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# Organizational Health at the Managerial and Institutional Levels of Leadership: Links to Student Achievement in Middle Grades

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# Academic Leadership Journal

## Introduction

Research studies have identified linear relationships between organizational health and student achievement (Goddard, Sweetland, & Hoy, 2000; Hoy, Tarter, & Kottkamp, 1991; Hoy & Hannum, 1997; Hoy & ASabo, 1998; Hoy & Tarter, 1997). Goddard, Sweetland, & Hoy's multilevel analysis organizational health study revealed that positive increases in an elementary school's index scores were associated with positive gains in student reading and student math achievement on standardized test measures. In a previous report of our findings we focused on the relationship between a middle school's organizational health and the academic achievement of its students in reading (Roney, Coleman, Schlichting, 2007). There we concluded that an emphasis on academics is the key to increasing student reading scores in high-poverty, high-minority schools. Key to this was our conviction that the emphasis must occur in classrooms, in administration, and in the community. With this paper we take up the notion that a partnership must be formed wherein teachers and principals work together in the teaching and learning endeavor. As noted by Bossert (1982), principals indirectly affect instructional effectiveness. As with concentric circles, it follows then that the influence of the principal with central office affects the resources schools receive, and the connection of the school to the outside community, e.g., parents, community organizations, and so forth.

In this paper we look at the relationship between the middle school's organizational health and student achievement as measured by math scores over a two-year period. Our research hypothesis anticipated that increases in organizational health would be related to increases in student scores on standardized tests.

## Middle School History and Organization

Scholars agree that the history of the middle school movement cannot be traced to one particular event (Brough, 1995; Lounsbury & Vars, 1978). Nevertheless, a report by the National Education Association (1899) shed some light on its development. By the turn of the century, an eight-four organization of grade levels existed in most of the United States. Educators reported that "the most necessary and far-reaching reforms in secondary education must begin in the seventh and eighth grades of our schools" (Gruhn & Douglass, 1956, p. 659).

Concerned over the advancing age of young men entering college at that time, and subsequently entering the work force, then-President of Harvard University, Charles Eliot, led his colleagues in calling for a realignment of the levels of schooling. A six-six plan was suggested with the following rationale: "the seventh grade, rather than the ninth, is the natural turning-point in the pupil's life, as the age of adolescence demands new methods and wiser direction" (Gruhn & Douglass, 1956, p. 659).

In assessing the cultural and psychological factors of the six-six structure, especially the six-year secondary school plan, problems were obvious. The difficulty in transition from elementary to secondary schools coupled with teachers unwilling or unable to make the connections between the classroom and

the streets, led students to drop out by the end of their ninth grade. Likewise, it became obvious that “schools needed to meet the developmental needs of the students they served, and young adolescents were unique individuals with unique needs” (Brough, 1995, p. 33). By 1913, the National Education Association recommended that the secondary school be separated into junior and senior divisions. A six-three-three school plan came into existence. Researchers attest to the merits of the junior high school at this time in history (Bossing & Cramer, 1965; Briggs, 1920; Gruhn & Douglass, 1956; Koos, 1927; Van Till, Vars, & Lounsbury, 1961).

However, junior high schools had their critics. In 1945, Douglass, an early advocate of the junior high, wrote that the junior high had persistent problems. These problems included a curriculum that was too subject-centered, teachers who were inadequately prepared to teach that level of schooling, a curriculum that was characterized as teacher- or textbook-controlled, and students who were tracked (pp.112-120). A convergence of events led to the growing dissatisfaction with the junior high school plan. In 1954, the Supreme Court ruled against school desegregation. A growing burden was placed on the school plant, and by 1971 schools were required to reorganize their facilities just at the very time they were experiencing an influx of elementary school children (George, Stevenson, Thomason, & Beane, 1992). In 1957, Russia beat the United States in its race into outer-space by launching Sputnik. This caused critics to indict the schools for not keeping up with technological advances. Grade reconfiguration and curricular changes were inevitable (Kindred, Wolotkiewicz, Mickelson, Coplein, & Dyson, 1976). Concern for the academic program was mounting. The ninth grade curriculum needed to focus more on college preparation. In effect, junior high schools were becoming preparatory secondary schools (Alexander, 1984; Conant, 1960; Moss, 1969).

Educators began to reorganize schools for 10-15 year old adolescents into a middle school concept of schooling. In 1970 the Midwest Middle School Association (MMSA) was formed. Perhaps somewhat skeptically, Lounsbury and Vars (1978) reported that “many middle schools were ‘created’ on purely administrative grounds, some almost solely in an attempt to appear ‘innovative’” (1978, pp.21-22). Nevertheless, in 1973 MMSA expanded and became the National Middle School Association (NMSA). Its position paper on the middle school concept is currently in its fourth edition. Entitled

This We Believe:

Successful Schools for Young Adolescents (NMSA, 2003), NMSA identifies eight characteristics and six program components that “delineate a vision of what developmentally responsive middle schools could be and should be” (p.10). These fourteen identifications include:

1. Educators who value working with this age group and are prepared to do so.
2. Courageous, collaborative leadership.
3. A shared vision that guides decisions.
4. An inviting, supportive, and safe environment.
5. High expectations for every member of the learning community.
6. Students and teachers engaged in active learning.
7. An adult advocate for every student.

8. School-initiated family and community partnerships.
9. Curriculum that is relevant, challenging, integrative, and exploratory.
10. Multiple learning and teaching approaches that respond to their diversity.
11. Assessment and evaluation programs that promote quality learning.
12. Organizational structures that support meaningful relationships and learning.
13. School-wide efforts and policies that foster health, wellness, and safety.
14. Multifaceted guidance and support services. (NMSA, 2003, p.11)

In his study of the middle school, Eichhorn (1966) proposed that a radical review of the school district's organizational pattern be initiated. The proposal affected every aspect of schooling: (a) that school plants be available so that the middle school philosophy can be developed, (b) that funds be available commensurate with the educational requirements of the middle school concept, (c) that the department of education in each state help meet the increased costs, and (d) that a plan be devised for "certification standards for teachers serving this level" (Eichhorn, p.104).

The organizational structure of middle schools differs to the degree to which the components recommended for middle schools are manifested. For example, the dominant grade structure of middle schools today is a 6-8 pattern. Recent critics have leveled harsh evaluations against the middle school movement leading some school districts to re-evaluate their grade-span configuration. Twenty years ago the National Association of Secondary School Principals (1985) got it right with regard to the middle school: "The organization of the school should contribute to a sense of belonging on the part of the people who work and learn there, and should mitigate against anonymity and alienation from the primary mission of the school" (p.11).

A sense of belonging is critical for ensuring healthy middle school environments that promote high student achievement. There are several studies which have indicated links between the principal's leadership style and healthy climates that improve schools (Dalin, 1996, Leithwood, Janzti, & Steinbach, 1999). Principals who are committed to improving schools via positive, healthy, and open climates use participatory approaches to promote a reconceptualization of the roles and responsibilities of teachers (Murphy, 1991). This approach considers teachers to have expertise in understanding the purpose, function, and activities of school goals and processes. Watkins, Cox, Owen, and Burkhardt (1992) state that using the expertise of teacher teams to plan, make decisions, and evaluate programs is the most effective means to address systemic school change and to improve the school environment. This is accomplished by expanding teacher responsibilities and establishing stronger roles for teachers in organizational decision making.

School leaders acting in this mode try to use power with or through other people, rather than exercising control over them (Bush and Glover, 2003). Sergiovanni (1992) describes this as a moral art and suggests that these leaders manage people within existing structures and then purposefully impact the climate to change and improve the organization. Bass (1997) describes these leaders as people who promote inspirational motivation, intellectual stimulation, and individualized consideration for students, teachers, and parents.

A recent overview of leadership research (Leithwood et al., 1999) revealed that a principal's success in promoting a healthy school climate is strongly related to teachers' and students' positive perceptions of the principal's effectiveness. These perceptions are based on the core leadership activities of setting directions, developing people, and building relationships with the school community. Principals gain followers among stakeholders by developing and nurturing shared values which in turn creates a positive organizational climate. These leaders move beyond their self-interest by promoting school climates that provide opportunities for feedback and input without fear of reprisal. Principals who are successful in transforming their school climates typically have high moral and ethical values, express genuine interest in followers, and as a rule practice participatory decision-making (Homrig, 2001). These leaders build genuine trust with their teachers, students, and parents, and gain followership through interdependent work relationships that are centered on common purposes, rather than their positional authority (Liontos, 1992).

### Theoretical Framework

The social systems movement in organizational theory laid the foundation for the theoretical framework used in this study. Parsons (1958) suggested that schools exert three levels of control over activities—technical, managerial, and institutional. A healthy school, therefore, is one in which all three levels of control work in harmony.

Tagiuri (1968), along with Hoy and Miskel (1996), defined the organizational climate of a school as the set of internal characteristics that distinguishes one school from another and influences the behavior of its members. In more specific terms, school climate is the relatively stable property of the school environment that is experienced by participants, affects their behavior, and is based on their collective perceptions of behavior in schools. Subsequently, the theoretical framework used in our study is based upon Hoy and Feldman's (1987) concept of organizational health, which is a mixture of organizational theories from education and sociology (Parsons, Bales and Shils, 1953). Hoy and Hannum (1997) posited that healthy schools "successfully adapt to their environments, achieve their goals, and infuse common values and solidarity into the teacher work group" (p. 293). A number of studies by other researchers and reformers have also successfully linked healthy school climates to improved learning environments and increased student achievement (Bossert, 1988; Comer, 1980; Grosin, 1991; Hoy, Hannum & Tschannen-Moran, 1998; McPartland, Balfanze, Jordon & Legters, 1998; Purkey & Smith, 1983; Stedman, 1987).

Hoy and Feldman's (1987) utilize Parsons' concept of organizational health, as defined by three levels of control—the technical, managerial, and institutional—that combine to create a healthy school. The technical level defines issues related to a school's academic emphasis and the affiliation of its teachers, inclusive of job satisfaction and a commitment to colleagues and students. At the managerial level issues of leadership, principal influence, and resource support are at work. The level of institutional integrity is described as "the degree to which the school can cope with environment in a way that maintains the educational integrity of its programs" (Hoy & Hannum, 1997, p. 294).

### Methodology

Our interest in the relationship between student achievement and organizational health led us to employ a mixed methods research design. Our assumption follows Creswell (2003) that "collecting diverse

types of data best provides an understanding of a research problem” (p. 21). Specifically, we employed Creswell’s sequential explanatory strategy in designing our data collection and analysis procedures.

Following a mixed methods design, the unit of analysis is a group of five middle grades schools in two school districts in southeastern United States. Using the Organizational Health for Middle School (OHI—M) inventory (Hoy, n.d.), quantitative data were collected from teachers and principals in these schools over the 2004-2005 (n = 202) and 2005-2006 (n = 169) school years. The OHI-M inventory measures the organizational health of a school on the technical, managerial and institutional levels. The OHI-M instrument is the product of more than a decade of research and development (Hoy, Tarter, & Kottkamp, 1991).

In order to probe more deeply the responses from the inventory, qualitative data were collected through semi-structured interviews. Finally, demographic data, along with math achievement data for the schools were collected from the state’s report cards (North Carolina School Report Card, 2006). Demographically, the five schools had a similar mix of majority/minority students, students with disabilities, and non-economically disadvantaged versus economically disadvantaged students for the study (See Table 1).

Table 1

2004-2005 School and Student Demographics

| School                               | Arion | Bacchus | Canola | Decuma | Emer |
|--------------------------------------|-------|---------|--------|--------|------|
| Total No. Teachers                   | 33    | 53      | 62     | 46     | 55   |
| With Advanced Degrees                | 24%   | 28%     | 29%    | 17%    | 11%  |
| Years Teaching Experience: 0-3 years | 21%   | 28%     | 24%    | 35%    | 16%  |
| 10+ years                            | 49%   | 45%     | 52%    | 37%    | 46%  |
| Number of Students:                  | 391   | 904     | 931    | 632    | 896  |
| Black                                | 55.5% | 10%     | 51%    | 33%    | 18%  |
| White                                | 38%   | 83%     | 38%    | 55%    | 77%  |
| Multi-Racial                         | 5%    | 4%      | 3%     | 3%     | 3%   |

|                            |      |     |     |     |     |
|----------------------------|------|-----|-----|-----|-----|
| Hispanic                   | 0.8% | 2%  | 6%  | 7%  | 1%  |
| Economically Disadvantages | 64%  | 34% | 55% | 66% | 45% |
| Students with Disabilities | 19%  | 11% | 15% | 15% | 13% |

### The Pearson

r correlation coefficient was used to compare the standardized overall OHI-M scores and OHI-M subtest scores for the five schools with student math achievement results. Critical Pearson r values were used to determine the significance of the relationship between student math achievement results and overall OHI-M scores (see Appendix).

Qualitative data were collected during semi-structured interviews with five principals and five to seven teachers in each middle school (n = 36). The participants offered general statements about teaching in their schools, the importance of academics, leadership, and issues related to family and community. The qualitative strategies included triangulation of survey responses with interviews, use of verbatim statements, and application of low-inference descriptors.

## Findings and Discussion

Data from the OHI-M survey and math achievement scores from the five schools were collected and compared to determine if school health is related to student academic performance as indicated in student math scores. Student standardized end-of-grade math scores provided a means for comparing math achievement with outcome data from two OHI-M survey administrations. Our findings indicated interesting patterns across two of the possible three levels of control outlined by Hoy and Feldman (1987) in their concept of organizational health. Specifically, control at the managerial level and control at the institutional level. Four of the six OHI-M dimensions (collegial leadership, principal influence, resource support at the managerial level, and institutional integrity at the institutional level) were compared to 2005 and 2006 math scores. At the managerial level, collegial leadership refers to the principal's behavior, principal influence is the principal's ability to influence the action of superiors, and resource support is the extent to which classroom supplies are available for teachers. At the institutional level, institutional integrity refers to the degree to which the school can maintain the integrity of its educational programs (Hoy & Tarter, 1997, p. 32).

As is usually the case when collecting data through interviews, we began with a grand tour question. In our case, we simply asked, "tell me what it's like to be a teacher/principal at this middle school." Predominately positive responses, we heard from each school descriptors such as enjoyable, wonderful, fulfilling, rewarding, fun. One participant stated, "Oh, gosh, I love it," which captures the positive feel our participants have for their schools. Their sentiments included references to working with supportive administration, staff, and students. It must be said that each school, too, had at least one person who used the word, "challenging," in reference to working at the school. We report this as a backdrop for the presentation and discussion of our findings. For the most part we encountered very up-beat, enthusiastic teachers and principals.

## Managerial Level

In this study we compared OHI-M index scores with 2005 and 2006 math scores from the five schools. The managerial OHI-M scores for 2005 are presented in Table 2.

Table 2

Overall Health Index Collegial Leadership (CL), Principal Influence (PI), Resource Support (RS), Subtests, Standard Deviations and Math Scores: 2005

| School  | Collegial Leadership | SD    | Principal Influence | SD   | Resource Support | SD   | 2005 Math Scores |
|---------|----------------------|-------|---------------------|------|------------------|------|------------------|
| Arion   | 609.6339             | 1.09  | 409.5100            | 0.27 | 457.9051         | 0.46 | 79.5             |
| Bacchus | 474.4887             | -0.26 | 526.7857            | 0.23 | 539.5457         | 0.01 | 72.4             |
| Canola  | 611.3267             | 1.11  | 566.7252            | 0.13 | 545.5653         | 0.01 | 84.1             |
| Decuma  | 554.2305             | 0.54  | 552.1514            | 0.29 | 532.9036         | 0.48 | 80               |
| Emer    | 493.2914             | -0.07 | 595.1106            | 0.01 | 482.0200         | 0.02 | 89.9             |

Three of the five schools' OHI-M scores (Arion, Canola, Decuma) were above the mean on collegial leadership in 2005 with standard deviations ranging from -0.07 to 1.11. Two of these schools (Canola, Decuma) had the second and third highest math scores in 2005. One of these schools (Canola) had the highest collegial leadership score in 2005. Four of the five schools' 2005 OHI-M scores were above the mean on principal influence with standard deviations ranging from 0.01 to 0.23 (Bacchus, Canola, Decuma, Emer). One school (Canola) had the second highest principal influence score and the second highest math score in 2005. Three of the five schools had resource support scores that were above the mean with standard deviations ranging from 0.01 to 0.48 (Bacchus, Canola, and Decuma). One school (Canola) had the highest resource support score and the second highest math score in 2005.

The 2006 OHI-M dimensions and math scores are presented in Table 3. The 2006 comparisons revealed that five of the schools had collegial leadership scores ranging from 0.51 standard deviations below the mean to 0.37 standard deviations above the mean. The school with the highest collegial leadership score (Arion) had the lowest math score in 2006. Four of the five schools (Arion, Bacchus, Canola, Decuma) had principal influence scores below the mean with standard deviations ranging from 0.07 to 0.28. The school with the lowest principal influence score (Decuma) had a 2006 math score



below 50%. Three of the five schools (Arion, Decuma, Emer) had resource support scores below the mean with standard deviations ranging from 0.07 to 0.44. The school with the highest 2006 resource support score (Bacchus) had the highest 2006 math score. In general, the analysis revealed that higher OHI collegial leadership scores appear to be related to lower math scores. Conversely, higher resource support scores appear to be related to higher math scores.

Table 3

Overall Health Index Collegial Leadership (CL, Principal Influence (PI) & Resource Support (RS) Subtests, Standard Deviations and Math Scores: 2006

| School  | Collegial Leadership | SD    | Principal Influence | SD   | Resource Support | SD   | 2006 Math Scores |
|---------|----------------------|-------|---------------------|------|------------------|------|------------------|
| Arion   | 537.6391             | 0.37  | 485.2685            | 0.28 | 466.7739         | 0.44 | 36               |
| Bacchus | 485.4832             | -0.15 | 497.7089            | 0.07 | 570.3965         | 0.09 | 68.4             |
| Canola  | 489.4176             | -0.11 | 443.5808            | 0.62 | 547.0160         | 0.79 | 56.4             |
| Decuma  | 510.5121             | 0.10  | 418.2247            | 0.21 | 440.1060         | 0.43 | 49.7             |
| Emer    | 449.5957             | -0.51 | 516.0377            | 0.10 | 493.1559         | 0.07 | 56.8             |

Table 3 reveals precipitous decreases from 2005 math scores to 2006 math scores. It is important to note that revised middle school math tests were administered beginning in the 2005/2006 school year (North Carolina State Board of Education, 2006). The revised mathematics assessments for the 2005-06 school year included higher middle school math achievement levels and additional content areas. The new math standards decreased student math performance and impacted AYP results in the majority of North Carolina middle schools.

While it has been established that the principal's influence on student learning is indirect at best (Hoy & Hannum, 1997), qualitative findings map teachers' experiences at the managerial level. Specifically, data revealed the effect of collegial leadership and principal influence in top down teams and resource support on student achievement, both positive and negative.

Top down teams? We know that interdisciplinary teaming of teachers is an earmark of the developmentally responsive middle grades school (National Middle School Association, 2003). The teams we found to be operative on a managerial level, however, were the School Improvement Teams (SITs) responsible for guiding the School Improvement Plans of the schools. The No Child Left Behind Act of 2001 was the driving force behind the creation of the School Improvement Plan process. The

main purpose of the school improvement plan is “to improve the quality of teaching and learning in the school, so that greater numbers of students achieve proficiency in the core academic subjects of reading and mathematics” (North Carolina LEA and School Improvement Non-Regulatory Guidance, 2006, Section C, par 2). School improvement plans are meant to be comprehensive, and focused primarily on the instructional program.

As collegial leaders, principals set the tone for the school by establishing fair and equitable expectations, and by coordinating the work effort. As one participant said,

“I was on the School Improvement Team and I felt like I was a part of the decision making. But, then there were those certain situations that no matter what we would have said as a team, it was going one way or the other—pretty much whichever way the administration wanted to go.” In answer to the question “how are decisions made at your school,” the overwhelming majority of participants in this study responded that in the end their principals made the final decisions. Even so, the notion of a “shared responsibility” for decisions was present. It was reported that at each of the schools there is an active School Improvement Team (SIT), made up of administrators, faculty members, and in some cases, parents.

Principals noted that the SIT team helped them focus on curricular issues. The Principals made it clear that the SIT team was not meant to deal with administrative issues such as “kids chewing gum or eating candy, replacing old desks, etc.” Teachers reported on their experiences of the SIT team in positive, yet general terms. For example, one teacher stated, “I have yet to see a decision made that affected us as teachers that our input wasn’t factored in.” Except for three, at three different schools, teachers reported that they had opportunities to serve on their school’s SIT team and that offered them the avenue to make significant contributions. The two who dissented from this qualified their response by admitting that they were aware that their colleagues were satisfied with the level of input available through SIT team participation.

We found that when we probed the issue of decision-making, specifically, significant contributions they feel they have made to the mission and vision of their middle grades schools, we received limited single responses. While a few said it “depended on who you asked,” more participants reported that they believed that they had contributed to the mission and vision of the school. And, that they had contributed significantly to changes that have been implemented in the recent past. Such changes include the following:

T – One of them would be in technology. Teachers saying that we’ll do more training [in technology]. The administration said, ‘yeah,’ we’re going to make this part of your growth plan.

T – Our remediation class came straight from the staff as a need. We needed to have time during our day to remediate.

T – We got to vote on the schedule that we’re going to have next year. There were three different schedules. It was put to a vote. I think that’s a pretty big decision to make. How we’re going to spend our day. We got to choose which one we wanted.

P – They are the ones who have come up with the new electives.

Two teachers mentioned input that directly impacted their role in instruction.

T – Ultimately decisions are made at the top, but, they ask us for our guidance...we're the ones that have the hands-on with the kids each day, so you know we have that opportunity to decide what we're going to teach and how we're going to teach it.

T – Teachers definitely have a say in what they teach—their subject and their curriculum.

Probing more deeply on this, one principal owned a share in the responsibility for those teachers in the school who did not feel they had a voice. On the other hand, we heard a realistic understanding on the part of the teachers just how much input they can realistically have, as the following data indicates.

P – I do think that some folks don't think that they have a voice. And I think a lot of it is, maybe my fault in not advertising the fact more that they do have a voice saying, "Please go to the meetings." Instead of just saying where it is, saying, "I'd like you to attend. Please come." But I think some folks don't think they have a voice for whatever reason. But in my experience most schools you're going to have a mixture of opinions on that.

T – Some things can't be discussed. [Principal] has got to say it the way it is because it comes down from the county and it has to be implemented. But when there is flexibility or give there, then [Principal] works with staff to present options.

T – Teachers definitely have a say in how they teach their subject and their curriculum. Sometimes teachers don't quite understand that there are protocol that has to be followed, and they would much rather—they're such individuals—that they would much rather be the one controlling the whole show. And we have some very, very strong, very creative teachers here that would rather be doing their own thing and it gets frustrating for them when they can't.

## Resource Support

Using the organizational health framework, Hoy and Hannum (1997) established a direct link to student academic performance on the dimensions of teacher affiliation, academic performance, and resource support. Indeed, one of our participants, a principal, instinctively reflected the connection: "I was not able to do everything last year that I could do the year before. Is that why we dropped in ratings? Probably no. But it was probably a factor." When asked if they had sufficient resources to perform their jobs, the overwhelming response was, as one participating teacher put it, "I would say 'yes' in general. I've never been told 'no' when I've asked for something. So I feel like if I need something I can ask for it and get it." In saying, yes, some referred to the technology that was available—computers, projectors, printers, paper, and so forth. The few who answered, "no," also referred to technology as that which lead them to their negative response—they did not feel they had enough technology to do their jobs. One participant, however, provided a deeper insight into the connection between resource support and student achievement.

The quantity [of resources] is not lacking. I've been trying to move our quality towards something that is more appropriate for our student body, which hasn't changed too much. Breaking a class into a group of seventh graders who just turned off hardcore rap on their way to school. The connections for them are hard to bridge.... We need to look at what we have and how we can ease them into where we want

them to go. We have a lot of stuff and we need to continue to look at what it is and look up the quality of it for our kids.

Resource support refers primarily to the availability of classroom supplies and instructional materials. And, as we all know, inadequate funding can be a stressor. So, we probed the issue and asked about the stressors that face the schools today. Funding did not come up. Rather, we heard a variety of stressors faced by each school. Issues related to working with young adolescents included unmotivated students, hormones, drug use, racial tensions, diversity, and reading levels. The biggest student stressor shared by all the schools was discipline and behavior problems.

Stressors related to instruction included NCLB testing, inclusion, overcrowded classes, facilities, and transition from elementary school programs. A school-related stressor, and one shared across schools, is the lack of parent support and/or participation in the instructional program.

### Institutional Level

At the institutional level Hoy and Hannum (1997) describe institutional integrity as “the degree to which the school can cope with its environment in a way that maintains the educational integrity of its programs” (p. 294). Institutional integrity measures the degree to which a school is able to continue its mission unhindered by the groups it most immediately serves—parents and the local community. The schools in our study show healthy institutional integrity levels.

The 2005 OHI-M scores for institutional integrity are presented in Table 4. The 2005 institutional integrity scores revealed that all five schools were above the mean with standard deviations ranging from 0.23 to 0.57. The three schools with the highest institutional integrity scores (Emer, Decuma, Canola) had the highest math scores in 2005. The schools with the highest institutional integrity score (Emer) also posted the highest math score in 2005. The school with the lowest institutional integrity score (Bacchus) had the lowest math score in 2005. The data analysis revealed in general, schools with higher institutional scores had higher math achievement results.

Table 4

Overall Health Index Institutional Integrity (II) Subtests, Standard Deviations and Math Scores: 2005

| School  | Institutional Integrity | SD   | 2005 Math Scores |
|---------|-------------------------|------|------------------|
| Arion   | 555.2391                | 0.57 | 79.5             |
| Bacchus | 522.3404                | 0.23 | 72.4             |
| Canola  | 562.8228                | 0.40 | 84.1             |

|        |          |      |      |
|--------|----------|------|------|
| Decuma | 584.0599 | 0.35 | 80   |
| Emer   | 598.0686 | 0.23 | 89.9 |

The 2006 OHI-M scores for institutional integrity are presented in Table 5. All five schools' institutional level OHI scores in 2006 were above the mean with standard deviations ranging from 0.09 to 0.28. The school with the highest 2006 institutional level OHI score (Arion) had the lowest math score in 2006. Three of the five schools' (Bacchus, Canola, and Emer) institutional level OHI scores appeared to be related to higher math scores. The school with the second highest OHI score (Emer) had the second highest math score in 2005.

Table 5

Overall Health Index Institutional Integrity Subtests, Standard Deviations and Math Scores: 2006

| School  | Institutional Level | SD   | 2006 Math Scores |
|---------|---------------------|------|------------------|
| Arion   | 660.0382            | 0.28 | 36               |
| Bacchus | 581.7123            | 0.09 | 68.4             |
| Canola  | 573.3426            | 0.21 | 56.4             |
| Decuma  | 534.6228            | 0.28 | 49.7             |
| Emer    | 584.0426            | 0.09 | 56.8             |

The constructs of parent and community involvement are complex with many definitions and perspectives on ways parents and others could and should be involved in schools. Two things are at work in schools. On one hand schools try to involve parents and the community in their endeavors. On the other hand schools must protect themselves from unreasonable pressure and demands made by stakeholders outside the school (Hoy & Ferguson, 1985).

Of particular interest is the data we received regarding perceptions participants had of being buffered from unnecessary demands made by the school district (i.e., superintendent, school board, and so forth) or by other community organizations that are closely linked to the school. This confirms the data received on the OHI-M inventory—participants confirmed healthy institutional integrity at their schools.

The Principal knows when things are unfair and is vocal about it. Sometimes even though we know s/he can't change it, just hearing the fact that s/he knows, it makes a big difference. It feels like s/he is on board with us.

There are things I wish I did know. I think s/he may have interactions with parents of some of my students that I don't hear about until I've contacted the parent about something. I almost wish there was that reciprocity where if you have to deal with the parent, you tell me.

If a parent is coming out and asking for things or coming out to yell at us, or to be angry and disgruntled, [Principal] meets with them first and dissipates things.

I think [Principal] is sensitive to the morale of this school. And I think if there was something that s/he felt we needed to know, s/he would tell us. I think if there was something that ... really wasn't necessary to involve us with it, then s/he wouldn't.

Only one teacher in one school shared an opposite opinion: "I don't think we're buffered by our principal. I think we're on our own if anyone is pressuring us."

As noted earlier (see Resource Support), participants in this study reported a serious lack of parent involvement in their schools. When asked if parents make unreasonable demands, most participants answered "no." A few reported, "yes," there were unreasonable demands—for example, a request to solve a neighborhood problem that was not school related. On the whole, participants registered a realistic response on whether parents make demands on teachers that are perceived to be unreasonable as shown by this teacher: "There are a few who do [make unreasonable demands]. There's a few who would like to blame us for everything that goes wrong. But again, you are not going to make everybody happy all the time."

The desire for parent involvement included positive and negative aspects. Participants offered many ideas about the positive nature of parent involvement, such as,

- Engenders student pride in family and school
- Forms a unified team of school and home
- Rejuvenates teachers
- Provides another level of support and encouragement for students
- Provides opportunity to education family/parents
- Assists family in tracking student progress (homework, tests, and so forth)
- School begins to reflect community ownership

Likewise, participants articulated some negative aspects of parent/family involvement.

- Results in student disappointment when family does not participate
- Parents are not objective about their children
- Parents make unreasonable demands and ridiculous complaints
- Negative consequences at home when teachers contact families

As noted by NMSA (2003), “successful schools for young adolescents are characterized by a culture that includes school-initiated family and community partnerships” (p. vii). We asked our participants to describe community involvement at their schools. Table 6 summarizes their responses.

Table 6

School and Community Partnerships

| School Based  | Community Based   |
|---|---|
| Volunteer and participate in community events (e.g., neighborhood clean up, visit senior centers) | Local agencies (e.g., Boys/Girls Clubs, churches) sponsor programs (anger management, sexual harassment seminars) |
| Sponsor PTA   | Participate in school fundraisers   |
| Allow school facility to be used by community organizations                                       | Local business sponsors school events   |
| Provide sports and entertainment  | Volunteer in schools to tutor   |
| Sponsor family and community dinners  |   |
| Educate and produce thinking citizens   |   |

The Pearson

r correlation coefficient was used to compare the OHI-M scores for the five schools with student math achievement. Table 7 presents the r correlation coefficient for the five schools’ overall OHI-M Index subtest scores and math scores for 2005 and 2006.

Table 7

|           | Collegial Leadership Index Score | Principal Influence Index Score | Resource Support Index Score | Institutional Integrity Index Score |
|-----------|----------------------------------|---------------------------------|------------------------------|-------------------------------------|
| 2005 Math | r = -0.29                        | r = 0.38                        | r = -0.19                    | r = -0.16                           |

| Scores           | Weak, negative relationship                | Weak, positive relationship             | No relationship                           | No relationship                              |
|------------------|--|---|---|--|
| 2006 Math Scores | r = -0.70<br>Strong, negative relationship | r = 0.29<br>Weak, positive relationship | r = 0.77<br>Strong, positive relationship | r = -0.55<br>Moderate, negative relationship |

#### Overall Health Index Subtests and Math Score Correlations: 2004-2005 & 2005-2006

Quantitative comparisons revealed a weak negative relationship between aggregate collegial leadership scores and math scores in 2005. The comparisons showed a strong negative relationship between the five schools collegial leadership scores and math achievement results (as OHI-M indicators increase, student math scores decrease) in 2006 that was not significant ( $r = -0.70, p > .05$ ). The highly negative collegial leadership scores could be creating obstacles for teachers and adversely affecting student achievement. This might explain why student math scores are not at high percentile levels.

The qualitative evidence supports the inverse relationship between the schools' collegial leadership and student achievement: "Ultimately decisions are made at the top, but, they ask us for our guidance...we're the ones that have the hands-on with the kids each day, so you know we have that opportunity to decide what we're going to teach and how we're going to teach it." And, when asked "how are decisions made at your school," the overwhelming majority of participants in this study responded that in the end their principals made the final decisions.

The quantitative findings revealed a weak, positive relationship between principal influence and student math scores for 2005 ( $r = 0.38$ ) and 2006 ( $r = 0.29$ ). Principal influence is the principal's ability to influence the action of superiors to receive consideration and support for the local school (Hoy & Tarter, 1997, p. 32). The weak, positive correlational results for principal influence are congruent with the lack of qualitative responses about budget or funding. Teachers did not mention or express any concerns about budgeting or funding support from their local principals' supervisors or their district offices.

The quantitative analysis revealed a strong, positive relationship between OHI-M resource support indicators and student math scores that was not significant for 2006 ( $r = 0.77, p > .05$ ). Participants' qualitative responses on issues such as technology, scheduling, and instruction supports the strong relationship between resource support and student math achievement: "...in general. I've never been told 'no' when I've asked for something...I feel like if I need something I can ask for it and get it." Some teachers referred to the technology that was available—computers, projectors, printers, paper, and so forth. The few who answered, no,' also referred to technology as that which lead them to their negative responses more training [in technology].

Institutional integrity is the ability of the school to remain relatively independent from external interests and influences (Hoy and Tarter, 1997, p. 31). The quantitative analysis revealed no relationship between aggregate institutional integrity scores and math scores in 2005 (-0.16) and a moderate



negative relationship in 2006 (-0.55). As presented previously, teachers' qualitative responses on institutional integrity were mixed: "There are things I wish I did know...I think she (the principal) may have interactions with parents of some of my students that I don't hear about...I almost wish there was that reciprocity where if you (principal) have to deal with the parent, you (principal) tell me. When asked about protecting teachers from unreasonable parental demands, one respondent stated: "If a parent is coming out and asking for things or coming out to yell at us, or to be angry and disgruntled, [Principal] meets with them first and dissipates things." One teacher stated that: "I don't think we're buffered by our principal...we're on our own if anyone is pressuring us." The institutional integrity correlational results and qualitative responses indicate a need to establish controls to protect the school environments from negative external forces and communication channels to promote positive interactions between teachers and parents.

### Further Investigation

In this paper we focused upon two levels of control in the organizational health framework that combine to create a healthy school—managerial (collegial leadership, principal influence, and resource support) and institutional (institutional integrity). In particular we queried over the link these two dimensions have to student achievement in math. In light of the data, further investigation is warranted.

At the managerial level, the quantitative analysis and participants' qualitative responses revealed specific negative connections between collegial leadership and student math achievement. The data analysis indicated a nonexistent to weak relationship between principal influence and student math scores. The aggregate correlational results and overall qualitative responses indicated strong resource support for teachers in the five schools and this was reflected in higher student math achievement.

Some of the respondents referred to a lack technology as a resource support barrier to effectively performing their jobs as teachers. The RAND Institute has confirmed the need to improve instruction using technology in public schools (Glennan & Melmed, 1996). Despite the rapid growth in technology in public education, many schools still make limited use of computers and substantial numbers of schools have very limited access to technology of any kind. Resource support for teacher training in, knowledge of, and attitude towards technology and related skills is critical to ensuring effective technology integration in the classroom (Waddoups, 2004). In the current era of accountability, further research into the linkages between resource support and student achievement will provide useful information for educational leaders who are committed to transforming schools to meet federal and state academic standards

At the institutional level, the quantitative and qualitative results were mixed for 2005 and 2006. The correlational analysis indicated no relationship for 2005 and a moderate negative relationship between institutional integrity and student math scores. The qualitative responses supported the moderately negative quantitative results with teachers stating: "Parents are not objective about their children... parents make unreasonable demands... (there) are negative consequences at home when we (teachers) contact families." The institutional integrity correlational results and qualitative responses indicate a need to conduct additional research to support principals in establishing controls to protect the school environments from negative external forces and at the same time create communication channels to promote positive interactions between teachers and parents.

Recall that a healthy middle school climate is characterized by harmonious relationships among

students, teachers, and the principal (Hoy & Tarter, 1997, p. 33). The eight characteristics and six program components identified by the NMSA (2003) describe open, healthy, and supportive school climates. A healthy middle school climate emphasizes the importance of a shared vision, collaborative decision-making, and high expectations for all members of the school community. A middle school with a healthy school climate also establishes and maintains an inviting, supportive, and safe environment that values children in this age group. In addition, middle schools with healthy climates provide organizational structures that promote meaningful relationships, learning, and support services, and policies that foster wellness and safety. These characteristics and components support students' higher order skills and deepen their engagement in learning and school activities. This is accomplished collaboratively through the expertise of all staff members to create instructional strategies and practices that compel students to be motivated to learn (Schlechty, 1997).

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[1] Pseudonyms are used for the schools.

### Appendix

#### Pearson r Significance Levels

| df | Levels of Significance |      |       |       |
|----|------------------------|------|-------|-------|
|    | .10                    | .05  | .02   | .01   |
| 1  | .988                   | .997 | .9995 | .9999 |
| 2  | .900                   | .950 | .980  | .990  |
| 3  | .805                   | .878 | .934  | .959  |
| 4  | .729                   | .811 | .882  | .917  |
| 5  | .669                   | .754 | .833  | .874  |
| 6  | .622                   | .707 | .789  | .834  |
| 7  | .582                   | .666 | .750  | .798  |
| 8  | .549                   | .632 | .716  | .765  |
| 9  | .521                   | .602 | .685  | .735  |
| 10 | .497                   | .576 | .658  | .708  |
| 11 | .476                   | .553 | .634  | .684  |

|    |      |      |      |      |
|----|------|------|------|------|
| 12 | .458 | .532 | .612 | .661 |
| 13 | .441 | .514 | .592 | .641 |
| 14 | .426 | .497 | .574 | .628 |
| 10 | .497 | .576 | .658 | .708 |
| 11 | .476 | .553 | .634 | .684 |
| 12 | .458 | .532 | .612 | .661 |
| 13 | .441 | .514 | .592 | .641 |
| 14 | .426 | .497 | .574 | .628 |
| 15 | .412 | .482 | .558 | .606 |
| 16 | .400 | .468 | .542 | .590 |
| 17 | .389 | .456 | .528 | .575 |
| 18 | .378 | .444 | .516 | .561 |
| 19 | .369 | .433 | .503 | .549 |
| 20 | .360 | .423 | .492 | .537 |

VN:R\_U [1.9.11\_1134]