Cultural Research in the Production and Operations Management Field

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ABSTRACT

We summarize and categorize Operations Management (OM) research on two inter-related types of "culture": exogenous, or national culture and endogenous, or organizational culture. OM cultural research is far less than one percent of total OM research. We posit that of that small amount, much of OM cultural research is based on numerical approaches that have questionable validity. Qualitative work is highlighted. In addition to being a guide for research, this article is meant to provide substantive examples for teaching the importance of culture in OM.

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1

Introduction

"I don't get it. Why should culture matter?"

This question was posed by a tenured professor of Operations Management (OM) at a top 100 world business school. It was not rhetorical. The context is that he truly believed culture simply did not matter in OM. This is not an unusual viewpoint. Our methods and even our basic goals serve to blind OM academics to cultural effects. We believe there are some excellent reasons for OM researchers, at a minimum, to be aware of culture. Better yet, we would like to see faculty develop the passion to pursue the under-researched relationship between culture and OM.

Certainly, theory can be advanced by studying culture and OM. However, the link to practice is particularly strong. Understanding culture is vital to actually implementing OM theory in business practice. All our journals proclaim a main goal of improving practice. In the inaugural issue of *Production and Operations Management* (POM), the editor-in-chief (Singhal, 1992, p. 1) stated "our objective in publishing this journal is to improve practice." "Practice-driven research" remains a key objective for POM (Singhal *et al.*, 2014). The "journal editorial statement" for *Management Science* likewise states that "(a)n

acceptable manuscript must be relevant to the practice of management" (INFORMS, 2017). "The mission of *Journal of Operations Management* is to publish . . . research that demonstrates both academic and practical relevance" (Elsevier, 2017). The editor-in-chief of *Manufacturing & Service Operations Management* wrote an entire article on the need for OM research to be more relevant to practice, decrying our current state and answering the following question (and article section title) negatively: "(i)s OM research relevant to practitioners?" (Tang, 2015, p. 179).

In sum, the OM community states that improving practice is central. Consider the evidence on the centrality of culture to practical application.

In 1994, *Management Science* dedicated a special issue to the question "Is management science international?" The special issue editors concluded that

> (w)e find language, culture and fundamental beliefs are important . . . Truly universal rules are very few . . . Technical, closed models are more universally valid than social, open models; however, the technical closed may not be universally relevant as a normative managerial solution.
>
> (Aharoni and Burton, 1994, pp. 1–2)

A list of 46 potential "barriers to international manufacturing" were sent to a world-wide group of experts by Klassen and Whybark (1994, table 2). The #1 barrier was "culture/language differences." A survey on services offshoring (Lewin and Peeters, 2006, p. 227) found that the most cited "risk of offshoring" was "quality of service," with "lack of cultural fit" second. The practitioner survey of Crane *et al.* (2007) found that "culture problems" were the most cited "major problem" in offshoring service operations. To be blunt, if we believe our math models and precise calculations can be implemented without considering culture, the only people we are fooling are ourselves.

Additionally, businesses now find themselves dealing with cultures outside their own to a greater extent than at any time in history. In 1970, 27% of world GDP involved foreign trade. In 2017 that figure is 72%.

The US in particular is a physically large country with considerable domestic business, which insulates it somewhat from national cultural contact, but foreign trade is 27% of GDP in 2016, up from 11% in 1970 (World Bank, 2019). OM practitioners are coming into contact more and more with suppliers, co-workers, and customers from different national cultures. Putting these two concepts together, cultural issues are important in managing operations across national lines, and such management is now ubiquitous.

The role of culture in teaching OM has also been noted. Starr (1997), Whybark (1997), and Lawrence and Rosenblatt (1992) all concern themselves with teaching international operations, and all conclude that teaching national culture is important. Culture is also an important topic in understanding how our world of work was shaped: in a back and forth discussion Schmenner (2001a,b) and Singhal (2001) argue about the role and importance of national cultural characteristics in shaping which countries benefited and for what reasons from the industrial revolution.

The foregoing examples concern national culture. The OM research community also has recognized the importance of organizational culture, and has made it clear that organizational culture impacts the decision making of operations managers (e.g. Prajogo and McDermott, 2005) and the efficacy of operational practices (e.g. Pagell *et al.*, 2014). Organizational culture is important to practice and a critical explanatory variable in OM research. (The page count in this manuscript is weighted to national culture rather than organizational culture, as Marshall *et al.* (2016) in a sister article focused solely on organizational culture and OM.)

Something as fundamental as the goals of OM research can create a (mistaken) prejudice against engaging with culture. The first sentence of the *Management Science* special issue addressing "is management science international?" stated that, "(I)n management science, as in all of science, a fundamental issue is the generalizability of what we know" (Aharoni and Burton, 1994). This very goal of generalizability can be seen as diametrically opposed to doing cultural research. The goal of a large cache of cultural research in other academic disciplines (e.g., Anthropology) gives the appearance of the antithesis of "generalizability."

The goal is, instead, "specificity," or demonstrating that a specific time and specific place matter. While culturally based, numerical, explanatory variables are used in OM cultural research, much of what cultural understanding brings is explanatory power to what is on the other side of the R-squared. What is "generalizable" about some of this 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."

OM cultural research can be generalizable, but in a different manner than OM researchers are used to. We are accustomed to content, or topical generalizability (e.g., do these five practices create a successful quality management application?). Cultural research can lead, instead, to *context* generalizability (e.g., given the national culture of country X or the organizational culture of company Y, we predict these three quality management practices will work, those two won't). As a practical matter, we strive to proactively, and with skill, "avoid blindly adopting the same practice everywhere" Weingarten *et al.* (2011, p. 574).

National culture may seem to be truly a contextual variable for operational decision making, yet clearly firms can and do function in national cultures that differ from their own organizational culture, or which are not a good fit for their practices. So, while future OM research may not be able to directly change national culture, it can and should engage with it and understand how operations managers adapt and manage in different national cultures. As an example, Metters (2008) presented a case where traditional quality management principles failed for 15 years due to national cultural issues. Changing the corporate culture caused the revitalization of the quality management initiatives and made them a success (see Section 6.1).

Researchers in other disciplines have explored and uncovered numerous sub-cultures and climates within organizations. For instance, there is an expansive literature on safety culture (Guldenmund, 2000; Zohar, 1980). Yet there is little literature on cultures in the operations function and almost none on the culture of a supply chain. Future OM research can do more than just describe the elements of culture, it should prescribe how to create cultures both internally and across a supply chain.

The methods in which OM faculty are trained and what OM researchers call "evidence" militate against serious study of culture. Math modeling is not the dominant tool used to study culture. It is our thesis that OM researchers suffer from a methodological orthodoxy with roots in modeling that limits the types of cultural research we do and what we can discover. Specifically, cultural studies in OM are often quantitative and use enumerated, separable dimensions of culture (to be discussed later) as independent and fixed variables. That is, there is a bias for quantitative measures and techniques, and even cultural research must be seen to be quantitative. A POMS Fellow once told one of the authors that an article using ethnographic techniques was "a nice story, but not research". The article was subsequently published in *International Journal of Operations and Production Management* (Metters, 2008). Other members of our field offer a different view: Singhal and Singhal (2012a,b) exhort OM to break free of the dominant math modeling paradigm as it has "constrained development of the discipline" (Singhal and Singhal, 2012a, p. 239).

Here, we explore the OM literature in national culture and organizational culture and point the way for increasing the breadth of the OM field by incorporating this perspective.

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The Role of OM in World Trade: The Need for OM Cultural Research

This section is devoted to demonstrating the current need for OM cultural research that simply did not exist in the past. The basic argument is that, due largely to OM inefficiencies, the vast bulk of business activity did not involve contact between cultures in decades past. As a consequence, OM researchers could safely avoid the topic of national culture – let's give the OM faculty of the 1970's a pass. However, those days are over. Structural changes in technologies now mean that inter-cultural contact in business is only going in one direction. The limiting factor in international trade will be cultural understanding.

International trade has been a theoretical economic entity since David Ricardo published the theory of "comparative advantage" in 1833. Wage differentials between countries have always existed – but historically the world has had difficulty accessing the cheaper labor available 5,000 miles away. Consider some minimum wages around the world today (source: WageIndicator.org 2019).

Minimum hourly wages in selected countries (converted to nominal US dollars):

Australia	$14.56
Bangladesh	$ 0.09 ($0.36 for garment workers)

Barbados	$ 3.13
Botswana	$ 0.29
China	$ 0.85
Colombia	$ 1.27
Honduras	$ 1.08
India	$ 0.31
UK	$10.49
USA	$ 7.25

It should be noted that not all workers are paid minimum wage. Many are paid far less. The World Bank (2011) estimates 100 million people worldwide do industrial work in their homes and are paid for piece-work often at one-half or one-quarter of the minimum wage. Further, lower wages prevail in the "informal," cash-only economic sector beyond the reach of the government. For example, the government of Peru estimates 66% of their economy is in the informal sector and not subject to wage laws (Segura, 2018). However, for most of the time since the industrial revolution, transportation/logistics costs were so high that they prevented access to differential labor rates for many industries. We divide the discussion as to why that was, and why it is no longer so, between manufacturing and services.

By volume 90% of the world's manufactured products travel by ship. In recent years shipping costs have radically declined and shipping speed has substantially increased. In 1959 25% of the cost of many products were accounted for by shipping (Levinson, 2006, p. 8). But now, transportation costs have become almost trivial for some products. In 2017 space in a trans-Atlantic ship could be had for $40/ton. The concept of "containerization" completely altered the economics – and operations – of trade in goods. Prior to shipping goods by cargo containers, longshoreman with strong backs manually stacked and shifted small quantities of goods on ships. When unloaded from a ship, the cargo had to be re-transformed for intermodal travel by rail or truck. Widespread containerization of shipping has only taken place since the 1990s. The operating cost of a ship generally only doubles as the ship volume triples, so bigger is cheaper. The largest container ships in 2018 can carry 21,000 TEUs (Twenty Foot Equivalent Units, the standard

measure of a container), and there are roughly 170 such ships in the world (Anonymous, 2018). In 1968 world-wide capacity was only 50,000 TEUs (Levinson, 2006, p. 221). In 1990 the 20 largest container ports in the world handled 31 million TEUs combined. The total in 2003: 144 million (Levinson, 2006, p. 273). In the "old days" of the 1980s the loading/unloading process of a large merchant ship could take weeks. Cranes can now unload two containers per minute, and there are often four simultaneous cranes working on a ship, so the unloading time for any one ship is typically just a day. This reduction in time means less safety stock is needed and quicker reactions to market conditions can be achieved.

The upshot for international OM: As recently as the early 1990s T-shirts for sale in the US were made in Kentucky and Tennessee. In 2019 they are made in Bangladesh. Even a 100% tariff on T-shirts would cause the relative labor cost difference to be \$7.25/hour in the US versus \$0.68/hour in Bangladesh.

Many services in 2019 are protected from international competition due to the need for customer contact – but that list of protected services was far larger in 1990. Services that we consider today "electronically transmissible" and available for offshoring were not considered vulnerable in the past. A short time after 1990 internet browsers were developed, transmission speed increased immensely, and costs associated with electronic transmission of voice and documents went through the floor. The world-wide capacity for services offshoring can be demonstrated by the capacity of communications equipment. In the mid-1960s it was only possible to have 138 simultaneous telephone calls between North America and Europe (Hayes, 2008) and 128 simultaneous calls between North America and Asia (Submarine Cable Networks, 2019). Fiberoptic cable is the backbone of the web. In 1992 there was 1 GBPS (gigabyte per second) of cable capacity in the Atlantic Ocean. By 1996, there were 11 GBPS available (Hayes, 2008). By 2014, there was 16,000 GBPS in the Atlantic Ocean and 14,000 GBPS of capacity in the Pacific Ocean (VisualCapitalist, 2017). As a consequence of this 1000-fold increase in capacity US tax returns are now completed in India, traffic tickets handwritten by New York City police are entered into computer systems

in Ghana, and radiologists residing in Israel take the night shift (day for them) at Iowa hospitals.

The point being that containerized ships and the internet will not go away. The level of international trade is destined to increase. The question to ask now, 15 years after a phone call to India went from costing $1/minute to being essentially free, is why are not all US/UK call centers located in India, where high IQ workers labor for a fraction of the Western wage? The answer is clear to the authors: culture. Let us take an example of a US call center moved to India that found cultural obstacles insurmountable.

2.1 Example: Reshoring – Moving a Call Center from the US to India and Back

As noted earlier a wave of technological change allowed high-wage countries to offshore a variety of services starting in the mid-1990s. A decade later there were a considerable number of academic papers on the subject. A reverse trend now has emerged: firms that have offshored operations to low-wage countries are bringing them back home, or "reshoring." Recall practitioner surveys (Crane *et al.*, 2007; Lewin and Peeters, 2006) have noted that cultural differences were a major hindrance to offshoring. Nonetheless, research on this topic by Arlbjørn and Mikkelsen (2015), Bailey and De Propris (2014), Fratocchi *et al.* (2016), Gray *et al.* (2017), Moradlou *et al.* (2017), Tate (2014), and Tate and Bals (2017) and many others did not mention cultural differences leading to reshoring decisions. (The cultural research version of "seek and ye shall find" is apparently, "you will not find if you do not seek.") In a detailed review of the reshoring literature Fratocchi *et al.* (2014) categorized extant research by 30 potential reasons for reshoring. "Cultural differences" was not among them. However, it should be noted that they reviewed instances of reshoring from "analyses of secondary data extracted from newspapers and magazine sources" rather than interviewing decision makers.

Here we describe a case in reshoring that clearly was due to cultural issues.

Figure 2.1: Compound miter saw.

Many call centers serving UK and US firms have been successfully opened in India. The typical call center worker in India serving English speaking customers is fluent in English, and popular lore has it that they have a higher dedication to the job – and a higher IQ – than their call center counterparts in the West. Interviews by the authors with call center management in the US and India indicate that employee turnover is far less in India.

However, while most Indian call centers succeed, some do not. The statistically based methods of OM give us no guidance on which ones would fail. That is too idiosyncratic and non-generalizable for OM research methods, which are based on some overall country-wide score, to be able to answer. Given a "country" score, either all call centers should succeed in a country or they all should fail. But culture is simply too nuanced for such a broad-based theory.

One of the authors has shown Figure 2.1 in presentations at two conferences, seven US and Canadian universities in the context of research presentations to faculty, and to over 20 classes of students (usually adult learners with substantive business experience: Executive MBAs, Part-time MBAs and Full-time MBAs), in four US and Irish universities in the context of class presentations. On all of these occasions the results have been identical: no one born in the country of India

could identify the object in Figure 2.1 (there were always several Indians present). The usual response was "I have no idea." The closest description was an Indian Assistant Professor at Ohio State University, who declared the object to be "a cutting tool." Alternatively, there were always a large number of people in the room, usually US born, who could identify the object depicted: a miter saw (used for cutting wood at angles).

This difference in product knowledge demonstrates a cultural difference between the US and India. The US has a large collection of "do it yourself" homeowners who personally own items such as miter saws. Even those who are relatively wealthy – such as the Executive MBAs and business school faculty attending these presentations – often perform many home repairs themselves, and take pride in such work. In India, however, the "do it yourself" home repair concept is met with amusement, disdain, or revulsion. An appropriate concept in India – for the relatively wealthy – is "hire someone to do it for you." This carries forward so strongly that, although most of the Indians queried about this product had been away from India for a decade or more, this attitude was still prevalent.

This attitude cannot be overstated. One student captured the general feeling by stating that using such a tool would be "beneath me." Even after living in the US for many years, and being told the instructor owns and uses this tool and many others regularly, and having discussed pride in craftsmanship, several Indian students still ask the instructor "why would you own that?"

This cultural difference had a specific, negative effect for a US firm. The Home Depot is a Fortune 50 firm that largely sells building materials and tools for home repair to "do it yourself" homeowners in the US. To cut costs Home Depot moved all call center operations from the US to India in 2006. Due to extreme customer dissatisfaction, this move lasted only five months. The Indian call center employees, while highly intelligent, did not have product knowledge and had not used these products before. Even if a worker could memorize some product details, the Indian context is different from the US in the types of products needed. The typical home in the US 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 knowledgably 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. Lastly, they could not even speak of this new product knowledge with pride at home or with their friends, as such work is not deemed appropriate for people of their station in life.

When news of Home Depot moving their call center to India was announced the reaction of one of the author's Indian colleagues was simply to burst out laughing. He assumed it was a joke, because it was so obviously inappropriate. However absurd it seems to those who know the culture, a mathematical model would never predict such a failure, and the executives at Home Depot were certainly unaware as well. To put it in more "generalizable" terms, those who possessed context knowledge understood that this would be a failure. Those who have solely content generalizable knowledge, and are aware of the success rates of Indian call centers, would likely predict a success.

A somewhat different disconnect occurred when Delta Airlines offshored a portion of their call center work from the US to India – but quickly returned the work to the US. The focus of this incident was on tacit language – what is not spoken because it is assumed. Indian employees were paid $500/month, one-sixth the salary Delta paid in the US when the work was reshored. The official reasons given to the *Wall Street Journal* by Delta's CEO was that "customer acceptance of call centers in foreign countries is low" (Prada and Sheth, 2009). Delta executives contacted by the authors stated that the real reason was that many of the high IQ, English-speaking Indian employees had never been on an airplane before, and many had never even been to an airport. Listening in on calls Delta found that the Indian workers simply did not know what the customers were talking about. The unstated, implicit knowledge customers assumed airline employees would have about airport layout, disembarking procedures, baggage handling, etc., caused the Delta call center workers to be confused and provide unhelpful suggestions. While this is not a "cultural" problem per se, it is an attendant difficulty to doing business between cultures. Researchers just utilizing secondary newspaper accounts, such as Fratocchi *et al.* (2014),

would never discover this. Similarly, the offshoring of Home Depot call center work was announced publicly (e.g., WSB-TV, 2011), but the reshoring did not appear in print.

2.2 Example: Night Shift Work

Many firms find it much more profitable to run three shifts and produce 24 hours a day then to run just a day shift or a day and evening shift. Running three shifts amortizes expensive capital goods or real-estate costs over more output. However, to the surprise of some managers, the option to run a night shift is often precluded or hindered by culture.

A large US airline relocated a substantial volume of clerical work from the US to Barbados where they found the local women more than willing to take the jobs. Oddly, few men wanted this work, despite a high Bajan unemployment rate, good pay and strong benefits. In a quite literal sense, the line of applicants truly was around the block. There was a 10:1 ratio of job seekers to jobs. But that was for the day shift and swing shift. The firm also wanted to staff a night shift. There were few takers. Assigning workers to the night shift was strongly resisted. In 18 years they were never able to get more than a skeleton crew. Given the overall success of the Barbados operation, the airline set up a sister facility in the Dominican Republic. There, the night shift was not a problem. The anthropologist who made these work sites the subject of her dissertation stated that the night shift was roundly rejected in Barbados because the culture there views women working at night as, shall we say, indecorous (Freeman, 2000).

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, see also Fuentes and Ehrenreich, 1983) so the women themselves and their families strongly wish to avoid this connotation.

At the extreme, some Indian men refer to the night shift for women as "the hooker shift", and there have been cases of female employees being driven to work in company vans being pulled over by police and

accused of prostitution (Patel, 2010, pp. 1, 11). Likewise, factory owners in Bangladesh argue that "night shifts are not possible because no woman is willing to work at night" (Dannecker, 2002, p. 127) due to cultural prohibitions. Dannecker (2002) reports that women being out at night is considered shameful, and merely being outside the home at night risks detainment by police on suspicion of prostitution.

In an intensely disgusting and thankfully rare example of this attitude, there was a particularly infamous gang rape of a 23 year old woman in India in 2012. The woman died from the injuries she suffered. Speaking from death row in a film documentary one of the convicted rapists/murderers stated: "A girl is far more responsible for rape than a boy. A decent girl won't roam around at 9 o'clock at night." He further stated that the attack was to teach the woman and her male companion a lesson that they should not have been out late at night (Sharma, 2015). His statement is repugnant. The film of his statement was banned from being televised by the Indian government.

Even to a culturally sophisticated reader these attitudes will seem jarring or shocking. Of course, that is the point of this example – to raise awareness of these differences. However, this should be put into context. Similar notions have existed world-wide and recently.

Internationally, so-called "protective legislation" has made it illegal for women to work the night shift for well over 100 years. Night work for women was prohibited by England in 1844. England was joined by four more "enlightened" European countries by 1892. "The legislators' articulated motivation in enacting this prohibition was concern for women's safety, moral integrity and health and for family welfare" (International Labour Organization, 2001, p. 2). At this time several US states prohibited night work for women (Department of Commerce and Labor, 1907), as well as prohibiting women from working in certain industries, such as mining or bars. Most of Western Europe ratified the 1906 Berne Convention prohibiting such work. The 1919 International Labour Organization (ILO) convention forbidding women working at night was ratified by 59 countries. In 1924 the US Supreme Court upheld laws preventing women from working at night (Radice v. New York, 1924), agreeing with the state of New York that "night work of the kind prohibited so injuriously affects the physical condition of

women, and so threatens to impair their peculiar and natural functions, and so exposes them to the dangers and menaces incident to night life in large cities that a statute prohibiting such work falls within the police power of the state to preserve and promote the public health and welfare."

The ILO has since changed its' mind. Slowly. By 1934 it was "discovered" that blocking women from night work was also blocking the career trajectory of women in management. The ILO amended its standard to exclude managerial positions. Later, health care workers were exempted in 1948. In 1990, they threw in the towel and stated that night work for a woman is generally allowed – except if she's about to give birth. In 1991, the European Court of Justice invalidated France's – and by extension all the countries in the European Union - ban on women's night work (International Labour Organization, 2001, p. 57). Despite the rule changes from the ILO conventions, the ILO (2001, ch. 3) reports that laws of 54 countries still have a general prohibition on night work for women in 2001, though having a law and enforcing it are two different things (e.g., Khosla, 2009, p. 297).

Certain countries are more important to US firms due to physical proximity or English language facility. Mexico outlawed night factory work for women during the 1960s, which prompted Rockwell to move a plant out of Mexico to Curacao (Abraham Van-der Mark, 1983, p. 381). In India the 1948 Factories Act (ER Laws.com, 2009) stated 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). In 2014 India reaffirmed the national ban on women working in "factories" (but not BPOs) between 7pm and 6am by tabling an amendment to the Factories Act (Anonymous, 2014). The spokeswoman for the Congress Party stated "I feel with the type of atmosphere we have in our country at present, the number of rape cases we have and steady increase in atrocities, sexual harassment, assault

against women, I don't think it is very advisable to have night shifts for women in factories."

Accommodations can be made to alleviate situations and bridge the cultural divide. In the Korean context studied by Kim (1997) the young women workers largely lived in distant locations where a commute was not possible – they had to move residences to obtain the jobs. Even though these were not night shift jobs, parents still felt anxiety: who would attest to where their daughters would be at night? Would their marriage prospects be harmed merely by inference? The solution: the company provided single-sex housing staffed with matrons who enforced night-time curfews (Kim, 1997). In India it is common for firms to send around shuttles to pick up/drop off their female workers before and after night work. This is often highly inconvenient to the employee, potentially tripling the commute time of the person first on the route to be picked-up and necessitating some to arrive very early for their shift or wait for the shuttle for a significant amount of time after their shift has ended (Patel, 2010). Having women work at night in these societies also affects space given to dining facilities. While restaurants or street vendors may provide food late at night, the social contract implies that a firm cannot turn their female employees out on the street after dark to get their mid-shift meal. Sufficient dining space and spaces to store and heat food must be built.

In short, in cultures that do not want women to work at night, a third shift is sometimes simply not a realistic possibility. Workarounds can be used, but they are expensive. The key is for management to realize this up-front, before committing to a strategy that turns out to be infeasible or have hidden costs. For OM researchers, this implies that modeling location choice or layout cannot make "ceteris paribus" assumptions regarding configuration or even the possibility of comparable costs when considering locations in different countries.

3

Current Culture Research: Overview

Culture is defined many different ways. A common definition is the pattern of values and beliefs that are enacted in practices, behaviors and the explicit artifacts common to organizational members (Hofstede, 1980; Pothukuchi *et al.*, 2002; Trice and Beyer, 1993). Different types of culture are measured at different levels: national culture at the values level and organizational culture at the practice level (Hofstede *et al.*, 1990; Naor *et al.*, 2010; Shankarmahesh *et al.*, 2003).

Our search of the literature found 83 articles that are mainly concerned with national culture and OM (Appendix: Tables A.1A and A.1B) and 31 articles that are mainly concerned with organizational culture and OM (Appendix: Table A.2) published between 1990 and 2017. It should be noted that this amounts to far less than 1% of OM work. The limitations of our search are severe and should be noted. A thorough, article by article search was done on the journals *Production and Operations Management, Journal of Operations Management, Manufacturing and Service Operations Management*, and *Management Science*. However, even a thorough search has limits and is subject to discretion. For example, Brush *et al.* (1999) had only one question in their survey with any cultural content: "does language, culture, or politics matter in

plant location?" Responses indicate this was the fourth most important characteristic of the 19 items surveyed but no further cultural content was involved. Consequently, in our view, this article is not about culture and is not included on Appendix Table A.1. The subject of Graham *et al.* (1994) was buyer-supplier negotiation, which we would include if there was OM content (e.g., choosing between a revenue sharing versus a wholesale contract). However, the full description of the negotiation was given in the text as that it "involves bargaining for the prices of three commodities," so this work is not included. Likewise, Rieger *et al.* (2015) is focused on "risk attitude" differences between nations, which could be judged to be related to OM, but we did not include it. Xie *et al.* (1998) is about culture and the inter-functional conflict between operations, research and development, and marketing – we deemed it "not OM enough." Graham *et al.* (1994) and Rieger *et al.* (2015) were accepted by the Organizational Design and Decision Analysis departments of *Management Science*, not the OM department. We list Rungtusanatham *et al.* (1998) as cultural work, but not Rungtusanatham *et al.* (2005), even though both papers concern international quality management differences between countries. The difference being that Rungtusanatham *et al.* (1998) sought a cultural explanation for the differences they found, whereas Rungtusanatham *et al.* (2005) just listed international differences without a cultural explanation. In sum, unfortunately, a strict definition of "cultural work in OM" is elusive. Different researchers will come to different conclusions. It seems appropriate to quote Supreme Court Justice Potter Stewart: When it comes to cultural OM research, "I shall not today attempt further to define the kinds of material I understand to be embraced within that shorthand description; and perhaps I could never succeed in intelligibly doing so. But I know it when I see it" (Jacobellis v. Ohio, 1963).

Titles alone cannot be trusted to yield cultural work. For example, the *Manufacturing and Service Operations Management* article "Is Reshoring Better than Offshoring? The Effect of Offshore Supply Dependence" (Chen and Hu, 2017) contains no information about culture – seemingly the largest single reason re-shoring actually takes place. Likewise, in *Journal of Operations Management*'s "Why in the world did they reshore? Examining small to medium-sized manufacturer decisions"

(Gray *et al.*, 2017) and "why locate manufacturing in a high-cost country? A case study of 35 production location decisions" (Ketokivi *et al.*, 2017) there is no cultural content.

We did a search on the term "cultur*" in the abstract, title, or keywords of *Journal of Supply Chain Management, Supply Chain Management: An International Journal, International Journal of Operations and Production Management*, and *International Journal of Production Economics*. However, due to the way work is classified, a simple keyword search is not sufficient. Many articles list the term "culture" even though the article only describes differences between nations and does not ascribe a cultural reason to those differences. Further, we sent a draft of this article to a dozen OM researchers to find other articles.

OM cultural work sometimes appears in journals that only tangentially publish OM work. So, beyond the approaches above, references of known cultural work were searched. Accordingly, it is likely that Appendix Tables A.1A and A.1B are incomplete. We invite scholars to inform us of omissions.

Table 3.1 shows the number of articles by journal. The dispersion of this work among journals is far from uniform with three journals, *International Journal of Operations and Production Management, International Journal of Production Economics*, and *Journal of Operations Management* combining to host 2/3rds of all OM culture articles. Note the absence of *Manufacturing & Service Operations Management* from Table 3.1.

Topical coverage of culture and OM is widely dispersed, with only a few topics generating more than one article (Table 3.2). Quality Management is by far the most researched topic (26 articles). Various forms of Purchasing were the topic of 21 articles, and location (usually offshoring) is the topic of six articles. Accordingly, those three topics are reviewed in more detail with a dedicated sub-section each. Topics that generated only one paper include project management, time orientation, entry mode, negotiation, and several others.

While a large portion of OM and National Culture work is qualitative by nature, a substantial amount is quantitative, utilizing numerical cultural values. Due to the prevalence of quantitative cultural models in OM research, we review the main models used in the next sections.

Table 3.1: OM articles concerning national and organizational culture by journal*

Journal	National Culture	Organizational Culture
J. of Operations Management	28	7
Int'l J. of Operations and Production Management	15	9
Int'l J. of Production Economics	14	4
Supply Chain Management: An International Journal	4	3
Decision Sciences	3	4
Production and Operations Management	2	2
J. of Supply Chain Management	2	2
Int'l J. of Quality and Reliability Management	3	0
Cross Cultural and Strategic Management	2	0
Management Science	2	0
Others with one article	8	0
Total	83	31

*Published 1990–2017.

Table 3.2: Main focal areas of cultural research in operations management published articles*

Topic	National Culture Manuscripts	Organizational Culture Manuscripts
Quality	21	5
Purchasing	18	3
Location	6	0
Innovation	0	5
Enterprise Resource Planning	4	0
Safety	1	5
Decision Making	3	0
Lean	3	0
Forecasting	2	0
Differing Competitive Priorities	2	0
Supply Chain Integration	0	2

*Articles published 1990–2017. Only focal areas with two or more articles included.

4

Methodological Review: The Numerical Approaches to Cultural Research of Hofstede, Trompenaars, and the GLOBE Study

The "quantitative school" of business cultural researchers have similar approaches: they treat culture as an entity that is separable into parts, numerically measurable, and country specific. Several models of the dimensions of national culture have had a strong effect on the operations field: most notably Hofstede (1980). Hofstede's scales are used in 1/3rd of the OM national culture manuscripts. The global leadership and organizational behavior effectiveness (GLOBE) framework (Javidan and House, 2001) is used in 10% of OM cultural work. Finally, Trompenaars (1994) has been utilized by two manuscripts. A listing of the OM cultural work (Appendix Tables A.1A/A.1B) that use these quantitative cultural methods is in Tables 4.1 and 4.2.

The two manuscripts that utilized Trompenaars' work are Stringfellow *et al.* (2008), who used both Hofstede and Trompenaars to create, but not test, propositions, and Metters *et al.* (2010) who used this work as a qualitative explanation of noted international cultural differences.

Hofstede (1980) elucidated four cultural dimensions but in later work enlarged the number of cultural dimensions to six. The GLOBE framework (Javidan and House, 2001) encompasses nine, and Trompenaars (1994) espouses five dimensions. There are more such quantitative

Table 4.1: Operations management research using Hofstede's framework (articles published 1990–2017)

Manuscript	Journal	Method	Scales Used*
Vecchi and Brennan, 2009	CCM	Categorical	PDI MAS IDV UAI
Griffis *et al.*, 2014	DS	Qualitative	PDI IDV
Yan and Nair, 2016	DS	Qualitative	PDI IDV
Anwar and Jabnoun, 2006	IJM	None – proposals only, no data	PDI MAS IDV UAI
Cagliano *et al.*, 2011	IJOPM	Ratio (Regression)	PDI MAS UAI
Chipulu *et al.*, 2014	IJOPM	Individual Hofstede "like" scales, not country values; Ratio data (SEM)	PDI MAS
Pagell *et al.*, 2005**	IJOPM	Ratio (Regression)	PDI MAS IDV UAI
Wiengarten *et al.*, 2011	IJOPM	Categorical and Ratio (Regression)	MAS IDV
Wiengarten *et al.*, 2015	IJOPM	Ratio (Regression)	IDV
Su and Chen, 2013***	IJPE	Categorical	IDV
Liu *et al.*, 2015	IJPM	Qualitative	IDV UAI
Kyoon Yoo *et al.*, 2006	IJQRM	Categorical (LISREL)	IDV
Jiang *et al.*, 2015	JIBS	Ratio	PDI
Elango, 2005	JOM	Ratio (Logistic regression)	"Cultural Distance"****
Flynn and Saladin, 2006	JOM	Ratio (bivariate correlation and regression)	PDI MAS IDV UAI
Cannon *et al.*, 2010	JOM	Categorical	IDV
Cheung *et al.*, 2010	JOM	Categorical	"Cultural Distance"****
Hahn and Bunyaratavej, 2010	JOM	Ratio (negative binomial regression)	PDI IDV UAI

Table 4.1: Continued

Manuscript	Journal	Method	Scales Used*
Kaufmann and Carter, 2006	JOM	Ratio	"Cultural Distance"****
Power *et al.*, 2010	JOM	Categorical	IDV
Stringfellow *et al.*, 2008	JOM	None – proposals only, no data	PDI IDV**
Wacker and Sprague, 1998	JOM	Ratio (regression)	PDI MAS IDV
Youngdahl *et al.*, 2003	JOM	Individual Hofstede "like" scales, not country values; Ratio (logistic regression)	PDI MAS IDV UAI (also non-Hofstede Time Orientation)
Bockstedt *et al.*, 2015***	JOM	Ratio (econometric)	UAI
Albuquerque *et al.*, 2007	MgtSci	Ratio	"Cultural Distance"****
Aquilon, 1997	SCMIJ	Categorical	PDI MAS UAI
Freeman and Browne, 2004	SCMIJ	None – proposals only, no data	IDV
Tata and Prasad, 1998	TQM	None – proposals only, no data	PDI UAI

Journal abbreviations: CCM (Cross Cultural Management); DS (Decision Sciences); IJOPM (International Journal of Operations and Production Management); IJM (International Journal of Management); IJPE (International Journal of Production Economics); IJPM (International Journal of Project Management); JIBS (Journal of International Business Studies); JOM (Journal of Operations Management); IJQRM (International Journal of Quality and Reliability Management); MgtSci (Management Science); SCMIJ (Supply Chain Management: An International Journal)

* Hofstede scales: PDI (Power Distance) IDV (Individualism) MAS (Masculinity) UAI (Uncertainty Avoidance)

**Also used Trompenaars scales

***Also used Globe scales

**** "Cultural Distance," created by Kogut and Singh (1988), sums the absolute value of differences from all Hofstede measures between two countries

Table 4.2: Operations management research using the GLOBE framework (articles published through 2017)

Manuscript	Journal	Method	Scales Used*
Power *et al.*, 2015	DS	Ratio	PO IGC UA FO
Yan and Nair, 2016	DS	Qualitative	None
Vecchi and Brennan, 2011	IJOPM	Categorical	All 9
Su and Chen, 2013	IJPE	Categorical	IGC
Wong *et al.*, 2017	IJPE	Ratio (multi-level regression)	AS IGC IC FO HO
Bockstedt *et al.*, 2015	JOM	Ratio (econometric)	PO
Kull and Wacker, 2010	JOM	Ratio (hierarchal linear model)	AS UA
Naor *et al.*, 2010	JOM	Categorical and Ratio (regression)	All 9

Journal abbreviations: DS (Decision Sciences); IJOPM (International Journal of Operations and Production Management); IJPE (International Journal of Production Economics); JOM (Journal of Operations Management)
*PO Performance Orientation; UA Uncertainty Avoidance; AS Assertiveness; IGC In-group Collectivism; IC Institutional Collectivism; FO Future Orientation; HO Humane Orientation

researchers of culture in business, but these could be considered the "big three," like Deming, Juran, and Crosby were but three of the many quality gurus, but the ones with the most influence. Even with the generous page limits of this journal, an in-depth description of all these dimensions would be too long, and not to the point. For example, two of Hofstede's dimensions, Long Term Orientation and Indulgence, are simply not used by OM researchers (see Table 4.1). Consequently, we focus on what OM researchers have found useful.

Of the many cultural researchers in business, Hofstede is the most cited. According to Google Scholar (2019) the first two versions of Hofstede's "Culture's Consequences" have been cited by 85,000 articles. Geert Hofstede's articles overall have been cited by 160,000 articles. As a comparison, the most cited work in the history of the *Journal of Operations Management* is Frohlich and Westbrook (2001) with 2,495 cites and the most cited article in *Production and Operations Management* (Kleindorfer and Saad, 2005) has just 1,677 cites (Harzing, 2019). For a work that is 39 years old, Hofstede (1980) has staying

power: The Web of Science reports the eight years with the most citations are the eight most recent years as of this writing: 2011–18. To provide some perspective, the article of Kirkman *et al.* (2006) was solely dedicated to reviewing "Hofstede-inspired research."

Hofstede's basic framework was developed using 116,000 surveys from employees of IBM in 72 countries in two stages, between 1967–9 and 1971–3. It is thought that having employees from the same firm, and a firm with a notable organizational culture, focused the results on national culture as organizational culture was essentially removed as an explanation of variance. Statistical analysis of the data led to several factors. Hofstede later expanded the database to include China and other countries in the late 1970s and early 1980s.

In the remainder of this section, we explore Hofstede's core dimensions, briefing explaining what they mean, and noting what OM researchers have discovered in relation to them. Subsequently, we offer a critique of quantitative cultural models in general, and examine the validity of Hofstede's approach.

4.1 Numerical National Cultural Dimensions Used by OM Researchers

4.1.1 Cultural Dimension: Power Distance (PDI)

Power Distance is a measure for both Hofstede and the GLOBE. Regardless of whether one views these models favorably or not, the concept of Power Distance usually resonates. Power Distance measures the extent to which less powerful people accept and expect that power is distributed unequally. This represents inequality. A high Power Distance score suggests that a society's level of inequality is endorsed by the followers as much as by the leaders.

As a sampling of PDI scores, consider the four exemplars below:

	Hofstede	GLOBE
Denmark	18	3.89
USA	40	4.88
India/Venezuela	79	5.43 (average)

In terms of what goes on in the workplace, in a high Power Distance culture, the boss is right simply because that person is the boss. If the boss has a bad idea in a low Power Distance culture like Denmark, the response of the employee is "boss, that's another stupid idea." In a moderate Power Distance culture like the US the employee response might be "interesting idea, but maybe there's a better way." In a high Power Distance country like Venezuela, the response is usually "yes boss." High PDI cultures expect and value autocratic bosses who are fully empowered to make decisions on their own. Low PDI cultures embrace consultative management styles.

We have focused the PDI description on the superior/subordinate discussion since this is a pertinent concern operationally. There is a strong offshoring relationship between the US and India. Anecdotally, the most common cultural issue we have found involves US managers making requests of Indian offshoring partners, hearing the Indian partner say "yes", then not performing the task. The cultural miscommunication is two-fold: first, the Indian "yes" means "I hear you" not "I will do that". Secondly, if the Indian partner believes the request to be wrong-headed, rather than tell the US manager that it is a bad idea, the Indian partner simply does not execute.

As a particularly salient example highlighting operational ramifications, the relationship between Power Distance and operational failure has been explored in an industry where failure has catastrophic consequences: airlines. PDI expressed itself most dramatically in the case of Korean Airlines, as brought to the attention of the public in Malcolm Gladwell's book *Outliers* (2008). The "plane loss rate," a nice way of stating plane crashes, of Korean Airlines from 1988–1998 was 4.8/million departures, compared to 0.3/million departures for the major US airlines. The root cause of these operational failures was not faulty equipment or poor task training – it was attributed to the power distance between the pilot and crew. When Korean Airlines pilots made bad decisions that caused planes to fly into mountains or run out of fuel while still at 30,000 feet, crew members felt it was still not their place to tell the pilot he was making a mistake. They would rather die – and take their passengers with them – then tell a superior he was mistaken. "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). That the crew knew they were in a potentially deadly situation and did not tell the pilot was verified by retrieved black box voice recordings in several situations. (It should be noted that corrective training has taken place and Korean Airlines is a safe airline to use at this time.)

This issue was not specific to Korean Airlines. There are 45 airlines that had both over one million flights from 1970 to 2007 (Airsafe, 2009) and have home countries with Hofstede scores. Metters *et al.* (2010) compared the plane loss rate and PDI of every airline/country combination possible, given that many third world airlines do not report crash data. The correlation between PDI and airline fatalities was high and statistically significant: 0.55. The average fatal incident rate per million flights for airlines with a home country PDI <= 50 is 0.6 (N=23, standard deviation of the mean 0.1), as opposed to 2.7 for high PDI home countries (N=22, standard deviation of the mean 0.4). Helmreich and Merritt (1998), in a description of worldwide training to avert this problem found the following: 71% of pilots from high power distance countries agreed with the statement "Junior crew members should only question the actions of the captain when the safety of the flight is threatened," while only 9% of those from low PDI countries agreed. According to a Chinese pilot attending their seminar: There are "no circumstances when a first officer should challenge or disagree with the captain."

The airline example seems idiosyncratic, but it is merely the most dramatic. OM researchers claim a higher PDI society has the following operational effects (using Hofstede unless indicated otherwise):

- Creates an environment better suited to hosting services offshoring (Hahn and Bunyaratavej, 2010) and a greater desire to outsource (Pagell *et al.*, 2005).
- Is associated with better "leadership", as defined by the Baldrige Quality Award (Flynn and Saladin, 2006).
- Creates an environment where customers need to contact managers, rather than workers to resolve problems (Aquilon, 1997).

- Relates to employees valuing time and cost outcomes on projects as opposed to valuing team management (Chipulu *et al.*, 2014).
- Are more likely to use computers rather than subjective forecasts (Wacker and Sprague, 1998).
- Negatively related to manufacturing performance (Naor *et al.*, 2010 – using GLOBE data).

4.1.2 Cultural Dimension: Individualism (IDV)

The continuum of Individualism/Collectivism (IDV) describes how societies view the individual versus the group. Collectivist cultures emphasize group belonging, while Individualist cultures are focused on individual goals and personal freedom. Hofstede (1980, p. 390) states that hiring/firing is simply not a cultural option in Collectivist societies, so operationally, aggregate planning strategies are limited. Likewise, outsourcing is far more problematic, as Collectivist societies strongly value firm loyalty.

Some sample IDV scores:

	Hofstede	GLOBE
USA/Australia/UK	90	4.17
Switzerland/Germany/Norway	68	4.00
India	48	5.92
China	20	5.80
Columbia/Venezuela/Ecuador	11	5.69

The work of Hofstede, GLOBE and Trompenaars intersect at this point. The similar measure is called the continuum of Universalism/ Particularism by Trompenaars (1994). To understand the Particularist/ Universalist continuum, consider the following scenario (Trompenaars and Hampden-Turner, 1997, p. 33):

> You are riding in a car driven by a close friend. He hits a pedestrian. You know he was going at least 35 miles per hour in an area of the city where the maximum allowed speed is 20 miles per hour. There are no witnesses. His lawyer says

that if you testify under oath that he was only driving 20 miles per hour it may save him from serious consequences. What right has your friend to expect you to protect him?

1a My friend has a definite right as a friend to expect me to testify to the lower figure.

1b He has some right as a friend to expect me to testify to the lower figure.

1c He has no right as a friend to expect me to testify to the lower figure.

What do you think you would do in view of the obligations of a sworn witness and the obligation to your friend?

1d Testify that he was going 20 miles an hour.

1e Not testify that he was going 20 miles an hour.

The national breakdown of managers who answered "C" or "B" and "E" corresponds in nearly ordinal fashion to the IDV Hofstede scores:

Switzerland	97%
USA	93%
UK	91%
India	54%
China	47%
Venezuela	32%

In Switzerland, USA, and UK, rules trump relationships. In India, China, and Venezuela, relationships trump rules. The feeling in India, China, and Venezuela can be described as "who set this arbitrary number of 20? Why should this number that was set for who-knows-what reason destroy the life of my friend?"

This is salient for OM practice due to the implications on offshoring, outsourcing, and buyer/supplier contracts. Universalist societies are far more willing to offshore or outsource operations. Processes performed in an expensive country can be written down, then the workforce in a less expensive country can read and implement them. What could go wrong?

Contract adherence also is affected. To a Universalist a contract is a contract. It means precisely what its terms say. End of story. For a Particularist a contract symbolizes the underlying relationship. It is an honest statement of original intent. Where circumstances transform the mutual spirit of that contract, then terms must be renegotiated to preserve the relationship. "The contract will be seen as definitive by the universalist, but only as a rough guideline or approximation by the particularist" (Trompenaars and Hampden-Turner, 1997, p. 40).

Some OM researchers agree. In one of the few qualitative OM publications on the subject we find a Korean manager on IS outsourcing contracts:

> The practice of IS [Information Sytem] contract [sic] relies on trust rather than the very detailed written contract. Of course the contract should include the work scope, which will not include the detailed specs of functionalities.
>
> The rationale for outsourcing in the Korean organization was that the tasks could not be completed in-house. Hence, if a task could be completed in-house then it would never be outsourced.
>
> This finding also attests another attribute of the Korean culture, which, is the concept of an organization as an extended family. This concept of organization as an extended "family" provides job protection to the employees.
>
> (Samaddar and Kadiyala, 2006)

Both sides of the Universalist/Particularist scale appear to make immoral choices from the perspective of the other. What a Universalist feels about a Particularist is that "you can't trust him, he only helps his friends." What a Particularist feels about a Universalist is that "you can't trust him, he wouldn't help a friend" (Trompenaars and Hampden-Turner, 1997, p. 31–32).

OM researchers claim a higher IDV society has the following operational effects:

- Creates an environment better suited to hosting services offshoring (Hahn and Bunyaratavej, 2010).

- Is negatively associated with lean implementation (Wiengarten *et al.*, 2015).
- Is negatively associated with better "strategic planning", as defined by the Baldrige Quality Award (e.g., Flynn and Saladin, 2006).
- "In collective cultures, investments in quality practice will lead to higher operational performance than the same investments in individualistic cultures" (Wiengarten *et al.*, 2011).
- Invest more in automation, MRP and ERP systems, and less in team-based improvement programs (Power *et al.*, 2010).
- For buyers, performance matters more than trust in building long-term orientation in a buyer/supplier relationship (Cannon *et al.*, 2010).
- Is great at "operational learning" – implementing specific changes – but not so great at "conceptual learning" – determining causes of problems (Su and Chen, 2013).
- Is negatively related to employee empowerment, which in turn is negatively related to quality management results (Kyoon Yoo *et al.*, 2006).
- Is negatively related to manufacturing performance (Naor *et al.*, 2010).
- Are more likely to use subjective forecasts (Wacker and Sprague 1999).

4.1.3 Cultural Dimension: Masculinity (MAS)

Hofstede regretted naming this continuum Masculinity/Femininity (MAS). The term carries so much baggage he named one of his books "Masculinity and Femininity: The Taboo Dimension of National Cultures" (Hofstede *et al.*, 1998). He also proposed Assertive/Nurturant as a more acceptable name, but it does not seem to have caught on.

In Masculine (Assertive) cultures the proper role for men is to be tough, decisive and ambitious; women are to be caring and gentle.

Winning, success, is important for its own sake in a Masculine society. In a Feminine (Nurturant) society, concern for relationships is more important than winning, competing is not so openly endorsed, and there is sympathy for the underdog. In the workplace, the Masculine society manager is supposed to be assertive and an aggressive decision maker and the person with the most toys when they die is the winner, while Feminine society ideal managers cooperate with people and life satisfaction is a greater goal. Pagell *et al.* (2005) state that as a cultural example, "in the automobile manufacturing industry, the first modern use of autonomous work teams occurred in Sweden while the USA favors primarily assembly line production methods."

Sample scores from Hofstede are:

Japan 95

USA 62

Norway/Sweden/Netherlands/Denmark 10

OM researchers claim a larger MAS society has the following operational effects:

- Relates to employees valuing time and cost outcomes on projects as opposed to valuing team management (Chipulu *et al.*, 2014).
- Is associated with better "leadership", as defined by the Baldrige Quality Award (e.g., Flynn and Saladin, 2006).
- Is less effective in employing high impact workplace practices like TQM (Wiengarten *et al.*, 2011).
- Is less associated with cooperation and service orientation (Aquilon, 1997).
- Are more likely to use subjective forecasts (Wacker and Sprague 1999).

4.1.4 Cultural Dimension: Uncertainty Avoidance (UAI)

Both Hofstede and GLOBE name a cultural dimension Uncertainty Avoidance (UAI). High UAI cultures are uncomfortable with unstructured or unpredictable situations. Consequently, they create rules.

Beyond merely being standard operating procedures, Hofstede states there is an emotional need for rules in high UAI societies. In addition to work rules, predictable schedules and relationships are favored. Low UAI cultures prefer to establish rules only when necessary and are more comfortable with risk taking. Possible operational issues with a high UAI culture could be inventory stockpiling beyond amounts recommended by models.

Some sample scores:

	Hofstede	GLOBE
Singapore/Hong Kong	19	4.17
India	40	5.92
USA	46	4.15
Guatamala/El Salvador	97	3.46

There is less ordinal agreement between the Hofstede and GLOBE UAI scales than others.

OM researchers claim a higher UAI society has the following operational effects:

- Is a more attractive place for offshoring services (Hahn and Bunyaratavej, 2010).
- Is associated with more suppliers per part (Pagell *et al.*, 2005).
- Is associated with better "analysis and information", as defined by the Baldrige Quality Award (Flynn and Saladin, 2006).
- Prefer lower job rotation (Cagliano *et al.*, 2011).
- Is more effective implementing quality systems (Kull and Wacker, 2010).

4.2 Critique of Quantitative Cultural Methods

The quantitative cultural approach has both fans and critics. The entire concept of reducing culture to a series of separable numbers is rejected by those who study culture for a living: Anthropologists. Sahlins (1976, p. 206) states that "culture is not a dependent variable." Even the

methods OM researchers use to collect much of our data – surveys – are seen as automatically distorting cultural values. As a research strategy, surveys rely on words, not deeds. Words can be a poor predictor of actual behaviour and attitudes. There is a distinction between what is "desired" by the individual and what is "desirable" as defined by society. Surveys are better at determining "desirable" attributes. Observation of actual behaviour, favoured by Anthropologists, is better at discovering what people actually do. Further, in Hofstede's view (1980, p. 17) surveys "provoke" potentially artificial answers, whereas observation of actual deeds is more "natural."

Some business scholars also differ with Hofstede's approach. In the not-so-subtly titled article, "Hofstede never studied culture," Baskerville (2003) argues that Hofstede's unit of analysis was nationality, rather than culture, and that there are many distinct cultures within a nation. She relies on a study of the culturally diverse country of India to make the point (Chanchani, 1998). That is more true for some nations than others. For example, China is not a "melting pot" of races, with 91% of the nation of the same Han racial lineage, and the 9% minority population is largely geographically isolated in the far western regions of the country (CIA, 2019).

As OM researchers broach cultural study, one would think that we would use the well-honed tools of a science dedicated to studying culture: Anthropology. However, we are completely divergent from anthropologists. For example Table 4.3 shows that 229 articles in the top 13 OM journals cite Hofstede's "Culture's Consequences" or later work ("top journals" as reported by Meredith *et al.*, 2011). Alternatively, Baskerville (2003) found only five citations in all Anthropology journals. Only seven citations of Hofstede occur in the history of all 13 top Anthropology journals ("Top Anthropology journals" as reported by Downey, 2010). According to Chapman (1997, p. 17), who earned a degree in and taught Anthropology prior to joining a business school, "(I)t is worth noting, however, that most British social anthropologists have not, in my experience, even *heard* of Hofstede."

Further, let us consider how Hofstede's work is used in each discipline. In the Anthropology work, Hofstede is cited to demonstrate the presence of cultural differences. In several OM studies Hofstede's

Table 4.3: Citations of Hofstede's cultural work in top operations management journals and top anthropology journals*

OM Journals (ordered by Meredith 2011 listing)	**Cites**	**Top Anthropology Journals** (alphabetical listing)	**Cites**
J of Operations Management	48	American Anthropologist	2
Production and Operations Management	7	American Ethnologist	0
Int'l J of Production Research	27	American J. of Physical Anthro.	1
Manufacturing & Service Operations Management	1	Annual Review of Anthro.	0
Int'l J of Operations and Production Management	53	Bulletin de L'ecole Francaise d'extrem-Orient	0
J of Business Logistics	7	Comparative Studies in Society and History – an Int'l Quarterly	0
Transportation Science	2	Current Anthro.	0
J of Supply Chain Management	27	Ethnic Musicology	1
Int'l J of Physical Distribution and Logistics Management	21	Evolutionary Anthro.	0
Int'l J of Logistics Management	13	Musicae Scientiae: The J of the European Society for the Cognitive Sciences	0
Production and Inventory Management J	2	Nations and Nationalism	3
Production Planning and Control	2	Social Science and Medicine	0
Supply Chain Management: An Int'l J	19		

* Anthropology Journals rated as A+ by Australian Research Council. Downey, 2010, https://culturematters.wordpress.com/2010/02/13/anthropology-journals-ranked-by-the-arc/. OM journals as ranked by Meredith 2011. Citations as of July 2018.

numbers are used as an independent variable in a math model, usually regression. Regression presumes ratio data. Hofstede's numbers – and the numbers of all the quantitative cultural school researchers – are not ratio data. Hofstede specifically scaled his scores from 0 to 100. The

PDI of Venezuela of 81 versus the US PDI of 40 does NOT mean that Venezuela has "twice the PDI". The authors contacted Geert Hofstede (2018) on this issue by e-mail and he confirmed that this is methodological misuse of his data. Hofstede's own website (geerthofstede.com) states "we should take dimension scores with a grain of salt." Results based on this approach have, accordingly, not always done well. Pagell *et al.* (2005) used Hofstede's country numbers as added variables to models predicting various operational measures. The adjusted R-squared of a model predicting "suppliers per part" increased from 0.002 to 0.022 by adding Hofstede's work. While statistically significant, a 0.022 R-squared is of questionable managerial relevance.

Similarly, Vecchi and Brennan (2011) utilize the GLOBE framework. Consider a sample of their findings. The following question was answered by 641 respondents:

"What is the proportion of the maintenance budget spent on the following activities? (adding up to 100%)

Preventive maintenance ___%
Corrective maintenance ___%"

The results:	Low Uncertainty Avoidance Countries	High Uncertainty Avoidance Countries
Preventive maintenance	42%	48%
Corrective maintenance	58%	52%

Due to the enormous number of survey responses the difference between 48% and 42% is calculated to be statistically significant. We do not submit that this should not have been published or is bad research. Quite the contrary. It is a piece of the puzzle. However, given that these are estimated numbers, it is doubtful that these results are managerially significant, and it is difficult to see how they can be acted upon.

This computational issue is further confused by the popular "cultural distance" measure of Kogut and Singh (1988). This measure sums up the absolute values of all the relevant Hofstede measures and adds them together to determine how far apart two societies are culturally. This makes the further assumption that a difference of, say 15 points on one Hofstede scale is somehow, "culturally equal" to the difference of 15

points on another Hofstede scale, and that the vectors of each of the Hofstede scales are additive. This flaw has been noted by many other authors and researchers have been warned of the methodological issues (e.g., Shenkar, 2001). To be blunt, this method is not recommended. As an example in the OM literature, Cheung *et al.* (2010), using this "cultural distance" measure, found that cultural differences have no effect between buyers and suppliers. A finding of "no cultural influence" is rare, and likely an artefact of the method used.

Rather, Hofstede's values are more ordinal in nature. Accordingly, an appropriate way to numerically analyse data with Hofstede's scores would be to use categorical arguments: Wiengarten *et al.* (2011) grouped countries together that were one standard deviation above the mean and grouped other countries together that were one standard deviation below the mean to compare the two groups. Similar approaches were also taken by OM researchers Power *et al.* (2010) and Cannon *et al.* (2010), Su and Chen (2013) and Aquilon (1997), and others on Table 4.1 earlier.

Note that we comment here on Hofstede's work largely because it is the most cited. All of the work from the quantitative cultural approaches suffer from the same problems: being used inappropriately as ratio data, representing countries instead of cultures, and a false sense of precision.

Next we turn to a more fundamental question: should we be using Hofstede's numbers at all? Is what he found transitory and stuck in the 1970's, or do his results reveal something that holds over time? Do his results extend beyond his IBM employee subjects?

4.3 Validity of the Hofstede Instrument

To validate the use of Hofstede's framework in OM research in general, we endeavor to establish these principles in this subsection: Hofstede's framework is valid and reliable over both time and differing experimental subjects.

Regardless of the objections listed above concerning specific numbers, strong evidence exists of Hofstede's general dimensions being reliable and valid over both time and survey population. Hofstede's results are some of the most replicated in business research. In a review of

Hofstede based work, Sondergaard (1994) finds 61 replication studies of Hofstede. In sum, Sondergaard (p. 451) finds Hofstede "confirmed". Many of the replication studies of Hofstede were small samples of only a few countries. Some insight can be gathered by analyzing three large scale Hofstede replication studies. Merritt (2000) surveyed 9,400 airline pilots in 19 countries more than 20 years after Hofstede. The average correlation between Merritt's findings and Hofstede sorted by cultural construct (Power Distance, Individualism, etc.) is 0.82. The average within country correlation across constructs is 0.85. Hoppe (1990, 1998) studied "social elites" with a sample of 1,544 "CEO's of prestigious. . .companies, top-level administrators of . . . governments, diplomats, chancellors and deans of universities or colleges, supreme court justices, and artists" among others from 19 countries (Hoppe, 1990, p. 23). The between-construct correlation averaged 0.59 and the within country correlation with Hofstede averaged 0.53. Mouritzen and Svara (2002) surveyed over 3,000 politicians and government administrators in 14 countries on power distance and uncertainty avoidance, noting a correlation with Hofstede's numbers of 0.71 and 0.87, respectively. Collectively, the major and minor replications of Hofstede have studied vastly different populations and time periods. The general conclusion is that Hofstede's measures, while they may not measure everything about culture, or may not be applicable to every category of people, certainly measure something that is intransient. Indeed, if Hofstede's results were not replicable over time and survey population, then the hundreds of published papers relying on Hofstede's values as intransient measures of culture would be rendered moot.

In sum, the quantitative school of cultural modeling has, indeed, found something. But not everything. We now turn to what generally can NOT be found by the quantitative approach.

5

Methodological Review: Ethnography

As an alternative to the quantitative methods reviewed, OM researchers could study culture the way people who study culture, study culture: ethnography. (This topic was elucidated by the authors in a sister paper to this one – Marshall *et al.*, 2016 – so the discussion will be brief.) Ethnography is THE main technique used to study cultural phenomenon in the discipline dedicated to studying culture: Anthropology. We normally think of Anthropologists as tromping through the jungles of New Guinea to observe a tribe still living in the Bronze Age. But, in a style we would call "corporate anthropology," Anthropologists and Women's Studies scholars have been performing ethnographic studies of OM for decades. Such studies are the focus of the *Journal of Organizational Ethnography* and the journal *Anthropology of Work Review*, the flagship journal of the "Society for the Anthropology of Work." A useful primer for these techniques are the books *Business Anthropology* (Jordan, 2013), *Ethnography in Organizations* (Schwartzman, 1993) and the Foundations and Trends in Marketing monograph *Ethnography for Marketing and Consumer Research* (Venkatesh *et al.*, 2017).

Ethnography is also used across many other social sciences, yet very few OM papers utilize ethnography, and almost no OM scholars are

trained in the technique. Barratt *et al.* (2011) studied the entirety of qualitative OM literature in the journals *Journal of Operations Management*, *Management Science*, *Production and Operations Management*, *International Journal of Operations and Production Management*, and *Decision Sciences* from 1992–2007. They found 204 qualitative articles and classified them by methodology – but "ethnography" is not mentioned as a method for any of them. Since that time, the popularity of ethnography in OM has not increased. A word search shows that the only times "ethnography" is mentioned in a *Production and Operations Management* article since then, it is used to point out that OM scholars don't do it. In the introduction to a special issue on field research published in *Journal of Operations Management* the editors report zero articles using ethnography, but note that ethnographic research is a "future field research opportunity" for OM (DeHoratius and Rabinovich, 2011, p. 374).

Due to the paucity of work, this is a potential area of substantial contribution to the field. The lack of ethnographic work in business studies of culture is seen in every discipline. However, this is starting to change, especially in Marketing where anthropological methods have made great inroads and seriously impact practice. Our contention is that OM is losing out on important theoretical and practical findings because we do see these methods, conditions or assumptions as "science." Yet these methods can lead to exactly the type of understanding practitioners need.

Ethnography can add substantially to OM knowledge because, in essence, it asks different questions. The differences between traditional OM research methods and ethnography come from different perspectives on such basic issues as what the goal of research is and what can be counted as evidence. In the realm of national culture, Hofstede, for example, provides specific numbers for several aspects of culture that are implicitly deemed independent and objective. As noted earlier in this article, OM researchers have enthusiastically embraced this approach – numbers work great with regression models! But Anthropology as a field, and the ethnographic approach in general, completely rejects this entire method. "(W)hen anthropologists adopt any such concepts of culture, culture is not divided into component systems, or different

values in a quantitative style; instead, it is viewed as an integrated pattern of symbols and meanings" (Baskerville, 2003, p. 2). Even the research questions Anthropologists ask differ from OM researchers. OM researchers are concerned with generalizeable findings across topics. Anthropology is concerned with what is generalizeable across a society. The weakness of the typical OM quantitative approach is what is left unexplained – what is beyond the R-squared. Implementing a typical OM research result ignores what happens in a specific time and place. The typical quantitative OM research answers questions of "what" and "how many." The strength of ethnographic work is in answering the questions "why" or "how." Canonical research in OM starts with a hypothesis, but "one of the differences between ethnography and other forms of research is that ethnographers do not automatically assume that they know the right questions to ask .... In ethnographic fieldwork both questions and answers must be discovered" (Schwartzman, 1993, p. 54,55). Evidence in a typical OM research manuscript is at one point in time but across many subjects – the more the better! Ethnographic OM evidence is usually gathered from one subject firm, but through extended investigator contact, with the authors often working in the factories they write about for weeks or months. Freeman (2000) spent two years in the field, including several months in the offices of one of the first services offshoring ventures of US multi-national firms; Ngai (2005) posed as a worker in a Shenzhen, China factory (with management permission), working in the factory and sleeping in the factory dormitories for nearly six months; Kim (1997) posed as a worker in a South Korean factory (without management knowledge) for three months.

A less personally invasive style involves detailed, lengthy qualitative worker interviews. Kung (1983) interviewed many factory workers over a lengthy time period in Taiwan. Ong (1987) interviewed factory workers in Malaysia.

Personally, the authors of this work are not inspired to pose as a South Korean factory worker. We would be "found out" quickly, and the work does not appeal. The point is not that we as OM scholars necessarily should do this, but we should be open to the different

questions that can be asked by these approaches and avail ourselves of their findings.

A divergence in assumptions also explains the difference between anthropological and OM research. The never-stated, implicit assumption in OM research is that management and workers are "rational economic men" always seeking to maximize profit. Ethnographic research replaces this image with one where workers have social and psychological needs, and captures the industrial organization as a social system in addition to being an economic unit.

Kunda (2006) refers to the methods he used to study the culture of an engineering firm as "ethnographic realism." "This is certainly 'fieldwork' as the researchers often spend several months at the physical site of their subject firms. But admittedly, the work is an intensely personal and subjective process, and there are probably at least as many 'methods' as there are fieldworkers." There are "potentially misleading implications" and all fieldwork has "shortcomings, potential for bias, and [a] random nature." As Kunda makes clear, the subjectivity and interpretation of the investigator is understood to play an important role in anthropological research. These conditions and the resulting qualitative output of ethnographic study are frequently dismissed as "subjective" conditions and "story telling" output by those who favor more quantitative methods.

As a point of cross-over, consider that Anthropologists have studied the adoption of TQM/quality management programs. However, their ethnographic research takes a different perspective from traditional OM research. Rather than comparing TQM practices or results determining a "yes/no" answer to such a question as "is Statistical Quality Control training effective in implementing TQM?" anthropologists examine a specific environment in great depth to determine why certain practices may or may not be effective there. This approach can uncover important insights. Our field has come to mixed results, with half a dozen studies claiming that nationality doesn't matter, and another half dozen claiming it does. Many of the Anthropologists and Women's Studies scholars listed above also studied TQM implementation. However, their questions were "how are TQM programs thwarted? What are the precise mechanisms?" or "why does a TQM program not work?"

For example, the motives of the workers may not coincide with the long-term success of the firm. If workers do not see themselves staying in a job long, training in any technique may not make a difference. The Anthropologist Kim (1997) studied workers at an electronics factory. The mission of the workers was to work for a short time to make enough money to achieve another objective – financing a dowry – and leave. In terms of improving processes 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 a call center, Mitter *et al.* (2015, 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." (This will be discussed at greater length in section 6.1 concerning quality research.)

The primary point here is that, unlike the auto assembly workers in Japan and the US, the workers are not there for life. They do not identify with the company. Accordingly, they have little interest in applying TQM techniques no matter their training. This is information that would be difficult to gain through TQM surveys of executives counting TQM training techniques.

A TQM implementation ethnographic study was published in the *Journal of Organizational Ethnography* (Suckley *et al.*, 2013). Training failed to improve quality. Physically moving the Quality and Production departments next to each other also failed. The authors state that long held inter-departmental antagonisms caused by siloed management, and the type of manager overseeing the units, were the root causes of failure. The managerial jobs in question were not long-term, but seen as necessary waypoints on a trajectory to top management. This action research proposed various managerial remedies that ultimately proved successful. For instance, the managerial reporting structure was changed, with both departments reporting directly to the same Vice President. The reward structure was changed so that a balance between throughput and quality optimized bonuses. The VP mandated interdisciplinary process improvement teams, which erased the "blame" culture between departments.

There are better and worse ethnographic methods, just as there are better and worse survey questions, and better and worse integer

programming algorithms. To help judge the quality of ethnographic work, researchers report the questions they have asked, length of time with a firm, degree of management cooperation, and provide lengthy quotations from informants. While there are not hard data on quality – like CPU time to achieve an optimal solution – there are other data. For examples, ethnographers can spend months physically working at a firm site. Transcripts of interviews, rather than recollections, is indicative of higher quality. The number of workers interviewed at varying levels is telling. What the rich nature of ethnographic methods is supposed to find are the hidden subtexts or multiple meanings through deconstruction of text. An insightful interpretation of words and events distinguishes good work. Aspects of culture do not appear on banners at the workplace. Some aspects of culture may not be spoken of directly at all, or flatly denied if mentioned aloud. In a bit of an obvious example, in Freeman (2000) analysis of the airline mentioned earlier, 98% of the workers were female (and young). In the three other facilities the same airline had for the same work, gender was far more balanced. It was denied that young women were preferred over men, and that the culture of Barbados considered this "women's work." Instead, the reasons provided for the preponderance of women is that "men's fingers are too big" to work a computer keyboard, and "men have to be moving around" during the work day and are unable to sit for long periods of time. Content analysis software will not help interpret these words. Yet, the overwhelmingly female work force had operational ramifications, as noted earlier in this article, specifically that TQM programs were a failure for the first 15 years of operation, despite a dedicated, caring workforce and substantial training.

Where ethnographic methods have found a foothold in operations they are often still "counting" events – entering multiple interview transcripts through content analysis software. This approach is not wrong, but will not arrive at the same conclusions. The point is that ethnographic methods do not conform to our predisposed favoritism of quantitative methods and have not found a foothold in operations. However, they have dramatically impacted Marketing research and practice.

Marketing researchers were debating the merits of ethnographic methods in the 1980s (e.g. Sherry 1987) and Belk *et al.*'s seminal ethnographic study (1370 cites) was published in 1989. Arnould and Wallendorf (1994) published a primer on the use of ethnographic methods in Marketing shortly thereafter. More recently Marketing researchers have developed new ethnographic tools and protocols to make use of the information available on-line (Kozinets, 2002); tools that are widely used both within Marketing and Anthropology.

6

Main Focus Areas of Cultural Research in Operations Management

As noted previously, the topics that have received the most attention in the OM cultural literature are quality, procurement, and location. These topics are reviewed in depth in this section.

6.1 Quality Management

Among topics, quality management (QM) has amassed the largest number of research efforts involving national culture and OM (Table 6.1). We draw a distinction between research on national culture and QM versus research that examines sets of differential practices between countries. The following all examine the differences in how QM is applied in different countries. They all come to the same general conclusion: Firms in different countries emphasize different aspects of QM.

Abdul-Aziz *et al.*, 2000
Adam *et al.*, 1997
Chin *et al.*, 2002
Corbett *et al.*, 1998
Raghunathan *et al.*, 1997
Rao *et al.*, 1997

Table 6.1: Published articles combining quality management and national culture (articles published 1990–2017)

Manuscript	Cultural Data	Countries	Result
Albuquerque *et al.*, 2007	Hofstede	57	Cultural similarly assists in diffusion of ISO 9000 and ISO 14000 certification
Anwar and Jabnoun, 2006	Qualitatively applied Hofstede	None	Theory only, no data
Chen *et al.*, 2017	Qualitative	US, Japan	High relationship quality precedes high product quality
Dawson, 1994	Qualitative	Australia	Australian men too individualistic, hostile to QM
Flynn and Saladin, 2006	Hofstede	Several	Certain Baldrige Quality Award constructs are better suited to certain societies
Govers, 2001	Qualitative	Several	Western management practices limit Quality Functional Deployment implementation.
Gray *et al.*, 2011	Unnamed differences between US and Puerto Rican culture	US and Puerto Rico	Quality risk higher in pharmaceutical manufacturing in Puerto Rico. Ascribed to unstated cultural factors.
Jenner *et al.*, 1998	Qualitative	Chinese state-owned enterprises	Confucian heritage discourages teams; atmosphere of fear hurts QM
Kyoon Yoo *et al.*, 2006	Hofstede	Taiwan, Korea, US, Mexico	Collectivist cultures work better with QM

Table 6.1: Continued

Manuscript	Cultural Data	Countries	Result
Kull and Wacker, 2010	GLOBE	China, Korea, Japan	High Uncertainty Avoidance and low Assertiveness help QM
Laohavichien *et al.*, 2011	Qualitative	Thailand	Thai national culture
Mersha, 1997	Qualitative	Sub-Saharan Africa	Rigid social systems hostile to QM
Metters, 2008	Qualitative	Barbados	Culture of "getting by" hostile to QM
Metters, 2017	Qualitative	Several	Women only workplaces can have difficulty implementing QM
Ngowi, 2000	Qualitative	Botswana	Culture of "fatalism" hostile to QM
Roney, 1997	Qualitative	Poland	Culture of "fatalism" hostile to QM
Rungtusanatham *et al.*, 1998	Qualitative	Italy	"Employee Fulfillment" in Italy than US due to differential pride in workmanship and Marxist influence
Su and Chen, 2013	GLOBE/ Hofstede	US, UK, Italy, Germany, Japan	Collectivism is better for "conceptual learning" of problem causes
Tata and Prasad, 1998	Hofstede	None – theory only	High power distance and uncertainty avoidance cultures hostile to TQM
Vecchi and Brennan, 2009	Hofstede	Several	Hofstede dimensions significant
Vecchi and Brennan, 2011	GLOBE	Several	GLOBE dimensions significant
Wiengarten *et al.*, 2011	Hofstede	Several	High masculinity and uncertainty avoidance cultures positive

Rungtusanatham *et al.*, 2005
Tata *et al.*, 2000
Yavas, 1995
Zhao *et al.*, 1995

(Other opinions: Mitki and Shani (1995, p. 169) found that QM worked well in two Israeli companies and ended their article by stating QM contains "a potentially universal set of management practices and principles that goes beyond cultural boundaries.")

So, we will consider the question "are QM practices different between cultures?" to be answered affirmatively. However, these works do not posit reasons behind those differences. We seek to answer the follow-up question, and the question that can change practice: Why? To take managerial action and make a QM program work we need to know what the impediment is.

Let us consider cultural reasons why QM programs may simply fail. It has long been noted that a certain relationship between labor and management should exist for successful QM programs. Also, a requirement for many QM programs is that the workers come up with suggestions for improvement. Some cultures are more hostile to those propositions than others. To examine how culture may impinge on QM, let us look at exactly who management and labor are in different parts of the world.

Many cultures strongly believe that certain work should be done by women and certain work should be done by men. This has not escaped the attention of management researchers. The GLOBE study (House *et al.*, 2004) put a number to the "gender egalitarianism" of each country. Not surprisingly, they found that there are large differences between countries in both "how things are" and "how they should be" in terms of gender egalitarianism.

Based on focus groups totaling 4,000 people in 98 countries, The World Bank (2011, p. 211) states that "across all countries . . . about 50 percent of all jobs are considered to be men's or women's jobs." "Women's work" is context dependent. The most prevalent examples are fine motor skill work involved in electronics assembly plants and garment industry work. This work is dominated by women in many societies.

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 factory studied by Ong (1987, p. 156), 801 unskilled and temporary workers were women, five 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). Fernandez-Kelly (1983) reports 85% of Mexican maquiladora workers are women aged 16–25. To sum up the gender balance, The Economist (Anonymous, 2013) reports "women usually far outnumber men on labour-intensive production lines such as those at the toy factory in the city of Shenzhen, next to Hong Kong."

The reasoning behind why there exists "women's work" is a cornerstone of the Women's Studies literature. The reasons are, to put it mildly, unpleasant to hear. The ability to pay lower wages – less than minimum wage – is certainly an important one. The Economist (Anonymous, 2013) states that women are hired for these jobs "for their supposed docility, nimble fingers and attention to mind-numbing detail". The term "docile" is used frequently by Women's Studies authors in describing the reasons for all-female workforces (e.g., Dedeoglu, 2008, p. 24; Enloe, 1983, p. 407; Feldman, 2009, p. 277; Fernandez-Kelly, 1983, p. 219; Fuentes and Ehrenreich, 1983, p. 13; Khosla, 2009, p. 295; Lu, 2007, p. 94; Lynch, 2007, p. 27; Salzinger, 2003, p. 10). This docility does not take place the world over – it is part of the culture in societies Hofstede would call "masculine." These assertions of pay differentials and docility are not made merely to irritate the reader. They become important when considering QM implementation.

Further, the motives of the workers do not coincide with the long-term success of QM. In a Korean electronics factory run by Japanese management, Kim (1997) reports that the average worker was an

unmarried 20-year-old Korean women. Over 90% leave their jobs when they get married, usually in their mid-20s, with the telling remark from a female worker that "any husband who wants his wife to work is not really a man" (Kim, 1997, p. 79/80). Separately, surveys of South Korean women show that 94% employed in clerical and production positions quit work upon marriage (Brinton *et al.*, 2001). Bangladesh female workers are driven to be there so they can save for their own dowry (Dannecker, 2002 and Feldman, 2009, p. 279) and leave upon marriage. In Pakistan "it is still common for female office workers to leave their jobs and return to the chardivari (i.e., the four walls of one's house) upon getting married" Mirza (1999, p. 190). This is also reported in Brazil (Safa, 1983), Turkey (Dedeoglu, 2008), Taiwan (Kung, 1983), and Mexico (Alonso, 1983). In a curious reversal of the advantages of dual-career marriages, according to a Bangladeshi female worker who professed to want to quit upon marriage, working after marriage "is like buying a husband, he marries you because you bring a monthly income" (Dannecker, 2002, p. 189). Similarly, an HR manager hiring nearly exclusively female electronics workers in China 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, pp. 6, 50). Freeman (2000) reported that Dominican Republic female workers are also expected to quit work once married. In Oman, the world is changing, and married women do work. It is reported that the number of working mothers has quadrupled in the past 30 years, but still now accounts for only 8% of women workers (Belwal and Belwal, 2014). In many cultures it is a mark of shame to a man to have his wife work in the formal sector. This implies he is not good enough to take care of his family.

The primary point here is that, unlike the lifetime auto assemblers of Japan and the US where QM has thrived, many workers the world over are not there for a career. They do not identify with the employer – there is no "co-destiny". 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."

In a mark of consistency with the workers, for upper management of firms controlled by Western multi-national firms often consists of older ex-patriot men from Western countries. The ex-patriot management also do not see a career in any particular foreign country. They are stepping stones in a career that ends back home.

To recap who the workers and management are:

Workers		**Management**
Women	Gender	Men
Young	Age	Old
Indigenous population	Nationality	Foreigners
Quick money	Purpose	Stepping stone
Short-timers	Dedication	Short-timers

Returning to the basic requirements of QM of employee involvement, consider the following scenario: Says the 18-year-old Malay girl who didn't finish High School: "Yo, old rich white guy from America who doesn't speak my language, your processes are bad and I can improve them." Culturally, that conversation cannot take place.

For the US airline facility in Barbados examined by Metters (2008), their QM initiative failed for a decade, but the problem wasn't a workforce that would soon leave. Attrition was characterized by the facility manager and future airline CEO as "nonexistent" (actually, 2% per year). Rather, the young female workforce did not want to tell the older male managers that their processes needed fixing. Eventually, management hit upon a way to create a welcoming environment. One-third of the workers' pay raise was tied to QM improvements made in their own home. Practicing home QM blossomed into work QM.

Ngowi (2000) studied the implementation of QM in 100 construction firms in Botswana. Largely, QM failed. His interviews led him to a root cause: a "fatalistic rather than deterministic" view of life. "Workers share a perception of a lack of personal control over events . . . (T)his is contrary to QM culture, which is based on determinism – belief (sic) that people are responsible as individuals or as a group for their actions and can affect outcomes." Workers will not implement QM initiatives,

as "initiative to carry out preventive measures at individual and group levels are left to management." Roney (1997) reports this same cultural characteristic of a fatalistic view also holds back QM in Poland.

Jenner *et al.* (1998) studied 10 Chinese state-owned enterprises, nine of which had failed QM efforts. They posited that the failures were due to some cultural characteristics of Confucianism that are antithetical to a QM culture. Stability is valued over change, which thwarted ideas of "continuous improvement." Highly formal communication patterns are the norm, rather than allowing informal communication and idea generation between workers. They also cited some specific issues to state-owned enterprises that would not occur in private Chinese firms, such as a desire by those firms to isolate workers and have "informants" on workers who deviate from official doctrine. This was seen as hostile to team formation. As opposed to the famous Deming doctrine: "drive out fear", the Chinese manager's objective was "instill fear."

6.2 Procurement

As noted in the introduction, the percentage of worldwide GDP that crosses national borders has more than doubled (27% to 58%) from 1970 to 2016. As a consequence, procurement functions now have to deal with suppliers from different cultures far more so than in the past.

Work on Procurement and culture has followed several different paths:

- Buyer/Supplier interface: Cai *et al.* (2010), Cannon *et al.* (2010), Eckerd *et al.* (2016), Jia and Lamming (2013), Kaufmann and Carter (2006), Li *et al.*, (2010a,b) Lockström *et al.* (2010), Özer *et al.* (2014) and Schonherr *et al.* (2015);
- Supplier integration: Yang *et al.* (2017);
- Supplier performance: Aquilon (1997);
- Supplier selection: Thornton *et al.* (2013); and
- Purchasing: Yang *et al.* (2013) and Lee and Humphreys (2007); Subramanian *et al.* (2015), and Cheung *et al.* (2010).

Specifically, China was essentially "closed for business" to the West by its leader Mao Zedong from the Communist take-over in 1949 to 1978. Deng Xiaoping took over and replaced Mao's policies on the issue. Things did not turn around overnight. Trade with the West could only take place from "Special Economic Zones". To provide an example, the first Special Economic Zone designated was Shenzhen (near Hong Kong) in 1980. Shenzhen had a population of 30,000 at that time. A town of 30,000 is not ripe to be an export megalith. Now the population of Shenzhen is 13,000,000. In 2017 China was the world's largest exporter, shipping $2 trillion out of the country and the number two importer bringing in $1.5 trillion of goods/services from other countries (GlobalEDGE, 2018). Specifically, the largest importer of Chinese products and services is the US ($386 billion), but the US also exports $135 billion annually to China. This has caused procurement professionals with Western, Judeo-Christian values to negotiate with counterparts whose values stem from Confuscianism and the desires of the Communist Party; one society values rules, the other values relationships, widely known as "guanxi."

A majority of the papers listed above specifically relate to the China/Western potential for conflict. Yang *et al.* (2013), Lee and Humphreys (2007) and Subramanian *et al.* (2015) document the existence of several differences and provided cultural explanations in a variety of categories of buyer/supplier practices. Thornton *et al.* (2013) note that Chinese firms do not consider social responsibility nearly as much as US firms do when selecting suppliers and relate this trait to cultural scales from the GLOBE project. In contrast, Jia and Lamming (2013) offer us good news. They intensively studied four dyads with buyers in the US or UK and Chinese suppliers with relationships between three and ten years. They found that cultural "adaptation" occurred over time that allowed both parties to reap benefits.

Similarly, in non-Chinese work, Schoenherr *et al.* (2015) found that greater cultural understanding bred more trust and better buyer/supplier relations in a study with respondents from a wide variety of countries.

On the other side, Cheung *et al.* (2010), in surveys involving 16 countries, found that "cultural distance" (as measured by the Kogut and Singh, 1988) between buyers and suppliers just didn't matter.

However, we refer the reader back to Section 4.2 of this paper for a general critique of using that particular method. In contrast, in a study of French Canadian, English Canadian, US, and Mexican purchasing agents, Cannon *et al.* (2010) did find that culture matters, as did Aquilon (1997) in a broad European study.

6.3 Facility Location

Facility location and national culture has been the subject of study for five works that differ in their focus.

Location by country:

Caniato *et al.* (2015)

Hahn and Bunyaratavej (2010)

Handley and Benton (2013)

Location within a country:

Metters (2008)

Metters (2017)

The articles concerning what country to locate to had contradictory results. All the papers looked at outsourcing and offshoring. Caniato *et al.* (2015) looked at offshoring services and found that the "cultural distance" between the country of the provider and the country of the firm offshoring the work simply did not matter (we refer the reader to the "cultural distance" metric discussion in Section 4.2). Hahn and Bunyaratavej (2010) came to the opposite conclusion regarding services offshoring. Handley and Benton (2013), using the same "cultural distance" metric as Caniato, *et al.*, concluded that increased cultural distance led to higher control and coordination costs. Corroborating the "culture matters" camp is the practitioner survey of Brush *et al.* (1999), which found that culture is an important aspect of plant location decisions.

A different way of viewing location is determining a specific location once the country decision is made. Freeman (2000), an Anthropologist, cites the unusual problem a major US airline had in developing a site

for their ticket processing facility. When physical tickets were used for airlines, revenue recognition could not take place until the tickets were processed by the airline's computer system. Until the early 1980s, these tickets were processed in Omaha, US Processing consisted of typing information on the tickets into a computer database: basic transcription. According to the executive who ran the unit at the time – and later became CEO of the airline – the work was "a dreadful job, boring work" (Metters, 2008). Attrition and absenteeism were rife, with turnover of approximately 40%, and wages were high. The airline moved the work to Barbados, where wages were half those in the US, absenteeism was negligible, and attrition dropped to 2%. This facility was so successful that the airline sought out transcription work from other firms, and the facility became the largest private employer on the island, with over 1,500 workers (World Bank, 1995, p. 52).

The main reason for moving the facility to Barbados was to cut costs. Note from material in Section 1 that the minimum wage in Barbados today ($3.15/hour) is still less than half the US minimum wage ($7.25). Yet they located the facility on some of the most expensive real estate in Barbados, in the capital city of Bridgetown. This caused problems for workers. Although the island is small, rush hour traffic is intense due to the small network of roads, and one-way commutes were routinely over a half-hour by bus, with an additional 15-minute walk from the bus station to the facility. However, sites in Bridgetown were deluged with job applicants, whereas cheaper locations closer to the workers' homes did not generate enough applicants to merit opening. Freeman explains that going to work in downtown Bridgetown was regarded as prestigious by the workers, whereas working in the countryside was not. As a symbol of that prestige, the women workers – 98% of the workforce – wore high heels and expensive dresses to commute back and forth to work. According to Freeman, the point was to be seen. In a reversal of US custom, the workers changed from their high heels to sneakers once in the office. This observation gave rise to the title of Freeman's book: "High Tech and High Heels."

Locating in the wrong place to minimize costs and travel time made the jobs at the airline wildly popular among women in Barbados, with a ratio of 10 applicants for each position available. If they had followed

prescriptions from the OM literature they would have located the facility in an optimal low cost setting – and likely failed.

As reported by Metters (2017), in many situations around the world, by far the most common location decision to make is whether to have a physical location at all. In many parts of the world factories in many industries would not be built. Instead, for what is considered "women's work", the work is brought to the woman's home, rather than the woman going to a factory. The work is somewhat wide ranging. For example, sewing zippers or lining onto garments, assembling electronic or plastic devices, shoemaking, packing industrial shipments, even peeling shrimp (Rowbotham, 1993). This type of employment is typically termed "industrial homework" to distinguish it from work as, say, a maid, or knitting as a pastime with an occasional craft sale. (Note that "homework" is not "domestic work". Homework is industrial work performed in one's own home, domestic work, such as maid service, is done in someone else's home.) The International Labour Organization (2012) claims there are 100 million such workers world-wide, 80% of whom are women, with somewhere between 25% to 60% of the garment and textile global workforce structured this way. The estimate is wide ranging because this labor is usually off the official books. For example, it is claimed that only 2% of Turkish shoemakers and 8% of carpet manufacturers are formally registered with the government (Dedeoglu, 2008, p. 47). Homework predominantly takes place in South Asia. In India, 80% of home-based workers who undertake piece-rate work for larger industrial firms are women (World Bank, 2011, p. 174). It is estimated that 50% of the non-agricultural female workforce are home-based (World Bank, 2011, p. 174). However, there is an estimated one million such workers in the UK, several thousand in Toronto, and significant numbers throughout Western Europe (Rowbotham, 1993), Mexico (Alonso, 1983; Safa, 1983), and even Silicon Valley (Green, 1983).

There are obvious operational disadvantages to homework: training in new techniques is impossible; machinery is limited to what can be in a home; quality cannot be monitored; lengthy assembly lines cannot be formed – the number of operational issues is too long to list. However, there are strong reasons both for the women who do this work and the

firms who pay for it to continue the practice. A pernicious advantage to firms is that this labor can be exploited. It is piece-rate (e.g., pay is by the number of garments finished) rather than by the hour, as it is naturally done outside the view of any foreperson, and it has been calculated that the piece-rate is about $\frac{1}{4}$ of the local, legal minimum wage (World Bank, 2011, p. 175). For the particularly Machiavellian manager, virtually all safety regulations can be ignored – if someone's home isn't properly ventilated or there's not proper fire safety, it's not their fault! This practice also helps by providing a firm with surge capacity. Hiring/firing of workers is avoided. If more capacity is needed, reach out to more homeworkers. If less capacity is needed, don't send out work this week.

Due to abusive pay practices "protective legislation" for women banned industrial homework for a time. In the US this work was banned for a variety of different industries by a number of administrative implementations of the Fair Labor Standards Act between 1941–1945. Most of these bans were rescinded in 1989 (Boris, 1994), but it remains generally illegal in 2015 to manufacture women's apparel or to make certain types of jewelry at home in the US (US Department of Labor, 2015).

If the pay is so poor, why do homeworkers do it? Industrial homework is global. Consequently, the reasons why women do homework differ considerably by culture.

The reason why the US laws against this practice were rescinded is that it is now seen in the US as a way to achieve work/life balance. Flexible work hours allow someone to earn some money while being able to keep an eye on the kids and take them to a doctor's appointment midday.

However, where homework is most prevalent there is a different reason for women to do this. To understand it, we have to explore what is called "purdah." Purdah is a religious/social practice among some Muslims and, to a lesser extent, Hindus. The most common symbol of purdah in Western society is the extremely concealing clothing: the burqa. However, "purdah is better understood as the broader set of norms and regulations that promote the seclusion of women, enforce their exclusion from public spaces and give specific gender identities to

labor" (Amin, 1999, p. 219). It is not within the purview of this article to construct religious arguments, but the base reason for purdah is seen by its adherents as protecting women – much like Western Europe believed they were protecting women by banning them from the night shift years ago. In general, the "pro" argument is that sex segregation and the wearing of a burqa protect women from being harassed or seen as sexual objects. The "con" argument is that purdah oppresses women. In a broader social sense, among those for whom purdah is practiced in a strong sense, "female employment is considered a disgrace... and is seen as a fall in social standing of the concerned family" (Mirza, 1999, p. 188). There is a sliding scale of purdah observance with more strict observance seen as a status symbol among its adherents (Dannecker, 2002).

As noted previously in this article, in many societies it is considered inappropriate for a woman to work after marriage – more precisely, it is inappropriate to work outside the home. In the Korean factory study referenced earlier (Kim, 1997) women only quit outside employment upon marriage. Outside employment is seen as violating this social rule, being paid for doing the same work at home is not. Discreet homework is acceptable. It is viewed as "helping out." In certain parts of Turkey, women working at a factory is frowned on, but doing the same work at home for pay is "just passing time" (Dedeoglu, 2008, p. 121).

In a survey of Pakistani women workers 33% preferred 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).

Pakistani women trying to go to work have transportation difficulties not seen in other cultures. Due to women being in purdah, 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 (Khattak, 2002). This leads to a strong preference for very local employment – within walking distance. This desire for a job very close to home is also present, though for different reasons, in

Istanbul (Dedeoglu, 2008, p. 156) and Bangladesh (Dannecker, 2002). This has operational consequences. Rather than one large factory that can take advantage of scale economies, many smaller factories would be favored. This partially accounts for the 5,000 garment manufacturing factories said to be in Bangladesh.

Regardless of one's view, purdah and other views of women working outside the home exist in many countries and changes the operations of firms. Purdah also poses a challenge to facility layout in mixed gender environments and to situations where men are supervising women. Examples of changing layouts to be more in compliance with purdah are given by Dannecker (2002, p. 136) and Mirza (1999, p. 198).

The advice to management here is to do their own version of "homework": determine whether these issues exist where you do business. This means understanding a very local environment. For example, in India purdah is stronger in the states of West Bengal (Hussain and Siddiqui, 2013) and Uttar Pradesh (Basole, 2012), and weaker or non-existent elsewhere. The attitudes that shape these decisions are regional.

7

Comparative International Studies in OM

This article concerns cultural research in OM. This section details a related, but different body of literature: "international research." We define international research as publications that draw on comparative data from several countries. There is a distinction, though it can be a blurry one, between international research and national culture research. Research can certainly be centered on "national culture" and only have data from a single country. The vast bulk of Anthropological research is in this category.

This section is focused on OM research that has data from several countries, but that does not necessarily make any statements about national culture. Frequently, the differential data between countries is evidence of differences in practice, but no cultural statement is made as to why that difference may exist. These international differences can be considered as potential "source material" that have underlying cultural explanations.

While there are a few international OM databases and research consortia, we report here on the two largest and longest active. The Global Manufacturing Research Group (GMRG) and the International Manufacturing Strategy Survey (IMSS). The GMRG was founded by

Clay Whybark (University of North Carolina) and Boo-Ho Rho (Sogang University, Korea). The website GMRG.org lists 76 journal publications utilizing GMRG data from 1990–2012. Five rounds of data collection on OM practices from a wide assortment of countries has taken place. This work has largely been published in *International Journal of Production Economics* (24 manuscripts) and *International Journal of Production Research* (12 manuscripts), but also has strong representation in *Journal of Operations Management* and *International Journal of Operations and Production Management* (seven manuscripts each).

The International Manufacturing Strategy Survey was started in 1992 by London Business School and Chalmers University. There have been five additional rounds of data gathering from 22 countries. The website Manufacturingstrategy.net lists 69 journal publications from 1996 to 2018 using these data. Journals most frequently publishing this work are *International Journal of Operations and Production Management* (16 manuscripts) and *International Journal of Production Economics* (14 manuscripts). *Journal of Operations Management* (six manuscripts) and *International Journal of Production Research* (five manuscripts) have also published this work.

7.1 International OM Study of Prasad and Babbar

Prasad and Babbar (2000) catalogued the "international operations management research" published in 28 journals from 1986–1997. For reasons to be discussed shortly, cataloging such work was not a mere matter of a keyword search on Google Scholar. "In determining how an article would be classified, the title, abstract, keywords or the main body of the article was reviewed" (Prasad and Babbar, 2000, p. 212). Apparently, reasonable people can disagree on whether or not an article is "international OM". The two authors had inter-rater reliabilities between 76% to 95% in categorizing articles. A total of 548 articles, roughly 2.5% of the total articles reviewed, were deemed "international". However, 247 of those articles were "single-country studies (94 were single-country studies of the US). For example, "Procurement practices in the US broiler industry: shall we call them JIT?" (Aull-Hyde *et al.*, 1994) is on the list as an "international OM" article though the only

Table 7.1: Operations management articles involving national culture cited by Prasad and Babbar (2000)

Seto, 1988	Int'l J Physical Distribution and Materials Management	Distribution costs in Britain and Japan
Chikán and Whybark, 1990	Engineering Costs and Production Economics	Survey of inventory management practices in Korea, Hungary, US, and Western Europe
West, 1992	Int'l J Production Economics	Inventories in Japan vs. US
Klassen and Whybark, 1994	J Operations Management	Barriers to international operations
Matsuura *et al.*, 1995	Int'l J Production Economics	Operations in Finland vs. Japan
Phatak, 1995	Textbook	International management

data is from the US broiler (a type of chicken) industry. So, we are left with 201 articles, roughly 1% of all articles studied, that involved multiple countries. Prasad and Babbar divided these articles into 19 categories, but culture was not one of them. The article contained one paragraph on culture which parenthetically listed six articles involving culture and OM (Table 7.1).

Unfortunately, even the few articles on the Prasad and Babbar list are not truly about culture. They would be more accurately called "differential lists of activities."

- Matsuura *et al.* (1995) presents a list of different levels of practice adoption in Finland and Japan of JIT and MRP. No cultural explanation is attempted.
- West (1992) notes the aggregate corporate inventory differences in Japan and the US and makes no cultural assertions.
- Seto (1988) compares retail margins on consumer goods in the UK and Japan – no mention of culture.

- Chikán and Whybark (1990) list how different companies in different nations tend to do OM differently, but do not comment on culture (e.g., "In order of increasing use [of computers in forecasting], South Korea is followed by China, then comes Hungary, and Western Europe." p. 153).

7.2 Articles in Selected OM Journals with Data from Three or More Countries

To be clear, the main purpose of this article is exploring "cultural," not "international" work per se. The reason for cataloging "international" empirical work is two-fold: it provides a base for cultural researchers to draw on, and it provides a natural opportunity to make cultural hypotheses.

We reviewed the 3,704 papers published in the journals *Production and Operations Management, Journal of Operations Management, Manufacturing and Operations Management*, and the OM Department of *Management Science* from 1990 to 2017 to look for articles with data from three or more countries. In total, 74 manuscripts (2%) were found. A detailed listing by journal is on Appendix Tables A.3–A.6.

Our search was as difficult as Prasad and Babbar's (2000). A keyword search for items such as "global" and "international" was insufficient to discover all the work done, so every prior article of these journals were viewed individually to determine whether they met the criterion. The task is difficult as titles and keywords can be misleading. *Journal of Operations Management* used the keyword "international issues" for the Song and Parry (1999) study on product development that happened to take place in Japan – any work outside North America is often labeled "international". A few examples, nearly all from *Management Science*, are titles that seem like they might contain such data, but do not:

1. "Home or overseas? An analysis of sourcing strategies under competition" Wu and Zhang (2014) contained no data.

2. "A game-theoretic model of international influenza vaccination coordination" Mamani *et al.* (2013) contained no data on actual flu vaccination.

3. "Cutting in line: social norms in queues" (Allon and Hanany, 2012) would seem to be an ideal cross-cultural study, but it is not.

4. "Estimating the operational impact of container inspections at international ports" (Bakshi *et al.*, 2011) contained data from only two ports, neither of which is identified.

Likewise, there is the possibility for type-2 errors: there are papers with titles that do not seem to be related to multi-country studies, but do have such data. Some examples:

1. "Revisiting the theory of production competence: extensions and cross-validations" (Schmenner and Vastag, 2006) contains data from all inhabited continents.

2. "The effects of technological turbulence and breadth on supply chain technology acceptance and adoption" (Autry *et al.*, 2010) contain data from the US, Germany, UAE, Japan, and China.

As a consequence, we can only state that the lists provided here are accurate to the knowledge of the researchers. If there are miscategorised articles, please contact the authors. We intend to keep an updated listing.

We have specifically NOT included manuscripts that measured stock market response to operational performance (e.g., "the impact of environmental management on firm performance" Klassen and McLaughlin (1996), and approximately 10 papers from Hendricks and Singhal). Queried about the international aspects of those works, V. Singhal responded that "most of the sample companies (at least 95%) are USA headquartered companies. The non-USA headquartered companies are those that have American Depository Receipts traded in the American exchanges. Examples would be Toyota, Honda and some Canadian firms." Hence, these were deemed single country studies for the purposes of this manuscript.

The number and percentage of "international data articles" differed strongly between the journals as shown in Figures 7.1 and 7.2. *Journal of Operations Management* has long laid claim to being an "empirical

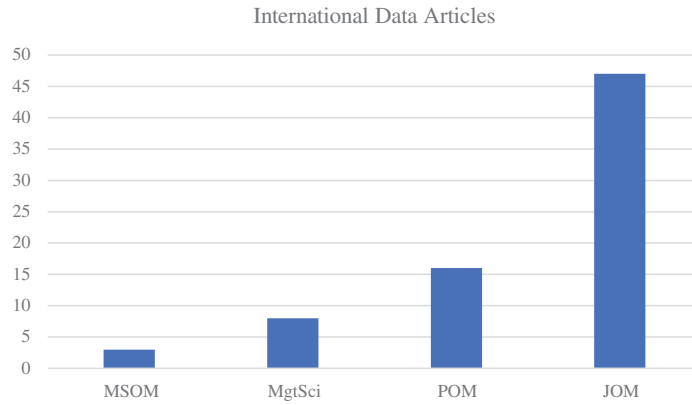

Figure 7.1: Articles published from 1990–2017 with data from three or more countries in four academic journals.

MSOM: *Manufacturing & Service Operations Management*
MgtSci: *Management Science*. Operations Management Department articles only
POM: *Production and Operations Management*
JOM: *Journal of Operations Management*

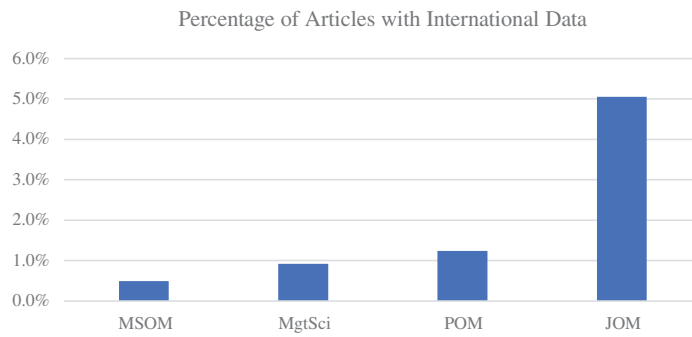

Figure 7.2: Percentage of articles published from 1990–2017 with data from three or more countries in four academic journals.

MSOM: *Manufacturing & Service Operations Management*
MgtSci: *Management Science*. Operations Management Department articles only
POM: *Production and Operations Management*
JOM: *Journal of Operations Management*

journal," and it leads the others by a considerable margin. However, still only 5.1% of JOM's articles had data from three or more countries.

Similar to the manuscripts highlighted by Prasad and Babbar, many papers in Appendix Tables A.3–A.6 note differences in results by country, but generally do not attribute them to cultural issues nor do they seek

Table 7.2: Analysis of four academic journals regarding international and cultural content

Journal	Manuscripts with Data From Three or More Countries	Manuscripts with National Culture Content	Data From >= Three Countries and National Culture Content
JOM	41	24	15
POM	16	2	1
Mgt Sci	8	2	0
MSOM	3	0	0

JOM: *Journal of Operations Management*
POM: *Production and Operations Management*
Mgt Sci: *Management Science*
MSOM: *Manufacturing & Service Operations Management*

answers as to why those differences occur. They simply note that country differences exist (Table 7.2).

For example, Brush *et al.* (1999) had only had one question in their survey with any cultural content: "does language, culture, or politics matter in plant location?" Responses indicate this was the fourth most important characteristic of the 19 items surveyed but no further cultural content was involved. de Koster and Balk (2008, p. 182) observed international differences in warehouse operations, but only one cultural issue was commented on, and that comment was meant as an aside: "Japanese managers try to implement Japanese quality and service standards, often at relatively high cost, but with little evident success." Gray and Massimino (2014) were more typical of what is seen in the wider business literature: some of Hofstede's numerical values on culture were used as control variables, as well as an indicator variable for language.

Few of the articles in Appendix Tables A.3–A.6 contain significant cultural content. Note, we do not imply that these articles were not done well, nor do we imply they are poor research. Rather, they constitute the universe of research in these journals. Our only implication is that a nuanced understanding of national culture is not prevalent, and therefore many potential interesting research questions are not being asked.

National culture, at least as an explicit component of models, largely has been missing from the OM literature. The overriding message from these studies is that national culture matters more than geography and that national culture is an important explanatory variable in OM decisions and outcomes. Of all the studies in OM only one study found outcomes that transcended national culture: service satisfaction was the same despite differences in country or national culture (Youngdahl *et al.*, 2003).

The literature suggests that managers who can ascertain levels of uncertainty avoidance, power distance, masculinity and collectivism, as many studies that examine culture do, can understand which decisions will work or not in each culture. These studies tell us "what," but not "why," "what to do about it," or "how to change it." As a concrete example, Hausman *et al.* (2013) studied logistics costs in 80 countries. The article authoritatively shows the differences in costs between countries – which was the purpose of the article. But if a business experiences high logistics costs in country X, there is no advice to remedy the situation other than "logistics is less expensive in country Y." The article was excellent, but there is more that OM researchers can do.

Missing from this literature is any advice to managers about how to change or attempt to manage national culture. The overarching message is national culture can be identified but it cannot be managed.

8

Endogenous Culture: Organizational Culture Literature Review

In OM research the endogenous culture that is usually studied is organizational culture (Appendix Table A.2). Like the national culture literature, most studies have investigated organizational culture as an explanatory variable for operational decisions and outcomes.

Unlike the national culture literature which is heavily centered around Hofstede's (1980) cultural dimensions there is a much larger array of theories and typologies used in organizational culture research in OM. These include O'Reilly *et al.*'s (1991) organizational culture profile (OCP), Hofstede *et al.* (1990) organizational culture practices, Harrison (1987) four dimensions of organizational culture and the competing values framework developed by Quinn (1988).

Studies of quality management (QM) used the competing values framework to explain which organizational culture attributes lead to which QM practices and performance outcomes. For example, Prajogo and McDermott (2005, 2011) found support for a pluralist view of organizational culture: that different groups of QM practices are determined by different organizational cultures. Group and development cultures impact on leadership and people-oriented dimensions, while hierarchical culture determined QM practices focused on planning and

information. Later, they linked organizational culture to product and process quality and product and process innovation. Findings were that developmental culture (external/flexible) was the strongest predictor of product quality and product and process innovation. Rational culture (external/control) had a relationship with product quality and rational, group (internal/flexible) and hierarchical (internal/control) cultures predicted process quality. They argued for diverse cultural orientations especially as companies have to be ambidextrous taking into consideration both quality and innovation simultaneously and found a powerful effect of developmental culture on performance.

Similarly, other studies have pointed to certain cultural attributes as important to quality implementation and performance. Teamwork and respect were the most important factors in a firm using QM practices, with outcome-oriented and innovative companies more likely to use QM (Baird *et al.*, 2011). Certain cultural values are also seen as important for continuous improvement, with process-oriented values and communication with workers positively influencing continuous improvement effectiveness (Choi and Liker, 1995). While, in one time-based manufacturing study, customer orientation was found to increase a number of espoused values: management's belief in investing in facilities and equipment, collaborative and integrative activities with suppliers and making company-wide decisions, which then leads to increased time-based manufacturing practices and performance (Nahm *et al.*, 2004).

Other studies show most senior managers are focused on detection and reactive strategies, the hard aspects of QM, which lead to middle manager's compliance with short-term tactical orientations not long-term commitment; increased control of the workforce not work-related processes; tendency to agree to QM objectives to fulfill their own interests not QM objectives and organizational interests; and the inability to run QM effectively (Soltani and Wilkinson, 2010).

Interestingly, the organizational culture literature in the OM field has multiple studies on innovation whereas national culture research says very little about innovation. Organizational innovation studies use a variety of theories with several using the competing values framework. Some studies explore the implementation of innovation (Liu *et al.*, 2010;

Prajogo and McDermott, 2011), while others look at performance once implementation has happened (Khazanchi *et al.*, 2007; McDermott and Stock, 1999).

McDermott and Stock (1999), for example, found that no culture led to operational or organizational benefits but a group culture led to managerial satisfaction and rational culture led to competitive performance, while developmental and hierarchical cultures led to negative competitive performance after the implementation of a process innovation. The rationale here is that process innovation, unlike product innovation, is internally focused, and external cultures are not the best vehicle for internal innovation. Later studies, however, found that developmental culture was the best predictor of product and process innovation (Prajogo and McDermott, 2011) and when implementing process innovation managers need to have a control culture at the beginning of the process but this will need to change to a flexible culture to achieve performance improvement (Khazanchi *et al.*, 2007). This will also have to be congruent between managers and operators throughout the organization as the more congruence of flexibility between the employees the more improvement occurs after implementation (Khazanchi *et al.*, 2007). The difference between these findings could be down to the time of the study, the higher-level constructs (flexibility/control) or the different definitions of performance improvement.

Although several studies have found specific cultures that either help the implementation or performance of innovations, others point out although there is a consensus that organizational culture is critical to any change initiative there is no consensus on what the culture should be (Škerlavaj *et al.*, 2007).

This could be because although a lot of researchers look for the one best culture for their method or implementation, several different cultural attributes might be optimal. One study examined multidimensional culture (organizational learning culture) and found that it impacted the financial performance of the firm indirectly through non-financial customer, supplier and employee performance (Škerlavaj *et al.*, 2007). Similarly, Hult *et al.* (2000) concluded that several organizational culture factors positively influence organizational learning between one multinational company's users of goods and services and

multiple organization's buyers. The key factors were localness, transformation leadership and openness. They also found that organizational learning, in turn, has a positive impact on information processing, which leads to improved cycle times for purchasing (Hult *et al.*, 2000).

Even though there is a plethora of studies showing that organizational culture affects decisions and outcomes there are also studies that dispute this. One study found that building relationships was more important than having an internal innovation climate for both external and internal innovation. External relationships were the key ingredient for maximizing supplier innovativeness and internal innovation strategy rather than organizational culture (Oke *et al.*, 2013).

One interesting study, by Bititci *et al.* (2006), proposes that organizational cultures can be shaped to implement performance measurement systems. The authors developed a framework for mapping the relationships between organizational culture, management style and the implementation and use of performance measurement systems. They used Harrison's (1987) classification of organizational culture based on Hofstede's (1980) work: role, power, achievement and supportive cultures. They provide guidance for managers on what the management style should be when implementing performance measurement systems in different organizational cultures. Their main findings show that authoritative styles are necessary at the beginning of an implementation but as there are successes this leads to a more participative and consultative management style and encourages an achievement culture.

8.1 Inside the Organization: Operations Culture

The literature on safety in the workplace uses both the competing values framework and the literature on safety culture and/or climate. It is interesting to note that some OM researchers have chosen to focus on the concept of climate versus culture. This may be due to the perceived ease of use of climate versus the messier and more slippery concept of culture. The difference between climate and culture relates to definition as well as methodology. Schneider *et al.* (2013) define climate as the shared perceptions and meanings attached to policies, practices and procedures employees experience and the behaviors they observe

getting rewarded and are supported and expected. While organizational culture is the shared assumptions, values and beliefs that are taught to newcomers as the appropriate way to think and feel communicated by myths and stories about the organization as it solved problems of external adaptation and internal integration.

Ancarani *et al.* (2011) asserted that climate was easier to study as it is behaviors that are expected and rewarded in an organization and can be actively managed in the pursuit of goals, objectives and performance. This resulted in different methods to study climate and culture with climate more formalized and survey oriented and culture research initially as more qualitative but more recently also became formalized and survey-oriented (Schneider *et al.*, 2013).

The strongest link between organizational culture and error reduction in hospitals was attributed to the group culture as well as critical success factors such as an open discussion of errors, no blame for errors, education and training as well as system redesign (Stock *et al.*, 2007). Additionally, Ancarani *et al.* (2011), found that the ward manager's orientation towards the organizational climate determined the perceived climate of staff and patient satisfaction. Using the competing values framework, they found that leader's congruence with group cultures (called human resource climates in their paper) increased patient satisfaction. They also found several practices create a human resources climate: empowerment, support and training. Similarly, another study highlighted the role of leadership in safety with transformational leadership found to lead to a safety culture, safety initiatives and improved outcomes for patients in a patient safety chain (McFadden *et al.*, 2009).

In one study of the introduction of computerized provider order entry systems, an information system that digitizes patient information and provides standardized care pathways, the research asked how these systems interact with patient safety culture and impact the quality of care patients receive. The study found that the systems were both a complement to patient safety culture, where the system and the cultural attributes worked better together than alone, but also a substitute, where the system can take over from some aspects of patient safety culture as they share similar functions. In particular, the systems complement the patient safety characteristics of handoffs, feedback and

communication of errors, and organizational learning and can substitute for management support of safety. Together these increase quality of care for patients (Queenan *et al.*, 2016).

Although many studies focus on one type of culture as key to implementation and performance outcomes, other safety studies have developed more cautionary advice regarding the type of culture and behavior that will lead to safety outcomes. For instance, Boyer *et al.* (2012) stated that in smaller hospitals practices focused on specific safety outcomes led to enhanced performance, while for larger hospitals the development of a climate focused on safety outcomes was key. Managers therefore have to be careful to implement practices in smaller hospitals but a general culture of safety in larger hospitals. Similarly, other findings give credence to an ambidextrous view. Pagell *et al.* (2014) found support for a joint culture of productivity and safety would lead to increased performance outcomes for both productivity and safety more than having one or the other.

8.2 Outside the Organization: Culture Across Supply Chains

A specific supply chain culture is not mentioned in the OM and supply chain literature. It is alluded to in conceptual papers, but there is no evidence that a supply chain culture exists, rather it is made up of multiple organizational cultures (Cadden *et al.*, 2014). Supply chain design, implementation and performance are also key themes in the organizational culture literature. From cultures that create supply chains (Pullman and Dillard, 2010) to cultures that create integration among supply chain functions (Pagell, 2004).

For example, Cadden *et al.* (2014) took a supply chain view of culture and examined cultures of high and low-performing supply chains. Surprisingly the most congruent supply chain was also the lowest performing. The high-performing supply chain had diverse but complementary cultures. However, the authors stated that the type of supply chain culture could be key and a congruent culture emphasizing external, open and collaborative orientation may be the optimal organizational culture. Shub and Stonebraker (2009) echoed this and emphasized relationship-based rather than transaction-based cultures for optimizing supply chain

integration and performance. Additionally, achievement and affiliative cultures are crucial for supplier diversity, constructive cultures have high minority sourcing, while defensive or passive cultures lead to a less diverse supplier base (Whitfield and Landeros, 2006).

Although there is no evidence of a specific supply chain culture *per se* there are several studies that investigate the performance outcomes for supply chains with different cultural influences. It is suggested that compatible values, beliefs and behaviors (cultural fit) affects the performance of supply chains (McAfee *et al.*, 2002; Mello and Stank, 2005) with Mello and Stank (2005) concluding that cultural incongruence has a mixed influence on supply chain performance outcomes. While others found cultural fit to be key in achieving and sustaining successful relationship outcomes (Cousins *et al.*, 2006; McAfee *et al.*, 2002).

Additionally, organizational values influence the selection of suppliers and the type of relationships that will be established. Shared values may play a significant role in developing and maintaining relationships with supply chain members (Dwyer *et al.*, 1987; Morgan and Hunt, 1994). Value compatibility between supply chain members means that they can create procedures and practices that are complementary and help with the development of successful supply chain relationships.

8.3 Research Agenda for Organizational Culture

A criticism of extant research on organizational culture in OM is that it treats culture as static and therefore provides no insight for operations managers looking to change their organization's culture. In contrast, Robson *et al.* (2016) offer an example of research that explores changing organizational values; specifically how to move from not valuing to valuing the operational workforce.

We chose this example for multiple reasons. First, the use of multiple retrospective case studies is a research design that would be familiar to operations management scholars. So while we believe research should go further in embracing the tools of anthropology, this research shows that even using familiar tools, additional insight can be gained.

We also chose this example because it focuses on how firms change their culture in terms of valuing the safety of operational workers.

Researchers have called for safety to be treated as a core operational outcome and valuing safety has been linked to improved operational performance (e.g. Pagell *et al.*, 2014). This manuscript is published in a safety journal, but it deals with operational issues, workers and outcomes.

Finally, this study builds on the extensive change management literature to explore both the process of change and the content of that change (see for instance Burke, 2017). We bifurcate our call for further operations management research along the same process and content divide because building or changing an organization's culture is a form of change management and hence researchers would not need to start over when researching changing an organizational or operational culture. However, the content is likely to be specific to the operational domain.

In sum, this example manuscript explores an operational topic, using familiar methods and builds on extant foundations that provide the basis for future research on process but not content. This makes the paper accessible, but it should also make it clear that there is no excuse for the lack of such studies in the OM literature.

8.3.1 Future Research on Organizational Culture from a Process Perspective

Organizational culture research focused on process addresses questions such as how to build, maintain or change a culture; with change being the most common focus. The basics of most change models are fairly similar. The process of change starts with a stimulus, often from the external environment, the stimulus provides the impetus for change, but to initiate the change the organization also needs knowledge of what the new state would entail and someone to lead the transformation effort (e.g. Burke and Litwin, 1992). Transformation starts with triggers for change and then flows through the organizational attributes needed to initiate a successful change process.

Breaking the process into its elements of trigger, leadership, and gathering knowledge, provides a good framework for thinking about future operations management research on organizational culture from a process perspective. For instance, the impetus to change is often

externally influenced (e.g. Burke and Litwin, 1992). Management systems such as lean or ISO certification require changes in both processes and culture (Lewis, 2000) and are often pushed into firms by customers and suppliers. Similarly, stakeholders such as NGOs are often credited with driving firms to make their supply chains more sustainable (Shevchenko *et al.*, 2016).

Yet in our own research on safety in operational settings, we found examples where change was internally driven. For instance, in one foundry we studied the plant manager was making efforts to change the facility from being the "armpit of the company" to a more desirable place to work. This entailed making work both safer and more pleasant. The impetus to change was internally driven by the plant manager and the local union, not by customers, regulators or other external stakeholders.

Therefore, one area OM researchers need to explore is what triggers/influences a firm's recognition that it needs to change its organizational or operational culture? This question takes on additional relevance when placed in a supply chain context where a chain member may be looking to change the values of another member of the network. We would expect that a large buying firm would have the power to push a smaller supplier to change, but what do small buying firms do to influence their network? Similarly, how do NGOs move a firm to value the environment or local community? Finally, it seems probable that externally-driven change is less likely to be successful or to require more or different resources to be realized. But research is needed that explores how internally and externally driven changes differ in terms of process, the needed resources and outcomes.

Research is also needed on the leaders of cultural change. Recent research has focused transformational leaders, who are often not a top manager (e.g. García-Morales *et al.*, 2012). Research could then explore how operations managers, in the guise of transformational leaders drive change in an organizational culture. For instance, it is often noted that management systems such as lean require specific organizational values to succeed (e.g. Longoni *et al.*, 2013). Unexplored is how an operations manager recognizing a mismatch between the values needed to successfully adopt lean production and present organizational

values can drive change in the organization? For instance, we studied a privately-owned manufacturer of fireplaces that had hired a plant manager with experience working at Japanese-owned facilities with the explicit remit to bring lean to this setting. However, the firm was hierarchical and the managerial processes were described as ad-hoc and done "on the fly". This was a firm whose embedded norms were far from those that lean required. The new manager struggled with how to close that gap which suggests two related research questions. The first is how to initiate a change in an organizational culture from the inside, when such a change is effectively saying our current norms and values are not fit for purpose. The second related question is how to create support when the value of change is not clear to the majority of the organization's members?

The final component of the framework is knowledge gathering. The firms in Robson *et al.*,'s work are typical in that they were trying to change to a state others had already achieved. Firms who valued the safety of their operational workers already existed and could be benchmarked to extract knowledge on how their values and processes differed from the case firms. Benchmarking practices and routines has a long history in OM study (e.g. Voss *et al.*, 1997). However, the focus is often on what to do, not how or why it is done. Benchmarking tends to focus on the performance of a routine as opposed to its ostensive elements (Feldman and Pentland, 2003). However, the ostensive, how a routine is understood through the filter of the culture determines how the routine will be performed (Feldman and Pentland, 2003). In other words, benchmarking can only be truly successful if both the process and culture are understood. Once more the network or supply chain setting suggests unanswered questions on how to transfer not just practices or technology within a chain, but how to transfer the tacit understanding and culture as well.

Benchmarking and the like, would be of limited use for firms attempting to change in a space where knowledge had to be built rather than identified. Therefore, another area worthy of exploration is where there is an identified need to change and someone to lead the change but limited existing knowledge to build on. This issue is longitudinal but could be addressed to some extent by using retrospective data.

Such a study would likely only capture successes because firms that did not change would be inherently difficult to identify and unlikely to participate. And if they did participate the likelihood of retrospective reports being valid would be very low. However, to properly avoid the biases inherent in only studying exemplars or success would require longitudinal data and a sample that included both successes and failures. This is a suggestion embedded in OM's existing norms. However, changing an organization's values or norms; especially changing these values or norms to something for which there is no extant template seems to be exactly the type of question that is best addressed using engaged/anthropological methods.

A more interesting special case would be new facilities; where the culture would have to be built from scratch. And in many organizations and supply chains new facilities are built in different national cultural contexts raising multi-level questions of building an organizational culture in a national culture setting that is unfamiliar to top management. The OM literature is full of elegant models of where to locate a facility, none of which could address questions of building a culture from scratch.

Finally, there is the issue of maintaining a culture. For instance, we studied a furniture manufacture, which had won a Shingoprize (2017) about a month prior to our study. The same facility had also won multiple safety awards over the previous decade; this facility was an exemplar of safe production (Pagell *et al.*, 2014). Based on the Shingo criteria, discussions with top management and the exemplary safety results, the facility should have had a highly supportive culture in terms of safety. Yet discussions with line managers and a survey of the workforce told a more complicated story. Specifically, that there was no longer a supportive culture, though there had once been one. The supportive culture for safe production that had taken well over a decade to build was deteriorating due to top management's recent focus on cutting costs, which was accomplished by replacing full-time workers with temporary workers. In addition, top management began treating safety as something they had accomplished and which therefore no longer needed significant resources. Safety had previously been a top priority as evidenced by both the investments made in safety and the invectives to be safe. But line managers and workers perceived this to

no longer be true, even though safety performance itself had not (yet) suffered. Only time would tell if top management was being complacent or rational in their belief that they had mainlined the old culture while pursing the new objective of cutting costs. But in the interim the line managers and workers saw a change in organizational values that placed less of an emphasis on safety or worker well-being. The question is then how to maintain an organization's culture especially as the context changes.

Robson *et al.* (2016) provide an example of the type of research that is possible using familiar tools to explore the process of change. However, change processes by their nature are behavioral and hence hard to model and not amenable to cross sectional studies, surveys, and the like. We can begin to understand some of the elements of change; such as how an internal change agent gets buy in, using familiar methods. But to understand the overall process will likely require the move to new methods.

The literature provides a great deal of foundational work on change in general; meaning the literature can provide some direction in answering process questions. However, the literature is mainly silent on cultural change in supply chain or network settings. Anthropologist and sociologists have long studied networks of individuals (e.g. Wellman, 1979), but a network of organizations implies multi-level studies where organizations have both their own culture and share elements of a culture (or not) with other network members. Hence there is a large opportunity for OM scholars to build truly new knowledge and theory in this space; knowledge and theory, which would be of benefit far outside the OM domain.

8.3.2 Future Research on Organizational Culture from a Content Perspective

The literature on change management provides a foundation for understanding the processes related to building, changing or maintaining an operational culture. However, the content of organizational cultures; from the perspective of how they inform operations management, is likely to be much more domain specific.

For instance, Pagell *et al.* (2015) conclude that the content of the organizational culture that allows a firm to balance tensions between being safe and operational effectiveness is operationalized in formalized routines that provide little if any flexibility in how they are performed. Yet many other models of dealing with tensions between potentially competing priorities, that are not operational specific, suggest the opposite. For instance, Weick *et al.*'s (1999) model of a highly reliable organization includes some level of adhocracy or flexibility in the performance of routines to be highly reliable, while Bechky and Okhuysen (2011) suggest organizations need to be able to shift roles and re-organize work on the fly. According to Pagell *et al.* (2015) these differences are about levels of analysis and focus with scholars such as Weick *et al.* (1999) addressing the organizational not operational context. Therefore, the content of an organization's culture that supports operational or supply chain performance is unique to the operational realm and will require its own context-specific models.

We would suggest that researchers start to build these context-specific models by exploring the literature on climates. An organization's culture is its norms or values; a culture is tacit and cannot be directly observed. And the literature is clear that within an organization there can be multiple sub-cultures, such as a safety culture (Guldenmund, 2000). Yet these sub-cultures are often addressed via climate studies (Schneider *et al.*, 2013). Climate is based on workers' experiences and perceptions on what actions get rewarded or are supported and encouraged (Schneider *et al.*, 2013). Climate studies capture the content of an organizational subculture be it the service climate (e.g. Johnson, 1996) or the safety climate (e.g. Zohar, 1980). Climate studies often focus on the content that **operational** workers perceive as being rewarded and supported, yet research on operational climates and the cultures they reflect is absent from the literature (Pagell *et al.*, 2014).

Climate studies are popular in other domains for multiple reasons. First, they are predicated on capturing a wide variety of voices and perceptions, and typically operational workers' voices. Top managers write mission statements and make strategic plans, but they don't enact/perform the associated routines on a daily basis. As the example of the furniture maker showed, top management's perception of what

is rewarded and supported can differ greatly from what is perceived in the operational realm on the shop floor. In addition, to capturing a wide range of voices that are often overlooked in organizational research, climate data is often collected via surveys making it easy to quantify. And climate data has been shown to be predictive of future outcomes (Zohar and Luria, 2005); making climate a leading indicator.

Studying operational climate would then provide a pathway to a much deeper understanding of the content of organizational cultures from an operational standpoint. Research should answer a range of questions beyond the basic question of what does an operations climate entail.

For instance, safety climate has a strong normative element and safety climates are ranked from strong (positive) to weak (negative). However, it is far less clear if an operational climate would be universal or contingent. A universal model implies there is a set of values that all organizations should have. In safety this makes sense in that it is unlikely anyone would advocate that firms harm their workers. However, a universal model for operations could not be normative given the range of operations strategies in the literature (Boyer and Lewis, 2002; Ward *et al.*, 1995). Certainly the sandcone model (Ferdows and De Meyer, 1990) suggests a universal approach, but advocating a lack of trade-offs is both contentious (e.g. Schroeder *et al.*, 2011) and not the same as suggesting that all firms should have the same operational values. However, our own research does in essence suggest that valuing safety is a universal norm that has positive operational implications (e.g. Pagell *et al.*, 2014, 2015).

From this we would posit that there is not one universal optimal operational climate or culture, but rather that operational climate and hence culture would be multi-dimensional with different firms valuing, rewarding and supporting different behaviors. Some behaviors, such as being safe or continuous improvement, would likely be universal while others such as a worker taking the initiative to change a product design to make it easier to produce, likely would not. Research needs to test this conjecture.

Climate studies, especially as typically conducted via surveys of workers are popular for their ability to capture a wide range of voices

in a quantitative manner and for their predictive ability. However, we worry that given the history and values of the OM field that cross-sectional surveys of workers will be considered an end-point. To us they are a foundation. And this foundation cannot be properly built using just surveys. Rather than adapting existing climate surveys to the operational realm (as we fear some might do) researchers need to first head into the field and understand how workers think about and interpret operations so that it is possible to capture how they understand what the organization values, rewards and supports in terms of operations.

Equally important, climate studies are step one. They can identify the content of an operations climate at a set point in time but they offer little insight into how the operational climate or the culture it reflects came to be, or how to change or maintain the climate and culture.

9

Summary and Conclusions

The literature review makes it clear that while culture has found a place within the OM research community, that place is mainly in journals other than those considered "top" journals (*Journal of Operations Management* being the one exception) and in a narrow topical and methodological niche that has limited the practical value of this research. Three interrelated issues are minimizing the impact of our research.

First, culture is completely absent from the mathematical paradigm that is responsible for much of the research in the domain. Second, when we do study culture it is very often from a perspective that seems to have been designed to placate reviewers who come from an analytical tradition and who are assumed to be uncomfortable with subjective constructs like values and beliefs. Specifically, much of the research on culture uses a mathematical representation of a national culture, generally Hofstede's. In these studies, the description of culture is given at least a veneer of objectivity by using secondary data and fixed attributes. But these studies stop at saying culture matters, which is at best of limited value to a manager who needs to work in a setting that may not be optimal.

Studies of organizational culture are more open to more "subjective" qualitative methods. Yet these studies tend to be idiosyncratic in the choice of cultural values and theories. Additionally, there is little in the extant OM literature that describes the processes of building, responding

to or changing a culture. OM research describes the values that best fit the practice of interest (e.g. Pagell *et al.*, 2014) but it does not provide any insight into what to do to reach this state.

We have shown that culture matters. The field does not need, though we will likely publish, more studies that show that organizational culture impacts the adoption of practices or performance. Nor do we need any more studies that link some dimension of Hofstede's model of national culture to performance outcomes. The field and the stakeholders we serve need to understand how to build, maintain, or change organizational cultures. To begin to build this understanding we would suggest that OM researchers follow the lead of their Marketing colleagues and find ways to adapt ethnographic tools to our unique setting.

National culture and organizational clearly affect operations. As the examples in this manuscript show, they play a large role in traditional OM topics like shift scheduling, location, quality, safety, layout, queuing, offshoring and outsourcing, inventory, project management, aggregate planning, lean, operations strategy, supply chain strategy, etc. However, you cannot find what you are not looking for. To take merely one journal example, but one that is an exemplar, in *Journal of Operations Management*'s "Why in the world did they reshore? Examining small to medium-sized manufacturer decisions" (Gray *et al.*, 2017) and "why locate manufacturing in a high-cost country? A case study of 35 production location decisions" (Ketokivi *et al.*, 2017) there is no cultural content. Paradoxically, practitioner surveys indicate cultural differences are the most important consideration in offshoring, and an obvious answer to why manufacturers locate in high-cost countries are cultural differences. In a review of re-shoring literature Fratocchi *et al.* (2014) list 30 reasons to reshore. Cross-cultural problems do not make the list. We do not submit that this research is faulty or should not have been published. On the contrary, both of these articles were finalists for *Journal of Operations Management*'s "Article of the Year" award. However, we consider it clear that there is "more to the story."

The lack of attention to cultural issues is bad news for the current relevance and accuracy of OM research. However, it is great news to those embarking on a career of cultural OM work – the field is wide open.

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Appendices

Table A.1A: National culture in operations management literature (published in OM-focused journals that have published >=3 culture articles)*

Authors/Year	Journal	Theory of National Culture or Geography	Key Conclusions
Griffis *et al.*, 2014	DS	Hofstede	Supply chain ethics is related to Power Distance and Collectivism/Individualism of home countries.
Power *et al.*, 2015	DS	GLOBE	Plant investment in environmental and safety practices is related to cultural dimensions.
Yan and Nair, 2016	DS	Hofstede; GLOBE	In China less formalization in rules works better than the same practice in the US.
Bendoly *et al.*, 2006	IJOPM	Geography	Study of the effect of task interdependence and culture on supervisor perceptions of ERP. Chinese managers are enthusiastic about the communication capabilities of ERP systems regardless of interdependence while US managers only saw the benefits of ERP when there is high interdependence between internal processes.
Cagliano *et al.*, 2011	IJOPM	Hofstede	Investigation of the relationship between new forms of work organization (NFWO), country impact, national culture and economic development. NFWO were more likely adopted in cultures of feminism and low uncertainty avoidance. The cluster that had highest overall adoption of NFWO was the cluster including Northern Europe, which scored low in all factors except individualism.
Chipulu *et al.*, 2014	IJOPM	Hofstede	Survey to understand the impact of cultural values on the project success and failure across eight countries, Brazil, China, Greece, Nigeria, Thailand, the UAE, the UK and the USA. Results show that success and failure is impacted by age, gender and cultural values.

Table A.1A: Continued

Authors/Year	Journal	Theory of National Culture or Geography	Key Conclusions
Jia and Lamming, 2013	IJOPM	Geography	Four pairs of Western buyers and Chinese suppliers "culturally adapted" to each other.
Kathuria *et al.*, 2010	IJOPM	Geography	Investigation if the competitive priorities in India will differ to the rest of the world due to cultural traits of high power distance and high collectivism. An emphasis on quality over other competitive priorities in India was consistent with global trends, although there were differences across managerial levels.
Laohavichien *et al.*, 2011	IJOPM	Geography	Survey of manufacturing managers in Thailand to understand the effect of leadership on infrastructure, quality management practices and quality performance. Thai national culture did not have a significant effect on the outcome. Leadership in Thailand was a complementarity of transformational and transactional leadership due to specific Thai traits and only one infrastructure practice: HRM affected one QM practice: SPC. While QM practices affected product returns, product rework and scrap levels.
Metters, 2008	IJOPM	Trompenaars	Study of the role of national culture on the decisions taken when offshoring service operations. Local culture issues influence decisions on where to locate: both which country and where in the country, the implementation of TQM and the introduction of night shifts. The paper emphasizes a particularism focus when it comes to cultural issues and concludes our bias towards universalism (trying to implement the same thing irrespective of context) leads to failure in strategic decisions.

Table A.1A: Continued

Authors/Year	Journal	Theory of National Culture or Geography	Key Conclusions
Mersha, 1997	IJOPM	Geography	The rigid social systems of Sub-Saharan Africa are hostile to quality management implementation
Pagell *et al.*, 2005	IJOPM	Hofstede and Trompenaars	National culture not geography matters. Specifically uncertainty avoidance and individuality predict suppliers per part; power distance and masculinity predict outsourcing; all cultural dimensions predict exports; masculinity and individualism predict forecasting horizon.
Vecchi and Brennan, 2011	IJOPM	GLOBE	National culture impacts quality management implementation with certain cultures better suited to quality management. Low certainty avoidance, low institutional collectivism and low performance orientation countries emphasize quality priorities. Low uncertainty avoidance, low institutional collectivism, high power distance, low future orientation and low performance orientation countries emphasize quality practices. Low uncertainty avoidance, high power distance, low institutional collectivism, high in-group collectivism, low gender egalitarianism, high assertiveness, low future orientation, low performance orientation and low humane orientation impact quality management. Argentina, Brazil, Greece, Hungary, Italy, Portugal, Spain, Turkey and Venezuela are better suited for quality practice implementation

Table A.1A: Continued

Authors/Year	Journal	Theory of National Culture or Geography	Key Conclusions
Wiengarten *et al.*, 2011	IJOPM	Hofstede	Study of the effect of national culture on the relationship between investments in manufacturing plant, equipment and quality practices and operational performance. Similar results to Power *et al.* (2010) with collectivist cultures investing in manufacturing plant, equipment and quality practices, which lead to higher operational performance. In cultures characterized by high masculinity and uncertainty avoidance plant and equipment investment lead to higher operational performance.
Yang *et al.*, 2013	IJOPM	Geography	Examination of the role of long-term orientation Asia and Western Europe/US to understand if the same purchasing activities and strategic involvement of purchasing lead to manufacturing competitiveness. The intensity and outcomes of purchasing activities and strategy development vary between Asia and Europe/US. The Europe/US sample fits the strategic purchasing model, the Asian sample does not. There is commonality between the two groups as to what purchasing activities lead to manufacturing competitiveness, however, purchasing activities and strategic involvement do not have the profound impact on manufacturing competitiveness in Asia that they do in Europe/US. Manufacturing competitiveness is achieved by using different bundles of purchasing practices and strategic involvement by different cultures.
Wiengarten *et al.*, 2015	IJOPM	Geography	Higher values on Hofstede's Individualism scale negatively affected lean implementation.

Table A.1A: Continued

Authors/Year	Journal	Theory of National Culture or Geography	Key Conclusions
Yang *et al.*, 2017	IJOPM	Geography	Exploring negative attitudes towards supplier integration and the differences between US and Chinese managers. Looking at both national culture and organizational culture differences.
Danese *et al.*, 2017	IJOPM	Geography	Lean programs transferred by an Italian company to Chinese and US subsidiaries are explored.
Caniato *et al.*, 2015	IJPE	Geography	Service activities offshoring is investigated to understand what drives offshoring location choices including cultural proximity.
Chen *et al.*, 2017	IJPE	Geography	Exploring the links between supplier relationship and product quality among six automakers in the US and Japan. In Japan, high relationship quality precedes product quality when relationship quality is at a certain level. Improving relationships faster than competitors improves product quality.
Govers, 2001	IJPE	Geography	Investigating the implementation problems for QFD. Western management practices can limit the effectiveness of QFD.
Kull *et al.*, 2014	IJPE	GLOBE	Lean manufacturing and operational performance is moderated by national cultural attributes.
Lee and Humphreys, 2007	IJPE	Geography	Chinese firms with higher guanxi, reciprocal exchanges of favors and obligations, have higher strategic purchasing, supplier development and outsourcing. Strategic purchasing and supplier development was due to the fact that guanxi has a long-term orientation and short-term transactions built into trusting long-term relationships. Outsourcing occurred not through tight legal frameworks but through guanxi networks.
Marble and Lu, 2007	IJPE	Geography	Enterprise software in China and the West are different due to a different business culture in China particularly guanxi.

Table A.1A: Continued

Authors/Year	Journal	Theory of National Culture or Geography	Key Conclusions
Robb and Xie, 2001	IJPE	Geography	Manufacturing strategy of 46 plants, either foreign plants or Chinese plants to identify differences in practices and priorities.
Samson and Ford, 2000	IJPE	Geography	Comparing manufacturing practice and performance in Australia and New Zealand. With New Zealand performing better in management of people, leadership and quality and Australia hindered by labor market flexibility.
Schoenherr *et al.*, 2015	IJPE	Geography	Examining the antecedents of trust formation in buyer-supplier relationships researching over 177 outsourcing contracts.
Su and Chen, 2013	IJPE	Hofstede	Investigates conceptual learning and operational learning and their impact on plant performance and test for the moderation of individual and collectivism.
Subramanian *et al.*, 2015	IJPE	Geography	Investigation of sourcing complexity given OEMs sourcing from Chinese suppliers.
Wong *et al.*, 2017	IJPE	GLOBE	Investigating the impact of national culture on supply chain integration. Collaborative cultures moderate the extent that integration improves operational performance.
Wang *et al.*, 2005	IJPE	Geography	ERP systems are hypothesized to be culturally embedded as Western companies have not dominated the Chinese ERP market. Cultural issues are cited as major reason.
Yen and Sheu, 2004	IJPE	Geography	ERP systems at five US and Taiwanese manufacturing firms are investigated and show that ERP should be alighted with competitive strategy, national culture and government and company policies.
Bockstedt *et al.*, 2015	JOM	GLOBE and Hofstede	Innovation contests are investigated in terms of problem-solving effort and success. Contestants who share national wealth and culture traits with contest holders are more likely to be successful.

Table A.1A: Continued

Authors/Year	Journal	Theory of National Culture or Geography	Key Conclusions
Cannon *et al.*, 2010	JOM	Hofstede	Trust is necessary for long-term orientation in both collectivist and individualist cultures but supplier performance is only significant in individualist countries concluding that supplier performance may be an order qualifier for collectivist countries where long-term orientation will not be guaranteed even when the supplier is performing well.
Cheung *et al.*, 2010	JOM	Hofstede	In a study of procurement executives from 11 countries it is found that culture does not matter.
Cui *et al.*, 2013	JOM	Geography	21 Chinese and 21 American MBA students approached the newsvendor problem differently, with Chinese students asking more questions about the problem and using basic anchoring positions (mean, max) less.
Elango, 2005	JOM	Hofstede	The more "culturally distant" a firms' country headquarters is from the US, the more likely they are to enter the US through greenfield plant rather than acquisition.
Flynn and Saladin, 2006	JOM	Hofstede	The Baldridge award aligns closely with the Japanese culture but not with US and other cultures. In order to get the best quality performance that the Baldridge award is customized to each culture as national cultures are notoriously difficult to change.
Kaufmann and Carter, 2006	JOM	Hofstede	"Cultural Distance" in the buyer-supplier relationship in German and US firms is correlated with non-financial performance of the relationship.
Gray *et al.*, 2011	JOM	Geography	Quality risk higher in pharmaceutical manufacturing in Puerto Rico. Ascribed to unstated cultural factors.
Hahn and Bunyaratavej, 2010	JOM	Hofstede	Countries with low uncertainty avoidance and high individualism (with partial support for high power distance) would attract more outsourced projects. This was true for both Asian and Western firms.

Table A.1A: Continued

Authors/Year	Journal	Theory of National Culture or Geography	Key Conclusions
Handley and Benton, 2013	JOM	Geography	Global outsourcing relationships are examined. Increased cultural distance increases both the control and coordination costs for outsource customers.
Klassen and Whybark, 1994	JOM	Geography	Effective management of international manufacturing operations were explored and cultural and language differences were highly ranked in a Delphi study.
Cai *et al.*, 2010	JOM	Geography	Role of guanxi in Chinese buyer-supplier relationships.
Kull and Wacker, 2010	JOM	GLOBE	Exploration of the relationship between cultural variables (taken from the GLOBE study) and quality management effectiveness. Countries with high uncertainty avoidance and low assertiveness performed best (Taiwan), those with low uncertainty avoidance and high assertiveness performed worst (US) although China performed the worst overall. Asian countries had higher quality management effectiveness than non-Asian countries.
Lockström *et al.*, 2010	JOM	Geography	Buyer/supplier communication styles in foreign owned subsidiaries in China
Metters *et al.*, 2010	JOM	Trompenaars universalism versus particularism	Multiple examples where operations and supply chain management techniques are affected by culture including revenue management, inventory, scheduling, layout, operational compliance, TQM and supply chain interactions.
Naor *et al.*, 2010	JOM	GLOBE	Weak impact of national culture on manufacturing performance or fit between national and organizational culture but strong influence of organizational culture on manufacturing performance especially power distance, future orientation, performance orientation.

Table A.1A: Continued

Authors/Year	Journal	Theory of National Culture or Geography	Key Conclusions
Power *et al.*, 2010	JOM	Hofstede	Asian manufacturing plants, with collectivist orientation (China, Korea, Taiwan), are forging ahead with combinative capabilities of both investing more in multiple forms of infrastructural asset and also gaining higher returns on investment, while Western companies are investing less in single infrastructural assets and, where they are investing, having lower returns on investment.
Ribbink and Grimm, 2014	JOM	Geography	78 US MBA students, 28 born outside the US, formed negotiation dyads. Inter-cultural dyads had less overall supply chain profit.
Rungtusanatham *et al.*, 1998	JOM	Geography	US and Italian study of quality management. Similar findings between US and Italy: visionary leadership leads to cooperation, process management and continuous improvement. Employee fulfillment very different in Italy due to high masculinity score and the Marxist culture. Learning was not found in either US or Italian study.
Samaddar and Kadiyala, 2006	JOM	Geography	Contrasted US and Korean IS outsourcing. Korean culture responsible for different outsourcing contracts.
Stringfellow *et al.*, 2008	JOM	Hofstede and Trompenaars	Explored the invisible costs of offshoring service work. They developed new concepts of interaction intensity (type of work) and interaction distance (culturally and geographically dissimilar) and how these affect cost savings or the invisible costs of offshoring. For lower interaction intensity work (routine data entry) high interaction distances with lower costs would be optimal with low and medium distance locations not saving enough money). For moderate interaction intensity work (routine customer queries) medium interaction distance locations would be optimum with invisible costs too high in high interaction distance locations and cost savings too low in low interaction distance locations. For high interaction intensity (customer complaints) the optimal solution is low interaction distance or similar cultures and communication styles as the invisible costs would be too high for medium and high interaction distance locations.

Table A.1A: Continued

Authors/Year	Journal	Theory of National Culture or Geography	Key Conclusions
Voss and Blackmon, 1998	JOM	Geography	Survey results of Japan versus a basket of countries termed "the West" were compared. Japanese managers had a different time orientation, "polychromic", than Western managers.
Wacker and Sprague, 1998	JOM	Hofstede	Forecasting techniques influence by PDI, UNC and IND Hofstede dimensions involving reliance on computers and analytic techniques.
Pullman *et al.*, 2001	JOM	Geography	Cultural norms in food choice and wait times implemented in service design
Youngdahl *et al.*, 2003	JOM	Hofstede	Culture does not impact service satisfaction-seeking behaviors that include preparation, relationship building, exchange and intervention. Relationship building needs the least effort and leads to highest satisfaction. Preparation and information exchange need more effort and result in lower levels of satisfaction. Intervention needs the most effort and has the lowest level of satisfaction. These findings were not different across cultures.
Zhao *et al.*, 2008	JOM	Geography	Study of power and commitment in Chinese companies. They found expert, referent and reward improve normative commitment. Reward and coercive improve instrumental commitment. Normative commitment has more impact on customer integration than instrumental. Expert had most influence followed by referent, showing a willingness to learn from the customer and belief in knowledge and authority. Reward powers positive impact on normative commitment is due to guanxi - manufacturers expect preferential treatment from customers in exchange for favors and obligations (Lee et al, 2001) which is a social norm in China. Power distance and collectivism central to differences between US and China. Be careful using coercive and reward in China as these may lead to unexpected outcomes for Western managers.

Table A.1A: Continued

Authors/Year	Journal	Theory of National Culture or Geography	Key Conclusions
Li *et al.*, 2010a	JOM	Geography	Buyer/supplier relationships: In China, formal and informal control mechanisms are substitutes. Other research says that in the US, they are complements.
Zhao *et al.*, 2011	JOM	Geography	Internal and external supply chain integration are studied in firms in China. They show that Chinese-controlled firms with high collectivism and guanxi, relationship commitment significantly impacts external integration.
Dawson, 1994	IJQRM	Geography	Australian men too individualistic, hostile to quality initiatives
Kyoon Yoo *et al.*, 2006	IJQRM	Hofstede	Collectivist cultures work better with quality management principles
Ngowi, 2000	IJQRM	Geography	Botswanan culture conflicts with quality management requirements based on a study of 100 construction firms.
Aquilon, 1997	SCMIJ	Hofstede	Examined Volvo's European suppliers to understand cultural differences and how these relate to contractual relationships with their customers.
Cadilhon *et al.*, 2003	SCMIJ	Geography	Examines vegetable supply chains in Vietnam and focuses on national characteristics including cultural and social norms including the role of trust and collaboration among stakeholders.
Davis *et al.*, 2014	SCMIJ	Geography	Examined the difference between US (individualist) and Singapore (collectivist) managers perceptions of e-value creation. Stronger relationship between e-business use and inter-organizational capabilities in supply chain integration in the collectivist setting (Singapore) than in the individualist setting (US).
Freeman and Browne, 2004	SCMIJ	Hofstede	National culture is proposed as a filter for examining another organization's communications and the paper provides a framework for relationship dissolution between different organizations located in different national cultures.

*Journal abbreviations: DS (Decision Sciences); IJOPM (International Journal of Operations and Production Management); IJPE (International Journal of Production Economics); JOM (Journal of Operations Management); SCMIJ (Supply Chain Management: An International Journal)
Articles published 1990–2017

Table A.1B: National culture in operations management literature (published in non-OM journals or OM focused journals that have published <3 culture articles articles published 1990–2017)

Authors/Year	Journal	Theory of National Culture or Geography	Key Conclusions
Metters, 2017	Cross Cultural and Strategic Management	Geography	Role of national culture specifically as it relates to women in the context of TQM, location, and shift work
Vecchi and Brennan, 2009	Cross Cultural and Strategic Management	Hofstede	Hofstede's dimensions are predictors of various quality measures
Anwar and Jabnoun, 2006	Int'l J. of Management	Hofstede	Proposed relationship of Hofstede's dimensions to quality management.
Liu *et al.*, 2015	Int'l J. of Project Management	Hofstede	UAI affects safety requirements and project crashing.
Jiang *et al.*, 2015	J. of International Business Studies	Hofstede	Low PDI has a mixed (moderated) but generally positive effect on "operational effectiveness".
Jenner *et al.*, 1998	J. of Quality Management	Geography	Chinese Confucian heritage discourages teams; State Owned Enterprises atmosphere of fear hurts quality implementation
Thornton *et al.*, 2013	J. of Supply Chain Management	Geography	Examined socially responsible purchasing and logistics across three distinct national cultures, China, UAE and US. Supplier selection criteria based on social responsibility improved financial performance but this was dependent on region. Developing countries, UAE and China, do invest in socially responsible supplier practices.

Table A.1B: Continued

Authors/Year	Journal	Theory of National Culture or Geography	Key Conclusions
Eckerd *et al.*, 2016	J. of Supply Chain Management	Geography	Buyer-supplier relationships in China versus the US: US buyers less likely to work with suppliers following a breaching of a psychological agreement.
Voss *et al.*, 2004	J. of Service Research	Geography	UK versus US consumer tolerance of poor service.
Roney, 1997	J. of World Business	Geography	Culture of "fatalism" in Poland detrimental to quality management implementation
Feng *et al.*, 2011	Omega	Geography	Chinese and American undergraduate students approach the newsvendor problem differently. The Chinese students order quantities were closer to the mean demand than the Americans.
Albuquerque *et al.*, 2007	Management Science	Hofstede	Diffusion of ISO credentialing dependent on "cultural distance".
Özer *et al.*, 2014	Management Science	Geography	Trust and trustworthiness lower in Chinese than American participants in buyer-supplier experiments.
Gray and Massimino, 2014	Production and Operations Management	Geography	Operation's process compliance performance was investigated, particularly, the language difference between the operation location and headquarters and the national culture of the operation and the headquarters. Language differences are related to decreased compliance and cultural congruence between plant and headquarters is related to improved compliance performance.

Table A.1B: Continued

Authors/Year	Journal	Theory of National Culture or Geography	Key Conclusions
Venkatesh *et al.*, 2010	Production and Operations Management	Geography	Study of the effect of ICT implementation within one Indian bank. Implementation of ICT, although enriching job characteristics, has an adverse effect on employee satisfaction and job performance. One of the reasons for this adverse effect is culture shock especially the imposition of perceived western cultural attributes through the ICT system, with concurrent differences in the way people work together.
Tata and Prasad, 1998	Total Quality Management	Hofstede	Theory only, no data. Proposed that high Power Distance and high Uncertainty Avoidance cultures are more likely to lead to TQM failure.

Table A.2: Organizational culture articles in the operations management literature (articles published 1990–2017)

Authors/Year	Journal	Theory of Culture or Focus	Key Conclusions
Choi and Liker, 1995	Dec Sci	Process and results-orientation and continuous improvement	Process-oriented values and communication with workers positively influences continuous improvement effectiveness
Hult *et al.*, 2000	Dec Sci	Purchasing-specific organizational learning	Organizational culture factors positively influence organizational learning between one users and buyers: localness, transformation leadership and openness. Organizational learning increases information processing, leading to improved cycle times for purchasing.
Nahm *et al.*, 2004	Dec Sci	Schein (1986, 1992) and customer orientation	Customer orientation increases the espoused values of management's belief in investing in facilities and equipment, integrating activities with suppliers and making company-wide decisions. These lead to increased time-based manufacturing practices and performance.
Queenan *et al.*, 2016	Dec Sci	Organizational information processing theory	Computerized provider order entry systems are both a complement to patient safety culture, and also a substitute. The systems complement handoffs, feedback and communication of errors, and organizational learning and substitute for management support of safety, which then increases quality of care for patients.
Ancarani *et al.*, 2011	IJOPM	CVF and Safety	Climate mediates the relationship between climate orientation and patient satisfaction.
Bititci *et al.*, 2006	IJOPM	Performance Measurement Systems	A framework for mapping the relationships between organizational culture, management style and the implementation and use of performance measurement systems. Authoritative styles are necessary at the beginning of an implementation but as there are successes this leads to a more participative and consultative management style and encourages an achievement culture.

Table A.2: Continued

Authors/Year	Journal	Theory of Culture or Focus	Key Conclusions
Baird *et al.*, 2011	IJOPM	Organizational Culture Profile (OCP) and Quality	Survey of service and manufacturing companies found that teamwork/respect was the single most important factor in the use of TQM practices; outcome-oriented and innovative firms are more likely to use TQM and three TQM practices positively impacted operational performance: supplier quality management, process management and data quality and reporting.
Narasimhan *et al.*, 2012	IJOPM	Time-Based	Examination of the relationship between time-based manufacturing practices, integrative beliefs and performance. Dynamic reinforcing effects of time-based manufacturing practices and integrative beliefs. TBMP and IB are mutually reinforcing and can be implemented together rather than sequentially. TBMP enhances performance regardless of IB. Success in implementing TBMP was found not to depend on organizational culture.
Prajogo and McDermott, 2005	IJOPM	Competing Values Framework (CVF) and Quality	Examination of the different unitarist versus pluralist views of TQM practices and how these are impacted by different cultures using the CVF. The pluralist view is supported: different groups of TQM practices are determined by different cultures. Group and development cultures impact on leadership and people-oriented dimensions, while hierarchical culture influenced planning and information.
Prajogo and McDermott, 2011	IJOPM	CVF and Quality and Innovation	Exploration of the relationship between the CVF, flexibility and control, an internal or external focus and four performance outcomes: product and process quality and product and process innovation. Developmental culture, external/flexible) has the strongest impact on three of the outcomes: product quality and both product and process innovation. Rational culture (external/control) has a relationship with product quality and group (internal/flexible) and hierarchical (internal/control) predict process quality.

Table A.2: Continued

Authors/Year	Journal	Theory of Culture or Focus	Key Conclusions
Pullman and Dillard, 2010	IJOPM	Supply Chain Design	Exploration of how personal values of environmental, social and economic sustainability impact the organizational structure and supply chain of an organization. A values-based organization founded on the principles of social continuity, economic stability and environmental conservation creates and shapes the resulting production system and supply chain.
Soltani and Wilkinson, 2010	IJOPM	Quality	Investigation of the role of senior managers' orientation and attitudes towards TQM and how this affected middle managers' orientation and TQM itself. When senior managers focus on detection and reactive strategies, the hard aspects of TQM, this leads to middle manager's compliance with short-term tactical orientations not long-term commitment; increased control of the workforce not work-related processes; tendency to agree to TQM objectives to fulfill their own interests and inability to run TQM effectively.
Yang *et al.*, 2013	IJOPM	Geography	Exploring negative attitudes towards supplier integration and the differences between US and Chinese managers. Looking at both national culture and organizational culture differences.
Stock *et al.*, 2007	IJPE	CVF and Safety	Investigation of culture and related critical success factors that reduce medical errors in hospitals. Strongest link between group culture and error reduction; group culture, partnering with stakeholders and shifting the culture of the organization, open discussion of errors, no blame for errors, education and training and system redesign.
Smith and Smith, 2007	IJPE	CVF and Innovation	This paper investigates what cultures SMEs are characterized by and how these influence project implementation. Elements of clan and adhocracy prevalent in SMEs.

Table A.2: Continued

Authors/Year	Journal	Theory of Culture or Focus	Key Conclusions
Škerlavaj *et al.*, 2007	IJPE	CVF and Innovation	Exploration of the relationship between an organizational learning culture and business process change and firm performance. Organizational learning culture (mostly linked to flexibility oriented: group and developmental cultures but with some characteristics - structure, stability, continuity from the other cultures) indirectly impacts financial performance through employee non-financial performance and directly impacts customer, supplier and employee non-financial performance.
Koufteros *et al.*, 2007	IJPE	Purchasing Performance	Discussion of the link between culture, structure and pull production to performance. Customer organization (basic assumption) shapes beliefs on management control, working with others and making decisions that are global (espoused values), while organizational structure affects internal communication, pull production and performance (artifacts).
Boyer *et al.*, 2012	JOM	Safety	Examination of the link between safety culture, outcome-focused culture, practices and safety outcomes. In smaller hospitals practices focused on outcomes leads to enhanced performance, while for larger hospitals the development of a climate focused on specific goals is key.
McFadden *et al.*, 2009	JOM	Safety	This study uncovered a patient safety chain where transformational leadership positively impacts a safety culture, leads to safety initiatives and improved outcomes for patients.
Liu *et al.*, 2010	JOM	CVF and Innovation	Study of the effect of a flexibility or control orientation on the relationship between institutional pressures and eSCM adoption. Mimetic pressure does not affect eSCM adoption intention but coercive and normative positively impact the intention to adopt eSCM. Flexibility orientation negatively moderates coercive pressures and intention but positively moderates mimetic pressures. A control orientation positively moderates coercive and normative pressures and negatively moderates mimetic pressures.

Table A.2: Continued

Authors/Year	Journal	Theory of Culture or Focus	Key Conclusions
Khazanchi *et al.*, 2007	JOM	CVF and Innovation	Exploration of the link between innovative-supportive cultures and process innovation. Unlike many studies that show you need both flexibility and control for improved performance, after process innovation occurs only flexibility is needed. Control has a more subtle influence and control and performance are mediated by flexibility. Control is needed at first to provide stability and a sound platform on which flexibility in terms of improvisation, employee empowerment and creativity can be built. Additionally congruence improved implementation: if managers and operators shared perceptions of flexibility values the more plant performance improved after the implementation.
McDermott and Stock, 1999	JOM	CVF and Innovation	Examination of the link between culture attributes and the success of AMT implementation. No culture leads to operational or organizational benefits but a group culture (flexibility orientation) leads to positive managerial satisfaction. Rational culture (external orientation) leads to positive competitive performance but development and hierarchical (internal orientation) lead to negative competitive performance. Developmental (flexibility and external orientation) needs are not met by an AMT implementation.
Pagell, 2004	JOM	Supply Chain Design	Examination of the factors that inhibit or encourage the integration of purchasing, logistics and operations in firms. Culture and structure affect the communication and measurement in the firm which impact integration and consensus. Firms that emphasize openness and team working cultures have higher levels of integration, and blame cultures have lower levels of integration.

Table A.2: Continued

Authors/Year	Journal	Theory of Culture or Focus	Key Conclusions
Naor *et al.*, 2010	JOM	Manufacturing Performance	Study of the interplay between national and organizational cultures on manufacturing performance. There are differences between Eastern and Western countries in terms of power distance, future orientation and performance orientation but the other dimensions are not different between countries. Weak impact of national culture on manufacturing performance or fit between national and organizational culture but strong influence of organizational culture on manufacturing performance.
Oke *et al.*, 2013	JSCM	Innovation	Investigation of innovation climate and how internal and external mechanisms can enhance innovation strategy and performance. Internal climate has to be complemented by strategic external relationships with innovative companies. Building relationships is more important than having an internal innovation climate – building relationships is the key ingredient for maximizing supplier innovativeness and internal innovation strategy.
Whitfield and Landeros, 2006	JSCM	Supplier Diversity	Examine if organizational culture influences supplier diversity. Achievement and affiliative cultures are important for effectiveness of supplier diversity. In defensive or passive-defensive cultures minority sourcing was lower. Constructive cultures had higher minority sourcing.
Pagell *et al.*, 2014	POMS	Safety	Study determining if both productivity and safety can be achieved within the organization. A supportive organizational culture, along with a joint management system which aligns productivity and safety, is key to achieving both productivity and safety.

Table A.2: Continued

Authors/Year	Journal	Theory of Culture or Focus	Key Conclusions
Hutchison-Krupat and Chao, 2014	POMS	Innovation	Study of an organization's tolerance for failure and how that impacts, along with financial incentives, innovation projects. When penalties are low the amount of risk assumes is insensitive to reward offered. When individuals make decisions alone (not collaboratively) a higher tolerance for failure does not increase the amount of risk an individual is willing to take.
Cadden *et al.*, 2014	SCMIJ	Supply Chain Performance	Examination of multiple tier supply chains. High-performing supply chains have complementary corporate cultures while low-performing supply chains have congruent corporate cultures. High-performing supply chains do not necessarily need to have similar cultures but that within the chain there needs to be one collaborative, open culture that can orchestrate the other more closed cultures. If the supply chain members have a collaborative norm-based culture then this is conjectured to lead to maximum performance.
Shub and Stonebraker, 2009	SCMIJ	Relationships	A conceptual model bringing together human resource variables and organizational variables and their relationship to supply chain integration and performance. Relationship-based cultural strategies will have greater positive impact on supply chain integration and performance than transaction-based strategies.
Tummala *et al.*, 2006	SCMIJ	Supply Chain Implementation	Survey to understand which operational variables were important for SCM implementation, corporate culture was one of them. The definition and explanation of corporate culture is made up of other variables including resource commitment, empowerment and communication.

*Journal abbreviations: IJOPM (International Journal of Operations and Production Management); IJPE (International Journal of Production Economics); JOM (Journal of Operations Management); JSCM (Journal of Supply Chain Management); POMS (Production and Operations Management); SCMIJ (Supply Chain Management: An International Journal)

Table A.3: Articles in *Production and Operations Management* comparing three or more countries*

Year	Authors	Topic	Data	Int'l Control Variables	Cultural Content
1995	Ittner, MacDuffie	Auto Industry	62 plants 3 world regions	Country variable	None
1995	Benson, Cunningham, Leachman	Semiconductor Manufacturing	21 plants 3 world regions	None	None
1997	Ettlie	Quality & Technology	20 countries	None	None
1999	Brush, Maritan, Karnani	Int'l plant location	31 countries	HQ location	1 survey question
2001	Corbett, Kirsch	ISO 15000 certification	>50 countries	Several	None
2007	Aksin, Armony, Mehrotra	Call centers	Worldwide	None	None
2008	deKoster, Balk	Warehousing	3 world regions	None	1 sentence note on Japanese management
2013	Gokpinar, Hopp, Irvani	Product development	10 countries	Several	None

Table A.3: Continued

Year	Authors	Topic	Data	Int'l Control Variables	Cultural Content
2013	Hausman, Lee, Subramanian	Logistics performance	80 countries	Country corruption index	None
2013	Tripathy, Eppinger	Product development	6 countries	None	None
2013	Kouvelis, Munson, Yang	Facility location	Number unstated	Int'l data used for model parameterization	None
2013	Fransoo, Lee	Ocean transport	Worldwide	None	None
2014	Gray, Massimino	Process compliance	34 countries	Language	Hofstede dimensions
2016	Netland, Ferdows	Lean implementation	45 plants, 5 continents	None	None
2017	Massimino, Gray, Boyer	National property rights	Worldwide	Language	None
2017	Gallien, Rashkova, Atun, Yadav	Medical: drug disbursement	Africa	Country; region	None

*1,295 articles published from journal inception in 1992 through 2017

Table A.4: Articles in *Journal of Operations Management* comparing three or more countries***

Year	Authors	Topic	Data	Int'l Control Variables	Cultural Content
1991	Schmenner	Factory productivity	561 plants 3 world regions	Continent	None
1994	Vastag, Whybark	Machine tools; textiles	GMRG*: N. America, W. Europe	Region	None
1998	Narasimhan, Jayaram	Manufacturing strategy	GMRG*: Asia, N. America, Europe	Region	None
1998	Kadipasaoglu, Hurley, Foote, Khumawala	Machine tools; textiles	GMRG*: 12 countries	None	None
1998	Voss, Blackmon	Manufacturing strategy	20 countries; Japan and West. IMSS**	Japan vs West	Time orientation
1998	Wacker, Sprague	Forecasting accuracy	7 countries	Hofstede dimensions	Differences related to Hofstede dimensions significant
1998	Shi, Gregory	International manuf. Networks	Worldwide	None	None
1998	Khurana, Talbot	Picture tube manuf.	54 factories N. America, Europe, Asia	Region	None
2000	Cagliano, Spina	Manufacturing technology	20 countries. IMSS**	None	None
2001	Frohlich, Westbrook	Supply chain strategies	23 countries. IMSS**	None	None
2001	Pullman, Verma, Goodale	Service design	US, W. Europe, Japan, Mexico	Country/region	Cultural norms in food choice and wait times implemented in service design
2002	Williams, Maull, Ellis	Aerospace industry	US, Europe	None	None

Table A.4: Continued

Year	Authors	Topic	Data	Int'l Control Variables	Cultural Content
2002	Choi, Hong	Auto supply chain	US, Japan, Europe	None	None
2003	Youngdahl, Kellogg, Nie	Service quality	Worldwide	Hofstede dimensions	
2003	Ahmad, Schroeder	Human resource practices	107 plants: Italy, Germany, US, Japan	Country	None
2004	Maritan, Brush, Karnani	Multi-national plants	31 countries	Off-shore	None
2005	Da Silveira	Order winners in manufacturing	17 countries. IMSS	None	None
2005	Prasad, Tata, Madan	Build to order supply chains	US, Latin America, Europe	Developing vs. developed countries	None
2005	Elango	Entry mode into US by foreign firms	Worldwide	Hofstede	Cultural distance
2005	Rungtusanatham *et al.*	TQM practices	Japan, Germany, Italy, US	Country	Unclear whether culture causes differences
2006	da Silveira	Operational flexibility	14 countries. IMSS**	None	None
2006	Prater, Ghosh	US firms with European locations	310 US firms doing business in Europe	None	None
2006	Schmenner, Vastag	Production competence and business results	GMRG* Worldwide	None	None
2008	Bhalla, *et al.*	US/Europe HQ, ops S.E. Asia	Fortune 500 subset	None	None
2008	Ellram, *et al.*	US HQ, offshored ops	10	None	Anecdotal
2008	Fifarek, *et al.*	Offshoring knowledge work	21,000 patents	US/Non-US	None
2010	Autry, *et al.*	Technology acceptance	201 surveys	US, Germany, Japan, China, UAE	None

Table A.4: Continued

Year	Authors	Topic	Data	Int'l Control Variables	Cultural Content
2010	Cannon, *et al.*	Buyer-Supplier trust in individualist/collectivist cultures	600 purchasers	US, Canada, Mexico	Supplier trust more important in collectivist cultures
2010	Cheung, *et al.*	Buyer-Supplier "relationship learning" not moderated by culture	71 purchasing executives	16 countries	"Cultural Distance" not a factor
2010a	Li, Li, Liu, Yang	Buyer-Supplier relationship	219 Chinese firms	China-US; China-Europe	None
2010b	Li, Xie, Teo, Peng	Buyer-Supplier relationship	Chinese firms, 200 "international" dyads	Unstated	Formal and informal relationships substitutes in China, complements in US
2010	Kull, Wacker	Quality	Subset of GMRG* data	China, Korea, Taiwan	GLOBE metric used
2010	Hahn, Bunyaratavej	Services offshoring attractiveness	682 offshoring projects in >5 countries	Country, English language	Hofstede uncertainty avoidance and individualism related to offshoring attractiveness
2010	Power, *et al.*	Team based improvement programs	639 plants in 9 countries. GMRG* data	Individualism/ Collectivism	Hofstede individualism related to team quality programs
2010	Naor, *et al.*	Manufacturing performance	189 plants in 6 countries	GLOBE dimensions	Weak influence of national culture on performance

Table A.4: Continued

Year	Authors	Topic	Data	Int'l Control Variables	Cultural Content
2011	Martinez, *et al.*	Humanitarian logistics transportation	Several African countries	None	None
2012	Choi, *et al.*	Inventory postponement	Korea and unnamed developing countries	Country	None
2013	Lampel, Grachetti	Automotive manufacturing diversification	45 countries	None	None
2013	Handley, Benton	Outsourcing	41 countries	Physical distance	None
2014	Wiengarten, *et al.*	International logistics capabilities	19 countries. IMSS**	Logistics costs	None
2014	Ribbink, Grimm	Buyer-Supplier negotiation	Several	Time in US; high or low context culture	Cultural differences create negotiating barriers
2014	Steven, *et al.*	Offshoring and product recalls	Unstated	Offshoring intensity	None
2014	Vanpoucke *et al.*	Supplier integration	20 countries. IMSS**	None	None
2015	Bockstedt, *et al.*	Innovation contests	Many	GDPP; uncertainty avoidance; performance orientation	Cultural similarity correlated with prize winning
2016	Sluis, DeGiovanni	Supply chain contract choice	>10 European countries, 173 firms	2 clusters of countries	None
2016	Ferdows, *et al.*	Networks of manufacturing plants	5 firms, worldwide plants	None	None
2016	Jahre, *et al.*	Humanitarian logistics warehouse location	192 warehouses worldwide	None	None

Table A.4: Continued

Year	Authors	Topic	Data	Int'l Control Variables	Cultural Content
2016	van der Laan, *et al.*	Humanitarian logistics forecasting	8 countries	None	None
2015	Bockstedt, *et al.*	Innovation contests	Many	GDPP; uncertainty avoidance; performance orientation	Cultural similarity correlated with prize winning
2016	Sluis, DeGiovanni	Supply chain contract choice	>10 European countries, 173 firms	2 clusters of countries	None
2016	Ferdows, *et al.*	Networks of manufacturing plants	5 firms, worldwide plants	None	None
2016	Jahre, *et al.*	Humanitarian logistics warehouse location	192 warehouses worldwide	None	None
2016	van der Laan, *et al.*	Humanitarian logistics forecasting	8 countries	None	None

*GMRG: Global Manufacturing Research Group data
**IMSS: International Manufacturing Strategy Survey data
***Examined 930 articles published from 1990–2017

Table A.5: Articles in *Manufacturing and Service Operations Management* comparing three or more countries*

Year	Authors	Topic	Data	Int'l Control Variables	Cultural Content
2006	Corbett	ISO 9000 adoption	Surveys from 9 countries	Country	None
2013	Jira, Toffel	Climate change	Surveys from 49 countries	Countries that signed Kyoto Protocol on climate change. Various country based environmental and economic measures.	None
2017	Zhang, Allon, Van Mieghem	Social interaction and learning in MOOCs	30,317 students from 183 countries	English as language of instruction (yes/no)	None

*Examined 606 manuscripts from journal inception in 1999 through 2017

Table A.6: Operations management articles in *Management Science* comparing three or more countries since 1990*

Year	Authors	Topic	Data	Int'l Control Variables	Cultural Content
1995	Fladmoe-Lindquist, Jacque	Franchising vs. wholly owned service units	12 US firms with business in 92 countries	Cultural distance. International experience	Greater cultural distance and international experience leads to higher franchising
1995	Apte, Mason	Conceptual model of offshoring	Several anecdotes involving roughly 12 countries	None	One sentence on managing cultural diversity
1996	MacDuffie, Sethuraman, Fisher	Auto assembly	57 plants in 16 countries	None	None
1998	Hatch, Mowery	Learning curve	Unspecified	None	None
1998	Hatch, Mowery	Learning curve	Unspecified	None	None
2000	Dewan, Kraemar	Returns from IT investment	36 countries	Developing/ developed	None
2006	Vereeke, Van Dierdonck, De Meyer	Plants in global manufacturing	50 plants in Western Europe plus 10 other countries. 8 firms HQ in Western Europe	None	None
2013	Jain, Girota, Netessive	Inventory investment and global sourcing	Worldwide	None	None
2016	Distelhorst, Hainmueller, Locke	Labor standards in Nike supply chain	11 countries		

*Articles accepted by the Operations Management Department and articles deemed to be "operations management" by the independent review of K. Boyer, E. Bendoly, and R. Metters. 873 manuscripts.

References

Abdul-Aziz, Z., J. F. L. Chan, and A. V. Metcalfe (2000). "Quality practices in the manufacturing industry in the UK and Malaysia". *Total Quality Management*. 11(8): 1053–1064.

Abraham Van-der Mark, E. (1983). "The impact of industrialization on women: a Caribbean case". In: *Women Men and the International Division of Labor*. Ed. by J. Nash and M. Fernandez-Kelly. Chapter 15. Albany, NY: State University of New York.

Adam, E. E., L. M. Corbett, B. E. Flores, N. J. Harrison, T. S. Lee, B. H. Rho, J. Ribera, D. Samson, and R. Westbrook (1997). "An international study of quality improvement approach and firm performance". *International Journal of Operations & Production Management*. 17(9): 842–873.

Aharoni, Y. and R. Burton (1994). "Is management science international: in search of universal rules". *Management Science*. 40(1): 1–3.

Ahmad, S. and R. G. Schroeder (2003). "The impact of human resource management practices on operational performance: recognizing country and industry differences". *Journal of Operations Management*. 21(1): 19–43.

Airsafe (2009). Accessed July 2009. URL: http://www.airsafe.com/events.

Aksin, Z., M. Armony, and V. Mehrotra (2007). "The modern call center: a multi-disciplinary perspective on operations management research". *Production and Operations Management*. 16(6): 665–688.

Albuquerque, P., B. J. Bronnenberg, and C. J. Corbett (2007). "A spatiotemporal analysis of the global diffusion of ISO, 9000 and ISO 14000 certification". *Management Science*. 53(3): 451–468.

Allon, G. and E. Hanany (2012). "Cutting in line: social norms in queues". *Management Science*. 58(3): 493–506.

Alonso, J. (1983). "The domestic clothing workers in the Mexican metropolis and their relation to dependent Capitalism". In: *Women Men and the International Division of Labor*. Ed. by J. Nash and M. Fernandez-Kelly. Ch. 7. Albany, NY: State University of New York.

Amin, S. (1999). "The Poverty-Purdah trap in rural Bangladesh". *Development and Change*. 28: 213–233.

Ancarani, A., C. D. Mauro, and M. D. Giammanco (2011). "Patient satisfaction, managers' climate orientation and organizational climate". *International Journal of Operations & Production Management*. 31(3): 224–250.

Anonymous (2005). "No women at night in Haryana BPOs, Times of India". Accessed September 27, 2005. URL: http://timesofindia.indiatimes.com/articleshow/msid-1243687,prtpage-1.cms.

Anonymous (2013). "Girl Power: as the supply of female factory-workers dwindles, blue-collar women gain clout. The Economist". May 11. Accessed June 30, 2015. URL: http://www.economist.com/news/china/21577396-supply-female-factory-workers-dwindles-blue-collar-women-gain-clout-girl-power.

Anonymous (2014). "Factory night shifts not for women, Congress says. The Times of India". August 8, 2014. Accessed June 30, 2015. URL: http://timesofindia.indiatimes.com/india/Factory-night-shifts-not-for-women-Congress-says/articleshow/39836613.cms.

Anonymous (2018). "The Worlds's Largest Container Ships". Accessed August 11, 2018. URL: http://www.netwavesystems.com/worlds-known-largest-container-ships/.

Anwar, S. A. and N. Jabnoun (2006). "The development of a contingency model relating national culture to total quality management". *International Journal of Management*. 23(2): 272.

Apte, U. M. and R. O. Mason (1995). "Global disaggregation of information-intensive services". *Management Science*. 41(7): 1250–1262.

Aquilon, M. (1997). "Cultural dimensions in logistics management: a case study from the European automotive industry". *Supply Chain Management: An International Journal*. 2(2): 76–87.

Arlbjørn, J. S. and O. S. Mikkelsen (2015). "Backshoring manufacturing: notes on an important but under-researched theme". *Journal of Purchasing & Supply Management*. 20: 60–62.

Arnould, E. J. and M. Wallendorf (1994). "Market-oriented ethnography: interpretation building and marketing strategy formulation". *Journal of Marketing Research*. 31(4): 484–504.

Aull-Hyde, R., C. M. Gempesaw, and I. Sundaresan (1994). "Procurement practices in the U.S. broiler industry: shall we call them JIT?" *Production and Inventory Management Journal*. 35(2): 11–16.

Autry, C. W., S. J. Grawe, P. J. Daugherty, and R. G. Richey (2010). "The effects of technological turbulence and breadth on supply chain technology acceptance and adoption". *Journal of Operations Management*. 28(6): 522–536.

Bailey, D. and L. De Propris (2014). "Manufacturing reshoring and its limits: the UK automotive case". *Cambridge Journal of Regions, Economy and Society*. 7: 379–395.

Baird, K., K. J. Hu, and R. Reeve (2011). "The relationships between organizational culture, total quality management practices and operational performance". *International Journal of Operations and Production Management*. 31(7): 789–814.

Bakshi, N., S. E. Flynn, and N. Gans (2011). "Estimating the operational impact of container inspections at international ports". *Management Science*. 57(1): 1–20.

Barratt, M., T. Y. Choi, and M. Li (2011). "Qualitative case studies in operations management: trends, research outcomes, and future research implications". *Journal of Operations Management*. 29(4): 329–342.

Baskerville, R. (2003). "Hofstede Never Studied Culture". *Accounting, Organizations, and Society*. 28(1): 1–14.

Basole, A. (2012). *Knowledge, Gender, and Production Relations in India's Informal Economy*. Dissertation at University Mass-Amherst, Economics.

Bechky, B. A. and G. A. Okhuysen (2011). "Expecting the unexpected? How SWAT officers and film crews handle surprises". *Academy of Management Journal*. 54(2): 239–261.

Belk, R. W., M. Wallendorf, and J. F. Sherry Jr (1989). "The sacred and the profane in consumer behavior: theodicy on the odyssey". *Journal of Consumer Research*. 16(1): 1–38.

Belwal, S. and R. Belwal (2014). "Work-life balance, family-friendly policies and quality of work life issues: studying employers' perspectives of working women in Oman". *Journal of International Women's Studies*. 15(1): 96–116.

Bendoly, E., D. G. Bachrach, H. Wang, and S. Zhang (2006). "ERP in the minds of supervisors: joint roles of task interdependence and cultural norms". *International Journal of Operations and Production Management*. 26(5): 558–578.

Benson, R., S. Cunningham, and R. Leachman (1995). "Benchmarking manufacturing performance in the semiconductor industry". *Production and Operations Management*. 4(3): 201–219.

Bhalla, A., M. S. Sodhi, and B. G. Son (2008). "Is more IT offshoring better? An exploratory study of western companies offshoring to South East Asia". *Journal of Operations Management*. 26(2): 322–335.

Bititci, U. S., K. Mendibil, S. Nudurupati, P. Garengo, and T. Turner (2006). "Dynamics of performance measurement and organisational culture". *International Journal of Operations and Production Management*. 26(12): 1325–1350.

Bockstedt, J., C. Druehl, and A. Mishra (2015). "Problem-solving effort and success in innovation contests: the role of national wealth and national culture". *Journal of Operations Management*. 36: 187–200.

Boris, E. (1994). *Home to Work: Motherhood and the Politics of Industrial Homework in the United States*. NY: Cambridge University Press.

Boyer, K. K., J. W. Gardner, and S. Schweikhart (2012). "Process quality improvement: an examination of general vs. outcome-specific climate and practices in hospitals". *Journal of Operations Management*. 30(4): 325–339.

Boyer, K. K. and M. W. Lewis (2002). "Competitive priorities: investigating the need for trade-offs in operations strategy". *Production and Operations Management*. 11(1): 9–20.

Brinton, M. C., Y. J. Lee, and W. L. Parish (2001). "Married women's employment in rapidly industrializing societies: South Korea and Taiwan". In: *Women's Working Lives in East Asia*. 38–69.

Brush, T., C. Maritan, and A. Karnani (1999). "The plant location decision in multinational manufacturing firms: an empirical analysis of international business and manufacturing strategy perspectives". *Production and Operations Management*. 8(2): 109–128.

Burke, W. W. (2017). *Organization Change: Theory and Practice*. Sage publications.

Burke, W. W. and G. H. Litwin (1992). "A causal model of organizational performance and change". *Journal of Management*. 18(3): 523–545.

Cadden, T., D. Marshall, P. Humphreys, and Y. Yang (2014). "Old habits die hard: exploring the effect of supply chain dependency and culture on performance outcomes and relationship satisfaction". *Production Planning & Control*. (Published online).

Cadilhon, J. J., A. P. Fearne, P. Moustier, and N. D. Poole (2003). "Modelling vegetable marketing systems in South East Asia: phenomenological insights from Vietnam". *Supply Chain Management: an International Journal*. 8(5): 427–441.

Cagliano, R., F. Caniato, R. Golini, A. Longoni, and E. Micelotta (2011). "The impact of country culture on the adoption of new forms of work organization". *International Journal of Operations and Production Management*. 31(3): 297–323.

Cagliano, R. and G. Spina (2000). "Advanced manufacturing technologies and strategically flexible production". *Journal of Operations Management*. 18(2): 169–190.

Cai, S., M. Jun, and Z. Yang (2010). "Implementing supply chain information integration in China: the role of institutional forces and trust". *Journal of Operations Management*. 28(3): 257–268.

Caniato, F., S. Elia, D. Luzzini, L. Piscitello, and S. Ronchi (2015). "Location drivers, governance model and performance in service offshoring". *International Journal of Production Economics*. 163: 189–199.

Cannon, J. P., P. M. Doney, M. R. Mullen, and K. J. Petersen (2010). "Building long-term orientation in buyer-supplier relationships: the moderating role of culture". *Journal of Operations Management*. 28(6): 506–521.

Chanchani, S. (1998). *An Empirical Validation of Hofstede's Dimensions of Value*. Working paper Victoria University, New Zealand. As cited by Baskerville (2003).

Chapman, M. (1997). "Social anthropology, business studies, and cultural issues: preface". *International Studies of Management and Organization*. 26(4): 3–29.

Chen, L. and B. Hu (2017). "Is reshoring better than offshoring? The effect of offshore supply dependence". *Manufacturing & Service Operations Management*. 19(2): 166–184.

Chen, Y. S., H. C. Su, and Y. K. Ro (2017). "The co-evolution of supplier relationship quality and product quality in the US auto industry: a cultural perspective". *International Journal of Production Economics*. 184: 245–255.

Cheung, M. S., M. B. Myers, and J. T. Mentzer (2010). "Does relationship learning lead to relationship value? A cross-national supply chain investigation". *Journal of Operations Management*. 28(6): 472–487.

Chikán, A. and D. C. Whybark (1990). "Cross-national comparison of production—inventory management practices". *Engineering Costs and Production Economics*. 19(1–3): 149–156.

Chin, K. S., H. Sun, Y. Xu, and H. Hua (2002). "A comparative study of quality management practices in Hong Kong and Shanghai manufacturing industries". *International Journal of Management*. 19(4): 576.

Chipulu, M., U. Ojiako, P. Gardiner, T. Williams, C. Mota, S. Maguire, Y. Shou, T. Stamati, and A. Marshall (2014). "Exploring the impact of cultural values on project performance: the effects of cultural values, age and gender on the perceived importance of project success/failure factors". *International Journal of Operations & Production Management*. 34(3): 364–389.

Choi, K., R. Narasimhan, and S. W. Kim (2012). "Postponement strategy for international transfer of products in a global supply chain: a system dynamics examination". *Journal of Operations Management*. 30(3): 167–179.

Choi, T. Y. and Y. Hong (2002). "Unveiling the structure of supply networks: case studies in Honda, Acura, and DaimlerChrysler". *Journal of Operations Management*. 20(5): 469–493.

Choi, T. Y. and J. K. Liker (1995). "Bringing Japanese continuous improvement approaches to US manufacturing: the roles of process orientation and communications". *Decision Sciences*. 26(5): 589–620.

CIA (2019). "World factbook". Accessed March 7, 2019. URL: https://www.cia.gov/library/publications/the-world-factbook/.

Corbett, C. J. (2006). "Global diffusion of ISO, 9000 certification through supply chains". *Manufacturing & Service Operations Management*. 8(4): 330–350.

Corbett, C. and D. Kirsch (2001). "International diffusion of ISO 14000 certification". *Production and Operations Management*. 10(3): 327–342.

Corbett, L. M., E. E. Adam Jr, N. J. Harrison, T. S. Lee, B. H. Rho, and D. Samson (1998). "A study of quality management practices and performance in Asia and the South Pacific". *International Journal of Production Research*. 36(9): 2597–2607.

Cousins, P. D., R. B. Handfield, B. Lawson, and K. J. Petersen (2006). "Creating supply chain relational capital: the impact of formal and informal socialization processes". *Journal of Operations Management*. 24(6): 851–863.

Crane, D., J. Stachura, S. Dalmat, K. King-Metters, and R. Metters (2007). "International sourcing of services: the "Homeshoring" alternative". *Service Business*. 1(1): 79–91.

Cui, Y., L. G. Chen, J. Chen, S. Gavirneni, and Q. Wang (2013). "Chinese perspective on newsvendor bias: an exploratory note". *Journal of Operations Management*. 31(1): 93–97.

da Silveira, G. J. (2005). "Market priorities, manufacturing configuration, and business performance: an empirical analysis of the order-winners framework". *Journal of Operations Management*. 23(6): 662–675.

da Silveira, G. J. (2006). "Effects of simplicity and discipline on operational flexibility: an empirical reexamination of the rigid flexibility model". *Journal of Operations Management*. 24(6): 932–947.

Danese, P., P. Romano, and S. Boscari (2017). "The transfer process of lean practices in multi-plant companies". *International Journal of Operations & Production Management*. 37(4): 468–488.

Dannecker, P. (2002). *Between Conformity and Resistance: Women Garment Workers in Bangladesh*. Dhaka, Bangladesh: University Press, Ltd.

Davis, J. M., C. Mora-Monge, G. Quesada, and M. Gonzalez (2014). "Cross-cultural influences on e-value creation in supply chains". *Supply Chain Management: An International Journal*. 19(2): 187–199.

Dawson, P. (1994). "Quality management: beyond the Japanese model". *International Journal of Quality & Reliability Management*. 11(7): 51–59.

de Koster, M. and B. Balk (2008). "Benchmarking and monitoring international warehouse operations in Europe". *Production and Operations Management*. 17(2): 175–183.

Dedeoglu, S. (2008). *Women Workers in Turkey*. London, UK: Tauris Academic Studies.

DeHoratius, N. and E. Rabinovich (2011). "Field research in operations and supply chain management". *Journal of Operations Management*. 29(5): 371–375.

Department of Commerce and Labor (1907). *Laws Relating to the Employment of Women and Children in the United States*. Washington DC: Government Printing Office.

Dewan, S. and K. L. Kraemer (2000). "Information technology and productivity: evidence from country-level data". *Management Science*. 46(4): 548–562.

Distelhorst, G., J. Hainmueller, and R. M. Locke (2016). "Does lean improve labor standards? Management and social performance in the Nike supply chain". *Management Science*. 63(3): 707–728.

Downey, G. (2010). "Top Anthropology journals". Accessed July 17, 2017. URL: https://culturematters.wordpress.com/2010/02/13/anthropology-journals-ranked-by-the-arc.

Dwyer, F. R., P. H. Schurr, and S. Oh (1987). "Developing buyer-seller relationships". *Journal of Marketing*: 11–27.

Eckerd, S., K. K. Boyer, Y. Qi, A. Eckerd, and J. A. Hill (2016). "Supply chain psychological contract breach: an experimental study across national cultures". *Journal of Supply Chain Management*. 52(3): 68–82.

Elango, B. (2005). "The influence of plant characteristics on the entry mode choice of overseas firms". *Journal of Operations Management*. 23(1): 65–79.

Ellram, L. M., W. L. Tate, and C. Billington (2008). "Offshore outsourcing of professional services: a transaction cost economics perspective". *Journal of Operations Management*. 26(2): 148–163.

Elsevier (2017). Accessed July 18, 2017. URL: Journals.Elsevier.com/journal-of-operations-management/.

Enloe, C. (1983). "Women textile workers in the militarization of Southeast Asia". In: *Women Men and the International Division of Labor*. Ed. by J. Nash and M. Fernandez-Kelly. Chapter 17. Albany, NY: State University of New York.

ER Laws.com (2009). Accessed April 6, 2009. URL: www.erlaws.com/showsec.asp?seccode=FA66.

Ettlie, J. (1997). "Quality, technology, and global manufacturing". *Production and Operations Management*. 6(2): 150–166.

Feldman, M. S. and B. T. Pentland (2003). "Reconceptualizing organizational routines as a source of flexibility and change". *Administrative Science Quarterly*. 48(1): 94–118.

Feldman, S. (2009). "Historicizing garment manufacturing in Bangladesh: gender, generation, and new regulatory regimes". *Journal of International Women's Studies*. 11(1): 268–288.

Feng, T., L. R. Keller, and X. Zheng (2011). "Decision making in the newsvendor problem: a cross-national laboratory study". *Omega*. 39(1): 41–50.

Ferdows, K. and A. De Meyer (1990). "Lasting improvements in manufacturing performance: in search of a new theory". *Journal of Operations Management*. 9(2): 168–184.

Ferdows, K., A. Vereecke, and A. De Meyer (2016). "Delayering the global production network into congruent subnetworks". *Journal of Operations Management*. 41: 63–74.

Fernandez-Kelly, M. (1983). *Women Men and the International Division of Labor*. Albany, NY: State University of New York.

Fifarek, B. J., F. M. Veloso, and C. I. Davidson (2008). "Offshoring technology innovation: a case study of rare-earth technology". *Journal of operations Management*. 26(2): 222–238.

Fladmoe-Lindquist, K. and L. Jacque (1995). "Control modes in international service operations: the propensity to franchise". *Management Science*. 41(7): 1238–1249.

Flynn, B. and B. Saladin (2006). "Relevance of Baldrige constructs in an international context: a study of national culture". *Journal of Operations Management*. 24(5): 583–603.

Fransoo, J. and C.-Y. Lee (2013). "The critical role of ocean container transport in global supply chain performance". *Production and Operations Management*. 22(2): 253–268.

Fratocchi, L., A. Ancarani, P. Barbieri, C. Di Mauro, G. Nassimbeni, M. Sartor, M. Vignoli, and A. Zanoni (2016). "Motivations of manufacturing reshoring: an interpretative framework". *International Journal of Physical Distribution & Logistics Management*. 46(2): 98–127.

Fratocchi, L., C. DiMauro, P. Barbieri, G. Nassimbeni, and A. Zanoni (2014). "When manufacturing moves back: concepts and questions". *Journal of Purchasing & Supply Management*. 20: 54–59.

Freeman, C. (2000). *High Tech and High Heels in the Global Economy: Women, Work, and Pink-Collar Identities in the Caribbean*. Duke University Press.

Freeman, S. and E. Browne (2004). "The influence of national culture on dissolution communication strategies in Western versus Asian business relationships: a theoretical model". *Supply Chain Management: An International Journal*. 9(2): 169–182.

Frohlich, M. and R. Westbrook (2001). "Arcs of integration: an international study of supply chain strategies". *Journal of Operations Management*. 19(2): 185–200.

Fuentes, A. and B. Ehrenreich (1983). *Women in the Global Factory*. NY: South End Press.

Gallien, J., I. Rashkova, R. Atun, and P. Yadav (2017). "National drug stockout risks and the global fund disbursement process for procurement". *Production and Operations Management*. 26(6): 997–1014.

García-Morales, V. J., M. Jiménez-Barrionuevo, and L. Gutiérrez-Gutiérrez (2012). "Transformational leadership influence on organizational performance through organizational learning and innovation". *Journal of Business Research*. 65(7): 1040–1050.

Gladwell, M. (2008). *Outliers: The Story of Success*. Hachette UK.

GlobalEDGE (2018). Accessed August 24, 2018. URL: https://globaledge.msu.edu/countries/china/tradestats.

Gokpinar, B., W. Hopp, and S. Iravani (2013). "In-house globalization: the role of globally distributed design and product architecture on product development performance". *Production and Operations Management*. 22(6): 1509–1523.

Google Scholar (2019). Scholar.google.com. Accessed March 6, 2019.

Govers, C. P. (2001). "QFD not just a tool but a way of quality management". *International Journal of Production Economics*. 69(2): 151–159.

Graham, J. L., A. Mintu, and W. Rodgers (1994). "Explorations of negotiation behaviors in ten foreign cultures using a model developed in the United States". *Management Science*. 40(1): 72–95.

Gray, J. V., G. Esenduran, M. Rungtusanatham, and K. Skowronski (2017). "Why in the world did they reshore? Examining small to medium-sized manufacturer decisions". *Journal of Operations Management*. 49: 37–51.

Gray, J. V., A. Roth, and M. Leiblein (2011). "Quality risk in offshore manufacturing: evidence from the pharmaceutical industry". *Journal of Operations Management*. 29(7–8): 737–752.

Gray, J. and B. Massimino (2014). "The effect of language differences and national culture on operational process compliance". *Production and Operations Management*. 23(6): 1042–1056.

Green, S. (1983). "Silicon valley's women workers: a theoretical analysis of sex-segregation in the electronics industry labor market". In: *Women Men and the International Division of Labor*. Ed. by J. Nash and M. Fernandez-Kelly. Ch 12. Albany, NY: State University of New York.

Griffis, S. E., C. Autry, L. Thornton, and A. Brik (2014). "Assessing antecedents of socially responsible supplier selection in three global supply chain contexts". *Decision Sciences*. 45(6): 1187–1215.

Guldenmund, F. W. (2000). "The nature of safety culture: a review of theory and research". *Safety Science*. 34(1): 215–257.

Hahn, E. D. and K. Bunyaratavej (2010). "Services cultural alignment in offshoring: the impact of cultural dimensions on offshoring location choices". *Journal of Operations Management*. 28(3): 186–193.

Handley, S. M. and W. C. Benton (2013). "The influence of task- and location-specific complexity on the control and coordination costs in global outsourcing relationships". *Journal of Operations Management*. 31(3): 109–128.

Harrison, R. (1987). *Organization, Culture and Quality of Service: A Strategy for Releasing Love in the Workplace*. London: Association for Management Education and Development.

Harzing (2019). "Harzing's Publish or Perish". Accessed March 6, 2019.

Hatch, N. W. and D. Mowery (1998). "Process innovation and learning by doing in semiconductor manufacturing". *Management Science*. 44((11-part-1)): 1461–1477.

Hausman, W., H. Lee, and U. Subramanian (2013). "The impact of logistics performance on trade". *Production and Operations Management*. 22(2): 236–252.

Hayes, J. (2008). "A History of Transatlantic Cables". *IEEE Communications Magazine*: 42–48. September.

Helmreich, R. and A. Merritt (1998). *Culture at Work in Aviation and Medicine*. USA: Ashgate, Brookfield.

Hofstede, G. (1980). *Culture's Consequences: National Differences in Thinking and Organizing*. Beverly Hills, CA: Sage.

Hofstede, G. (2018). Email communication July 28, 2018.

Hofstede, G. H., G. Hofstede, and W. Arrindell (1998). "*Masculinity and Femininity: The Taboo Dimension of National Cultures*". (vol 3). Sage.

Hofstede, G., B. Neuijen, D. D. Ohayv, and G. Sanders (1990). "Measuring organizational cultures: a qualitative and quantitative study across twenty cases". *Administrative Science Quarterly*: 286–316.

Hoppe, M. (1990). "A comparative study of country elites: international differences in work related values and learning and their implications for management training and development". Unpublished Disseratation, University North Carolina, Chapel Hill.

Hoppe, M. (1998). "Validating the masculinity/femininity dimension on elites from 19 countries". In: *Masculinity and Femininity: The Taboo Dimension of National Cultures*. Ch. 2. Thousand Oaks, CA: Sage Publications, Inc.

Hult, G. T. M., R. Hurley, L. Giunipero, and E. Nichols (2000). "Organizational learning in global purchasining: a model and test of internal users and corporate buyers". *Decision Sciences*. 31(2): 293–325.

Hussain, N. and F. Siddiqui (2013). "Muslim female work participation in West Bengal, India". *Women's Studies*. 42(3): 291–313.

Hutchison-Krupat, J. and R. O. Chao (2014). "Tolerance for failure and incentives for collaborative innovation". *Production and Operations Management*. 23(8): 1265–1285.

INFORMS (2017). Accessed July 18, 2017. URL: Pubsonline.informs.org/page/mnsc/editorial-statements.

International Labour Organization (1919). *Conventions Concerning Employment of Women During the Night*. Geneva: ILO.

International Labour Organization (2001). *General Survey of the Reports Concerning the Night Work (Women) Convention, 1919 (No.4), the Night Work (Women) Convention (Revised), 1934 (No.41) the Night Work (Women) Convention (Revised), 1948 (No.89) and the Protocol of 1990 to the Night Work (Women) Convention (Revised) 1948*. Geneva, Switzerland: ILO.

International Labour Organization (2012). *Promoting the ILO Home Work Convention (C177) and the Rights of Homeworkers*. Geneva: ILO.

Ittner, C. and P. MacDuffie (1995). "Explaining plant-level differences in manufacturing overhead: structural and executional cost drivers in the world auto industry". *Production and Operations Management*. 4: 312–333.

Jacobellis v. Ohio (1963). *US Supreme Court case 378 US 184*. Supreme Court Reporter.

Jahre, M., J. Kembro, T. Rezvanian, O. Ergun, S. Håpnes, and P. Berling (2016). "Integrating supply chains for emergencies and ongoing operations in UNHCR". *Journal of Operations Management*. 45: 57–72.

Jain, N., K. Girotra, and S. Netessine (2013). "Managing global sourcing: inventory performance". *Management Science*. 60(5): 1202–1222.

Javidan, M. and R. House (2001). "Cultural acumen for the global manager: lessons from project GLOBE". *Organizational Dynamics*. 29(4): 289–305.

Jenner, R. A., L. Hebert, A. Appell, and J. Baack (1998). "Using quality management for cultural transformation of Chinese state enterprises: a case study". *Journal of Quality Management*. 3(2): 193–210.

Jia, F. and R. Lamming (2013). "Cultural adaptation in Chinese-Western supply chain partnerships: dyadic learning in an international context". *International Journal of Operations & Production Management*. 33(5): 528–561.

Jiang, Y., S. Colakoglu, D. Lepak, J. Blasi, and D. Kruse (2015). "Involvement work systems and operational effectiveness: exploring the moderating effect of national power distance". *Journal of International Business Studies*. 46(3): 332–354.

Jira, C. and M. Toffel (2013). "Engaging supply chains in climate change". *Manufacturing & Service Operations Management*. 15(4): 559–577.

Johnson, J. W. (1996). "Linking employee perceptions of service climate to customer satisfaction". *Personnel Psychology*. 49(4): 831–851.

Jordan, A. T. (2013). *Business Anthropology*. 2nd edn. Long Grove, IL: Waveland Press.

Kadipasaoglu, S. N., S. Hurley, J. Foote, and B. Khumawala (1998). "An investigation of the relationship between global manufacturing practices and outcomes in machine tools and textile industries". *Journal of Operations Management*. 16(2): 291–299.

Kathuria, R., S. J. Porth, N. N. Kathuria, and T. K. Kohli (2010). "Competitive priorities and strategic consensus in emerging economies: evidence from India". *International Journal of Operations and Production Management*. 30(8): 879–896.

Kaufmann, L. and C. Carter (2006). "International supply relationships and non-financial performance—A comparison of US and German practices". *Journal of Operations Management*. 24(5): 653–675.

Ketokivi, M., V. Turkulainen, T. Seppälä, P. Rouvinen, and J. Ali-Yrkkö (2017). "Why locate manufacturing in a high-cost country? A case study of 35 production location decisions". *Journal of Operations Management*. 49: 20–30.

Khattak, S. (2002). "Subcontracted work and gender relations: the case of Pakistan". In: *The Hidden Assembly Line: Gender Dynamics of Subcontracted Work in a Global Economy*. Ed. by R. Balakrishnan. Ch. 3. Bloomfield, CT: Kumarian Press.

Khazanchi, S., M. W. Lewis, and K. K. Boyer (2007). "Innovation-supportive culture: the impact of organizational values on process innovation". *Journal of Operations Management*. 25(4): 871–884.

Khosla, N. (2009). "The ready-made garments industry in Bangladesh: a means to reducing gender-based social exclusion of women?" *Journal of International Women's Studies*. 11(1): 289–303.

Khurana, A. and B. Talbot (1998). "The internationalization process model through the lens of the global color picture tube industry". *Journal of Operations Management*. 16(2): 215–239.

Kim, S. (1997). *Class Struggle or Family Struggle? The Lives of Women Factory Workers in South Korea*. UK: Cambridge University Press.

Kirkman, B., K. Lowe, and C. Gibson (2006). "A quarter century of Culture's Consequences: a review of empirical research incorporating Hofstede's cultural values framework". *Journal of International Business Studies*. 37(3): 285–320.

Klassen, R. D. and C. McLaughlin (1996). "The impact of environmental management on firm performance". *Management Science*. 42(8): 1199–1214.

Klassen, R. D. and D. Whybark (1994). "Barriers to the management of international operations". *Journal of Operations Management*. 11(4): 385–396.

Kleindorfer, P. and G. Saad (2005). "Managing disruption in supply chains". *Production and Operations Management*. 14(1): 53–68.

Kogut, B. and H. Singh (1988). "The effect of national culture on the choice of entry mode". *Journal of International Business Studies*. 19(3): 411–432.

Koufteros, X. A., A. Y. Nahm, T. C. Edwin Cheng, and K.-H. Lai (2007). "An empirical assessment of a nomological network of organizational design constructs: from culture to structure to pull production to performance". *International Journal of Production Economics*. 106(2): 468–492.

Kouvelis, P., C. Munson, and S. Yang (2013). "Robust structural equations for designing and monitoring strategic international facility networks". *Production and Operations Management*. 22(3): 535–554.

Kozinets, R. V. (2002). "The field behind the screen: using netnography for marketing research in online communities". *Journal of Marketing Research*. 39(1): 61–72.

Kull, T. J. and J. G. Wacker (2010). "Quality management effectiveness in Asia: the influence of culture". *Journal of Operations Management*. 28(3): 223–239.

Kull, T. J., T. Yan, Z. Liu, and J. Wacker (2014). "The moderation of lean manufacturing effectiveness by dimensions of national culture: testing practice-culture congruence hypotheses". *International Journal of Production Economics*. 153: 1–12.

Kunda, G. (2006). *Engineering Culture*. Philadephia, PA: Temple University Press.

Kung, L. (1983). *Factory Women in Taiwan*. Ann Arbor, MI: UMI Research Press.

Kyoon Yoo, D., S. Subba Rao, and P. Hong (2006). "A comparative study on cultural differences and quality practices-Korea, USA, Mexico, and Taiwan". *International Journal of Quality & Reliability Management*. 23(6): 607–624.

Lampel, J. and C. Giachetti (2013). "International diversification of manufacturing operations: performance implications and moderating forces". *Journal of Operations Management*. 31(4): 213–227.

Laohavichien, T., L. D. Fredendall, and R. S. Cantrell (2011). "Leadership and quality management practices in Thailand". *International Journal of Operations and Production Management*. 31(10): 1048–1070.

Lawrence, S. and M. Rosenblatt (1992). "Introducing international issues into operations management curricula". *Production and Operations Management*. 1(1): 103–117.

Lee, P. and P. Humphreys (2007). "The role of Guanxi in supply management practices". *International Journal of Production Economics*. 106: 450–467.

Leela vs. State of Kerala (2009). Accessed May 26, 2009. URL: http://indiankanoon.org/doc/992453.

Levinson, M. (2006). *The Box: How the Shipping Container made the World Smaller and the World Economy Bigger*. Princeton NJ: Princeton University Press.

Lewin, A. Y. and C. Peeters (2006). "Offshoring work: business hype or the onset of fundamental transformation?" *Long Range Planning*. 39(3): 221–239.

Lewis, M. A. (2000). "Lean production and sustainable competitive advantage". *International Journal of Operations & Production Management*. 20(8): 959–978.

Li, Y., P. Li, Y. Liu, and D. Yang (2010a). "Learning trajectory in offshore OEM cooperation: transaction value for local suppliers in the emerging economies". *Journal of Operations Management*. 28(3): 269–282.

Li, Y., E. Xie, H. Teo, and M. Peng (2010b). "Formal control and social control in domestic and international buyer-supplier relationships". *Journal of Operations Management*. 28(4): 333–344.

Liu, H., W. Ke, K. K. Wei, J. Gu, and H. Chen (2010). "The role of institutional pressures and organizational culture in the firm's intention to adopt internet-enabled supply chain management systems". *Journal of Operations Management*. 28(5): 372–384.

Liu, J., F. Meng, and R. Fellows (2015). "An exploratory study of understanding project risk management from the perspective of national culture". *International Journal of Project Management*. 33(3): 564–575.

Lockström, M., J. Schadel, N. Harrison, R. Moser, and M. Malhotra (2010). "Antecedents to supplier integration in the automotive industry: a multiple-case study of foreign subsidiaries in China". *Journal of Operations Management*. 28(3): 240–256.

Longoni, A., M. Pagell, D. Johnston, and A. Veltri (2013). "When does lean hurt?–an exploration of lean practices and worker health and safety outcomes". *International Journal of Production Research*. 51(11): 3300–3320.

Lu, J. (2007). "Gender, information technology, and health: the case of women workers in export zones in the Philippines". *Journal of International Women's Studies*. 8(4): 93–106.

Lynch, C. (2007). *Juki Girls, Good Girls: Gender and Cultural Politics in Sri Lanka's Global Garment Industry*. Ithaca, NY: Cornell University Press.

MacDuffie, J. P., K. Sethuraman, and M. Fisher (1996). "Product variety and manufacturing performance: evidence from the international automotive assembly plant study". *Management Science*. 42(3): 350–369.

Mamani, H., S. Chick, and D. Simchi-Levi (2013). "A game-theoretic model of international influenza vaccination coordination". *Management Science*. 59(7): 1650–1670.

Marble, R. P. and Y. Lu (2007). "Culturalizing enterprise software for the Chinese context: an argument for accommodating guanxi-based business practices". *International Journal of Production Economics*. 107(2): 364–379.

Maritan, C. A., T. Brush, and A. Karnani (2004). "Plant roles and decision autonomy in multinational plant networks". *Journal of Operations Management*. 22(5): 489–503.

Marshall, D., R. Metters, and M. Pagell (2016). "Changing a leopard's spots: a new research direction for organizational culture in the operations management field". *Production and Operations Management*. 25(9): 1506–1512.

Martinez, A. J. P., O. Stapleton, and L. Van Wassenhove (2011). "Field vehicle fleet management in humanitarian operations: a case-based approach". *Journal of Operations Management*. 29(5): 404–421.

Massimino, B., J. Gray, and K. Boyer (2017). "The effects of agglomeration and national property rights on digital confidentiality performance". *Production and Operations Management*. 26(1): 162–179.

Matsuura, H., S. Kurosu, and A. Lehtimäki (1995). "Concepts, practices and expectations of MRP, JIT and OPT in Finland and Japan". *International Journal of Production Economics*. 41(1–3): 267–272.

McAfee, R. B., M. Glassman, and E. D. Honeycutt (2002). "The effects of culture and human resource management policies on supply chain management strategy". *Journal of Business Logistics*. 23(1): 1–18.

McDermott, C. M. and G. N. Stock (1999). "Organizational culture and advanced manufacturing technology implementation". *Journal of Operations Management*. 17(5): 521–533.

McFadden, K. L., S. C. Henagan, and C. R. Gowen III (2009). "The patient safety chain: transformational leadership's effect on patient safety culture, initiatives, and outcomes". *Journal of Operations Management*. 27(5): 390–404.

Mello, J. E. and T. P. Stank (2005). "Linking firm culture and orientation to supply chain success". *International Journal of Physical Distribution & Logistics Management*. 35(8): 542–554.

Meredith, J. R., M. Steward, and B. Lewis (2011). "Knowledge dissemination in operations management: published perceptions versus academic reality". *Omega*. 39(4): 435–446.

Merritt, A. (2000). "Culture in the cockpit". *Journal of Cross-Cultural Psychology*. 31(3): 283–301.

Mersha, T. (1997). "TQM implementation in LDCs: driving and restraining forces". *International Journal of Operations & Production Management*. 17(2): 164–183.

Metters, R. (2008). "A case study of national culture and offshoring services". *International Journal of Operations and Production Management*. 28(8): 727–747.

Metters, R. (2017). "Gender and operations management". *Cross Cultural & Strategic Management*. 24(2): 350–364.

Metters, R., X. Zhao, E. Bendoly, B. Jiang, and S. Young (2010). "The way that can be told of is not an unvarying way": cultural impacts on operations management in Asia". *Journal of Operations Management*. 28(3): 177–185.

Mirza, J. (1999). "Accommodating purdah to the workplace: gender relationships in the office sector in Pakistan". *The Pakistan Development Review*. 38(2): 187–206.

Mitki, Y. and A. Shani (1995). "Cultural challenges in TQM implementation: some learning from the Israeli experience". *Canadian Journal of Administrative Sciences/Revue Canadienne des Sciences de l'Administration*. 12(2): 161–170.

Mitter, S., G. Fernandez, S. Varghese, and S (2015). "On the threshold of informalization: women call centre workers in India". In: *Chains of Fortune: Linking Women Producers and Workers with Global Markets*. Ed. by M. Carr. London: Commonwealth Secretariat. 165–183.

Moradlou, H., C. Backhouse, and R. Ranganatham (2017). "Responsiveness, the primary reason behind re-shoring manufacturing activities to the UK". *International Journal of Physical Distribution & Logistics Management*. 47(2/3): 222–236.

Morgan, R. M. and S. Hunt (1994). "The commitment-trust theory of relationship marketing". *Journal of Marketing*. 58(3): 20–38.

Mouritzen, P. and J. Svara (2002). *Leadership at the Apex*. University Pittsburgh Press.

Nahm, A. Y., M. Vonderembse, and X. Koufteros (2004). "The Impact of organizational culture on time-based manufacturing and performance". *Decision Sciences*. 35(4): 579–607.

Naor, M., K. Linderman, and R. Schroeder (2010). "The globalization of operations in Eastern and Western countries: unpacking the relationship between national and organizational culture and its impact on manufacturing performance". *Journal of Operations Management*. 28(3): 194–205.

Narasimhan, R. and J. Jayaram (1998). "An empirical investigation of the antecedents and consequences of manufacturing goal achievement in North American, European and Pan Pacific firms". *Journal of Operations Management*. 16(2): 159–176.

Narasimhan, R., T. J. Kull, and A. Nahm (2012). "Alternative relationships among integrative beliefs, time-based manufacturing and performance". *International Journal of Operations & Production Management*. 32(4): 496–524.

Netland, T. H. and K. Ferdows (2016). "The S-curve effect of lean implementation". *Production and Operations Management*. 25(6): 1106–1120.

Ngai, P. (2005). *Made in China: Women Factory Workers in a Global Workplace*. Durham NC: Duke University Press.

Ngowi, A. B. (2000). "Impact of culture on the application of TQM in the construction industry in Botswana". *International Journal of Quality & Reliability Management*. 17(4/5): 442–452.

Oke, A., D. I. Prajogo, and J. Jayaram (2013). "Strengthening the innovation chain: the role of internal innovation climate and strategic relationships with supply chain partners". *Journal of Supply Chain Management*. 49(4): 43–58.

Ong, A. (1987). *Spirits of Resistance and Capitalist Discipline: Factory Women in Malaysia*. Albany, NY: State University of New York Press.

O'Reilly, C. A., J. Chatman, and D. F. Caldwell (1991). "People and organizational culture: a profile comparison approach to assessing person-organization fit". *Academy of Management Journal*. 34(3): 487–516.

Özer, Ö., Y. Zheng, and Y. Ren (2014). "Trust, trustworthiness, and information sharing in supply chains bridging China and the United States". *Management Science*. 60(10): 2435–2460.

Pagell, M. (2004). "Understanding the factors that enable and inhibit the integration of operations, purchasing and logistics". *Journal of Operations Management*. 22(5): 459–487.

Pagell, M., D. Johnston, A. Veltri, R. Klassen, and M. Biehl (2014). "Is safe production an oxymoron?" *Production and Operations Management*. 23(7): 1161–1175.

Pagell, M., J. P. Katz, and C. Sheu (2005). "The importance of national culture in operations management research". *International Journal of Operations & Production Management*. 25(4): 371–394.

Pagell, M., R. Klassen, D. Johnston, A. Shevchenko, and S. Sharma (2015). "Are safety and operational effectiveness contradictory requirements: the roles of routines and relational coordination". *Journal of Operations Management*. 36: 1–14.

Patel, R. (2010). *Working the Night Shift: Women in India's Call Center Industry*. Stanford CA: Stanford University Press.

Phatak, A. (1995). *International Dimensions of Management*. Dame Publications.

Pothukuchi, V., F. Damanpour, J. Choi, C. C. Chen, and S. H. Park (2002). "National and organizational culture differences and international joint venture performance". *Journal of International Business Studies*: 243–265.

Power, D., R. Klassen, T. Kull, and D. Simpson (2015). "Competitive goals and plant investment in environment and safety practices: moderating effect of national culture". *Decision Sciences*. 46(1): 63–100.

Power, D., T. Schoenherr, and D. Samson (2010). "The cultural characteristic of individualism/collectivism: a comparative study of implications for investment in operations between emerging Asian and industrialized Western countries". *Journal of Operations Management*. 28(3): 206–222.

Prada, P. and N. Sheth (2009). "Delta Air ends use of India Call Centers". *The Wall Street Journal*. Accessed March 6, 2019. URL: https://www.wsj.com/articles/SB123999231588529683.

Prajogo, D. I. and C. M. McDermott (2005). "The relationship between total quality management practices and organizational culture". *International Journal of Operations & Production Management*. 25(11): 1101–1122.

Prajogo, D. I. and C. M. McDermott (2011). "The relationship between multidimensional organizational culture and performance". *International Journal of Operations & Production Management*. 31(7): 712–735.

Prasad, S. and S. Babbar (2000). "International operations management research". *Journal of Operations Management*. 18(2): 209–247.

Prasad, S., J. Tata, and M. Madan (2005). "Build to order supply chains in developed and developing countries". *Journal of Operations Management*. 23(5): 551–568.

Prater, E. and S. Ghosh (2006). "A comparative model of firm size and the global operational dynamics of US firms in Europe". *Journal of Operations Management*. 24(5): 511–529.

Pullman, M. E. and J. Dillard (2010). "Values based supply chain management and emergent organizational structures". *International Journal of Operations & Production Management*. 30(7): 744–771.

Pullman, M. E., R. Verma, and J. Goodale (2001). "Service design and operations strategy formulation in multicultural markets". *Journal of Operations Management*. 19(2): 239–254.

Queenan, C. C., T. Kull, and S. Devaraj (2016). "Complements or substitutes? Culture-technology interactions in healthcare". *Decision Sciences*. 47(5): 851–880.

Quinn, R. E. (1988). *Beyond Rational Management: Mastering the Paradoxes and Competing Demands of High Performance*. Jossey-Bass.

Radice v. New York (1924). Accessed July 3, 2015. URL: https://supreme.justia.com/cases/federal/us/264/292/case.html.

Raghunathan, T. S., S. Subba Rao, and L. Solis (1997). "A comparative study of quality practices: USA, China and India". *Industrial Management & Data Systems*. 97(5): 192–200.

Rao, S. S., T. Raghunathan, and L. Solis (1997). "A comparative study of quality practices and results in India, China and Mexico". *Journal of Quality Management*. 2(2): 235–250.

Ribbink, D. and C. Grimm (2014). "The impact of cultural differences on buyer-supplier negotiations: an experimental study". *Journal of Operations Management*. 32(3): 114–126.

Rieger, M. O., M. Wang, and T. Hens (2015). "Risk preferences around the world". *Management Science*. 61(3): 637–648.

Robb, D. J. and B. Xie (2001). "A survey of manufacturing strategies in China-based enterprises". *International Journal of Production Economics*. 72(2): 181–199.

Robson, L. S., B. Amick III, C. Moser, M. Pagell, E. Mansfield, H. Shannon, M. Swift, S. Hogg-Johnson, S. Cardoso, and H. South (2016). "Important factors in common among organizations making large improvement in OHS performance: results of an exploratory multiple case study". *Safety Science*. 86: 211–227.

Roney, J. (1997). "Cultural implications of implementing TQM in Poland". *Journal of World Business*. 32(2): 152–168.

Rowbotham, S. (1993). *Homeworkers Worldwide*. London: The Merlin Press.

Rungtusanatham, M., C. Forza, R. Filippini, and J. C. Anderson (1998). "A replication study of a theory of quality management underlying the Deming management method: insights from an Italian context". *Journal of Operations Management*. 17(1): 77–95.

Rungtusanatham, M., C. Forza, B. Koka, F. Salvador, and W. Nie (2005). "TQM across multiple countries: convergence hypothesis versus national specificity arguments". *Journal of Operations Management*. 23(1): 43–63.

Safa, H. (1983). "Women, production, and reproduction in industrial capitalism: a comparison of Brazilian and U.S. factory workers". In: *Women Men and the International Division of Labor*. Ed. by J. Nash and M. Fernandez-Kelly. Ch. 4. Albany, NY: State University of New York.

Sahlins, M. (1976). *Culture and Practical Reason*. University Chicago Press.

Salzinger, L. (2003). *Genders in Production: Making Workers in Mexico's Global Factories*. Berkeley, CA: University California Press.

Samaddar, S. and S. Kadiyala (2006). "Information systems outsourcing: replicating an existing framework in a different cultural context". *Journal of Operations Management*. 24(6): 910–931.

Samson, D. and S. Ford (2000). "Manufacturing practices and performance: Comparisons between Australia and New Zealand". *International Journal of Production Economics*. 65(3): 243–255.

Schein, E. H. (1986). *Organizational Culture and Leadership*. San Francisco: Jossey-Bass.

Schein, E. H. (1992). *Organizational Culture and Leadership*, (2nd ed). San Francisco: Jossey-Bass.

Schmenner, R. (2001a). "Looking ahead by looking back: swift, even flow in the history of manufacturing". *Production and Operations Management*. 10(1): 87–96.

Schmenner, R. W. (1991). "International factory productivity gains". *Journal of Operations Management*. 10(2): 229–254.

Schmenner, R. W. and G. Vastag (2006). "Revisiting the theory of production competence: extensions and cross-validations". *Journal of Operations Management*. 24(6): 893–909.

Schneider, B., B. Ehrhart, and W. Macey (2013). "Organizational climate and culture". *Annual Review of Psychology*. 64: 361–388.

Schoenherr, T., S. Narayanan, and R. Narasimhan (2015). "Trust formation in outsourcing relationships: a social exchange theoretic perspective". *International Journal of Production Economics*. 169: 401–412.

Schroeder, R. G., R. Shah, and D. X. Peng (2011). "The cumulative capability 'sand cone'model revisited: a new perspective for manufacturing strategy". *International Journal of Production Research*. 49(16): 4879–4490.

Schwartzman, H. (1993). *Ethnography in Organizations*. Newberry Park, CA: Sage.

Segura, A. (2018). "Presentation at Faculty Development in International Business". Sponsored by University Miami, Lima, Peru, June 4 2018. Mr. Segura is the former Economy Minister of Peru.

Seto, H. (1988). "The cost of distribution in Britain and Japan". *International Journal of Physical Distribution & Materials Management*. 18(4): 22–31.

Shankarmahesh, M. N., J. B. Ford, and M. S. LaTour (2003). "Cultural dimensions of switching behavior in importer-exporter relationships". *Academy of Marketing Science Review*. 3: 1–17.

Sharma, A. (2015). "India orders TV stations not to give rapist a platform". *Houston Chronicle*: 3. March 4.

Shenkar, O. (2001). "Cultural distance revisited: towards a more rigorous conceptualization and measurement of cultural differences". *Journal of International Business Studies*. 32(3): 519–535.

Sherry Jr, J. F. (1987). "Keeping the monkeys away from the typewriters: an anthropologist's view of the consumer behavior odyssey". *Advances in Consumer Research*. 14(1): 370–373.

Shevchenko, A., M. Lévesque, and M. Pagell (2016). "Why firms delay reaching true sustainability". *Journal of Management Studies*. 53(5): 911–935.

Shi, Y. and M. Gregory (1998). "International manufacturing networks—to develop global competitive capabilities". *Journal of Operations Management*. 16(2): 195–214.

Shingoprize (2017). Accessed June 2, 2017. URL: http://www.shingoprize.org.

Shub, A. N. and P. W. Stonebraker (2009). "The human impact on supply chains: evaluating the importance of 'soft' areas on integration and performance". *Supply Chain Management: An International Journal*. 14(1): 31–40.

Singhal, K. (1992). "Introduction: shaping the future of manufacturing and service operations". *Production and Operations Management*. 1(1): 1–4.

Singhal, K. (2001). "History of technology, manufacturing, and the industrial revolution: an alternative perspective on Schmenner's hypotheses". *Production and Operations Management*. 10(1): 97–102.

Singhal, K. and J. Singhal (2012a). "Imperatives of the science of operations and supply chain management". *Journal of Operations Management*. 30: 237–244.

Singhal, K., M. Sodhi, and C. Tang (2014). "POMS initiatives for promoting practice-driven research and research-influenced practice". *Production and Operations Management*. 23(5): 725–727.

Škerlavaj, M., M. I. Štemberger, R. Škrinjar, and V. Dimovski (2007). "Organizational learning culture—the missing link between business process change and organizational performance". *International Journal of Production Economics*. 106(2): 346–367.

Sluis, S. and P. De Giovanni (2016). "The selection of contracts in supply chains: an empirical analysis". *Journal of Operations Management*. 41: 1–11.

Smith, M. H. and D. Smith (2007). "Implementing strategically aligned performance measurement in small firms". *International Journal Production Economics*. 106: 393–408.

Soltani, E. and A. Wilkinson (2010). "Stuck in the middle with you: the effects of incongruency of senior and middle managers' orientations on TQM programmes". *International Journal of Operations & Production Management*. 30(4): 365–397.

Sondergaard, M. (1994). "Research note: Hofstede's consequences: a study of reviews, citations, and replications". *Organization Studies*. 15(3): 447–456.

Song, X. M. and M. Parry (1999). "Challenges of managing the development of breakthrough products in Japan". *Journal of Operations Management*. 17(6): 665–688.

Starr, M. (1997). "Pedagogical challenge: teaching international production and operations management courses". *Production and Operations Management*. 6(2): 114–121.

Steven, A. B., Y. Dong, and T. Corsi (2014). "Global sourcing and quality recalls: an empirical study of outsourcing-supplier concentration-product recalls linkages". *Journal of Operations Management*. 32(5): 241–253.

Stock, G. N., K. L. McFadden, and C. R. Gowen III (2007). "Organizational culture, critical success factors, and the reduction of hospital errors". *International Journal of Production Economics*. 106(2): 368–392.

Stringfellow, A., M. B. Teagarden, and W. Nie (2008). "Invisible costs in offshoring services work". *Journal of Operations Management*. 26(2): 164–179.

Su, H. C. and Y. Chen (2013). "Unpacking the relationships between learning mechanisms, culture types, and plant performance". *International Journal of Production Economics*. 146(2): 728–737.

Submarine Cable Networks (2019). Accessed February 26, 2019. URL: Submarinenetworks.com.

Subramanian, N., S. Rahman, and M. Abdulrahman (2015). "Sourcing complexity in the Chinese manufacturing sector: an assessment of intangible factors and contractual relationship strategies". *International Journal of Production Economics*. 166: 269–284.

Suckley, L. J., I. Price, and J. Sharpe (2013). "Exploring inter-departmental barriers between production and quality". *Journal of Organizational Ethnography*. 2(2): 173–190.

Tang, C. S. (2015). "OM forum—making OM research more relevant: "why?" and "how?" *Manufacturing & Service Operations Management*. 18(2): 178–183.

Tata, J. and S. Prasad (1998). "Cultural and structural constraints on total quality management implementation". *Total Quality Management*. 9(8): 703–710.

Tata, J., S. Prasad, and J. Motwani (2000). "Benchmarking quality management practices: US versus Costa Rica". *Multinational Business Review*. 8(2): 37.

Tate, W. L. (2014). "Offshoring and reshoring: U.S. insights and research challenges". *Journal of Purchasing and Supply Management*. 20: 66–68.

Tate, W. L. and L. Bals (2017). "Outsourcing/offshoring insights: going beyond reshoring to rightshoring". *International Journal of Physical Distribution & Logistics Management*. 47(2/3): 106–113.

Thornton, L. M., C. W. Autry, D. M. Gligor, and A. B. Brik (2013). "Does socially responsible supplier selection pay off for customer firms? A cross-cultural comparison". *Journal of Supply Chain Management*. 49(3): 66–89.

Trice, H. M. and J. M. Beyer (1993). *The Cultures of Work Organizations*. Prentice-Hall.

Tripathy, A. and S. Eppinger (2013). "Structuring work distribution for global product development organizations". *Production and Operations Management*. 22(6): 1557–1575.

Trompenaars, F. (1994). *Riding the Waves of Culture*. London, UK: International Management Publishers.

Trompenaars, F. and C. Hampden-Turner (1997). *Riding the Waves of Culture*. 2nd edn. London, UK: Nicholas Brealey Publishing.

Tummala, V. M. R., C. L. M. Phillips, and M. Johnson (2006). "Assessing supply chain management success factors: a case study". *Supply Chain Management: An International Journal*. 11(2): 179–192.

US Department of Labor (2015). Accessed July 23, 2015. URL: http://www.dol.gov/dol/topic/wages/industrialhomework.htm.

van der Laan, E., J. van Dalen, M. Rohrmoser, and R. Simpson (2016). "Demand forecasting and order planning for humanitarian logistics: an empirical assessment". *Journal of Operations Management*. 45: 114–122.

Vanpoucke, E., A. Vereecke, and M. Wetzels (2014). "Developing supplier integration capabilities for sustainable competitive advantage: a dynamic capabilities approach". *Journal of Operations Management*. 32(7–8): 446–461.

Vastag, G. and D. C. Whybark (1994). "American and European manufacturing practices: an analytical framework and comparisons". *Journal of Operations Management*. 12(1): 1–11.

Vecchi, A. and L. Brennan (2009). "Quality management: a cross-cultural perspective". *Cross Cultural Management: An International Journal*. 16(2): 149–164.

Vecchi, A. and L. Brennan (2011). "Quality management: a cross-cultural perspective based on the GLOBE framework". *International Journal of Operations and Production Management*. 31(5): 527–553.

Venkatesh, A., D. Crockett, S. Cross, and S. Chen (2017). "Ethnography for marketing and consumer research". *Foundations and Trends in Marketing*. 10(2): 61–151.

Venkatesh, V., H. Bala, and T. A. Sykes (2010). "Impacts of information and communication technology implementations on employees' jobs in service organizations in India: a multi-method longitudinal field study". *Production and Operations Management*. 19(5): 591–613.

Vereecke, A., R. Van Dierdonck, and A. De Meyer (2006). "A typology of plants in global manufacturing networks". *Management Science*. 52(11): 1737–1750.

VisualCapitalist (2017). Accessed February 26, 2019. URL: https://www.visualcapitalist.com/wp-content/uploads/2017/08/submarine-cables-full.html.

Voss, C. A., P. Åhlström, and K. Blackmon (1997). "Benchmarking and operational performance: some empirical results". *International Journal of Operations & Production Management*. 17(10): 1046–1058.

Voss, C. A., A. Roth, E. Rosenzweig, K. Blackmon, and R. Chase (2004). "A tale of two countries' conservatism, service quality, and feedback on customer satisfaction". *Journal of Service Research*. 6(3): 212–230.

Voss, C. and K. Blackmon (1998). "Differences in manufacturing strategy decisions between Japanese and Western manufacturing plants: the role of strategic time orientation". *Journal of Operations Management*. 16(2): 147–158.

Wacker, J. G. and L. Sprague (1998). "Forecasting accuracy: comparing the relative effectiveness of practices between seven developed countries". *Journal of Operations Management*. 16(2): 271–290.

WageIndicator.org (2019). Accessed February 26, 2019. URL: https://wageindicator.org/salary/minimum-wage.

Wang, C., L. Xu, X. Liu, and X. Qin (2005). "ERP research, development and implementation in China: an overview". *International Journal of Production Research*. 43(18): 3915–3932.

Ward, P. T., R. Duray, G. Leong, and C. Sum (1995). "Business environment, operations strategy, and performance: an empirical study of Singapore manufacturers". *Journal of Operations Management*. 13(2): 99–115.

Weick, K. E., K. Sutcliffe, and D. Obstfeld (1999). "Organizing for high reliability: Processes of collective mindfulness". In: *Research in Organizational Behavior*. Ed. by B. M. Staw and R. I. Sutton. Vol. 21. Greenwich, CT: JAI Press. 81–123.

Wellman, B. (1979). "The community question: the intimate networks of East Yorkers". *American Journal of Sociology*. 84(5): 1201–1231.

West, K. D. (1992). "A comparison of the behavior of Japanese and US inventories". *International Journal of Production Economics*. 26(1–3): 115–122.

Whitfield, G. and R. Landeros (2006). "Supplier diversity effectiveness: does organizational culture really matter?" *Journal of Supply Chain Management*. 42(4): 16–28.

Whybark, D. (1997). "Does international operations management need a separate perspective?" *Production and Operations Management*. 6(2): 122–130.

Wiengarten, F., B. Fynes, M. Pagell, and S. de Búrca (2011). "Exploring the impact of national culture on investments in manufacturing practices and performance: an empirical multi-country study". *International Journal of Operations and Production Management*. 31(5): 554–578.

Wiengarten, F., C. Gimenez, B. Fynes, and K. Ferdows (2015). "Exploring the importance of cultural collectivism on the efficacy of lean practices: taking an organisational and national perspective". *International Journal of Operations & Production Management*. 35(3): 370–391.

Wiengarten, F., M. Pagell, M. Ahmed, and C. Gimenez (2014). "Do a country's logistical capabilities moderate the external integration performance relationship?" *Journal of Operations Management*. 32(1): 51–63.

Williams, T., R. Maull, and B. Ellis (2002). "Demand chain management theory: constraints and development from global aerospace supply webs". *Journal of Operations Management*. 20(6): 691–706.

Wong, C. W., C. Sancha, and C. Thomsen (2017). "A national culture perspective in the efficacy of supply chain integration practices". *International Journal of Production Economics*. 193: 554–565.

World Bank (1995). *Global Economic Prospects and the Developing Countries*. Washington DC: The World Bank.

World Bank (2011). *World Development Report 2012: Gender Equality and Development*. Washington DC: The World Bank.

World Bank (2019). Accessed March 6, 2019. URL: http://data.worldbank.org/indicator/NE.TRD.GNFS.ZS.

WSB-TV (2011). "Home Depot moving white-collar jobs overseas". Accessed March 7, 2019. URL: https://www.wsbtv.com/news/local/home-depot-sending-jobs-offshore/241674947.

Wu, X. and F. Zhang (2014). "Home or overseas? An analysis of sourcing strategies under competition". *Management Science*. 60(5): 1223–1240.

Xie, J., X. Song, and A. Stringfellow (1998). "Interfunctional conflict, conflict resolution styles, and new product success: a four-culture comparison". *Management Science*. 44(12-part-2): S192–S206.

Yan, T. and A. Nair (2016). "Structuring supplier involvement in new product development: a China-US study". *Decision Sciences*. 47(4): 589–627.

Yang, C. L., R. J. Lin, D. Krumwiede, E. Stickel, and C. Sheu (2013). "Efficacy of purchasing activities and strategic involvement: an international comparison". *International Journal of Operations and Production Management*. 33(1): 49–68.

Yang, Y. S., T. Kull, A. Nahm, and B. Li (2017). "Attitudes toward supplier integration: the USA vs China". *International Journal of Operations & Production Management*. 37(8): 1094–1116.

Yavas, B. F. (1995). "A comparison on the quality perceptions of US and Asian firms in the electronics industry". *MIR: Management International Review*: 171–188.

Yen, H. R. and C. Sheu (2004). "Aligning ERP implementation with competitive priorities of manufacturing firms: an exploratory study". *International Journal of Production Economics*. 92(3): 207–220.

Youngdahl, W. E., D. L. Kellogg, W. Nie, and D. E. Bowen (2003). "Revisiting customer participation in service encounters: does culture matter?" *Journal of Operations Management*. 21(1): 109–120.

Zhang, D. J., G. Allon, and J. Van Mieghem (2017). "Does social interaction improve learning outcomes? Evidence from field experiments on massive open online courses". *Manufacturing & Service Operations Management*. 19(3): 347–367.

Zhao, X., B. Huo, B. B. Flynn, and J. H. Y. Yeung (2008). "The impact of power and relationship commitment on the integration between manufacturers and customers in a supply chain". *Journal of Operations Management*. 26(3): 368–388.

Zhao, X., B. Huo, W. Selen, and J. Yeung (2011). "The impact of internal integration and relationship commitment on external integration". *Journal of Operations Management*. 29(1–2): 17–32.

Zhao, X., S. Maheshwari, and J. Zhang (1995). "Benchmarking quality practices in India, China and Mexico". *Benchmarking for Quality Management & Technology*. 2(3): 20–40.

Zohar, D. (1980). "Safety climate in industrial organizations: theoretical and applied implications". *Journal of Applied Psychology*. 65(1): 96.

Zohar, D. and G. Luria (2005). "A multilevel model of safety climate: cross-level relationships between organization and group-level climates". *Journal of Applied Psychology*. 90(4): 616.