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Organizational culture and effectiveness: A study of values, attitudes, and organizational outcomes

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ABSTRACT

That organizational culture influences firm effectiveness is an assumption implicitly held by many managers and management researchers, although few empirical studies have provided detailed insight into the relationship. This manuscript addresses this dearth of research by examining employee attitudes as a potential mediator of the relationship between organizational culture, as operationalized by the competing values framework [Quinn, R.E., Beyond Rational Management. San Francisco: Josey-Bass; 1988.], and diverse measures of organizational effectiveness. Results of this study, which was conducted in 99 healthcare facilities across the US, provide evidence that suggests that employee attitudes mediate the culture–effectiveness relationship.

Organizational culture is defined as a set of beliefs, values, and assumptions that are shared by members of an organization (Schein, 1985). These underlying values have an influence on the behavior of organizational members, as people rely on these values to guide their decisions and behaviors (Schein, 1985). Extrapolating from the influence culture has on the behavior of organizational members, much has been written about the impact of culture on an organization's effectiveness (e.g., Schein, 1985, Quinn, 1988).

While the extant research is promising, more empirical evidence of the manner in which organizational culture impacts effectiveness is warranted. Previous research has explored the direct relationships between specific culture domains and specific effectiveness measures (e.g., Quinn and Spreitzer, 1991; Cameron and Freeman, 1991; Denison and Mishra, 1995; Denison, 1990). The purpose of this research is to delve deeper into the relationship between organizational culture and organizational effectiveness by exploring both direct and indirect effects. Siehl and Martin (1990) suggested that culture influences employee attitudes and that those attitudes, in turn, impact organizational effectiveness. We offer an empirical examination of this assertion by testing the mediating effect of employee satisfaction on the culture–effectiveness relationship. Frazier et al. (2004) describe mediating variables as constructs that "establish 'how' or 'why' one variable predicts or causes and outcome variable" (p. 116). Although the relationship between culture and effectiveness is relatively well established in the literature, "how" and "why" this relationship exists has not been adequately addressed. This manuscript attempts to begin to fill that void by exploring employee attitudes as one possible explanatory mechanism through which an organization's culture comes to impact its performance.

1. Theoretical framework

1.1. The competing values framework and culture

While multiple conceptualizations of organizational culture can be found in the literature, we have adopted the competing values framework as it is perhaps the most popular approach to assessing culture where the interest is on relating culture to organizational performance. In an attempt to better understand the dimensionality of organizational effectiveness, Quinn and Rohrbaugh (1983) performed a spatial analysis of the relative similarity of several popular effectiveness measures. The resulting competing values framework (CVF) was later adopted by Quinn and colleagues (e.g., Quinn and Spreitzer, 1991; Cameron and Freeman, 1991) as a multidimensional framework to assess culture and organizational effectiveness across common dimensions. The CVF conceptualizes the differences between organizational cultures along two dimensions: structure and focus. The structure dimension ranges from flexibility at one extreme to control at the opposite extreme. This dimension captures the difference between organizations that strive for consistent patterns of behaviors and those organizations that attempt to allow their employees to dictate their own behaviors (Quinn and Rohrbaugh, 1983). The focus dimension ranges from an external focus to an internal focus. An internal focus emphasizes factors internal to the organization, such as employee satisfaction, while an external focus

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emphasizes the organization's ability to function well in its environment (Quinn and Rohrbaugh, 1983). Below each CVF culture domain is defined as described by Denison and Spreitzer (1991).

1.1.1. Group culture

The group culture corresponds to the quadrant identified with high flexibility and an internal focus. Group dynamics are very important, as belonging to the group becomes a value that is tightly held. Group cultures also value cohesiveness, participatory decision-making, and considerate support among co-workers. Managers support and leverage these values through empowerment, mentoring, and support of teamwork.

1.1.2. Developmental culture

An externally-focused emphasis on flexibility defines the developmental quadrant. This cultural orientation is one of change and adaptation in hopes of growing the organization. Leadership supports entrepreneurial ventures and inspires creativity in employees in hopes of acquiring new resources for the organization.

1.1.3. Rational culture

The rational quadrant emphasizes externally-focused control. Goal attainment is an important value in this type of culture as goals represent a form of controlling employee actions while directing behavior towards the external environment. These cultures tend to value productivity, achievement, and competition towards well-established criteria.

1.1.4. Hierarchical culture

An emphasis on internally-focused control defines the hierarchical quadrant. This culture is one of uniformity and coordination with an emphasis on internal efficiency. Strict guidelines tend to regulate behaviors, and employees value job security in this somewhat rigid environment.

1.1.5. Balanced culture

A balanced culture is one in which the values associated with each of the CVF culture domains are strongly held. Quinn (1988) introduced the concept of cultural balance within the CVF and suggested that organizations with balanced cultures have a distinct advantage in managing environmental shifts.

1.2. Culture domains and effectiveness

Empirical evidence suggests that culture as conceptualized by the CVF influences an organization's effectiveness (cf. Denison, 1984; Cameron and Freeman, 1991; Quinn and Spreitzer, 1991). While evidence exists to suggest that each culture domain may be related to effectiveness (e.g., Cameron and Freeman, 1991; Denison and Mishra, 1995; Quinn and Spreitzer, 1991), the group domain appears to be a more consistent predictor of effectiveness than the other three domains. There is also a smaller amount of research that examines the relationship between balanced cultures and organizational effectiveness. Therefore, the impact of the group domain and cultural balance on organizational effectiveness will be the focus of this inquiry.

In one of the earliest investigations of the relationship between culture and effectiveness utilizing a portion of the CVF, Denison (1984, 1990) used organization of work and decision-making practices as measures of group culture and found that organizations high on both (above the sample mean) had higher average return on investment than those organizations lower on both. This relationship was true for both current and future returns on investment. Cameron and Freeman (1991) examined the cultures of a large sample of universities and found that group cultures scored higher on student educational satisfaction, student personal development, faculty and administrator employment satisfaction, and organizational health.

Quinn and Spreitzer (1991) added to the CVF literature with a study where the relationship between culture and individual affective outcomes was analyzed. Their research analyzed culture via cluster analysis, where a selection of representative cultural profiles was derived from the data. The cultural profiles described by an emphasis in both the group and developmental quadrants were associated with high levels of satisfaction with work, promotion, supervision, and life.

Denison and Mishra (1995) explored the relationship between CEO perceptions of organizational culture and both subjective and objective effectiveness criteria. Cultures emphasizing group values were correlated with flexibility, openness, responsiveness, and high levels of growth.

Theory posits that organizational culture influences the behavior of organizational members (Schein, 1985). This behavioral influence exists because individuals behave in ways that are consistent with their values, and organizational culture is a set of shared values. Therefore, the culture of an organization should create behavioral expectancies that direct the employees to behave in ways that are consistent with its culture. This relationship between culture and behavior is the theoretical basis for the assertion that culture influences effectiveness.

Likert (1961), and many others, have suggested that the type of positive, employee-focused management practices that are consistent with the values espoused by the group culture are likely to inspire employees to contribute more effort to their work, which should result in higher levels of organizational effectiveness. While it is likely that the behavioral expectancies carried by the group culture would have a positive impact on effectiveness regardless of organizational context, it seems particularly salient in explaining the performance of organizations engaged in providing healthcare. The very nature of the healthcare delivery process requires empathy, compassion, and the development of nurturing relationships between caregivers and patients. The group culture's sensitivity to the attitudinal and emotional aspects of the workplace should support healthcare workers by reinforcing the values necessary to provide benevolent patient care. In this vein, the results of Stock et al. (2006) are insightful. They used the CVF to examine the relationship between all four culture dimensions and error reduction efforts and outcomes in hospitals. They concluded that "the characteristics inherent in a group culture seem to be those that encourage the implementation of managerial techniques that ultimately lead to improved error reduction outcomes; moreover, the positive and significant relationship between group culture and error reduction outcomes indicates that positive effects from a group culture orientation likely occur through other means as well" (p. 386). They go on to attribute the group culture's influence on error reduction to its "emphasis on human development, commitment to others, and participation" (p. 387). Therefore, we offer the following hypothesis:

Hypothesis 1. An organization's emphasis on the group culture domain will positively correlate with organizational effectiveness.

1.3. Cultural balance and effectiveness

Since organizations exist in dynamic environments, none of the four culture domains is likely to provide any organization with all of the values and assumptions that it needs to respond to its environment. In fact, the main contribution that the CVF adds to the study of culture is the notion of paradoxical balance between these cultural extremes (Quinn, 1988). If an organization has a balanced culture, then it has the values necessary to operate in all four quadrants as the environment dictates. The dynamic nature of organizational environments suggests that all firms will have to operate in each quadrant at least some of the time; therefore, having the culture necessary to handle each quadrant is essential. Quinn argued that a successful organization is one that can

comprehend each of these contradictory cultures and combine them into a cultural profile that meets all of their needs.

Quinn found support for the balance hypothesis in his study of individual managers. Managers whose management practices scored high on all four competing values quadrants were rated as being more effective by their subordinates than other managers. Additionally, Quinn and Spreitzer (1991) found that, in strong balanced cultures, individuals reported high levels of satisfaction with promotion and life and good physical health. Yeung et al. (1991) also found support for Quinn's (1988) balance hypothesis.

The theory goes on to predict that a balance of the four quadrants will produce the best results. Inherent is the idea that too much emphasis on any one cultural domain at the expense of the others can have a negative impact on the organization when the context demands behaviors and responses consistent with one of the non-emphasized domains; in essence those neglected domains become "blind spots" for the organization. It is the tension between the demands of each of these culture domains that is the key to effectiveness, not the maximization of a subset of domains (Quinn, 1988).

The importance of cultural balance seems to be particularly relevant to the healthcare context. Ramanujam and Rousseau (2006) noted that hospital mission statements tend to have a larger scope than those of similarly-sized organizations in other industries, suggesting that the healthcare environment is uniquely complex. The ability of a healthcare organization to deal with the competing demands of patients, employees, physicians, insurance companies, government regulators, and accreditation bodies while maintaining a financially viable operation should be contingent upon the individuals in the organization simultaneously holding behavioral expectancies that are consistent with multiple culture domains.

Hypothesis 2. Organizations with strong, well-balanced cultures will achieve higher levels of effectiveness than organizations with unbalanced cultures.

1.4. Attitudes as a culture–effectiveness mediator

Siehl and Martin (1990) suggest that one possible explanation for the difficulty in finding consistent relationships between culture and effectiveness is that culture may influence effectiveness indirectly. The authors propose that culture potentially has a direct effect on factors such as morale, commitment, and job satisfaction, and that these "intermediate" factors then directly impact organizational effectiveness (Siehl and Martin, 1990). This perspective is consistent with Likert's (1961) model of organizational analysis, which predicts that certain "causal" variables will impact a set of "intervening" attitudinal variables, and the intervening variables then impact organizational effectiveness.

1.4.1. Culture and employee attitudes

The theoretical link between the group culture domain and satisfaction is based on the idea that organizations with group domain values such as cohesiveness, empowerment, and participatory decision-making are likely to create an environment that fosters employee satisfaction. The relationship between the group domain and employee satisfaction is supported by the results of multiple empirical studies (e.g., Cameron and Freeman, 1991; Quinn and Spreitzer, 1991).

The relationship between a balanced culture and satisfaction is based on Quinn's (1988) proposal that balanced cultures are the preferred culture type, as all organizations benefit in some way from the values associated with each CVF culture domain. We suggest that, like the organization as a whole, employees also benefit from a culture that values all four CVF culture domains. Individuals use the organization's culture to create behavioral expectancies and then use these behavioral expectancies to decide the type of behavior that is appropriate for a particular situation (James et al., 1978). An organization's culture that provides behavioral expectancies related to all four CVF culture domains is likely to give its employees the support and cognitive frameworks necessary to interact with the complexity they are likely to incur, and we believe that this support will result in employees developing more positive attitudes about the organization. Because a balanced approach is inherently paradoxical, organizations succeeding at balance are likely more sophisticated and perceived as supportive (otherwise they would be low on the group dimension), and organizational support has been linked to improved satisfaction. Lastly, there are long term downsides for organizations and individuals alike when particular cultural dimensions dominate, especially when the environment changes. Consistent with these arguments, empirical evidence suggests that cultural balance is positively related to employee satisfaction (i.e., Denison and Mishra, 1995; Quinn and Spreitzer, 1991).

1.4.2. Employee attitudes and effectiveness

Early management theorists (e.g., Likert, 1961) suggested that satisfied employees are more productive than dissatisfied employees. Likert suggested that the employees' willingness to wholeheartedly attempt to perform at their potential is dependent on the employee maintaining positive feelings and attitudes about the job. Additionally, collaborative effort is much more likely to occur when employees are experiencing positive attitudes (Likert, 1961), and collaborative effort can increase organizational effectiveness (Ostroff, 1992).

Organ (1977) used social exchange theory to explain the relationship between employee attitudes and organizational effectiveness. Social exchange theory describes how employees are likely to feel grateful to the organization if they are experiencing job satisfaction, and, therefore, are likely to reciprocate the organization by behaving in a manner that helps the organization increase effectiveness (Organ, 1977).

The relationship between employee attitudes and organizational effectiveness has been supported empirically as well. Ostroff (1992) found that employee satisfaction was positively related to organizational performance at the organizational level of analysis. Additional studies have reported a relationship between employee attitudes and turnover and customer satisfaction (Ryan et al., 1996; Harter et al., 2002). Schneider et al. (2003) found that job satisfaction was significantly related to return on assets and earnings per share.

Hypothesis 3. Employee attitudes will mediate the relationship between organizational culture and effectiveness.

2. Methods

2.1. Sample

The top management team from 99 hospitals across the U.S. owned by a single parent company were asked to participate in the study. In most cases, the top management group comprised the Chief Executive Officer, Chief Operating Officer, Chief Financial Officer, Chief Nursing Officer, Director of Business Development, Human Resources Director, Director of Marketing, and Business Office Manager. This study used the facility as the unit of analysis, and therefore the top management team of each facility served as key informants.

The use of the top management team of each facility as key informants is consistent with previous research on organizational culture (e.g., Gupta et al., 2000; Cameron and Freeman, 1991; Howard, 1998; Denison and Mishra, 1995; Glick et al., 1990). Informants are chosen because of their knowledge of the specific issues that are being studied (Kumar et al., 1993). It has been suggested that top management team members are the most appropriate informants when measuring organizational culture because of their macro perspective of this organization-level construct (Cameron and Freeman, 1991).

2.1.1. Individual-level response rate

The parent organization provided a list of 677 hospital managers who were considered a part of their respective hospital's top management team. A survey was sent to all 677 managers, and a total of 354 (52.3%) survey responses were returned.

2.1.2. Hospital-level response rate

Across the 99 hospitals, 4 to 10 individuals were invited to respond, with an average of 6.8 per hospital. A total of 94 hospitals were represented by at least one survey respondent. Since multiple informants have been found to reduce random error (Van Bruggen et al., 2002; Kumar et al., 1993), all hospitals with less than two respondents were eliminated from the analysis leaving 87 hospitals available for the analyses.

2.2. Data collection

Organizational culture was measured by surveying members of the top management team of each facility. The dependent variables (effectiveness measures) were provided by the parent organization's Executive Vice President. These effectiveness variables were collected by the organizations' internal reporting function as part of an organization-wide initiative to collect a quarterly, balanced scorecard of performance measures on all facilities. Controllable expenses and patient satisfaction from the calendar quarter after the survey was administered were used as dependent variables in the analyses. Additionally, these measures were provided for the calendar quarter prior to the survey administration for use as control variables. Since prior performance affects a firm's later performance, the use of prior performance as a control variable is commonly used to reduce the error present in an analysis (March and Sutton, 1997).

Employee satisfaction and physician satisfaction were used as the mediating attitudinal variable. These variables came from surveys conducted annually by the parent organization, but at different times of the year at each facility. Therefore, the employee satisfaction and physician satisfaction data used in the analysis were collected sometime during the year that the independent variable survey was administered.

2.3. Independent variable measures

2.3.1. CVF culture domains

Kalliath et al.'s (1999) CVF-based culture instrument was used in this study. This instrument is an adaptation of the measure used by Quinn and Spreitzer (1991). The modified 32-item scale contained descriptions of 8 values associated with each of the four CVF culture domains. Each of the 32 items is scored on a 7-point Likert response format ranging from not valued (1) to highly valued (7). Kalliath et al. (1999) tested the instrument for social desirability bias and found "little or no social desirability bias" (Kalliath et al., 1999, p. 1182). The items for each CVF domain were averaged to create a scale score for each domain (initial reliability estimates demonstrated that one item from the hierarchical culture scale was problematic and it was dropped from the analysis). Coefficient alpha reliabilities were .92 for group, .83 for developmental, .75 for hierarchical, and .83 for rational.

2.3.2. Balance

A cluster analysis was performed to identify the facilities whose cultures could be considered balanced. This analysis described each of the cultural profiles that existed in this group of facilities. Only hospitals that demonstrated acceptable interrater agreement (i.e., RWGs above .70 on all four cultural dimensions) were cluster analyzed. As recommended by Ketchen and Shook (1996), a two stage clustering procedure was used. First, a hierarchical clustering technique was used to identify the number of clusters that existed in the data set. Based on the resulting dendograms and changes in the agglomeration coefficient, this analysis suggested that two clusters were present in the data. Next, using the cluster means derived from the hierarchical clustering as the beginning points, a non-hierarchical cluster analysis was performed to refine the membership of the two clusters (Punj and Stewart, 1983). We then performed a MANOVA and individual ANOVAs on the clustering variables to demonstrate that the resulting clusters of hospitals were truly distinct. The results of both the MANOVA and ANOVA analyses suggested that mean values of each of the four CVF culture domains were significantly different across clusters ($p<.001$). The results of this analysis suggested that two clusters reflecting cultural balance existed in the sample. Cluster 1 ($n=41$) contained hospitals with high scores on each culture domain (balanced) and the cluster 2 ($n=20$) containing hospitals with low scores on each culture domain (unbalanced). Therefore, cluster membership was the measure of cultural balance used in the analyses.

2.4. Attitudinal variables

2.4.1. Employee satisfaction

The measure used for employee satisfaction came from an annual survey that was distributed to all employees by the parent organization's human resource department. The individual-level response rate across all facilities was 57%. The parent organization's top management created an overall index for each facility that summarizes the employee's responses to 51 5-point Likert response format items. The index was calculated by dividing the number of responses ranked 4 or 5 (highest scores) by the number of responses ranked 1, 2, 4, and 5 (a neutral score of 3 was not counted) for each item. These percentages were then averaged across the 51 items to create a facility level score for employee satisfaction. This overall index was reported in the balanced scorecard and served as the measurement of employee satisfaction in the analysis. Unfortunately, no statistical information regarding reliability of the measure was provided by the parent company.

2.4.2. Physician satisfaction

On an annual basis, the physicians who practice at each facility were surveyed about their satisfaction with the facility. The results of the most recent physician satisfaction survey (which had a response rate of 37%) were compiled into an index score for each facility by the organization's senior management. No information on the reliability of the physician satisfaction score was available.

2.5. Effectiveness measures

Controllable expenses and patient satisfaction were chosen as effectiveness measures because of their critical importance to the hospital industry. Many hospitals have limited control over revenues, as reimbursement is determined by the federal government or by contractual agreements with private insurance companies. Therefore, the ability to control costs is the key to a hospital's financial viability. Additionally, patient satisfaction is a vital effectiveness indicator, as it measures the quality of the service that the hospital provides to its patients. Maintaining financial viability and providing quality care are the two critically important objectives for hospital systems (McAlearney, 2006).

2.5.1. Controllable expenses

Controllable expenses were gathered from the parent organization's internal reporting function. This expense account contains a number of expenses that are under the direct control of the facility's management including marketing expenses, maintenance expenses, outsourcing, rent, etc. This measure was standardized across hospitals by patient volume.

Table 1
Means, standard deviations, alpha coefficients, and intercorrelations among all variables.

	Construct	*M*	SD	1	2	3	4	5	6	7	8
1	Group	5.79	.59	(.92)							
2	Developmental	5.28	.52	.799**	(.83)						
3	Hierarchical	5.28	.45	.551**	.459**	(.75)					
4	Rational	5.91	.45	.684**	.666**	.632**	(.83)				
5	Balance cluster employee	.597	.49	.819**	.720**	.618**	.764**				
6	Satisfaction physician	77.3	4.89	.352**	.285**	.208	.163	.251*			
7	Satisfaction controllable	82.2	6.26	.202	.112	.123	.171	.226*	.171		
8	Expenses patient	415	999	−.128	−.165	−.024	−.025	−.176	−.262*	−.356**	
9	Satisfaction	83.2	3.47	.099	.164	.033	.062	.115	.108	.255*	.102

Note: Coefficient alphas are shown in parentheses on the diagonal. *$p<.05$. **$p<.01$, two-tailed. $n=87$.

2.5.2. Patient satisfaction

The first 150 patients discharged from each facility every quarter are contacted by an agent of the parent company and asked to participate in a telephone survey about their satisfaction with the care they received from the facility. Patients rate their satisfaction with the facility on a scale of 1 (not satisfied) to 10 (very satisfied), and the percentage of patients from each facility that scored their facility as either a 9 or a 10 during the calendar quarter immediately after the survey was administered was used as the measure of patient satisfaction in this study.

2.6. Analyses

Prior to the analyses, the individual responses to the organizational culture scale were aggregated by facility to create a facility score for each variable. To test Hypothesis 1, two separate regression equations were designed. Each equation used the group culture domain scores as the independent variable and the patient satisfaction and controllable expenses, respectively, as dependent variables. Additionally, the facility's score on the effectiveness measures from the calendar quarter prior to the culture survey administration were used as control variables.

Hypothesis 2 was tested by comparing the controllable expenses and patient satisfaction scores of balanced and unbalanced hospitals with ANCOVA, with the effectiveness measures from the calendar quarter prior to the culture survey administration as concomitant variables.

The mediation hypothesis (Hypothesis 3) was tested using the Baron and Kenny (1986) procedure whereby the direct, indirect, and saturated models were computed, and the chi-square differences between the models were compared in order to determine the model that best fits the data.

3. Results

3.1. Hospital-level aggregation

In order to perform analyses at the hospital level, culture scales were aggregated to the hospital level by averaging individual responses. The amount of variance on each culture scale across informants from each hospital was measured by RWG (James et al., 1984). RWG provides a measure of variance across informants from a particular hospital standardized by the number of response alternatives on the items. An RWG greater than .70 has become an accepted benchmark of an appropriate level of inter-informant agreement, and was thereby used to justify aggregating that variable to the hospital level. Sixty-one hospitals in the sample had an RWG above .70 on all four culture scales (group, developmental, rational, and hierarchical). Additionally, ICC(1) and ICC(2) were calculated to measure each scale's intra-hospital reliability. The scale ICC(1)'s were as follows; .06 for group, .09 for developmental, .10 for rational, and .12 for hierarchical. The scale ICC(2)'s were as follows; .23 for group, .30 for developmental, .34 for rational, and .37 for hierarchical.

To ensure inter-informant agreement in the analyses, each analysis included only hospitals with RWG scores above .70 on the independent variables used in that specific analysis. When using balance as an independent variable and during the cluster analysis, hospitals were included only if RWG on all four CVF scales was above .70. The sample size in the hypothesis testing analyses ranged from 61 to 64 depending on the number of hospitals with an acceptable RWG on the independent variable in each analysis.

3.2. Descriptive statistics

Table 1 shows the descriptive statistics for all study measures. Coefficient alphas, computed from the individual-level data for each construct are presented on the diagonal. The intercorrelations for all 87 hospitals with 2 or more respondents regardless of the RWG of the independent variables are also shown.

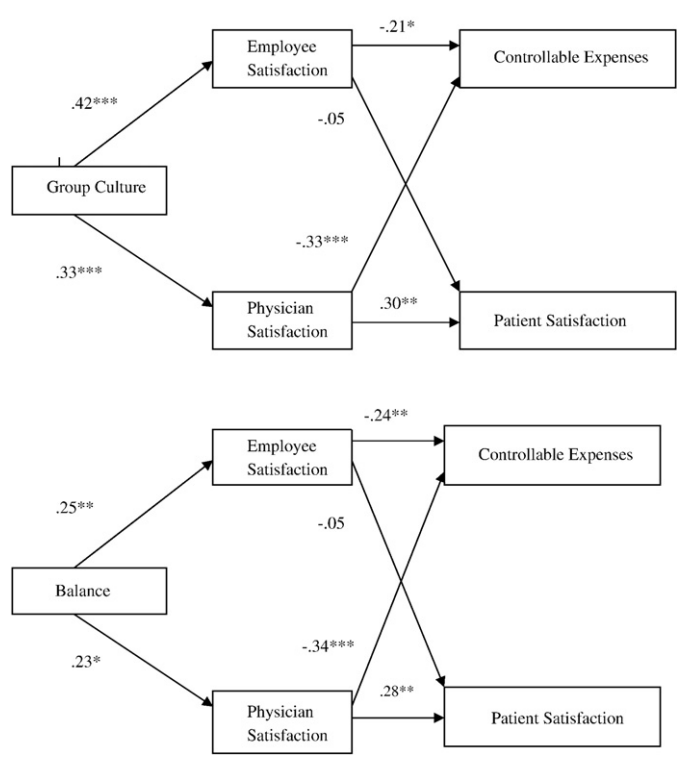

Fig. 1. Mediation models. *$p<.10$. **$p<.05$. ***$p<.01$.

3.3. Hypothesis testing

Hypothesis 1 predicted that a hospital's group culture score would be positively related to its patient satisfaction and controllable expenses. Group culture showed a positive relationship with patient satisfaction (beta = 1.176, $p = .056$). The relationship between group culture and controllable expenses was not supported (beta = −4.264, $p = .88$).

Hypothesis 2 predicted a positive relationship between a balanced culture and patient satisfaction and controllable expenses. This hypothesis was partially supported, as balanced cultures had higher levels of patient satisfaction than unbalanced cultures (balanced $M = 83.44$, SD = 3.86, unbalanced $M = 82.63$, SD = 2.69; $p = .045$), after controlling for previous levels of patient satisfaction. No significant differences in levels of controllable expenses between the balanced and unbalanced group were identified ($p = .68$).

Hypothesis 3 tested the mediating impact of employee attitudes on the culture–effectiveness relationship via a path analysis approach which followed the procedures described in prior research (Mayer and Davis, 1999; Sapienza and Korsgaard, 1996) that are based on Baron and Kenny's (1986) general principles. This technique compares alternative models (direct, indirect, and saturated) in terms of their fit indices as well as the path coefficients. This analysis was performed for both group culture and balanced culture. The direct model estimated paths from the culture to the attitude variables and to the effectiveness measures while leaving out the paths from the attitude variables to the effectiveness measures. The indirect model (Fig. 1) tested the paths from the culture variables to the attitude variables and from the attitude variables to the effectiveness measures. The saturated model is the same as the indirect except the saturated model also estimates the paths from the culture variables to the effectiveness measure directly.

The first comparison was between the chi-square results of the direct and saturated model. For the balance models, the chi-square difference was 13 with 4 degrees of freedom. This difference indicated that the attitude variables mediate balance culture's effects on the effectiveness measures. The chi-square difference between the group models was 10.4 with 4 degrees of freedom. This difference indicated that, like balance, the group domain's impact on effectiveness is mediated by the attitude variables.

Next the indirect model was compared to the saturated model. These differences were insignificant for both the group and balance models (balance chi-square difference = 1.2, 2 *df*; group chi-square difference = 2.5, 2*df*). These insignificant results suggest that the more complicated saturated models did not improve the fit over the simpler indirect model. All paths in the indirect models were significant and in the hypothesized direction except for the employee satisfaction to patient satisfaction path (see Tables 2 and 3). These results suggest that employee satisfaction and physician satisfaction fully mediate the culture–effectiveness relationship.

Table 2
Balance model structural model statistics and unstandardized path coefficients.

Measure	Direct	Indirect	Saturated
χ^2	19.1	7.3	6.1
df	6	4	2
Balance → employee satisfaction	.246**	.246**	.246**
Balance → physician satisfaction	.221*	.225*	.224*
Balance → controllable expenses	−.226*		−.101
Balance → patient satisfaction	.108		.096
Employee satisfaction → controllable expenses		−.237**	−.214*
Employee satisfaction → patient satisfaction		−.047	−.076
Physician satisfaction → controllable expenses		−.346***	−.326***
Physician satisfaction → patient satisfaction		.281**	.275**

*p<.10. **p<.05. ***p<.01.

Table 3
Group model structural model statistics and unstandardized path coefficients.

Measure	Direct	Indirect	Saturated
χ^2	16.4	8.5	6.0
df	6	4	2
Group → employee satisfaction	.417***	.417***	.417***
Group → physician satisfaction	.330***	.334***	.333***
Group → controllable expenses	−.257**		−.080
Group → patient satisfaction	.225*		.205
Employee satisfaction → controllable expenses		−.209*	−.179
Employee satisfaction → patient satisfaction		−.051	−.127
Physician satisfaction → controllable expenses		−.330***	−.309**
Physician satisfaction → patient satisfaction		.301**	.244*

*p<.10. **p<.05. ***p<.01.

4. Discussion

The goal of this research was to address the direct and indirect impact of organizational culture on effectiveness. While much research has focused on the direct effects of culture on effectiveness (e.g., Denison, 1984; Denison and Mishra, 1995), there is a lack of research exploring the possible mediators of this relationship. This study finds support for the mediating effect of employee attitudes on the culture–effectiveness relationship.

4.1. Direct effects

The finding of a positive relationship between group culture and patient satisfaction provides empirical support for the notion that organizations that value teamwork, cohesion, and employee involvement will tend to outperform organizations that do not focus on these values. The relationship between group culture and patient satisfaction reinforces the contention that organizations that value their employees are able to provide better service than less supportive organizations. The group culture's relationship with patient satisfaction also supports Denison's (1984, 1990) hypothesis that the group domain has a significant impact on the effectiveness of the organization.

Results also suggest that balanced cultures achieved higher levels of patient satisfaction than unbalanced cultures. This finding is consistent with much of the theory on the CVF of culture. Quinn (1988) suggested that since all organizations exist in dynamic environments, no one culture domain would be able to provide an organization with all of the values and collective beliefs necessary to be successful. A balanced culture, however, should provide an organization with the breadth of values required to appropriately interact with the multitude of different conditions that it might encounter (Quinn, 1988) in performing the type of quality service that would result in high levels of patient satisfaction.

Although both group culture and balanced culture predicted patient satisfaction, neither type of culture had a direct impact on controllable expenses. March and Sutton (1997) have noted that, in general, correlates of any type of organizational effectiveness are difficult to find. The number of factors that impact organizational effectiveness are vast, which, makes it arduous to establish a relationship between organizational culture and overall organizational effectiveness (Siehl and Martin, 1990).

4.2. Indirect effects

The results of the mediation analyses demonstrate that culture does influence organizational effectiveness as measured by patient

satisfaction and controllable expenses, but the influence is indirect. More specifically, the findings suggest that culture impacts employee attitudes (employee satisfaction and physician satisfaction) and that those attitudes have an influence on organizational outcomes (controllable expenses and patient satisfaction).

While extant research has investigated the relationship between culture and effectiveness (i.e., Cameron and Freeman, 1991; Denison, 1990; Quinn and Spreitzer, 1991) and the relationship between attitudes and effectiveness (Ostroff, 1992; Ryan et al., 1996), the mediating role of attitudes in the culture–effectiveness relationship has not been thoroughly examined. The assimilation of these two streams of research into one mediating model provides a more complete understanding of the relationship between culture and organizational effectiveness and, therefore, represents the most significant contribution of this research. Although our findings regarding mediation were by no means comprehensive, they hint at a deeper understanding of one of the mechanisms through which an organization's culture comes to impact its effectiveness.

4.3. Study limitations

The use of key informants represents a limitation of this research. Although top managers are the best individuals in an organization to assess an organization's culture (Cameron and Freeman, 1991), the most difficult but the most effective method in assessing culture would be best accomplished by surveying all members of an organization. In an attempt to increase the validity of the culture measurements, multiple informants were used, as random error is reduced when the responses of multiple informants are averaged to form an organizational level variable (Van Bruggen et al., 2002; Kumar et al., 1993).

Another limitation of this work is the modest time lag between the collection of the independent and dependent variables. Some time may need to pass before an organization's culture is able to impact its effectiveness, therefore a significant time lag between the culture and effectiveness variables would be necessary to test the causality implied in our hypotheses. While our implied causality (that culture impacts effectiveness) is supported both theoretically (i.e., Likert, 1961; Quinn, 1988) and empirically (i.e., Denison, 1990), an argument for the reverse causality is beginning to emerge (i.e., Schneider et al., 2003).

4.4. Future research directions

Future research is needed to identify other mediating variables in the culture–effectiveness relationship, as they would help expand our current understanding of "how" and "why" an organization's culture has an impact on its effectiveness. The results of this study suggest that employee attitudes represent one meaningful path between the distal constructs of culture and effectiveness. Understanding the paths between culture and effectiveness allows for a more informed approach to guiding and directing organizations towards adopting constructive cultures, as the mediating variables can provide more immediate feedback on the appropriateness of an organization's culture such that corrections to culture could be identified and implemented before a significant impact on the organization's effectiveness is felt.

References

Baron RM, Kenny DA. The moderator–mediator variable distinction in social psychology research: conceptual, strategic, and statistical considerations. J Pers Soc Psychol 1986;51:1173–82.

Cameron KS, Freeman SJ. Cultural congruence, strength, and type: relationships to effectiveness. In: Woodman RW, Pasmore WA, editors. Research in organizational change and development, vol. 5. Greenwich (CT): JAI Press; 1991. p. 23–58.

Denison DR. Bringing corporate culture to the bottom line. Organ Dyn 1984;13:5-22.

Denison DR. Corporate culture and organizational effectiveness. New York: Wiley; 1990.

Denison DR, Mishra AK. Toward a theory of organizational culture and effectiveness. Organ Sci 1995;6:204–23.

Denison DR, Spreitzer GM. Organizational culture and organizational development: a competing values approach. In: Woodman RW, Pasmore WA, editors. Research in organizational change and development, vol. 5. Greenwich, CT: JAI Press; 1991. p. 1-21.

Frazier PA, Tix AP, Barron KE. Testing moderator and mediator effects in counseling psychology research. J Couns Psychol 2004;51:115–34.

Glick WG, Huber GP, Miller CC, Doty DH, Sutcliffe KM. Studying changes in organizational design and effectiveness: retrospective event histories and periodic assessments. Organ Sci 1990;1:293–312.

Gupta N, Shaw JD, Delery JE. Correlates of response outcomes among organizational key informants. Organ Res Methods 2000;3:323–47.

Harter JK, Schmidt FL, Hayes TL. Business–unit-level relationship between employee satisfaction, employee engagement, and business outcomes: a meta-analysis. J Appl Psychol 2002;87:268–79.

Howard LW. Validating the competing values model as a representation of organizational cultures. Int J Organ Anal 1998;6:231–50.

James LR, Hater JJ, Gent MJ, Bruni JR. Psychological climate: implications from cognitive social learning theory and interactional psychology. Pers Psychol 1978;31:783–814.

James LR, Demaree RG, Wolf G. Estimating within-group interrater reliability with and without response bias. J Appl Psychol 1984;69:85–98.

Kalliath TJ, Bluedorn AC, Strube MJ. A test of value congruence effects. J Organ Behav 1999;20:1175–98.

Ketchen DJ, Shook CL. The application of cluster analysis in strategic management research: an analysis and critique. Strateg Manage J 1996;17:441–58.

Kumar N, Stern LW, Anderson JC. Conducting interorganizational research using key informants. Acad Manage J 1993;36:1633–51.

Likert R. New patterns of management. New York: McGraw-Hill; 1961.

March JG, Sutton RI. Organizational performance as a dependent variable. Organ Sci 1997;8:698–706.

Mayer RC, Davis JH. The effect of the performance appraisal system on trust for management: a field quasi-experiment. J Appl Psychol 1999;84:123–36.

McAlearney AS. Leadership development in healthcare: a qualitative study. J Organ Behav 2006;27:967–82.

Organ DW. A reappraisal and reinterpretation of the satisfaction–causes–performance hypothesis. Acad Manage Rev 1977;2:46–53.

Ostroff C. The relationship between satisfaction, attitudes, and performance: an organizational level analysis. J Appl Psychol 1992;77:963–74.

Punj G, Stewart DW. Cluster analysis in marketing research: review and suggestions for application. J Mark Res 1983;20:134–48.

Quinn RE. Beyond rational management. San Francisco: Josey-Bass; 1988.

Quinn RE, Rohrbaugh J. A spatial model of effectiveness criteria: towards a competing values approach to organizational analysis. Manage Sci 1983;29:363–77.

Quinn RE, Spreitzer GM. The psychometrics of the competing values culture instrument and an analysis of the impact of organizational culture on quality of life. In: Woodman RW, Pasmore WA, editors. Research in organizational change and development, vol 5. Greenwich (CT): JAI Press; 1991. p. 115–42.

Ramanujam R, Rousseau DM. The challenges are organizational not just clinical. J Organ Behav 2006;27:811–27.

Ryan AM, Schmit MJ, Johnson R. Attitudes and effectiveness: examining relations at an organizational level. Pers Psychol 1996;49:853–82.

Sapienza HJ, Korsgaard AM. Procedural justice in entrepreneur–investor relations. Acad Manage J 1996;39:544–74.

Schein EH. Organizational culture and leadership. San Francisco: Josey-Bass; 1985.

Schneider B, Hanges PJ, Smith B, Salvaggio AN. Which comes first: employee attitudes or organizational financial and market performance. J Appl Psychol 2003;88:836–51.

Siehl C, Martin J. Organizational culture: a key to financial performance? In: Schneider B, editor. Organizational climate and culture. San Francisco: Jossey-Bass; 1990. p. 241–81.

Stock, McFadden, Gowen. Organizational culture, critical success factors, and the reduction of hospital errors. Int J Prod Econ 2006;106:368–92.

Van Bruggen GH, Lilien GL, Kacker M. Informants in organizational marketing research: why use multiple informants and how to aggregate responses. J Mark Res 2002;34:469–78.

Yeung AK, Brockbank JW, Ulrich DO. Organizational culture and human resource practices: an empirical assessment. In: Woodman RW, Pasmore WA, editors. Research in organizational change and development, vol 5. Greenwich (CT): JAI Press; 1991. p. 115–42.