CROSS-CULTURAL QUALITY IMPROVEMENT: SHOULD THE FOCUS DEPEND ON CULTURAL CHARACTERISTICS AND TEAM ORIENTATION?

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ABSTRACT

The hypothesis that quality improvement efforts should be congruent with the level of field independence in a given cultural context and corresponding team quality orientations was examined. Patients' ratings of quality for U.S. and Indonesian nursing teams with and without cultural congruence were compared. Qualitative and quantitative methods captured the cultural characteristic of field independence, team quality orientations, and quality improvement efforts. Results provide partial support for the hypotheses. Findings are discussed in terms of psychological theory, research methods, and managerial implications.

The issue of quality has come to the forefront in many countries across the globe. At the macro level, quality has been identified as a key variable in determining "national" competitiveness. For example, scholars have identified the strong commitment to quality as one of the major causes of Japan's success in the 1980's (Kennedy, 1987); the competitive strength of Germany has been traced to the quality of its products and services (Limprecht & Haynes, 1982); and the Dutch Scientific Council identified quality as a key factor determining growth in Dutch exports and gross national product (WRR, 1987). Perhaps as a result of this increased global focus, national quality programs have been developed in such countries as the United States, Belgium, the Netherlands, Sweden, the United Kingdom, France, and the Soviet Union (Steenkamp, 1990). This focus has also encouraged the global development and institutionalization of national quality awards to serve as vehicles for promoting quality and quality improvement (Steenkemp, 1990). Such national quality awards can be found in Japan (e.g., the Deming Prize), the United States, (e.g., the Malcolm Baldrige National Quality Award), Australia (e.g., the Australian National Quality Award), and Great Britain (e.g., the British Quality Award). Regardless of type of industry, size of company, and type of process, quality has become an essential element of competitive strategy (Wolff, 1986).

Although quality is recognized as a crucial component of international competitiveness, there is still little consensus about what "quality" really is (Garvin, 1984; Forker, 1991; Reeves & Bednar, 1994). Some definitions focus on social factors; others focus on technical factors. Research suggests that the pervasiveness of these perspectives varies across cultures (Forker, 1991). Even less agreement exists about how to achieve improved quality of performance in organizations. A number of perspectives have developed about what should be the focus of total quality management efforts. Some organizations focus on people to improve quality; others focus

on tools. What remains to be seen is whether intercultural differences in quality orientation impact the actual level of quality achieved by organizations across cultures.

This paper examines how quality orientations develop across cultures and how knowledge of quality orientations can help guide quality improvement efforts (See Figure 1). First, I review the literature on *quality orientations*, arguing that quality orientation is a collective characteristic associated with the culture in which quality efforts are embedded. I focus on a particularly important element of culture, *field independence*, and hypothesize that field independence is a predictor of whether quality orientation is social or technical.

Insert Figure 1 About Here

Next, I develop the concept of *quality improvement focus*, contrasting a focus on people with a focus on tools. I argue that neither focus is universally superior. Instead, I hypothesize that the quality orientation of workers mediates the relationship between quality improvement focus and actual quality ratings. Specifically, teams within an organization that achieve congruence between quality orientation and quality improvement focus demonstrate higher quality outputs than those that do not achieve such congruence. In an exploratory mode, these hypotheses are then tested using a combination of qualitative and quantitative data collected within a sample of nursing teams in the U.S. and Indonesia. Written transcripts of focus group sessions and responses to survey instruments are compared to determine the overall level of support for the hypotheses. Results are discussed in terms of theoretical, methodological, and managerial implications.

QUALITY ORIENTATIONS

Quality has been defined as, "an idiosyncratic value judgment with respect to fitness for consumption which is based upon the processing of quality cues in relation to... significant personal and situational variables" (Steenkemp, 1990: 317). In other words, a person's approach toward quality is a function of prior expectations about what products or services should consist of (Boudling, Kalra, Staelin, & Zeithaml, 1993; Parasuraman, Zeithmal & Berry, 1994). Taking this subjectivity into consideration, it is easy to see why approaches to quality may differ so vastly from person to person, organization to organization, and culture to culture.

The concept of *quality orientations* offers a systematic means of studying differences in approaches to quality (Reeves & Bednar, 1994; Waldman, 1994; Wilde, Larsson, Larrson, & Starrin, 1994). A quality orientation is a collective attribute -- it describes the nature of the attributions workers within a collective social unit make about the source of quality. For example, investigating health care organizations as a specific type of service setting, Wilde and his colleagues found that some health care service teams defined quality in terms of technical competence and physical conditions, such as equipment and facilities. Wilde et al. (1994) labeled this a "technical quality orientation." In contrast, other health care service teams defined quality in terms of the human aspects of service and the socio-cultural atmosphere in which service is delivered. Wilde et al. (1994) labeled this a "social quality orientation." In their reviews of the literature, Reeves & Bednar (1994) and Waldman (1994) came to similar conclusions: systematic differences in definitions of quality can be captured in the concept of quality orientations.

Unfortunately, we know very little about how quality orientations develop. Steenkemp's (1990) influential cognitive model does offer a starting point, shedding light on the formation of

quality orientations. He suggested that the process by which quality orientations are formed consists of three subprocesses: (1) cue acquisition and categorization, (2) quality attribute belief formation, and (3) integration of quality attribute beliefs. According to the model, these three subprocesses are influenced by personal and situational variables such as cultural background, level of education, quality consciousness, level of involvement, prior knowledge, and level of skill. Behavioral responses are then based on the outcomes of these three subprocesses.

Employees from different cultures often utilize different sources of knowledge when gathering information, making judgements or decisions, and evaluating managerial practices (Earley, Gibson & Chen, 1999). *Field independence* is a complex cultural construct that captures these differences in knowledge source utilization across cultures, specifically, the extent to which members of a society gather information from the social context, also described as the social "field"(Witkin & Goodenough, 1977).

Field independence was developed by the cognitive anthropologist Herman Witkin and his colleagues and has also been referred to as psychological differentiation in the social psychology literature (Witkin & Goodenough, 1977; Witkin, Goodenough & Oltman, 1979). Drawing on this literature, I argue here that field independence is an important cultural predictor of quality orientations. To a greater degree than most other cultural characteristics, field independence explains cultural variations in the way in which people gather information to guide decisions and focus behavior in a work setting (see Erez & Earley, 1993 for a review of this research).

There is considerable evidence that when in need of knowledge or information, those high in field independence take a fairly impersonal stance, drawing information from impersonal sources such as technology and physical conditions (i.e., they are independent from the social

"field"); in contrast, those low in field independence tend to take into account social frames of reference, are attentive and sensitive to the social content of their environment and prefer to have a high degree of contact with people around them (Bell, 1964; Konstadt & Forman, 1965; Deever, 1967; Justice, 1969; Fitzgibbons & Goldberger, 1971; Ruble & Nakamura, 1972; Holley, 1972; Greene, 1973).

Cognitive anthropologists have argued that these cognitive differences develop based on culture-specific child-rearing and socialization practices (Alvi, Khan, Begeris, & Ansari, 1986); thus, although variations within countries do exist, people from a given country often share the tendency to be either high or low in field independence (Witkin & Goodenough, 1977; Erez & Earley, 1993). Research suggests, for example, that Latin Americans, Israelis, and Southeast Asians tend to be low in field independence (i.e., they depend upon the external social aspects of the environment for sources of knowledge); Americans and Europeans tend to be high in field independence (i.e., they tend to depend upon impersonal, technical sources of knowledge) (Witkin & Goodenough, 1977; Triandis, 1989). Work groups are embedded within organizations and societies; therefore, group processes are likely influenced by the perceptions, values, and codes of conduct that are predominant in these larger cultural contexts (Erez & Earley, 1993). Beyond country differences in field independence, evidence also exists that long-standing work teams within organizations can be characterized by their level of field independence (Gibson, 1999).

To summarize then, in cultures that foster high field independence, people tend to utilize fairly impersonal, technical cues within their context. I argue that this tendency is related to a technical quality orientation in teams. In contrast, in cultures that foster low field independence,

people tend to focus on social cues within their context. I argue that this tendency is related to a social quality orientation in teams. The following hypothesis captures this argument:

Hypothesis 1: Field independence is associated with quality orientation, such that:
(a) Technical orientation is higher for teams high in field independence than for teams low in field independence.
(b) Social orientation is higher for teams low in field independence than for teams high in field independence.

QUALITY IMPROVEMENT EFFORTS

As global interest in quality and quality improvement has increased, an implicit assumption has developed that the underlying principles, practices, and techniques of quality improvement are transferable across organizations, industries, and countries. Yet, research has shown that there is a great deal of variety in how quality improvement techniques are embraced across different organizations (Forker, 1991; Osland, 1996; Roney, 1997; Schneider, Wheeler, & Cox, 1992; Schneider, White & Paul, 1998). In fact, some scholars have openly questioned the universal applicability of quality improvement practices (e.g., Garvin, 1986).

Empirically, organizations, and more specifically work groups within organizations, can be contrasted in terms of quality improvement efforts that focus on tools as opposed to quality improvement efforts that focus on people (Boulding et. al.,1993; Wilde et. al.1994). Tool-focused quality improvement efforts concentrate on increasing technical competence, improving reliability and availability of equipment and resources, and providing adequate physical facilities. Conversely, people-focused quality improvement efforts concentrate on behaviors intended to address the relationship with the client, including the degree of trust perceived, empathy, demonstrating commitment to the client, and communicating the uniqueness of the client's needs. In Boulding et al.'s research (1993) those units with a people-focused quality improvement effort spent more time developing the social environment within the organization,

including effective communication, efficient collaboration, and an enjoyable work atmosphere than did those with a tool-focused improvement effort.

These contrasting improvement efforts coincide with two dominant themes in the literature on quality improvement. The early proponents of Total Quality Management such as Deming (1982; 1986) argued that the vast majority of variance in quality is due to technical and infrastructural problems, rather than individual worker perceptions, motivation, or work behavior. More recently, systems theories of quality improvement (e.g., Reeves & Bednar, 1994; Schneider et al. 1998; Steenkemp, 1990) take into account the role of the social context and human attributes in achieving quality standards. Recent empirical evidence supports this argument. Schneider et al. (1998), for example, demonstrated that a set of infrastructure factors that support service are a necessary, but not sufficient cause of service quality. Policies and practices that focus attention directly on human aspects of service quality were also required.

This still leaves us with the question, "which quality improvement focus is more effective?" Does a focus on tools result in higher quality ratings? Or is a people focus more effective? I argue here that neither quality improvement focus (people versus tools) is universally superior because cultural context impacts receptivity to a given focus. There is some support for this argument in the literature. Waldman (1994), for example, suggests that workers' orientations toward the quality of service being delivered and their subsequent behavioral reactions will interact with system variables (such as quality improvement efforts) to influence the overall level of quality delivered. Extending this theory to a global work environment in which organizational sub-units are often located in dramatically different cultures requires an intercultural framework that acknowledges potential cultural differences in quality orientations.

AN INTERCULTURAL FRAMEWORK FOR QUALITY IMPROVEMENT

A key factor in improving quality may be congruence between the culturally dominant quality orientations of the workers on the one hand, and the quality improvement focus of the organization on the other. An intercultural framework suggests that quality orientations, developed based on cultural characteristics, mediate the relationship between quality improvement focus and actual quality demonstrated. In other words, no one focus (people or tools) is universally more effective. The focus of quality improvement efforts is not, in and of itself, directly related to quality. The efficacy of a given quality improvement effort will depend on whether the focus of the effort is congruent with the quality improvement orientation that has been developed based on cultural proclivities. These expectations are expressed in the following hypothesis:

Hypothesis 2: Social and technical quality orientations mediate the relationship between the focus of quality improvement efforts and quality ratings.

If this is true, the next logical question that arises is, "how can quality be improved?" Managers have some degree of control over the focus of their quality improvement efforts. If such efforts are developed in a manner that is sensitive to the culturally determined quality orientations, then quality improvement will come more naturally to workers and will fit well with their cognitive styles. This is expected to result in greater advancements in quality. Put another way, teams within an organization that achieve congruence between their quality orientation and the focus of their quality improvement efforts will demonstrate higher quality outputs than those that do not achieve such congruence.

More specifically, integrating the intercultural research with the ideas presented in the quality literature, service providers with a technical quality orientation (precipitated by high field

independence - the cultural tendency to rely on technical cues) are expected to be most successful when quality improvement efforts in their unit focus on tools, including increasing technical competency, reliability and availability of equipment, and physical surroundings. On the other hand, service providers with a social quality orientation (precipitated by low field independence - the cultural tendency to rely on the social cues) are expected to be most successful when quality improvement efforts in their unit focus on people, the human aspects of service, and the socio-cultural atmosphere. These expectations are expressed in the following hypothesis:

Hypothesis 3: Quality ratings are related to the congruence between quality orientations and quality improvement efforts, such that:
(a) Quality is higher when teams with a high social quality orientation focus more on people than on tools, and
(b) Quality is higher when teams with a high technical quality orientation focus more on tools than on people.

METHOD

Sample

This study examined an important service setting – the health care industry. In this industry, quality can have life and death ramifications; yet at the same time, previous organizational research suggests that many of the issues faced by health care service providers are also faced in other service organizations (Argote, 1982). The sample for this study consisted of 185 nurses (71 teams) in two hospitals in the United States and one hospital in Indonesia. The investigation of quality improvement efforts within this sample represents one component of a larger project examining the impact of culture on work teams (see Note 1). The United States and Indonesia were chosen based upon prior research suggesting divergence in terms of field independence. As previously reviewed, workers in the United States tend to be high in field independence and Indonesians tend to be low in field independence (e.g., Triandis, 1989). The

three hospital sites selected were all mid-size (50-200 beds) and well matched in terms of facilities. A majority of the nurses at each site were employed in the in-patient general wards; the remaining nurses were employed in three additional types of wards: (1) out-patient wards, (2) emergency wards, and (3) obstetrics/maternity wards.

Within each site, pre-assessment interviews were conducted with the nursing administration in order to: (1) identify the teams that would participate, (2) explain and adapt the quality assessment techniques, and (3) review the procedure and schedule for the quality assessment. Interviews indicated that the most meaningful unit of analysis in the hospitals was nursing teams. In both the United States and Indonesia, nursing teams consisted of naturally occurring subsets of nurses within a ward who permanently share the same schedule. Team members interacted regularly, frequently completing as a team tasks such as admitting and discharging patients, periodic recording of vital signs, and starting or changing IV's.

This sampling strategy was intended to ensure that there were no country, organizational, or team differences in resource availability, compensation structure, or human resource policies. Analyses of variance verified no systematic differences across countries, organizations, or teams in prior team performance as measured by quality of patient care (see below). Furthermore, responses to demographic surveys confirmed no statistically significant differences across countries, organizations, units, or teams in gender, age, years employed, education, or longevity of the team; a majority of the teams had been intact for approximately four years.

At each site, all nurses within the hospitals were invited to participate. This resulted in 43% participation at U.S. site #1 and 55% participation at U.S. site #2. At the Indonesian site, 69% participated. The sample across the two countries was 71 teams (36 U.S. and 35 Indonesian) represented by 185 nurses (94 U.S. and 91 Indonesian). In each team, 2-5 members

participated with a mean of 2.7 nurses per team. Actual team size was 3-6 nurses per team. Post-survey interviews confirmed that nurses who did not participate were unable to do so due to factors beyond their control such as being off duty due to low patient count, vacations, or absent due to illness.

Procedure

In Indonesia, all project sessions were conducted with the aid of an interpreter. All English-version materials were reviewed by four U.S. and Indonesian nursing supervisors who recommended changes in the content, design, and presentation of the instruments. The materials were then given to an interpreter to be translated into *Bahasa Indonesian* (the national language of Indonesia). The interpreter was a registered nurse, had extensive knowledge of both the U.S. and Indonesian nursing context, and served as a collaborator throughout the research and training process. The Indonesian version was then given to a bilingual nurse to translate back into English. These back-translations were reviewed by the researcher and the nursing administrators to ensure the intended meaning remained consistent across the translations. Discrepancies were resolved by discussing the intended meaning and modifying both the English and translated materials.

During the first week of the project, all nurses received a written memo from their supervisor. The memo announced the dates and times during which meetings would be conducted and encouraged the nurses to attend the meetings at the designated time with the members of their team. During the first project session, the nurses and supervisors were introduced to the project and completed surveys measuring cultural characteristics, the historical focus of quality improvement efforts in their units, and team characteristics.

In week three of the project, each team met separately with the researcher and interpreter for a one-hour session. During the session, the team was given the following instructions:

> *Over the next hour, we would like you to brainstorm about what it means to provide high quality nursing care. We would like to know how you define quality nursing care and what are the key impediments and facilitators for providing high quality care. As you come up with ideas, we will record the session. We will then synthesize your ideas and create a feedback report that we will share with you in our next meeting. After you have had the opportunity to approve the contents of this report, we will present the report to the nursing administration in order to guide their attempts to improve the quality of care delivered in this hospital.*

Teams were eager to participate, highly involved, and showed strong interest and concern for the topic at hand. Numerous ideas were generated and recorded. These ideas were typed into a text data base for each team and then summarized and presented to the nursing administration at each facility. These text data bases were then utilized in order to measure quality orientation (the method of deriving this measure is elaborated upon below).

During week five and six of the project, quantitative performance data regarding the actual quality of nursing care being delivered by the nursing teams were collected for each team from patients (e.g., the "service client" in this context; measures are described below).

Measures and Preliminary Analyses

Field independence. Measures of field independence were collected from team members. The survey measuring cultural characteristics included the measure of field independence called the Group Embedded Figures Test (GEFT) (Oltman, Raskin, & Witkin, 1971). Reliability and validity of the GEFT as a measure of field independence has been demonstrated in several studies (for a review see Hansen-Strain, 1990). The GEFT is a perceptual test that requires participants to outline a simple geometric shape embedded within a series of complex designs. Participants who solve the figures quickly view the design context as

multidimensional, easily disembedding focal components from the environment, disregarding the global nature of the design (i.e., they are high in field independence). Alternatively, participants who solve the figures slowly typically view the context as unidimensional; they are unable to disembed focal components from the context because they focus more on the global nature of the design and the relationship of the parts to the context (i.e., they are field dependent). Cognitive anthropologists have shown strong links between this perceptual measure and the tendency to focus on impersonal information sources such as technology (field independence from the social field) as opposed to focusing on the social context (field dependence) (Witkin et al. 1974).

A numerical score was assigned based on the number of correct solutions achieved in two 10-minute periods with higher scores indicating field independence (Hansen-Strain, 1990). Because this measure has two equal parts, reliability of the GEFT was estimated at .87 using the Spearman-Brown coefficient. A field independence score consisting of the total number of problems completed across two sections was computed for each individual.

In order to keep the level of analysis consistent across variables, individual-level scores on the measure of field independence were aggregated at the team level by averaging across individuals in a team. To justify aggregation, both between-group differences and within-group agreement on a measure must be demonstrated (Goodman, Ravlin, & Schminke, 1990). At a minimum, evidence for differences across groups is provided when between-group variance is greater than within-group variance and the ANOVA F-ratio comparing these variances exceeds 1.00 (Hays, 1981). Field independence ($\underline{F}$=5.66, $\underline{df}$=67, $\underline{p}$<.001) met this requirement for between-group differences. Adequate within-group agreement (r_{wg}=.82) was estimated using the method developed by James, Demaree, and Wolf (1993). Finally, to verify between-group differences, WABA I was conducted as suggested by Dansereau, Alutto, and Yammarino (1984).

This test compares the between-group eta to the within-group eta by computing an E ratio that can be tested for both statistical and practical significance. The field independence E ratio met tests of both statistical significance (F=5.79, df=(70,115), p<.01) and practical significance (30 degree test) (see Note 2). Overall, these analyses provide adequate evidence for inferring that field independence is a team-level attribute.

Quality orientation. *Quality orientation* data was collected from team members. Specifically, the quality orientation measure was created by conducting an analysis of the text data base created from the brainstorming session with each nursing team during the third week of the program. According to Tesch (1990), qualitative analysis involves the process of making sense of data that is not expressed in numbers and is especially useful in the exploratory stages of theory development. Such an analysis is therefore appropriate for this paper. The analysis was conducted in a manner consistent with that recommended by both Strauss and Corbin (1990) and Wolfe, Gephart, and Johnson (1993). This process involves moving between the theory and data while conducting computer aided text analysis (CATA). CATA requires the use of one or more software programs developed explicitly for the purpose of facilitating the analysis of textual data. CATA facilitates analysis through the use of search, retrieval, and collation routines and aids in reviewing, categorizing, comparing, and discerning relationships within text (Wolfe et al., 1993).

The specific content analysis program utilized was TACT (Bradley, 1989). TACT is a CATA program that takes inventories and creates frequency distributions of specific words or concepts in a text. This program can be used effectively in a deductive mode when a researcher wishes to determine the extent to which particular concepts or themes, as indicated by the existence of relevant, pre-specified words, are addressed in a document (Wolfe et al, 1993).

For this analysis, the process of distilling themes consisted of several steps. First, the text files from the brainstorming sessions were converted to "pre-analysis files" that could be read by TACT. These files contained the text and codes to identify which country, organization, and team the text represented. Second, word lists were created to show evidence of quality orientation. TACT was then programmed to search for these words in the text files and to extract phrases containing these words. Third, each phrase containing a quality orientation comment was reviewed in order to verify the words in context. Conducting the qualitative analysis in this manner yielded a total of 352 unique quality orientation comments expressed across the teams.

Next, each comment was coded by two independent raters as representing either technical quality orientation or social quality orientation (See Figure 2 for sample phrases representing each quality orientation). Definitions of the two orientations provided by Wilde et al. (1994) guided the coding. McTavish and Pirro (1990) argue that inter-rater reliability of qualitative data analysis can be determined by comparing ratings provided by the two different raters. The raters agreed on coding for 303 out of the 352 quality comments (86% of the comments), thus demonstrating high inter-rater agreement. After comparing coding, the raters discussed all cases in which discrepancies occurred and resolved the differences based on referral to the original definitions provided by Wilde et. al. (1994). Using this system, each team received a score representing the total number of technical comments provided and the total number of social comments provided.

Insert Figure 2 About Here

Quality of nursing care. Patients rated the dependent variable *quality of nursing care* using a modified 20-item version of the Quality of Patient Care Scale (Qualpac) (Wandelt &

Ager, 1974). This instrument is in widespread use today (Inman, 1975; Argote, 1982; Harvey, 1991; Norman & Redfern, 1993) and is comparable to other measures of service quality (e.g., Parasuraman et al. 1994). Sample items included: "*The team recognizes physical distress and uses technology to provide relief for the patient*" and *"The team creates an atmosphere of mutual trust, acceptance, and respect with patients."*

Each team was rated by 4-5 randomly selected raters using a 5-point scale (1=poorest care; 5=best care). The average James et al. (1984) within-group agreement (r_{wg}) of the ratings was .95. Given this, ratings on each item were averaged across raters for each team and subjected to principal component analysis. Results indicated all 20 items loaded on one factor, with an eigen value of 12.95 accounting for 64.7 percent of the variance. Based on these results, scores across the 20 items were averaged to arrive at a composite score for quality of care for each team.

Focus of quality improvement effort. Supervisors rated the historical focus of the *quality improvement effort* in each team. To comprise this measure, the quantitative survey data collected during the first week of the project from supervisors was examined. During the first session, supervisors had been asked to select which particular aspect of quality their team had focused on during the previous six months. In order to facilitate their selection, they were given a list of items from the Qualpac survey and asked to write down the one item that best captured the focus of their team. The list was divided into two sections: people and tools. All teams whose supervisor selected an item from the people section were coded as having a people-focused quality improvement effort ("0"); teams whose supervisor had selected an item from the tools section were coded as having a tool-focused quality improvement effort ("1").

RESULTS

Descriptive analyses were run on all key variables of interest to verify normal distributions. As expected, t-tests indicated that nursing teams in Indonesia tended to be significantly lower in field independence than nursing teams in the U.S. ($t=-10.12$, $df=54$, $p<.001$). Indonesian nursing teams also expressed significantly more social quality improvement comments than did nursing teams in the U.S. ($t=2.97$, $df=54$, $p=<.01$).

The means, standard deviations and intercorrelations of the key variables are presented in Table 1. The correlation matrix provides partial support for Hypothesis 1 regarding the relationship between field independence and quality orientation. The correlations between field independence and technical orientation ($r=.52$, $p<.001$) and between field independence and social orientation ($r=.48$, $p<.001$) were positive and statistically significant. T-tests using a median split on field independence indicated that, coinciding with H1a, technical orientation is higher for teams high in field independence than for teams low in field independence (mean difference=3.68, $df=54$, $t=3.87$, $p<.001$). However, contrary to H1b, social orientation is higher for teams high in field independence than for teams low in field independence (mean difference=3.27, $df=54$, $t=3.23$, $p<.01$).

Insert Table 1 About Here

Hypotheses 2 regarding the mediating effective of quality orientations on the relationship between quality improvement focus and quality ratings was tested by conducting hierarchical mediated regression analysis using the procedure described by James & Brett (1984). Two equations were run. In the first equation, quality ratings were regressed on technical and social orientation scores, followed by quality improvement focus. In the second equation, quality

ratings were regressed on quality improvement focus, followed by technical and social orientation scores. According to James & Brett (1984), the hypothesized mediating variables (technical and social orientation) should account for significant variance in the dependent variable in both equations. Further, quality improvement focus should be significantly related to the dependent variable in the second equation, but not the first equation. Results presented in Table 2 demonstrate support for a mediated relationship. After controlling for technical and social quality orientation, quality improvement focus accounted for only 14% of the variance, whereas it accounted for 40% prior to entering technical and social orientation scores.

Insert Table 2 About Here

Support for Hypothesis 3 regarding the relationship between orientation-improvement congruence and actual quality ratings was investigated using t-tests. First, all teams with higher than average social quality orientation were examined. For these teams, in support of H3a, quality ratings were higher when quality improvement efforts focused on people (m=4.60) than when they focused on tools (m=4.27; mean difference=.33, t=2.23, df=25, $p<.05$). Next, all teams with a higher than average technical quality orientation were examined. For these teams, contrary to H3b, there was no difference in the level of quality when quality improvement efforts focused on tools factors (m=4.43) as opposed to people (m=4.55; mean difference=.12, t=.75, df=21, ns). Results are depicted in Figure 3.

Insert Figure 3 About Here

DISCUSSION

The findings obtained in this study suggest that: (1) field independence is associated with quality orientation in complex ways, (2) quality orientations mediate the relationship between quality improvement focus and quality, and (3) congruence between quality orientation and quality improvement effort is related to actual quality ratings. Perhaps the strongest finding is that quality improvement focus, in and of itself, is not strongly related to quality. Neither a people focus nor a tool focus is universally superior. Rather, the congruence between improvement efforts and quality orientation should be taken into consideration to obtain high quality ratings.

More specifically, teams with high social quality orientation received higher quality ratings when quality improvement efforts focused on people than when improvement efforts focused on tools. The framework presented here suggests that this was due to the fact that teams with a social quality orientation tended to have a field dependent cognitive style (i.e., they were low in field independence), and therefore tended to define quality in social context terms. Thus, quality improvement efforts that are people-related, focusing on the level of trust demonstrated, caring attitude or personal warmth were congruent with their cognitive style.

The findings regarding teams with a high technical quality orientation were not as clear. The framework predicted that teams with a high technical quality orientation would exhibit the highest quality when quality improvement focused on tools. Contrary to the framework, there was no difference when improvement efforts were tool-focused or people-focused. Why were the findings obtained contrary to the framework?

The answer may be that a strong organizational culture can override a cultural tendency toward one orientation or another. It may be that teams with a strong tool-focused quality improvement effort deliver such an organizationally coherent "quality of care package" that these teams will receive high quality ratings regardless of their quality orientations. This would help explain why teams with tool-focused quality improvement efforts received high quality ratings, regardless of quality orientation among teams, even though cognitive theory would predict otherwise. A limitation of this study is that relatively few team and organizational characteristic were examined. Future research should examine additional characteristics to better understand the potentially complex interactions of culture with organizational characteristics to determine the success of quality improvement efforts.

Another intriguing finding was that teams high in field independence had both higher technical orientation and higher social orientation scores (m for technical =14.93; m for social=18.44) than teams low in field independence (m for technical = 11.24; m for social=15.17). It may be then, that high field independence results in a dual orientation toward both technical and social quality factors. Thus, field independence may signal flexibility in terms of quality orientation. Future research should examine additional cultural characteristics such as collectivism or universalism, which may impact quality orientation.

This study is also limited by the cross-sectional design and relatively small sample size. A longitudinal design would reveal cause-effect changes in quality orientation, quality focus, and actual quality ratings. A larger sample size would allow for more controls in the regression model without sacrificing power. At the same time, this study is strengthened by the qualitative component, which served as a less obtrusive and less subjective measure of quality orientation, lending some richness to the construct. The study is also strengthened by the cross-cultural

sampling, which increased the variation in field independence and increased the generalizability of the results. Finally, the high degree of similarity in the matched organizational contexts helped to control for possible confounds associated with resource or structural differences.

In summary, in terms of theoretical contributions, this study helps to delineate why the success of quality improvement efforts may differ across cultures. A particular cultural characteristic, field independence, that is related to quality orientation was identified. A link between quality orientation, quality improvement efforts, and actual quality delivered was demonstrated. Thus, the study also contributes to the literature on quality by examining the importance of congruence in determining customers' reports of quality. In this regard, the findings illustrate the usefulness of the quality orientation construct and the importance of continued research regarding culture, quality orientations, and quality ratings.

In terms of methodological contributions, this study demonstrates the use of computer aided text analysis (CATA) in combination with more traditional quantitative methods. Assessments arrived at though CATA were used side by side with data gathered using survey methodology in order to measure different facets of team interaction and performance across cultures. A classic criticism of qualitative research is that it does not allow the researcher to report results in a comparative manner. CATA effectively mitigates this concern by allowing the researcher to evaluate the comparative weight of supporting versus non-supporting data. Such an approach may be most suitable for assessing complex, multifaceted organizational change and intervention efforts such as those associated with quality improvement. Finally, the study demonstrates the usefulness of CATA as a means for investigating the impact of culture-related characteristics such as quality orientation on organizational behavior. Future programs of

research would benefit from adopting the procedures utilized here in order to enhance both the richness and rigor of intercultural organizational analysis.

Managerial implications of the findings are two-fold. First, either through survey administration, focus groups, or observation, team facilitators are advised to assess the quality orientation among their teams. Do the teams tend to spend more time thinking about the technical aspects of the task at hand, or are they concerned with the social context that surrounds their work activities? Determining the teams' proclivity for quality orientation can provide insight into their cultural preferences. Next, teams and facilitators are advised to thoroughly discuss their current quality improvement efforts. The findings obtained in this study suggest teams can be characterized by either people-focused or tool-focused improvement effort.

With these assessments in hand, the team can then better assess whether the current quality improvement effort is congruent with the cultural tendencies exhibited by the team. For example, the findings obtained here suggest that teams with a social orientation may receive higher quality ratings by focusing on the people aspects of quality improvement. Finally, the team can use focus group or brainstorming sessions in order to either reinforce or to re-focus the quality improvement effort within the team. The findings obtained here suggest that this process of assessment and alignment can potentially improve the level of quality delivered by teams across cultures.

ENDNOTES

[1]Other theoretical models, hypotheses, and results investigated in conjunction with the larger project have been discussed elsewhere (citations available from author).

[2]Dansereau et al. (1984: 169) provided a test of the practical significance of an E ratio (the ratio of between-group to within-group etas). Since an E ratio is a cotangent of an angle between 0 degrees to 90 degrees, they defined three intervals, 0 degrees, 15 degrees, and 30 degrees, with 30 degrees being the most stringent test. These intervals allow for making a decision about whether an obtained E ratio indicates a group-level construct. To meet the 0 degree test for inferring group-level constructs, the E ratio must simply be greater than 1. To meet the 15 degree test, the E ratio must be greater than 1.30. To meet the 30 degree test, the E ratio must be greater than 1.73.

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TABLE 1
MEANS, STANDARD DEVIATIONS AND INTERCORRELATIONS
FOR KEY VARIABLES IN THE STUDY

	M	SD	(1)	(2)	(3)	(4)	(5)
(1) Technical quality orientation	13.02	4.02	1.00				
(2) Social quality orientation	16.75	4.14	.87**	1.00			
(3) Focus of quality improvement[a]	.43	.50	.40**	.31*	1.00		
(4) Quality of care	4.17	.49	.74**	.72**	.40**	1.00	
(5) Field independence	12.09	4.63	.52**	.48**	.15	.54**	1.00

* p < .05 **p< .01 ***p<.001

[a](0=people; 1=tools)

TABLE 2

RESULTS OF MEDIATED REGRESSION ANLAYSIS OF QUALITY OF SERVICE

Model 1	Step 1	Step 2
Technical Orientation	.46 (2.54)**	.38 (2.05)*
Social Orientation	.33 (1.97)*	.35 (1.97)*
Quality Improvement Focus		.14 (1.42)
R^2	.57	.59
F	35.28***	24.65***
Df	2,53	3,52
▲R^2		.16
▲*F*		2.02
Model 2	Step 1	Step 2
Quality Improvement Focus	.40	.14 (1.42)
Technical Orientation		.38 (2.05)*
Social Orientation		.35 (1.97)*
R^2	.16	.59
F	10.26**	24.65***
Df	1,54	3,52
▲R^2		.43
▲*F*		26.92***

+p≤.10; *p≤.05; **p≤.01.
Note: Table contains standardized regression coefficients (Beta).

FIGURE 1

AN INTERCULTURAL FRAMEWORK FOR QUALITY IMPROVEMENT

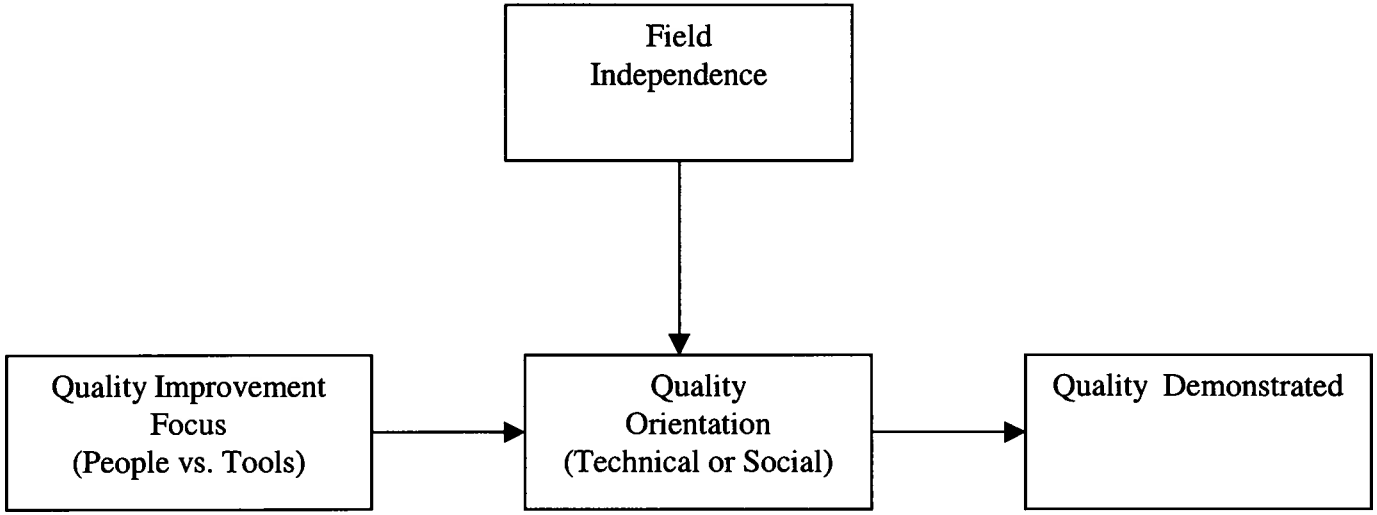
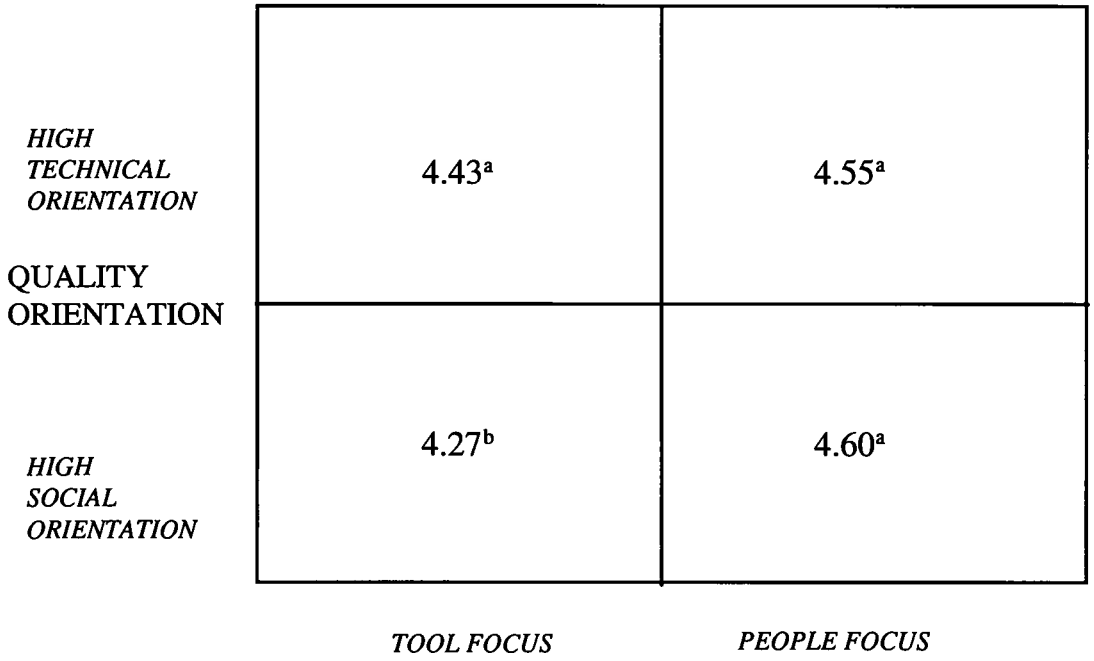


FIGURE 2
COMMENTS REPRESENTING TECHNICAL VERSUS SOCIAL QUALITY ORIENTATION

TECHNICAL ORIENTATION	SOCIAL ORIENTATION
Impediments to providing quality care:	*Impediments to providing quality care:*
• Medication difficult to obtain • Lack of functional equipment (e.g., suction machine, blood pressure machine) • Waste of supplies due to cancellation • Paperwork • Air conditioning and heating are poor • Poor spatial utilization • Lack of cleanliness	• Poor communication with physicians and patients • Hospital not concerned about employees • Supervisors don't listen • Lack of respect for team members • Individualistic approach to nursing • Lack of coordination within team • Lack of patient-oriented focus
Facilitators for providing quality care:	*Facilitators for providing quality care:*
• Ear thermometer saves time • Pre-printed teaching sheets • Computer system • Excellent emergency equipment • Adequate salary • Good schedule • Nice uniforms	• Positive interaction between co-workers • Good teamwork • Strong collaboration • Satisfaction experienced from treatment • Feedback from supervisors • Family atmosphere • Approachability of coordinator

FIGURE 3
MEAN QUALITY RATINGS



[1]Note: Mean quality scores with different superscripts are significantly different ($p<.05$).