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## **TQM Practices and Affective Commitment: A Case of Malaysian Semiconductor Packaging Organizations**

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### **Abstract**

The purpose of the present study is to examine the effects of the five elements of TQM practices on employees' affective commitment within six major Malaysian semiconductor contract manufacturing organizations. Despite extensive research on TQM practices, the issue of linking TQM practices with affective commitment has been found to be less focused. Sample size of the study was 377 resulting in a response rate of 75.4 percent. Regression analyses were employed to explore the relationship between TQM practices and affective commitment. Findings of the study reveal that teamwork, organizational communication, organizational trust and teamwork are positively associated with affective commitment. The study also shows that the organizational communication is perceived as a dominant TQM practice and is strongly associated with affective commitment.

**Keywords:** Total quality management, affective commitment, Malaysia, semiconductor industry

### **INTRODUCTION**

Total Quality Management (TQM) has been an important theme in management and business research. TQM is a management philosophy that helps managing organizations to improve its overall effectiveness and performance towards achieving world-class status (Zhang, 1999). Researches have confirmed that

application of TQM contribute to greater market share and return on investment (Philips et al., 1983), lower manufacturing costs and improved productivity (Garvin, 1983) as well as improve the area of strategic performance (Zhang, 1999). TQM is strategically and tactically important to gain a competitive advantage (Yang et al., 2003).

The Malaysian semiconductor contract manufacturing industry is considered to be one of the major contributors to the Malaysian economy with about 30 percent current manufacturing output and 25 percent exports (Economic Research, 2005). Since the semiconductor industry is a growing industry, TQM and its effects on employees' morale and work attitudes are very important along with the element 'affective commitment' (Gray, Densten and Sarros, 2003). Available literatures on TQM reveal the relationship between TQM and employees' affective commitment in various countries as well as industries (Guimaraes, 1996; 1997); Garner and Carlopio, 1996; Karia, 1999; Karia and Ahmad, 2000). These literatures do not focus on the link between TQM practices and affective commitment within the context of the Malaysian semiconductor contract manufacturing industry. In order to bridge the gap and provide organizations with practical assistance in dealing with this issue, the study has aimed examining the application of TQM adoption towards the improvement of employees' working conditions in terms of affective commitment.

The paper is structured as follows: Literature review section provides a review of the literature on TQM and employees' affective commitment. The following section reveals detail information on methodology followed by a section synthesizing the findings of the study. The concluding section concludes the study with a few recommendations.

## **REVIEW OF LITERATURE AND FORMULATION HYPOTHESES**

### **Affective Commitment**

Organizational commitment, as an attitude, has been defined as "the relative strength of an individual's identification with an involvement in a particular organization" (Mowday et al., 1979). This definition, reflecting an individual's affective commitment represents a major approach to the study of organizational commitment (Meyer et al., 2002) and appears to be the most desired form of commitment. According to Allan and Meyer (1990), affective commitment refers to the employees' emotional attachment towards identification with and involvement within the organization. Kanter (1968) defined commitment as "the willingness of social actors to give energy and loyalty to the organization" (1968, p. 499) and "the attachment of an individual's fund of affectively to the group" (1968, p. 507). Employees with a strong degree of affective commitment continue employment with the organization because they want to do so (Ghani, Nordin and Mamat, 2004). In order to achieve affective commitment, employers need to help

their employees' value participation in the organization. The more the employees' value being part of the organization, the more likely they are to stay in.

### **TQM Practices and Affective Commitment**

To date, the literatures examining the relationship between the institutionalization of TQM practices and employees' workplace attitudes such as affective commitment have been mainly anecdotal (Morrow, 1997). In the TQM literatures, there seems to be a general understanding regarding the type of TQM activities that contribute towards the development of "business excellence" and the ability to deal with people (Boselie and Wiele, 2002). In this study several dimensions of TQM were selected from previous studies in relation to people-oriented aspects, namely teamwork (Karia, 1999; Osland, 1997; Coyle-Shapiro, 1995), organizational communication (Varona, 1996; Oakland and Oakland, 1998; 2001), customer focus (Karia and Asaari, 2006, Morrow, 1997; Boselie and Wiele, 2002), organizational trust (Karia and Ahmad, 2000; Tan and Tan, 2000, Cook and Wall, 1980) and employee involvement (Guimaraes, 1996; 1997; Cotton et al., 1998; Cassar, 1999). Dale (1999) further enumerates that the key practices listed above are relevant to organizational excellence and people-oriented aspects from a TQM's perspective.

### **Organizational Communication**

Organizational communication can be defined as the process of sharing information with the other individuals (Troutt et al, 1995). Smidts et al. (2001) commended that communication refers to the process whereby individuals and groups transact in a variety of ways and within a different areas with the aim of carrying out organizational goals (Brunetto and Farr-Wharton, 2004). Several authors note that communication is important for improving employees' commitment and for positive outcomes (Goris et. al., 2000; Pettitt et. al., 1997; Guimaraes, 1996; 1997). Stuart (1999) argues that the communication construct can affect empowerment of employees, which in turn affects affective commitment. Moreover, the way organizational goals are communicated to employees and their role in advancing them, strongly affects affective commitment (Anderson and Martin, 1995; Brunetto and Farr-Wharton, 2004). Robbins (2001) posits that there is a relationship between the quality of communication process between management and employees, and the resultant level of employee motivation and commitment. Thus, managing the communication feedback processes is fundamental to achieve both perceived and real organizational communication effectiveness. Therefore, we propose the following hypothesis:

H1: Employees perceived that organizational communication will be positively related to their affective commitment within their organizations.

## **Teamwork**

The concept of teams and teamwork is increasingly becoming an important key to productivity and employees' affective commitment in the contemporary workplace (Adebanjo and Kehoe, 2001). Teamwork facilitates the meeting of affiliate needs within the workplace and has been directly connected to affective commitment (Karia and Ahmad, 2000). The case study conducted by Osland (1997) in Central America shows that working together with a production unit leads to better employee attitudes. Anschutz (1995) supports by stating that participation in teamwork, continuous learning and flexibility are the major factors for success within organizations in achieving a partnership between workers and managers. Karia and Ahmad (2000) conducted a study on the impact of empowerment and team work of a group of employees working in five Malaysian public and private organizations that have implemented some level of TQM practices. The findings of the study reveal that the employees of such an organisation practicing some level of teamwork enhance experiences in organizational commitment. Silos (1999) states that the key to Japanese efficiency was about how the people work together. The study also suggests that teamwork will result in more commitment and involvement within the organization. Therefore, we propose the following hypothesis:

H2: Employees perceived that teamwork will be positively related to their affective commitment within their organizations.

## **Employee Participation**

Employee participation is a process for empowering members of an organization to make decisions and to solve problems appropriate to their levels in the organization (Khleef, 2001). Cassar (1999) reports that employee participation is one of the most researched contemporary management practices because it is often associated with enhancing employees' positive attitude and behavior in workplace. Also, through participation, employees can envision their jobs as more enjoyable, resulting in increasing levels of affective commitment to the organization. Employee participation may give room for improvement in the area of employees' moral and skill development, enable the individual to improve personal capabilities, help employees change certain personality characteristics and increases the level of respect given to the management. In previous empirical evaluations of employee participation programs, it has been tied to increase level of affective commitment (Karia, 1999). Therefore, we propose the following hypothesis:

H3: Employees perceived that employee participation will be positively related to their affective commitment within their organizations.

## **Organizational Trust**

Organisational trust can be defined as the belief that an employer will be straightforward and follow through on commitment (Gilbert and Tang, 1998). Researchers and practitioners have explored the significance of trust within organisations. Cook and Wall (1980) reports that “trust between individuals and groups are an important ingredient in the long-term stability of the organisation and the well-being of its employees”. A case study conducted by Coyle-Shapiro et al. (2002) on a longitudinal examination of the effects on trust and commitment in a UK multinational supplier of aerospace components to the aerospace industry and the analysis reveals that the relationship between organisational reciprocity and commitment was mediated by trust in management. Moreover, Tan and Tan (2000) confirm that trust in the management was positively correlated with involvement and organisational commitment. Therefore, we propose the following hypothesis:

H4: Employees perceived that organizational trust will be positively related to their affective commitment within their organizations.

## **Customer Focus**

Customer focus can be defined as the degree to which a firm continuously satisfies customer needs and expectations (Philips, 1995). Morrow (1997) reported that customer focus is evident in the job design principle, which emphasizes on (among other things) establishing client relationship and feedback and, in turn, is associated with higher levels of job satisfaction, communication, and more favorable perceptions of the work outcome. Meanwhile, Oakland and Oakland (1998) states that most leading organizations achieve unparalleled levels of customer satisfaction because employees are motivated and committed to meet or even exceed customers' requirements and expectations. It has also been reported that customer focus has positive influences on organizational commitment (Karia, 1999; Karia and Ahmad, 2000). Therefore, the following hypothesis has been proposed:

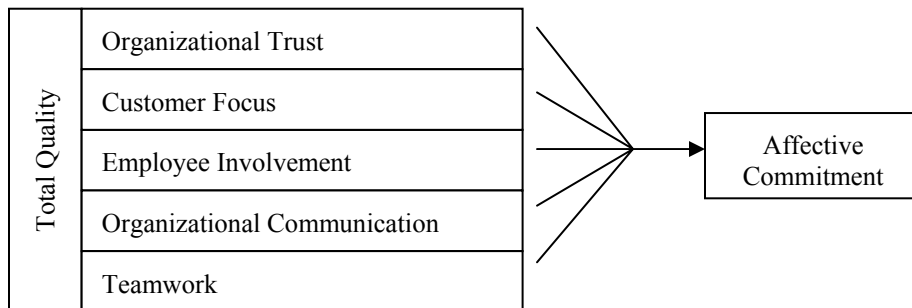
H5: Employees perceived that customer focus will be positively related to their affective commitment within their organizations.

The above review indicates that TQM dimensions have a significant impact on employees' affective commitment. Although there is limited rigorous research focusing on the discussion within this scope of investigation study, this study chooses to examine the relationship between TQM practices and employees' affective commitment particularly within the context of the Malaysian semiconductor manufacturing contract organizations. The authors purport that the influence of TQM practices in such organisations is able to yield better and long-lasting results on employees' affective commitment of prominent impact.

## CONCEPTUAL FRAMEWORK

The conceptual schema of this study focuses on the development of a theoretical TQM model as a systematic way in measuring employees' affective commitment within six major Malaysian semiconductor contract manufacturing organizations. Examining the relationship between TQM and affective commitment should contribute to our knowledge of the complexity of relationship existed between them.

The link between TQM principles and affective commitment is illustrated in Figure 1. In this conceptual framework, TQM practices are independent variables and affective commitment is a dependent variable. The present study thus attempts to bridge the gap by providing a basis for a thorough and insightful discernment of TQM and affective commitment. The model suggests that the greater the extents to which these TQM practices are present, the commitment of employees will be higher.



**Figure 1.** The research framework

## METHODOLOGY

In this section, we discuss sample and data collection procedures and operational measures of variables used in the study as well as the statistical tests used to evaluate the hypothesis.

### Sampling and Data Collection

The target population of this study was semiconductor contract manufacturing industry in Malaysia. Six major semiconductor contract manufacturing organizations were selected based on stratified random sampling from the sampling frame of 4 assembly and test organizations and 2 assembly organizations. These organizations were selected from the SIRIM QAS Directory of Certified Products and Companies (SIRIM, 2003), which have been accredited with ISO certification or have implemented TQM programmes for more than 5 years. Stratification was used to improve sample estimates of population

characteristics (Agus, 2000). The number of employees in the firms ranged from 1,000 to 4,000. The location of these organizations was confined to only three areas: Perak, Penang and Melaka, which is also known as Malaysia's Silicon states, these three states are among the world's biggest producers and exporters of semiconductors and makes some of the industry's most sophisticated microchips and electronics equipment (MIDA, 2004). These organizations were selected and viewed as the best and most valid representation of the entire semiconductor contract manufacturing industry in Malaysia for two main reasons. Firstly, these organizations are Malaysia's largest "foundry" representing its sales revenue, ranking among the top in the country (Khadpe, 2002). These local chipmakers are mainly contract manufacturers of the larger Multinational Companies (MNCs) producing semiconductor equipment and machinery such as laser marking and IC testing machines (Economic Research, 2005). Secondly, TQM practices are likely to be sophisticated and established in these companies.

The study was conducted on individual job function. We tested hypotheses using only full-time employees. Part-time and independent contract workers were excluded. Thus, our sampling strategy should give a more conservative test of hypotheses than a strategy whereby these other types of workers were also included. Four types of occupational group of employees were included in the sample (i.e. operators,  $n = 173$ ; staff,  $n = 101$ ; executives,  $n = 87$ ; managers,  $n = 16$ ). The operator positions included resource and production group workers. The staff positions included the administrative personnel and general clerks. The executive classification included engineers, supervisors, accountants and programmers. The managerial group included middle and senior managers responsible for a single section or several work areas.

The mail survey was the main form of data collection. This is the most common approach employed in studies assessing the relationship between TQM practices and employee work-related attitudes (Guest, 1999). The viability of the questionnaire was established by a pilot study carried out in a large semiconductor contract manufacturing firm in the state of Perak, Malaysia. Following a small number of minor revisions to improve comprehensibility, the final version was mailed to 500 employees in the six selected semiconductor subcontracting manufacturing organisations. The questionnaires were distributed to employees from different job levels and functions within these organizations. They were distributed through an officer/coordinator from the Human Resource Department among the organisations. Out of the 500 questionnaires 386 were returned which represented a response rate of 77.2 percent. However, only 377 questionnaires were usable; 9 of them were incomplete, yielding a response rate of 75.4 percent.

## **Variable Measurements**

### *Independent Variables: TQM Practices*

This measure is based on the five dimensions of TQM developed by Zhang (1999) and Lau and Idris (2001). The five dimensions, which consist of 19 items, namely organizational communication, customer focus, employee involvement,



organizational trust and teamwork. Sample items include “I am more comfortable working in a team rather than individually” (*teamwork*), “Employees are very committed to the success of the company” (*employee involvement*), “The company’s employees’ communication is effective in communicating things that are relevant to them” (*organizational communication*), “The Company always conducts market research in order to collect suggestions for improving its products” (*customer focus*), and “Openness, honesty and constructive feedback are highly valued and demonstrated as organizational traits” (*trust*). Responses to these items were made on a 5-point Likert format ranged from 1 = strongly disagree to 5 = strongly agree.

#### *Dependent Variable: Affective Commitment*

Affective commitment was measured using a 5 items based on Mowday et al. (1979) study. This variable, defined an affective response to the whole organization and the degree of attachment or loyalty employees feel towards the organization (Guimaraes, 1996). Sample items are “*I am very loyal to this organization*” and “*I really care about the fate of my organization*”. The response option to the items were ranged from 1 = strongly disagree to 5 = strongly agree. The reliability coefficient for the scale was 0.88.

### **Method of Analysis**

Factor analyses were employed to analyze the data. Descriptive statistics such as mean, standard deviations, reliability coefficients and inter-correlations were computed to understand the variability and interdependence of the subscales derived from the factor analyses. The hypothesis was tested using hierarchical regression (Hemdi and Nasurdin, 2005). The hierarchical regression analysis was selected and viewed as the best method in this study because to determine the significant variables. Given the age, gender, marital status, education, position and organizational tenure may influence affective commitment as noted by previous researchers (Lum et. al., 1998; Ghiselli, LaLopa, and Bai, 2001; Hemdi and Nasurdin, 2005). These variables were controlled in the statistical analyses.

## **RESULTS**

### **Profile of Respondents**

There were 212 (56 percent) female and 165 (44 percent) male respondents. Three percent of the respondents fall in the age group of less than 21 years, 22 percent fall in 21-25 years age group, 27 percent fall in 26-30 years age group and the remaining 48 percent were over 31 years old. The synthesis of the age distribution of respondents reveal that these organizations consist of a rather young population with about 49 percent of them being 30 years of age or younger.

Fifty-five percent of the sample respondents were married. Out of all the respondents, 93 (over 24 percent) had achieved at least a Diploma qualification.

### **Factor Analysis and Scale Reliabilities**

A principal component factor analysis with varimax rotation was conducted to validate the underlying structure of TQM practices (Table 1). In interpreting the factor, only a loading of 0.5 or greater on the factor and 0.35 or lower on the other factors are considered (Igarria, Iivari, and Maragahh, 1995). Results of the varimax rotated analysis indicated the existence of five significant factors with eigenvalues greater than 1 that explained 59.22 percent of the variance. The KMO measure of sampling adequacy value for the item was 0.87 indicating sufficient inter-correlations. The Bartlett's Test of Sphericity was also found to be significant (Chi square = 917.244,  $p < 0.001$ ). These factors were named employee involvement (4 items), customer focus (4 items), organizational communication (3 items), organizational trust (4 items), and teamwork (4 items) respectively. One item relating to customer focus – "Quality related customer complaints are treated with top priority" was dropped due to low loadings. Thus, a model with five factors may be adequate to represent the data because the result of the analysis can be considered satisfactory since they do not exceed 60 per cent of the explained variance recommended in social sciences (Hair et al., 1998). The results of factor analysis are summarized in Table 1.

Similarly, another factor analysis was undertaken to see the dimensionality of the independent variable (affective commitment). A single factor solution emerged with eigenvalue of 3.01 explaining 60.22 percent of variance in the data. The KMO measure of sampling adequacy was 0.863 indicating sufficient inter-correlations, while the Bartlett's Test of Sphericity was significant (Chi square = 960.39,  $p < 0.01$ ). The results of factor analysis for affective commitment are summarized in Table 2.

The reliability of the questionnaire was tested according to Cronbach Alpha measurements. The reliability coefficient (Alpha) of each element of TQM was as follows: employee involvement (0.77); customer focus (0.85); organizational communication (0.77), organizational trust (0.84) and teamwork (0.78). The reliability coefficients of all the five elements of TQM were above 0.70, which concurs with the suggestion made by Nunnally (1978).

**Table 1.** Factor analysis and scale reliabilities of independent Variables (N = 377)

Items	Factors				
	F1	F2	F3	F4	F5
This company implements suggestion activities extensively	0.614	0.372			
Employees are encouraged to apply skills after training	0.860				
Employees are very committed to the success of the company	0.718				
Employees are encouraged to fix problems they encounter	0.537				
This company collects extensive complaint information from customers		0.531			
Quality related customer complaints are treated with top priority		0.318			
The company always conducts market research in order to collect suggestions for improving its products		0.945			
The company conducts a customer satisfaction survey every year		0.564			
Management regularly provides customer/supplier feedback and sets up opportunities for direct, face-to-face meetings between team members and customers/suppliers. These communication linkages are regularly used to identify process and product improvement			0.646		
Continuously improving communications between management and staff is stated as an important company objective and is being practiced			0.725		
The company's employees' communication is effective in communicating things that are relevant to them.			0.812		
Openness, honesty, and constructive feedback are highly valued and demonstrated as organizational traits				0.727	0.362
The organization's practices of core values and key beliefs are evident and real				0.795	
Manager and peer feedback occurs on a routine basis. Managers also receive regular feedback from their subordinates				0.743	
A performance-measurement system has been put in place or modified to provide ongoing feedback to teams and individuals				0.700	
Work within this department is appointed around groups			0.336		0.719
I am more comfortable working in a team rather than individually			0.359		0.598
In this company, workplace decisions are made through consensus					0.661
Other units or departments always co-operate with me when I need assistance					0.598
Number of Items	4	4	3	4	4
Reliability	0.77	0.85	0.77	0.84	0.78
Eigenvalues	11.608	1.822	1.135	1.053	1.006
Percentage of Variance	41.457	6.508	4.053	3.761	3.441
KMO Measure of Sampling Adequacy			0.87		
Approximately Chi square			917.244		

Note: F1 = Employee Involvement, F2 = Customer Focus, F3 = Organizational Communication, F4 = Organizational Trust, F5 = Teamwork.

**Table 2.** Factor analysis and scale reliabilities of dependent variable (N = 377)

Item	Factor
I am willing to put in a great deal of effort beyond what is normally expected in order to help this organization be successful	0.679
I speak highly of this organization to my friends as a great organization to work for	0.769
I am very loyal to this organization	0.815
I would accept almost any type of job assignment in order to keep working for this organization	0.787
I really care about the fate of my organization	0.822
Number of Items	5
Reliability	0.88
Eigenvalues	3.01
Percentage of Variance	60.22
KMO Measure of Sampling Adequacy	0.863
Approximately Chi square	960.39

Note: F1 = Affective Commitment.

### Correlation between Independent Variables

The correlation matrix in Table 3 indicates correlation coefficients between the independent variables measured using multiple item scales in this research. The correlation coefficient indicates the strength of the association between the variables. A correlation coefficient is considered significant if the p-value is less than 0.01. There is significant correlation between all the independent variables as listed in Table 3.

**Table 3.** Means, Standard Deviations, Correlations Matrix for Predictor Variables

Item	Mean	SD	1	2	3	4
Employee Involvement	3.80	0.60				
Customer Focus	3.64	0.67	0.58***			
Organizational Trust	3.72	0.66	0.57***	0.57***		
Teamwork	3.85	0.61	0.53***	0.54***	0.66***	
Organizational Communication	3.82	0.63	0.56***	0.56***	0.57***	0.67***

\*\*\* Significant at the 1 percent level.

Out of 10 correlations, all correlation coefficients are larger than 0.5. The highest correlation (0.67) is between analyses and management. There are no high correlations of 0.90 or above. Bryman and Cramer (1997, p. 257) suggest 0.80 instead of 0.90 as the threshold: “The Pearson’s coefficient between each pair of independent variables should not exceed 0.80; otherwise the independent variables that show a relationship at or in excess of 0.80 may be suspected of

exhibiting multicollinearity". The highest coefficient of correlation in this research, however, is 0.67 which is below the cut-off of 0.80 for the multicollinearity problem. Hence, multicollinearity is assumed not to be a violation of ordinary least square regression assumption (Hair et al., 1998; Gottschalk, 1998).

### **Findings of the Hierarchical Regression Analysis**

Research hypothesis were tested using a multiple hierarchical regression analysis. It is a useful technique that can be used to analyse the relationship between a single dependent (criterion) variable and several independent (predictor or explanatory) variables at one time. In this analysis, a set of independent variables is weighted to form the regression equation or model and that may be used to explain its relative contribution toward one dependent variable (Berenson and Levine, 1992; Hair et al., 1998). This analysis showed the relationship between variables into two steps. Firstly, respondents' characteristics were entered into Step 1 as a controlling variable. Secondly, TQM practices were entered into Step 2 as a response variable (main effect). Affective commitment was used as the dependent variable in the regression analysis. The summary of the regression findings is depicted in Table 4.

From Table 4, it can be observed that six control variables explained 11.8 percent of the variation in affective commitment ( $F$  change = 8.281,  $p < 0.01$ ). Out of the six control variables (Step 1), Gender ( $\beta = 0.214$ ,  $p < 0.01$ ), age ( $\beta = 0.600$ ,  $p < 0.01$ ) and length of service ( $\beta = -0.452$ ,  $p < 0.01$ ) were found to have significantly impact related to affective commitment. In terms of gender, male employees had higher affective commitment compared to those of female employees (dummy coded). This result also indicated that older employees had higher affective commitment compared to those of younger employees. On the other hand, length of service had a significant and negative relationship with affective commitment. This may be due to employees who stayed shorter had higher affective commitment compared to those who stayed longer. When the variables (TQM practices) were added into Step 1, the additional variance explained was 43 percent ( $F$  change = 69.425,  $p < 0.01$ ), which was significant at the 1 percent significance level (Sig.  $F = 0.000$ ), thus confirming the fitness for the model. The Durbin – Watson of 1.892 falls between the acceptable range ( $1.5 < D < 2.5$ ) indicating no autocorrelation problem in the data.

The results also indicate no multicollinearity problem (the multicollinearity statistics shows tolerance for employee involvement, customer focus, organizational trust, organizational communication and teamwork are all greater than 0.1, and Variation Inflation Factors (VIF) are all lesser than 10) (Hair et. al., 1998). Histogram and Normal P-P plot of Standardize Residual that were carried out also indicate normality of the error term while scatter plot shows consistent variance of error terms (homoscedasticity). The Partial Regression plot indicates linearity of the relationship between independent and dependent variables respectively. From these analyses, it can be concluded that the multiple regression

model of this study meets the five assumptions required to ensure validity of its significance test (Ooi et al., 2005). This indicates that there is a statistically significant relationship between TQM practices and employees' affective commitment.

**Table 4:** Regression findings for the TQM Practices and its association with Affective Commitment

Independent Variable Controlling Variables	Step 1			Step 2		
	Coefficient	t-value	Sig.	Coefficient t	t-value	Sig.
Gender <sup>a</sup>	0.214	2.633	0.008***	0.052	0.883	0.378
Marital Status <sup>b</sup>	-0.051	-0.503	0.615	-0.048	-0.651	0.515
Age	0.600	5.401	0.000***	0.153	1.821	0.069
Education	-0.024	-0.209	0.835	-0.004	-0.048	0.962
Position	-0.021	-0.225	0.822	0.003	0.047	0.963
Length of Service	-0.452	-5.083	0.000***	-0.125	-1.867	0.063
<b>Response Variables</b>						
Employee Involvement				0.107	2.210	0.028**
Customer Focus				0.095	1.961	0.051
Organizational Trust				0.199	3.596	0.001***
Teamwork				0.187	3.490	0.001***
Organizational Communication				0.258	4.783	0.000***
Adjusted R <sup>2</sup>		0.104			0.535	
F-statistics		8.281			40.251	

Significant Correlations = \*\*\*p < 0.01 (2-tailed); \*\*p < 0.05 (2-tailed); Dummy Coded<sup>a</sup> male = 0, female = 1; <sup>b</sup> married = 0, single = 1).

The results also indicate that there are four elements of TQM; namely, teamwork ( $\beta = 0.187$ ,  $p < 0.01$ ), organizational communication ( $\beta = 0.258$ ,  $p < 0.01$ ), employee involvement ( $\beta = 0.107$ ,  $p < 0.05$ ) and organizational trust ( $\beta = 0.199$ ,  $p < 0.01$ ) are positively associated with employees' affective commitment. It can be argued that these four elements of TQM are all directly involved in the improvements in employees' affective commitment. Moreover, the findings also indicate that the most important TQM practices that explain the variance in employees' affective commitment are organizational communication and significant at the 1 percent level levels. Thus, hypotheses H1, H2, H3 and H4 are found to be true.

The other elements of TQM, namely, customer focus ( $\beta = 0.095$ ,  $p > 0.05$ ) is not significantly associated with employees' affective commitment. However, this practice has provided longer term, infrastructural benefits necessary for the continued improvement over time, but with an indirect association towards employees' affective commitment. Thus, Hypothesis H5 was rejected at significance at the 5 percent level.

## **DISCUSSION**

The overall objective of this study was to investigate the influence of TQM practice on employees' affective commitment within the context of the Malaysian semiconductor contract manufacturing industry. The results indicate that where organizational communication was perceived as a dominant TQM practice as there is a strong association with employees' affective commitment. The findings further indicate that organizational communication is a critical factor in organizations, for connecting employees and permitting organizations to function, as well as an essential element to the implementation of TQM (Gray and Laidlaw, 2002). The current study is consistent with the previous research conducted by Goris et al., (2000), which reveals that organizational communication is important for improving employees' affective commitment and positive outcomes.

However, the findings indicate the importance of teamwork, employee involvement and organizational trust for predicting affective commitment. For instance, teamwork is found to be positively associated with employees' affective commitment. The result implies that TQM recognizes and emphasizes the importance of teamwork to facilitate employees' ability to work together to get a job done (Morrow, 1997; Karia, 1999; Karia and Ahmad, 2000). The results also provide supporting evidence for the views of Osland (1997), which finds that working together with a production unit leads to better employee attitudes.

Encouraging employees to generate new ideas and make decisions regarding process improvement results in increasing their overall affective reactions (Cotton et. al., 1998). The findings highlight the importance of employee involvement, which is found to have a positive relationship between employees' affective commitment. This finding is consistent with Karia's (1999) study, which shows that participation predicts significantly on affective commitment.

In addition, organizational trust is also found to have a positive association with employees' affective commitment. This suggests that employees require support and trust, from executives and management teams, for more TQM practices. It is important that management practice empowerment and trust their employees' capabilities to have control over their working lives. The results are consistent with the study by Karia and Ahmad (2000) which shows that trust in management is positively correlated with organizational commitment.

In contrast, there is a weak relationship between customer focus and affective commitment. The insignificant relationship between customer focus and employees' affective commitment indicate that management has failed to communicate its commitment to this important practice. This might be due to the lack of an established support relationship between employees and customers (Karia and Asaari, 2006). An important recommendation emerging from this study is that semiconductor organizations should pay more attention to customer feedbacks and complaints as a priority. This conclusion is inconsistent with TQM's theory (Dale et al., 1997).

Although our study is exploratory (given the absence of prior research) and identifies relatively simple associations, nonetheless our results may begin to

form the basis of a general model of the relation between TQM and affective commitment.

These findings are important in advancing the research literature in that they contribute empirical evidence of association between TQM and employees' affective commitment to a literature typified by assumptions and claims about such an association particularly within the Malaysian semiconductor contract manufacturing industry.

## **CONCLUSION AND IMPLICATIONS**

In summary, the paper reports an exploratory investigation of the relationship between TQM practices and employees' affective commitment within the context of the Malaysian semiconductor sub-contracting organizations. As claimed by some authors (e.g. Guimaraes 1996; Karia and Ahmad, 2000; Karia, 1999), TQM does have significant effects on personnel attitudes towards their commitment within the organizations. The findings made a contribution in terms of creating awareness and understanding for the development of a theoretical base for application of soft TQM practices resulting in an improvement of employees' working conditions that inevitably contributes towards their commitment.

The implications of this study can be divided into three categories: theoretical contributions, robustness of research methodology, and practical contributions. In terms of theoretical contributions, this study has extended previous researches conducted in most of the western countries and provides great potential by advancing the TQM literature to a better understanding of the association between TQM and affective commitment among employees in the Malaysian semiconductor contract manufacturing sector.

With respect to the robustness of the research methodology, the survey questionnaire has achieved the validity and reliability standards, thus leading to greater accuracy of results. The findings contribute by using six major semiconductor contract manufacturing organizations in Malaysia which proves to be useful as an example of a methodology that might be used to track the extent of TQM effects on employees' affective commitment. These organizations could use this framework to do a pre-test baseline measurement, and then periodically re-administer it to identify changes associated with TQM efforts.

Regarding practical contributions, given the direct influence of certain TQM practices on employees' affective commitment, the top management in the organization should conduct formal TQM programs for all new employees and provide their existing employees with continuous formal training program (on-the-job as well as off-the-job) in order to gain employees' commitment and subsequently reduce their turnover rate. Furthermore, the higher levels of commitment in the organizations may give these organizations an advantage over other organizations in attracting and retaining employees in a very competitive environment. It is also found that organizational communication was the decisive factor in determining the success of the increased affective commitment amongst



employees within these organizations. The implication is that organizations should focus firstly on organizational communication. Another lesson to be learned is that the other elements of TQM namely, customer focus, organizational trust, employee involvement and teamwork are the providers of long-term, infrastructural benefits necessary for the continued improvement over time, but with a less significant relationship with employees' affective commitment.

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