

How the *Leading Student Achievement* Project Improves Student Learning: An Evolving Theory of Action

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Introduction

Over the past five years, Ontario's *Leading Student Achievement* (LSA) project has worked to improve student learning in the province by building the instructional leadership capacities of principals. LSA is a project developed and lead by the three Ontario principals' associations – the Ontario Principals' Council, the Catholic Principals' Council of Ontario, and l'Association des directions et directions des écoles franco-ontariennes – in partnership with and funded by the Literacy and Numeracy Secretariat (LNS) and supported by Curriculum Services Canada. Their efforts to improve student achievement have been guided by an evolving theory of action about what the LSA project needs to do if its objectives are to be realized. Combining earlier versions¹ of the theory with recent evidence about how leadership influences student learning², this paper describes the most recent iteration of the theory.

Summarized in Figure 1, LSA's theory of action begins (far left) with a substantial number and wide variety of initiatives intended to stimulate and support leadership development among principals participating in the project. Engagement with these initiatives significantly increases the capacities of principals to positively influence the status of key conditions in their school communities, conditions which have both direct and indirect effects on the experiences of students. These key conditions are located on four "paths" along which principals' influence flows - the Rational path, the Emotions path, the Organization path and the Family path.

Each of the four paths is populated by distinctly different sets of conditions or variables, each with a more or less direct impact on students' experiences. Selecting the most promising of these conditions and improving their status are two of the three central challenges facing leaders intending to improve learning in their schools. LSA has, to date, urged the improvement of several ("key learning") conditions on all but the Family path. These conditions are noted for each path in Figure 1.

As the status of conditions on each path improves, through influences from leaders and other sources, the quality of students' school and classroom experiences are enriched, resulting in greater learning. Since exercising leadership influence along one path alone, or just one path at a time, has rarely resulted in demonstrable gains for students, alignment of leadership influence across paths is a third leadership challenge.

Subsequent sections of this paper unpack further each of the variables and relationships summarized in Figure 1. The first of these sections is about the nature of the LSA initiatives and the leadership practices they have been designed to improve. Selection and improvement of conditions, the first two leadership challenges, are addressed in the next four sections of the paper, each section focused on one path. Building on an earlier LSA paper³, evidence about those conditions on each path which

have been the object of LSA attention to date is identified and explored in more detail: evidence of their impact on students is summarized, and leadership practices likely to influence their status in a positive direction are outlined. Alignment of leadership influence across paths is taken up in the final section.

Hattie’s (2009) recent and remarkably comprehensive synthesis of meta-analyses is frequently used to estimate the impact on student learning of selected variables found on the four paths; these estimates are reported as effect sizes (or “d”)⁴.

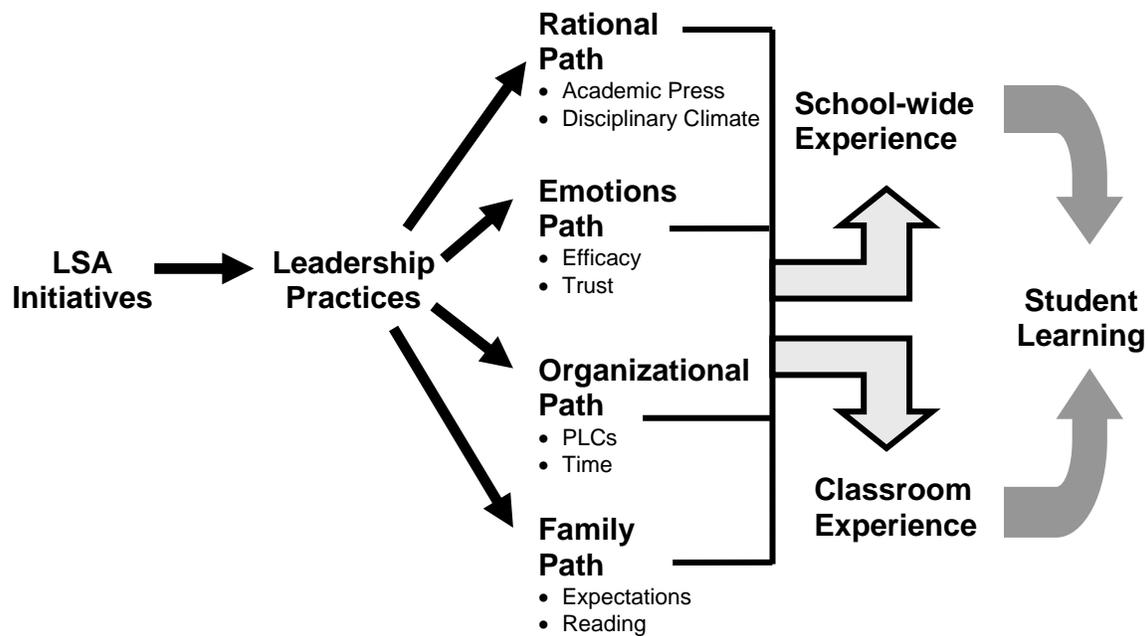


Figure 1. LSA initiatives and the four paths of leadership influence on student learning

LSA Initiatives and Leadership Practices

LSA initiatives. Over the past five years (2005-2010), participants in the LSA project, mostly school administrators, have received project-sponsored professional development and have participated, within each of their boards, in principal learning teams (PLTs). These teams have included all project members in the board. Project members also are expected to develop professional learning communities (PLCs) with teachers in each of their schools as vehicles for stimulating improvements in teaching and learning.

Early stages of the project emphasized the development of PLCs, followed by encouragement, within PLCs, to focus attention on the development of a selected set of *school-wide*, “learning conditions” (e.g., academic press); these are conditions which, considerable research has demonstrated, have significant impacts on student learning.

Acknowledging provincial priorities, these improvements in almost all schools include a focus on literacy teaching and learning.

This year's emphasis on developing *Teaching-Learning Critical Pathways* is an attempt by LSA to engage principals more directly on the improvement of *classroom-based* practices and the acquisition of capacities needed to assist teachers with this task. A growing number of web-based supports are being created as a means of expanding access by principals and teachers to LSA's professional development resources.

Leadership practices. The LSA project has been consistent in its use of the term "instructional leadership" to capture the capacities it aims to develop among participating principals. The meaning of this term and the specific skills it encompasses, however, was not sharply defined at the beginning of the project. But over the past four years LSA's conception of instructional leadership has become increasingly aligned with the province's relatively new leadership framework⁵. This evidence-based framework consists of five categories of practices and competencies including Setting Directions, Building Relationships and Developing People, Developing the Organization, Leading the Instructional Program, and Ensuring Accountability. LSA's theory of action assumes that as principals' capacities in each of these five categories increase, they will be increasingly successful at improving the status of key conditions on each of the four paths.

The Rational Path

Variables on the Rational Path are rooted in the knowledge and skills of school staffs about curriculum, teaching and learning. In general, exercising a positive influence on these variables calls on school leaders' knowledge about the "technical core" of schooling, their problem solving capacities (Robinson, 2009), and their knowledge of relevant leadership practices.

Selecting Variables to Influence

The rational path includes both classroom – and school – level variables. Since there is now a considerable amount of evidence available about the effects on student learning of many such variables, school leaders are able to prioritize for their attention, those known to have the greatest chance of improving their students' learning. In the classroom, Hattie's (2009) synthesis of evidence implies that school leaders carefully consider the value of focusing their efforts on improving, for example, the extent to which teachers are providing students with immediate and informative feedback ($d = 0.73$), teachers' use of reciprocal teaching strategies ($d = 0.74$), teacher-student relations ($d = 0.72$), the management of classrooms ($d = 0.52$), and the general quality of teaching in the school. Effect sizes for these variables are among the highest reported for all classroom-level variables, whereas some variables currently the focus of considerable effort by school leaders have much smaller effect sizes (e.g., individualized instruction has an effect size of $d = 0.23$).

Many school-level variables have reported effects on student learning as large as all but a few classroom-level variables. Both Academic Press⁶ and Disciplinary Climate⁷ stand out among these especially consequential variables. Of the more than 20 empirical studies which have been published since about 1989, by far the majority have reported

significant, positive, and at least moderate relationships between academic press and student achievement, most often in the area of math, but extending to other subjects such as writing, science, reading, and language, as well (e.g., Goddard, Hoy & Woolfolk Hoy, 2000). Similarly consistent and positive evidence has also been reported about the contribution of Disciplinary Climate. A large proportion of this research has used very large data sets and sophisticated statistical methods (Ma & Klinger, 2000), features that add to the confidence we can have in these findings. Hattie's (2009) synthesis of evidence estimates that "decreasing disruptive behavior" (p. 103) has a moderate effect size ($d = 0.53$) on student learning.

Influencing Selected Variables

For leaders, simply knowing which conditions on the Rational Path hold the greatest promise for improving student learning is not enough. It still leaves them with the problem of figuring out how to improve the status of those conditions in their schools. The key question following initial diagnosis and selection of key conditions for action is "what do we do?"

About Disciplinary Climate, a small amount of evidence recommends flexible rather than rigid responses by leaders to disciplinary events, and engagement of staff and other stakeholders in developing school-wide behavior plans (e.g., Benda, 2000; Leithwood et al., 2004). A broader body of evidence indicates: that "the principal is the most potent factor in determining school climate," which implies that his or her influence on the prioritization of certain conditions within their school and their associated variables is likely to make a difference. Research shows that visionary leadership is imperative to support teacher efforts that lead to the success of innovation and change program (Rencherler, 1991, cited in Benda, 2000)

A small number of studies have identified leadership practices likely to increase a school's Academic Press (e.g., Alig-Mielcarek, 2003; Jacob, 2004, Jurewicz, 2004). Being open, supportive, and friendly works in developing this condition, as it does with most conditions.

Of the remaining practices, some are fundamentally *Direction Setting* in intent, for example:

- developing and communicating shared goals;
- establishing high expectations; and
- helping to clarify shared goals about academic achievement.

Other leadership practices identified by the evidence are about *Developing People*, including the promotion of school-wide professional development.

Yet others aim at *Redesigning the Organization* as, for example:

- not burdening teachers with bureaucratic tasks and busy work;
- grouping students using methods that convey academic expectations;
- providing an orderly environment; and
- establishing clear homework policies.

The remaining leadership practices emerging from research on how to foster Academic Press are primarily about *Managing the Instructional Program*. These practices involve:

- monitoring and providing feedback on the teaching and learning processes;
- monitoring student performance in relation to instructional objectives;

- requiring student progress reports to be sent to the parents; and
- buffering in order to protecting instructional time; and
- basing remediation efforts on a common instructional framework.

The Emotions Path

The Rational and Emotions paths are much more tightly connected than many leaders believe. Considerable evidence indicates, for example, that emotions direct cognition: they structure perception, direct attention, give preferential access to certain memories and bias judgment in ways that help individuals respond productively to their environments (Oatley, Keltner & Jenkins, 2006).

A recent review of more than 90 empirical studies of teacher emotions and their consequences for classroom practice and student learning (Leithwood, 2006; Leithwood & Beatty, 2007), unambiguously recommends leaders' attention to variables on the emotional path as a means of improving student learning. Exercising influence on variables located along the emotional path depends fundamentally on leaders' social appraisal skills (Zaccaro, Kemp & Bader, 2004) or emotional intelligence (Goleman, 1995).

Selecting Variables to Influence

Our recent review pointed to a large handful of teacher emotions with significant effects on teaching and learning. These included individual and collective teacher efficacy, job satisfaction, organizational commitment, morale, stress/burnout, engagement in the school or profession, and teacher trust in colleagues, parents, and students. Let us consider what we know about just two of these emotions, by way of illustration.

Collective teacher efficacy (CTE). This emotion is conceptualized as the level of confidence a group of teachers feels about its ability to organize and implement whatever educational initiatives are required for students to reach high standards of achievement. The effect of efficacy (or collective confidence) on performance is indirect through the persistence it engenders in the face of initial failure and the opportunities it creates for a confident group to learn its way forward (rather than giving up).

In highly efficacious schools, evidence suggests that teachers accept responsibility for their students' learning. Learning difficulties are not assumed to be an inevitable by-product of low socio-economic status, lack of ability, or family background. CTE creates high expectations for students as well as the collectively confident teachers. Evidence suggests that high levels of CTE encourage teachers: to set challenging benchmarks for themselves, engage in high levels of planning and organization, and devote more classroom time to academic learning. High CTE teachers are more likely to engage in activity-based learning, student-centered learning, and interactive instruction. Among other exemplary practices high CTE is associated with teachers adopting a humanistic approach to student management, testing new instructional methods to meet the learning needs of their students and providing extra help to students who have difficulty, displaying persistence and resiliency in such cases, rewarding students for their achievements; believing their students can reach high academic goals; displaying more

enthusiasm for teaching; committing to community partnerships; and having more ownership in school decisions.

While the total number of well-designed studies inquiring about CTE effects on students is still modest (about 8 studies), their results are both consistent and impressive. This relatively recent evidence demonstrates a significant positive relationship between CTE and achievement by students in such areas of the curriculum as reading, math and writing. Furthermore, and perhaps more surprising, several of these studies have found that the effects on achievement of CTE exceed the effects of students' socio-economic status (e.g., Goddard et al., 2000), a variable that typically explains by far the bulk of achievement variation across schools, usually in excess of 50%. High CTE schools also are associated with lower suspension and dropout rates as well as greater school orderliness (Tschannen-Moran & Barr; 2004).

Trust in colleagues, students and parents. This form of relational trust includes a belief or expectation, in this case on the part of most teachers, that their colleagues, students, and parents support the schools' goals for student learning, and will reliably work toward achieving those goals. Transparency, competence, benevolence, and reliability are among the qualities persuading others that a person is trustworthy. Teacher trust is critical to the success of schools, and nurturing trusting relationships with students and parents is a key element in improving student learning. (e.g., Bryk & Schneider, 2003; Lee & Croninger, 1994).

Trust remains a strong predictor of student achievement even after the effects of student background, prior achievement, race, and gender have been taken into account as seen in some recent studies of trust in schools. Goddard (2003) argues that when teacher-parent and teacher-student relationships are characterized by trust, academically supportive norms and social relations have the potential to move students toward academic success. Results of a second study by Goddard and his colleagues (2001) provide one of the largest estimates of trust effects on student learning. In this study trust explained 81% of the variation between schools in students' math and reading achievement.

Influencing Selected Variables

Collective teacher efficacy. There are two sources of insight about how leaders might improve the collective efficacy of their teaching colleagues, the theoretical work of Bandura (e.g., 1993) which focuses explicitly on self efficacy and a small number of studies of principals' transformational leadership that highlight the importance of maximizing self efficacy (e.g., Leithwood & Jantzi, 2008). In combination, these sources indicate that teachers' CTE will increase in response to *Direction Setting* leadership which clarifies goals by, for example, identifying new opportunities for the school, developing plans (often collaboratively), articulating and inspiring others with a vision of the future, promoting cooperation and collaboration among staff towards common goals. CTE also increases in response to such leadership practices aimed at *Developing People* as:

- offering individualized support by, for example, showing respect for individual members of the staff, demonstrating concern about their personal feelings and needs, maintaining an open door policy, and valuing staff opinions;

- sponsoring meaningful professional development; and
- providing appropriate models of both desired practices and appropriate values.

CTE has also been shown to develop in response to practices aimed at *Redesigning the Organization* such as:

- encouraging teachers to network with others facing similar challenges in order to learn from their experiences; and
- structuring the schools to allow for collaborative work among staff.

Trust in colleagues, students and parents. The literature on high performing organizations shows that they are normally characterized by ‘high trust’ and leaders who develop, nurture and model trusting and authentic relationships. Principal leadership also has been highlighted in recent evidence as a critical contributor to trust among teachers, parents and students (e.g., Bryk & Schneider, 2003). This evidence suggests that principals engender trust with and among staff and with both parents and students when their *Direction Setting* practices include setting high standards for students and then following through with support for teachers. Providing individualized support, part of *Developing People*, also builds trust when leaders:

- recognize and acknowledge the vulnerabilities of their staff;
- listen to the personal needs of staff members and assist as much as possible to reconcile those needs with a clear vision for the school;

Trust also develops, according to the evidence, when leaders *Redesign the Organization* in ways that create a space for parents in the school and demonstrates to parents that the principal is reliable, open and scrupulously honest in his or her interactions. Buffering teachers from unreasonable demands from the policy environment or from the parents and the wider community, part of *Managing the Instructional Program*, has also been shown to be a trust-building practice on the part of school leaders.

The Organizational Path

Structures, culture, policies, and standard operation procedures are the types of variables to be influenced on the Organizational Path. Collectively, they constitute teachers’ working conditions which, in turn, have a powerful influence on teachers’ emotions (Leithwood & Beatty, 2007). These variables constitute both the school’s infrastructure and a large proportion of its collective memory.

Like the electrical, water and road systems making up the infrastructure of a neighborhood, variables on the Organizational Path are often not given much thought until they malfunction. At minimum, a school’s infrastructure should not prevent staff and students from making best use of their capacities. At best, school infrastructures should magnify those capacities and make it much easier to engage in productive rather than unproductive practices. Ensuring that variables on the Organizational Path are working for, rather than against, the school’s improvement efforts is vital to a school’s ability to sustain its gains. A new instructional practice, for example, will not be sustained if it requires unusual amounts of effort for an indefinite period of time.

Sustaining gains also depends on transforming individual into collective learning. Learning first occurs in a school at the level of the individual. The challenge for organizations attempting to get smarter is how to take collective advantage of what its

individual members are learning (Cohen, 1996). Modifying variables on the Organizational Path to reflect what individual members learn, creates the potential for that learning to shape the behavior of many others in the organization. This is often how promising practices move beyond initial implementation by a few people to longer-term institutionalization by many.

Selecting Variables to Influence

Hattie's (2009) synthesis of evidence identifies more than a dozen variables located on the organizational path. Some can be found in the classroom (e.g., class size, ability groupings), some are school-wide (e.g., school size, multi grade/age classes, retention policies); many are typically controlled by agencies outside the school (e.g., school funding, summer school). Two promising conditions on the Organizational Path are Instructional Time and Professional Community. A brief review of evidence about these conditions helps illustrate why they might be a good choice for leadership attention.

Uses of instructional time. Early research on time for learning introduced four distinct ways in which it could be conceptualized and measured. The *total amount of time* potentially available for learning is a simple function of the number of days of schooling per year and the number of hours of instruction per day. *Time actually devoted to instruction* is the potential time left for learning once unplanned events, recesses, transitions, interruptions and the like are subtracted from the total potential time.

Opportunity to learn (OTL) is a targeted version of time actually devoted to instruction which acknowledges that the content or focus of instructional time has significant effects on the nature of student learning. This measure of time was first introduced by Carroll (1963) in his model of school learning. Finally, *academically engaged time* is the time students actually spend on their own learning within the time devoted to instruction.

Research about the extent to which these different ways of conceptualizing and measuring Instructional Time influence student learning (e.g., Wang, 1998; Marburger, 2006; Roby, 2004; Tornroos, 2005) indicates that:

- the *total amount of time* potentially available for instruction, typically measured as student attendance rates, has been reported to have effects on student learning varying from weakly significant to quite strong;
- the total amount of *time actually devoted to instruction* has moderate effects on student learning;
- the content of the curriculum which students spend time studying, *opportunity to learn*, has quite strong effects on the nature of their learning; and
- students' total amount of *academically engaged time* is strongly associated with student learning.

Professional Community. An important aspect of the Organizational Path is to disseminate and reinforce the learning of individual members in order to create the potential for that learning to be passed on to many others. The professional development of teachers is a concern for school leaders, especially when teachers are being asked to change their practice. Hattie (2009) identified an effect size of .62 for professional development on student achievement. One of the necessary conditions for such a large effect was teachers talking to teachers in a professional community. A great deal of research has focused on the role and potential provided through professional learning

communities (DuFour, Eaker & DuFour, 2005), how to build and sustain PLC's (for example, Stoll & Louis, 2007) and how a principal can initiate and support their work (Olivier & Hipp, 2006, Mitchell & Sackney, 2006). A recent review of PLC research (Vescio, Ross & Adams, 2008), however, found only eight studies reporting an association between PLCs and student learning. These studies all found that student learning improved when teachers participated in PLC's. One of these studies (Louis & Marks, 1998), conducted in exemplary schools, found a strong association between PLCs and student achievement because the school culture focused on student learning and teachers' pedagogy. The presence of a well-functioning PLC accounted for 85% of the variance in student achievement across schools in this study.

Another large-scale study in England also found an association between teacher PLC participation and student achievement. The more staff were involved in PLC's in their schools, the higher students performed in class and on a national test (Bolman, McMahon, Stoll, Thomas & Wallace, 2005). Qualitative studies examining how teachers talking with other teachers about data, pedagogy and classroom strategies also report improvements for students (Hollins et al, 2004, Strahan, 2003, Berry & Montgomery, 2005).

At the present time, LSA is devoting considerable effort to helping its members understand and work on the development of Teaching-Learning Critical Pathways (TLCPs) in their schools. This work engages staffs directly and collaboratively in the examination of student work and the development of instructional strategies for improving student's learning of "big ideas". This initiative has the potential to focus professional learning communities on meaningful improvements to instruction and to clarify the meaning of instructional leadership in ways that have been hard to develop in many project schools through other means.

Influencing Selected Variables

Uses of instructional time. There has been little direct evidence reported about leadership practices for optimizing instructional time in schools, with the major exception of research on leadership "buffering", a specific practice included *Managing the Instructional Program*. A venerable leadership practice, the value of buffering as a contribution to organizational goals is justified by evidence collected in both in schools and many other types of organizations (DiPaola & Tschanen-Morin, 2005; Yukl, 1994). In schools, buffering aims to protect the efforts of teachers from the many distractions they face from both inside and outside their organizations. Such protection allows teachers to spend their time and energies on teaching and learning. In the case of principals, "outside" buffering entails behaviors such as running interference with unreasonable parents, supporting teachers in the discipline of students, and aligning government and district policy initiatives with the school's improvement.

In schools which recognize the importance of how students spend their time, school schedules, timetables, structures, administrative behaviors, instructional practices and the like, are all designed to ensure that students are engaged in meaningful learning for as much of their time in school as possible. Distractions from meaningful learning are minimized. The key to successful leadership, in the case of instructional time, is to help ensure that the day-to-day functioning of the school conspires to focus everyone's efforts on desirable student learning. Indeed, optimizing instructional time, increasing academic

press, and improving the school's disciplinary climate are interdependent leadership initiatives.

Professional learning communities (PLCs). Leadership behaviours that support the work of professional learning communities are presented in the research as “quiet support, rather than bold, visibly transformational action” (Wahlstrom & Louis, 2008, pg. 483). Principals are encouraged to be supportive rather than directive, taking a professional orientation rather than a bureaucratic one (Tschannen-Moran, 2009). Several studies highlight the importance of the principal's role in providing, scheduling and then protecting the time allocated for teachers to meet as PLC's, guiding the goals and vision for professional development, and providing other resources to allow PLC's to operate smoothly (Louis, Marks & Kruse, 1996, Tschannen-Moran, 2009, Mullen & Huting, 2008). Other studies focus on how principals strengthen the work of PLC's by distributing leadership (McLaughlin & Talbert, 2007, Olivier & Hipp, 2006). Schools can benefit from the effect of professional learning communities when principals support the work of teachers.

The Family Path

It is often claimed that improving student learning is all about improving “instruction” (Nelson & Sassi, 2005; Stein & Nelson, 2003). While improving instruction is both important and necessary work in many schools, this claim, by itself, ignores all of the powerful variables found on both the Emotional and Organizational paths described in two of the earlier sections of the chapter. Even more critically, this claim seems to dismiss factors accounting for as much as 50% of the variation in student achievement across schools (e.g., Kyriakides & Creemers, 2008). These are variables located on the Family Path. Since best estimates suggest that everything schools do within their walls accounts for about 20% of the variation in students' achievement (e.g., Creemers & Reetzigt, 1996), influencing variables on the Family Path is a “high leverage” option for school leaders.

Selecting the Most Promising Variables

Treating as many variables as possible on the Family Path as alterable rather than given was considered to be the new work of leaders more than fifteen years ago (Goldring & Rallis, 1993). By now, there is considerable evidence about what these variables might be. For example, Hattie's (2009) synthesis of evidence points to seven family-related variables with widely varying effect sizes. At least four of these variables are open to influence from the school including home environment ($d = 0.57$), parent involvement in school ($d = 0.51$), time spent watching television ($d = -0.18$), and visits to the home by school personnel ($d = 0.29$).

Leithwood and Jantzi's (2006) synthesis of 40 studies points to the important influence on children's academic success of family work habits, academic guidance and support provided to children, stimulation to think about issues in the larger environment, provision of adequate health and nutritional conditions, and physical settings in the home conducive to academic work. Perhaps most important are the academic and occupational aspirations and expectations for children (e.g., Hong & Ho, 2005) of parents, guardians and other significant members of their immediate community; Hattie (2009) reports an

effect size of 0.58 for parent expectations which, as he notes, “was far greater than parental involvement at the school ($d = 0.21$)” (p. 69).

Influencing Selected Variables.

Although parent involvement in school has far less impact on student learning than parent influence in the home, children benefit from their parents’ engagement in their learning in both locations (Epstein, 1995). Evidence from Leithwood and Jantzi’s (2006) review indicates that parent engagement in school is nurtured when parents come to understand that such involvement is a key part of what it means to be a responsible parent, when parents believe they have the skills and know-how to make meaningful contributions to the school’s efforts and when they believe that school staffs, as well as their own children, value their participation in the school. School leaders and their staffs contribute to such beliefs by, for example:

- issuing invitations for parent participation that are personal and specific rather than general;
- matching parent skills to the activities in which they will participate;
- providing very specific information and feedback to parents about their child’s progress;
- creating opportunities for parents to interact with one another about school matters;
- designing their classroom activities to include special projects which involve parents in direct support of instruction requiring skills well-matched to parents capacities;
- communicating effectively with parents, for example, by altering schedules to accommodate the schedules of parents, modifying the format of parent conferences to make them less intimidating and more meaningful for parents, providing a private environment in which to have parent-teacher conferences, soliciting parent views on key matters concerning their children’s education and engaging in joint problem solving with parents; and
- appointing a community liaison person as a link between the parents and the school in order to build both teacher and parent capacity to communicate with one another.

Parent involvement in their children’s education at home can take many forms, as Hattie’s (2009) synthesis suggests. But some families have far more resources than others to be involved in productive ways. Families facing poverty, linguistic and cultural diversity, unemployment and housing instability typically have considerable difficulty finding those resources.

One of the most common forms is engagement with young children in learning to read. A recent synthesis of evidence about alternative ways in which parents might help their children learn to read (Senechal & Young, 2008) found that approaches in which either parent or child were relatively passive were of little value. Children’s reading improved when parents actively taught their children how to read using a variety of techniques well known to teachers of reading. Of course, many parents will not have opportunities to learn such active forms of reading instruction unless the school intervenes. This would also be the case something that in most schools would require principal initiative.

Alignment of Leadership Influence across Paths

While variables associated with each of the four paths are distinct, they also interact with variables on the other paths; our previous account of variables on several paths pointed to several examples of such interaction. Typically, failure to take such interaction into account severely limits school leaders' influence. This means, for example, that if a school leader decides to improve the status of a school's Academic Press (a variable on the Rational Path), she will also need to consider what her teachers' feelings will be, in response. The leader will need to ensure that her teachers begin to feel, for example, efficacious about their role in fostering the school's Academic Press (a variable on the Emotional Path). Such nurturing of teacher efficacy may take the form of establishing a teacher work team with responsibility for planning how to improve the school's Academic Press (the Organizational Path). Participation on such a work team will provide teachers with opportunities to design strategies for improving academic press which they consider to be realistic. It may also provide them with the chance to think through their parents' reactions to this initiative (the Family Path) and how best to build parent support for it.

The need for alignment across paths initially seems to hugely complicate leaders' work. But, as our Academic Press example illustrates, picking only one or two powerful variables (such as Academic Press) on a path, and planning for the most likely interactions makes the leadership task much more manageable. This way of thinking about the leadership task, however, does add weight to the argument that leaders' success will typically depends on devoting one's attention to a small number for priorities.

Aside from its surface reasonableness, the case for alignment of leadership influence across paths can be justified on both historical and theoretical grounds. From an historical perspective, at some point over the past six decades, reformers have considered selected interventions on each of the four paths independently to be the solution to problems of student underachievement, and each has been found wanting. Post-Sputnik efforts to reform curriculum and instruction exemplified a preoccupation with the rational path but to little apparent effect. Disappointed reformers then began a journey along the emotional path, the most visible manifestation of which was the organizational development (OD) movement of the '80s and its efforts to improve working relationships in schools and districts. With OD's failure to live up to expectations, reformers switched to the organizational path during the late '80s and early '90s, setting off a wave of school restructuring which appeared to make little difference to student learning. Previous examples of efforts to exercise influence on the Family Path include both the community school and full-service school movements.

Theoretical justification for the alignment of leadership influence across paths can be found in an explanation of human performance originating in industrial psychology (O'Day, 1996; Rowan, 1996). What teachers do, according to this theory, is a function of their motivations (addressed by the Emotional Path), abilities (found on the Rational Path), and the situations in which they work (the Organizational and Family paths). The relationships among these variables are considered to be interdependent. This means two things. It means that each variable has an effect on the remaining two (for example, aspects of teachers' work environments are significant influences on their motivations). It

also means that changes in all three variables need to happen more or less in concert or performance will not change much. For example, neither high ability and low motivation, nor high motivation and low ability foster high levels of teacher performance; neither does high ability and high motivation in a dysfunctional work environment. Furthermore, a dysfunctional work setting will likely depress initially high levels of both ability and motivation.

Conclusion

This paper synthesizes and extends earlier efforts by LSA to understand and describe the fundamental premises on which its emerging initiatives are based. Over the course of its five-year history, LSA has emphasized conditions which lie on three of the four paths. So far, little explicit attention has been given to the Family Path, although that may be a focus in the future. On the assumption that leader effects on students are indirect, the paper has identified a large sample of variables which do have a direct influence on what students learn. As well, the paper has explored the results of research about the sub-set of these conditions which have been the objects of considerable LSA effort and summarized what can be gleaned from relevant research about how successful leaders influence the status of these powerful conditions.

Organized around “four paths,” the evidence reflected in this paper implicitly rejects narrow conceptions of instructional leadership as far too simplistic a view of how school leaders can improve education in their organizations. Indeed, this evidence indicates quite clearly that improvements to many conditions other than teachers’ instructional practices stand a very good chance of also improving student learning.

This is not to dismiss efforts to improve teachers’ instructional practices; such efforts will be very important in many schools for some purposes. It does acknowledge, however, that improvements at the margins of what already good teachers are doing cannot be expected to produce large gains in student achievement, and that school leaders need to devote their work to a broad range of conditions, all of which can improve the quality of learning for most students.

¹ See Leithwood (2008)

² Leithwood, Anderson, Mascall & Strauss (in press)

³ Leithwood (2008)

⁴ A standardized effect size (d) is any of several measures of association or of the strength of a relation and is often thought of as a measure of practical significance. This statistic allows us to judge the *importance* of a result. It also allows us to directly *compare* the results of several studies which report evidence in quite different ways.

Let’s imagine two studies inquiring about the effects of several key variables on the Emotions Path. The first study asks “To what extent is teachers’ trust in leaders associated with teachers changing their classroom practices? The study uses a survey to collect perceptions from teachers in all 85 schools in a district about the extent to which they trust their school leaders and how much change has occurred in their instructional practices in the past two years. The results of this study are reported as a correlation of some type (e.g., “the correlation between trust and change in practice is .40”).

The second (experimental) study includes principals and teachers in 30 schools. These are schools implementing *Teaching and Learning Critical Pathways* as a means of improving instruction. This study asks, “Do increases in teachers’ sense of efficacy for instruction increase the likelihood of teachers

changing their classroom practices? Half of the 30 principals are randomly chosen to attend a series of six half-day workshops on building teachers' sense of efficacy during the first six months that TLCPs are being implemented, while the other 15 principals do not. Levels of teacher efficacy and classroom practice are measured at the beginning and end of the two year period and changes in the two groups on both measures are compared. Results are reported using a t-test; this is an estimate of how large the difference in scores is between the two groups. An estimate will also be provided of how likely that difference is to have occurred by chance (reported as a p value).

Both studies report "statistically significant" results. But you would like to know, all other things being equal, whether you could make more progress in your school over the next 6 months by increasing your teachers' sense of efficacy or increasing your teachers' trust in their school leaders. How will you know if the size of the effect from the first study is bigger or smaller than the size of the effect from the second study? It is hard to make that comparison without transforming the results of both studies into a common metric. A standardized effect size is that metric. It is an especially helpful metric because it also corrects for the problem of research results reaching "statistical" significance because of large sample sizes, even though the results have no "practical" significance.

⁵ *Ontario Leadership Framework* (2008)

⁶ In schools with strong Academic Press, administrators and teachers set high but achievable school goals and classroom academic standards. They believe in the capacity of their students to achieve and encourage their students to respect and pursue academic success. School administrators supply resources, provide structures and exert leadership influence. Teachers make appropriately challenging academic demands and provide quality instruction to attain these goals. Students value these goals, respond positively, and work hard to meet the challenge.

⁷ In the last couple of decades, there has been a shift in the focus of research on discipline from individual students to the school. Willms and Ma (2004) argue that the traditional way of dealing with discipline, mainly at the classroom level, seems insufficient and that the disciplinary climate of the classroom and school has important effects on students. This climate is shaped by features of schools and the larger community. For example, classroom disruption can be a direct reflection of the conflict or tension between teachers and students across the school as a whole.

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