



Does TQM impact on role stressors? A conceptual model

Pei-Lee Teh, Keng-Boon Ooi and Chen-Chen Yong
Multimedia University, Cyberjaya, Malaysia

Does TQM
impact on role
stressors?

1029

Abstract

Purpose – The purpose of this paper is to develop a conceptual model to examine the multidimensionality of total quality management (TQM) practices and its impact on role stressors.

Design/methodology/approach – The background of TQM philosophy and theory of role stressors serve as starting-points to develop the conceptual model. From the extensive literature review, six practices of TQM and two components of role stressors were identified to construct the model.

Findings – The model based on TQM with respect to role stressors provides a basis for assessing the level of role conflict and role ambiguity under which the use of different aspects of TQM should be retained or revised. This finding suggests that TQM is not a panacea that can be unthinkingly applied, but must be practised with a clear sense of the impact on role stressors.

Practical implications – Given that role stressors are often detrimental to organizational functional efficiency, it is appropriate for management to invest time and effort to diagnose effects of implementation of TQM practices on role stressors. For this analysis, this model will prove valuable.

Originality/value – This conceptual model provides an insightful foundation for the analysis of multidimensionality of TQM practices on role stressors. The model examines the independent influences of TQM practices on role stressors and treats role conflict and role ambiguity as dependent variables. This design stands in contrast to other researchers' study of conflict and ambiguity as independent variables.

Keywords Total quality management, Role conflict, Role ambiguity, Modelling

Paper type Conceptual paper

1. Introduction

Quality management (QM) emerged two decades ago with the brilliant ideas set forth by W. Edwards Deming, Joseph Juran, Philip Crosby and Kaoru Ishikawa (Sousa and Voss, 2002). Since then total quality management (TQM) has become one of the most pervasive management strategies in helping companies become more competitive. According to Lam (1996), most TQM programs have three aims:

- (1) *Satisfying customers* – refocus the firm based on the customers' requirements.
- (2) *Making improvements* – understand and enhance the organizational process.
- (3) *Motivating people* – involve and motivate the individuals to accomplish quality output.

Several firms are dedicated to running QM programs in an effort to advance corporate performance (Flynn *et al.*, 1995). Motorola's "Six-Sigma", Xerox's "Quality Management Programs" and Ford's "Total Quality Excellence" are

This research was conducted while the main author is a doctoral candidate at Multimedia University. The authors are grateful to Professor Tan Hong Siang and Associate Professor, David W. Coit for their valuable suggestions on earlier draft of this paper.

Received 3 January 2008
Revised 1 May 2008
Accepted 14 June 2008



Industrial Management & Data
Systems
Vol. 108 No. 8, 2008
pp. 1029-1044
© Emerald Group Publishing Limited
0263-5577
DOI 10.1108/02635570810904596

oft-quoted examples of companies which practise company-wide QM programs (Powell, 1995).

There is widespread consensus that TQM is one of ways of managing organizations to improve organizational performance (Flynn *et al.*, 1995; Jitpaiboon and Rao, 2007) but there is less agreement as to whether TQM practices can facilitate organizations to reduce their employee's role stressors. The employees are one of the major assets and cost-generating aspects in most organizations. Many organizations are subject to failures in implementing TQM practices because they must depend on employees' involvement in fostering the TQM practices. As a result, the level of role stressors among the organizational members is of importance in facilitating the success of firms which implement TQM practices. Quality programs are designed to get employees' involvement in the decisions regarding their business tasks and their organizations as a whole should be associated with decreased role ambiguity and role conflict. Likewise, the outcomes of TQM practices are new quality policies, new organizational structures, new operation processes and new performance evaluation, and these transformations may have an effect on role ambiguity and role conflict among employees (Lam, 1996). Despite the considerable body of QM literature (Powell, 1995; Sousa and Voss, 2002), very little research has examined the effects of TQM on role stressors of employees. We are motivated by a concern that the implementation of TQM could be ineffective if its impact on role stressors is not critically assessed. Thus, gaining knowledge about the employees and their perceptions of stress is vital in order to keep dynamic and effective implementation of TQM practices among the organizations. The importance of understanding of key TQM practices, related to role stressors among employees, is further emphasized by organizations which invest in a quality program are in effect taking a longer-term view of its systems and processes. To move towards quality excellence, organizations should not only improve quality of product or service but also the quality of employees' work life. From the employee's perspective, this may mean that a more positive view is taken of the company's future and thus commitment is enhanced along with implementation of TQM practices while role ambiguity and role conflict are reduced.

As such, this paper examines the past literature and then supplements this work by examining the relationship between each TQM practice and role stressors. This research paper is structured as follows: we first review the literature pertaining to the theory of TQM and role stressors, followed by the relationship between TQM and role stressors. This leads to the development of propositions for this study. Next, the development of the conceptual research framework is described. Finally, we will discuss the conclusions with respect to the new knowledge derived from this research study and present both theoretical and managerial implications as well as avenues for further research.

2. Literature review and propositions development

2.1 TQM practices

The Malcolm Baldrige National Quality Award (MBNQA) was officially instituted in 1987 to provide quality leadership. MBNQA's seven quality measurement scales comprise leadership, strategic quality planning, customer focus and satisfaction, human resource development and management, management of process quality, quality and operational results and information and analysis (Jitpaiboon and Rao, 2007).

Likewise, MBNQA includes one criterion of organizational performance and six criteria of organizational or TQM practices, namely leadership, strategy and planning, customer focus, people management, process management and information and analysis (Prajogo and Sohal, 2003). Following a study by Lin and Goodrich (1995), Air Force units are often evaluated on Malcolm Baldrige criteria which cover TQM dimensions. A study by Bemowski and Stratton (1995) concluded that the MBNQA criteria has met or gone beyond users' expectations and that the measures were being applied to gather information on how to realize business excellence.

According to Motwani (2001), TQM constructs are using the quality ideas of W. Edwards Deming, Joseph Juran, Philip Crosby and Kaoru Ishikawa. Numerous studies have published validated scales for integrated TQM (Saraph *et al.*, 1989; Powell, 1995). According to Wilkinson (1992), TQM practices comprise both "soft" and "hard" sides. The "soft" side focuses on the creation of customer awareness among the employees and promotes the management of quality in the organization. On the other hand, the "hard" side includes improvement of the production techniques such as statistical process control, organization's design processes and procedures and just-in-time inventory control. In this commentary, Samson and Terziovski (1999) asserted that the majority of manufacturing companies in Europe, the USA, Japan, and Australia have adapted the six dimensions of TQM such as leadership, strategic and quality planning, customer focus, management of people, process management and use of information and analysis. Many organizations also follow the Baldrige criteria for self-assessments of their quality practices. Since MBNQA criteria is the most universal practice, Samson and Terziovski (1999) developed a framework following the main criterion of MBNQA which is considered as representing TQM practices by many scholars such as Dean and Bowen (1994). Moreover, the framework used by Samson and Terziovski (1999) has been used in the largest study of Australian companies conducted so far (Prajogo and Sohal, 2003).

Through a comprehensive literature review, we have selected the following six TQM practices for our study: leadership, strategic planning, customer focus, human resource focus, process management and information analysis (Saraph *et al.*, 1989; Powell, 1995; Motwani, 2001).

2.2 Role stressors

Since the 1950s, there have been numerous studies on role theory, especially the constructs of role conflict and role ambiguity (Kahn *et al.*, 1964; Rizzo *et al.*, 1970). A study by Frone (1990) measured role stress using three criteria (i.e. role conflict, role ambiguity and role overload). Role novelty, role conflict, role ambiguity and role overload are four work-role characteristics which have influenced the expatriates' work assignment (Morley and Flynn, 2003). Ngo *et al.* (2005) analyzed the relationship between role stressors (i.e. role conflict, role ambiguity, role overload, and work-family conflict) and emotional exhaustion among the professional clergy in Hong Kong.

However, the consensus within the literature on role perceptions in organizational behaviour has addressed the problem of role conflict and role ambiguity (Schuler, 1977). Role conflict and role ambiguity are the foremost social psychological stressors to be studied in the early stages of research on work stress (Lu and Lee, 2007). According to Jackson and Schuler (1985), job-related role stress consists of two main

components, namely role conflict and role ambiguity, and this notion is well supported because almost 200 studies have been done using measures of role ambiguity and role conflict. Role conflict refers to the “incongruity of the expectations associated with a role” (Van Sell *et al.*, 1981, p. 44). Role conflict is viewed as resulting from a violation of the two classical principles (i.e. principles of unity of command and single accountability) and leading to lower individual satisfaction and decreased organizational effectiveness (Rizzo *et al.*, 1970). According to Kahn *et al.* (1964), role conflict occurs when two or more conflicting job requirements arise, so that complying with one would make doing the other more difficult. For example, it might be a function of conflicting messages (Guimaraes, 1997), such as management’s target for high sales volumes within a short period of time.

On the other hand, role ambiguity refers to the:

degree to which clear information is lacking regarding: (a) the expectations associated with a role; (b) methods for fulfilling known role expectations; (c) the consequences of role performance (Van Sell *et al.*, 1981, p. 44).

Role ambiguity was defined as a circumstance in which the desired roles sent to the employee were vague and the employee is likely to experience confusion and uncertainty in performing the desired sent roles (Guimaraes, 1997). This situation happens in several common ways, i.e. inadequate information of job functions, vague expectations of peers and superiors and uncertainty of performance evaluation systems may cause employees to feel extensively stressed and eventually fail to perform their tasks.

Following Gregson *et al.* (1994), the commonly used scale by Rizzo *et al.* (1970) is the most broadly adopted or adapted instrument to measure role ambiguity and role conflict. This is consistent with the findings from Van Sell *et al.* (1981) which found that approximately 85 percent of all research studying role ambiguity and role conflict has used the questionnaires by Rizzo *et al.* (1970). Breugh (1980) reported that undoubtedly the scale of role ambiguity developed by Rizzo *et al.* (1970) is the most commonly used measure compared to those of Beehr (1976) and Lyons (1971). As such, the two role-based stressors used by Rizzo *et al.* (1970) were selected to represent the role stressors in this study.

3. Relationship between TQM and role stressors

3.1 Leadership

Leadership refers to how senior leaders steer the organization and assess the organizational performance. Leader initiating structure and consideration are the two widely studied leadership behavior dimensions of the organizational behavior (Kerr *et al.*, 1974). Initiating structure takes into account the degree to which a leader guides subordinates; clarifies subordinates’ role; and plans as well as manages the subordinates to improve their performance (Dubinsky *et al.*, 1988). Consideration is evidenced by the degree to which a leader is supportive, consultative, friendly and considerate of subordinates; communicate explicitly with subordinates; and value the subordinates’ performance (Dubinsky *et al.*, 1988).

The results of considerable research show that leadership has been recognized as a determinant of role stress (Babin and Boles, 1996; Michaels *et al.*, 1987). Hence, there are extensive studies on the effect of the leadership dimensions on role stress.

Several scholars have found that the behaviour of the immediate superior is closely related to subordinates' insights of role conflict and role ambiguity (Lu and Lee, 2007). Moreover, it has been concluded that the supervisory-related variables, such as initiating structure and consideration, influence role ambiguity significantly (Jackson and Schuler, 1985). According to Ruyter *et al.* (2001), lower levels of leadership initiated structure leads to greater role stress. As such, a negative relationship between initiating structure and role stress has been reported. Leadership consideration such as recognizing excellence in work contributions, indirectly elucidates roles by rewarding what is expected (Podsakoff *et al.*, 1984) and helps to reduce role ambiguity (Ruyter *et al.*, 2001).

Likewise, managerial and supervisory staff are a major source of stress for nearly all employees (Rizzo *et al.*, 1970). Michaels and his associates reported that when a service provider sees his or her supervisors as over-critical, the service provider may be reluctant to risk a few of the alternative ways focusing on customers' needs, escalating the potential for role conflict (Michaels *et al.*, 1988). The positions at upper managerial levels have a larger influence to decrease any role conflict, and hence role ambiguity should be given greater attention for such roles (Kahn *et al.*, 1964). Hamner and Tosi (1974) acknowledged that the employees at lower managerial levels are likely to experience role conflict. A work done by Singh (1993) stated that the marketers' concern in the relationship between organizational factors and role ambiguity started from the interest in providing conducive work atmospheres such as collecting more feedback, and training managerial and supervisory staff (e.g. more considerate of subordinates) so as to improve the degree of ambiguity, in this manner reducing or removing the negative effects of role ambiguity. Because the role stressors are highly vulnerable to leadership aspects, the relationship between leadership and role stressors, specifically role ambiguity and role conflict are worth examining. Therefore, the following proposition is presented:

- P1. Greater emphasis on leadership will lead to a lower level of role stressors (i.e. role conflict and role ambiguity) among employees.

3.2 Strategic planning

Nearly, all profit and non-profit organizations are engaged in a process of strategic planning (Ketokivi and Castaner, 2004). Brah and Lim (2006) concluded that strategic planning helps organization to modify plans based on changing market and emphasize the organizational planning process, integration of core requirements into the organization plan and performance evaluation. According to Miller and Cardinal (1994), large and small organizations can gain substantial benefits, not only from adaptive thinking, but also from integration and management of strategic planning. Kahn *et al.* (1964) stated that role ambiguity occurs when an individual could not cope with the organizational complexity, rapid organizational growth with numerous reorganizations, as well as changes in the workplace which impose new demands on the employees. When more information is exchanged between units describing the distribution of tasks and agreements about organizational domains, a lower level of role conflict and ambiguity is induced among the administrators operating in an integrated field compared to those in a field lacking integration.

According to Ketokivi and Castaner (2004), it is likely to create a sign of recognition of employees' efforts and the emerging goals and priorities, when top management

incorporate employee participation in charting the future of the organization through strategic planning process. Such strategic planning development thus jointly decreases the level of role conflict and role ambiguity. Extending from the discussion by Ketokivi and Castaner (2004), if top management articulates the organizational goals in a way that are understandable from the view of each unit, role ambiguity will be reduced when employees understand how the tasks and goals of their positions and their units may relate to the overall organization's goals. This is because employees know and endorse the same organizational goals and thus have greater clarity to pursue them. Hence, once goals are well-communicated, the organizational members are likely to develop a better understanding of organizational goals, and strategic and tactical plans, which should reduce role conflict and role ambiguity.

Strategic planning should be considered as a mechanism that can reduce the level of role conflict and role ambiguity among the organizational members. In this regard, the effort to study the relationship between strategic planning and role stressors is useful. Thus, the following proposition is proposed:

- P2. Greater emphasis on strategic planning will lead to a lower level of role stressors (i.e. role conflict and role ambiguity) among employees.

3.3 Customer focus

Customer focus is among the most vital dimensions of TQM (Dean and Bowen, 1994). Following Lee and Chang (2006), TQM is an organizational management concept of the customers' opinions and is known to be the commitment of all organizational members to continuously improve the work process with the goals of satisfying internal and external customers. It has been recognized that for an organization to grow to be customer-oriented, customer complaints should be treated with top priority if it is to deliver better service quality and improve customer satisfaction (Zhang *et al.*, 2000).

The quality of an organization's service is very much dependent on the employees who interact with customers, such as customer service representatives and service technicians (Gwinner *et al.*, 1998). A study by Parkington and Schneider (1979) found that the customers of bank branches received superior service where role ambiguity and role conflict are low. Service employees are responsible for various tasks such as providing information and assistance to customers, and their performance on these tasks influences customers' view of service quality (Johlke and Duhan, 2000). Because service employees often experience varying demands from customers, they are likely to face increased role ambiguity. Consequently, many service-oriented organizations are concerned with reducing the level of role ambiguity and role conflict among the service employees.

Furthermore, the adequacy of customer focus practices, with respect to role stressors contexts, was inferred by observing the degree to which customer focus practices were used in sales personnel (Behrman and Perreault, 1984). Role ambiguity happens when a person has incomplete information or knowledge to perform his or her job adequately, for example, a salesperson who has inadequate quality-related information about a product is definitely unprepared to answer technical questions about a product's quality (Dubinsky *et al.*, 1992). In fact, an employee's performance is partially due to how the individual understands the role expectations and executes the jobs. The organization should have precise knowledge of customer expectations through collecting customers' feedback and conducting an annual survey on customer satisfaction.

Having this customer-focused knowledge, the organization should invest in training programs to educate its employees, especially the salespeople and customer service representatives with the customer-focused knowledge and information. To support this notion, a related study conducted by Singh (1993) suggested that managers may find it beneficial to focus on customer profile and conduct training programs that are tailored for dealing with ambiguity in interactions with customers.

A study by Churchill *et al.* (1976) stated that a discrepancy may occur between salesmen's company's policies and their customer's requirements because salesmen often comment that their organization's superiors are not aware of things changing in the market. Conceivably, an organization should conduct market research and collect customer feedback in order to gather suggestions for improving their product or services. With the provision of market research and customer-based information, the employees (e.g. engineers, software programmers, designers, customer service representatives, sales personnel and etc) will find optimal solutions to expectations of company and customer's needs. Consequently, role conflict and role ambiguity among the employees are reduced with respect to a provision of customer feedback information, market investigations and customer satisfaction surveys.

Due to the highly influential nature of a customer-focused aspect to role stressors, it is important to study the relationship between customer focus and role stressors, specifically role ambiguity and role conflict. Therefore, the following proposition is put forward:

- P3. Greater emphasis on customer focus will lead to a lower level of role stressors (i.e. role conflict and role ambiguity) among employees.

3.4 Human resource focus

Human resource management (HRM) is known to be a subset of a wide-ranging management process that is oriented towards and incorporated in the company strategy (Graf, 2007). Consistent with this perspective, the area of HRM is known, including the processes and practices such as recruiting, selecting, motivating, training, compensating and retaining workers (Stone, 2007). This suggests that an organization with successful HRM practices could help to improve the well-being of employees. As a result, the HRM could have an impact on employee's role stressors.

According to Churchill *et al.* (1976), since the salesmen's well-being and performance are affected by company policies and management actions, the management may modify company policies and procedures specifically on salesman compensation, promotion and sales training in order to improve the morale level among the salesforce. Salesmen are more effective in their jobs when management furnishes them with satisfactory technical backup, information and training to assist them in handling unusual demands arising from the job (Churchill *et al.*, 1976). Hence, management should spend more time and effort to learn how role ambiguity and role conflict could be minimized with appropriate company-wide training, and attractive compensation system.

Communication is an important process used to convey information. Supervisors who use bidirectional communication provide information and influence their employees, and employees may be able to provide supervisors with information regarding customer and competitor activities (Johlke and Duhan, 2000). According to Rizzo *et al.* (1970), the practices which tend to be related with lower role conflict and role ambiguity are focused on personal development and adequacy of communication.

Role ambiguity arise when the flow of communication is restricted intentionally or unintentionally (Lyons, 1971). When role expectations are not evidently described and when useful information is not broadly communicated, role ambiguity may arise if the position incumbents have insufficient role-relevant information to carry out their tasks. Moreover, Rizzo *et al.* (1970) asserted that role ambiguity was associated with the clarity of behavioral requirements or expectations. Johlke and Duhan (2000) further concluded that supervisor use of bidirectional communication flows has negative relationship with respect to service employee ambiguity concerning customers, supervisor, promotion and ethical status.

Following Smith and Cooper (1994), stress among colleagues is frequently induced by competition for promotion or recognition in the workplace. A salesman faces role ambiguity when he is uncertain of how his performance evaluation is conducted (Churchill *et al.*, 1976). Keller and Szilagyi (1976) revealed that positive rewards (e.g. merit pay increases and recognition) and punitive rewards (e.g. reprimand or dismissal) had a negative relationship with role ambiguity. According to Hage *et al.* (1971), a blueprint of rewards system would be useful because standards lead to little ambiguity about whom to penalize and whom to reward. Thus, the organization's reward and recognition system that based on work performance should be clearly articulated in the HRM in order to reduce, if not to eliminate, the role ambiguity among the employees.

Becker and Gerhart (1996) described that human resources have been considered as a cost to be reduced and a prospective source of efficiency gains. Therefore, research on examining the relationship between human resource focus and role stressors shall be given emphasis. Therefore, the following proposition is put forward:

- P4. Greater emphasis on human resource focus will lead to a lower level of role stressors (i.e. role conflict and role ambiguity) among employees.

3.5 Process management

Process management refers to the methodological and behavioral practices underlining the management of process, or means of actions, rather than outcomes (Anderson *et al.*, 1994). Brah and Lim (2006) stressed that process management focuses on the processes of the organization to achieve its objectives such as innovation, production and delivery processes. Process management is exemplified by enhancing work center methods and establishing operator-controlled processes that help to lower unit cost, minimizing the operator material handling duties, supporting a work design for a manufacturing program and accomplishing a compact process flow (Kasul and Motwani, 1995). Following a discussion by Zhang *et al.* (2000), good process management involves documenting process procedures, with specific instruction for equipment operation in order to reduce the probability of operator errors.

Role stress is affected by the scale of structural formalization in an organization (Michaels *et al.*, 1987). The measure of formalization included degree of job specificity such as having precise procedures for various contingencies, documenting job performance and encouraging upward and downward communication channels within the same department (Hage *et al.*, 1971). According to Rogers and Molnar (1976), when organizations' goals, procedures and instructions are well-written and communicated to personnel in black and white, the organizations are viewed as highly formalized. It is found that administrators reported less ambiguity about their organizational duties and roles if the goals and procedures for attaining these goals are specifically clarified

(Rogers and Molnar, 1976). Furthermore, Rizzo *et al.* (1970) reported that the organization practices such as goal conflict and inconsistency, incomplete information and violations of the chain of command are related to high role ambiguity and role conflict. Likewise, the practices which tend to be allied with lower role conflict and role ambiguity are focused on formalization, planning, and coordination of work flow (Rizzo *et al.*, 1970). Consistent with this finding, an observation in a heavy equipment manufacturing company by House and Rizzo (1972) asserted the negative relationships between formalization and role stressors (i.e. role ambiguity and role conflict).

Sitkin *et al.* (1994) asserted that the failed TQM implementation may be caused by the lack of understandable guidelines and implementation methods. According to Churchill *et al.* (1976), the salesmen's job requires them to deliver creative and innovative solutions such as matching existing offerings with customers' requirements and performing attractive sales presentation. Consequently, there is a need for company to provide the employees with adequate guidelines, information and training to promote the initiatives and innovativeness among the employees.

Hage *et al.* (1971, p. 860) defined co-ordination as "the degree to which there are adequate linkages among organizational parts, i.e. specific task roles as well as subunits of the organization so that organizational objectives can be accomplished." Hage and his associates stressed that internal structure of an organization should connect to the form of coordination and intensity of communications (Hage *et al.*, 1971). Lusch and Jaworski (1991) conducted a study on 182 stores in the USA and suggested that a well-designed control system can help in reducing the stress and tension experienced by the store manager. This suggests that an organization with successful process management such as work coordination could reduce the level of role conflict and role ambiguity among employees.

A key issue with regard to TQM involves the manner in which process management may affect variation in individual role conflict and role ambiguity. Therefore, the following proposition is put forward:

- P5. Greater emphasis on process management will lead to a lower level of role stressors (i.e. role conflict and role ambiguity) among employees.

3.6 Information analysis

Managing information and knowledge is vital to an organization's competitiveness at present global environment (Hsu *et al.*, 2007). Phusavat *et al.* (2007) asserted that the increasing competition has given the greater role of information technology in which the customers are able to convey higher demands such as demanding for lower cost, higher quality or reliability and with better market delivery. Hence, there is a need for organizations to acquire more information about customers' needs as well as competitors' product quality and procedures. Benchmarking is a dominant tool to use as a continuous process of evaluating an organization's products, services, and processes against those of its competitors or those of leading organizations renowned as world-class (Zhang *et al.*, 2000). Following a discussion by Hackman and Wageman (1995), benchmarking serves many functions consistent with the TQM philosophy:

- Identifying customer requirements.
- Learning alternative work processes.
- Guiding the formation of quality-improvement goals.

Prajogo and Sohal (2003) extended the dimension of benchmarking with availability of data and information about performance as well as the use of information in decision-making processes performed by senior management.

Following a study in veterinary medical healthcare by Lin and Brian (1996), clinical benchmarking is a way to keep track of which individuals are doing the best work in several clinical areas, understand what it is they are performing to attain their desired results and share that knowledge with others. In addition to this, processes such as time per office visit, surgery time per patient case, and time per call are among procedures that could be utilized by managers to assess quality in veterinary medical health care (Lin and Brian, 1996). Hackman and Wageman (1995) added that several statistical tools such as control charts, Pareto analysis and cost-of-quality analysis are utilized to recognize the top leverage points for quality improvement, to assess different solutions to problems and to document the outcomes of process changes. The adjustment of cost of quality highly depends on the changes in the market share, warranty costs and inspection, reworks and scrap costs (Motwani, 2001). Sitkin *et al.* (1994) added that the use of control charts is helpful in mass production systems such as automobile assembly plants where a repetitive process or product is being evaluated. These statistical tools play a role to eliminate non-value-added activities in every organization's function. Hence, the companies should regularly conduct evaluation studies such as evaluating different policies and strategies, conducting quality audits, analyzing quality costs, revising department performance evaluation and staff performance evaluation. All these evaluation studies should be based on concrete information, such as production and defect rates.

Following Piskar (2006), an organization must monitor all the activity in order to observe whether the activities are executed according to the set plans. As the diversity of an organization increases, it becomes more complicated to monitor the work processes and systems and gather quality-related information. As the variety of tasks in an organization expands, the synchronization of work and information by preset rules and procedures becomes more complex. Moreover, the performance review becomes more difficult because each of the jobs may require a different set of standards. Thus, the organizations are encouraged to deploy appropriate technology in supporting the process of information analysis. The companies need to think through the organization's work processes and systems when they adopt new and complicated statistical process control tools. The companies should communicate with their employees and educate their employees in complying with new work processes and using new statistical process control tools. The extent to which these are done may influence the increase or decrease of role ambiguity and role conflicts among the employees.

There is a relationship between information analysis and role stressors particularly, role ambiguity and role conflict. Therefore, the following proposition is proposed:

- P6. Greater emphasis on information analysis will lead to a lower level of role stressors (i.e. role conflict and role ambiguity) among employees.

4. Conceptual research framework

Based on the above literature review, a research framework is developed as a means to examine the effects of TQM practices on role stressors. The relationship between TQM and role stressors is illustrated in Figure 1. In this theoretical framework,

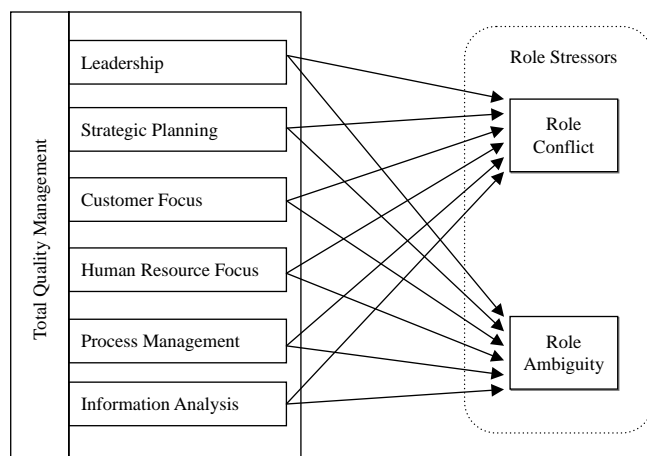


Figure 1.
A model of effects of TQM
practices on role stressors

the six variables of TQM practices are independent variables and role stressors (i.e. role conflict and role ambiguity) are dependent variables, respectively. Our proposed model reinforces the need for organizations which practise TQM to recognize multiple influences of TQM practices on role stressors. The model suggests that the greater the extent to which these TQM practices are present, the lower will be the role stressors among the employees.

5. Theoretical implication

The influences of role ambiguity and conflict on performance have been the focus of past studies and researchers have suggested non-linear (Schuler, 1975) and interactive relationships (Fried *et al.*, 1998) between stress and performance. Conversely, our proposed model examines the independent influences of TQM practices on role stressors and treats role conflict and role ambiguity as dependent variables. Treatment of role conflict and role ambiguity as dependent variables stands in contrast to other researchers' treatment of conflict and ambiguity as independent variables (Behrman and Perreault, 1984; Ngo *et al.*, 2005) as well as treatment of conflict as antecedent to ambiguity (Dubinsky *et al.*, 1992). This conceptual model particularly provides an insightful theoretical foundation for the analysis of TQM practices on role conflict and role ambiguity. It clarifies the associations and encourages motivation for future research towards the development of a comprehensive TQM research area. This model warrants further exploration and researchers could present a detailed correlation matrix that they obtain between TQM practices and role stressors.

6. Managerial implication

With respect to TQM practices, relatively little attention has been given to the value of examining the level of role conflict and role ambiguity experienced by the employees, yet these assessments are expected to be crucial for the organizational performance. First, the individual factors would certainly influence the nature of TQM practices and organizational performance. For example, organizational performance could be impaired because employees' experiences of role conflict or role ambiguity lead to a lack

of certainty about their job functions and tasks to be performed. Regardless of the amount of cost and effort expended in executing TQM practices, tasks performed by employees are likely to be inefficient or misdirected. Second, questions remain as to which aspects of TQM practices might affect the role stressors among the organizational members. For instance, although the six dimensions mentioned above have been included in the TQM practices, it is not clear as to which dimensions can realistically reduce the role stressors of employees at different hierarchical levels. As such, this research model would help to identify which TQM dimensions would be beneficial. The third implication of this study is the need to understand that action taken to realize one objective may have countervailing impacts on other factors. For example, strategic planning originally developed to make employees more prepared to meet the changing market may result in higher role conflict and role ambiguity. This model reinforces the need for organizational management to recognize multiple influences of TQM practices on employees' role stressors. At a minimum, management could understand its workforce to see to what degree and exactly which TQM practices influence the cause of role conflict and role ambiguity. In this regard, organizations grounded in TQM practices could seek decision-making structures to lower the level of role conflict and role ambiguity faced by the employees. Consequently, this model provides impetus for practitioners to continue adopting effective TQM practices in their organizations. Given the evidence that both role conflict and role ambiguity are often detrimental to organizational functioning, it is appropriate for management to invest time and effort to diagnose and analyze effects of implementation of TQM practices on role conflict and role ambiguity. For this analysis, this model proposed will prove valuable.

7. Conclusion

In conclusion, this study contributes to the TQM literature by linking TQM practices to the underlying role conflict and role ambiguity experienced by employees in an organization. TQM practices indeed have a great impact on personnel attitudes and performance towards their jobs and their organization. TQM practices offer effectiveness and efficiency in the organizational performance, but they might not reduce the level of role conflict or role ambiguity. Role conflict and role ambiguity have a deleterious influence on personnel attitudes and overall organization, yet very few research studies have addressed this contingency. Thus, one objective of this paper is to develop a conceptual model for TQM adoption in measuring the existence of role conflict and role ambiguity. It is expected that the greater the extent to which the six TQM practices are present, the lower will be the role conflict and role ambiguity among the employees. This paper proposes a model to study the degree of leadership, the use of effective strategic planning, the emphasis on customer focus, the action of human resource focus, the course of process management and the deployment of information analysis. The six TQM practices are important attributes in reducing the role conflict and role ambiguity among the employees. These are the potential factors because of the interrelatedness of employees' work outcomes and the need on the part of organizations to improve and maintain their competitiveness. However, low levels of role stressors alone will not necessarily improve the performance of an organization. Other necessary concomitant factors are TQM implementation, organizational commitment and employees' job involvement, which together with low levels of role

stressors will do the job. This study is an initial attempt to explore the relationship between TQM practices and the role conflict and role ambiguity. To establish the model in practice, further survey and research will be conducted using multivariate analysis to test, validate and enhance the model.

Does TQM
impact on role
stressors?

References

- Anderson, J.C., Rungtusanatham, M. and Schroeder, R.G. (1994), "A theory of quality management underlying the Deming management method", *The Academy of Management Review*, Vol. 19 No. 3, pp. 472-509.
- Babin, B.J. and Boles, J.S. (1996), "The effects of perceived co-worker involvement and supervisor support on service provider role stress, performance and job satisfaction", *Journal of Retailing*, Vol. 72 No. 1, pp. 57-75.
- Becker, B. and Gerhart, B. (1996), "The impact of human resource management on organizational performance: progress and prospects", *The Academy of Management Journal*, Vol. 39 No. 4, pp. 779-801.
- Beehr, T.A. (1976), "Perceived situational moderators of the relationship between subjective role ambiguity and role strain", *Journal of Applied Psychology*, Vol. 61 No. 1, pp. 35-40.
- Behrman, D.N. and Perreault, W.D. Jr (1984), "A role stress model of the performance and satisfaction of industrial salespersons", *Journal of Marketing*, Vol. 48 No. 4, pp. 9-21.
- Bemowski, K. and Stratton, B. (1995), "How do people use the Baldrige award criteria?", *Quality Progress*, Vol. 28 No. 5, pp. 43-7.
- Brah, S.A. and Lim, H.Y. (2006), "The effects of technology and TQM on the performance of logistics companies", *International Journal of Physical Distribution & Logistics Management*, Vol. 36 No. 3, pp. 192-209.
- Breaugh, J.A. (1980), "A comparative investigation of three measures of role ambiguity", *Journal of Applied Psychology*, Vol. 65 No. 5, pp. 584-9.
- Churchill, G.A. Jr, Ford, N.M. and Walker, O.C. Jr (1976), "Organizational climate and job satisfaction in the salesforce", *Journal of Marketing Research*, Vol. 13 No. 4, pp. 323-32.
- Dean, J.W. Jr and Bowen, D.E. (1994), "Management theory and total quality: improving research and practice through theory development", *The Academy of Management Review*, Vol. 19 No. 3, pp. 392-418.
- Dubinsky, A.J., Childers, T.L., Skinner, S.J. and Gencturk, E. (1988), "Impact of sales supervisor leadership behavior on insurance agent attitudes and performance", *The Journal of Risk and Insurance*, Vol. 55 No. 1, pp. 132-44.
- Dubinsky, A.J., Michaels, R.E., Kotabe, M., Lim, C.U. and Moon, H.C. (1992), "Influence of role stress on industrial salespeople's work outcomes in the United States, Japan and Korea", *Journal of International Business Studies*, Vol. 23 No. 1, pp. 77-99.
- Flynn, B.B., Schroeder, R.G. and Sakakibara, S. (1995), "The impact of quality management practices on performance and competitive advantage", *Decision Sciences*, Vol. 26 No. 5, pp. 659-91.
- Fried, Y., Ben-David, H.A., Tiegs, R.B., Avital, N. and Yeverechyahu, U. (1998), "The interactive effect of role conflict and role ambiguity on job performance", *Journal of Occupational and Organizational Psychology*, Vol. 71, pp. 19-27.
- Frone, M.R. (1990), "Intolerance of ambiguity as a moderator of the occupational role stress-strain relationship: a meta-analysis", *Journal of Organizational Behavior*, Vol. 11 No. 4, pp. 309-20.
- Graf, A. (2007), "Changing roles of customers: consequences for HRM", *International Journal of Service Industry Management*, Vol. 18 No. 5, pp. 491-509.

1041

- Gregson, T., Wendell, J. and Aono, J. (1994), "Role ambiguity, role conflict and perceived environmental uncertainty: are the scales measuring separate constructs for accountants?", *Behavioral Research in Accounting*, Vol. 6, pp. 144-59.
- Guimaraes, T. (1997), "Assessing employee turnover intentions before/after TQM", *International Journal of Quality and Reliability Management*, Vol. 14 No. 1, pp. 46-63.
- Gwinner, K.P., Gremler, D.D. and Bitner, M.J. (1998), "Relational benefits in services industries: the customer's perspective", *Journal of the Academy of Marketing Science*, Vol. 26 No. 2, pp. 101-14.
- Hackman, J.R. and Wageman, R. (1995), "Total quality management: empirical, conceptual and practical issues", *Administrative Science Quarterly*, Vol. 40 No. 2, pp. 309-42.
- Hage, J., Aiken, M. and Marrett, C.B. (1971), "Organization structure and communications", *American Sociological Review*, Vol. 36 No. 5, pp. 860-71.
- Hamner, W.C. and Tosi, H.L. (1974), "Relationship of role conflict and role ambiguity to job-involvement measures", *Journal of Applied Psychology*, Vol. 59 No. 4, pp. 497-9.
- House, R.J. and Rizzo, J.R. (1972), "Role conflict and ambiguity as critical variables in a model of organizational behavior", *Organizational Behavior and Human Performance*, Vol. 7, pp. 467-505.
- Hsu, R.C., Lawson, D. and Liang, T.P. (2007), "Factors affecting knowledge management adoption of Taiwan small- and medium-sized enterprises", *International Journal of Management and Enterprise Development*, Vol. 4 No. 1, pp. 30-51.
- Jackson, S.E. and Schuler, R.S. (1985), "A meta-analysis and conceptual critique of research on role ambiguity and role conflict in work settings", *Organizational Behavior and Human Decision Processes*, Vol. 36, pp. 16-78.
- Jitpaiboon, T. and Rao, S.S. (2007), "A meta-analysis of quality measures in manufacturing system", *International Journal of Quality & Reliability Management*, Vol. 24 No. 1, pp. 78-102.
- Johlke, M.C. and Duhan, D.F. (2000), "Supervisor communication practices and service employee job outcomes", *Journal of Service Research*, Vol. 3 No. 2, pp. 154-65.
- Kahn, R.L., Wolfe, D.M., Quinn, R.P., Snoek, J.D. and Rosenthal, R.A. (1964), *Organizational Stress: Studies in Role Conflict and Ambiguity*, Wiley, New York, NY.
- Kasul, R.A. and Motwani, J.G. (1995), "Total quality management in manufacturing thematic factor assessment", *International Journal of Quality & Reliability Management*, Vol. 12 No. 3, pp. 57-76.
- Keller, R.T. and Szilagyi, A.D. (1976), "Employee reactions to leader reward behavior", *The Academic of Management Journal*, Vol. 19 No. 4, pp. 619-27.
- Kerr, S., Schriesheim, C.A., Murphy, C.J. and Stogdill, R.M. (1974), "Toward a contingency theory of leadership based upon the consideration and initiating structure literature", *Organizational Behavior and Human Performance*, Vol. 12, pp. 62-82.
- Ketokivi, M. and Castaner, X. (2004), "Strategic planning as an integrative device", *Administrative Science Quarterly*, Vol. 49 No. 3, pp. 337-65.
- Lam, S.K. (1996), "Total quality management and its impact on middle managers and front-line workers", *Journal of Management Development*, Vol. 15 No. 7, pp. 37-46.
- Lee, M.C. and Chang, T. (2006), "Applying TQM, CMM and ISO 9001 in knowledge management for software development process improvement", *International Journal of Services and Standards*, Vol. 2 No. 1, pp. 101-15.
- Lin, B. and Brian, D.R. (1996), "Quality management in veterinary medical health care", *Total Quality Management*, Vol. 7 No. 5, pp. 451-7.

- Lin, B. and Goodrich, W.H. (1995), "Air force total quality management: an assessment of its effectiveness", *Total Quality Management*, Vol. 6 No. 3, pp. 243-53.
- Lu, L.T. and Lee, Y.H. (2007), "The effect of supervision style and decision-making on role stress and satisfaction of senior foreign managers in international joint ventures in China", *International Journal of Commerce & Management*, Vol. 17 No. 4, pp. 284-94.
- Lusch, R.F. and Jaworski, B.J. (1991), "Management controls, role stress and retail store manager performance", *Journal of Retailing*, Vol. 67 No. 4, pp. 397-419.
- Lyons, T.F. (1971), "Role clarity, need for clarity, satisfaction, tension and withdrawal", *Organizational Behavior and Human Performance*, Vol. 6, pp. 99-110.
- Michaels, R.E., Day, R.L. and Joachimsthaler, E.A. (1987), "Role stress among industrial buyers: an integrative model", *Journal of Marketing*, Vol. 51 No. 2, pp. 28-45.
- Michaels, R.E., Cron, W.L., Dubinsky, A.J. and Joachimsthaler, E.A. (1988), "Influence of formalization on the organizational commitment and work alienation of salespeople and industrial buyers", *Journal of Marketing Research*, Vol. 25 No. 4, pp. 376-83.
- Miller, C.C. and Cardinal, L.B. (1994), "Strategic planning and firm performance: a synthesis of more than two decades of research", *The Academy of Management Journal*, Vol. 37 No. 6, pp. 1649-65.
- Morley, M.J. and Flynn, M. (2003), "The relationship between work-role characteristics and intercultural transitional adjustment domain patterns among a sample of US and Canadian expatriates on assignment in Ireland", *Cross Cultural Management*, Vol. 10 No. 3, pp. 42-57.
- Motwani, J. (2001), "Critical factors and performance measures of TQM", *The TQM Magazine*, Vol. 13 No. 4, pp. 292-300.
- Ngo, H.Y., Foley, S. and Loi, R. (2005), "Work role stressors and turnover intentions: a study of professional clergy in Hong Kong", *International Journal of Human Resource Management*, Vol. 16 No. 11, pp. 2133-46.
- Parkington, J.J. and Schneider, B. (1979), "Some correlates of experienced job stress: a boundary role study", *The Academy of Management Journal*, Vol. 22 No. 2, pp. 270-81.
- Phusavat, K., Kanchana, R. and Helo, P. (2007), "Supplier management: past, present and anticipated future perspectives", *International Journal of Management and Enterprise Development*, Vol. 4 No. 5, pp. 502-19.
- Piskar, F. (2006), "Quality audits and their value added", *International Journal of Services and Standards*, Vol. 2 No. 1, pp. 69-83.
- Podsakoff, P.M., Todor, W.D., Grover, R.A. and Huber, V.L. (1984), "Situational moderators of leader reward and punishment behavior: fact or fiction?", *Organizational Behavior and Human Performance*, Vol. 34, pp. 21-63.
- Powell, T.C. (1995), "Total quality management as competitive advantage: a review and empirical study", *Strategic Management Journal*, Vol. 16 No. 1, pp. 15-37.
- Prajogo, D.I. and Sohal, A.S. (2003), "The relationship between TQM practices, quality performance, and innovation performance: an empirical examination", *International Journal of Quality & Reliability Management*, Vol. 20 No. 8, pp. 901-18.
- Rizzo, J.R., House, R.J. and Lirtzman, S.I. (1970), "Role conflict and ambiguity in complex organizations", *Administrative Sciences Quarterly*, Vol. 15 No. 2, pp. 150-63.
- Rogers, D.L. and Molnar, J. (1976), "Organizational antecedents of role conflict and ambiguity in top-level administrators", *Administrative Science Quarterly*, Vol. 21 No. 4, pp. 598-610.

- Ruyter, K., Wetzels, M. and Feinberg, R. (2001), "Role stress in call centers: its effects on employee performance and satisfaction", *Journal of Interactive Marketing*, Vol. 15 No. 2, pp. 23-35.
- Samson, D. and Terziovski, M. (1999), "The relationship between total quality management practices and operational performance", *Journal of Operations Management*, Vol. 17, pp. 393-409.
- Saraph, J.V., Benson, P.G. and Schroeder, R.G. (1989), "An instrument for measuring the critical factors of quality management", *Decision Sciences*, Vol. 20, pp. 810-29.
- Schuler, R.S. (1975), "Role perceptions, satisfaction, and performance: a partial reconciliation", *Journal of Applied Psychology*, Vol. 60 No. 6, pp. 683-7.
- Schuler, R.S. (1977), "The effects of role perceptions on employee satisfaction and performance moderated by employee ability", *Organizational Behavior and Human Performance*, Vol. 18, pp. 98-107.
- Singh, J. (1993), "Boundary role ambiguity: facets, determinants and impacts", *Journal of Marketing*, Vol. 57 No. 2, pp. 11-31.
- Sitkin, S.B., Sutcliffe, K.M. and Schroeder, R.G. (1994), "Distinguishing control from learning in total quality management: a contingency perspective", *The Academy of Management Review*, Vol. 19 No. 3, pp. 537-64.
- Smith, M. and Cooper, C. (1994), "Leadership and stress", *Leadership and Organization Development Journal*, Vol. 15 No. 2, pp. 3-7.
- Sousa, R. and Voss, C.A. (2002), "Quality management re-visited: a reflective review and agenda for future research", *Journal of Operations Management*, Vol. 20, pp. 91-109.
- Stone, D.L. (2007), "The status of theory and research in human resource management: where have we been and where should we go from here?", *Human Resource Management Review*, Vol. 17, pp. 93-5.
- Van Sell, M., Brief, A.P. and Schuler, R.S. (1981), "Role conflict and role ambiguity: integration of the literature and directions for future research", *Human Relations*, Vol. 34 No. 1, pp. 43-71.
- Wilkinson, A. (1992), "The other side of quality: 'soft' issues and the human resource dimension", *Total Quality Management*, Vol. 3 No. 3, pp. 323-9.
- Zhang, Z., Waszink, A. and Wijngaard, J. (2000), "An instrument for measuring TQM implementation for Chinese manufacturing companies", *International Journal of Quality & Reliability Management*, Vol. 17 No. 7, pp. 730-55.

Corresponding author

Pei-Lee Teh can be contacted at: plteh@mmu.edu.my; peilee_t@yahoo.com

To purchase reprints of this article please e-mail: reprints@emeraldinsight.com
Or visit our web site for further details: www.emeraldinsight.com/reprints

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.