



Analyzing the effectiveness of quality management practices in China

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ABSTRACT

This study examines the effectiveness of different quality management practices in firms operating in China. Following March's framework, quality management practices are organized by two orientations—exploration vs. exploitation. We investigate whether exploitative-oriented quality practices are more effective than exploratory-oriented quality practices or vice versa in China. Data were collected from quality managers of companies located in seven areas in China. Structural equation models were used to assess the effectiveness of explorative quality practices and exploitative quality practices on multiple performance dimensions. Overall, exploratory-oriented practices contribute more towards most of performance goals than exploitative-oriented practices. We further explain the research findings from the national culture perspective in the sense that the current Chinese national culture profile is dramatically different from the traditional wisdom, particularly in power distance. The results provide an insightful guideline for quality managers to allocate scarce resources to make quality practices more effective in operations sites in China. It offers a new focus of launching quality management practices in a specific cultural environment.

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1. Introduction

Quality management (QM) practices have long been argued as being conceptually interdependent (Anderson et al., 1998; Flynn et al., 1994), yet empirical studies showed that the effects of some practices are significant while those of others are minimal (Dow et al., 1999; Foster, 2006; Powell, 1995; Sousa and Voss, 2008). Though this should not be interpreted as meaning one set of practices should be chosen over another, it in fact, may suggest that some QM practices are more effective than others under certain conditions and there exists a strategic focus in QM implementation.

Recent studies (Flynn and Saladin, 2006; Kull and Wacker, 2010; Metters, 2010; Naor et al., 2010) have drawn attention to national culture as a factor to influence QM effectiveness and to explain performance disparity. National culture is developed as a result of shared experiences of inhabitants of a nation, including educational, governmental and legal systems, family structure, religious patterns, literature, architecture, and scientific theories (Hofstede, 1994a, 1994b). Scholars argued that many QM implementations have failed because of the ignorance of culture factors (Flynn and Saladin, 2006; Kull and Wacker, 2010; Zhao et al., 2007).

Motivated by the potential influence from national culture perspective, we take the approach recommended by Metters (2010)

by looking deeply into a specific culture to explore whether certain QM practices are more or less effective. China caught our attention for three reasons. First, China has long been viewed of having a different cultural environment as compared to the Western countries where most quality management studies have been conducted (Metters, 2010). Second, the magnitude and rapidity of change in China's economic development is historically unprecedented and such economic development might have shaped the Chinese culture in one way or another. Yet, none of the literature provided an updated view of Chinese culture and the inferences based on the old cultural profile may be irrelevant or even misleading. Thus, studying this specific environment will provide more insights into how to effectively implement QM from a cultural perspective. Finally, as more and more foreign companies seek supply chain partners and locate their production sites in China, it is crucial to understand the Chinese culture and the corresponding implications to quality management practices to ensure a company to achieve its performance objectives.

The purpose of this study is to explore which type of quality management practices contribute more towards the desired operational performance goals for firms operating in China. In order to achieve the maximum benefit of quality practices, companies need to understand the different purposes of QM practices. Taking a one-size-fits-all approach to QM may not lead to optimal outcomes; and thus different companies may need different approaches to manage their quality programs.

Given that quality management is essentially a continuous improvement program with learning as its core, March's (1991) framework provides a useful lens to distinguish quality management practices into exploitative-oriented and explorative-oriented

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practices. Management scholars (Eisenhardt and Tabrizi, 1995; Sutcliffe et al., 2000) have theoretically argued that quality management practices also have these two fundamental orientations. On the one hand, organizations need exploitative-oriented QM practices that aim to control the known processes to ensure the consistency and efficiency of the outcomes. On the other hand, organizations need explorative-oriented QM practices that aim to explore the unknown and to identify and pursue novel solutions.

Companies typically implement a bundle of explorative and exploitative QM practices. While they can benefit from QM practices with both orientations, they may emphasize one over the other (Sutcliffe et al., 2000), which indicates the effectiveness of QM practices could be different. For instance, the effectiveness could be affected by a specific cultural setting. In a culture with low power distance, employees may feel more comfortable to come up with creative ideas and suggestions. Consequently, explorative-oriented practices may be more effective. While in a culture with high power distance, most employees tend to obey orders and focus on improving efficiency of the outcomes. Accordingly, exploitative-oriented practices may work better. Therefore, QM practices with different orientations could generate different performance effectiveness in different culture settings.

In this study, we find that explorative-oriented quality management practices contribute more towards most of the desired performance goals in firms operating in China. The seemingly counter-intuitive results are discussed from the perspective of adaptation of Chinese national culture. Post-hoc analysis on assessing Chinese national culture is conducted using Hofstede's (1980) seminal national culture framework; and the results indicate that China indeed experienced changes in some critical cultural dimensions. The results, in turn, provide evidence that culture could be a critical factor that influences the implementation of QM practices in different countries. As such, it enriches the literature of quality management from a cultural perspective. The findings are practically important to companies who use China as their production base or whose primary suppliers come from that area since our results offer them a strategic focus of improving performance through the implementation of different quality management practices.

2. Literature review and theoretical framework

QM consists of a set of mutually reinforcing principles, each of which is supported by a set of practices and techniques (Dean and Bowen, 1994). In a comprehensive review of quality practices in his meta-analysis, Nair (2006) found that some researchers used as few as four dimensions to capture QM practices whereas others used more than ten dimensions. Many studies have shown that not all QM practices contribute to performance improvement (Dow et al., 1999; Powell, 1995; Samson and Terziovski, 1999). Therefore, to achieve the maximum benefit of implementing QM practices, organizations need to understand the different purposes of QM practices.

In this section, we first introduce QM practices in two different orientations that serve the purpose of either exploitation or exploration in the implementation process and the relationships between them. We then discuss that the effectiveness of QM practices might be affected by the culture of a nation in which the firms operating, constraining the scope of this study to a specific research setting—China.

2.1. Exploitative-oriented vs. explorative-oriented QM practices

QM practices can be categorized into core and infrastructure practices (Flynn et al., 1995), people related practices vs. system

related practices (Dow et al., 1999), or control-oriented practices vs. learning-oriented practices (Sitkin et al., 1994). Each classification offers a distinctive angle to enhance our understanding of QM. In this study, we follow Sitkin et al. (1994) classification which was built upon the management theory of learning (March, 1991). Quality management is essentially a continuous improvement program with learning as its core; thus, applying theory of learning could provide new insights to understand QM practices.

March (1991) argued for two types of learning activities in an organization—exploitation of old certainties and exploration of new possibilities. Exploitation implies activities consistent with terms such as refinement, choice, production, efficiency, and execution; exploration includes activities characterized by search, discovery, experimentation, variation, and innovation. Following this dual perspective, Sitkin et al. (1994) stated theoretically that there existed two types of quality management practices: quality control and quality learning. This differentiation of QM practices has been further developed in some recent studies and the terms exploration and exploitation are used in those recent studies (Wu et al., 2011; Zhang et al., 2012).

Exploitative-oriented QM practices aim to ensure the consistency and efficiency of outcomes (e.g. practices for ISO9000 certification) through controlling stable and familiar processes; whereas explorative-oriented QM practices aim to explore the unknown and to identify and pursue novel solutions through experimenting, searching, and innovation. Take process management for example. As an important component of quality management, process management can be viewed of consisting of exploitative-oriented practices such as implementing statistical process control (Yang and Rahim, 2005) and explorative-oriented practices such as searching for innovative processes (Sitkin et al., 1994).

Though learning activities have different focuses and purposes, managers do not need to pursue one and sacrifice the other, organizational survival relies on both activities to obtain reliable performance and adaptability to change (March, 1991; Sitkin, 1992), which means that they can coexist synergistically. However, the effectiveness of learning activities requires that managers tailor the balance between exploitation and exploration so as to match the organization's inherent characteristics (Sitkin et al., 1994). As such, given the existence of the tension and the different strategic focus of different practices, organizations need to choose the "right" mix based on these orientations (March, 1991).

Similarly, firms implementing quality management use both explorative-oriented and exploitative-oriented QM practices, expecting both of them contribute to performance improvement (Sutcliffe et al., 2000). On the one hand, one kind of learning activity could facilitate the other kind, which indicates they are complementary and can coexist. On the other hand, the two types of QM practices have different purposes: while the exploitative-oriented practices emphasize waste elimination and variance reduction; the explorative-oriented practices need slack resources to explore new territory and require the system to tolerate variance to empower employees to try and fail. As such, they could fight for resource allocation of a firm facing limited resources. Consequently, their effectiveness (or strength) could vary. Appreciating both orientations helps decisions makers understand how they can adjust QM practices for different contextual settings.

2.2. Effectiveness of QM practices in a specific cultural setting

There has long been a debate over whether QM contains a universal set of management practices and principles that goes beyond cultural boundaries. Put alternatively, the effectiveness of QM practices may not be the same in different cultural environments due to differences in sociopolitical and socioeconomic

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