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## **Reframing schools: The case for system, teacher and student learning.**

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### **Abstract**

An Australian government funded four-year research project involving 96 secondary schools, over 5,000 students and 3,700 teachers and their principals has provided a rich source of information on schools conceptualised as learning organisations. The LOLSO Project focussed on three aspects of high school functioning: leadership, organisational learning and the impact of both on student outcomes. This research has established a relationship between the system factors of leadership and organisational learning and student outcomes as measured by student levels of participation in and engagement with school. This paper summarises this research and reports on a study that empirically tests the relationship between students' participation in and engagement with school and student achievement using model building and path analysis. The importance of learning at the system, teacher and student level is discussed in the context of school restructuring.

### **Introduction**

Relentless, global social, cultural and economic change has been translated by governments into a continuous stream of complex reforms aimed at restructuring schools. The pressure on education systems to adapt to change and improve outcomes has created new challenges for schools. The capacity of schools to adapt to change, improve and respond to community needs depends on their capacity to engage in continuous learning as organisations (Hallinger, 1999). Reframing schools as learning organisations, where the structures, processes and practices foster continuous learning of all those involved, is rapidly gaining favour (Dibbon, 2000, Leithwood & Louis, 1998; Louis, Toole & Hargreaves, 1999; Marks, Louis & Printy, 2000; Silins, Mulford, Zarins & Bishop, 2000). The concept of schools as learning organisations has grown out of the need to create school environments where people are learning how to learn together.

Louis, Toole and Hargreaves (1999) have found current organisational settings as rarely conducive to learning. Their recent review of research in the area of school improvement indicated reluctance by teachers and principals to examine their own practices publicly in competitive organisational cultures with weak professional communities, in organisations too filled with uncertainty, or when educators' roles were overly prescribed. Reforms were found to be counter-productive to learning when demands for adoption of innovations were coupled with inadequate time for reflection and rest.

On the other hand, recent empirical research indicates that where there are supportive conditions in the school particularly effective leadership, teachers will pursue collective and individual learning (Leithwood & Jantzi, 2000; Louise & Kruse, 1999; Silins et al, 2000). Both qualitative and quantitative studies attest to the importance of school leadership in promoting an environment where new information and practices are readily incorporated (Louis, Toole & Hargreaves, 1999). Also, research is beginning to accumulate that identifies characteristics of healthy and productive schools that engage in the continuous self-inquiry

that organisational learning demands (Leithwood, Leonard & Sharratt, 1998; Marks & Louis, 1999; Silins et al, 2000). As Marks, Louis and Printy (2000) assert, if school improvement depends on building a school's capacity for organisational learning, then educators will need to know what structures, processes and practices will enable them to do this; they will need to "be able to assess the strength of their schools on these characteristics and determine whether they are tied to improving school performance" (p. 240). To help expand our understanding of these areas, we report on a study which identifies the school characteristics that promote organisational learning, the leadership practices that support organisational learning and the influence of these system factors on teachers' and students' learning.

### **The LOLSO Project**

In this paper, we examine the nature of organisational learning and the leadership practices and processes that foster organisational learning in high schools and, in particular, the relationship between system, teacher and student learning. This study employs data collected from surveys of teachers and students carried out for a larger study known as the LOLSO Project.

LOLSO (Leadership for Organisational Learning and Student Outcomes) is a collaborative research project funded over three years (1997-1999) by the Australian Research Council. The project was designed to address the need to extend present understandings of school restructuring initiatives that aim to change school practices with the intention of supporting enhanced student learning and development of students. It focused on investigating the nature of leadership contributions to the stimulation of organisational learning (OL) and inquired about the effects of both leadership and OL on desired secondary school student outcomes. The partners in this project are Flinders University of South Australia, the University of Tasmania, the South Australian Department of Education, Training and Employment, the Tasmanian Department of Education, and the Centre for Leadership Development, University of Toronto.

The first phase of this project entailed identification of the school and leadership characteristics and processes that are associated with high schools operating as learning organisations. A teacher and principal questionnaire was developed drawing on non-school literature on OL and the work in schools of Leithwood and Jantzi, Centre for Leadership Development, University of Toronto. Using this questionnaire, survey data from 2503 teachers and their principals drawn from 96 secondary schools provided information on the nature of OL in high schools, sources of leadership in the school, and leadership and school management practices of the principal and the management team.

In the second phase of this project, survey data from 3, 500 year 10 students from the projects' 96 schools yielded measures of student family educational environment, student views of teachers' work in the classroom and student outcomes such as attendance, students' self-concept, and participation in and engagement with school. The nature of the relationships between school leadership, organisational learning and student outcomes were explored and the results of some of these investigations have been reported (Silins et al., 1999; Silins et al., 2000; Silins & Mulford, in press).

In this paper we draw on the data base provided by the surveys of the LOLSO Project and on the analyses conducted in the larger project identifying the nature of organisational learning and the nature of the principal's practices that support organisational learning. We examine high schools as learning organisations and the impact of leadership practices and processes on organisational learning and student outcomes, while controlling for school size and SES. In particular, however, we are focussing on the impact of a range of school

variables on teacher and student engagement with school such as availability of resources, leadership practices, valuing of staff, satisfaction with leadership and community focus, in the context of school change initiatives. We argue that the principal's and teachers' involvement and engagement with school is critical for the school to function as a learning organisation, and the level of system or organisational learning in the school impacts on students' participation in and engagement with school, and their learning.

### **Organisational Learning**

Argyris and Schön (1974) have characterised a learning organisation as one that learns, readily adapts to change, detects and corrects errors and continually improves. From the literature on organisational learning of over 30 years, Marks, Louis and Printy (2000) have identified the following central concepts associated with learning organisations: identifying and correcting problems; learning from past experience; acquiring new knowledge; processing issues on an organisational level; and, changing the organisation (p. 241).

Organisational learning, though arising out of individual learning, results in more than the sum of its parts. The processing of knowledge by individuals, while solving problems as a collective, leads to changes in values, beliefs and norms that results in the development of an unique learning culture. The emergence of organisational learning depends on the existence of at least three favourable conditions, Knowledge, Ability and Intention (Probst and Büchel, 1997). Knowledge development is supported through creating a shared mission, opportunity for professional discussion and self-analysis. Ability refers to the existence of structures and processes that enable the sharing of information. Intention refers to the commitment of organisational members to collaborative learning as indicated by their shared professional values.

Based on a study of six high performing schools, Marks, Louis and Printy (2000) have identified six dimensions of what they call a school's capacity for organisational learning. These are school structure, participative decision making grounded in teacher empowerment, shared commitment and collaborative activity, knowledge and skills, leadership, and feedback and accountability.

Traditional structural arrangements in schools, particularly high-schools, have long been recognised as impediments to change and the collective learning required for continual improvement. Reduced resources have compounded the difficulties that arise from isolation and balkanisation of staff, time constraints, lack of co-ordination and interdependence, increased community involvement, non-participatory decision-making processes, and increasing size and complexity of schools (Lee & Smith, 1997; Leithwood, Leonard & Sharratt, 1998).

Participatory decision-making and teacher empowerment promote organisational learning (Silins & Mulford, 2000). Paradoxically, teacher empowerment that broadens teacher influence beyond school policies related to teaching and learning does not always work to the academic advantage of students (Conley, 1991; Marks, Louis & Printy, 2000; Silins & Mulford, 2000; Smylie, 1994). Enhancement of student achievement requires teacher empowerment to be associated with collective efforts to improve instruction and assessment that challenge and involve students intellectually (Marks & Louis, 1997). When participatory decision-making involves teachers in broader policy issues at the school operations level, the impact on student performance is inconsistent.

Shared commitment and schoolwide collaborative activity are critical to enhancing the capacity for organisational learning (Marks & Louis, 1999). When team learning or social

processing of information occurs in small, fragmented groups, year levels or departments, the school's capacity for organisational learning is limited.

Increasing knowledge and skills in the context of rapid change and educational reform requires a flow of information across internal school boundaries and across external barriers that demarcate the school from the community and wider influences. High schools are discipline based and the interconnection of knowledge resources across disciplines and across external constituencies has to be actively supported.

Leadership in the context of transformational change requires a learning leader (Marks, Louis & Printy, 2000). Schein (1992) describes such a leader as fostering a learning culture in the organisation, detecting dysfunctionality and promoting transformation. The process of learning is central to the culture. There is evidence to suggest that leaders in organisations that learn must, at times, be authoritative and directive as well as supportive to successfully transform an organisation to one that learns (Mark & Louis, 1999; Bryk, Camburn & Louis, 1996).

Review and monitoring of performance against agreed upon standards provides feedback which supports active inquiry. Schools need to be accountable for their effectiveness which requires more autonomy and the resources and ability to make changes for improvement. Newmann, King and Rigdon (1997) have examined the relationship of accountability to the capacity for organisational learning using a capacity index involving teachers' participation in school decision making, knowledge and skills, shared commitment and collaboration. They found a positive relationship between internal accountability and organisational capacity but a negative relationship between external accountability and organisational capacity. Being accountable to peers and school management promotes organisational learning, whereas accountability to external bodies reduces organisational capacity.

The LOLSO Project yielded 2503 teacher and principal responses from 96 Australian secondary schools to a survey which was constructed to provide information on the nature of organisational learning in high schools as well as on the nature of principal practices and school leadership and management practices. The LOLSO Project yielded 2503 teacher and principal responses from 96 using LISREL (Silins et al., 2000) resulted in the identification of four dimensions that characterise high schools as learning organisations.

- Trusting and Collaborative Climate – The extent to which the school's climate and culture is one that supports collaborative work, sharing of information and open communication.
- Taking initiatives and risks – The extent to which the school leaders and school structures support experimentation and teachers feel valued and rewarded for taking the initiative.
- Shared and Monitored Mission – The extent to which teachers participate in all aspects of the school's functioning, including decision making and review, sharing a coherent sense of direction and acknowledging the wider school community.
- Professional Development – The extent to which staff draw on available knowledge and skills to continuously improve their performance.

### **Principal's Practices**

A growing number of studies have indicated that the transformational form of leadership has been perceived by teachers to generate the most helpful management practices in the context of educational change and restructuring (Leithwood, 1994; Leithwood & Jantzi,

1996; Silins, 1992; Silins, 1994; Silins et al, 2000). The LOLSO Project teacher survey collected responses on the nature of principal and management practices and school leadership, as well as on the nature of organisational learning. Analysis of responses using confirmatory factor analysis provided empirical evidence for conceptualising leadership practices that promote organisational learning as transformational in nature (Leithwood, Jantzi & Steinbach, 1999; Silins et al., 1998; Silins et al., 2000) The following six dimensions defined the nature of principals' transformational practices:

- Vision and Goals – The extent to which the principal works toward whole staff consensus in establishing school priorities and communicates these priorities and goals to students and staff giving a sense of overall purpose.
- Culture – The extent to which the principal promotes an atmosphere of caring and trust among staff, sets a respectful tone for interaction with students and demonstrates a willingness to change his or her practices in the light of new understandings.
- Structure – The extent to which the principal establishes a school structure that promotes participative decision making, supports delegation and distributive leadership and encourages teacher autonomy for making decisions.
- Intellectual Stimulation – The extent to which the principal encourages staff to reflect on what they are trying to achieve with students and how they are doing it; facilitates opportunities for staff to learn from each other and models continual learning in his or her own practice.
- Individual Support – The extent to which the principal provides moral support, shows appreciation for the work of individual staff and takes their opinion into account when making decisions.
- Performance Expectation – The extent to which the principal has high expectations for teachers and for students and expects staff to be effective and innovative.

A consideration of these transformational practices indicates a move away from a leadership paradigm based on power and control to one based on the ability to act with others and to enable others to act. The principal's role is a significant one in facilitating school restructuring in general and, in particular, the reframing of schools as learning organisations (Leithwood, 1994; Silins, 1992; Silins et al., 2000). Principals will need to engage in sustained professional development to develop the knowledge and skills required to be effective within the new leadership paradigm. Effective principals will model continuous learning while meeting the challenges of aligning organisational members' values and school vision and emphasising learning as a priority for teachers as much as for their students. System learning and improved performance depends on the increased efficacy of principals and teachers, as well as students.

### **Teacher Leadership and Learning**

No-one would argue that teachers must play a key role in embedding organisational learning into the school culture. This requires the professionalisation of teachers' work so that enquiry and the social processing of information becomes an integral part of teachers' practice making organisational learning in schools inevitable (Rait, 1995). In learning organisations, teachers are empowered and supported as professionals and therefore continually increase their capacity for growth and success. When teachers are empowered in areas important to them, they become a profession of learners who engage in inquiry, reflective practice and continuous problem solving, and, at the same time, build leadership capacity (Fullan, 1995).

It is argued, therefore, that the level of formal and informal leadership roles assumed by teachers in any one school provides evidence of their capacity for learning, as well as leadership.

### **Student Engagement with School and Learning**

The primary goal of educational reform is improved student learning. Improved student learning is presumed to be reflected in improved academic achievement. However, decreasing retention rates in Australian high schools indicate that the needs of many students are not being met and they leave before completion (Ainley, 1998). There is evidence to suggest that alienation or disengagement from school is prevalent in the middle and senior years of high school and that greater student participation in class, co-curricular and extra-curricular activities and social groups can counteract these effects (Finn, 1993; Kochan et al., 1996; Newmann, 1989; Soderberg, 1997). Thus, non-achievement outcomes such as student participation in and engagement with school can be important factors in student academic and social success at school (O'Brien & Rollefson, 1995). Also, there is evidence that student engagement with school is a predictor of student achievement and is important for learning to occur (Lee & Smith, 1993; Leithwood et al., 1993; Silins & Mulford, in press).

#### **A study – the relationship between organisational, teacher and student learning**

##### **The Path Model**

Model building in educational research involves the generation of hypotheses based on prior research and theoretical assumptions. A path model represents the concepts and their inter-relations as an attempt to bring them into a structured and meaningful order that more closely represent the complexity of the real world. The variables selected for investigation through this process were drawn from the LOLSO Project data base, and chosen to reflect the concepts of relevance to this study. The model developed to examine the influence of a range of factors on organisational, teacher and student learning, consisted of twelve variables. They represented three categories of variables: School context variables; Internal school variables; and, Student outcome variables.

##### School context variables

###### *SES and School Size*

Students' social class background and school size have been identified as factors that influence student learning and achievement (Hallinger & Murphy 1986; Lee, Bryk & Smith 1993). Mother's and father's occupation as well as Australian Bureau of Statistics measures of economic resources and occupation level were used to control for socio-economic status (SES).

##### Internal School Variables

###### *Resource, Leader, Staff Valued, Leadership Satisfaction, Community Focus, Teacher Learning/Leadership, Organisational Learning and Teachers Work*

Eight internal school variables were used: Resource – the construct representing the extent to which teachers perceive resources as being available to the school to help staff learn; Leader – the nature of the principal's practices in terms of six aspects of transformational leadership identified above; Staff Valued – the extent to which staff feel valued and welcome new staff; Leadership Satisfaction – the construct representing the level of satisfaction with

leadership from all sources in the school; Community Focus – the extent to which school leaders respond to the needs of and work with the community, incorporate community values and establish a productive working relationship with community members; Teacher Learning/Leadership – the extent to which individual teachers, teacher teams or committees and whole staff working together are a source of leadership in the school and representing teachers' capacity for learning in the school; Organisational Learning – the extent to which the school is perceived to be functioning as a learning organisation according to measures on the four factors already identified that define organisational learning; and, Teachers Work – the construct representing students' perceptions of teachers' work in the classroom including their liking of the way teachers instruct, the variety of instructional activities employed, the extent teachers discuss students' work with them, the organisation of their classes, the expectations that they will do their best work, and the extent students are challenged in class.

### Student Outcome Variables

#### *Participation and Engagement*

Two student outcome variables were used as criterion measures: Participation – representing the extent of students' participation in school including absences, participation in extracurricular activities, preparedness to do extra schoolwork, involvement in classroom/school decisions and setting own learning goals, and voicing opinion in class; Engagement – representing the extent of students' engagement with school including students' perception of the way teachers relate to them, perceptions of their relationship with their peers, their perceptions of the usefulness of their schoolwork in later life, and the extent of identification with their school.

### **Analysis**

Twelve variables were included in the model developed to examine the influence of a number of internal school variables on teachers' capacity for learning, on the school's capacity for organisational learning, and the impact of both, through Teachers' Work, on students' learning as represented by students' participation in and engagement with school. External predictors were SES and School Size. The internal predictors were availability of resources (Resource), principal's practices (Leader), staff feeling valued (Staff Valued), satisfaction with all sources of leadership (Leadership Satisfaction), the level of community focus in the school (Community Focus), level of Teacher Learning/Leadership, Organisational Learning and Teachers' Work.

Table 1 presents a description of the variables in the model. SES and School Size are school characteristics; Resource, Leader, Staff Valued, Leadership Satisfaction, Community Focus, Teacher Learning/Leadership, and Organisational Learning involve teacher level data aggregated to the school level; Teachers' Work involves student level data aggregated to the school level to provide the students' view on classroom instruction. Student outcome measures are based on students' views of their participation in and engagement with school aggregated to the school level.

The path model was tested using a latent variable partial least squares path analysis (PLSPATH) procedure (Sellin & Keeves 1997). The initial design of the model was fully recursive and each variable was positioned as it was predicted to influence the succeeding variables in the model. Along with the contextual factors (SES and School Size), Resource, Leader, Staff Valued, Leadership Satisfaction, Community Focus, Teacher Learning/Leadership, Organisational Learning and Teachers Work were depicted as

mediating variables by their placement between the external variables and the criterion variables of Participation and Engagement (illustrated in Figure 1).

Analysis proceeded in two stages. First, the outer model (represented in Figure 1 by the rectangles) was refined by successively deleting the manifest (direct measure) variables that did not contribute to explaining the latent variable (represented in Figure 1 by the ellipses). All measures that had a loading (in the same sense as a principal components analysis) of at least twice their standard error and equal to or greater than 0.40 were retained. Once the outer model was stable, the inner model was refined. Again, all paths were deleted where the path coefficient (similar to regression coefficient) was less than twice its standard error or less than 0.10.

### The School as the Unit of Analysis

The focus of this study is on school level factors associated with teacher, organisational and student learning outcomes. Analysis of the data was restricted at the outset to the school level since information that would allow complete nesting of the student data within teachers, and teachers within schools was not available. The school level model presented indicates the way in which teachers, students and principals work and think in the school. Aggregation to the school level has an inherent meaning in this study since the teachers and leader are providing information about the same school processes, the same leader and his or her operation in the school, and the same sources of teacher leadership and learning in the school. Furthermore, leadership concepts used in this study represent qualities of organisations (Ogawa & Bossert, 1995) and must have as their unit of analysis the organisation. Since the function of leadership is to affect the performance of organisations, leadership parameters are set at the organisational level to influence organisational outcomes.

Aggregation bias will inflate the intensity of the same level relationships in the model – this will affect only the relationships between the internal school factors, not including Teachers Work, and between Teachers Work and the two student outcome measures, Participation and Engagement. The relative strengths of these relationships, however, are likely to be preserved. The relationships between the remaining variables and the student outcome measures will not encounter problems of aggregation bias.

### Results

Table 1 reports the significant loadings of the observed variables for each construct in the model. The strength of the loadings indicates which of the observed variables predominated in the definition of their construct. In the final model, all the observed variables contributed significantly to all constructs in the model.

Table 2 reports the variables that exerted an effect on both the outcome variables and the other latent variables in the model. Direct, indirect and total effects are reported along with the jackknife standard errors and correlations. Five variables emerged as direct predictors of Organisational Learning: Teacher Learning/Leadership ( $p=0.26$ ), Staff Valued ( $p=0.26$ ), Leadership Satisfaction ( $p=0.22$ ), Leader ( $p=0.19$ ) and Resource ( $p=0.17$ ). Significant indirect and negative effects were exerted from two other variables: School Size ( $\beta = -0.23$ ) and SES ( $\beta = -0.18$ ). As well as having a significant direct effect, Resource and Leader exerted the strongest indirect effects on OL ( $\beta = 0.59$  and  $0.43$ ).

Three variables emerged as direct predictors of Teacher Learning/Leadership: Staff Valued ( $p=0.37$ ), Leadership Satisfaction ( $p=0.36$ ) and SES ( $p = -0.22$ ). The negative path indicates that there is some tendency for there to be higher levels of Teacher Learning/Leadership in

the lower SES schools. Two other variables exerted very strong indirect effects on Teacher Learning/Leadership, Resource ( $i=0.50$ ) and Leader ( $i=0.49$ ). A total of 57 per cent of the variation between schools in Teacher Learning/Leadership was explained by these variables.

The best estimate of the proportion of Organisational Learning accounted for by Teacher Learning/Leadership in this model can be calculated by multiplying the path coefficient of the direct effect of Teacher Learning/Leadership on Organisational Learning by their correlation. The proportion of Organisational Learning accounted for by Teacher Learning/Leadership is 20 per cent ( $0.26 \times 0.78$ ), by Leadership Satisfaction 19 per cent ( $0.22 \times 0.87$ ), by Staff Valued 22 per cent ( $0.26 \times 0.86$ ), by Leader 16 per cent ( $0.19 \times 0.84$ ), by Resource 13 per cent ( $0.17 \times 0.78$ ).

Leadership Satisfaction ( $p=0.45$ ), Leader ( $p=0.42$ ) and SES ( $p=0.20$ ) were direct predictors of Community Focus. However, Community Focus did not exert an influence on any other variable in this model.

Organisational Learning was the only direct predictor ( $p=0.28$ ) of Teachers Work. However, Organisational Learning mediated indirect Resource effects ( $i=0.21$ ), Leader effects ( $i=0.18$ ) and Staff Valued effects ( $i=0.12$ ).

Teachers Work and School Size directly influenced Participation ( $p=0.51$  and  $-0.36$ ). The negative path from School Size indicates that student participation is likely to be higher in the smaller schools.

Participation was a direct ( $p=0.29$ ) predictor of Engagement with SES the weakest direct effect ( $p=0.16$ ). Teachers Work, however, exerted the strongest direct influence ( $p=0.75$ ) on Engagement. Indirect influences on Engagement worthy of note were Organisational Learning ( $i=0.25$ ), Resource ( $i=0.19$ ), Leader ( $i=0.16$ ) and School Size ( $i= -0.16$ ).

The combined effect of variables in this model explained 83 per cent of the variance of Engagement. The large amount of variance explained and the stability of the outcome measure reflected by the high Q2 (0.82) indicates a well defined and stable model.

## Discussion

This study set out to examine the nature of organisational learning and the system wide processes that foster organisational learning in high schools and, in particular, the relationship between system, teacher and student learning. Figure 1 illustrates the factors influencing system or organisational, teacher and student learning chosen for consideration in this study and indicates the nature and strength of the inter-relationship between them.

Our model indicates that high schools operating as learning organisations are characterised by all four of the dimensions defining a learning organisation. These schools have agreed upon goals that include developing a trusting and collaborative environment. Processes and structures that support open communication, sharing of information and participatory decision-making are necessary for a school to work as a team of learners and build their capacity for organisational learning. The trusting and collaborative climate factor confirms the need to promote collective learning for continual improvement. Schools require structures that encourage the development of learning communities that value differences, support critical reflection and encourage members to question, challenge and debate teaching and learning issues.

The capacity for organisational learning is increased when members of the organisation are encouraged and supported to take initiatives and risks. Teacher empowerment involves participating in significant decisions and having school structures in place that allow teachers to engage in collective inquiry and dialogue. Organisations learn when their members feel free to experiment and risk making mistakes in an effort to increase the knowledge and skills available to the organisation. Openness to change becomes a system characteristic when members support each other in initiating change within their own practice and their efforts are acknowledged and applauded by their leaders and peers. Learning as a team encourages experimentation and risk taking.

Organisational learning requires monitoring and review of the school's mission and goals for continual development of shared understandings, values and practices. Argyris and Schön (1996) have referred to transformative learning as double-loop learning where the organisation not only changes its actions and modes of operating in response to feedback (known as single-loop learning) but also its guiding underlying assumptions and core values to bring about transformative or second order change. Regular and critical monitoring of the environment, examination of current practices in the light of achieving school goals, and the re-examination of the relevance of those goals ensures organisational learning.

Continual improvement requires continual learning. The principal and staff must seek feedback and opportunities to improve their knowledge and skills. Reframing schools as learning organisations challenges schools to allocate resources and time to professional development in order to expand their capacity for learning as a system.

Our results identified five significant predictors of high schools operating as learning organisations. These five factors are measures of organisational learning capacity. Therefore, the level of organisational learning observed in a high school will depend on (1) the level of teacher learning in teams or whole staff, (2) the extent their work is valued, (3) the level of leadership satisfaction, (4) the extent transformational leadership practices are evident and (5) the extent that resources are perceived as sufficient for learning to occur.

In schools functioning as learning organisations, leadership becomes a systemic characteristic or organisational quality (Ogawa & Bossert, 1995). Individuals who possess information needed by others are in a position to influence others, or provide leadership, through social interactions and networks. Teacher empowerment, leadership and learning are probably inextricably linked in a school committed to continual improvement. Our model indicates that teachers' capacity for learning and leadership is characterised most strongly by staff functioning as a collective. Learning is enhanced when the work of staff is recognised and their contributions valued. Teacher satisfaction with the school leadership team is a significant predictor of the extent of teacher involvement and engagement with the school and learning. Satisfaction with leadership is dependent on the extent that school leaders are skilled in transformational practices that provide goals, culture and structures that promote interdependence and enhanced efficacy. Higher levels of teacher learning and leadership are more likely to occur where there are transformational leadership practices. Our model indicates this is more commonly found in relatively smaller schools and the lower SES schools where the challenges are greater.

The school restructuring literature has advocated that schools work more collaboratively with their community (Retallick & Fink, 2000; Robertson & Briggs, 1998). Community focus, defined as school leaders working with the community and being sensitive to community needs and values was included in the model to examine the influence on system learning. Teacher satisfaction with leadership and transformational leadership practices were strong predictors of developing a community focus in the school. This was more likely to occur in schools with higher SES student representation. However, the school's collaboration with

the community had no influence on teacher learning, organisational learning, teachers' work or student outcomes. We suspect that a school community focus may act to counteract system, teacher and student learning because of the additional demands it makes on teacher energy and time. Schools have yet to develop strategies that will enable them to reap the benefits of community involvement without depleting the time and energy required to promote organisational learning.

Our model indicates that organisational learning significantly enhances teachers' work in the classroom. Organisational learning is a significant mediator of the principal's leadership and resource effects on teachers work and through teachers' work on student participation in and engagement with school. Our results also show that high schools with higher levels of teacher learning and leadership achieve higher levels of organisational learning. Teacher learning is a system factor and enhances organisational learning which, in turn, contributes to enhancing student learning.

Finally, our results indicate that students are increasing their capacity for learning when they voice their opinions in class, participate in decision-making and goal setting and participate in extra-curricular activities. Students who are successful at school identify with school and become emotionally involved with school life. Teacher and student relationships are critical to promoting student engagement with school and learning. Engaged students perceive schoolwork as making a useful contribution to their present and later life. Positive peer relationships also contribute to maintaining student engagement with school. Reframing schools as learning organisations challenges the way we think about student learning by moving us beyond focusing on student achievement measures. Students who actively participate in classroom and school activities enjoy the successful experiences that participation and engagement can bring.

### **Conclusion**

Leadership and organisational learning, as system factors, have been shown to influence what happens in the core business of the school; the teaching and learning (Silins & Mulford, in press). They influence the way teachers organise and conduct their instruction, their educational interactions with students, and the challenges and expectations teachers place on their students. Students' perceptions of teachers' work are also influenced by the extent that systems are operating in the school that define it as a learning organisation. The higher the teachers' ratings of the school on the four dimensions defining organisational learning, the more positively teachers' work is perceived in the classrooms by their students.

Our findings support shared learning through teams of staff working together to augment the range of knowledge and skills available for the organisation to adapt to change and anticipate future developments. To access this learning, as many sources of leadership (or initiative) needs to exist in the organisation as sources of learning. A school that operates under restrictive sources of leadership limits its ability to function as a learning organisation and limits its ability to improve performance.

The capacity for organisational learning in schools depends on the capacity for learning of members of the organisation, particularly principals and teachers. Teachers' capacity to engage in continuous learning within their organisations goes beyond any individual's capacity for learning. When schools are reframed as learning organisations, this entails the establishment of system structures, processes and practices that facilitates continuous learning of all its members. Organisational learning is more likely to occur in schools where staff are looking out for opportunities to increase knowledge and improve skills and are provided with sufficient resources and time to develop professionally.

The strong influence of teachers' work on student participation and engagement sends a clear message that what teachers do in the classroom reflects their own involvement and engagement with the school as a learning organisation. Students are able to describe the personal interactions and the kind of classroom organisation that they value and appreciate. In addition, students appreciate the teachers who make them feel valued and cared about as individuals in the same way as teachers appreciate the leaders who make them feel valued and supported. Our research indicates that the social and relationship factors are critical in drawing the members of the organisation together into a system of interdependent learners. At this stage, all indications are that the capacity for learning in an organisation is reflected by its capacity for organisational learning.

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Table 1

*Description of Variables in the Model of Factors Influencing Teacher Leadership, Organisational Learning, and Student Engagement (Figure 1)*

<b>Variables description and coding</b>	<b>Mean</b>	<b>SD</b>	<b>Loading*</b>
<i>Socioeconomic Status</i> [outward mode] Residence category (Ecres) Education/occupation category (Edocc)	930.57 939.42	65.51 74.72	.97 .98
<i>School Size</i> [unity mode] Size in 1997 (Size97)	631.94	283.23	1.00
<i>Resource</i> [unity mode] Resources available to help staff (Res)	3.26	0.36	1.00
<i>Leader</i> [outward mode]  <i>Teacher level of agreement on six aspects of principal's leadership practices in the school.</i>  1 = <i>strongly disagree</i> ; 2 = <i>mostly disagree</i> ; 3 = <i>in between</i> ; 4 = <i>mostly agree</i> ; 5 = <i>strongly agree</i> .			
Vision and goals (Goal) Culture of caring (Culture) Structures for participatory decision making (Struc) Intellectual stimulation (Inst) Individualised support (Inds) Performance expectations (Perf)	3.56 3.63 3.68 3.34 3.50 3.89	0.44 0.54 0.40 0.43 0.50 0.36	.98 .96 .95 .95 .94 .88
<i>Staff Valued</i> [outward mode]			

<p><i>Teacher level of agreement on three aspects of staff being valued.</i></p> <p>1 = <i>strongly disagree</i>; 2 = <i>mostly disagree</i>; 3 = <i>in between</i>; 4 = <i>mostly agree</i>; 5 = <i>strongly agree</i>.</p>			
New staff valued and welcomed (Ld15)	3.78	0.39	.91
Staff contributions valued (Ld19)	3.23	0.46	.94
<p><i>Leadership Satisfaction</i> [unity mode]</p>			
Satisfaction with leadership (Tsat)	2.56	0.39	1.00
<p><i>Community Focus</i> [outward mode]</p> <p><i>Teacher level of agreement on four aspects of working with the school community.</i></p> <p>1 = <i>strongly disagree</i>; 2 = <i>mostly disagree</i>; 3 = <i>in between</i>; 4 = <i>mostly agree</i>; 5 = <i>strongly agree</i>.</p>			
Administrators sensitive to community (Ld5)	3.73	0.37	.95
Administrators work with community reps. (Ld8)	3.67	0.40	.95
Administrators incorporate community values (Ld18)	3.44	0.40	.95
Productive working relations with community (Ld20)	3.47	0.44	.95
<p><i>Teacher Learning/Leadership</i> [outward mode]</p>			
From individual teachers (Indtch)	2.68	0.26	.79
From teacher teams (Tchteam)	2.57	0.28	.85
From whole staff (Whst)	2.64	0.41	.92

(continued)

Table 1 — continued

Variables description and coding	Mean	SD	Loading*
<p><i>Organisational Learning</i> [outward mode]</p>			
Collaborative climate	3.58	0.27	.91
Taking initiatives and risks	3.27	0.33	.96
Improving school practices	3.36	0.37	.96
Professional development	3.09	0.25	.90
<p><i>Teachers' Work</i> [outward mode]</p>			
Like the way teachers teach (Lkinstr)	3.01	0.35	.88
	3.13	0.29	.87
	3.18	0.30	.82

Variety activities in class (Varact)	3.36	0.29	.88
Teachers discuss my work with me (Diswk)	4.07	0.22	.70
Most classes well organized (Org)	3.18	0.21	.80
Teachers expect me do my best work (Bestwk)			
Constantly challenged in class (Chall)			
<i>Participation</i> [outward mode]			
	2.04	0.23	.51
	2.08	0.36	.69
Mean no. of days skipped/late (Notab)	2.35	0.32	.67
Extracurricular participation (Expart)	3.02	0.18	.71
Do extra school work (Exwk)	3.45	0.25	.75
Setting my goals (Goalset)			
Enjoy giving my opinion in class (Opinion)			
<i>Engagement</i> [outward mode]			
	3.18	0.29	.88
	4.10	0.20	.70
Student teacher relationship (Stutch)	3.62	0.23	.84
Satisfaction with peer interaction (Peer)	3.02	0.33	.90
Usefulness of schoolwork for future life (Utility)			
Identification with school (Ident)			

\*PLS Path factor loadings

Table 2

*Direct, Total, Indirect Effects, and Correlations of Latent Variables Influencing Teacher Learning, Organisational Learning, and Student Engagement (Figure 1)*

Variable	Direct Effects <i>p</i>	JknStda Error	Total Effects <i>t</i>	Indirect Effects <i>i</i>	Correlation <i>r</i>
<i>School Size</i> $R^2 = .32$ ( $d = .82$ ) $Q^2 = .29$					
Socioeconomic Status	.56	.07	.56	—	.56
<i>Resource</i> $R^2 = .09$ ( $d = .95$ ) $Q^2 = .05$					
Socioeconomic Status	—	—	-.17	-.17	-.20
School Size	-.30	.09	-.30	—	-.30
<i>Leader</i> $R^2 = .53$ ( $d = .69$ ) $Q^2 = .51$					
Socioeconomic Status	—	—	-.12	-.12	-.12
School Size	—	—	-.22	-.22	-.33
Resource	.73	.06	.73	—	.73
<i>Staff Valued</i> $R^2 = .61$ ( $d = .62$ ) $Q^2 = .58$					

Socioeconomic Status	—	—	-.12	-.12	-.22
School Size	—	—	-.21	-.21	-.36
Resource	—	—	.69	.39	.69
Leader	.30	.11	.53	—	.75
	.53	.11			
<i>Leadership Satisfaction R2 = .77 (d = .48) Q2 = .75</i>					
Socioeconomic Status	—	—	-.11	-.11	-.10
School Size	—	—	-.20	-.20	-.25
Resource	—	—	.66	.66	.71
Leader	—	—	.80	.15	.86
Staff Valued	.65	.07	.28	—	.77
	.28	.07			
<i>Community Focus R2 = .71 (d = .54) Q2 = .68</i>					
Socioeconomic Status	.20	.06	.10	-.10	.10
School Size	—	—	-.18	-.18	-.14
Resource	—	—	.61	.61	.63
Leader	—	—	.78	.36	.78
Staff Valued	—	—	.13	.13	.68
Leadership Satisfaction	.42	.11	.45	—	.79
	—	—			
	.45	.10			
<i>Teacher Learning R2 = .57 (d = .66) Q2 = .53</i>					
Socioeconomic Status	-.21	.08	-.30	-.08	-.33
School Size	—	—	-.15	-.15	-.42
Resource	—	—	.50	.50	.55
Leader	—	—	.49	.49	.57
Staff Valued	—	—	.47	.10	.70
Leadership Satisfaction	—	—	.36	—	.67
	.37	.10			
	.36	.09			

(continued)

Table 2 — continued

Variable	Direct Effects <i>p</i>	JknStda Error	Total Effects <i>t</i>	Indirect Effects <i>i</i>	Correlation <i>r</i>
<i>Organisational Learning R2 = .90 (d = .32) Q2 = .89</i>					
Socioeconomic Status	—	—	-.18	-.18	-.27
School Size	—	—	-.23	-.23	-.36
Resource	—	—	.76	.59	.78

Leader	.17	.06	.63	.43	.84
Staff Valued	.19	.07	.44	.18	.86
Leadership Satisfaction	.26	.06	.31	.09	.87
Teacher Learning	.22	.08	.26		.78
	.26	.05		—	
<i>Teachers' Work</i> R2 = .08 (d = .96) Q2 = .04					
Socioeconomic Status	—	—	-.05	-.05	-.14
School Size	—	—	-.06	-.06	-.03
Resource	—	—	.21	.21	.21
Leader	—	—	.18	.18	.27
Staff Valued	—	—	.12	.12	.16
Leadership Satisfaction	—	—	.09	.09	.24
Teacher Learning	—	—	.07	.07	.16
Organisational Learning			.28		.28
	.28	.09		—	
<i>Participation</i> R2 = .40 (d = .77) Q2 = .35					
Socioeconomic Status	—	—	-.23	-.23	-.31
School Size			-.39	-.03	-.37
Resource	-.36	.07	.11	.11	.10
Leader			.09	.09	.23
Staff Valued	—	—	.06	.06	.15
Leadership Satisfaction	—	—	.04	.04	.14
Teacher Learning	—	—	.04	.04	.15
Organisational Learning	—	—	.14	.14	.25
Teachers' Work	—	—	.51		.52
	—	—		—	
	.51	.08			
<i>Engagement</i> R2 = .83 (d = .41) Q2 = .82					
Socioeconomic Status	.16	.05	.06	-.11	-.03
School Size			-.16	-.16	-.01
Resource	—	—	.19	.19	.15
Leader	—	—	.16	.16	.28
Staff Valued	—	—	.11	.11	.18
Leadership Satisfaction	—	—	.08	.08	.23
Teacher Learning	—	—	.06	.06	.09
Organisational Learning	—	—	.25	.25	.26
Teachers' Work	—	—	.90	.15	.88
Participation			.29		.63
	.75	.04		—	
	.29	.05			

Note. aJknStd = Jackknife Standard Error of the direct effects path coefficient.

bd = residual standard error.

Figure 1: Factors influencing system, teacher and student learning.

