

**THE RELATIONSHIP BETWEEN  
ETHNIC DIVERSITY AND INNOVATION AT  
MANUFACTURING X (MALAYSIA)**

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## ABSTRAK

Salah satu faktor terpenting untuk kejayaan and perkembangan organisasi adalah kapasiti untuk menjadi inovatif. Kebelakangan ini, jurang inovasi di Manufacturing X (Malaysia) semakin dirasai dengan penurunan kuantiti dan kualiti idea-idea inovatif dari para pekerjaanya. Pihak pengurusan atasan organisasi ini percaya bahawa para pekerja dari pelbagai etnik adalah kunci kejayaannya sebagai pemimpin inovatif dalam teknologi. Justeru itu, diversiti etnik dijadikan suatu strategi untuk meningkatkan tahap inovasi. Kajian ini bertujuan menyelidiki hubungan diversiti etnik dan inovasi di Manufacturing X (Malaysia). Kajian ini juga melihat samada konflik dalam kumpulan (yang terdiri daripada konflik perhubungan, tugas, dan proses) berfungsi sebagai perantaraan di dalam hubungan diversiti etnik dan inovasi, seperti yang dicadangkan oleh kajian-kajian sebelumnya. Selaras dengan kajian-kajian terdahulu, diversiti etnik didapati mempunyai hubungan positif dengan inovasi. Walau bagaimanapun, hanya peratusan yang sangat kecil dalam perubahan inovasi disebabkan oleh perubahan dalam diversiti etnik. Berlainan daripada kajian-kajian sebelumnya, konflik dalam kumpulan tidak menjadi pengantara dalam hubungan diversiti etnik dan inovasi di Manufacturing X (Malaysia). Daripada keputusan kajian ini, adalah dicadangkan bahawa pihak pengurusan atasan Manufacturing X (Malaysia) meneliti semula penggunaan diversiti etnik sebagai strategi untuk meningkatkan inovasi kerana ia bukan faktor penyumbang utama kepada inovasi. Sebaliknya, organisasi ini patut memberi tumpuan ke atas strategi-strategi lain untuk meningkatkan tahap inovasinya seperti menyeru para pemimpinnya untuk meningkatkan inovasi melalui perubahan budaya organisasi, tauladan, dan sokongan untuk inovasi. Kertas soalan digunakan untuk kajiselidik ini dan SPSS digunakan untuk menganalisa data.

## ABSTRACT

The capacity to be innovative has been underlined as one of the most important factors for organizational survival and growth. At Manufacturing X (Malaysia), innovation gap is profound as measured by the reducing quantity and quality of innovative ideas submitted by employees over the past few years. The top management believes that a workforce consists of different ethnicities is the key to its success as an innovative leader in technology, and uses it as a strategy to enhance innovation. This study investigates the relationship between ethnic diversity and innovation at Manufacturing X (Malaysia). The literature review suggests that ethnic diversity and innovation may not be a direct relationship and intra-group conflict may be a mediator in the relationship. Hence, intra-group which consists of relationship, task, and process conflict, is included in the study to see if it mediates the ethnic diversity and innovation relationship. Consistent with prior studies, ethnic diversity is found to have a positive relationship with innovation. However, only a very small percentage of the variation in innovation is explained by the variation in ethnic diversity. Contrary to previous researches, intra-group does not mediate the ethnic diversity and innovation relationship at Manufacturing X (Malaysia). From the results of the study, it is recommended that Manufacturing X (Malaysia) top management reconsiders using ethnic diversity as a strategy to improve innovation as it is not a major contributing factor to innovation. Instead, the organization should focus on other strategies to enhance its innovation level like leveraging on its leaders to drive for innovation enhancement through organizational cultural change, role model, and support for innovation. Hardcopy questionnaires were used as the research instrument and SPSS was used to analyze the data.

## Chapter 1

### INTRODUCTION

#### 1.1 Introduction

The capacity to be innovative (Badaracco, 1991; Clark & Fujimoto, 1991) has been underlined as one of the most important factors for organizational survival and growth (Goyal & Akhilesh, 2007). Politis (2003) says that that “Create, innovate or die!” has increasingly become the rallying cry of today’s managers.

Innovation has the capacity to improve performance, solve problems, add value and create competitive advantage for organizations (Gloet & Terziovski, 2004). External forces such as increasing international competition and advances in information technology have escalated demands on organizations to be innovative (Williams, 2004). Baregheh, Rowley, and Sambrook (2009) say that organizations need to innovate in response to changing customer demands and lifestyles, and to capitalize on opportunities offered by technology and changing marketplaces, structures and dynamics. As rapid changes in environmental conditions and technologies call for more frequent and faster innovations in new products, administrative processes and technology (Husher, 1984), Ancona and Caldwell (1987) highlight that managers at all levels must become concerned and promoting innovation in order to remain competitive and ensure long-term survival (Mohamed, 2002).

Eisenberger, Fasolo, and Davis-LaMastro (1990) are of the opinion that even organizations in relatively stable and predictable environments that do not require change for immediate survival can benefit from creative ideas that improve quality,

productivity, safety or employee satisfaction (Williams, 2004). Innovation is recognized to play a central role in creating value and sustaining competitive advantage. On the role of innovation in renewal and growth, Bessant, Lamming, Noke, and Phillips (2005) stress that unless an organization changes what it offers the world and the ways in which it creates and delivers those offerings, it risks its survival and growth prospects.

Mohamed (2002) suggests the following factors as determinants of innovation:

- (1) Workforce diversity.
- (2) Managerial attitudes toward innovation.
- (3) Decentralized power structure.
- (4) Supervisory support for innovation.
- (5) Committee representation (departments with more members serving on organization committees).
- (6) Exposure to the latest management and innovation thinking, and
- (7) Group satisfaction.

In addition, task conflict (Amason, 1996), interpersonal conflict (Mortensen & Hinds, 2001) and perceived fairness of evaluation procedures (Masterson, Lewis, Goldman, & Taylor, 2000; Brockner & Wisenfeld, 1996) are suggested as factors that affect innovation too.

From the factors affecting innovation discussed above, workforce diversity is one of them. Therefore, it can be said that innovation may be enhanced through diversity in the workforce. Ethnic diversity – the independent variable in this study - is a subset of workforce diversity.

## 1.2 Research Problem

Innovation gap is profound in Manufacturing X (Malaysia), as measured by the reducing quantity and quality of innovative ideas submitted by employees over the past few years. Manufacturing X (Malaysia) sets a goal of a certain number of innovative ideas it should receive from its employees every year and the submission percentage has dropped until less than 50 percent of the goal. The percentage of innovative ideas from Manufacturing X (Malaysia) that are accepted as patents has also reduced from year to year, signifying declining quality of the innovative ideas. Sustaining a high level of innovation is important for Manufacturing X (Malaysia) to retain its competitive advantage as the industry's leader in innovative products and processes. Realizing the innovation gap in its organization, Manufacturing X (Malaysia) has changed its vision in 2009 to "where innovation drives growth".

One of the company's strategies to address its innovation gap is through having a diverse workforce. As stated in the Manufacturing X corporate website:

"At Manufacturing X, diversity is a way of life. It's the way we do business and the key to our success as an innovative leader in technology. The diversity of our employees is the ingredient for success that sets Manufacturing X apart. Studies show that employees working in a diverse environment tend to feel more fulfilled, creative, and productive on the job. They also tend to experience higher levels of positive morale and job satisfaction. At Manufacturing X, these factors contribute directly toward making our company a great place to work, creative, and innovative" (Manufacturing X Intranet: <http://diversity.manufacturingX.com/DiversityAtManufacturingX/OurDiverseWorkforce.aspx>)

Whereas Manufacturing X (Malaysia) is committed to diversity in the broadest sense, its current strategy is focused on addressing its greatest gap in ethnicity. More than half of Manufacturing X (Malaysia) employees are Chinese and the company is hiring more non-Chinese to achieve a more ethnic-diverse workforce. The diversity hiring efforts that began in 2004 have seen an increase in non-Chinese ethnics over the last five years. The effort is on-going as the Chinese population is still a majority as of today.

Mainly, diversity literature portrays diverse workforce as better in innovation than its homogenous counterparts (Bantel & Jackson, 1989; Jackson, LaFasto, Schultz, & Kelly, 1992). Examples: a study by Mohamed (2002) provides the empirical evidence that innovative groups have members from various demographic dimensions who can contribute greater wealth of perspectives, White (1999) says that “creativity thrives on diversity”, Govendo (2005) suggests that organizations can create new and more innovative products and services through the differences in styles and in ways of looking at and doing things brought in by diversity, and Allen, Dawson, Wheatley, and White (2008) argue that diversity bring in different viewpoints that facilitate creative approaches to problem-solving.

However, on the other hand, literature also shows that culturally diverse groups based on demographic dimensions such as race, gender, age, education, tenure within the organization, and functional background (Jackson et al., 1991; O’Reilly, Caldwell, & Barnett, 1989; Tsui, Egan, & O’Reilly, 1992) experience more negative group outcomes than culturally homogeneous groups because of in-group favoritism, errors in communication, and differing perceptions and attributions among group

members (Adler, 1997; Ibarra, 1992; O'Reilly, Williams, & Barsade, 1998; Ravlin, Thomas, & Ilsev, 2000; Triandis, 2000).

The relationship between ethnic diversity and innovation may not be a direct one. Williams and O'Reilly (1998) in their forty years of diversity research conclude that there are no consistent main effects of diversity on organizational performance. They propose for the incorporation of intervening variables like conflict and communication, and moderators like task interdependence and task type (Jehn, Northcraft, & Neale, 1999).

On mediating variables, consistent with Williams and O'Reilly, Vodosek (2007), Pelled (1996), Jehn (1999), and Liang, Lie, Lin, and Lin (2007) suggest that intra-group conflict mediates the relationship between diversity and outcomes. Meanwhile, Ancona and Caldwell (1992), Pelled, Eisenhardt, and Xin (1999), and Earley and Mosakowski (2000) suggest that communication mediates relationships between diversity and performance outcomes.

On moderating variables, expanding from Williams and O'Reilly's (1998) who suggest task interdependence and task type, Horwitz and Horwitz (2007) suggest four moderators - task complexity, team type, task interdependence, and team size - in the diversity and performance relationship.

For simplicity purposes, only one mediating or moderating variable will be included in this study of ethnic diversity and innovation relationship. Based on my 13-year observation working in the company, intra-group conflict that stemmed from situations like unhappiness of minorities over the usage of Chinese dialects in meetings or dissatisfaction of being ignored by the majority are seen sometimes



within departments of diverse ethnicities. Therefore, only intra-group conflict as the mediating variable (as suggested by Williams & O'Reilly, 1998; Vodosek, 2007; Pelled, 1996; Jehn, 1999; Liang et al., 2007) is used in this study.

Given the discussion above, the problems being investigated are:

- (1) What is the relationship between ethnic diversity and innovation in Manufacturing X (Malaysia)?
- (2) Does intra-group conflict mediate the ethnic diversity and innovation relationship?

### **1.3 Research Objectives**

The present study attempts to attain the following objectives:

- (1) To find out the relationship between ethnic diversity and innovation in Manufacturing X (Malaysia).
- (2) To understand if the relationship between ethnic diversity and innovation in Manufacturing X (Malaysia) is mediated by intra-group conflict.

### **1.4 Research Questions**

The specific research questions that the study tries to answer are:

- (1) What is the relationship between ethnic diversity and innovation in Manufacturing X (Malaysia)?
- (2) Is the relationship between ethnic diversity and innovation in Manufacturing X (Malaysia) mediated by intra-group conflict?

## 1.5 Significance of the Study

Manufacturing X Chief Executive Officer believes that Manufacturing X's workforce diversity inspires innovation:

“Employees working in a diverse environment tend to feel more fulfilled, creative, and productive on the job. They also tend to experience higher levels of positive morale and job satisfaction. At Manufacturing X, these factors contribute directly toward making our company a great place to work, creative, and innovative.” (Manufacturing X Intranet: <http://diversity.manufacturingX.com/DiversityAtManufacturingX/OurDiverseWorkforce.aspx>)

However, in the Malaysian context, the relationship between ethnic diversity and innovation may differ from the American context. Abdullah (2001) says that Malaysia has often been described as a “minefield of multicultural sensitivities” due to its diverse racial and ethnic composition. Despite this diversity, it has also been observed that Malaysians work in apparent harmony and unity brought about by a few unifying factors, the most important of which are values that have withstood the test of time and are common to all the ethnic groups. Common Malaysian values like collectivism (“we” orientation), harmony and non-aggressiveness, trust and relationship building as well as tolerance and respect for differences often facilitate discussion and decision-making in a team, as well as reduce conflicts.

The implication is that Malaysians can work in a group. They can very well build a team and undertake new challenges. As a team, they will share a common purpose and influence one another. They should also be willing to accept clearly

defined roles, duties and responsibilities as team-members (Beebe & Masterson, 2000). Malaysians also dislike overt displays of anger or aggressive behavior. In order to preserve harmony, Malaysians are often encouraged not to be frank with negative opinions. Instead, they are taught to look for subtle cues and ways of expressing it. Malaysians are also extremely dedicated to doing a good job and they are eager to please (Abdullah, 2001).

By knowing whether there is a relationship between ethnic diversity and innovation in the Malaysian context (direct or mediated by intra-group conflict), Manufacturing X (Malaysia) management can re-evaluate the use of ethnic diversity as a strategy to enhance innovation. If innovation increases as a result of diverse ethnicities, then it is the right strategy. If there is no relationship or reverse relationship between the two, then the strategy to use diversity to enhance innovation has to be re-considered. In addition, by understanding the effect of intra-group conflict as the mediating variable, if any, in the ethnic diversity-innovation relationship, Manufacturing X (Malaysia) can educate its employees on the implications of the intra-group conflict on innovation.

It is vital for Manufacturing X (Malaysia) to use the right strategy to effectively enhance its innovation level in order to retain its competitive advantage as the industry's leader in products and processes.

## **1.6 Definition of Terms**

### ***1.6.1 Innovation***

West and Anderson (1996) define innovation as the “effective application of processes and products new to the organization and designed to benefit it and its

stakeholders” (Wong, Tjosvold, & Liu, 2009). Some scholars place emphasis on the degree of newness. For Van de Ven (1986), an idea can be defined as innovation as long as it is perceived as new to the people involved, even though it may not be new somewhere else. Damanpour (1996, p. 694) provides a detailed definition: “Innovation is conceived as a means of changing an organization, either as a response to changes in the external environment or as a pre-emptive action to influence the environment”. Hence, innovation is broadly defined to encompass a range of types, including new product or service, new process technology, new organization structure or administrative systems, or new plans or program pertaining to organization members (Baregheh et al., 2009).

A more holistic definition of innovation by West and Farr (1990) is used in this study. They define innovation as the “introduction and application within a role, group or organization of ideas, processes, products or procedures, new to the relevant unit of adoption, designed to significantly benefit the individual, the group, organization or wider society”. Innovation is thus a process through which individuals and groups of individuals attempt to change some aspect of their work or their work products in order to gain some benefits they value. Some of these benefits are higher productivity, better product or service quality, better working conditions, and improved interpersonal processes (Gilson & May, 2005).

### ***1.6.2 Ethnic Diversity***

Jamal (2003) describes ethnicity in terms of biological makeup of individuals and the extent to which genetic factors play their role in conveying aspects of ethnicity. For Cuellar, Nyberg, and Maldonado (1997), and Tajfel (1981), a person's ethnic identity involves one's sense of belonging to a group, and the feelings that go with being part

of that group. It involves perceptions, cognition, and knowledge structures about how a person thinks and feels about himself and others in the society (Jamal, 2003). Ethnicity implies many dimensions including a sense of common customs, language, religion, values, morality, and etiquette (Webster, 1994).

The major ethnic groups in Malaysia are Malays, Chinese and Indians; with a presence of Thais, Pakistanis and Europeans. In addition, there are various indigenous groups in the states of Sabah and Sarawak. The two main groups (i.e. the Chinese and Malays) play a role in much of the socio-economic and political environment of the country. Ethnic Malays (also known as Bumiputras) are said to control the political administration while ethnic Chinese has heavily influenced the economic environment (Che Ahmad, Houghton, & Mohamad Yusof, 2006).

Aaker 's (1999) definition of ethnicity as “a characteristic of racial group membership on the basis of some commonly shared features” is used in this study. This definition is similar to how ethnicity is defined in Manufacturing X (Malaysia).

### ***1.6.3 Intra-group Conflict***

Intra-group conflict refers to the “incompatibility, incongruence, or disagreement among the members of a group or its subgroups regarding goal, functions or activities of the group” (Rahim, 2001). It exists whenever a group member perceives a difference between what is presently occurring between him or her and the group and what he or she desires to occur (Jarboe & Witteman, 1996). Intra-group conflict can be categorized into three types: relationship conflict, task conflict, and process conflict (Vodosek, 2007).

Relationship (or interpersonal or affective or emotional) conflict is characterized by “interpersonal incompatibilities among group members that are associated with tension, animosity, and annoyance” (Vodosek, 2007) and is related to affective disagreement arising from personal dislikes and disaffection (Amason & Sapienza, 1997).

Task or substantive conflict is a perception of “disagreement among group members or individuals about the content of their decisions, and involves differences in viewpoints, ideas and opinions” (Medina, Munduate, Dorado, Martı´nez, & Guerra, 2005). It represents conflict about specific ends of the group (Vodosek, 2007).

Process conflict refers to “disagreements among group members about the way that tasks should be accomplished, how responsibilities should be assigned, and how assignments should be delegated”. Process conflict focuses on the means by which the group achieves the ends (Vodosek, 2007).

The three types of intra-group conflict (relationship, task, and process) as defined by Vodosek (2007) are used for this study.

## **1.7 Overview of the Remaining Chapters**

This chapter provides introduction, research problem, research objectives, research questions, significance of the study, and definition of key terms. Chapter 2 focuses on the literature review, relevant theories, and development of the theoretical framework and hypotheses. Chapter 3 is on research methodology which covers research design, research site, population and sampling, data collection, research instrument and statistical analyses. Chapter 4 touches on the results of the study, and Chapter 5 is on

discussion and conclusion. References and appendices, including SPSS output are attached at the end of the report.

## Chapter 2

### LITERATURE REVIEW

#### 2.1 Introduction

This chapter starts with the definition of innovation and possible factors that contribute to the enhancement of innovation. Workforce diversity and conflict are found to be among the factors that affect innovation (Mohamed, 2002). Then, diversity, especially ethnic diversity is defined. The relationship between ethnic diversity and innovation is discussed, with relevant supporting theories. The literature reveals that there is a missing link in the ethnic diversity-innovation relationship, and it may be intra-group conflict that consists of relationship, task, and process conflict. Gaps in the literature are also discussed. Next, a theoretical framework is developed to illustrate the relationship of ethnic diversity and innovation, with intra-group conflict as the mediating variable. And lastly, hypotheses are developed to test the relationship between the variables.

#### 2.2 Innovation

##### 2.2.1 Definition

Innovation has been defined in various ways and as both a process and a product (Gilson & May, 2005). As a process, Amabile (1988) defines innovation as “the successful implementation of creative ideas within an organization”. As a product, innovative products have been broadly categorized as being “technological, administrative, or ancillary” (Damanpour, 1987, 1988; Damanpour & Evan, 1984; King, 1990). Technological innovations involve the use of a new tool, technique,



equipment, or system, and change how a product is r changeably in delivered. Administrative innovations pertain more d domain organization - its structure and administrative proces of a are "organization-environment boundary" innovati ; between organizational members and customers or clients.

Innovation is also regarded as something new which leads to change. However, change can only be regarded as innovation if it involves new ideas or leads to improvement in an organization (Martins & Terblanche, 2003). Some scholars place emphasis on the degree of newness. For Van de Ven et al. (1986), an idea can be defined as innovation as long as it is perceived as new to the people involved, even though it may not be new somewhere else.

Innovation comprises two main phases: initiation and implementation (Axtell, Holman, Unsworth, Waterson, & Harrington, 2000). The initiation stage consists of all activities pertaining to problem perception, information gathering, attitude formation, evaluation and resource attainment leading to the decision to adopt. And the implementation stage consists of all actions pertaining to modifications in an innovation and an organization, initial utilization and continued use of the innovation when it becomes a routine feature of the organization (Goyal & Akhilesh, 2007). According to King and Anderson (2002), the division between the two phases is believed to be the point at which the idea is first adopted i.e. the point at which decision to implement the innovation is made. The first stage ends with the production of an idea, while the second stage ends as soon as soon as the idea is implemented (de Jong & Den Hartog, 2007).

The concepts of creativity and innovation are often used interchangeably in the literature (Martins & Terblanche, 2003). Creativity is a subset of the broad domain of innovation (Csikszentmihaly, 1996) since creativity refers to the generation of a valuable, novel and useful product, service and technology (Csikszentmihaly, 1996; Woodman, Sayer, & Griffin, 1993).

For this study, a more holistic definition of innovation by West and Farr (1990) is used. West and Farr define innovation as the “introduction and application within a role, group or organization of ideas, processes, products or procedures, new to the relevant unit of adoption, designed to significantly benefit the individual, the group, organization or wider society”. Innovation is thus a process through which individuals and groups of individuals attempt to change some aspect of their work or their work products in order to gain some benefits they value. Some of these benefits are higher productivity, better product or service quality, better working conditions, and improved interpersonal processes (Gilson & May, 2005).

### ***2.2.2 Factors Affecting Innovation***

In general, Mohamed (2002), Amason (1996), Mortensen and Hinds (2001), Masterson, Lewis, Goldman, and Taylor (2000), and Brockner and Wisenfeld (1996) suggest the following factors as determinants of innovation:

#### ***2.2.2.1 Workforce Diversity***

Albrecht and Hall (1991) and Payne (1990) claim the consensus of organizational research has found that member heterogeneity often acts as a conduit for introducing creativity and innovation in teamwork. A study by Mohamed (2002) provides empirical evidence that effective and innovative groups have diverse members,

supporting claims by Weirsema and Bantel (1992), Jackson (1992), and Watson, Kumar, and Michaelsen (1993) that people from diverse ethnicities and cultural backgrounds offer varying styles, creative ideas and more perspectives which enhance innovation and creativity.

On a similar note, Bresnahan (1997) and Gardenswartz and Rowe (1998) argue that creativity and innovation can be stimulated by appointing people of diverse backgrounds who contribute to richer ideas and processes (Martins & Terblanche, 2003). Richard, McMillan, Chadwick, and Dwyer (2003) in their study too, have found that racial diversity enhances performance for banks pursuing an innovation strategy.

Although team member diversity has been shown to promote creativity and innovation, not all studies concur, and in some cases negative effects have been found. For example, Tajfel (1981) and Turner (1982, 1987) claim diverse groups face more communication difficulties which lead to misunderstandings and weakened team cohesiveness, and make it harder for members to work together effectively. These process-oriented difficulties prevent the group from producing a final product, solution, or idea that is on par with one produced by a group that did not fall prey to the same procedural difficulties (Pitts & Jarry, 2005). Diverse workforce also suffer more from conflicts (Edgar & Tsui, 1992; Watson et al., 1993), poor cohesion and social integration (Hambrick, 1994), which affect group processes negatively (Ayoko & Hartel, 2006).

In summary, the literature reveals that diversity can affect innovation both positively and negatively. Milliken and Martin (1996) liken diversity to a double-edged sword which increases the opportunity for creativity while at the same time

increasing the likelihood of dissatisfaction and failure to identify with one's workgroup (Ayoko & Hartel, 2006).

The relationship between ethnic diversity and innovation is further discussed in section 2.4.

#### **2.2.2.2 Conflict**

Anderson and King (1991) and James (1981) suggest that conflict can be used as a construct for increasing understanding and assessment of innovation implementation (McAdam, 2005). Chen and Chang (2005) concur that conflict is an important factor that impacts team creativity. Conflict can be managed within "good" and "bad" categories (Smith & Berg, 1987). Brown and Duguid (1999) indicate that a distinction must be made between conflict, which produces "benefits", and that which causes "disaster". Whereas a constructive conflict encourages innovation, a destructive conflict discourages innovation implementation (McAdam, 2005).

Amason (1996) suggests that task conflict is positively associated with team innovation because opposing views encourage team members to scrutinize task issues and to think more deeply, which can foster development of creative insights (Dreu & West, 2001; Tjosvold, Hui, Ding, & Hu, 2003). On the other hand, Mortensen and Hinds (2001) argue that interpersonal conflict is negatively associated with team innovation because it impedes diverse team members from being equally involved in group decision making (Coopman, 2001), thus potentially negate the cognitive gains that accrue to bringing diverse perspectives to bear on the group tasks (Driver, 2003).

Simons and Peterson (2000) summarize the literature and note that compared with groups having to deal with relationship conflicts, groups with task conflicts tend

to make better decisions because such conflicts trigger greater cognitive understanding of the issue involved. In contrast, relationship conflicts inhibit the normal information processing abilities of the group members because those conflicts divert their attention to each other rather than the group's task-related problems (Liu, Fu, & Liu, 2009). However, contradicting the widely accepted idea that the two types of conflicts have different consequences for team performance, De Dreu and Weingard's (2003) meta-analytical review on the influence of task and relationship conflicts shows that the association between the types of conflict and outcomes are not particularly clear.

In summary, conflict can affect innovation in different ways. On the one hand, conflicts may improve decision-making quality because of the different opinions brought into the process; on the other hand, conflicts may also create interpersonal tension and generate distress among teammates because they can easily get people emotionally involved (Amason & Schweiger, 1994; De Dreu & Beersma, 2005).

The effect of conflict on innovation is further discussed in section 2.8.2.

### ***2.2.2.3 Managerial Attitudes Toward Innovation***

One of the most important variables affecting group innovation is managerial attitude toward innovation (Mohamed, 2002). This belief is based on the upper-echelon perspective (Hambrick & Mason, 1984), which emphasizes the role of top managers, backgrounds, values and attitudes in explaining a wide range of organizational outcomes (Glunk, Heijltjes, & Olice, 2001). Upper management may carry varying attitudes toward innovation. They may be conservative or they may encourage change (Dewar & Dutton, 1986).

Asford (1993) notes that a lack of support from top management poses a substantial impediment to innovation. Managers with favorable attitudes toward change foster an internal climate that is conducive to innovation and the continuous adoption of new ideas (Mohamed, 2002). Similarly, according to Yukl (2002), leaders have a powerful source of influence on employees' work behaviors and innovative behavior is no exception (Basadur, 2004).

In summary, positive managerial attitudes toward innovation affect innovation positively.

#### ***2.2.2.4 Decentralized Power Structure***

Decentralization as a predictor of innovation is derived from the organizational social structure theory (Hatch, 1997), which predicts a relationship between characteristics of structure and various measures of performance (Mohamed, 2002). Thompson (1965) argues that the concentration of decision-making authority prevents innovative ideas, while the distribution or sharing of power is a pre-requisite for developing and implementing change (Mohamed, 2002). Concurring with Thompson, Iwe (2006) says the process of centralization is seen to produce conformity but it stifles creativity and innovations.

Mohamed (2002) concludes that the more authority, discretion, decision latitude and autonomy given to departments to manage their affairs and organize themselves, the more innovative they are. This is supported by Iwe (2006) who says decentralization provides opportunities for innovation, creativity and reforms.

In summary, decentralized power structure enhances innovation. Gibson (1997) strongly believes that autonomy in a decentralized organization can lead to managerial creativity and ingenuity.

#### ***2.2.2.5 Perceived Fairness of Evaluation Procedures***

Research suggests that people are affected not only by the fairness of decision-making outcomes but also by the fairness of the decision-making process (McFarlin & Sweeney, 1992), and that the impact of procedural justice is independent of the perceived fairness of the outcome itself (Tyler & Lind, 1992). There is evidence that fairness is an important organizational dimension affecting employees' actions and reactions within the organization (Masterson et al., 2000).

Brockner and Wisenfeld (1996) argue that when the group feels they are treated unfairly, the unfair procedures signal that the organization pays little respect to their dignity, which in turn could affect their innovative behavior (Mohamed, 2002). Dayan and Colak's (2008) study has found that teams that are treated fairly are able to develop more creative products in a relatively faster time than teams that did not receive fair treatment. This finding is also consistent with the previous studies (example: Tyler & Lind, 1992), which indicate that teams treated with fair procedures exert more efforts to be creative.

In summary, perceived fairness of evaluation procedures can enhance innovation.

#### ***2.2.2.6 Supervisory Support for Innovation***

In general, researchers studying supervisory support have highlighted the importance of supervisory encouragement in fostering employee innovation (Ettie, 1983; Delbecq & Mills, 1985; Ramus & Steger, 2000). According to Oldham and Cummings (1996), non-controlling and supportive supervisory behaviors are positively related to subordinates' creativity (Williams, 2001). Supervisory support can be exhibited through various behaviors such as clarifying purpose and goals, building commitment and self-confidence, strengthening the group's collective skills and approach, removing externally-imposed obstacles, and creating opportunities for performance (Katzenbach & Smith, 1993).

Mohamed (2002) concludes that the rate of departmental innovation is more likely to increase when supervisors exhibit supportive behaviors for innovation. His finding highlights the importance of encouraging group members to take initiative and supervisors to be open to their ideas and suggestions. On the same note, Ramus and Steger (2000) claim that supervisory encouragement is important in fostering employee innovation.

In summary, supervisory support is essential in enhancing innovation.

#### ***2.2.2.7 Committee Representation***

A study by Mohamed (2002) has found that departments with high representation on organizational boards, committees and task forces are more innovative than less-represented departments. Departments with large numbers of their members serving on different cross-functional committees will be more likely to adopt idea-generative



attitudes to solve departmental problems and benefit from learning and information resources brought by returning members.

Serving on a committee provides many advantages, including the ability to share and be exposed to ideas from people with diverse ways of thinking. Executives with different functional experiences will probably possess different types and levels of knowledge and different perspectives and attitudes (Bantel & Jackson, 1989) that will have a positive effect on innovation and creativity (Leonard & Sensiper, 1998; Iansiti, 1993; Calori, Johnson, & Sarin, 1994).

In summary, departments with high committee representation may benefit from functional diversity which has a positive effect on innovation (Camelo-Ordaz, Hernandez-Lara, & Valle-Cabrera, 2005).

#### ***2.2.2.8 Exposure to the Latest Management and Innovative Thinking***

According to Mohamed (2002), the extent of exposure to the latest management thinking on innovation, quality improvement and customer satisfaction affect the rate of departmental innovation. From the organizational learning perspective (Senge, 1990), organizations learn new things through a variety of means and such learning can spawn innovative endeavors (Howell & Shea, 2001). For examples, Dewar and Dutton (1986) argue that the adoption of incremental innovation is facilitated by exposure to innovation through contact with the external environment, and Morrow (1997) argues that exposure to total quality management practices whether through organizational training or non-work related sources like self-study, enrollment in continuing education, or prior employment appear to be associated with several work-related outcomes.

In summary, groups with members who keep in touch with management thinking and practices are more likely to have a wealth of innovative ideas and practices that could be used for improving group innovative capabilities (Mohamed, 2002).

### ***2.2.2.9 Group Satisfaction***

According to Moukwa (1996), creativity can be fostered by getting people to be intrinsically motivated through the sheer satisfaction in their work. On a similar note, Chen, Yang, Shiau, and Wang (2006) say employee satisfaction can improve productivity, reduce staff turnover and enhance creativity and commitment.

When the satisfaction level of a particular group or department is high, the group members are more likely to engage in behaviors and activities that reflect their affective state, and one facet of these behaviors could be innovation (Mohamed, 2002). This argument is grounded upon a social exchange perspective (Blau, 1964) with the underlying tenet that individuals feel obligated to reciprocate when they benefit from the actions of a particular person or entity, prompting them to repay the source of actions in positive, beneficial ways (Sutton, Bennett, & Liden, 1996).

In summary, high group satisfaction may correlate positively with innovation. As concluded by Mohamed (2002), satisfied department members are more likely to translate their satisfaction into increased commitment and a constant search for effective and innovative performance.

According to Goyal and Akhilesh (2007), the factors which have been found to influence and associated with innovation are diverse and lie at multiple levels. In

addition to the above, the literature also suggests the followings to underline successful innovation:

- (1) Integration of talents.
- (2) Teamwork.
- (3) Team dynamics.
- (4) Interdependence of roles.
- (5) Task complexity.
- (6) Individual characteristics.
- (7) Interdepartmental collaboration.
- (8) Management of intellectual resources.
- (9) Relational networks with external agencies (Jassawalla & Sashithal, 1999; Wheelwright & Clark, 1995; Dijkema, Ferra, Herder, & Heitor, 2006).
- (10) Lifespan of product.
- (11) Industry life cycle (Kangasharju & Nijkamp, 2001; Zhu, 2005; Dijkema et al., 2006).
- (12) Socio-technical network.
- (13) New developments in science especially new materials (Cumming, 1998).
- (14) Historical, cultural and institutional context of a society (Jucevicius, 2004)

All of the factors discussed above affect innovation. However, for the present study, I will focus only on ethnic diversity as Manufacturing X (Malaysia) believes that ethnic diversity can enhance innovation. Ethnic diversity is a subset of workforce diversity. I will also focus on conflict as a possible mediator in the ethnic diversity and innovation relationship based on my 13-year observation where conflicts are seen sometimes in departments with different ethnicities.