

**“The Way that Can Be Told of Is Not an Unvarying Way”:  
Cultural Impacts on Operations Management in Asia**

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### **Abstract**

This special issue is dedicated to Operations Management (OM) in Asia. A requirement for the special issue articles is that they have content related to the effects of national culture on OM. Here, the OM literature is combined with work from Anthropology and Women’s Studies to provide a wide view of the effects of various Asian cultures on OM. The basic premise is that OM decisions may need to take culture into account: some OM practices are altered or precluded by culture, while others are more effective in some cultures than others. Numerous examples are provided involving quality management, shift scheduling, revenue management, facility location, layout, supply chain strategies, and other areas.

Keywords: Asia, national culture, operations management

## 1. Introduction

Consider the following scenario faced by a U.S.-based operations manager in a Malaysian factory in the province bordering Kuala Lumpur: In the middle of an average workday, a worker “started sobbing, laughed and then shrieked. She flailed at the machine... she was violent, she fought as the foreman and technician pulled her away” (Ong 1987, p.207). The same thing then happens with other workers. Within minutes, 100 or more workers are screaming and beating on their machines. What is happening? What do you do?

“It is a common belief among workers that the factory is ‘dirty’ and supposed to be haunted by [an evil spirit]”. According to a worker, “a piercing scream from one corner of the shopfloor was quickly followed by cries from other benches as [workers] struggled against spirits trying to possess them. They would struggle so hard that sometimes ten supervisors could not control one afflicted worker.” “The factory shut down for three days and a spirit-healer was hired to slaughter a goat on the premises. The American director wondered how he was to explain to corporate headquarters that ‘8,000 hours of production were lost because someone saw a ghost’” (Ong 1987, p.204).

This was not an isolated incident. While nominally Muslim, many of the workers also believed that various spirits inhabited the world. Seemingly contagious “spirit possession” could take hold in Malaysian factories, shutting down operations. One management response could be to tell the workers “Get back to work – there are no spirits here” and to fire those workers hopelessly disruptive by virtue of their “possession.”

While potentially absurd to an outsider, interviews with these workers indicate that they believe possession by spirits truly has occurred, and may very well reoccur. Complicating matters, afterwards workers directly afflicted report no knowledge of the event occurring. Workers would not return to such a work environment, and the firing of a worker for being involuntarily possessed seems grossly unfair to them. An approach that is more culturally aware – and seems to work better – is to “call the *bomoh* [local shaman] to come, every six months or so, to pray, walk around. Then we take pictures of the *bomoh* in the factory and hang up the pictures. Somehow, the workers seeing these pictures feel safe, that the place has been exorcised” (Ong 1987, p.205).

While an actual documented account, which occurred at dozens of factories, the above experience may seem bizarre and jarringly out of context to Western – and even Eastern – OM researchers. It may be a unique aberration, but nevertheless emblematic of the critical role of cultural context on operational policy and associated contingency plan effectiveness.

Consider two examples that perhaps fit better into the realm of Western experience. Atlanta, U.S.-based Delta Air Lines and Home Depot both had failed experiments placing telephone call centers in India, withdrawing all Indian operations in 2009 and 2006, respectively. Interviews by the authors with Delta personnel indicated that many Indian call center personnel had never been on an airplane or even been to an airport. Consequently, the words not said by customers, the tacit communication from a customer who presumes a shared experience with the service provider, did not occur.

The Home Depot experience was similar. Management interviews revealed that all Home Depot incoming calls were answered in India for a 5 month period in 2006. Home Depot’s business is based on the “Do It Yourself” concept. That is, Home Depot sells the homeowner tools and materials, and homeowners perform home repair themselves. This concept fails in India in two dimensions: The “Do It Yourself” home repair concept is met with amusement, disdain, or revulsion. An appropriate concept in India – for those working at an

English speaking call center – is “hire someone to do it for you.” Further, the typical home in the U.S. is wood framed with sheetrock walls. The typical home in India for these workers is made from poured cement and brick. Consequently, the workers had no context to speak knowledgeably about Home Depot products. If given appropriate training on the use of thousands of products they are unfamiliar with, it is unlikely they would embrace the training, as the lack of a “do it yourself” culture leads them to have no desire to do so.

The incidents above point to difficulties in managing operations away from a home country. For this special issue, we focus on Asia. We consider difficulties due to conflicting cultures, customs, or conditions. A distinguishing feature of this special issue is that all manuscripts were required to have cultural content to be sent forward to review.

Our title, “the way that can be told of is not an unvarying way,” is the first line of the central Taoist philosophy book *Tao Te Ching*. While the meaning of this line is debatable, a central theme is that time and place matter, that what is truth for one set of circumstances is not truth for another. Our aim here is the reverse of most academic articles. Rather than finding generalizable principles, our thesis is that many operations management problems caused by cultural conflicts are often un-generalizable - they are particular to specific times and places. In addition to evidence from the business literature and from author interviews and observations with businesses, we also draw our evidence from the Anthropology and Women’s Studies literature. Typically, the methodology used in that literature is ethnography. The prototypical research design in the literature studied here is for the researcher to be a worker in a particular firm for several months. Consequently, the work is bounded by a particular place and a particular time. Traditional business researchers may call this a weakness, as specific results may not generalize to other areas of the world at the same time, or even the same part of the world at other times. The evidence we present will be dismissed as “anecdotal” to those who cling to the paradigm of generality in research findings. However, just as one exception to a rule disproves a rule, these “anecdotes” (or, as described by Anthropologists, ethnographic study findings) collectively disprove the meta-rule that operations management practice and research is culture-free. What is “generalizable” about our work is similar in nature to this quote from Voss, et al. (2004 p.214): “studies conducted in one country may not be generalizable to others because of national culture effects.”

We present evidence that such operational strategies and tactics of layout, location, assembly line balancing, shift scheduling, quality management, labor/capital balance, volume flexibility strategies and other decisions can be dependent on international differences such as culture (e.g., Malaysian religious views), custom (e.g., Indian workers without a “do it yourself” home repair attitude), or conditions (e.g., Indian workers unfamiliar with planes). Prior to providing that evidence, we present a discussion of culture and a review of culturally based operations management literature.

## **2. Cultures and Operations Management: The Case for Research**

A prevalent attitude in the West in general, and the U.S. in particular, could be summarized as “why should culture matter?” The magnitude of this belief was measured by Trompenaars (1993). Through factor analysis, the concepts of “universalism” and “particularism” emerged. Universalism can be described as “people believe that what is true and good can be discovered, defined, and applied everywhere” (Hoecklin 1995, p. 41). Particularism, alternatively, is a view that unique circumstances and personal relationships determine what is right and wrong. The U.S. was the most extreme “universalist” society

studied. As relates to this special issue, it seems fair to state that those who form their attitudes through U.S. culture – a large audience segment for this work – are more likely to believe that programs and methods that work well in one place can be easily exported.

The technical ability to offshore information technology enabled services became widespread in the late 1990's. The reduction in labor costs available by moving back-office work from higher cost nations such as the U.S. and U.K to lower cost Asian nations such as India and the Philippines is large, yet much of this work remains in the higher cost countries. There have been two surveys that provide insight into why this is so. A convenience sample of 60 executives involved in offshoring information technology services cited "cultural differences" as the most important "major problem" in offshoring services (Aelera 2004). A survey of 96 U.S. companies that had or were planning to offshore service operations was undertaken by Lewin, et al. (2005). The most cited "risk of sending work overseas" was "service quality," with "cultural fit" being second, cited by 59% and 58% of respondents, respectively.

While these surveys point to the importance of culture, the precise nature of culture's significance is ambiguous. A question unanswered by these surveys is exactly how and in what manner does culture impact operations? How do firms change their operations in response to cultural issues? The research question addressed here is how and in what form does culture impact operations.

Cultural issues have not escaped notice from the academic community. Several surveys underline the primacy of cultural issues in business in general and operations in particular. Lawrence and Rosenblatt (1992) surveyed operations management academics regarding teaching international issues. To the open ended question, "(w)hat international manufacturing and operations topics do you believe would be most important to include in Operations Management classes?" 31 topics were listed by the 101 usable surveys returned. "Cultural differences" received the largest number of mentions: 39 (the next largest was 28 mentions for "global logistics"). Another open ended question asked, "(w)hat research topics in International Manufacturing and Operations do you believe are worthy of academic attention?" Again, "cultural differences" was mentioned most frequently (17 respondents). However, there was a disconnect between importance and use. Asked what topics are covered in operations courses, "cultural differences" was listed only nine times, in 8<sup>th</sup> place among international issues. Further, there seems to be a lack of knowledge as to what "cultural issues" might be. The only "cultural difference" used as specific example in Lawrence and Rosenblatt is U.S. managers insisting local management speaks English (p.109).

Klassen and Whybark (1994) surveyed a mix of operations academics and practitioners on international manufacturing issues. From an initial list of 46 "barriers to international manufacturing," the category of "culture/language differences" received the most mentions. No specific examples of cultural differences were provided.

### **3. Culture and Operations Management: A Literature Review**

Culture can be a difficult term to define precisely. Hofstede (1980, p.260) defines culture as "the collective programming of the mind that distinguishes one group or category of people from another." Culture tends to be a latent construct that manifests itself through customs, attitudes, status symbols, and other means. Despite the definitional ambiguities, the business

literature contains numerous articles that explore how, or imply that, national culture is critical to managerial practices or organizational strategic adaptation.

A call toward the type of research offered in this special issue is made by McLaughlin and Fitzsimmons (1996 p. 56), discussing services globalization: “With globalization, the impact of cultural adaptation will need to be central to our study of [many] operational topic areas...”. Operations Management literature does have substantial international content, but often that content is not culturally informed.

A number of operations studies feature different techniques and attitudes that relate to culture. Most such studies with cultural content focus on consumer behavior (e.g., Youngdahl, Kellogg, Nie, and Bowen 2003). For example, Voss, Roth, Rosenzweig, Blackmon, and Chase (2004) explored the differences between how U.K. and U.S. consumers evaluate service quality. There are also studies on consumer behavior differences in industrial purchasing settings (Money, Gilly, and Graham 1998). Other literature regarding service operations and culture includes a general survey of service operations and “cultural adaptation” by McLaughlin and Fitzsimmons (1996) and the “International Service Study” of Roth, Chase and Voss (1997).

An essential difference in this work is that instead of viewing *consumer* cultural effects, we focus on the *production* of goods and services – that is, how culture affects how work is performed.

Prasad and Babbar (2000) reviewed 548 “international operations management” articles in 28 operations journals published from 1986-1997. Prasad and Babbar identified 32 articles involving culture, all of which focus on manufacturing. Summarizing cultural research in operations, Prasad and Babbar write (p. 230) “(o)ur review...highlighted specific areas that still need to be examined. For example, cultural influences could be examined in regards to facility location, capacity, productivity, forecasting, scheduling, aggregate planning, inventory control, services, and project management.”

Since that literature review, however, *Journal of Operations Management* (JOM) has taken a leading role in publishing culturally oriented work. Recent articles outside this special issue include, but are not limited to Youngdahl, Ramaswamy, and Verma (2008), Metters (2008), Stringfellow, Teagarden and Nie (2008), Jun, Cai and Shin (2006), Kaufman and Carter (2006), and Zhao, Sum, Qi, Zhang, and Lee (2006) and Flynn and Saladin (2005). Our current work is a step in moving this agenda forward.

#### **4. Specific OM Decisions Affected by Asian Culture**

So the question remains: Why does all of this matter for Operations Management? To help answer this it is worth considering the impact that such issues may have on a broad range of OM policy applications. In the discussion to follow we will be drawing on case-based evidence to help motivate an understanding of relevance to research and practice.

##### *4.1 Operational Compliance*

Opening this manuscript was the Malaysian factory issue. The operational problem involved was compliance – actually performing tasks that are supposed to be performed or agreed to be performed. The issue of compliance is one of the most frequently encountered difficulties Westerners face in dealing with Asian cultures. It typically presents itself when a Westerner believes that an Asian counterpart has assented to perform a task when no such assent actually took place: where “yes” does not really mean “yes” (Davis 2004, p.129).

To see the differences between Western and Eastern cultures in this area, we begin with an example from Hofstede (2005, p.87). It involves Western Christian missionaries attempting to convert Indonesians. There was a discrepancy when the Christians quoted the Biblical passage Matthew 21:28 “A man had two sons; he went to the first and said ‘Son, go and work in the vineyard.’ The son answered ‘I will not’ but later changed his mind and went. The father went to the second and said the same. He answered ‘I will go,’ but did not go. Which son did the will of the father?”

In the Christian Bible, the answer is given: the son who actually did the work was better. Acts are primary, words are secondary. Indonesians believed the opposite is true: the son who publicly disagreed with his father committed an unpardonable act. Throughout the East this issue of saving face is an important aspect of business relations. We use the Bible as a reference here to show that the view of this in the West is well entrenched culturally, as this verse was written approximately 1900 years ago.

If one changes the Biblical dyad from “father” “son” to “boss” “worker” the essential operational problems from cultural differences surface. A particular catastrophic result of this cultural difference was effectively shown by Gladwell (2008) in comparing the rates of airline crashes. The airplane “loss rate” per million departures between 1988-1998 was 0.3 for United Airlines, and similar for most U.S. carriers, but it was 4.8 for Korean Air. The primary reason attributed to the high loss rate was that subordinates to the Captain would not contradict the Captain at Korean Air, even though they believed the Captain’s actions were dangerous. “As one former Korean Air pilot puts it, ‘the captain is in charge and does what he wants, when he likes, how he likes, and everyone else sits quietly and does nothing’” (Gladwell 2008, p.214). A broad analysis of major airline plane crashes indicate that 70% were due to human error, with interpersonal failures between cockpit members the cause of the majority of accidents (Helmreich and Merritt 1998, pp. 11, 143). An international study of cultural values among 9,400 airline pilots in 19 countries (Merritt 2000) show there are extreme differences in cultural views of workplace communication. A main difference relevant here is a very high deference for authority – the authority of the Captain. In some cultures, the Captain’s actions are to be obeyed, not challenged. Due to the experience of Korean Air, among others, an industry and world-wide standard training program helping cockpit members appropriate challenge Captain’s actions was initiated. However, these attitudes die hard. Helmreich and Merritt (1998, p. 187) quote a Chinese pilot contradicting a trainer by stating “There are no circumstances when a first officer should challenge or disagree with the captain.”

In a broader academic sense, this behavior is usually associated with a high Power Distance Index or PDI (Hofstede 1980). The PDI measures the tolerance for inequality between hierarchical levels. A high PDI can be reflected in subordinates assenting to tasks they know will be detrimental, or assenting to tasks they have no intention of accomplishing, both conditions leading to operational compliance problems. There are 45 airlines that had both over one million flights from 1970 to 2007 (Airsafe 2009) and have home countries with Hofstede scores. The average fatal incident rate per million flights for airlines with a home country PDI  $\leq 50$  is 0.6 (N=23, std dev of the mean 0.1), as opposed to 2.7 for high PDI home countries (N=22, std dev of the mean 0.4).

#### *4.2 Revenue Management*

Casinos in the U.S. run their revenue management systems based on the "tracked play" of their customers. At casino hotels customer loyalty systems decide who gets the free room, free

meal, etc., based on how much they gamble. In the U.S., loyalty cards allow the casinos to track the amount of gambling. Before using a slot machine, the player swipes his/her loyalty card through the machine. Before playing a table game (craps, blackjack, etc.) the player shows the pit boss his/her card and the pit boss keeps track of their play and enters the information in the system (Metters, et al. 2008). The incentives for the gambler are clear: more tracked play leads to more free goods and services.

Macau, China, has become a Mecca for gambling. Gross gambling revenue in Macau is larger than in Las Vegas. In Macau, the vast bulk of gamblers are Chinese. Interviews with Macau casino managers indicate that the vast majority of Chinese gamblers refuse to have their play tracked. As a consequence, the same revenue management system that works in the U.S. doesn't work in China – the necessary input of tracked play simply is not there.

Two reasons have been given for the reluctance of Chinese gamblers to have play tracked, one cultural and one due to national circumstances. An executive at the Venetian in Macau – the world's largest casino hotel – states that while many Chinese love to gamble, it is considered shameful. Many ethnic Chinese will not work on the gaming floor as dealers or wait staff. According to this executive (interviewed January 2009), possessing a frequent gambling card to track play, “is like having a ‘frequent customer card’ of a prostitute.” Tsai (2007, p.15) notes a different characteristic: “people are afraid of getting too famous.” Due to the relative recency of capitalism and a rich/poor divide in the country, many people with means do not want to show off that fact. Further, they are afraid such information may bring them to the attention of the government and make them a target for taxation or prosecution for bribery, corruption or untaxed income.

Even for those Chinese gamblers who accede to having their play tracked, their play is tracked at lower levels than Western gamblers. A combination of culture and circumstances is at work here. The concept of the “hot table,” where gamblers are winning, and the psychic odds favor the gambler, is as ubiquitously felt as it is statistically dubious. However, according to interviewed industry executives, Chinese gamblers react more extremely to someone else's run of good luck at a differing table, quickly abandoning their own table and moving to the hot table. This is abetted by differing rules in Macau that allow back-betting, or placing bets on the hands of others. When Macau gamblers hear the roar of another table doing well, they rush off to place back bets on the hands of the hot gamblers, leaving the pit bosses who are tracking play unable to do their jobs.

For restaurants an important part of revenue management is the table mix (e.g., Kimes and Thompson 2005). Having the right table mix is essential to maximizing revenue. As an extreme example, having a restaurant full of tables that seat 10 when the party size is two can lead to a full restaurant with only 20% seat utilization. March (1992) reports that in Japan “you've got to go through this ritual where everyone has lunch together... Ten of us would set off to lunch... If all ten of us couldn't get in the elevator, we would all wait for the next one, or the next.” Likewise, the Macao casino VP previously quoted stated that “all my staff goes to lunch at the same time.” Consequently, a multi-national restaurant may not be able to simply replicate dining area architecture between cultures.

#### *4.3 Labor scheduling: Late night work and surge capacity strategies*

Many firms find it much more profitable to run three shifts and produce work 24 hours/day than to run just a day shift or a day and evening shift. Among other savings, running continuously allows the fixed cost of the machinery and the plant itself to be amortized over far

more volume. In simple, obvious terms, getting the same volume of a three shift plant requires three plants running one shift. Beyond running three shifts, a night shift is also preferable or necessary for work such as call centers in Asia that focus on Western customers. On a strategic level, sustained night activity from day or evening shift employees is desired as part of a capacity surge strategy.

However, the option to run a night shift is often precluded by culture.

To understand how, we must look at who in a society does what work. Many cultures strongly believe that certain work should be done by women and certain work should be done by men. Because of the motivations of women workers in many countries, operational choices involving shift scheduling, as well as quality programs, facility location, capital goods, and strategic options such as volume flexibility are affected. First, we discuss what “women’s work” is, then present the ramifications of this concept.

“Women’s work” is context dependent, but generally fine motor skill work involved in electronics factories and garment industry work is dominated by women in many societies. The reasoning behind why there exists “women’s work” is a cornerstone of the Women’s Studies literature and will not be addressed here. Rather than “why”, we focus on “what” and provide numerical examples to show its existence. Kim (1997, p.122) reports the workforce of an electronics factory in South Korea: 1,700 women, 100 men. The job hierarchy is strict: “women never perform the same jobs men do, and they are usually supervised by men. Women never supervise male workers” (Kim 1997, p.50). The vast bulk of the 100 men were management, the women performed assembly and were first line supervisors.

In the Malaysian electronics factors studied by Ong (1987, p.156), 801 unskilled and temporary workers were women, 5 men, whereas 65 of 67 of the workers at level supervisor on up were men with all the top 15 management slots filled by men. At a Taiwanese electronics factory the lowest level workers were entirely women, while upper management was entirely male (Kung 1983). In a Chinese electronics factory there were 384 female line workers compared to 19 men, but of the “engineers” the workforce was 29 men, zero women (Ngai 2005, p.146). In a more puzzling demarcation of gender roles, in a garment factory in India, “women sewed only ‘salwar suits’, pyjamas, and children’s clothes, while trousers were sewn only by men... Cutting work was also done only by men” though superior strength is not needed for these tasks (Unni and Bali 2002, p.134). These are not exceptional cases, they are the rule. In the absence of great strength required that would preclude most women, the reason for work being gendered appears cultural in nature: The culture deems certain work to be for men, other work for women.

Many societies have a low regard for women staying out at night, making a night shift socially difficult for women. The Women’s Studies literature is replete with cultural reasons for this. Largely, the arguments are that women who are out late at night are seen socially as sexually loose (e.g., Korea is discussed by Kim 1997, p.57) so the women themselves and their families strongly wish to avoid this connotation. Rather than make abstract arguments about cultural moral codes, consider: It was codified into law in India in the 1948 Factories Act (ER Law 2009), that “no woman shall be required or allowed to work in any factory except between the hours of 6am and 7pm.” Some Indian states have repealed this law, but it still exists and is enforced in others. In 2005 a state government (the state that, at the time, generated 70% of India’s BPO revenues) sent notices to call centers telling them that women were not allowed to work night shifts (Anonymous 2005). In 2004 a state supreme court upheld the ban on women working nights (Leela vs State of Kerala, 2009). Consequently, in cultures that do not care for

women to work at night, for work considered “women’s work”, the third shift is not a realistic possibility.

#### *4.4 Total Quality Management (TQM)*

The most thoroughly researched relationship between national culture and a specific operational practice is the implementation of Total Quality Management (TQM) programs. (A review and extension of such studies is in Sila and Ebrahimpour 2003.) The record is mixed. Several studies have come to the conclusion that national location matters (e.g., Metters 2008, Dalgaard, Kristensen, Kanji, Juhl, and Sohal 1998; Rungtusanatham, Forza, Filippini, and Anderson 1998; Roney 1997; Mersha 1997; Yoshida 1989), while others conclude that it does not (e.g., Rungtusanatham, Forza, Koka, Salvador, and Nie 2005; Mitki and Shani 1995).

A key to whether national culture has an effect or not may be the similarity of the culture in question to the culture of firm management. As noted by Roney (1997), “TQM is embedded with cultural values and assumptions which are consistent with its culture of origin.” In a well cited work, Hofstede (1980) numerically constructed several cultural dimensions. In a recent *JOM* article, Flynn and Saladin (2006) argue for the direct relevance of Hofstede’s constructs in evaluating the relevance of Baldrige quality award criteria. They found that (p.599) “Hofstede’s ... national culture dimensions were related to performance on every Baldrige construct, except for customer and market focus”. As a general rule, those studies that found that national culture matters studied nations that have very different Hofstede scores, while those that found that national culture does not matter studied countries with similar Hofstede scores. Tata and Prasad (1998) specifically state that the Hofstede construct of a high Power Distance Index create a difficult and hostile environment for implementing TQM. Separate from TQM, Kettinger, Lee, and Lee (1995) argue that there is a difference between Asian and European cultures that leads to a different conception of what service quality even means.

Anthropological research takes a different viewpoint. Rather than comparing TQM practices or results across cultures and determining a “yes/no” answer to the question “is TQM global?” the typical approach is to look more deeply into a specific culture to determine why certain practices may not be effective there.

A requirement for TQM programs is that the workers come up with suggestions for improvement. In many Asian situations with foreign management the status differences between the indigenous, young, female work force and the foreign, older, male management is so large as to make this requirement untenable. Further, the motives of the workers do not coincide with the long-term success of the firm. In a Korean electronics factory run by Japanese management, Kim (1997) reports that the average worker was an unmarried 20 year old Korean women. The single largest reason for working for the nearly entirely female work force was to save money for their dowry (Kim 1997, pp. 65, 75, 76). Over 90% leave their jobs when they get married, usually in their mid-20’s, with the telling remark that “any husband who wants his wife to work is not really a man” (Kim 1997, p. 79/80). Similarly, Ngai (2005, p.50) reports that the HR manager hiring nearly exclusively female electronics workers stated that “priority goes to ... [women] eighteen to twenty three, and who are single.” Women are expected to leave their jobs upon marriage (Ngai 2005, p. 6). Separately, surveys of South Korean women show that 94% employed in clerical and production positions quit work upon marriage (Brinton, Lee and Parish 2001).

The primary point here is that, unlike the lifetime auto assemblers of Japan and the U.S., the workers are not there for a career. Their mission is to work for a short time to make enough

money to achieve another objective and leave. As Kim (1997, p. 17) remarks, “factory work was a means to an end... they did not expect to be in the factories long enough to benefit from improvements.” Similarly in an Indian call center, Mitter, Fernandez, and Varghese (2004, p.176) quote a worker: “the main thing is that all of us want to leave at some point; so there is not much of an interest in improving things.” Secondly, in a situation where the workforce is entirely of the indigenous culture, young and female, and the management is of another culture, much older and male, workers communicating suggestions for changing processes to management is not a social reality.

#### *4.5 Facility Layout*

##### 4.5.1 Assembly Lines

The actual work spacing can be different from one country to the next. We hesitate to attribute this to “culture”, but it is a real difference that can be readily seen. In Chinese factories the authors have visited, a distinctive difference from U.S. factories is the silence. We have seen signs on the wall proclaim that no talking is allowed among workers. Ngai (2005, pp.81, 97) and Kim (1997, p.51) also note that talking between workers in Chinese and Korean factories they studied was prohibited. A manager of a Chinese factory stated to the authors in a 2008 plant tour that their layout was specifically arranged to minimize the opportunity workers had to speak to each other.

The number of stations in an assembly line and the cycle time of tasks is also different in the Chinese factories that the authors have experienced compared to Western factories. The assembly line at a shoe manufacturer had an assembly line between 400 and 500 work stations long, depending on the model. The authors have measured the cycle time of work at many Chinese factories to be frequently in the range of 4 to 30 seconds. Schonenberg (2008) also noted the Chinese factories he visited to have work cycle times of 10 seconds.

##### 4.4.2 Dormitory Labor

Labor is certainly less expensive in many Asian countries than in many Western countries. However, there are many labor markets in Asia where the cost of labor is only one factor: in addition to building a physical plant to manufacture goods or deliver services, dormitories must be built to house workers. Further, worker cafeterias and recreation areas must be provided.

Worker dormitories are found in Thailand (Balakrishnan 2002), Korea (Kim 1997), and throughout Asia, but most especially in China. As a test of capitalism in China in the early 1980s, “Special Economic Zones” (SEZs) were established for privately held factories. The first was in Shenzhen, a city in Guangdong Province, which borders then-English controlled Hong Kong and is across a narrow waterway from then-Portuguese controlled Macau. Harney (2008) reports that in 1980, Shenzhen was a rural fishing village in the Pearl River Delta with 20,000 people. It is now a metropolis of 18 million (population estimates in China can be unreliable, but the order of magnitude is accurate). Population growth in Shenzhen in particular, and Guangdong Province in general (from 53 to 110 million from 1980 to 2005), is attributable to migrant labor. This is not migrant labor in the same sense as seen in the agricultural U.S. Workers in Guangdong work, eat, and sleep at the company – it is typical for firms to have company run dormitories, sometimes loading a dozen workers to a room. This is not just in the manufacturing sector: the authors have stayed at hotels in Guangdong that have dorms for their workers. The workers are often hundreds of miles from their ancestral homes and relatives, to whom many want to return and to whom they send excess cash. The dreams of many of these workers is to

make enough money in the SEZ to go back home to a better life (Harney 2008, Smith 2003).

In portions of these countries, the provision of worker dorms and cafeterias that serve three meals per day are necessary parts of the corporate campus layout. In China, the dormitories are necessary to a lack of close-by housing. In Korea, Kim (1997, p.27) states that many workers greatly desired to live in company dorms, rather than nearby apartments, because the dorms had strict rules on behavior such as going out at night or female workers having male companions. These known, strict rules acted to protect the sexual reputation of these women who were largely there to earn money for dowries in the first place.

#### *4.6 Facility Location*

The locations of firms mentioned in the previous section would indicate that large expanses of land are needed – since dorms and cafeterias must be built in addition to plants. Pakistan, on the other hand, has the reverse problem: “factories” in many industries would not be built. Instead, for what is considered “women’s work”, the women have cultural prohibitions against doing work outside the home, but many thousands do the same work inside their homes. According to a survey by Khattak (2002), 33% of women workers prefer home-based work even though the pay is less because they “don’t think it’s right” to work outside the home, while 52% state that there would be objections from family members to working outside the home. Khattak (2002) also reasons that working outside the home for women has transportation difficulties not seen in other cultures. Due to cultural and religious prohibitions against public contact between men and women, only the front rows of buses can practically be used by women, and those front rows are often full, causing them to miss a particularly timed bus. Even when they sit in the area specifically designed for women, the buses are physically small, and the male bus drivers’ hand can frequently come into contact with them as he shifts gears, which is an unacceptable contact between genders.

As a consequence, though the low wages of Pakistan are attractive for international business, modern equipment cannot be used. Women workers use equipment in their own homes for work. Work by nature must be paid by piece-rate, since supervision is impossible, and assembly lines cannot be accomplished.

Some differences in OM decisions are a matter of differing international situations, rather than culture, yet they are still differences that make decision making different. In China, Wal-Mart found that their U.S. strategy of locating stores in smaller communities did not work (Wang 2006). The lower income of the populace could not support a store, plus a large percentage of their customers were arriving on bicycle, rather than by car, which limits both the amount of mileage from store to home that is feasible as well as limiting the amount of goods a customer can buy.

#### *4.7 Inventory*

U.S. based Home Depot has opened a dozen stores in China. However, interviews with both the CEO of Home Depot China and the CEO of the parent company in the U.S. indicated that the concept is entirely different in the two countries. In the U.S., the motto is “Do It Yourself,” and the prototypical customer is a homeowner making repairs. Consequently, shelves are stocked with large numbers of each SKU. According to our interviewees, in China the motto is “Do It For Me.” The prototypical customer is someone who has purchased a bare apartment and wishes to furnish it all at once. The apartments are truly bare, without plumbing, cabinets, refrigerators, carpets, etc. Home Depot provides interior decorating guidance. The Chinese

stores carry nearly identical SKUs to the U.S. stores in terms of fixtures, but need only one of each – they are display models. Delivery and installation of a large number of items takes place a month later as the apartment is constructed.

#### *4.8 Relationship Management & Supply Chain Interactions*

Supply chain partners often influence each other through the use of relative partnership power. However the effectiveness of different types of power in influencing relationship commitments and supply chain integration will depend on the cultural values of the supply chain partners. Zhao et al. (2008) found that “expert power” was very effective in enhancing normative relationship commitment in China. Furthermore, “reward power” had positive effects on both normative relationship commitment and instrumental relationship while it was found to negatively influence normative relationship commitment in the U.S. (Brown et al. 1995). Zhao et al. (2008) called for more cross-cultural investigations of the moderating effects of culture on the impacts of powers on relationship commitment and supply chain integration.

The particular supply chain strategy of JIT may suffer from some cultural issues. However, overwhelming the culture is the context. Regardless of whether the cause is culture or context the JIT strategies employed in one country do not always transfer to another. Kabeer and Mahmud (2004, p.142) state that the infrastructure, frequently flooding, port congestion and other issues prevent a JIT strategy in Bangladesh. Wal-Mart has a considerable advantage in logistics over its competitors in the U.S., but found that the same logistics approaches did not work in China (Wang 2006). Far less centralized procurement is used in Wal-Mart’s China stores compared to the U.S. due to differing road networks, internal border crossing regulations, and consumer tastes: “fresh” meats mean meats packaged recently in the U.S., while “fresh” means “alive” in China (Wang 2006, p.15).

#### *4.9 Choice of Governance Mechanism*

While outsourcing has becoming a widely used method for western firm to enhance competitiveness, Chinese firms have been increasing the degree of vertical integration. One of the authors of this article has observed that many of the electrical appliance manufacturers in China often have 80 to 90 percent of their parts made by their own factories which are located very close to the final assembly line. Executives in these firms are proud to tell other people that they employed two to three hundred thousand people in the town through their factories. Through vertical integration, they provide jobs for people in local community, reduce costs, and improve quality, delivery and flexibility simultaneously through better supply chain integration. Furthermore, they also gain knowledge in product and process design. An increased degree of vertical integration is being observed in Chinese manufacturers while Western companies are increasing outsourcing.

### **5. Specific OM Decisions Affected by Asian Culture – Articles in This Issue**

In total, 61 manuscripts were submitted to the special issue. To forward manuscripts to referees, it was required that there be cultural content. Many otherwise fine manuscripts did not meet this requirement. The result was that 20 manuscripts were sent to referees. All seven accepted manuscripts went through at least two rounds of review. These manuscripts are briefly described here.

It was noted that in the case of airline pilots, a high Power Distance Index (PDI) could lead to negative results. It should also be stated that a high PDI can also have positive

operational ramifications. In this issue, Hahn and Bunyaratavij (2010) show that countries with higher PDI were associated with a greater psychological alignment toward success in services offshoring. They argue that “In terms of offshoring of services, the real-time ability to understand ‘the customer is always right’, and the ability to continuously treat customers both with respect and appropriate deference to their desires may be especially important. Conversely, a services provider who puts his/her own opinions and perspectives on equal footing with that of the client may tend to foster a negative reaction in clients” (Hahn and Bunyaratiavij 2010, p.XX).

However, finding relationships to known cultural dimensions such as PDI is dependent on who is studied. Naor, Linderman, and Schroeder (2010) find mixed results, specifically with performance in Eastern versus Western manufacturers not related to PDI, and organizational culture being independent of national culture in many areas.

TQM has been directly studied against a cultural backdrop. Kull and Wacker (2010) argue that cultures with different values do not directly affect quality performance, but instead create an environment for which TQM will be more or less effective. Their results show that Asian countries vary substantially in TQM effectiveness. They test TQM effectiveness against measures of cultural attributes. A main finding is that cultures that are more threatened by unpredictability (termed “uncertainty avoidance”) are more amenable to the process controls and standardizations present in ISO 9000 and Six Sigma. Schoenherr, Power, and Samson (2010) show evidence that Asian cultures that are more collectivist (defined by Hofstede (1980) as considering the group as the primary unit of concern, rather than the individual) are more likely to invest heavily in the team-based improvement programs involved in successful TQM programs.

Cai, Jun, and Yang (2010) explore how some idiosyncratic aspects of China affect supply chain relationships. The main cultural aspect explored is the well-known concept of guanxi, or long term personal relationships. However, Cai, Jun, and Yang state that, beyond culture, the particular legal system and type of corporate /local governmental relationships found in China also shape how suppliers and buyers interact. They argue that, though legal protection and government support are not cultural factors per se, they relate closely to Chinese national culture, that Chinese culture relies on “government by man” rather than “government by law.” This entails that culture causes supply chain contracts to be structured differently than in the West.

Lockstrom, Schadel, Harrison, Moser, and Malhotra (2010) provide a picture of contemporary Chinese supply chain practices in the auto industry through extended case analyses. As an overall characterization, practices that differ from the West include the amount of planning that is manual. In the West, electronic tools such as e-sourcing and EDI are common, while in China the telephone is the most used tool. Joint product development is a rarity, and suppliers tend to be reactive, rather than proactive. In an interesting observation highlighting the difference between Chinese and other auto supply chains, Lockstrom, et al. (2010 p.XX) quote a purchaser in the auto supply chain stating “JIT is not possible in China.”

Li, Li, Liu and Yang (2010) noted that emerging economy suppliers often have difficulty obtaining contracts that require innovation. They studied Chinese suppliers of Western manufacturers. The claim being that among the Chinese suppliers the normal mode of operation is trust based (i.e., guanxi), while in contrast the Western firms that prefer to operate on more formal contracts. Their work highlights the compromises firms can make between those governance modes to increase innovation, that modes of trust and formal contracts can be both complements and substitutes under different conditions.

## 6. Conclusion

The main point of this article is that time and place matter in OM. That there are operational decisions that are appropriate for some instances but not others due to cultural issues, and that there are different operational challenges in different parts of the world. The audience for this article is not predisposed to view this argument positively. Most of the OM scholars writing for *JOM* reside in the West, however as shown in Figure 1, a large percentage of the readers of *JOM* are outside the West. The countries shaded in purple/light in Figure 1 collectively account for 26.2 percent of article downloads in 2009. Culturally, the U.S. is the most “universalist” country studied in the world (Trompenaars 1993), with other Western countries also high on the universalist scale. For our purposes here, that means people from these nations are more likely to view the world as having rules than transcend culture. Further, we are trained by our doctoral programs to find generalizable principles – to run the numbers and separate the signal *from* the cultural “noise.”

However, by embracing cultural differences and exploring the operational consequences scholars can further the field of OM. The typical OM scholarly work regarding culture is set up to answer the question “does culture matter?” and measuring by how much, or counting which OM techniques are used more where. Studies in international operations have centered around standard manufacturing practices around the globe. The major efforts in this area would include the Global Manufacturing Group, led by Clay Whybark of the University of North Carolina; the High Performance Manufacturing studies of Roger Schroeder at the University of Minnesota, and the data collection efforts of Boston University’s Manufacturing Roundtable, among others.

Here, we suggest a different research approach may yield results: An approach that determines how and why culture matters. We have provided evidence that culture can matter in a wide range of operational decisions: Location, layout, shift scheduling, revenue management, and many others. What is needed from OM researchers is more attention to behavioral issues relating to operations, in much the same way that the field of finance has expanded its boundaries into behavioral finance. Further, the broad studies mentioned above, and this article, still focus largely on manufacturing. Clearly the service economy should receive more attention.

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Figure 1: Percentages of Total Paper Downloads by top countries – Western and Non-western

