

A Study of the Relationship Between School Culture and Standardized Test Scores

Andrew Lee Smith

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A STUDY OF THE RELATIONSHIP BETWEEN SCHOOL CULTURE AND
STANDARDIZED TEST SCORES

by
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ABSTRACT

The purpose of this quantitative study was to discover the perceptions of school culture and correlate those perceptions with standardized test scores in elementary and secondary schools in southwestern Arizona. The intention of this study was to contribute to the field of education leadership related to student achievement and factors contributing to student achievement including organizational culture. A survey of teachers and administrators in participating schools in southwestern Arizona was completed and correlated with existing student achievement data for those participating schools. The School Culture Survey by Leithwood, Aitken, and Jantzi (2001) was used for the survey instrument, and the Stanford Achievement Test, Ninth Edition, was used to measure student achievement. The survey results and student achievement data were correlated and revealed that a relationship does exist between perceptions of school culture and student achievement.

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TABLE OF CONTENTS

| | |
|--|------|
| LIST OF TABLES | viii |
| LIST OF FIGURES | ix |
| CHAPTER 1: INTRODUCTION | 1 |
| Problem Statement | 2 |
| Background | 2 |
| Purpose of the Study | 6 |
| Significance of the Study | 7 |
| Significance to Leadership | 8 |
| Nature of the Study | 9 |
| Research Questions | 10 |
| Hypothesis | 10 |
| Theoretical Framework | 11 |
| Definitions | 13 |
| Assumptions | 14 |
| Scope, Limitations, and Delimitations | 15 |
| Summary | 16 |
| CHAPTER 2: LITERATURE REVIEW | 17 |
| Title Searches, Research Documents, Journals, and Articles | 17 |
| Organizational Culture | 18 |
| Organizational Culture and Measurable Outcomes | 25 |
| School Culture | 32 |
| Standardized Testing as the Measure of Success | 41 |

| | |
|---|----|
| School Leadership | 47 |
| Summary | 50 |
| CHAPTER 3: METHODOLOGY | 52 |
| Research Method and Design Appropriateness | 52 |
| Instruments..... | 57 |
| School Culture Survey | 57 |
| Stanford Achievement Test, Ninth Edition (SAT-9). | 59 |
| Population and Sampling | 61 |
| Data Collection | 61 |
| Validity..... | 64 |
| Data Analysis | 64 |
| Organization and Clarity | 66 |
| Summary | 66 |
| CHAPTER 4: PRESENTATION AND ANALYSIS OF DATA..... | 67 |
| Description of Population Data and Survey..... | 68 |
| Description of the SAT-9 | 71 |
| Research Question 1 | 72 |
| Research Question 3..... | 75 |
| Summary | 84 |
| CHAPTER 5: SUMMARY AND RECOMMENDATIONS | 85 |
| Summary and Discussion of Findings | 85 |
| Research Question 1 | 87 |
| Research Question 2..... | 90 |

| | |
|--|-----|
| Research Question 3 | 91 |
| Conclusions | 92 |
| Implications and Recommendations | 94 |
| Recommendations for Future Research | 100 |
| Summary | 102 |
| References | 103 |
| Appendix A: Research Review | 112 |
| Appendix B: Signed Informed Consent | 113 |
| Appendix C: Permission to Use an Existing Survey | 128 |
| Appendix D: Copy of Survey Instrument | 130 |
| Appendix E: Demographic Survey | 133 |
| Appendix F: Correspondence Regarding the Stanford Achievement Text, Ninth Edition | 134 |
| Appendix G: Yuma County Profile | 136 |

LIST OF TABLES

| | |
|---|----|
| Table 1. Study Participation..... | 69 |
| Table 2. School Culture Survey Mean Scores and Standard Deviation | 73 |
| Table 3. Teacher and Administrator Mean Culture Scores..... | 74 |
| Table 4. Subject Scores and Percentile Ranks for the Stanford Achievement Test, Ninth Edition..... | 76 |
| Table 5. Ranking of Schools by Highest Mean School Culture Score With Mean Stanford Achievement Test, Ninth Edition, Percentile Rank | 77 |
| Table 6. Ranking of Schools from Lowest to Highest Mean Stanford Achievement Test, Ninth Edition, Percentile Rank With Corresponding Mean School Culture Survey Score | 79 |
| Table 7. Examples of Inconsistent School Culture Score and Stanford Achievement Test, Ninth Edition, Percentile Rank | 94 |

LIST OF FIGURES

| | |
|--|----|
| Figure 1. Correlation between mean school culture scores and mean Stanford Achievement Test, Ninth Edition, percentile rank scores..... | 80 |
| Figure 2. Correlation between mean school culture survey scores and mean Stanford Achievement Test, Ninth Edition, percentile rank scores..... | 81 |
| Figure 3. Correlation between mean school culture survey scores and mean Stanford Achievement Test, Ninth Edition, math scores. | 82 |
| Figure 4. Correlation between mean school culture survey scores and mean Stanford Achievement Test, Ninth Edition, reading scores. | 82 |
| Figure 5. Correlation between mean school culture survey scores and mean Stanford Achievement Test, Ninth Edition, language arts scores. | 83 |
| Figure 6. Percentage of teachers with 5 years of experience and mean school culture scores..... | 84 |

CHAPTER 1: INTRODUCTION

Rollins and Roberts (1998) noted, “Empirical evidence indicates that organizational culture is an important driver of organizational performance” (p. 1). Stolp and Smith (1995) explained that school culture has a powerful influence in schools because it defines the important elements of that school, and the manner in which school community members operate. School leaders with an understanding of culture are aware that teachers and related school personnel commit personal energy to only what they believe and feel is personally important (Deal & Peterson, 1999a). Schools retaining a culture of excellence and high performance inspire the constituency, paralleling the concept that a culture of incompetence perpetuates opposite results. Interest in school culture has gained momentum with the results of research concluding that the culture of a business organization influences the success or lack of success within an organization (Deal & Peterson, 1999a). These results conclude that the same cultural dimensions accounting for increased measurable performance in business may result in increased measurable achievement in schools (Deal & Peterson, 1999a).

Legislation and policies handed down from both federal and state government agencies increase the pressure for schools to perform and measure success similar to a business model. Expectations exist in the form of achievement on standardized tests (Boyles, 2000; Senge et al., 2000). The complexity of the business model approach creates uncertainty as schools examine methods and philosophies, which will result in increased standardized test scores. Traditional attempts toward increased test scores include personnel development, changes in scheduling, curriculum restructuring, and homogeneous grouping (Boyles; Senge et al.). These attempts, reflecting a business

approach toward change, culminate with varied results and may not produce the long-term successes for which school leaders strive.

Existing empirical evidence suggests a focus on organizational culture to increase business outcomes (Collins, 2004; Peters & Waterman, 1982). Researchers concluded that organizations making a shift from traditional management approaches to a focus on culture have improved various aspects of the organization including profits, employee morale, and shared knowledge (Bagraim, 2001; Denison & Mishra, 1989; Detert, 2000; Heskett & Kotter, 1992). Given the importance for increased achievement in schools, knowledge of school culture may allow school leaders to understand the influence of culture on measurable outcomes (Deal & Peterson, 1999a).

Problem Statement

Standardized test scores provide an approach to measuring school success similar to accounting practices used in business demonstrating a corporate mentality and production-line oriented process (Boyles, 2000). Although empirical evidence suggests that organizational culture influences measurable business outcomes, research on the concept of school culture and culture's influence on measurable school outcomes is limited (Collins, 2004; Collins & Porras, 1997; Deal & Kennedy, 1982; Detert, 2000; Hall & Hord, 2001; Heskett & Kotter, 1992; Schein, 1992).

The existing situation is that school leaders measure success as student achievement through performance on standardized tests and expect quantifiable outcomes, much like business leaders use quantitative data to measure business success (Boyles, 2000). Although it is the current paradigm of achievement, standardized testing is essentially a snapshot of student ability, which may fail to recognize adequately the

essence of student potential, growth, or achievement in all academic subjects (Boyles, 2000; Olson, 2005; Wilson, 2005). Although standardized test scores measure student achievement, student achievement is influenced by school culture (Stolp & Smith, 1995). While business success is often quantifiable by dollar returns on products, and can be quantified without factoring in the business culture, the product of schools is the achievement of its human capital, students (Boyles, 2000). Failure to study school culture as influential to student outcomes may limit academic growth and may have serious consequences to overall school success as measured by testing. According to current research, cultural aspects of the school community should be considered in curriculum development, social initiatives, long-term academic planning, and student enrollment and screening procedures (Peterson, 2002). Lack of acknowledgement in these specific areas may allow culture to emerge without control; hence the school leadership and administration may be helpless to observe culture rather than direct culture. Without directing culture, administrators may be unable to guide the academic practices of the school thus influencing student achievement and success at every school level. School administrators in several schools, along with other researchers (Craig et al., 2005; Reavis, Vinson, & Fox, 1999) have reported that a focus on culture has increased student outcomes greatly and that culture is a common characteristic of high-performing schools. This study was designed to be similar to studies by Heskett and Kotter (1992); Collins and Porras (1997); and Kotter, Sasser, and Schlesinger (1997) measuring organizational culture to outcomes (Rollins & Roberts, 1998). This quantitative correlation study was designed to determine whether perceived school culture related to student achievement as

measured by standardized test scores in a population of 17 elementary and secondary schools located in southwestern Arizona.

Background

Much debate exists over the use of standardized tests as the measure of school success (Boyles, 2000). Proponents point to research studies that indicate that state accountability systems with standardized tests attached have resulted in improved results on standardized tests and general school achievement measures (Protheroe & Perkins-Gough, 2001). Critics claim that limiting the scope of achievement or improvement to performance on standardized testing does not clearly indicate educational improvement and narrows the focus of a rich, fulfilling education experience to basic skill competency (McNeil, 2000b).

Legislation, including the No Child Left Behind Act of 2001, has created a scenario of accountability, or the measure of school success, for school districts based upon standardized test scores. Scores are obtained via delivery and completion of a state-mandated exam (Boyles, 2000; Fritzberg, 2004; Kucirik, 2002). These exams are norm referenced or criterion-referenced. Norm referenced exams are based upon the mean score for previous attempts at the test (Harcourt Assessment, Inc., 2004). The means of the previous year form the expected mean for the following year. Criterion-referenced exams examine specific material or skills attained by the learner. Criterion-referenced tests measure absolute or specific levels of achievement and are not dependent upon the scores of previous test takers, which is the basis of norm-referenced testing (Vogt, 1999).

State educational regulators evaluate schools for sanctions, so it would be useful for school officials to boost the average test score for each individual school and school

district, as their personal careers and the future of the school are dependent upon those actions (Sacks, 1999). Standardized testing programs measure the progress and shortcomings of education, or at least in theory, and the ensuing reports form the opinions of parents and public officials (Nelson, Carlson, & Palonsky, 1996; Queen, 1999). Many factors contribute to test score results, including poverty, leadership, communication, educational disadvantage and opportunity, and school culture (Senge et al., 2000). Determining, diagnosing, and analyzing school culture may allow school leaders to direct and plan staff development and training around school culture issues. Improving school culture may have an influential relationship on standardized test scores as the measure of school success (Deal & Peterson, 1999b).

Measuring school success based upon the scores of standardized testing creates a mechanistic approach similar to that in business (Boyles, 2000). Although the school community appears content with current practice, the accountability to government agencies looms overhead because of concerns regarding taxpayer money, school quality, student employability, and the ability to perform basic skills outside the school setting (McNeil, 2000a).

Regardless of current school practice, schools must meet the standards set forth by legislation such as the No Child Left Behind Act of 2001 (U.S. Department of Education, 2002). Many schools are attaining high levels, or performing well, on standardized tests; however, those schools that are not may desire to consider an approach to change, or a diagnosis of current performance. Deal and Peterson (1999a, 1999b) explained that school cultures that value collegiality, professionalism, and shared learning create a positive scenario where information is exchanged freely. Many

businesses have analyzed organizational culture to determine approaches toward change and to increase organizational performance, and schools may benefit from a similar approach (Collins & Porras, 1997; Denison & Mishra, 1989; Detert, 2000; Morgan, 1998; Trice & Beyer, 1993).

Purpose of the Study

The purpose of this quantitative study was to discover the perceptions of school culture and correlate those perceptions with standardized test scores in elementary and secondary schools in southwestern Arizona. To examine this relationship, participating school districts and individual schools in southwestern Arizona were surveyed using the School Culture Survey (Leithwood, Aitken, & Jantzi, 2001). This survey examined aspects of school culture, including the strength of relationships, forms of professional collaboration, climate of the physical environment, student-centered learning, and the professional work environment. The quantitative survey research method selected was appropriate to this study because the study quantified school organizational culture and student achievement test data. Once quantified, the results were correlated to discover if a relationship existed.

The independent variable in this study was school organizational culture, which was determined by the use of the School Culture Survey by Leithwood et al. (2001). Survey results were analyzed using descriptive statistics to determine a mean. The dependent variable was standardized test scores measured by the Stanford Achievement Test: Ninth Edition (SAT-9) published by Harcourt Assessment, Inc., and distributed by the Arizona Department of Education (2004). Scores from the 2003–2004 school year were the only scores considered. The SAT-9 scores for the study comprised Grades 2–12,

depending on particular grades in each school, as some schools were elementary and others secondary. Grade participation per school was not described because that information would allow the reader to distinguish SAT-9 scores and school culture scores of participating schools and could compromise the anonymity of participants. The scores were compiled to reach a mean score.

The population of the study was comprised of teachers and principals in 17 elementary and secondary schools in southwestern Arizona. The geographic location of the study was limited to southwestern Arizona. The existing elementary and secondary schools in Yuma County and two elementary schools bordering Yuma County were solicited to participate in the study. Seventeen of 35 possible schools, 5 years or older, agreed to participate in the study. Teachers, resident speech therapists, school psychologists and other related personnel, principals, and assistant principals were invited to participate in the study.

Significance of the Study

The significance of this study rests in the knowledge that research on school culture and measurable outcomes is limited. A focus on school culture can increase student outcomes; positive school culture is a common characteristic of high-performing schools (Craig et al., 2005; Reavis Vinson, & Fox, 1999). Given that educational accountability focuses upon the scores of standardized testing as the measure of school success, this study was developed to establish the relationship between school culture and standardized test scores (Carnegie Council on Adolescent Development, 1989; Murphy & Louis, 1999). Deal and Peterson (1999a, 1999b) explained that research on the concept of

culture and the influence of culture on measurable outcomes is significant in business organizations but is relatively new as a philosophy in public schools.

Similar research regarding student achievement has included (a) poverty, (b) financial resources or per pupil expenditures, (c) teacher quality, and (d) language issues or second language learners. The idea of culture as a significant influence on student achievement only recently has been examined (Deal & Peterson, 1999a). Empirical evidence suggests the culture of a business organization can influence productivity; hence, there is reason to believe similar cultural dimensions accounting for increased business performance may account for increased achievement in schools (Deal & Peterson, 1999a).

Significance to Leadership

This study contributes to the field of organizational leadership by increasing the awareness of school administrators to view organizational culture as a significant contributor to organizational success (student achievement as measured by standardized tests). Schein (1992) explained, “Leadership is intertwined with cultural formation” (p. 316).

This study also contributed to the body of leadership knowledge by discovering the perceptions of school culture and the relationship between culture and measurable student outcomes. This model of accountability resembles the business model of measurable results. According to federal and state legislative bodies, the highest levels of excellence in student achievement and teachers’ instruction appeal to common sense in that they posit that the matter of quality education is an easy thing to measure and that results will be readily achievable through testing, testing, and more testing,

complemented by a system of sanctions and rewards. In this system, there will be no room for inadequacy for students, teachers, and principals, as the measurements for learning are similar to measurement in business (Boyles, 2000).

Nature of the Study

A correlation study examined the relationship between school organizational culture and the scores on standardized tests as the measure of school success in elementary and secondary schools in southwestern Arizona. A survey was determined the best measure of culture, because the survey to be used (a) quantified school organizational culture and (b) did not require a venue where the researcher and participant would work simultaneously to complete the questionnaire, which would allow the researcher to survey participants without supervision.

Quantitative methods, specifically the use of surveys, are occasionally employed in education research (Smith & Glass, 1987). The quantitative approach uses strategies of inquiry, such as experiments and surveys, and collects data on predetermined instruments, which yield statistical data (Creswell, 2003). As a method, the survey is a research tool in which a sample of subjects is drawn from a population and studied (often interviewed) in order to make inferences about the population. This design contrasts with the true experiment, in which subjects are assigned randomly to conditions or treatments. Surveys in education may measure school culture, school leadership, student motivation, teacher quality, or any other number of education-related ideas (Vogt, 1999).

The School Culture Survey (Leithwood et al., 2001) measures school culture and allows the results to be quantified to a mean score. The SAT-9 (Harcourt Assessment, Inc., 2004) was determined to be the best student achievement test because (a) the SAT is

used by all schools in the studies geographical area; (b) the test is normed; and (b) compared to other tests used within the state, the SAT-9 is more reliable regarding the consistency of results and information available to school districts and the public at large (Melendez & Konig, 2004). This design allows the reader to view the perceptions of school culture and compare those perceptions to current standardized test scores.

Research Questions

To complete this research study, a quantitative research method was employed to answer the following questions:

1. What are the mean culture scores measured by the School Culture Survey for participating schools?
2. What are the mean standardized test scores in language arts, reading, and mathematics as measured by the Stanford Achievement Test, Ninth Edition, (SAT-9) for participating schools?
3. Is there a relationship between school organizational culture as measured by the School Culture Survey and the results of standardized test scores in language arts, reading, and mathematics as measured by the Stanford Achievement Test, Ninth Edition (SAT-9)?

Hypothesis

Based on the research questions, a hypothesis was developed for this study. The hypothesis predicted there would be a significant relationship between a school's organizational culture and the results of standardized test scores in language arts, reading, and mathematics as measured by the SAT-9.

Theoretical Framework

The theoretical framework for this dissertation was based on the concept of culture in organizations and that culture's relation to increased, measurable success. Culture is described in this study and viewed from a historical perspective through definitions and descriptions from common terminology, within schools, through diagnosis and analysis and through the concept of cultural capital (Barrett, 2003). Culture theory holds roots in anthropology and social psychology (Schein, 1992). According to Trice and Beyer (1993), the first study of culture within organizations occurred in the 1930s. This occurred during the last phase of the Hawthorne studies at the Western Electric Company in Chicago. Experiments in this study focused upon the relationship between productivity and the physical work environment. Mayo (1927) was the researcher for this study, but employed an anthropologist named W. Lloyd Warner. Mayo argued that Warner could adapt the anthropological methods employed to uncover the social structures and belief systems in tribal societies to the work community at Western Electric. The study described three kinds of relationships: (a) technical, (b) social, and (c) ideological. Technical relationships concerned the flow of materials. Social relationships regarded the hierarchy of work distribution known as formal, and the friendships and cliques created in an informal manner. Ideological relationships concerned culture, which was constructed of shared beliefs and understandings within the work setting (Trice & Beyer).

The study of organizational culture became more important with the increase of global competition in business (Rollins & Roberts, 1998). American business practice differed from business practice in other countries significantly with respect to culture.

Awareness of culture and the increased concern to understand the function of how organizations worked rather than the structure of the organization amplified the acknowledgement of culture as a significant factor in organizations (Collins & Porras, 1997; Heskett & Kotter, 1992; Pondy & Mitroff, 1979; Rollins & Roberts).

Schein (1992) defined culture as the following:

A pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration, which 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. (p. 12)

Considering the historical background discussed by Trice and Beyer (1993) and the definition of culture provided by Schein (1992), school culture was defined by Stolp and Smith (1995) as historically transmitted patterns of meaning that included the norms, values, beliefs, traditions, and myths understood, maybe in varying degrees, by members of the school community. Deal and Peterson (1999a) discussed schools as complex webs of traditions created by students, parents, community, and school staff through working together, solving problems, and sharing accomplishments. Deal and Peterson (1999a) and Stolp and Smith discussed current approaches to organizational culture in schools, and recognized that historically the term *climate* was used to describe the cultural setting in schools. *Culture*, however, describes the concept with more accuracy, entailing aspects of the setting including traditions, values, norms, beliefs, celebrations, language, and the social relationships regarding friendship and work (Hall & Hord, 2001).

Definitions

Research regarding school organizational culture and standardized test scores as the measure of school success requires the study of commonly identified terms of organizational culture and student performance assessment. A clear understanding of these terms will increase the effectiveness of this study.

Adequately Yearly Progress (AYP): The Arizona Department of Education (2004) defined *AYP* as the level of proficiency students must achieve in mathematics, reading, and writing.

Culture: According to Schein (1992), culture is a pattern of shared basic assumptions that the group or organization learned as it solved its problems of external adaptation and 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.

Measure of Academic Progress (MAP): The Arizona Department of Education (2004) defined *measure of academic progress* as goals derived from the use of SAT-9 stanines and used to measure individual student growth.

No Child Left Behind Act of 2001: The No Child Left Behind Act is federal legislation designed to strengthen accountability for results, expand local control, expand options for parents, and emphasize teaching methods proven to work. This federal legislation requires that states develop performance-based standards in reading and mathematics. Then, each state educational agency must implement a system of annual testing, which will determine if standards are being achieved. Data from these tests must