Abstract: *Instructional reform is a difficult task that often leaves school leaders flustered with their results. Important questions arise as to the degree to which the cultures of schools undergoing instructional reform are related to measurable student engagement and achievement results. This paper studied schools that provided both School Culture Survey (SCS) response data and Instructional Practices Inventory (IPI) data. Using latent factor constructs that were tested by various LISREL 8.8 measurement models, school collaboration, teaming, and the rigor of schools' instructional improvement initiatives could all be tested to determine whether noteworthy relationships existed between these factors and school inputs and standardized test achievement. Testing such relationships provides the researchers with insight into the dynamic interchange between building level practices, instructional goals, and faculty collaboration with both school input and standardized achievement levels. Overall, the findings from the study were compelling. Input and achievement correlations were found to be strong, as were the relationships related to a wide assortment of school culture factors.*

Instructional improvement efforts are multifaceted, long term propositions that complicate the lives of educators. The importance of ensuring that public schools become, and remain, environments that foster educational excellence is a pressing priority on today's educational policy agenda. Effective and lasting instructional improvement cannot be accomplished by sheer legislative or central office mandate. Instead, instructional leaders must apply the practices and processes that are shown to effectively impact student engagement with

high levels of fidelity and a steady resolve.   Still, wider faculties are not passively exposed to these instructional improvement mechanisms.   They are instead tasked with executing the directives directly and actively within their classrooms. Such a process invariably involves individual teachers, but is by no means an individualized process. A reliably quantifiable set of findings that demonstrate the impact that instructional reform efforts exhibit on student engagement and achievement better informs instructional leaders of true nature of reform. Working from such knowledge, instructional leaders can then most appropriately focus their efforts as they revamp building-wide instructional quality over time.

Review of the Literature

1a: Community Enhancement-Compartmentalization of Information Tensions

To study the incorporation of instructional and curricular initiatives in schools requires a thorough understanding of the nature and extent to which public schools operate within the wider and more complex environment. Inflamed accountability-era sentiments can place community stakeholders squarely at odds with what is required of the instructional improvement programs. This can be profoundly beneficial in organizational settings such as public schools, where high levels of fragmentation can leave the wider community demands and expectations largely unmet. In their quest to help students, school leaders must focus as much on the institutions as they do the students (Griffith, 2003). This school improvement, notes Bowen et al (2007), is a "communal activity" but does not necessarily occur with the desired coherence and cogency that school leaders might hope for (p. 288). Ultimately, much of the tension involved with ambitious instructional reform efforts comes not from an opposition to its substance but due to a lack of communication that leaves too wide a disconnect to ensure operational coherency and smooth reform progress over time.

1b: Knowledge-Generated Initiatives

Knowledge management (Senge 1990), in which deliberate attempts to shape the knowledge base are undertaken (Buchel & Probst, 2000), can facilitate this diffusion of institutional knowledge and consequent functional efforts in organizations, public schools included. More specifically, Buchel & Probst (2000) write that "knowledge development complements knowledge acquisition by focusing on generation of new skills and know-how, better ideas, and more efficient processes" (p. 8). Such knowledge, when deemed to be important to organizational functioning, can be stored within the group's mental models and shared with other groups in the organization (Buchel & Probst, 2000). This suggests that the rationality inherent in data collection and reposition requires active collaboration among institutional members. Public schools are ultimately subject to wider environmental demands that must be addressed on the building-level scale. Instructional reform connotes notions of small administrative teams and instructional leaders selected to plan and carry out these efforts. Instead, however, faculty members act closely and in concert to set the reform tone within classrooms and across the wider building.

1c: Placing Instructional Improvement in a Proper Context

More so than most organizations, public schools are tightly bound to the larger communities within which they operate. Such external influences can place inescapable pressure on instructional leaders. Whether community expectations ultimately serve as a positive stimulus that drives improvement or is deemed as misinformed meddling, these outcomes dictate the breadth and sweep of the reform programs. The impact had on the wider school

environment must not, therefore, be overlooked when studying the full-fledged efforts at instructional reform. Schools that undertake holistic instructional reforms do so across classrooms, making the focus on the wider building context necessary.   That is, the reform instrument serves as the vehicle to generate instructional change but the people, structure, and culture of the wider school buildings will greatly dictate the rate and extent of these classroom-centered change programs.

2a: Administrative Governance

Alfred Chandler (1962) long ago captured the extent to which organizational leaders act as "busy men responsible for the destiny of the enterprise" (p 7). As organizations are governed by managerial leaders, the managerial theory of the firm stipulates that such leaders must respond to new organizational developments (Bartlett & Ghoshal, 1993).   While governance can appear to be detached to the extent that protocol and raw information, rather than leaders' intuition, dictate decision-making, it is nevertheless the case that "organizations do not have mechanisms separate from individuals to set goals, process information, or perceive the environment. People do these things" (Daft & Weick, 1984, p. 285). Along similar lines, schools' administrative teams play an important role in determining and guiding processes that ultimately require sustained faculty-wide commitment and resource inputs.

The interpretation, incorporation, and execution of information depends largely on administrators' objectives and the extent to which instructional leaders prioritize the importance of information that can stimulate organizational learning and change initiatives (Valentine, 2005; 2006; 2007; Daft & Weick, 1984). The organizational leaders, according to Daft & Weick (1984), can formulate responses that are predicated on such information. An evaluation of these

organizational capabilities and objectives is necessarily a subjective enterprise undertaken by organizational leaders, notes Fiol & Lyles (1985), as "organizations have leeway and choice in how they adjust to a changing environment and this leads to the capacity of organizations to learn over time" (p. 804). For public schools, a qualitatively different sort of governance dynamic is called for. Administrators must remain attuned to wider faculty needs and building level requirements. As important is their focus on research that highlights the best practices associated with successful instructional improvement efforts within school buildings.

2b: Learning Teams, Creative and Democratic

As has been demonstrated, organization-wide learning need not be restricted to the governance segment of the organization, but can also occur within learning teams or other holographic subunits (March, 1991). In schools, of course, the key actors are also situated toward the bottom of the hierarchical leadership rungs. Top-heavy reform efforts can, therefore, cause the reform program to topple were it to lack a strong semblance of collegiality and fully informed input from the entire faculty. Indeed, "an organization learns as its members interact dynamically with each other or with the organization's external environment, and experiences resulting from its dynamic interaction lead to more successful performance" (Deng & Tscale, 2003, p. 924). Though teachers are too infrequently designated as vital assets in the reform process, they are oftentimes the most knowledgeable of their building-level instructional needs. Moreover, these teachers tend to be the best positioned to effectuate the appropriate and most impactful reform strategies.

2c: Literature-Based Study of Collaborative Reform

After placing instructional reform in its proper theoretical and environmental context, it next becomes important to consider how these programs are put into effect within the walls of the school building. In this respect, the focus must turn to those who are responsible for giving the reforms their on-the-ground impact within each classroom of the school.   Spearheading these efforts are typically the school's administrative teams. Though school administrators are the most visible actors, and wield the final say in the reform process, it is ultimately the faculty teams who are entrusted with seeing the improvement efforts to a successful conclusion over the multiyear life of these programs. It becomes important, therefore, to consider in greater depth the dynamics of teacher teaming. More specifically, the collegiality and collective goal setting by the wider faculty has a say in the direction of instructional improvement and an important stake in its outcome. Classroom teachers, each of whom has her own individualized instructional styles and preferences, will be required to execute the more uniformly constituted improvement aims. The collective faculty strategies and goals that bring about such change must be studied in corresponding measures that capture the complexity of the busy and complicated reform dynamics for the large-scale enterprise that it is.

3a: Building Level Process Refinement

The more dated, yet seminal work of Herbert Simon (1952) suggests that "there are a great many things that can be said about organization in general, without specification of the particular kind of organization under consideration" (p. 1130). This contention appears to hold true for schools, which are institutions not unlike the many other organizations studied in organizational analysis and learning. The appropriate processes and structures for exacting organizational learning and change demand more than robotic routines based on organizational information. Instead, argue Fiol & Lyles (1985), "organizations can be designed to encourage

learning and reflective action-taking, but this generally means moving away from mechanistic structures" (p. 805). Rigidity can breed underperformance and disaffection in public schools. With this in mind, those public schools in which instructional leaders are able to enact more effective operational practices warrant the study of their improvement efforts that yield such favorable results.

3b: Collective Goal Orientation

Though instructional reform plays out in the classroom, building-level commitments to change are necessary. Ideal instructional improvement plans center around such a cooperative element. More specifically, before teachers can return to their classrooms with plans of reworking their instructional techniques, they must have not only contributed to informing the building-level reform plan beforehand, but fully committed to it, as well. This organizational adjustment, according to Fiol & Lyles (1985), is a "critical element of strategic management" (p. 811). Collective goal orientation can result from such learning, although the successful implementation of the initiatives generated by such goals has been found to be dictated by the level of associability within an organization (Leana & van Buren, 1999). Leana & van Buren (1999) define this associability as the "willingness and ability of participants in an organization to subordinate individual goals and associated actions to collective goals and actions" (p. 541). This underscores the importance of collective goal orientation that must result from, but that can also enhance, organizational learning. The applicability to public school settings of all types and circumstances is unmistakable. Hence, school leaders seeking to structure organizational learning, or to undertake aggressive and progressive change initiatives, would be well-advised to consider the potential of their broader faculty bases.

3c: Actionable Improvement Aims

The nation's public school systems are often deemed to be unwieldy and irrational bureaucracies. While schools are historically viewed as relatively inert institutional forms, they might resemble what Daft and Weick (1984) have termed to be "analyzer organizations." "Analyzer organizations" are concerned with retaining an insular core of activities that allows for organizational stability, while occasionally attempting innovative initiates when either the environment permits or demands such organizational experimentation (Daft and Weick, 1984). In the accountability era, rash administrative attempts to foster high-stakes initiatives can become the paramount objective within schools, at the expense of teacher creativity, and hence, at the wider organizational learning that can be geared toward meeting the needs of children (Bowen et al, 2007). Though public schools are large and historically-guided entities at their core, they must responsively evolve in manners that are more commonly known to the private sector entities. By virtue of adopting instructional reform efforts, school leaders display a certain nimbleness as they advance instructional improvement strategies that require new, transformative ways of reconfiguring outdated instructional techniques and practices.

3d: Sustained Change Initiatives for Survival

The longer that organizations undertake a course of action, the more likely new goals and positive outcomes will be actualized (Van de Ven & Polley, 1992). While innovation invariably prepares organizations for future needs, continuing prior organizational actions that were demonstrated to be successful is a common organizational practice, as well (Van de Ven & Polley, 1992). The external environment, and not just the operational history of organizations, largely dictates an organization's propensity to innovate, as threatening environments decrease the likelihood of innovation and experimentation to further an organization's quest for

advancement (Van de Ven & Polley, 1992). More prosperous times, on the other hand, make experimentation and innovation a more promising prospect for organizational leaders (Van de Ven & Polley, 1992).

3e: Organizational Survival

Schools, not unlike organizations in the private sector, have been forced to evolve if they expect to survive in the exacting environments in which they operate (Kuwada, 1998). While public sector organizations do not compete as vigorously as their counterparts in the private sector, they too face impending extinction if they remain inert. The prospect of the reconstitution of public schools, for instance, affects how and what schools organizationally learn, as well as how they execute such intelligence so as to actualize their goals. Kuwada (1998) notes that "most changes in organizations reflect simple responses to demographic, economic, social and political forces throughout the basic stable processes by which organizations act, respond to the environment, and learn" (p. 722). In public schools, this all unfolds with an urgency that influences a leadership psychology with a results-oriented slant toward ensuring organizational survival.

3f: Principal Stakeholders

The unit of analysis to be employed in organizational learning is a vitally important consideration of the researcher. Simon (1952) suggests that "human organizations would seem to qualify to a high degree as suitable units defining a level of analysis of systems of human behavior" (p. 1131). The researcher would be remiss if he disregarded Buchel's contention that it is the people within the organization, and their underlying and idiosyncratic motives and values that centrally comprise organizational learning. Data derived from classroom

walkthroughs, when merged with teacher impressions of their reform progress, best informs these data-driven enterprises. Principals and central office administrators who analyze and act upon the data from afar can create unneeded faculty confusion and resistance. As specifically applied to the IPI program, then, faculty possession of hard instructional information can provide building-wide knowledge and analysis that will serve as a springboard for these ambitious reform efforts.

3g: Testing the Bottom Line

Public schools, no different from other large institutions in the public and private sectors, are concerned primarily with their survival. The tightened educational standards in the accountability era lend heightened legitimacy to such concerns. Instructional reforms are guided by educators who must balance their concerns of promoting educational excellence with federal requirements that prescribe what these instructional leaders must accomplish within their buildings to remain free of sanction from one funding year to the next. Progress on the test score front, therefore, becomes imperative, though for reasons that are sometimes competing.

. Test scores have assumed the most prominent status among measurable educational outputs, by virtue of the repercussions that follow a school's deviance from AYP trajectories over time. As a result, the more general view of the instructional reform process must be told in the narrative of overhanging accountability pressure. A mere reliance of faculty-directed missions to better their instructional environments does not, after all, tell the full tale of reform. With or without pressure from administrators, faculties are all too aware that stagnant test score progress over time leaves them, at the very least, vulnerable to scathing public criticism. Additionally, formal sanctions also loom, making their instructional leaders' missions both a

purposively driven, but also a punitively guided enterprise. Below, this paper provides the substantive underpinnings of how these factors influence school leaders' attempts at meaningful instructional reform.

Methods

Research Questions:

      In an effort to probe the relationship between rational and protocol-oriented school practices and processes with those that involve heightened levels of faculty collegiality and interpersonal communication, the following research questions are advanced:

1) What is the relationship between the school culture and school improvement latent factors that represent the rational, technical means of approaching school improvement efforts on the measurable School Culture Survey responses?
2) What is the relationship between the school culture and school improvement latent factors that capture interpersonal, humanistic approaches to school improvement on the measurable School Culture Survey responses?
3) What is the relationship between the student engagement levels and faculty perceptions of the effectiveness of the Instructional Practices Inventory (IPI with building level practices and process captured by the School Culture Survey responses?

Instrumentation: The School Culture Survey

      The six factors of the SCS are identified as: (1) Collaborative Leadership, (2) Teacher Collaboration, (3) Professional Development, (4) Unity of Purpose, (5) Collegial Support, and (6) Learning Partnership. The SCS consists of 35 Likert-type questions with the following six accompanying response options to be selected by the survey respondents: "strongly disagree," "disagree," "somewhat disagree," "somewhat agree," "agree," and "strongly agree." The six SCS factors that comprise the SCS all employ this scale. Simply put, the higher the score that the

respondents assigned to the respective factors of the SCS, the greater was the respondents' affirming the presence of the factors within their respective schools.

Understanding the school's common mission and efforts to accomplish that objective was analyzed by the "Unity of Purpose" variable. The "Professional Development" variable describes the degree to which teachers "value continuous personal development and school-wide improvement" (Gruenert & Valentine, 1998). The degree to which teachers work together effectively, trust each other, value each other's ideas, and assist each other in their work toward the tasks of the school organization was measured by the "Collegial Support" variable. Additionally, the "Learning Partnership" variable of the SCS, which describes how well teachers, parents, and students share and communicate common expectations for student success was also tested within several measurement models.

The Instructional Practices Inventory

The Instructional Practices Inventory (IPI) is a process employed by classroom observers to ascertain the nature of student engagement across classrooms within a school. The IPI is comprised of "a set of observational categories complex enough to provide substantive data grounded in the knowledge of best practice (valid) yet easily understood and interpreted" (Valentine, 2007). The IPI instrumentation allows a trained classroom observer to collect scores of observational codes that capture student engagement behaviors for each school. The observation categories included in the IPI observation protocol are: (1) student disengagement, (2) student engagement in non-higher order activity without teacher participation, (3) student engagement in non-higher order activity with teacher support, (4) teacher-directed instruction,

(5) student engagement in higher-order classroom discussion, and (6) all other higher-order student learning.

Table One offers an explanation of each of the six coding categories. It is important to note that the higher-order categories ("5" and "6") represent desirable forms of student learning, whereas the lower-order categories ("1" and "2") represent less effective and generally undesirable, indefensible forms of student activity within classrooms. It is not always possible, nor desirable, for students to be engaged solely in higher-order activities, however. As such, categories "3" and "4" account for those moments during classroom instructional time when the teacher is primarily involved in informing and directing the students' activities in the classroom, as student engagement becomes mostly passive and inactive. This might come in the form of teachers informing students of certain tasks or logistical considerations or teacher-directed learning, both of which are inevitable components of effective teacher pedagogy and student learning.

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Insert Table 1 approx. here
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The Instructional Practices Inventory Survey

The Instructional Practices Inventory (IPI) survey questionnaire will be the primary instrument by which to capture data about the nature of the implementation of the IPI process. The IPI survey was constructed in collaboration with the developer of the IPI process to capture several environmental factors demonstrated to directly affect student performance. More specifically, the IPI survey seeks to ascertain the perceived levels of school trust, collective

teacher efficacy, teacher commitment, and the self-reported levels of importance that are placed

on academic achievement (Valentine, 2005; 2007; 2008).

Survey responses suggestive of school environments in which school leaders are mindful

and prospective in their mission, and desirous of improving the operational effectiveness and

academic excellence of the school, served as a proxy of faculty trust. Question 14 of the IPI

survey, for instance, while not restricted solely to such a consideration, captures elements of the

processes and practices in the public school environment. The level of faculty receptivity can

also be gleaned from several of the survey questions (Valentine, 2005; 2007; 2008). Finally, the

extent to which the survey respondents were convinced that the IPI was effectively being

employed within the schools and ultimately yielded material gains to both the quality of teacher

pedagogy and subsequent student learning serves as a sound proxy for teacher collective efficacy

(Question 14) (Valentine, 2007; 2008).

The survey questionnaire further captures the number of times and the duration that the

IPI practices were executed within a given school (Question 5) (Valentine, 2007; 2008). The

frequency and duration of IPI practices undertaken within schools serves as a proxy for the

extent to which the schools value academic achievement (Hoy, Tarter, & Hoy, 2006). For the

purposes of the present study, the extent to which the IPI is implemented with integrity is

assumed to be a robustly telling proxy that manifests other features of the school's culture and

climate (Valentine, 2007; 2008). More specifically, a good faith IPI implementation effort can be

equated with a school's desire to ensure that a challenging climate of academic excellence exists

at the building level (Hoy, Tarter, & Hoy, 2006). Furthermore, a consideration of the priorities of

the respondents, as they enumerate their objectives on the IPI questionnaire (Questions 14), serves as a telling indicator of the extent to which classroom instruction and student achievement is valued by the school, and can be considered to be an apt proxy for the fidelity of IPI treatment implementation (Hoy, Tarter, & Hoy, 2006).

Procedure

Population Sample

The School Culture Survey (SCS) was sent to all public middle schools in Missouri. The response rate was sufficiently robust to ensure that a representative sample of Missouri public middle schools were included in the study. Furthermore, the data from the 55 respondents that overlaps with schools that have undertaken the IPI process is also sufficiently large to ensure that more demanding statistical methodologies such as measurement modeling do not face model convergence complications.

School Culture-School Effectiveness Relationship

The vital importance of school culture in an organizational learning context warrants some discussion. Measuring a school's culture is an initial step toward enacting, refining, and guiding meaningful school improvement. Once school culture components are measured, the school's leadership team can then more actively and carefully involve faculty members in an analysis of the data and discussions that stimulate the sort of constructive conversations necessary to support a professional community. These learning environments contain leaders

who are capable of identifying problematic issues, addressing such issues, and allowing for progress to be made within the schoolhouse.

Structural Equation Modeling

Measurement modeling represents a statistical methodology that can accommodate the scope and breadth of the above-listed research questions. Simply employing a sophisticated and complex technique is, standing alone, insufficient to ensure that such research questions are properly addressed. A cautionary note is in order, however, as complex measurement models, when haphazardly constructed and employed, can produce meaningless, or worse yet, deceptive results. Measurement modeling was employed in the study for two principal reasons: (1) to measure the many phenomenon associated with school culture and effectiveness undertakings that are not readily observable and neatly aggregated into measurable and quantifiable constructs; and (2) to offer a methodological means upon which to compare, corroborate, and refine the school culture findings from the SCS and similar instruments that employ more rudimentary correlation and regression analyses.

The statistical relationship between the cultural underpinnings of a school, as measured by the latent factors constructs that incorporate the measurable survey item variables within the measurement models, as well as on acquired from the SCS, can offer an insightful investigation of the interplay between the more mechanical processes of school effectiveness efforts with the more humanistic attempts to include and empower the wider faculty. These latent factors were subjected to measurement modeling to determine if such factors were directly correlated with, and mutually influential upon, one another. LISREL 8.8 software was employed to perform path analysis on basic measurement models in an effort to determine whether the relationships

between the latent and measurable variables were sufficiently strong to enable causal inferences to be postulated with respect to whether the measurable, prescribed IPI practices directly affected those more imperceptible latent factors.

The import of the measurement modeling methodology for the purposes of the present study involves its statistical power, which enables the researcher to infer causal relationships while testing the relationship of variables to one another simultaneously, as opposed to running multiple analyses (Byrne, 1998; Conley, Muncey, & You, 2005; Kline, 2005). The latent factors in the measurement models included instructional practices ("Practice"), faculty teaming practices ("Teaming"), the rigor of academic and professional standards ("Rigor"), and the efficaciousness of school practices and processes ("Efficacy"). These latent factors are linked to measurable indicators that include multiple SCS questions designed to enable the researcher to quantitatively glean information about the schools' cultures, and the educational processes and practices at the building level.

Specific Measures

The designated latent factors within the measurement models were constructed to empirically address the theoretically-based research literature on organizational learning. More specifically, the School Culture Survey (SCS) enabled the researchers to construct latent factors that encapsulate the measurable SCS questionnaire items involving effective practices, teaming, the rigor of the instructional environment/accompanying school improvement initiatives, the efficaciousness of the wider faculty and administration, and the collaboration in activities other than those that incorporate teaming, to be tested under the measurement modeling statistical

framework. The designated latent factors, and the accompanying school-level practices and

processes that they were constructed to account for, are:

1) "*Uncontrol*" – this latent factor construct accounted for uncontrollable educational inputs such as the racial and socioeconomic composition of school populations. The uncontrollable input factor was designed to represent a latent factor that accounts for site-level variables that can inhibit the effectiveness and standardized achievement levels of public schools.

2) "*Achieve*" - this latent factor construct accounted for the multiyear MAP standardized achievement proficiency levels for schools. This construct is important in capturing a very desirable component of the school improvement process, the actual output associated with schools' effectiveness efforts.

3) "*HOT*" - this latent factor construct accounted for higher-order thinking and student engagement behavior within classrooms across schools included in the population sample. Compiled IPI observational data allowed for the incorporation of measurable percentages of higher-order student engagement to be accounted for in the measurement models.

4) "*LOT*" - this latent factor construct accounted for lower-order thinking and student disengagement within classrooms across schools in the population sample. Computed IPI observation data allowed for the incorporation of measurable percentages of students performing either non-higher order tasks or engaging in lower-order work with a disengaged classroom instructor.

5) "*Collab*" - this latent factor construct accounted for SCS items designed to capture the nature and extent of faculty collaboration within schools. The extent to which this latent factor is correlated with school inputs, student engagement, and standardized achievement were all tested in the study.

6) "*Efficacy*" - this latent factor construct accounted for SCS items designed to capture faculty efficacy levels within schools in the study's population sample. The extent to which this latent factor is correlated with school inputs, student engagement, and standardized achievement were all tested in the study.

7) "*Rigor*" - this latent factor construct accounted for SCS items designed to capture the rigor of educational curricula and standards associated with the educational achievement and excellence of the schools represented in the study. The extent to which this latent

factor is correlated with school inputs, student engagement, and standardized achievement were all tested in the study.

8) **"Teaming"** - this latent factor construct accounted for SCS items designed to capture the nature and extent of faculties' teaming practices within schools in the population sample. The extent to which this latent factor is correlated with school inputs, student engagement, and standardized achievement were all tested in the study.

9) **"Effective"** - this latent factor construct accounted for discrete SCS items designed to capture the those practices and processes that are known to yield effective educational outcomes within the public school setting. The extent to which this latent factor is correlated with school inputs, student engagement, and standardized achievement were all tested in the study.

Results

Fifty-five schools in the population sample provided student engagement data (comprising the "HOT" and "LOT" latent factor constructs) and SCS data. Additionally, of those schools who provided three or more IPI student engagement profiles, 39 also completed an IPI survey that captured the nature and extent to which the IPI process was perceived to be effectively incorporated at the building level (captured by the "IPI" latent factor construct). Figure One below provides a representative depiction of the several measurement models employed in the study.

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Insert Figure 1 approx. here

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The IPI-input relationship for higher-order thinking constructs, provided in Table Two, was determined to be negatively correlated, although to an unexpectedly modest extent (-.12 and -.22). Similarly, the higher-order thinking and student achievement relationship was also very

muted, (.09 and .18). The input-achievement correlations were determined to be very strongly correlated with one another in the negative direction (ranging from -.88 – -.93, p =.05). Such a finding was consistent and nearly identical across the several measurement model runs for both higher and lower-order thinking models.

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Insert Table 2 approx. here

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While the findings for the "Rigor" construct in the higher-order thinking model were all in the expected direction, none of the findings were statistically significant at the p=.05 level. Table Three provides the insignificant output associated with the "Rigor" constructs.

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Insert Table 3 approx. here

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Table Four provides the findings associated with the "Efficacy" latent factor construct. All the findings associated with the efficacy construct were found to be in the expected direction. The input-efficacy relationship associated with the lower-order thinking model yielded a highly significant finding (p=.01), as the uncontrollable inputs and efficacy levels within schools appear to be moderately negatively correlated with one another.

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Insert Table 4 approx. here

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The relationships evidenced between the collaboration construct with other latent factors appears to be more inconsistent than was the case for certain counterpart latent factors tested in

prior models. Table Five provides the output associated with such relationships. One collaboration-input relationship was found to be negatively correlated in the expected direction (p=.01), although the magnitude associated with the relationship was an unremarkable -.23.

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Insert Table 5 approx. here
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None of the teaming factor relationships were found to be statistically significant in the SCS measurement model tests. Table Six below provides the insignificant findings.

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Insert Table 6 approx. here
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The relationship between the higher-order thinking construct and the uncontrollable input variable construct was found to be negative, as can be seen in Table Seven with statistically significant correlational values ranging between -.30-.32 (p=.05). Conversely, the "LOT"-"Uncontrol" latent factor construct relationships were evidenced to be positively correlated with one another, as is to be expected, with moderate magnitudes ranging from .28-.40. Unlike the "HOT"-"uncontrol" relationships, every "LOT"-"uncontrol" findings was statistically significant. Additionally there appears to exist a moderately positive correlational relationship between higher-order thinking and standardized test performance of students ("HOT"-"Achieve"). The magnitudes of these relationships ranged from .28-30 (p=.05). The lower-order thinking-student achievement relationship ("LOT"-"Achieve") was also found to be in the expected direction, as correlations between these two factors were determined to be, without exception, moderately negative, with values ranging between -.26 - -.38 (p=.05). As would be

expected, the relationship between lower and higher-order thinking constructs were found to be negatively correlated with one another, with the magnitude of such correlations ranging between -.75 to -.78.

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Insert Table 7 approx. here
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Table Eight below reveals that relationships between the "collaboration" and "uncontrollable" input latent factor variables. Those associations were found to be moderately negative across three measurement models, with magnitudes ranging from -.54 - -.61 (p =.01). The relationships between the collaboration latent factor constructs and the achievement latent factor was also found to be in the expected direction and highly significant, with magnitudes ranging between .48 -.52 (p=.01). The collaboration-higher order thinking relationship proved to be statistically significant (p=.05) in one instance, as well, evidencing a moderately positive correlation magnitude of .26. The lower order thinking-collaboration relationship in the same model was more pronounced, however, evidencing a correlation of -.42 (p=.01). Finally, the relationship between the collaboration and effectiveness latent factor constructs was a highly significant and robust .84 (p=.01).

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Insert Table 8 approx. here
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Table Nine below yielded several notable findings. The effectiveness-uncontrollable inputs relationship was found to be highly significant across three models (p=.01). The magnitude of the correlation between the effectiveness and uncontrollable input factors ranged

between -.58-.73. The relationship between the effectiveness construct and the achievement construct was also found to be highly significant across models and moderate to moderately strong in magnitude (.52-.73). While the effectiveness-higher order thinking relationships were not statistically significant, the effectiveness-lower order thinking relationship was found to be moderately negative (-.44, p=.05).

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Insert Table 9 approx. here
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As depicted in Table Ten below, SCS Model Four contained two significant relationships associated with the academic rigor latent factor construct ("Rigor"). The relationship between rigor and uncontrollable variables was found to be a moderately strong -.73 (p=.01), while the rigor-achievement relationship was found to be a moderately strong .60 (p=.01). Both these relationships evidenced magnitudes in the expected direction.

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Insert Table 10 approx. here
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The relationship between the teaming latent factor, and other latent factors of interest, are provided in Table Eleven. An inspection of the output reveals that the relationship between "teaming" and the additionally-tested factors in the measurement models were inconsistent and insignificant across measurement models.

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Insert Table 11 approx. here
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Several interesting results were yielded by testing the relationship between the "efficacy" latent factor construct with other latent factor constructs of interest, as shown in Table Twelve below. More specifically, the relationship between the efficacy and uncontrollable constructs was -.74 (p=.05), while the efficacy-achievement and efficacy-higher order thinking relationships were also in the expected direction, yielding magnitudes of .62 and .40, respectively (p=.01).

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Insert Table 12 approx. here

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Discussion

To investigate how reform efforts are adopted within buildings, complex statistical methods were called for in this study. The building-level factors that govern the ultimate effectiveness of these instructional reforms were tested in a number of mathematical models. Educators must remember that only certain of the building-level factors identified in this study will remain within their control. Most educators further appreciate, however, that they have very little influence over other important inputs. Importantly, the results from this paper demonstrate the manner in which educators address those controllable factors that influence instructional quality and can be greatly determinative of the overall reform success. As critically, what these instructional leaders cannot control, while clearly an impediment to their improvement efforts, does not contribute to a fatal friction that many educators fear will slow their reform efforts to a grinding halt.

The study confirmed that the socioeconomic and racial compositions of schools, among other school input measurements, are strongly negatively correlated to achievement, teacher

collaboration, and school effectiveness levels. Research has, and will assuredly continue to reveal, that these socioeconomic and racial components of public educational systems represent distinctive conditions that render educational effectiveness initiatives more unwieldy. While it can be left to the field of sociology to better explain this quantitatively observed phenomenon, this paper provides considerable evidence of the challenges to urban and impoverished rural school leaders, alike.

Student engagement levels were found to be moderately correlated with educational inputs and moderately positively correlated with student achievement level. Such findings are noteworthy, as the socioeconomic composition of schools, while impactful on student achievement, are unlikely to dictate the success level of student engagement initiatives such as the IPI. Additionally, student engagement levels were found to be moderately correlated with student achievement. The importance of this finding is worth further mention. As schools are likely able to demonstrate enhanced student engagement levels even with high rates of free-and-reduced lunch and minority students, these enhanced engagement levels, in turn, are moderately correlated with growth in standardized achievement. But merely identifying instructional quality, even when captured as coded data, is only a measure of the building needs and is not an actionable solution to any instructional deficiencies that may be uncovered by this data.

The nature of student engagement also correlates with various building-level school processes. For instance, when teacher collaboration is robust, lower-order student engagement levels are found to be negatively correlated with such collaboration levels. Teacher faculties that openly discuss school curricula and engagement practices, for example, are not found to readily exhibit heightened levels of student and/or teacher disengagement. Likewise, high levels of

faculty efficacy were found to be correlated with greater levels of higher-order thinking, a finding also intuitive and encouraging to school leaders. As teachers feel empowered to be effective instruments in educating children, their pedagogical practices and techniques that involve students in higher-order classroom engagement become more predictably predominant.

Finally, additional correlational tests of effective IPI practices and school leaders' perceived effectiveness of the IPI process within their buildings were found to be weakly correlated with educational input and socioeconomic considerations. Such a finding offers encouragement for school leaders, as effective student engagement initiatives such as the IPI are not likely to effect, or to be perceived to be affected by, the socioeconomic or racial compositions of the schools' student populations.

In sum, the findings contained within this paper suggest that instructional reforms are not administered behind closed classroom doors. Nor do they unfold within a vacuum in the larger communities. Instead, plans to transform classroom instruction must be considered in relation to the busy and complex school settings that are greatly impacted by the even busier outside world. Many factors from this environment, such as the students' socioeconomic standing and race of school populations, are shown to matter a great deal on predicting standardized performance levels. Fortunately, these factors are less influential in dictating the extent to which instructional leaders successfully develop such initiatives within their schools over time. As a result, school leaders who accentuate what is proven to be effective in improving instructional quality are likely to be successful in their efforts despite the existence of school inputs and other demographic factors that have historically been associated with underperformance.

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