performance. <i>Ahli kumpulan terima dan juga beri maklumbalas untuk mempertingkatkan prestasi kerja.</i>	1	2	3	4	5	6	7
38	There is strong pressure to conform to team norms. <i>Tekanan untuk mengikut peraturan kumpulan.</i>	1	2	3	4	5	6	7
39	Members tend to go along with whatever the leader suggests. <i>Ahli kumpulan sentiasa mengikut cadangan ketua kumpulan.</i>	1	2	3	4	5	6	7
40	This is a team which has lost its drive. <i>Kumpulan kami telah menghilangkan semangat dan motivasi</i>	1	2	3	4	5	6	7
41	This is a high performing team. <i>Prestasi kumpulan kami adalah cemerlang.</i>	1	2	3	4	5	6	7
42	Subgroups are integrated into the groups as a whole. <i>Kumpulan kecil adalah sebahagian dari kumpulan kami</i>	1	2	3	4	5	6	7
43	Members fear rejection by other members of the team. <i>Ahli kumpulan bimbang dipecat oleh ahli lain.</i>	1	2	3	4	5	6	7
44	We can rely on each other. We work as a team. <i>Kami boleh harap antara satu sama lain. Kami bekerja sebagai sekumpulan.</i>	1	2	3	4	5	6	7

Items		Disagree strongly Tidak Setuju					Agree strongly Sangat Setuju	
45	Frankly, the team members have become too comfortable with each other. <i>Ahli kumpulan sentiasa mengikut cadangan ketua kumpulan</i>							
46	I am very satisfied being a member of the team. <i>Saya sangat puas hati menjadi ahli kumpulan.</i>							
47	Members of the team like and respect each other. <i>Ahli kumpulan bersukaria dan menghormati satu sama lain.</i>							
48	Members of the team do not know each other very well as people. <i>Ahli kumpulan kurang kenal antara satu sama lain.</i>	1	2	3	4	5	6	7
49	Team members share the same goals. <i>Ahli kumpulan pegang gol yang sama.</i>	1	2	3	4	5	6	7
50	Roles given to individuals match their abilities. <i>Peranan ahli kumpulan mengikut kebolehan ahli kumpulan.</i>	1	2	3	4	5	6	7
51	Conflict is due to differences in values and they are common <i>Punca conflict disebabkan oleh perbezaan nilai adalah biasa.</i>	1	2	3	4	5	6	7
52	Team is inward looking and resists change. <i>Kumpulan menjaga diri dan menentang pertukaran.</i>	1	2	3	4	5	6	7
53	Differences of opinions are not encouraged. <i>Perbezaan antara ahli tidak digalakkan.</i>	1	2	3	4	5	6	7
54	Cohesion and commitment to the team is based on identification with the leader. <i>Menjaga persahabatan dan commitment pada kumpulan disebabkan oleh taat setia kepada ketua kumpulan.</i>	1	2	3	4	5	6	7
55	Team members are strongly motivated to achieve the goals of the team. <i>Motivasai ahli kumpulan untuk mencapai gol kumpulan adalah tinggi.</i>	1	2	3	4	5	6	7
56	The team is accomplishing its goals. <i>Kumpulan sedang mencapai gol.</i>	1	2	3	4	5	6	7
57	The team makes efficient use of subgroups to work on different tasks. <i>Kumpulan berkesan menggunakan kumpulan kecil untuk membuat pelbagai kerja.</i>	1	2	3	4	5	6	7

Items		Disagree strongly				Agree strongly		
		Tidak Setuju				Sangat Setuju		
		1	2	3	4	5	6	7
58	Members communicate in tentative and very polite ways. <i>Cara ahli kumpulan komunikasai kurang pasti dan bersopan santun.</i>							
59	The group is able to form subgroups, or sub-committees to work on specific tasks. <i>Kumplan dapat tubuhkan kumpulan kecil atau jawatankuasa kecil untuk membuat kerja yang tertentu.</i>							
60	Team members have not spent enough time with each other to know whether they are committed to being a part of the team. <i>Motivasi ahli kumpulan untuk mencapai gol kumpulan adalah tinggi.</i>							
61	Members are glad to be a part of the team. <i>Ahli gembira menjadi seorang ahli kumpulan.</i>							
62	I can trust and rely on my fellow team members. <i>Saya boleh mempercayai dan boleh harap ahli kumpulan</i>							
63	Team members are working out who is really in charge. <i>Ahli kumpulan sedang menentukan siapa yang menguasai kumpulan sebenarnya.</i>							
64	Conflict between different cliques and factions in the team is a problem. <i>Konflikt antara kumpulan tertentu dan orang tertentu adalah masalah kumpulan.</i>							
65	Members accept their roles and status. <i>Ahli kumpulan terima peranan dan kedudukan masing-masing.</i>							
66	There is very little conflict expressed in the group. <i>Konflikt jarang dilepaskan dengan bebas dalam kumpulan.</i>							
67	We talk through disagreements until they are resolved. <i>Jika ada percangahan, kami akan berbincang hingga diselesaikan .</i>							
68	Helpful criticism is tolerated. <i>Maklum balas untuk membantu dapat di terima.</i>							
69	The leader feels comfortable delegating responsibility to team members. <i>Ketua kumpulan berasa selesai bebas memberi tanggungjawab kepada ahli nya.</i>							

Items		Disagree strongly			Agree strongly			
		Tidak Setuju			Sangat Setuju			
70	The team as a whole encourages high performance and quality work. <i>Kumpulan menggalakan prestasi yang cemerlang dan kerja berkualiti.</i>	1	2	3	4	5	6	7
71	A lack of group structure and organization is evident. <i>Kekurangan peraturan, panduan dan cara menganjur adalah sangat jelas.</i>	1	2	3	4	5	6	7
72	The team has been together so long that it needs a “shake-up”. <i>Ahli kumpulan lama bersama dan perlu “pertukaran”</i>	1	2	3	4	5	6	7
73	The group acts on its decisions. <i>Keputusan kumpulan dapat dilaksanakan.</i>	1	2	3	4	5	6	7
74	Individual identify with the team. <i>Setiap individu dapat mengaitkan diri dengan kumpulan.</i>	1	2	3	4	5	6	7
75	The team members are truthful and honest. <i>Ahli kumpulan jujur dan ikhlas.</i>	1	2	3	4	5	6	7
75	It is unclear who is really in charge of the team. <i>Tidak pasti siapa yang pegang kuasa kumpulan</i>	1	2	3	4	5	6	7
77	Subgroups have formed that have different goals and interests. <i>Beberapa kumpulan kecil ditubuhkan dan tidak sama dalam gol atau tujuan.</i>	1	2	3	4	5	6	7
78	Members are happy with the roles that they have in the team. <i>Ahli kumpulan berasa gembira dengan peranan mereka dalam kumpulan.</i>	1	2	3	4	5	6	7
79	There is much open discussion of issues in the team. <i>Terdapat perbincangan terbuka mengenai isu-isu dalam kumpulan .</i>	1	2	3	4	5	6	7
80	Conflict is dealt with openly. <i>Percanggahan diselesaikan secara terbuka.</i>	1	2	3	4	5	6	7
81	Different ways of doing things are accepted in the team. <i>Pelbagai cara membuat kerja dapat di terima oleh kumpulan.</i>	1	2	3	4	5	6	7
82	The team leader has a participative and consultative style. <i>Cara ketua kumpulan memimpin kumpulan adalah penglibatan dan perbincangan.</i>	1	2	3	4	5	6	7
83	There is quite a bit of tension in the team. <i>Suasana kumpulan berasa tegang.</i>	1	2	3	4	5	6	7

	Items	Disagree strongly			Agree strongly			
		Tidak Setuju				Sangat Setuju		
84	The team functions very efficiently. <i>Kumpulan berfungsi dengan berkesan.</i>	1	2	3	4	5	6	7
85	Team members have a large amount of independence in determining the way they work. <i>Ahli kumpulan bebas untuk membuat keputusan tentan cara kerja.</i>							
86	People seem to have a very different view on how things should be done in the team. <i>Orang lain mempunyai pandangan yang amat berbeza dari segi kaedah kerja kumpulan ini.</i>							
88	Team members relate well to each other but do not achieve much. <i>Ahli kumpulan mampu berkait rapat antara satu sama lain tetapi tidak dapat mencapai banyak.</i>							
88	This is a group of individuals, not a team. <i>Kumpulan ini merupakan satu kumpulan individual, bukan sepasukan.</i>							
89	I consider my team members my friends. <i>Saya menganggap ahli kumpulan sebagai rakan-rakan saya.</i>							
90	The team is attempting to discover what has to be accomplished. <i>Kumpulan tersebut cuba mengetahui apa yang perlu dicapai</i>							
91	The team contains subgroups that do not cooperate well with each other. <i>Kumpulan tersebut cuba mengetahui apa yang perlu dicapai.</i>							
92	Members are clear about their roles in the team. <i>Ahli-ahli jelas akan peranan mereka dalam kumpulan tersebut.</i>							
93	Although team members relate well, meetings are ineffective. <i>Walaupun ahli-ahli kumpulan mampu, berkait rapat tetapi mesyuarat-mesyuarat adalah kurang berkesan.</i>							
94	Team members feel free to express differences in opinions. <i>Ahli-ahli kumpulan berasa bebas untuk menyuarakan sebarang perbezaan pendapat.</i>							
96	Conflict occurs frequently, but it is managed effectively and it is not a problem for the team. <i>Percanggahan sering berlaku tetapi boleh ditangani dan tidak menjadi masalah bagi kumpulan tersebut.</i>							

Items		Disagree strongly			Agree strongly			
		Tidak Setuju				Sangat Setuju		
97	Most work is done by only some tem members. <i>Kebanyakan tugas dilaksanakan oleh beberapa orang ahli kumpulan sahaja.</i>	1	2	3	4	5	6	7
98	Members understand their responsibilities in the team.Ahli-ahli ememahami tanggungjawab mereka dalam kumpulan tersebut. <i>Ahli kumpulan bebas untuk membuat keputusan tentan cara kerja.</i>							
99	Team members show initiative, without always depending on the leader for instructions. <i>Ahli-ahli kumpulan menunjukkan ikhtiar, menjalan tugas tanpa bergantung kepada ketua kumpulan untuk arahan</i>							
100	There is quite a bit of tension in the team. <i>Terdapat sedikit ketegangan dalam kumpulan tersebut.</i>							
101	Everyone enjoys the team because objectives are achieved. <i>Setiap orang suka kumpulan tersebut kerana matlamatnya tercapai.</i>							

RESEARCH SURVEY QUESTIONNAIRE

This research involves teams, which are involved in a project or problem solving.

**All completed questionnaires are treated with confidentiality and anonymity.
Your frank opinion is much appreciated.**

Return completed questionnaire as instructed.

Team members are required to complete:

- i) Team Survey Questionnaire for members (6 pgs)
- ii) Individual Member Form (1pg)

Team leader is required to complete:

- i) Team Survey Questionnaire for members (6 pgs)
- ii) Individual Member Form (1pg)
- iii) Teak Leader Form (1pg in color)

An information letter regarding the research process is attached herewith to clarify anticipated questions.

Findings will be analyzed using a group development model, and it is hoped that it may promote a better understanding of team development, thus leading to suggestions of more effective team development process.

Thanking you for your contributions to the research study.

Yours sincerely,

Agatha Heng Siok Sim

INFORMATION LETTER

“The effectiveness of problem solving teams” UTS HREC 03/130

Thank you for assisting in the research. To help you understand the research process, the following answers attempts to clarify anticipated questions.

WHO IS DOING THE RESEARCH?

My name is Agatha Heng Siok Sim and I am a student at UTS. I am conducting this research as part of my Masters Degree By Thesis. My supervisor is Dr. Tom Fisher and Dr. John Crawford.

WHAT IS THIS RESEARCH ABOUT?

This research is to find out how problem solving teams develop towards maturity.

IF I SAY YES, WHAT WILL IT INVOLVE?

I will ask you to fill in questionnaires.

ARE THERE ANY RISKS?

No. All responses are treated with confidentiality.

WHY HAVE I BEEN ASKED?

You are a member of a team and management has recommended that your team has the ability to assist with the study.

DO I HAVE TO SAY YES?

You don't have to say yes.

WHAT WILL HAPPEN IF I SAY NO?

Nothing. I thank you for your time.

IF I SAY YES, CAN I CHANGE MY MIND LATER?

Yes. I will be happy to give you the questionnaires for your completion. Appreciate your cooperation.

WHAT IF I HAVE CONCERNS OR A COMPLAINT?

If you have concerns about the research that you think I can help you with, please feel free to contact :

Dr. John Crawford : john.Crawford@uts.edu.au tel: 612 95143621

Dr. Tom Fisher: tfisher@uts.edu.au tel: 612 95143620

Dr. Peter Meyer : meyer.p@taylorsof.edu.my ... tel: 03-56373312

Ms Agatha Heng: [REDACTED] tel: [REDACTED]

If you would like to talk to someone who is not connected with the research, you may contact the Research Ethics Officer on 02 9514 9615, and quote this number *UTS HREC 03/130*

Items Contained in Team Member Questionnaire (Part B)

	Items	Source
1	Members' roles and tasks are allowed to change in order to better achieve the team's goals	Wheelan and Hochberger, 1996
2	Members of the team like and respect each other	
3	I can trust and rely on my fellow team members	
4	The team members are truthful and honest	
5	I consider my team members my friends	
6	Members agree with the team's goals	
7	Team members share the same goals	
8	Individuals are trying to determine what needs to be accomplished	
9	The team is attempting to discover what is to be accomplished	
10	Conflict between different teams and factions in the team is a problem	
11	Subgroups have formed that have different goals and interest	
12	The team contains subgroups that do not cooperate well with each other	
13	The roles and tasks given to individual members are determined by their abilities, and not by external status or first impressions	
14	We can rely on each other. We work as a team	
15	Role given to individuals match their abilities	
16	Members accept their roles and status	
17	Members are happy with the roles that they have in the team	
18	Everyone enjoys the team because objectives are achieved	
19	Members are clear about their roles in the team	
20	Members understand their responsibilities in the team	

	Items	Source
21	There is no real warmth or affection between team members	Wheelan and Hochberger, 1996
22	The team is open to new ideas, and is constantly improving	
23	The team receives and gives feedback that it uses to improve its performance	
24	Helpful criticism is tolerated	
25	There is much open discussion of issues in the team	
26	Members of the team enjoy each other's company	
27	Members of the team are comfortable with each other	
28	Individual commitment to group goals and task is high	
29	Members are concerned with their acceptance and inclusion in the team	
30	Conformity to the group's way of thinking and behaving is expected	
31	There is strong pressures to conform to team norms	
32	Team is inward looking and resist change	
33	Members challenge the leader's ideas	
34	Members enjoy each other's company, but are ineffective when working as a team	
35	Most work is done by only some team members	
36	Team members frequently take on leadership roles	
37	We talked through disagreement until they are resolved	
39	The leader feels comfortable delegating responsibility to team members	
38	Members' role were established prior to entering the team and not allowed to change	
40	Different ways of doing things are accepted in the team	
41	Team members feel free to express differences in opinion	
42	The team leader has a participative and consultative style	
43	Team members have a large amount of independence in determining the way they work	

	Items	Source
44	Conflict is dealt with openly	Wheelan and Hochberger, 1996
45	Team members show initiative, without always depending on the leader for instructions	
46	Team expects to be successful in achieving its goals	
47	Team members are strongly motivated to achieve the goals of the team	
48	The team as a whole encourages high performance and quality work	
49	Members are concerned with personal safety in the group	
50	Members communicate in tentative and very polite ways	
51	Members rarely express disagreement with initial group goals	
52	Members fear rejection by other members of the team	
53	The team's objectives are being achieved	
54	The team is accomplishing its goals	
55	There is efficient division of labour within the team	
56	Subgroups are integrated into groups as a whole	
57	The team makes efficient use of subgroups to work on different tasks	
58	The leader is relied upon to provide members with direction and encouragement	
59	Cohesion and commitment to the team is based on identification with the leader	
60	The team is able to form subgroups, or subcommittees, to work on specific tasks	
61	Although team members relate well, meetings are ineffective	
62	This is a group of individuals, not a team	
63	The group acts on its decision	
64	The team spends a lot of time planning how it will get its work done	

	Items	Source
65	Team members are uncertain of each other's values/beliefs	Wheelan and Hochberger, 1996
66	A lack of team structure and organization is evident	
67	Members go along with whatever the leader suggests	
68	Individuals identify with the team	
69	Team members know each other's points of view without needing to ask	
70	Differences are not encouraged	
71	We have a good understanding of each other's abilities	
72	The team has addressed all barriers to effectiveness and has found ways to resolve difficulties	
73	Underlying power conflicts between team members are preventing the team from performing well	
75	There is quite a bit of tension in the team	
76	Lack of cooperation is a problem in this team	Source: Miller, 1996.
77	Goals are not clear to members	
78	There is not much discussion about team goals	
79	There is a strong team spirit	Samson and Draft, 2003
80	Your team is very cohesive	
81	I tell my friends that it is a great team to work in	
82	I am very satisfied being a member of the team	
83	Frankly, the team members have become too comfortable with each other	
84	The team uses time very effectively	Woodcock and Francis, 1996
85	This is a high performing team	
86	Members of the team do not know each other well as people	
87	There is very little conflict expressed in the group	
88	The team has been together so long that it needs a 'shake up'	
89	People seem to have very different views on how things should be done in this team	

	Items	Source
90	Team members have not spent enough time with each other to know whether they are committed to being a part of the team	Woodcock and Francis, 1996
91	Members are glad to be a part of the team	
92	Team members relate well to each other but do not achieve much	
93	Team members are working out who is really in charge	
94	It is unclear who is really in charge of the team	
95	The team encourages innovation	
96	There are damaging personality clashes between team members	
97	We can rely on each other. We work as a team	
98	This is a team which has lost its drive	
99	The team needs more structure and discipline to make it more efficient	
100	The team functions very efficiently	

Frequency Analysis for Responses to the Team Leaders Questionnaire
(N = 59)

Sec.1	Variables	Responses	Code	Number	Percentage
1	Leader selection	Selected by team	1	45	76.3
		Appointed	2	14	23.7
2	Projectno. currently working on	1 st project	1	21	35.6
		2 nd project	2	18	30.5
		3 rd project & above	3	20	33.9
3	Facilitator (position)	Supervisor	1	7	11.9
		Manager/Executive	2	33	55.9
		Consultant	3	4	6.8
		Team Leader	4	15	25.4
4	Resignation of member	None	-1	55	93.2
		10-50%	1	2	3.4
		60-100%	2	2	3.4
5	No. of new member(s)	None	-1	45	76.3
		1 member	1	4	7.0
		2 members	2	4	7.0
		3 members	3	1	1.7
		4 members	4	3	5.1
		5 members	5	1	1.7
		6 members and above	6	1	1.2
Sec. II Management Support					
6	Allow time for meeting during work	Yes	1	59	100
		No	2	0	
7	Provide training	Yes	1	55	93.2
		No	2	4	6.8
8	Pay overtime to attend meeting	Yes	1	14	23.7
9	Organise convention	Yes	1	19	32.2
		No	2	40	67.8

Sec. III	Variables	Responses	Code	Number	Percentage s
III	Team Performance:				
10	Productivity	yes	1	59	100
		no	2	0	0
11	Quality	yes	1	48	81.4
		no	2	11	18.6
12	Defect reduction	yes	1	42	71.2
		no	2	17	28.8
13	Efficiency	yes	1	51	86.4
		no	2	8	13.6
14	Downtime reduction	yes	1	36	61.0
		no	2	23	39.0
15	Waste reduction	yes	1	46	78.0
		no	2	13	22.0
	Team contribution:				
16	Modify work procedure	yes	1	52	88.1
		no	2	7	11.9
17	Accreditation	yes	1	30	50.8
		no	2	29	49.2
18	HR Policy revision	yes	1	6	10.2
		no	2	53	89.8
Sec. IV	Goal contribution:				
19	by team	Yes	1	39	66.1
		No	2	20	33.9
20	by management	Yes	1	45	76.3
		No	2	14	23.7
21	by customer	Yes	1	37	62.7
		No	2	22	37.3
22	by supervisor	Yes	1	14	23.7
		No	2	45	76.3

Sec.V	Variables	Responses	Code	Number	Percentages
23	Team size	1-5 members	1	15	25.4
		6-8 members	2	33	56.0
		9 members & above	3	11	18.6
23a	Team size (non-mfg)	1-5 members	1	4	15.4
		6-8 members	2	18	69.2
		9 members & above	3	4	15.4
24	Team Composition	Experiences	1	8	13.6
		competent			
		Supervisor/Manager	2	13	22.0
		Process-related	3	27	45.8
		Responsibility/function	4	11	18.6
25	Organisation size	Small	1	24	40.7
		Large	2	35	59.3
26	Type of team	Quality Control Circles	1	9	15.3
		Small Group Activity	2	24	40.7
		Project	3	21	35.6
		Department	4	5	8.5

Frequency Analysis for Team-Level Variables Obtained
from Responses to the Team Member Questionnaire
(N = 59)

	Variables	Responses	Code	Number	Percentages
1	Gender	Male	1	13	22.0
		Female	2	7	11.9
		Majority male		22	37.3
		Majority female		17	18.8
2	Race	Malay majority	1	38	64.4
		Chinese & Indian majority	2	21	35.6
3	Age	16-20 years	1	1	1.7
		21-25 years	2	13	22
		26-30 years	3	20	33.9
		31-35 years	4	20	33.9
		36- 40 years	5	5	8.5
4	Education level	Less than 6 years	1	0	0
		Year 6	2	8	13.6
		Year 10/Certificate	3	13	22.0
		Higher School Certificate/Diploma	4	9	15.3
		Degree/Post Degree	5	29	49.2
5	Team experience (solve problems)	1 year	1	21	35.6
		2 years	2	18	30.5
		3 years	3	6	10.2
		4 years	4	9	15.3
		5 years	5	1	1.7
		> 6 years	6	4	6.8
6	Tenure with team	6 months	1	36	61
		12 months	2	12	20.3
		13 months & above	3	11	18.6

	Variables	Responses	Code	Number	Percentages
7	Past team leader	Yes	1	48	81.4
		No	2	11	18.6
8	Training received	No response	-1		
		Attended 1 day	1		
		2 days	2		
		3 days	3		
		4 days	4		
		5 days	5		
9	Position of member	Operator/Clerk/	1	20	33.9
		Leader/Supervisor	2	14	23.7
		Technician/Engine er	3	17	28.8
		Middle Management	4	8	13.6
10	Tenure with organisation	1 year or less	1	7	11.9
		2 - 3 years	2	25	42.4
		4 - 5 years	3	21	35.6
		6 years & above	4	6	10.2
11	Team member	Compulsory	1	30	50.8
		Voluntary	2	7	11.9
		Mixed response		22	37.3

Frequency Analysis of Team Member Sample
(N =317)

Variables	Responses	Code	Number	Percentage s	
1	Gender	Male	1	181	58.0
		Female	2	131	42.0
2	Race	Malay	1	165	52.9
		Chinese	2	98	31.4
		Indian	3	49	15.7
3	Age	16-20 years	1	9	2.9
		21-25 years	2	59	18.9
		26-30 years	3	80	25.6
		31-35 years	4	78	25.0
		36- 40 years	5	45	14.4
		41 -45 years	6	37	11.9
		> 46 years	7	4	1.3
4	Education level	Less than 6 years	1	11	3.5
		Year 6	2	30	9.6
		Year 10/Certificate	3	130	41.7
		Higher School Certificate/Diploma	4	64	20.5
		Degree/Post Degree	5	77	24.7
5	Team experience (solve problems)	1 year	1	114	36.5
		2 years	2	23	7.4
		3 years	3	42	13.5
		4 years	4	23	7.4
		5 years	5	28	9.0
		> 6 years	6	82	26.2

Variables	Responses	Code	Number	Percentage s	
6	Tenure with team	6 months	1	260	83.3
		12 months	2	39	12.5
		13 months & above	3	13	4.2
7	Past team leader	Yes	1	117	37.5
		No	2	195	62.5
8	Training received	No response	-1	137	44.0
		Attended 1 day	1	20	6.4
		2 days	2	30	9.6
		3 days	3	37	11.9
		4 days	4	7	2.2
		5 days	5	16	5.1
		6 days & above	6	65	20.8
9	Position of member	Operator/Clerk/	1	93	29.8
		Leader/Supervisor	2	87	27.9
		Technician/Engine er	3	34	10.9
		Middle Management	4	85	27.2
		Senior Management	5	13	4.2
10	Tenure with organisation	1 year or less	1	82	26.2
		2 - 3 years	2	47	15.0
		4 - 5 years	3	45	14.4
		6 years & above	4	138	44.4
11	Team member	Compulsory	1	227	72.8
		Voluntary	2	85	27.2

Frequency Analysis for Team-Level Variables Obtained from
Responses to Team Member Questionnaire (Part A)

(N=317)

	Variables	Responses	Percentages
1	Gender	Male	58
		Female	42
2	Race (ethnic)	Malay	53
		Chinese	31
		Indian	16
3	Age	Scale 1 to 7	-
4	Education level	Scale 1 to 5	-
		Scale 2: Secondary 2	12%
		Scale 3:Secondary 5	20%
		Scale 4:HSC	15%
		Scale 5:Certificate	19%
		Scale 6: Diploma	12%
		Scale 7: Degree	22%
5	Tenure with team (months)	Scale 1 to 7	-
6	Team experience (project)	Scale 1 to 6	-
7	No. of project	Scale 1 to 5	
8	Past team leader experience	Yes	37.5
9	Position of facilitator		-
10	Position of member	Scale 1 to 5	-
11	Tenure with organization	Scale 1 to 9	-
12	Team membership: compulsory	Yes	72.8

Individual Items

	Items	Source
1	Individuals are trying to determine what needs to be accomplished	Wheelan and Hochberger, 1996
2	The team is attempting to discover what is to be accomplished	
3	There is no real warmth or affection between team members	
4	Members of the team are comfortable with each other	
5	Members are concerned with their acceptance and inclusion in the team	
6	Conformity to the group's way of thinking and behaving is expected	
7	There is strong pressures to conform to team norms	
8	Members challenge the leader's ideas	
9	Members enjoy each other's company, but are ineffective when working as a team	
10	Team members frequently take on leadership roles	
11	Members' role were established prior to entering the team and not allowed to change	
12	Members are concerned with personal safety in the group	
13	Members communicate in tentative and very polite ways	
14	Members rarely express disagreement with initial group goals	
15	Members fear rejection by other members of the team	
16	The team's objectives are being achieved	
17	The team is accomplishing its goals	
18	Although team members relate well, meetings are ineffective	
19	This is a group of individuals, not a team	
20	The group acts on its decision	
21	The team spends a lot of time planning how it will get its work done	

Items	Source
22 Team members are uncertain of each other's values/beliefs	
23 Team members know each other's points of view without needing to ask	Wheelan and Hochberger, 1996
24 Differences are not encouraged	
25 We have a good understanding of each other's abilities	
26 Goals are not clear to members	
27 There is not much discussion about team goals	Source: Miller, 1996.
28 Frankly, the team members have become too comfortable with each other	Samson and Draft, 2003
29 The team uses time very effectively	
30 This is a high performing team	
31 Members of the team do not know each other well as people	Woodcock and Francis, 1996
32 There is very little conflict expressed in the group	
33 The team has been together so long that it needs a 'shake up'	
34 People seem to have very different views on how things should be done in this team	
35 Team members have not spent enough time with each other to know whether they are committed to being a part of the team	
36 Team members relate well to each other but do not achieve much	
37 We can rely on each other. We work as a team	
39 This is a team which has lost its drive	
38 The team needs more structure and discipline to make it more efficient	
40 The team functions very efficiently	
41 Team is inward looking and resist change	
42 A lack of group structure and organization is evident	
43 Everyone enjoys the team because objectives are met	
44 Members tend to go along with whatever leader suggest	

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