

Pilot Test of an Organizational Culture Model in a Medical Setting

The authors conducted a pilot test of the organizational culture model in a health care setting. The study was based on a questionnaire with mixed quantitative and qualitative analysis. Quantitative analysis confirmed the expected distribution of responses among the subcultures for all three questions, with significant differences in two of the three. Qualitative analysis further strengthened these results. The authors believe the organizational culture model may be a useful tool for making subcultural differences explicit, showing opportunities for better information exchange and opening dialogue between groups. These data should be confirmed with larger studies using psychometrically sound outcome instruments. Key words: *organizational culture, qualitative, quantitative, validity*

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AN ACADEMIC medical clinic is a complex organization. It is also a system made up of diverse groups of individuals with specific language, artifacts, rules, and divisions of labor interacting to achieve a common purpose. These parts of a system operate interdependently so that small changes in one part can cause large changes for the whole system.

One of the fundamental characteristics of a system is its culture. Schein¹ described organizational culture as

“... a pattern of basic assumptions—invented, discovered or developed by a given group as it learns to cope with its problems of external adaptation or internal integration—that has worked well enough to be considered valid, and therefore, to be taught to new members as the correct way to perceive, think and feel in relation to those problems...”^{1(p.9)}

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Organizational culture also has been described simply as “the way we do things around here.”^{2(p.277)} An understanding of organizational culture has been validated for use as a model to predict and manage changes within manufacturing organizations.^{3,4} While the model has not been validated in a medical setting, we believe this construct also may provide useful insights into the behavior of health care organizations as they face conflicting pressures and respond with rapid change. This article reports on an exploratory study to assess the value of the organizational culture model in the academic medical clinic of a Veterans Affairs (VA) Medical Center. We hypothesized that organizational subcultures existed at the medical center and that tensions between and among these subcultures were responsible for some of the conflict seen as the center converted to a capitated model.

ORGANIZATIONAL CULTURE MODEL

Schein takes the view that culture develops on the basis of shared experience and common history of a definable, stable group. Therefore, Schein theorizes that within a given organizational culture, there exist several subcultures. A change in any one of these subcultures can threaten the stability of any of the other subcultures, which then organize to defend themselves against the effects of change. Schein states that there are three subcultures in any organization that are particularly important to understand the dynamics of change.^{4,5} These three cultures are

1. Operator culture—This consists of the people on the front line who deliver the products or services promised by the organization. Applying Schein’s con-

cepts to the academic medical center, this group consists of clinic staff, nurses, trainees, and faculty; their focus is on health maintenance and illness prevention in their patient population. The operator culture relies on high levels of communication, trust, and teamwork to get things done. This culture’s daily experience is that no matter how well specified rules and procedures might be, there always will be unpredictable contingencies and surprise. They recognize that individual people make the difference and are the organization’s ultimate asset.

2. Engineer culture—This group designs the processes by which the organization delivers its products and services and by which it maintains itself. The engineers share a common worldview based on education, shared technology, and work experience. They rely on technological elegance to achieve reliable and efficient operations. Applying these concepts to a medical clinic, the engineer culture includes information systems managers, clinical guideline developers, and some subspecialists (to the extent that they apply algorithmic approaches rather than individual approaches). While the operator culture recognizes its interdependence with others in their group, the engineer culture views itself on a global basis, identifying with its professional groups outside the institution rather than with colleagues within the organization.
3. Executive culture—Executives are responsible for the strategic survival of their organization and concern themselves with decreasing costs and maxi-

mizing profits. The executives believe that hierarchy is intrinsic to organizational control and coordination and they generally are far removed from front-line operations. Their world is composed of imperfect information that they must act on, often trading long-term goals (e.g., adaptability, innovation, or cohesiveness) for short-term coping strategies (e.g., increased market share, decreased costs). They may feel isolated, alone, and responsible. Like the engineers, the executives often identify with their counterparts outside the organization rather than their colleagues within the organization.

The differences among these three cultures provide checks and balances that are essential to the health of the organization. However, there is also a potential for conflict between the three cultures that can affect adversely the sense of inclusion, commitment, and shared mission for the organization.

The executive and engineer cultures have different viewpoints about "how good is good enough." While the engineers seek to innovate toward technological solutions that are reliable, efficient, and free of human error, the executives see technology as expensive and limiting, focused only on the kinds of information that can be packaged and transmitted electronically. When expert systems *are* approved, the executives feel pressure to balance the high costs that accompany reengineering design. They may not allow sufficient time for training operators to use the systems or may initiate downsizing efforts as the technology designs humans out of the system. The operators may rebel against the impersonal programs of the engineer and executive cultures, using their teamwork to defeat management. They may

resist and covertly do things their own way, bending rules and procedures. The operators may underutilize technology. Engineers may be impatient with the operators' resistance to change and the executives may see operators as too costly. The executive and engineer cultures may not value the innovations of the operators and their efforts may be ignored, subverted, or punished. Understanding these three cultures and how they sometimes work at cross purposes with each other is the first step in dealing with organizational issues.

METHODS

Questionnaire development and subculture predictions

Our hospital was under pressure to add new patients because the VA system was switching to capitated reimbursement. Schein's organizational culture model seemed to explain several difficulties we were experiencing during this change. We hypothesized that the executive, engineer, and operator cultures existed within our organization and that their views about the capitated model would be aligned within their own subculture but would be at odds with the other two groups.

To demonstrate this, we developed three test questions that positioned one subculture's assumptions against another's.

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These three test questions were inserted into a larger clinic questionnaire. Each question had a five-point scale with anchors for each point appropriate to that question (e.g., from "strongly agree" to "strongly disagree" or from "should be much more" to "should be much less"). Respondents were asked to circle a descriptor and support their beliefs with a brief written statement. We expected that members from one culture would be polarized toward one end, members from the competing culture would be polarized toward the other end, and members from the third culture would be less homogeneous and grouped near the middle because the question did not address any of their critical variables.

To validate the questionnaire, we conducted a pilot test in a focus group of personnel that were excluded from the final testing sample. The focus group ($n = 6$) included members of all subcultures and the results supported the existence of the organizational culture model. Following discussion with the same focus group, the questionnaire was revised to decrease ambiguity. In the final version, question one stated, "Increasing workload is negatively affecting quality and satisfaction," question two stated "Guidelines and models are practical to use for daily activities in clinic," and question three stated "The Boise VAMC devotes just the right amount of resources to support guidelines and models." The questionnaire was distributed to the entire clinic staff, residents, faculty, and administration ($n = 60$) with an overall response rate of 65 percent.

Before analyzing the questionnaire, the authors (with more than 40 years of combined experience at the medical center) predicted into which culture each respondent would best fit based on job description and

familiarity with the individual's role in the institution. There was near perfect interrater agreement about these assignments. The executive culture ($n = 6$) included the hospital director, administrative assistant to the director, chief of staff, staff assistant to the chief of staff, associate chief of staff for administrative medicine, and executive secretary to the chief of staff. The engineer culture ($n = 5$) included a physician who headed a team for creation of clinical guidelines, a nurse and a nurse practitioner who were involved in creation of the interdisciplinary firm system,⁶ and a physician and physician assistant involved in a computer-generated preventive medicine reminder project for the clinic. While one author also would fall in this group, all authors were excluded from the analysis. All others ($n = 49$) had frequent patient care duties, no significant duties involving prediction and control, and were considered to be part of the operator culture.

RESULTS AND ANALYSIS

Quantitative analysis

Overall response rate was 65 percent. The response rate was 67 percent (4/6) for the executive culture, 100 percent (5/5) for the engineer culture, and 61 percent (30/49) for the operator culture. A few executives at the highest levels did not respond, leading to a possible source of error. The average score for all respondents on all questions was 3.4 (1–5 possible) with a standard deviation of 0.92. This suggests a low likelihood of a ceiling or floor effect on the questionnaire and shows, as hypothesized, a wide variability in responses. Question scores by predicted group were computed using analysis of variance.

Executive versus operator

As mentioned above, the statement, “Increasing workload is negatively affecting quality and satisfaction,” was designed to separate the executive and operator cultures, pitting desire to increase market share against time pressures and perception of quality. Figure 1 shows the results of quantitative analysis of this question.

Engineer versus operator

The statement “Guidelines and models are practical to use for daily activities in clinic” was designed to separate the engineer and operator cultures, pitting control measures against pragmatic usefulness. Figure 2 shows the results of quantitative analysis of this question.

Executive versus engineer

The statement “The Boise VAMC devotes just the right amount of resources to support guidelines and models” was designed to separate the engineer and operator cultures, pitting incremental cost against increased precision. Figure 3 shows the results of quantitative analysis of this question.

Qualitative analysis

Respondents provided brief statements in support of their beliefs in 42 percent of the responses. There was no difference among groups in willingness to offer qualitative responses. Statements were analyzed blindly by recursively grouping them into conceptual bins using Non-numerical, Unstructured Data - Indexing, Structuring and Theorizing

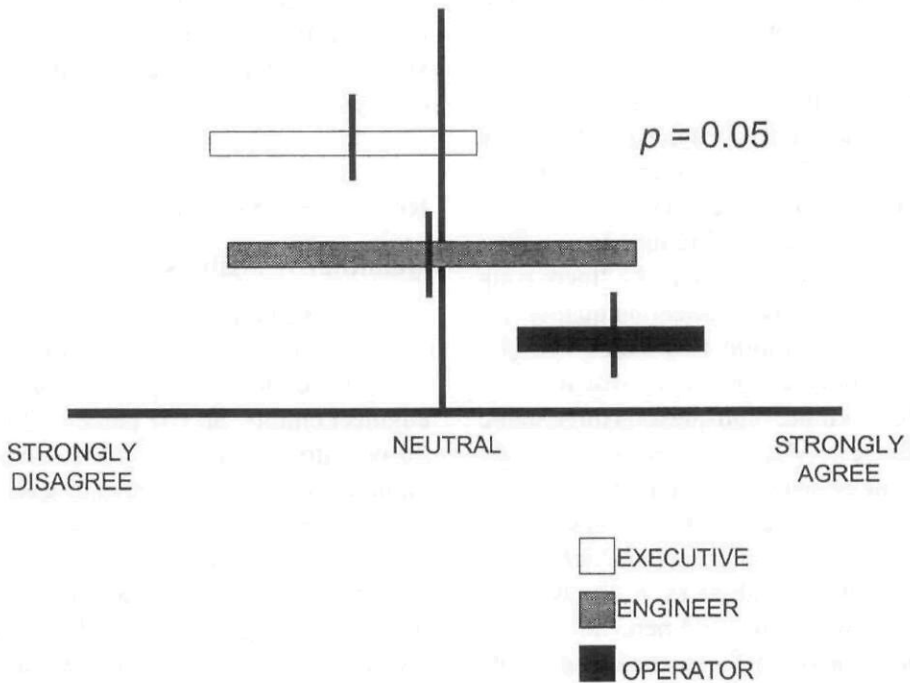


Figure 1. Analysis of the question, “Increased workload is negatively affecting quality and satisfaction.” The executive and operator cultures were separated widely in their responses and the engineer culture was more neutral and more diverse.

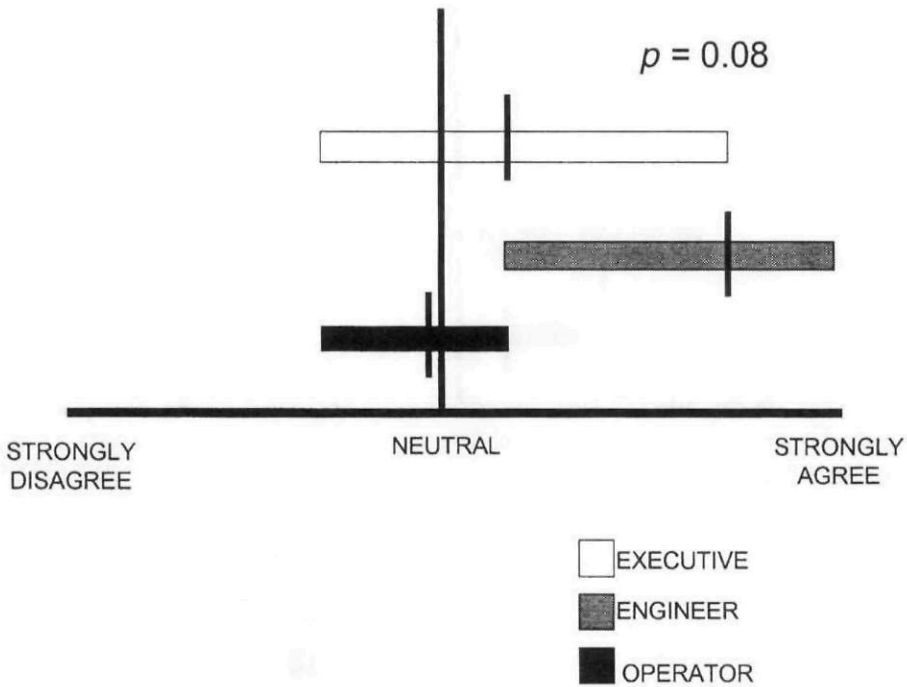


Figure 2. Analysis of the question, “Guidelines and models are practical to use for daily activities in clinic.” The engineer and operator cultures were separated widely in their responses and the executive culture was situated between them and slightly more diverse in their answers.

(NUD*IST) 4.0 qualitative analysis software. Two investigators created a preliminary coding system by picking out recurrent themes and important concepts. Initial agreement was low to moderate (inter-rater agreement was 50%). The investigators shared their coding schemes and negotiated discrepancies. The data then were analyzed within the new coding system until new discrepancies were found and negotiated. This iterative process continued (six iterations) until the following stable set of coding concepts was created: cost; market share; efficiency; variability; guideline; poor quality; good quality; capacity; increased resources; time pressure; stress; and not work (meaning the concept didn’t or wouldn’t work). Coding with this stable set of concepts showed a final

inter-rater agreement of 85 percent, which was consistent across subcultures.

Executive versus operator

The following are selected qualitative statements made in response to the question “Increasing workload is negatively affecting quality and satisfaction.” These statements, which are representative of each group, are followed by the corresponding statement that was circled on the questionnaire (used for quantitative analysis) and the qualitative coding concept assigned to that statement, both in parentheses.

Executive

- “It will be important to add new patients to support a healthy budget in a

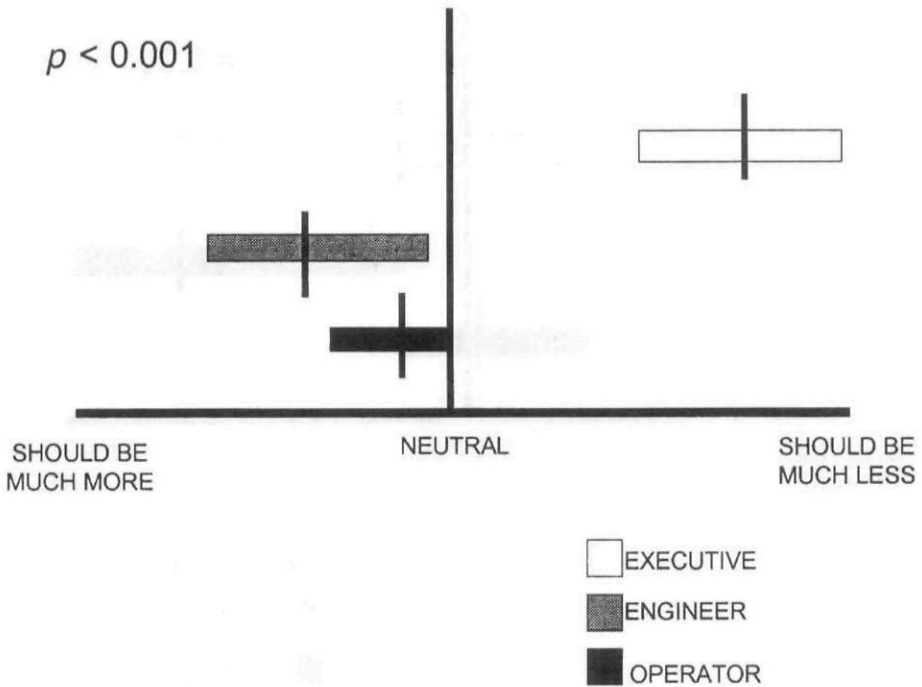


Figure 3. Analysis of the question “The Boise VAMC devotes just the right amount of resources to support guidelines and models.” The executive and engineer cultures were separated widely in their answers. While the operator culture was more neutral, it did not show the expected increase in variability.

capitated model” (disagree, coded as market share)

- “Recent satisfaction surveys suggest that we do well.” (strongly disagree, coded as good quality)

Engineer

- “I feel there should be more staff to accommodate these patients” (neutral, coded as increased resources)
- “We need to continue to maintain a patient base. This means increasing workload and efficiency” (neutral, coded as efficiency)

Operator

- “I feel that the amount of workload is quickly impacting patient satisfaction and contributing to staff burnout”

(clinic nurse—strongly agree, coded as stress)

- “Faculty seem much more burdened than in the past” (resident—agree, coded as time pressure)
- “Patients do not seem to get the extra time they need and patients need to wait longer” (clinic clerk—agree, coded as time pressure)
- “Employees are more stressed. Patients need to wait longer” (faculty—strongly agree, coded as stress)

Engineer versus operator

The following are selected qualitative statements made in response to the question “Guidelines and models are practical to use

for daily activities in clinic.” These statements, again chosen to be representative of each group, also are followed by the corresponding statement that was circled on the questionnaire (used for quantitative analysis) and the qualitative coding concept assigned to that statement, both in parentheses.

Executive

- “And need ongoing review to assess the value and worth of the model” (neutral, coded as guideline)

Engineer

- “Clinic preventive care models are helpful. Other approaches could be employed” (agree, coded as guideline/good quality)

Operator

- “Teamwork is what makes a clinic run” (clinic clerk—strongly disagree, coded as guideline/not work)
- “Some models are more practical than others. Each team is different” (faculty—disagree, coded as guideline/variability)

Engineer versus executive

The following are selected qualitative statements made in response to the question “The Boise VAMC devotes just the right amount of resources to support guidelines and models.” These statements, again chosen to be representative of each group, also are followed by the corresponding statement that was circled on the questionnaire (used for quantitative analysis) and the qualitative coding concept assigned to that statement, both in parentheses.

Executive

- “I agree we devote enough resources to the excellent computer system” (strongly agree, coded as cost)

Engineer

- “Computer support needs to be beefed up greatly. Better models for care could

be developed” (strongly disagree, coded as increased resources)

Operator

- “Seems to be a good balance” (faculty-neutral, coded as cost)
- “More of our resources should go directly to patient care” (nurse—strongly disagree, coded as not work)

CONCLUSIONS

These data agree with predictions based on Schein’s organizational culture model.

We explored Schein’s organizational culture model in a VA academic medical clinic. An instrument was designed surrounding a cultural change issue specific to our organization and questions were written to pit the assumptions of Schein’s three subcultures (executive, engineer, and operator) against each other and to polarize individuals within a group. The critical variables for these three cultures, based on Schein’s work, were assumed to be cost and market share (Executive), prediction and control (Engineer), and sufficient resources to maintain quality of patient care (Operator). The questionnaire was pilot tested, revised, administered, and returned by 39 (65%) of all administrative and staff personnel.

We predicted that members from opposing cultures would be polarized at opposite descriptive anchors while members from the third culture would have increased variance and would have been located near the middle of each question (based on which critical variables were included in each question). Quantitative analysis confirmed this expected pattern for the “Executive versus Operator” and “Engineer versus Operator” questions (see Figures 1 and 2). In the “Engineer versus Executive” question, the scores were arranged in the predicted order but the

middle group did not show increased variance (see Figure 3). In addition, the "Executive versus Operator" and "Engineer versus Executive" questions showed statistically significant differences in scores by ANOVA.

Qualitative analysis further strengthened these results. Each hypothesized culture focused on statements that reflected their predicted critical variables. The executive culture produced 83 percent of all statements about cost, market share, and efficiency. The engineer culture produced 60 percent of all statements about variability, capacity, and increased quality using guidelines. The operator culture produced 100 percent of all the statements (eight) about time pressure and stress and also had four statements suggesting guidelines would not or did not help. The classification of statements and the statements themselves are compelling further evidence of the validity of the model in this setting.

The context (the change to a capitated system) within which this questionnaire was administered may have exaggerated the magnitude of cultural polarization. Other limitations of this study include the small sample size, use of single-item unvalidated scales, the possibility of selection bias in the assignment of cultures, and the relative theory-driven nature of the qualitative analysis.

In clinic as in life, different cultures have different values and these can act as barriers to understanding between cultures. For instance, there is intrinsically nothing to prevent the executive culture from continuing to

add patients to the clinic. The information (feedback) that limits this behavior comes from a different culture, the time pressure on the operator culture, and the effect of that time pressure on the quality of care. This information may be distorted, delayed, or not even available to the executive culture.

Similarly, the operator culture has no intrinsic reason to limit its spending on diagnosing a patient illness but rather prefers to maximize health outcomes. The information (feedback) that limits this behavior again comes from a different culture, the costs monitored by the executive culture. Once again, this information may be distorted, delayed, or not even available to the operator culture.

In our own institution, when these data were presented to executives, it clearly opened new areas of discussion and led to tighter coupling between clinic capacity and the recruitment of new patients. The power of the organizational culture model is its ability to make cultural differences explicit, show opportunities for better information exchange and feedback, and open a dialogue between and among the members of different cultures.

This pilot study shows promise for the organizational culture model in medical settings. Further research should focus on larger studies using psychometrically sound outcome instruments, refinement of the model as it relates to the dual products of academic clinics (education and health care), and validating and applying this model in other health care settings.

REFERENCES

1. E.H. Schein, *Organizational Culture and Leadership: A Dynamic View*. San Francisco: Jossey-Bass, 1985.
2. W.W. Burke and G. Litwin, "A Causal Model of Organizational Performance," in *The 1989 Annual: Developing Human Resources*, J.W. Pfeiffer, ed. San Diego: University Associates, 1989.
3. J. Van Maanen and S.R. Barley, "Occupational Communities: Culture and Control in Organizations," in *Research in Organizational Behavior*, vol. 6, B.M. Staw and L.L. Cummings, eds. Greenwich, CT: JAI Press, 1984.
4. E.H. Schein, "Three Cultures of Management: The Key to Organizational Learning in the 21st Century." <http://learning.mit.edu/res/wp/10012.html> (13 November 1997), accessed on March 12, 1998.
5. E.H. Schein, "Culture: The Missing Concept in Organizational Studies," *Admin. Science Quarterly* 41, no. 2 (1996): 229-240.
6. C.S. Smith, "The Impact of an Ambulatory Firm System on Quality and Continuity of Care," *Medical Care* 33, no. 3 (1995): 221-226.

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