THE IMPACT OF TOP MANAGEMENT LEADERSHIP ON TOTAL QUALITY MANAGEMENT: AN EMPIRICAL STUDY OF USA VS. CHINA

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ABSTRACT

Existing literature on total quality management (TQM) assumed that the most effective TQM-leadership style would be universal across international boundaries. The purpose of this study is to investigate the universal applicability of TQM-leadership style, specifically by comparing USA-based firms and China-based firms. A survey was conducted in these two countries and structural equation modeling (SEM) was adopted to test the developed hypotheses. The study results did not support the universality of TQM practices. For instance, the results reveal that in the USA-based firms, transformational leadership has a more significant positive influence on TQM practices, while in the China-based firms, transactional leadership has a more significant positive impact on TQM practices. These findings imply that the effective leadership style for successful implementation of TQM practices could be contingent on the cultural background embedded within the firms.

Keywords: Total quality management, universality of TQM practices, transformational leadership, transactional leadership, structural equation modeling

INTRODUCTION

In the early 1980s, quality management (QM) came to be recognized as a major ground for the success of Japanese companies in the global markets (Hayes, Pisano, Upton, & Wheelwright, 2005). As a result, the QM movement was rapidly adopted by companies in the U.S. as well as in many other countries. Particularly, ever since the U.S. government established the Malcolm Baldrige National Quality Improvement Act of 1987, their total quality management (TQM) program has become not only “one of the most popular improvement programs” (Hayes et al., 2005: 323), but also “one of the popular management programs investigated as an indicator of organizational isomorphism” (Jun, Cai, & Shin, 2006: 793). The isomorphic attribute of TQM is advocated, based on the view of the ‘institutional theory,’ which states that organizations come to be institutionalized by adapting to the values, norms, and practices of social institutions (Selznick, 1996). The institutional theory based-proponents of TQM insist that the isomorphic nature of TQM would result in the "universality of TQM practices" (Jun et al., 2006: 792). Furthermore, they uphold that eventually, the universality of TQM practices could contribute
towards producing similar TQM performances across organizational boundaries (Mitki & Shani, 1995; Yavas, 1995; Dahlgaard, Kristensen, Kanji, Juhl, & Sohal, 1998). The study of Hendricks and Singhal (1997) also supports such an isomorphic nature of TQM, representing that the firms, which are granted an award for quality outperform those that are not.

On the other hand, Fuchsberg (1993) points out that many empirical studies have not shown a consistent conclusion towards reflecting that the TQM embedded-companies tend to achieve better firm performance than non-TQM embedded-companies. For example, Powell (1995: 16) mentions, “the Wallace Company, a Houston oil-supply firm, filed for Chapter 11 bankruptcy soon after winning the Baldrige Award (Hill, 1993).” In addition, the International Quality Study (Ernst & Young & American Quality Foundation, 1992) shows that around 60% to 70% senior managers in such firms believe that quality improvement efforts have not reached their potential threshold levels (Beer, 2003). Furthermore, Hayes et al. (2005: 303) states that “surveys by several consulting firms suggest that only about one-third of all TQM efforts have been successful.” These arguments demonstrate that the success stories of TQM implementation are not what every TQM-embedded firm can achieve jointly. In other words, these arguments weaken the validity of the isomorphic nature of TQM. Here, a fundamental question is raised on the “universality of TQM.” Thus, this study aims to verify the “universality of TQM” practices. In particular, this study focuses on verifying the universality of “top management leadership” for effective TQM. The reason for this is that the leadership at the top management is considered not only as one of the major components of TQM, but also as a key “driving force” behind the effective execution of other components of TQM (Flynn et al., 1995; Samson & Terziovski, 1999; Kaynak, 2003; Hayes et al., 2005). However, the more important reason is that only the “transformational leadership” style has dominantly been regarded as a standard TQM-leadership attribute that could transcend organizational and national boundaries (Dean & Bowen, 1994; Samson & Terziovski, 1999; Rui, Emerson, & Luis, 2010), even though the most effective leadership style for successful TQM implementation could vary based on the organizational culture as well as national culture. Hence, through the comparative study of the USA-based firms vs. the China-based firms, this study examines whether the universality of TQM-leadership actually exist or not. Specifically, the following research questions are to be investigated through this study:

(1) Is the leadership style for effective TQM universal across national boundaries?
(2) If so, can ‘transformational leadership’ be regarded as the isomorphic nature of TQM-leadership across national boundaries?
(3) If not, how does ‘transformational leadership’ and ‘transactional leadership’ impact TQM practices differently in USA-based firms and China-based firms?

THEORETICAL BACKGROUND AND HYPOTHESIS DEVELOPMENT

Transformational vs. Transactional Leadership

Since Burns (1978), in his book, Leadership, introduced the two types of leadership styles “transforming leadership” and “transactional leadership,” the two leadership concepts have been reviewed and adopted by various fields such as politics and organizational psychology. Initially, the focus of Burns' (1978) study was to identify differences in how ordinary and excellent political leaders motivate their associates. The conceptualization of the
transformational/transactional styles of leadership for management research was established by the efforts of several scholars, such as Bass (1985a), Trice and Devanna (1986), and Conger and Kanungo (1987). Bass (1985b) defined transformational leaders as those who encourage their followers to progress and to perform beyond the standard expectation. Bass and Avolio have made tremendous contributions not only towards identifying well-defined behaviors of transformational leaders, but also towards imbibing the transformational leadership concepts into quantitative measures by developing the Multifactor Leadership Questionnaire (MLQ) (Bass 1985a; Bass & Avolio, 1990a, 1990b, 1995, 1999). Based on a series of studies, Avolio and Bass have identified four key characteristics of transformational leaders: (i) idealized influence (e.g., becoming role models that followers struggle to emulate), (ii) inspirational motivation (e.g., enhancing meaning and optimism about their mission), (iii) intellectual stimulation (e.g., encouraging followers to look at problems from different angles), and (iv) individual consideration (e.g., treating each individual uniquely and helping them develop their own strengths) (Bass & Avolio, 1996, 1999). To sum up, the transformational leaders can be defined as those who show proactive leadership, motivating their followers to strive for higher levels of potential.

Unlike transformational leaders, who stimulate their followers to perform beyond the standard expectations, by intellectual and inspirational motivations, transactional leaders drive their followers to achieve their expected levels of performance through a system of rewards and punishments (Bass & Avolio, 1999). Transactional leadership has two main aspects: (i) contingent reward (e.g., providing suitable rewards when a follower reaches the desired outcome) and (ii) management-by-exception (e.g., monitoring the mistakes of the follower and taking disciplinary action accordingly) (Bass & Avolio, 1993). In other words, transactional leaders motivate their followers by appealing to their own self-interest while transformational leaders encourage their followers to transcend their self-interest in the interest of their mutual goal. At first, transformational leadership and transactional leadership were considered as being at the opposite ends of a continuum (Burns, 1978). However, some other scholars consider these two concepts as “separate dimensions” rather than “opposites” (Bass, 1985; Howell & Avolio, 1993). Bryman (1992) argues that the same leader can be both, transformational as well as transactional. Bass and Avolio (2004: 17) also point out, “often, in different circumstances, both transformational and transactional leadership have been exhibited by the same leaders.” In addition, the meta-analytic study of Lowe, Kroeck, and Sivasubramaniam (1996: 420) demonstrates abundant evidence pertaining to “the role of transformational leadership in different types of organizations and at different levels of the leader(ship).”

**Leadership Style and TQM Practices: USA-based Firms**

According to Samson and Terziovski (1999), most of the U.S.-based firms have exhibited the following common TQM practices with respect to their quality management: (i) top management leadership, (ii) management of people (or human resource management), (iii) customer focus, (iv) strategic planning, (v) process management, and (vi) use of information and analysis. Among them, “top management leadership” is widely considered by numerous TQM studies, as a key “driving force” behind the effective implementation of other TQM components (Saraph et al., 1989; Flynn et al., 1995; Samson & Terziovski, 1999; Kaynak, 2003; Hayes et al., 2005; Kaynak & Hartley, 2008). Further, TQM proponents generally agree that the attributes of TQM-leadership are considerably close to those of transformational leadership (Dean & Bowen, 1994;
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TQM-Leadership Style: USA vs. China

Anderson, Rungtusanatham, Schroeder, & Devaraj, 1995; Samson & Terziovski, 1999; Rui et al., 2010). Waldman (1993:72) illustrates that “the theory of transformational leadership is helpful in specifying the traits of behavior which may be useful for a leader to stimulate TQM activities.” Waldman (1993) stresses that there is a similarity between transformational leadership and TQM-leadership. For example, the empirical study of Avolio & Bass (1999) defines transformational leadership by four major behavioral attributes, namely (i) idealized influence, (ii) inspirational motivation, (iii) intellectual stimulation, and (iv) individual consideration. Similar to these major attributes of transformational leadership, the empirical study of Samson and Terziovski (1999) represents that the essential characteristics of a TQM-leadership construct include, (i) the encouragement for change, (ii) the use of operator’s ideas in improving, the creation of unity purpose, and (iii) the management of environment. In short, both transformational leadership and TQM emphasize on “the communication and reinforcement of values and the articulation and implementation of a vision; in TQM, this entails aligning the values of organizational members with the quality values of customer, continuous improvement, and teamwork” (Dean & Bowen, 1994: 398).

On the other hand, transactional leadership can be characterized by two main aspects, namely, (i) contingent reward and (ii) management-by-exception, as discussed earlier (Bass & Avolio, 1993). Transactional leadership could prove to be more effective than transformational leadership in some cases of management; however, in the context of the established TQM literature, based on studies done on the USA-based firms, it is rationally assumed that transformational leadership would be superior to transactional leadership in the case of USA-based firms. Thus, based on the above arguments, we propose to test the following hypothesis regarding the relationship between top management leadership styles and other TQM practices:

\[ H1: \text{In USA-based firms, transformational leadership has a more positive impact on TQM practices as compared to transactional leadership.} \]

Further, to deepen the understanding of the relationships between leadership styles of top management and each TQM practice, we suggest the following extended hypotheses according to each factor of TQM:

\[ H1a: \text{In the USA-based firms, transformational leadership has a more positive impact on TQM-human resource management as compared to transactional leadership.} \]
\[ H1b: \text{In the USA-based firms, transformational leadership has a more positive impact on TQM-customer focus as compared to transactional leadership.} \]
\[ H1c: \text{In the USA-based firms, transformational leadership has a more positive impact on TQM-strategic planning as compared to transactional leadership.} \]
\[ H1d: \text{In the USA-based firms, transformational leadership has a more positive impact on TQM-process management as compared to transactional leadership.} \]
\[ H1e: \text{In the USA-based firms, transformational leadership has a more positive impact on TQM-information & analysis as compared to transactional leadership.} \]

**Leadership Style and TQM Practices: China-based Firms**

As reviewed earlier, the proponents of institutional theory based-TQM accentuate the universality of TQM practices on the basis of the isomorphic nature of TQM. TQM-leadership is considered as one of the most important isomorphic components of TQM, owing to its role as the
driving force behind the success of other TQM practices (Hayes et al., 2005). Thus, hypothetically, if we accept such isomorphic nature of TQM, it can be rationally derived that the relationship between transformational leadership and TQM practice should be similar, regardless of any international boundaries, as an evidence of the universality of TQM. In other words, transformational leadership should also be superior to transactional leadership, with respect to TQM practices, in the China-based firms, as seen in the USA-based firms. Therefore, we propose the following hypothesis to be examined:

**H2: In the China-based firms, transformational leadership has a more positive impact on TQM practices as compared to transactional leadership, as seen in the USA-based firms.**

However, on the basis of the contingency theory (Lawrence & Lorsch, 1967), some TQM researchers argue that "a firm's success with TQM is contingent upon the fit among the firm's structure, strategy, and environmental condition" (Jun et al., 2006: 794). Further, the study of Jun et al. (2006) indicates that the conventional TQM framework has a fundamental problem; the framework was mostly established on the survey results from companies in the developed countries, so its generalization and applicability could also be restricted to such companies only. Moreover, the study of Hendricks & Singhal (2001) manifests that the benefits of TQM practices can be moderated by many different kinds of organizational characteristics. Thus, these arguments lead us to question the universal applicability of TQM practices.

The empirical study of Prajogo & McDermott (2005) shows that TQM practices correlate less strongly with a hierarchical culture than with other types of cultures, namely group, developmental, and rational. In other words, their study shows there are particular cultures that could derive more benefit out of the effective implementation of TQM practices. Another empirical study, by Jung, Su, Baeza, & Hong (2008) extends the debate regarding the validity of the isomorphic nature of TQM practices. The results of their study suggest that a firm's TQM practices are significantly influenced by its organizational culture; in particular, the study shows that the power distance among five cultural dimensions of Hofstede (2001) is the most important cultural element influencing TQM practices (Jung et al., 2008). According to Hofstede (2001), China is classified as a society with a high power distance, where people tend to accept that all individuals cannot be equal, while USA is classified as a society with a low power distance, where people are likely to believe that all individuals should have equal rights as independent beings. In addition, Hofstede and his colleagues (2010) illustrate that the Chinese people are more likely to be influenced by formal authority and sanction, and to believe that they should not have aspirations beyond their own rank. On the other hand, managers in USA are apt to rely on individual employees and teams for their expertise, and their communications are prone to be more informal and participative. These arguments imply that the leadership style for effective TQM could be different for both, USA and China, due to their cultural differences. Thus, it is assumed that transactional leadership, rather than transformational leadership, could be a more effective driving force behind successful TQM practices, in the context of Chinese culture. Therefore, the following hypothesis is posited to test the relationship between the leadership styles of top management and TQM practices in the China-based firms:

**H3: In the China-based firms, transactional leadership has a more positive impact on TQM practices, as compared to transformational leadership.**

In order to expand our understanding of the relationships between leadership styles for TQM and
each TQM practice, in the China-based firms, we propose the following extended hypotheses, based on each component of TQM practices:

\[ H3a: \text{In the China-based firms, transactional leadership has a more positive impact on TQM-human resource management as compared to transformational leadership.} \]

\[ H3b: \text{In the China-based firms, transactional leadership has a more positive impact on TQM-customer focus, as compared to transformational leadership.} \]

\[ H3c: \text{In the China-based firms, transactional leadership has a more positive impact on TQM-strategic planning, as compared to transformational leadership.} \]

\[ H3d: \text{In the China-based firms, transactional leadership has a more positive impact on TQM-process management, as compared to transformational leadership.} \]

\[ H3e: \text{In the China-based firms, transactional leadership has a more positive impact on TQM-information & analysis, as compared to transformational leadership.} \]

**METHODOLOGY**

**Sample and Data Collection**

We collected the primary data through a survey research method to test our proposed hypotheses. The sample for this study consisted of both, the USA-based firms as well as the China-based firms, which were conducting quality management practices. We considered the following criteria while choosing the survey respondents: (i) only one respondent would be selected from each firm, (ii) the target respondents should be familiar with their quality management practices, and (iii) the position of the respondent in the organization (preferably a higher rank).

With respect to the data collection for the USA-based firms, a total of 269 emails were sent directly, through an online survey agency, directly to quality managers in over 31 states of the U.S. who were mainly in charge of quality assurance in their firms. Subsequently, we received a total of 112 usable responses from the USA-based firms, giving us a response rate of 41.63%. For the China-based firms, the survey research was conducted with the cooperation of the School of Management, at Northwestern Polytechnical University (NPU), which is one of the leading Chinese universities, located in Xian, the capital of the Shaanxi province, in China. On our behalf, they sent a version of the survey questionnaire, translated in the local language, to 180 quality managers of the China-based firms, which were involved in quality management practices. We received a total of 121 viable samples, giving us a response rate of 67.8%.

**Survey Instrument and Translation into Chinese**

A survey research begins by verifying the validity of the content of the survey instrument. The content validity concerns "the extent to which a measure adequately represents all facets of a concept" (Singleton & Straits, 2010: 139). To verify the content validity, we did a considerable preliminary literature review, in the fields of management leadership and TQM practices, and thereafter, developed the first version of our survey questionnaire. Then, this initial survey instrument was scrutinized in a pilot study (N=21), conducted along with several professors of operations management and some MBA students. As a result, we could identify some problematic items and questions. Meanwhile, a Chinese scholar who was also an associate professor of management science and engineering at NPU in China, was invited for translating
the English questionnaire to Chinese and directing the survey research in China. After these extensive reviews and pilot tests were completed in both, USA and China, we revised the survey instruments accordingly and developed the final version of the questionnaire, in both English and Chinese.

Our survey questionnaire consists of items pertaining to the leadership styles of the top management, elements of total quality management and some survey questions on the demographic profile of the respondents. All leadership-related items were imported from the “Multifactor Leadership Questionnaire (MLQ)” developed by Avolio & Bass (2004). The items related to the TQM practices were employed from the study by Samson & Terziovski (1999). However, in this case, some items were slightly revised to suit our research purpose. For each item, the respondents were asked to measure the extent to which they agreed or disagreed with the given statement, based on a five-point Likert scale.

VALIDATION OF THE MEASUREMENT MODEL

We used the structural equation modeling (SEM) as the primary analytical method to test our hypotheses in this study. The IBM AMOS software was employed for the process of data analysis. Since an SEM analysis can be conducted only after adequate reliability and validity of the measures has been established (Hair, Black, Babin, & Anderson, 2010), we first assessed the validation of our measures through a confirmatory factor analysis (CFA), and then tested the hypothesized SEM for our study.

Test for Reliability

Reliability is defined as “the stability or consistency of an operational definition, whereas validity refers to the goodness-of-fit between an operational definition and the concept it is purported to measure” (Singleton & Straits, 2010: 146). Hence, we conducted the following three validity tests: (i) reliability test of scales for each construct, (ii) convergent validity test for each construct, and (iii) discriminant validity test for each construct. The reliability of scales can be examined by calculating the value of Cronbach’s alpha coefficient for each construct (Cronbach, 1951; Nunnally, 1967). The values of Cronbach’s alpha for all the seven constructs exceeded the acceptable level point of 0.70 (Hair, Black, Babin, & Anderson, 2010).

Test for Convergent Validity

Convergent validity implies that all items consisting of a specific construct should converge or share a high proportion of variance in common (Hair et al., 2010). The size of factor loading is considered as a criterion for identifying whether the scale items converge on their assigned latent construct. Table 2 shows the final results of the CFA, after removing the items that could not satisfy the suggested threshold of 0.50 (Hair et al., 2010). Thus, the final measurement model demonstrates that all items, in the seven constructs have acceptable factor loadings, exceeding the suggested threshold of 0.05 as shown in Table 2. Further, the average variance extracted (AVE) of a value 50% or higher, is a good rule of thumb demonstrating acceptable convergence (Hair et al., 2010). We calculated the values of the AVE for each construct. The AVE estimate for each construct ranged between 51% for the construct of human resource management to 69%
for the construct of transformational leadership, implying that all seven constructs satisfy the adequate level of convergent validity.

**Test for Discriminant Validity**

Discriminant validity of a construct implies the extent to which each construct can apparently be recognized apart from the other constructs. The AVE estimates are also used to test the discriminant validity of the constructs by comparing the square root estimates of AVEs (Fornell & Larcker, 1981). That is, if the square root of an AVE is greater than any other related correlation coefficient, found in the columns and rows of the construct correlations matrix, the discriminant validity of the construct is acceptable (Fornell & Larcker, 1981; Jun et al., 2006). The test results for discriminant validity shows that all square root estimates of AVEs are bigger than any other corresponding correlation coefficient in the columns and rows of the construct correlation matrix. Thus, the discriminant validity of this measurement model can be regarded to be at an acceptable level.

**STRUCTURAL EQUATION MODELING ANALYSIS**

**Goodness-of-fit of the Model**

The goodness-of-fit of our model was assessed by several different fit indices such as the normed chi-square ($\chi^2$/df), the comparative fit index (CFI), the root mean square error of approximation (RMSEA), the parsimony normed fit index (PNFI), and the Tucker-Lewis coefficient (TLC). Table 1 summarizes the goodness-of-fit test results of the measurement models as well as the hypothesized structural models for the USA samples (N=112) and the China samples (N=121). As represented in Table 2, all tests meet our desirable thresholds for each fit index ($\chi^2$/df < 3.00; CFI > 0.90; RMSEA < 0.08; PNFI > 0.50; TLI is close to 1.00), showing that all models are a fully acceptable fit to their data (Bentler & Bonett, 1980; Mulaik et al., 1989, Bollen & Long, 1993; Byrne, 1998; Segars & Grover, 1998; Hair et al., 2010).

**TABLE 1: Model Fit Tests of Measurement Model (CFA) and Structural Equation Model.**

<table>
<thead>
<tr>
<th>Fit Index</th>
<th>Desirable Threshold</th>
<th>USA-based Firms</th>
<th></th>
<th>China-based Firms</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Measurement Model for USA (N=112)</td>
<td>Structural Model for USA (N=112)</td>
<td>Measurement Model for China (N=121)</td>
<td>Structural Model for China (N=121)</td>
</tr>
<tr>
<td>Chi-square ($\chi^2$)</td>
<td></td>
<td>257.683</td>
<td>272.461</td>
<td>218.142</td>
<td>246.425</td>
</tr>
<tr>
<td>Degree of Freedom (d.f.)</td>
<td></td>
<td>168</td>
<td>178</td>
<td>168</td>
<td>178</td>
</tr>
<tr>
<td>$\chi^2$/d.f.</td>
<td>$&lt; 3.00^a$</td>
<td>1.534</td>
<td>1.531</td>
<td>1.298</td>
<td>1.384</td>
</tr>
<tr>
<td>CFI$^a$</td>
<td>$&gt; 0.90^a$</td>
<td>0.934</td>
<td>0.930</td>
<td>0.943</td>
<td>0.922</td>
</tr>
<tr>
<td>RMSEA$^b$</td>
<td>$&lt; 0.08^a$</td>
<td>0.069</td>
<td>0.069</td>
<td>0.050</td>
<td>0.057</td>
</tr>
<tr>
<td>RMSEA 90% confidence interval</td>
<td></td>
<td>0.052-0.086</td>
<td>0.052-0.085</td>
<td>0.028-0.068</td>
<td>0.038-0.073</td>
</tr>
<tr>
<td>PNFI$^b$</td>
<td>$&gt; 0.50^b$</td>
<td>0.609</td>
<td>0.638</td>
<td>0.584</td>
<td>0.599</td>
</tr>
<tr>
<td>TLI$^d$</td>
<td>close to 1.00$^b$</td>
<td>0.909</td>
<td>0.910</td>
<td>0.921</td>
<td>0.898</td>
</tr>
</tbody>
</table>

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Test Results of the Hypothesized SEM for the USA-based Firms

The hypothesized model for the USA-based firms was tested by the SEM analysis using AMOS. Table 2 summarizes the hypothesis test results pertaining to the analysis of the USA sample data. As demonstrated in Table 2, all of the path coefficients between transformational leadership and TQM practices are not only positive (ranged from $\beta = 1.524$ to $\beta = 2.789$) but also statistically significant (ranged from $t = 2.363$ to $t = 3.215$). On the other hand, most of the path coefficients between transactional leadership and TQM practices are negative (ranged from $\beta = -1.051$ to $\beta = -2.338$) as well as statistically significant (ranged from $t = -1.746$ to $t = -2.327$), with the exception of the path between transactional leadership and TQM-process management ($\beta = -1.056$, $t = -1.618$). Although the relationship between transactional leadership and TQM-process management is not statistically significant, the path between transformational leadership and TQM-process management indicates a significantly positive relationship ($\beta = 1.524$, $t = 2.363$). Thus, these test results support not only Hypothesis 1 but also all its sub-Hypotheses (H1a, H1b, H1c, H1d, and H1e), showing that for the USA-based firms, transformational leadership has a more positive impact on TQM practices, as compared to transactional leadership.

### TABLE 2: Hypothesis Test Results for USA-based Firms (N=112).

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Path</th>
<th>Path coefficient ($\beta$)</th>
<th>$t$-value</th>
<th>$p$</th>
<th>Hypothesis test result</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1a</td>
<td>TFL $\rightarrow$ HM</td>
<td>1.952</td>
<td>3.155</td>
<td>0.002</td>
<td>Supported</td>
</tr>
<tr>
<td></td>
<td>TSL $\rightarrow$ HM</td>
<td>-1.051</td>
<td>-1.746</td>
<td>0.081</td>
<td></td>
</tr>
<tr>
<td>H1b</td>
<td>TFL $\rightarrow$ CF</td>
<td>2.763</td>
<td>2.840</td>
<td>0.005</td>
<td>Supported</td>
</tr>
<tr>
<td></td>
<td>TSL $\rightarrow$ CF</td>
<td>-2.141</td>
<td>-2.212</td>
<td>0.027</td>
<td></td>
</tr>
<tr>
<td>H1c</td>
<td>TFL $\rightarrow$ SP</td>
<td>2.474</td>
<td>3.215</td>
<td>0.001</td>
<td>Supported</td>
</tr>
<tr>
<td></td>
<td>TSL $\rightarrow$ SP</td>
<td>-1.656</td>
<td>-2.156</td>
<td>0.031</td>
<td></td>
</tr>
<tr>
<td>H1d</td>
<td>TFL $\rightarrow$ PM</td>
<td>1.524</td>
<td>2.363</td>
<td>0.018</td>
<td>Supported</td>
</tr>
<tr>
<td></td>
<td>TSL $\rightarrow$ PM</td>
<td>-1.056</td>
<td>-2.186</td>
<td>0.106</td>
<td></td>
</tr>
<tr>
<td>H1e</td>
<td>TFL $\rightarrow$ IA</td>
<td>2.789</td>
<td>2.829</td>
<td>0.005</td>
<td>Supported</td>
</tr>
<tr>
<td></td>
<td>TSL $\rightarrow$ IA</td>
<td>-2.338</td>
<td>-2.327</td>
<td>0.020</td>
<td></td>
</tr>
</tbody>
</table>

Test Results of the Hypothesized SEM for China-based Firms

The hypotheses for the China-based firms were also examined by the SEM analysis. The test results of each hypothesis concerning the data from the sample of the China-based firms are summarized in Table 3. The test results show that all the path coefficients between transformational leadership and TQM practices are negative (ranged from $\beta = -2.344$ to $\beta = -3.670$) as well as statistically significant (ranged from $t = -2.186$ to $t = -2.367$). In contrast to these results, all of the path coefficients between transactional leadership and TQM practices are not only positive (ranged from $\beta = 2.913$ to $\beta = 4.055$) but also statistically significant (ranged from $t = 2.691$ to $t = 2.862$). Therefore, Hypothesis 2 is not supported, rejecting the assumption that in the China-based firms, transformational leadership has a more positive impact on TQM practices as compared to transactional leadership, similar to the USA-based firms. On the other
hand, these test results strongly support Hypothesis 3 and all its sub-Hypotheses (H3a, H3b, H3c, H3d, and H3e), proving our assumption that in the China-based firms, transactional leadership has a more positive impact on TQM practices as compared to transformational leadership.

**TABLE 3: Hypothesis Test Results for China-based Firms (N=121).**

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Path</th>
<th>Path Coefficient (ß)</th>
<th>t-value</th>
<th>p</th>
<th>Hypothesis test result</th>
</tr>
</thead>
<tbody>
<tr>
<td>H3a</td>
<td>TFL → HM</td>
<td>-2.344</td>
<td>-2.186</td>
<td>0.029</td>
<td>Supported</td>
</tr>
<tr>
<td></td>
<td>TSL → HM</td>
<td>2.913</td>
<td>2.862</td>
<td>0.004</td>
<td></td>
</tr>
<tr>
<td>H3b</td>
<td>TFL → CF</td>
<td>-3.208</td>
<td>-2.239</td>
<td>0.025</td>
<td>Supported</td>
</tr>
<tr>
<td></td>
<td>TSL → CF</td>
<td>3.638</td>
<td>2.691</td>
<td>0.007</td>
<td></td>
</tr>
<tr>
<td>H3c</td>
<td>TFL → SP</td>
<td>-3.661</td>
<td>-2.364</td>
<td>0.018</td>
<td>Supported</td>
</tr>
<tr>
<td></td>
<td>TSL → SP</td>
<td>4.036</td>
<td>2.826</td>
<td>0.005</td>
<td></td>
</tr>
<tr>
<td>H3d</td>
<td>TFL → PM</td>
<td>-3.365</td>
<td>-2.305</td>
<td>0.021</td>
<td>Supported</td>
</tr>
<tr>
<td></td>
<td>TSL → PM</td>
<td>3.775</td>
<td>2.775</td>
<td>0.006</td>
<td></td>
</tr>
<tr>
<td>H3e</td>
<td>TFL → IA</td>
<td>-3.670</td>
<td>-2.367</td>
<td>0.018</td>
<td>Supported</td>
</tr>
<tr>
<td></td>
<td>TSL → IA</td>
<td>4.055</td>
<td>2.834</td>
<td>0.005</td>
<td></td>
</tr>
</tbody>
</table>

**DISCUSSION**

One of our primary research questions was, “How do ‘transformational leadership’ and ‘transactional leadership’ impact TQM practices differently in USA-based firms and China-based firms?” Our study results provide a simple answer to this research question. First, the test results of the hypothesized SEM, based on the USA-based firms’ sample, show that transformational leadership has a significant positive impact on TQM practices, while transactional leadership has a strongly negative impact on TQM practices. In contrast, the test results of the China-based firms’ sample show that transactional leadership has a positive and strongly significant impact on TQM practices while transformational leadership has a strongly negative impact on TQM practices. These results pave the way for new insights suggesting that the most effective leadership style for effective TQM could vary depending on the cultural backgrounds embedded in the firms, thus indirectly supporting the contingency theory view that lays emphasis on the fit between the firm’s strategy, structure, and environmental conditions, based on the notion that there is no one best way to organize (Lawrence & Lorsch, 1967; Donaldson, 1987).

Concerning our other two research questions, “Is the leadership style for effective TQM universal across national boundaries?” and “Can ‘transformational leadership’ be regarded as the isomorphic nature of TQM-leadership across international boundaries?” the outcomes of this study explicitly show that there is no universal leadership style for effective TQM and therefore, the ‘transformational leadership’ style must not be considered as the universal attribute of TQM-leadership which transcends international boundaries. In other words, our test results strongly raise a fundamental question about the isomorphic nature of TQM and the universal applicability of the TQM framework. Our findings also indirectly advocate the indications provided by Jun et al. (2006), that the conventional TQM framework has a fundamental problem because it was mostly based on survey data collected from the developed countries. Hence, the framework...
could be more generalized to companies in the developed countries than those in the developing countries.

There are some limitations to this study. First, the main motivation for this study, was to verify whether the universality of TQM practices actually exists. However, in this study, we have only focused on examining the universality of the leadership style for TQM. Furthermore, we investigated the validity of the isomorphic nature of TQM-leadership by comparing data from only two countries. Hence, we accept that the results of our study could be made more generalized by working on survey samples from other countries. In addition, we encourage future researchers in trying to verify the universal applicability of TQM in terms of various other TQM components.

CONCLUSION

In spite of these limitations, we believe that our study makes some meaningful contributions to the existing literature on TQM. Above all, while most of existing literature on TQM assumed that the most effective TQM-leadership style would be universal across organizational or international boundaries, findings from our study revealed that the most effective leadership style for the successful implementation of TQM practices is contingent on the cultural background embedded within the firm. Therefore, we foresee the findings of our study guiding future research on TQM, to lay a new path for finding solutions for not only optimizing the successful implementation of TQM, but also minimizing the current high level of TQM failures.

REFERENCES

References available upon request from Young S. Cho, ycho@utpa.edu, 956-665-7135