

Schools as learning organisations learning more about learning

J. K. Munro¹

The University of Melbourne

Abstract *This paper examines the process of school improvement from the perspective of the learning community. It synthesises three contemporary concepts in school improvement :*

- (1) *school improvement can be perceived as an organisation learning.*
- (2) *a major source of variation in school effectiveness is at the classroom level.*
- (3) *school community learning is a multi-tiered learning process that involves knowledge change by a number of 'learning units' at a number of organisational levels. Learning by each unit can be operationalised and is more likely when each unit is led by appropriately trained 'leaders of learning'.*

It describes a case study of whole school change in a secondary high school of 1400 students. The whole school improvement project aimed to improve the quality of student learning outcomes through improved teacher knowledge of an explicit theory of C21s adolescent learning.

The theory of learning comprises learning interactions. It proposes that learning is contextual or 'situational', with learners interacting with information sources in specific ways (the 'learning interactions'). Learners: (1) frame up reasons for learning; (2) develop an impression of the outcomes or goals of learning; (3) link with relevant existing knowledge; (4) see a pathway from one's existing knowledge to the goal; (5) learn new ideas in specific, 'scaffolded' ways; (6) re-cast the outcomes in more abstract, general ways; (7) identify how they learnt; (8) invest positive emotion in the new knowledge; (8) encode the new knowledge in memory; (9) see learning progress; (10) automatise what has been learnt; (11) transfer and generalise the new knowledge and (12) organise what has been learnt for assessment purposes.

The set of interactions was used across subject areas in two ways : (1) to provide a basis for evaluating and improving student learning and (2) to implement professional staff learning at each tier of the school..

Teaching staff mapped this theory into teaching procedures in their subject areas, researched aspects of these and observed the influence of the modified teaching on student learning in four areas; (1) student achievement ; (2) student engagement in learning; (3) student knowledge about how to learn the topic; (4) student attitude to learning the topic. Staff reported the outcomes to their professional action learning team, their faculty and to the school in action research reports in the form of posters.

Across the faculties, student outcomes in the four areas improved following the modified teaching ($p < .01$). Teachers in all faculties reported an obvious, permanent improvement in teaching practice, improved awareness of individual differences in how students learn, improved ability to cope with problems that arise in their teaching, assistance with forward planning and increased competence in practice enhancement. Most faculties reported increased interest in student learning: increased teachers' beliefs about the power of good teaching, increased useful dialogue about effective teaching and learning and improved teacher confidence to understand how students learn.

¹ This paper was presented at the International Congress of School Effectiveness and Improvement in Sydney, Australia in January, 2003.

The present paper examines the process of school improvement from the perspective of the learning community. It synthesises three contemporary concepts in school improvement

- (1) school improvement as an organisation learning. This process is most effective when it is underpinned by an explicit theory of learning. The improvement process is described using learning variables such as the organisation's relevant existing knowledge, the steps it takes to learn, the knowledge goals it sets.
- (4) a major source of variation in school effectiveness is at the classroom level. School improvement is more likely when enhanced learning-teaching interactions is targeted.
- (5) a community such as a school learning can be seen as a multi-tiered learning process that involves knowledge change by a number of 'learning units' at a number of organisational levels. Learning by each unit can be operationalised. Learning is more likely when each unit is led by appropriately trained 'leaders of learning'.

Background to the study

The paper describes a case study of whole school change in which a model of learning is applied to a secondary school of 1400 students. The aim was to improve the quality of student learning outcomes through improved teacher knowledge of how C21st adolescents learn.

Concept of a learning organisation

The concept of the learning organisation and learning community emerged in the 1980s (Senge, 1990). It marked the transition of an organisation a base referenced on industrial age thinking to one referenced on a knowledge enhancement perspective. A key aspect of this transition centres around the issues of the source of knowledge and power within the organisation (Senge, Cambron-McCabe, Lucas, Smith, Dutton & Kleiner, 2000). Underpinning the transition are two dimensions; one relating to assumptions made about the nature of knowledge and how it is acquired and a second relating to the implementation of power relationships within the organisation or community.

These issues relate particularly to the construction of schools as learning communities. While many schools may identify themselves as learning communities, the term is used appropriately for those that display particular criteria.

Schools referenced on an industrial age model are managed by specialists who maintain a high level of control. Knowledge is seen as absolute and is taught in specific subject areas. These schools are structured or organized on the basis of knowledge consisting of separate, fragmented categories. Schools referenced on learning community model see the locus of control within the system itself; the focus is on self managed team learning. Knowledge is seen as the best social interpretation or representation of reality at that time. They are structured in the interrelatedness of areas of knowledge, learnt in part through mutual collaboration.

Much of this discussion about the learning community has been at the 'big picture' level. The focus of this paper is on operationalising aspects of learning communities and in particular the role of educational leadership. It unpacks this topic, particularly from a learning perspective.

What is a learning community? There is obviously a range of perceptions. Most note a commitment to shared learning among the community members (for example, see Prawat 1993), achieved through on-going social and intellectual inter-relationships between the members that are enhanced through commitment to the goals shared by the community. My preferred definition is as follows:

It is a community that is learning. It is increasing its knowledge about particular topics or issues. It is not simply a group of individuals who each pursue her or his learning goals. The 'community' focus suggests, in addition, shared knowledge and goals. While learners in the community may be pursuing their own goals, they are also contributing to the changing knowledge of the community and to the community goals for learning.

This perception makes a number of assumptions about learning. Some of these are indicated in Figure 1.

How ? What does the community need to do to learn ?	What ? What knowledge is the community learning ?	Goals ? What are the goals / intended outcomes of learning held by the community ?
From where ? What does the community already know about the topics it is learning ?	Learning communities learning	Pedagogy ? What are the teaching procedures, information sources and banks used by the community to learn ?
Progress ? What are indicators of the community learning ?	Why ? What are the sources of motivation for the community to learn ?	Show what it has learnt ? How will the community need to show what it has learnt ?

Figure 1 : Assumptions about learning.

Each question indicates an aspect of the community activity that may be operationalised for learning to occur.

Leading a learning organisation : Instructional leadership

Instructional leadership

Every learning community or culture needs to be led, preferably from within. Instructional leadership is the means by which this occurs. The focus for the present paper is on the insight provided by the instructional-learning perspective. This perspective is exemplified by questions such as “How would the issue be understood / analysed from a learning /teaching perspective ?”, “What learning / change is necessary ?” “What is the current state of relevant knowledge of the issue ? How would the change in knowledge be facilitated ? What conditions would need to be in place for teaching / learning to occur ?

Instructional leadership targets the issue from a learning and teaching perspective. It involves the leadership using instructional means to deal with the issue and to solve the problem. Instructional leadership refers both to leadership of the instructional processes in a school (or other organization) and leadership in the use of instructional processes dealing with issues in the organization.

In recent years, approaches to instructional leadership have stressed the principle of equality rather than hierarchy and the processes of reflection and growth, rather than compliance (Gordon, 1997). The principle of equality, when applied to knowledge enhancement, recognises that each member of the learning community may have a unique understanding of an issue that can contribute to group knowledge. The processes of reflection and growth are the means by which knowledge grows. Both derive from the model of the learning organisation described earlier.

These approaches have been based on a broadening perception of the role of principals, away from principal-centred supervisory practices to one of collaborative inquiry (Blase & Blase, 1994; Reitzug, 1997). Concepts such as transformational leadership, participative leadership, and the decentralisation of decision making describe this transition (Hallinger & Heck, 1996).

This leadership style puts in place a supportive environment that leads to a school-wide action plan for growth and that facilitate all teachers' thinking about practice. It sees learning as contextual and complex, teaching based on reflective judgment, and schools as democratic teaching and learning

communities. It fosters inquiry-focused activities that involve a critical analysis of classroom interactions (Reitzug and Cross, 1993; Smyth, 1997) and that are implemented in collaborative learning contexts to assist staff to enhance their professional knowledge and skills.

Principals' instructional leadership style have a strong relationship on teachers' instructional behaviours and attitudes. The little research evidence available (Blase & Blase, 1996; Dungan, 1993) shows that leadership style affects factors such as consideration and tolerance for students, planning, creativity, monitoring of student learning, time on task, expectations for student achievement, focus, and problem-solving orientation (Blase, 1987; Leithwood, 1994; Sheppard, 1996). Leaders' behaviors that were linked with positive outcomes were framing and communicating school goals, supervising and evaluating instruction, monitoring student progress, protecting instructional time, maintaining high visibility, providing incentives for teachers, supporting professional development and providing incentives for learning. Principals who modelled inquiry, asked questions, encouraged risk taking, required justification of practices led to increased teachers' greater critique of practice, consideration of alternatives, teamwork with colleagues, and implementation of innovations (Reitzug, 1994).

Blase (1999, 2000) examined teacher perceptions of how principals' leadership styles influenced classroom instruction. Their research led to a model of effective instructional leadership that consisted of two themes: (1) talking with teachers to promote reflection and (2) promoting professional growth. Five primary types of dialogue scripts that encouraged teachers to reflect critically on their learning and professional practice were reported. Principals judged to be effective

- made suggestions that were purposeful, appropriate, non threatening. They were characterized by listening, sharing their experiences, using examples and demonstrations, giving teachers choice, encouraging risk taking, recognizing teachers' strengths, and maintaining a focus on improving instruction.
- gave feedback that focused on observed classroom behavior, was specific, expressed caring and interest, praised, established a problem-solving orientation, responded to concerns about students, and stressed access to follow-up talk.
- modelled and demonstrated teaching techniques in classrooms and positive interactions with students.
- used inquiry and solicited teachers' advice about instructional matters.
- gave praise that focused on specific and concrete teaching behaviors.
- distributed professional information, encouraged teachers to be involved in workshops and conferences, and encouraging reflective discussions and collaboration with others.

Effective principals used six strategies for fostering professional growth : they

- emphasized the study of teaching and learning and provided appropriate staff development opportunities to learn new strategies and new learning techniques.
- supported collaboration among teachers. They modelled teamwork, provided time for collaborative work, and actively advocated sharing and peer observation, observing other classrooms and programs.
- developing coaching relationships among staff.
- encouraged, supported and resourced the redesign and fine tuning of instructional programs and supported a range of approaches to teaching and learning.
- applied the principles of adult learning, growth, and development to staff development.

- implemented action research to inform instructional decision making. This activity provides the necessary class and school-based data about learning that teachers need to determine the effects of what they do in their classrooms (Calhoun 1994).

In summary, instructional leadership that involved principal-teacher interaction about instruction, processes such as inquiry, reflection, exploration, and experimentation was seen as most effective; teachers build repertoires of flexible alternatives rather than collecting rigid teaching procedures and methods.

Although this model has been explicated, its operationalisation has been limited (Blase, 1999, 2000) with its practice often restricted to inspection, oversight, and judgment of classroom instruction (Gordon, 1997). A possible reason for this is the lack of a clear, explicit model of learning that underpins and guides both the learning of individuals and the community.

Assumed in the review above is an understanding of the learning process and means for fostering it. Principals seen as most effective implemented practices that allowed learning to occur. The types of dialogue reported by Blase (1999, 2000) and the strategies for fostering professional growth suggest an understanding of learning by the most effective principals. It is worthy noting that none of the studies reviewed for this paper present an explicit model of learning. The need for such a model is even greater when one considers that the goal of the community learning is for changed practice to enhance the learning of school students.

Present study

The aspects of the model of learning examined in this study are

- (1) an explicit model of learning
- (2) the learning organisation is the learning context
- (3) the knowledge to be learnt is the learning structure

Learning functions.

The position taken in this paper is that a successful learning community will be underpinned by a explicit theory of learning that maps clearly into decision-making, practice and policy. This theory needs to scaffold knowledge enhancement for community members and for groups in the community.

We are all aware that a range of learning theories exist. Many are not teaching-friendly and as a result, are not used in regular teaching. The approach used here focuses on what learners need to do to learn effectively. These are referred to as 'learner functions' or learning interactions.

Learning occurs in contexts. The contexts provide information sources such as peers and parents, teachers, on-line learning programs, books and other media sources. To learn successfully, learners interact with the teaching information in various ways; they need to use actions or 'learning functions'. The information to which the learner is exposed is determined by what the community or culture values. These values will also be indicated in the feedback learners receive. Teaching will be most effective when it fosters these interactions. The focus is on the quality of these interactions and the extent to which they lead to knowledge enhancement.

Learning interactions are what learners do to learn. The sequence of interactions or learning functions is as follows:

- 1. *A purpose for learning*** Learners frame up and explicate their purpose or reason for learning a topic. This can range from a largely emotional drive to satisfy one's interest or curiosity to an explicit challenge or question to be answered.
- 2. *The outcomes of the learning*** Learners visualize the desired outcomes of the learning. They form an impression of where they will end up, what they will know, be able to do or what they may believe or feel. They 'see' the goals as personal experiences.

3. *What learners know about the topic* Learners make links with and use what they know about the topic. There are several aspects of this; they recall

- what they know about the topic; their abstract, imagery and experiential and action knowledge of it.
- what they know about how to learn it, how to think through the topic.
- what they believe about themselves as learners of the ideas, how they value the ideas, whether they believe they can learn the topic successfully (their self-efficacy).
- what they don't know about the topic, their unanswered questions about the topic.

They may recode what they know about the topic to a form that they believe will match the teaching. A learner who believes that the teaching information will largely require the use of imagery may recode an abstract understanding of a topic to a set of images or episodes.

4. *A pathway to the goal* Learners build or "see" a possible pathway to their goal. While the pathway may change direction during the learning activity, at any time it assists in orienting the learning.

5. *Learn in specific contexts* Learners learn the new ideas in specific contexts in limited, supported, 'scaffolded' ways. They may learn aspects or components of the topic at any time, learn it in particular formats (as actions, as imagery, in language) explore and trial particular components.

6. *Abstract or deepen the new understanding.* Learners deepen their new understanding. They abstract or "decontextualize" it, and link it more broadly with what they know. They review the new knowledge, integrate various aspects of it, consolidate it with what they knew, re-prioritize their knowledge and identify a range of contexts in which they can use it.

7. *Invest positive emotion in the new knowledge* Learners invest positive emotion in the new knowledge; they see (1) the new ideas as interesting, have a value or use, (2) that is was their mental activity that learned the ideas and (3) that they managed and directed aspects of the learning.

8. *Store what they have learnt in memory* Learners store what they have learnt in memory and practise remembering it. They say briefly what they have learnt, link it with what they know, build memory "icons" for it and practise recalling it.

9. *Identify how they learnt* Learners identify how they learnt, what they did that helped them to learn. This includes both the learning strategies they used and the metacognitive control they exerted over the learning. They reflect on and review the actions they used to learn.

10. *Making progress as a learner* Learners see themselves making progress. They implement their own indicators of learning and use these to map and to monitor their progress.

11. *Automatise what they have learnt* Learners automatise aspects of what they have learnt so it can be used for further learning. They do this by automatizing links between ideas and organizing what they know into larger "chunks".

12. *Transfer and generalise the knowledge* They transfer and generalise the new knowledge. They explore and analyse the new understanding from a range of perspectives, for example, use Bloom's levels of questioning, de Bono's Six Thinking Hats, Taylor's Multiple Talents Model. They explore the extent to which they can transfer the ideas (near and far transfer) and use the knowledge in open-ended creative problem solving.

13. *Organise what they have learnt for assessment* They organise what they have learnt for assessment purposes. They reflect on the context in which they need to display and apply the knowledge, how they can align the knowledge with various assessment context.

The set of interactions are generic, not based in particular topics or subject areas. Each is linked with a set of teaching procedures that we have been researching over the past decade.

The sequence fits well with the contemporary focus on knowledge enhancement. Each learning interaction is a strategy that individuals can use to modify or enhance their knowledge. The set of strategies provides a systematic framework for transforming knowledge.

The learning context : the learning organisation

Types of learning units in a school. Most schools are too complex to be seen as a single learning unit. Different parts of a school seek to learn about a particular topic but with slightly different outcomes. A primary school learning to improve its literacy outcomes might involve some teachers wanting to learn more about literacy in the early years. A secondary school wanting to improve its teaching practice may involve a learning group in each faculty or subject area. This paper uses the term ‘key learning area’ (or KLA) to refer to the learning unit that is adopted

A learning community consists of multiple ‘units of learning’ or learning entities. Each learns in a particular domain with its own purposes and goals. In a school context, the types of units include

- the individual members such as students, parents and / or teachers. In a school context, individual members may be interested in learning in particular contexts, such as classrooms.
- the groups into which these members are organized for learning. Each group is led by at least one leader at any time, the middle level leaders of learning (MLLL). They may be faculty or department heads or individuals with the responsibility for directing the group learning.
- the leadership team for the organization or community. The school leadership team leads learning at the global level. It looks at whole school learning, learning in relation to other schools and other bodies in the community. It may engage in interpreting policy at the community level. It looks beyond and outside of the school as well as 'into and across the school' in relation to any learning goal.

The various levels or ‘tiers’ of learning units are shown in Figure 2.

The school leadership team SLT unit learning							
Faculty 1 learning unit led by MLLL				Faculty 2 learning unit led by MLLL			
PALT 1		PALT 2		PALT 3		PALT 4	
Teacher 1	Teacher 2	Teacher 3	Teacher 4	Teacher 5	Teacher 6	Teacher 7	Teacher 8

Learning in groups

Each learning group has its own domain for learning, goals and action plans. The groups at each level need to be led in their learning activity. The nature of the leadership, and the types of knowledge to be learnt at each level however, differ.

Middle level leaders of learning (MLLL) Middle level leadership to learn operates at the faculty level. It is the interface between the school leadership team, individual teachers and groups of teachers working within in each faculty. Each group is led by at least one leader at any time. These operate as ‘middle level leaders of learning’. They may be department leaders in a primary school and co-ordinators or subject area heads in the secondary context. Leaders may be chosen by each group

and can also operate on a rotational basis. For the most effective learning, these leaders need particular skills in leading the learning of the group. Areas of skill may involve

- leading the learning; ‘leaders of learning’ need an understanding of learning that is sufficiently broad and deep to understand and deal with the plethora of issues that may arise. This integrated knowledge needs to have both conceptual and procedural aspects, so that it can ‘be done’ as well as ‘talked about’. Aspects include
 - (1) understanding relevant generic aspects of learning,
 - (2) understanding how the learning is applied in the particular domain or subject
 - (3) map this knowledge into effective teaching practice and links with relevant curriculum
 - (4) use to identify learning demands of teaching, unpack topics, cognitive task analysis.

- developing and fostering professional action learning teams within in the group, understanding how PALTs learn, the conditions necessary for group learning, encouraging members of the team to take the running on particular aspects and issues, managing, directing and facilitating relevant action research in the content area.

- leading the development of a learning enhancement action plan, managing and directing the implementation and monitoring the work of the team, identifying mechanisms for collecting data and put in place procedures for group goal setting, identifying key areas in which data will be gathered (for example, measures of student achievement outcomes, student attitudes to learning in the area, student knowledge about how to learn and their beliefs about learning and themselves as learners.

- facilitating on-going group and individual learning, recognising and handling multiple ways of learning in the group. Coaching individual members and groups, planning and implementing coaching interventions. The use of coaching as a tool in instructional leadership has been researched extensively. Lemahieu, Roy & Foss, 1997 note that effective instructional leadership needs to be based on current conceptions of teaching and learning, with the opportunity for reflective practice and exploration of a variety of instructional methods to meet the diverse needs of students.

How to lead in a learning community We have noted that a learning community consists of multiple units of learning, each involved in learning in a particular domain with particular purposes and goals for learning. The model of learning interactions was developed initially for individual students learning. It can, as well, be used to describe the learning by each unit in the community. It provides a ‘blue print’ or a plan for leading the learning. It can be used to identify

- possible indicators of community that has a strong learning base
- the actions that leaders of each learning unit need to take to foster learning
- indicators of learning and knowledge enhancement within the unit and the community.

Set of learning interactions			
Apply to SLT ² leading learning at global level: <ul style="list-style-type: none"> • whole school learning, looks beyond school, 'into and across the school' • learning in relation to other bodies • interpreting policy at the community level. 	Apply to KLA learning Use a model of adult collaborative learning	Apply to KLA leader or MLLL leader learning	Apply to individual teachers learning in particular contexts. Use a model of adult learning

Figure 3 : The areas of application for the set of learning interactions.

² SLT : the senior leadership team in the school.

It is possible, therefore, to examine the types of learning activities that each tier in the school community will use to achieve effective learning by working through each learning interaction or function. Examples are shown in Figure 4 for three tiers, the school leadership tier, the leader of KLA tier and the KLA group learning by working through two of the early interactions, (1) the vision of the outcomes of learning, the goals and (2) using existing knowledge. Examples of the activities that may be used at the school leadership tier for working through each interaction are shown in Figure 5 .

Figure 4 : Types of learning activities for the school leadership, middle level leadership and the group tiers learning by clarifying the vision of the outcomes of learning and by using existing knowledge.

	leaders of school	*leader of KLA	*KLA group
vision of the outcomes of learning, the goals	<ul style="list-style-type: none"> identifies outcomes for the school given the change. What will be school / students and staff being doing differently for what they are doing now ? plans how to will the leader communicate the vision to various bodies in the school, to map the vision operationally, how to allocate parts of it to school members 	<ul style="list-style-type: none"> How will the KLA leader communicate the vision to the KLA group and allocate parts of it so that ownership of it is taken by members KLA ? may need to coach KLA members to comprehend vision in the context of KLA, assist the group and each staff member to explicate the vision, deal with it, align it with their existing beliefs, recognise roles and functions, deal with potential threats, possibilities. 	<ul style="list-style-type: none"> What is the vision of the KLA re the change ? What will students and staff being doing differently from what they are doing now ? identifies outcomes for the KLA given the change ? What will students and staff being doing differently in the KLA ? identifies how the KLA group will support the development of the vision and ways if implementing it. identifies the key component roles or functions of each staff member in the vision.
use existing knowledge	<ul style="list-style-type: none"> identifies the level of current knowledge (abstract, experiential) school has about the domain of the change ? puts in place processes for gathering this. To what extent is this sufficient to support change ? identifies the school's attitude to and confidence in changing, preparedness to take risks. Implements procedures to identify this. identifies the school's level of commitment to changing, preparedness to display an expectation that the change will occur . identifies the processes in the school that will allow the change to occur ? What does the school know about how to manage, direct and monitor the change ? 	<ul style="list-style-type: none"> implements procedures to collate KLA knowledge that is relevant to the change. implements procedures that allow relevant KLA knowledge to be displayed to the group and valued. identifies the processes necessary to increase KLA knowledge and to facilitate collegiate learning. What does the KLA leader know about how to lead group learning / coach attitude change ? assists each teacher to be prepared to share knowledge, to analyse their teaching, to identify possible areas for improvement. 	<ul style="list-style-type: none"> identifies that it knows (abstract, experiential) at present that is relevant to the change What are the KLA's attitude to and confidence in changing ? identifies what the KLA group know about how to manage, direct and monitor the change process ? What are the questions to which the KLA currently doesn't have answers ? identifies what it believes about the need to change and level of its goal congruence re change.

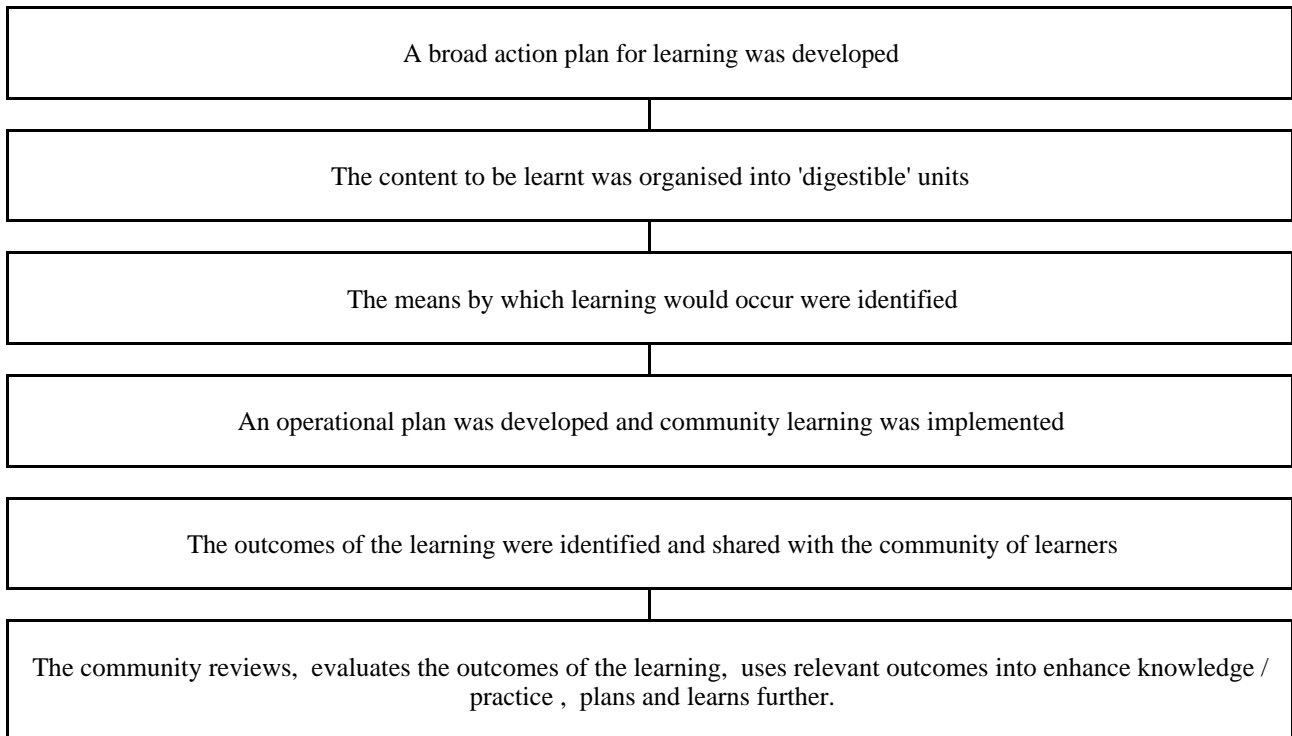
Figure 5 : Examples of the activities that may be used at the school leadership tier for working through each interaction.

	leaders of school
a challenge or reason for learning	<ul style="list-style-type: none"> identifies the challenge for the school community relates the challenge to school wide policy, to wider community, other schools examines what school needs to do to change identifies the challenges / expectations school might need to meet
vision of the outcomes of learning, the goals	<ul style="list-style-type: none"> identifies outcomes for the school given the change. What will be school / students and staff being doing differently for what they are doing now ? plans how to communicate the vision to various bodies in the school, to map the vision operationally, how to allocate parts of it to school members
use existing knowledge	<ul style="list-style-type: none"> identifies the level of current knowledge (abstract, experiential) the school has about the domain of the change ? puts in place processes for gathering this. To what extent is this sufficient to support change ? identifies the school's attitude to and confidence in changing, preparedness to take risks. Implements procedures to identify this. identifies the school's level of commitment to changing, preparedness to display an expectation that the change will occur . identifies the processes in the school that will allow the change to occur ? What does the school know about how to manage, direct and monitor the change ?
see a pathway to the goal	<ul style="list-style-type: none"> develops a school-wide pathway that shows steps to the goal. This brings together different component pathways and takes account of several agendas identifies school level indicators or measures of the success of the change
learn new ideas in specific contexts	<ul style="list-style-type: none"> provides opportunities for exploration of innovation in specific contexts supports, encourages questioning of new ideas, focus on specific possibilities supports, encourages new experiences, sharing of new experiential knowledge
abstract, decontextualise what they have learnt	<ul style="list-style-type: none"> provides opportunities for school to abstract and generalise the new knowledge, identify aspects of innovation that can inform improved practice in the school communicate the outcomes of the learning to other agencies
invest positive emotion in the new knowledge	<ul style="list-style-type: none"> models the display of valuing of innovative outcomes, explicitly shows a school wide valuing of the innovative outcomes explicitly builds up the self efficacy of the school, develops attitude of school as valuing innovation implements procedures to develop an intrinsic motivation to learn, to help each teacher to get increased motivation to continue.
store what they have learnt in memory, practise remembering it	<ul style="list-style-type: none"> puts in place procedures for retaining the knowledge gained, for example, on school's intranet, in handbook, in a poster gallery refers to and uses the outcomes of the learning in subsequent policy and practice in the school
identify how they learnt, what they did that helped them to learn	<ul style="list-style-type: none"> puts in place procedures to identify and collate what the school has learnt about how to learn, to manage change to innovate, the actions that worked fosters a valuing of reflection on learning and thinking.
see progress being made	<ul style="list-style-type: none"> develops indicators for monitoring the progress of the school and procedures for mapping progress against these fosters an attitude towards seeing progress being made leads the school to celebrate progress
transfer, apply and generalise the new knowledge	<p>analyses the innovation on a school- wide basis in terms of its</p> <ul style="list-style-type: none"> relevance to school wide policy relationship to other agencies such as the parent body, other schools future development in the school its relevance for dealing with other problems, far transfer key variables, for example, economic factors, HR.

A case study : Whole school change

The school's goal is to improve the extent to which its teaching procedures reflects how C21st adolescents learn. It recognized that beliefs and theories that worked 10-15 years ago were no longer relevant. The leadership team used the learning interactions approach in a professional development program to achieve this goal. The key steps involved in the learning plan are shown in Figure 6.

Figure 6 : The key components in the learning plan.



Leadership at various levels initiated and guided aspects of the improvement.

Developing the action plan

The action plan for how the staff learning might proceed included the school leadership

- explicating and operationalising its vision.
- judging the relevant existing knowledge of the staff, that is, what they knew about learning and the procedures it could take for identifying and collating this knowledge
- deciding what would be the unit of learning; PALTs in each KLA as the unit for growth
- examining the processes it had in place for staff learning and the processes it might need to implement to provide a broader range of staff learning opportunities.

The school leadership team used the model of learning in two ways:

- to understand how Twenty - first century adolescents learn; how they frame up challenges, how they organise and use what they know, how they learn.
- to foster the learning of its staff. For this purpose it examined how groups of teachers in each KLA framed up goals and used what they knew.

The two aspects were integrated into a set of learning activities for students and staff. The early aspects of the model of learning involve developing a vision of the learning outcomes, identifying

what is known and specifying a broad pathway. This is shown in the broad based action plan for learning in Figure 7.

Figure 7: An action plan for learning

<p>Effective learning -teaching initiative : 3 year vision</p>
<p>In three years time :</p> <p>What will students be doing ? What processes will they be learning ? How will they be learning more effectively ? How will teaching ensure optimal access to learning outcomes?</p> <p>What will teachers be doing ? Appropriate pedagogy and classroom management for C21st ? Metaphors for effective learning and teaching (personal journey, growth).</p> <p>What will the institution be fostering? ' How will the school organisation 'see' its students ? What will it validate and resource at the teaching level ? What will it be saying re effective learning and teaching ?</p>
<p>Development process</p>
<p>The context for teachers learning and changing their practice Teachers as learners, procedures for fostering teacher learning. Dimensions of development: (1) attitude to learning (2) ability to adapt, change (3) learning in context ; learning in different social and cultural contexts (4) individual differences in learning, multiple ways of learning.</p>
<p>Institution fostering and directing the development. The institution's management team develops an implementation plan for the initiative. Issues include</p> <ul style="list-style-type: none"> • clarifying, explicating ELT policy, action plan at the institutional level, monitoring the evolution of gains, • opportunities provided by institution to reflect, foster dialogue about ELT, consolidate, review, plan ahead • how individual teacher growth is fostered, how feedback is provided to staff
<p>Teaching the leaders of learning : KLA heads as instructional leaders. How HODs are trained to direct, facilitate and manage development in their KLAs. HODs seen as team leaders of effective learning and teaching in their KLAs. They need to be trained as managers of teachers and teaching</p>
<p>Improving teachers' knowledge of effective L&T principles. Teachers explicate their beliefs re ELT, increase their knowledge of ELT and map these into improved teaching procedures, identify options they have in their teaching for describing, analysing and solving problems.</p>
<p>Professional teaching team approach to manage the development in each KLA:</p> <ul style="list-style-type: none"> • processes of the team are negotiated, action plan is developed by the KLA team • each member has responsibility for particular aspects of ELT, members working in PALTs plan and implement action research projects that examine teaching aspects of the learning interactions. • means for monitoring progress are identified, procedures for collating new knowledge at the KLA level are used.
<p>Where are we now ?</p>
<p>Vision of preferred outcomes, stated explicitly by staff, KLA teams, administration, community and presented at school meeting.</p> <p>Identification and audit of</p> <ul style="list-style-type: none"> • existing knowledge of staff re effective learning and teaching, how students in C21 differ from earlier students in what they know, expectations, how to learn, negotiate their identities, re successful teaching in C21 • resources available (eg, procedures for determining how students learn), staff perception of students' needs, available existing data, students' and parents' perceptions of needs • what staff, KLAs believe they need to be able to improve teaching, what they need to learn, staff preferences re resources, institutional support, the processes that need to be in place, beliefs re effective use of time, 'fair' distribution of load to achieve success . • what staff believe are reasonable outcomes for students ? Should all students have positive / the same outcomes ? How accessible are learning outcomes for all students ? For which learning characteristics is access limited and are behavior problems more likely ? <p>Staff review current L &T practice and their perception of students' needs, the processes that need to be in place.</p> <p>Institutional plan for prioritising activities (in terms of time, resources), plan for operationalising, implementing, monitoring and evaluating programme.</p>

The school leadership team recognized the complexity of the staff learning outcomes to be achieved for genuine improvement to occur and mapped the action plan into a content plan that 'un-packed' the content. It also recognised the need for a teaching plan by which staff would explore and implement aspects of the learning interactions model in their teaching and for each KLA to consolidate its knowledge about 'best practice pedagogy'. It integrated these into an operational plan that described how the various aspects were implemented.

The content to be learnt was organised into 'digestible' units The learning interactions framework was broken into three sections, with one section to be investigated each year. The plan followed by the school is shown in Figure 8.

Figure 8 : The content to be learnt

Focus for the year	Key activities
Knowing what, how and why your students know	<p>Staff investigate the first four learning interactions. These target what students know and how they use this to learn. It included a consideration of what students know about</p> <ul style="list-style-type: none"> • a topic, how their knowledge is organised (learning style, multiple ways of knowing, different ways of knowing • how to learn, • why to learn, their motives and goals for learning, their attitudes to learning and themselves as learners • being motivated
Helping your students learn	<p>Staff investigated the learning interactions that target changing knowledge. It included a consideration of how students</p> <ul style="list-style-type: none"> • use preferred learning styles, multiple ways of knowing • learn in specific contexts initially, build episodic and procedural knowledge of a topic and then to decontextualise what they have learnt, • learn about how to learn, to broaden their use of learning strategies in content areas • learn more positive, functional attitudes to learning and themselves as learners • learn positive attitudes to what they are learn • learn how to convert information to knowledge • learn how to review, consolidate what they have learnt. • learnt to encode new knowledge in long term memory • learn to transfer, generalize, think innovatively and creatively about what they have learn, learnt to automatise what they have learnt.
Applying the learning interactions model	<p>Staff applied the learning interactions model</p> <ul style="list-style-type: none"> • to target special groups, for example, boys and literacy, girls and numeracy, learning difficulties, gifted learning • to Internet learning, hyper text literacy, teaching effective information handling strategies • to understand how gender and culture influence student learning

How the community will learn The procedures that would be used to facilitate staff learning were identified and are shown in the sequence in Figure 9.

Figure 9 : The sequence of teaching procedures for staff learning

goals for learning	<ul style="list-style-type: none"> • identify current problems in teaching as a need for change • identify goals for staff learning more about how students learn.
explicate current knowledge	<ul style="list-style-type: none"> • collate what they know about how students learn, how the of contemporary students learn differently from earlier students. • explicate and reflect on their beliefs and theories of learning. • identify what they don't know but want to know about learning.
challenge to learn	<ul style="list-style-type: none"> • if this is what you do to learn, do your students need these conditions ? Interpret problems in terms of learning framework
awareness of new ideas as options, possibilities	<ul style="list-style-type: none"> • become aware of the learning interactions model as an option for understanding learning, decide whether it is intuitively reasonable and could in principle solve problems, use it to unpack a learning outcome into manageable segments.
contextualise the new ideas	<ul style="list-style-type: none"> • contextualise aspects of the model in their KLA by mapping it into a set of teaching procedures to show what would they and their students would be doing • evaluate / analyse a topic they teach in the near future in terms of the extent to which it facilitates each learner interactions and see options for fine-tuning how they teach. • gather relevant data about their students, for example, different ways in which they learn, goals for learning and developing learning pathways, show what they know, transfer and generalise what they know, their motivation to achieve • in each KLA staff audit what they know about the learning process and implications for effective teaching, by completing a questionnaire that examined how confidently they believed they could discuss each of the key interactions.
develop action plan	<ul style="list-style-type: none"> • identify areas in which they could improve / fine-tune their teaching and develop a self-enhancement action plan
trial new teaching procedures in action research	<p>undertake a classroom research project to examine the effectiveness of a teaching procedure re students' existing knowledge. Work in pairs (PALTs) in each KLA, provide peer feedback and coaching for partner. Develop and implement the research project as follows: they</p> <ul style="list-style-type: none"> • plan and discuss the innovative procedures in KLA. • develop procedures for assessing its effectiveness and value in their classes. • implement the procedures while teaching the topic and note its affect on students' level of achievement, engagement, knowledge about how to learn the topic and attitude to it. • analyse the data collected and identified the implications for teaching in the future
see teaching procedures modelled in their classes	<ul style="list-style-type: none"> • observe possible novel teaching practice demonstrated, operationalised in their teaching, • be coached to implement the procedures.
evaluate, collate the outcomes	<ul style="list-style-type: none"> • report the outcomes to their KLA team and to the school in a poster that showed the topic, how it was taught in the past, the innovative teaching procedures, how they were implemented and the student outcomes.
reflect on what was learnt, consolidate, review and transfer	<p>Staff members debriefed in their KLA group; they</p> <ul style="list-style-type: none"> • review and evaluate each teaching procedure in terms of its ease of implementation, use and impact on learning outcomes • identified ways of improving each teaching procedure in future use • identified ways of improving the research projects in the future
abstract their findings, update their teaching	<ul style="list-style-type: none"> • identify the gains in KLA teaching knowledge, how it can become part of regular teaching practice - code of teaching that characterises school's core approach to pedagogy • how the KLA could benefit from the innovative teaching procedures used in other KLAs • developed an action plan for future innovative teaching research projects fine-tune their teaching to accommodate changes in approach to learning.

Skilling the leaders of community learning

This sequence of staff learning was led and supported by a KLA leadership team that had a sufficiently high level of instructional leadership to foster and guide the staff learning process. The KLA leaders were seen by the school leadership team as ‘middle level leaders of learning and leaders in learning’ (or MLLsL). The KLA leadership team was aware that it didn't have 'all the answers' but was able to 'ask the appropriate questions' so that student learning was consistently targeted.

Given the critical role of the KLA leaders or HODs as instructional leaders in learning and of learning, an action plan was also developed. This indicated the necessary of skill and knowledge development for them. This is shown for one school in Figure 10.

Figure 10: Skilling leaders in learning and of learning.

Outcome	Indicator
operate as ‘leader of learning; showed an advanced understanding of learning that is sufficiently broad and deep to understand and deal with the plethora of issues that arose. This integrated knowledge needs to have both conceptual and procedural aspects, so that it can ‘be done’ as well as ‘talked about’.	<ul style="list-style-type: none"> • Applied the knowledge to analysing content area teaching in terms of its learning demands, unpacking topics, cognitive task analysis. • Applied the knowledge to problems and difficulties in student learning, made practical recommendations that were reasonable on a learning basis • Led group discussions re issues in student learning from a learning perspective • Understood how the learning is applied in the particular domain or subject area of the group Led the mapping of this knowledge into effective teaching practice and its links with relevant curriculum
develop professional action learning teams within in each KLA, understand how PALTs learn and work, with members of the KLA teams taking the running on particular aspects and issues/	<ul style="list-style-type: none"> • Discussed and analysed the notion of PALTs • Analysed the work of particular examples of PALTs • Identified the key learning actions of each PALT and each participant
led in the development of a learning enhancement action plan, managed and directed the implementation and monitoring the work of the team, identified ways of collecting data and put in place procedures for group goal setting. , identified key areas in which data needed to be gathered (for example, measures of student achievement outcomes, student attitudes to learning in the area, student knowledge about how to learn and their beliefs about learning and themselves as learners	<ul style="list-style-type: none"> • Analysed the steps involved in implementing an applied action research investigation • Applied this to 2 or 3 possible projects in their KLA • Reported the outcomes of the Leaders of Learning group
coached individual staff members and groups in <ul style="list-style-type: none"> • ways of thinking • novel teaching procedures • attitudes, dispositions to improving one's practice 	Planned and implemented coaching interventions for individual staff and small groups
facilitated the on-going learning, development and contribution of individual team members, both in collaborative groups and individually	Analysed adult group learning processes using Belbin’s framework, <ul style="list-style-type: none"> • the roles played by various Belbin types, • identified procedures to foster activity by each type, • ways of balancing the activity of the various types • integrating the outcomes of the various types

Results

The results examine the influence of implementing an explicit learning-interactions based whole school improvement on improvement in (1) pedagogic knowledge and (2) student outcomes.

Changes in teachers’ pedagogic knowledge Pedagogic outcomes were described in terms of the reported changes in teaching behaviours. Each teacher reported the topic targeted, the

procedures used to teach it in earlier years, the innovative teaching procedures and the student outcomes. Examples of these outcomes are shown for four teachers in Figure 11.

Figure 11 : The outcomes of the use of novel teaching procedures for four teachers .

topic	how taught in past	Teaching approach trialed	Student outcomes
Years 10 and 12 woodwork projects making a tackle box, tool box	Teacher demonstrates procedure and all students make the same item	Students <ul style="list-style-type: none"> • given outline of the project, • decide whether the project is useful • modify it to suit their interests • make links with projects they have already made re skills, materials, hardware, tools and processes they used. • plan a possible pathway based on their design and operate within particular constraints 	Making links with previous work increased <ul style="list-style-type: none"> • level of autonomy and motivation/ satisfaction with the task • quality of outcome • knowledge of how to plan
Year 9 mask making to incorporate cultural and historical and functional aspects	Looked at posters, photocopies, books of masks and finished masks (that had the underlying features covered).	Students <ul style="list-style-type: none"> • challenged to make a 'raised profile' mask, • used their knowledge of having built anything earlier • saw examples of partially completed masks at different stages of development to identify procedures for obtaining a 3-D feature. • developed explicit pathways for making their masks 	<ul style="list-style-type: none"> • higher quality masks • more able to manage / direct their own learning
Year 10 geography; economic, social life in PNG compared with Australia	Start with pretest on unit, use maps and information sources to collect information re the country	Students <ul style="list-style-type: none"> • decided to study PNG, • closed their eyes, visualized a normal day living in Aus, list the key activities in which they engage, repeat this for living in PNG and noted key points. • worked in small groups to discuss living in PNG, consolidated and collated ideas to develop a set of social economic indicators of quality of life. 	Students <ul style="list-style-type: none"> • more engaged, asked more questions, more enthusiastic re follow up work, • wanted to learn. • accessed information sources they had questions they wanted answered • higher outcomes.
Year 10 History ; emergence of the super powers, communism and capitalism	Teacher centred; provided an overview, map out unit, define communism and capitalism	Students ' <ul style="list-style-type: none"> • put into words what they knew, • identified key words and ideas, gave examples of each, • discussed their images of key ideas • said questions they could ask • identified what they knew re differences between communism and capitalism by drawing pictures of each and comparing, • summarised the main ideas. 	Students <ul style="list-style-type: none"> • learnt the topic more easily, showed higher understanding • applied the ideas better, • showed higher on-task behaviour, more interested.

Teacher ratings of their change in practice. Teachers in each KLA rated change in knowledge of effective pedagogy and their ability to implement it. For each criterion they rated their perception of changed practice at five levels: (1) no change, rated 1; (1) no change, rated 1; small change or a brief change rated 2 ; (3) an obvious or perceptible change that has been more than transient, rated 3; (4) a reasonable, substantial, sustained change, rated 4; and (5) a major, permanent change, rated 5. These data are shown in Table 1.

Table 1 : Teacher judgments of changed teaching practice in each KLA.

	Subject area*							
	HE	AR	MA	SO	HP	EN	SC	IT
Changed teaching practice in the KLA ?	3.8	2.8	4.1	4	3.5	3.7	4	3.5
Changed teacher awareness of individual differences in how students learn ?	3.9	1.6	4.4	3.2	3.7	3.9	4.5	4.7
Equipped teachers to cope better with problems that arise in teaching ?	4.3	2.6	3.7	3.4	4.5	4.1	4	3.5
Assisted with forward planning re teaching ? Are staff more likely to take account of learning issues when planning how to teach particular topics ?	3.8	3.8	4.1	4.2	3.5	3.7	4.5	4
Assisted teachers to deal with discipline problems due to lack of student engagement ?	3.3	2.8	2.7	4	3	4.3	4.4	3.5
Provided teachers with strategies for improving their teaching ?	3.8	2.4	4.6	4.3	4	4.1	4.5	4

* The subject area matching each symbol is as follows : HE = Home Economics; AR = The Arts; MA = Maths; SO = SOSE; HP = Health and PE; EN = English; SC = Science; IT = ITD and Technology.

The data indicate that most learning areas rated the change as ranging between a transient change and a reasonable, substantial, sustained change. It should be noted that a learning area effect emerged, with the Arts area identifying lowest change.

Improvement in attitudes to and interest in student learning The focus of the community learning was predicted to enhance teachers' beliefs in their capacity to understand students' learning and to implement teaching that more effectively matched it. Teachers in each KLA rated the improvement in attitudes to student learning and increased interest in matching student learning with effective. For each criterion they rated their perception of changed practice at five levels: (1) no improvement, rated 1; small or a brief improvement, rated 2; (3) an obvious or perceptible improvement that has been more than transient, rated 3; (4) a reasonable, substantial, sustained improvement, rated 4; and (5) a major, permanent improvement, rated 5. These data are shown in Table 2.

Table 2 : Teacher judgments of improved attitudes to and interest in student learning.

	Subject area							
	HE	AR	MA	SO	HP	EN	SC	IT
Changed staff interest in student learning ?	4	3.4	3.9	4	4.5	3.6	4	4.5
Increased teachers' beliefs about the power of good teaching ?	4.3	3.6	4.3	4.4	3.5	3.3	4.5	4.2
Led to more useful dialogue about effective teaching and learning ?	3.8	3.8	4.4	4	3.5	4	4.5	4.8
Increased teachers' confidence to understand how students learn ?	3.7	3	4.2	4.2	4	3.7	4.5	4.5

These data indicate that most learning areas rated an improved self efficacy in the extent to which students' approaches to learning could be understood and enhanced.

Measures of student outcomes

Students' perceptions of the extent to which the teaching facilitated effective learning. Teachers were invited to have their students complete the following questionnaire, intended to examine students' perceptions of the extent to which they judged the relevant learning interactions being fostered in the teaching to which they were exposed prior to and after the interventions. The instrument used is as follows:

To what extent do the activities in this subject	Not At- all	Some- times	ways
• Make you want to learn the topics, grab your interest at the beginning of each topic ?	✓	✓	✓
• Encourage you to use your earlier experiences, the things that you already know or can do from outside of school that are relevant ?	✓	✓	✓
• Use what you have already learnt about the topic, that the teacher tries to see what you already know and not go over it again ?	✓	✓	✓
• Help you see the things you can do to help you learn the new ideas ?	✓	✓	✓
• Help you believe that you can learn the ideas, that you could be successful ?	✓	✓	✓
• Help you see that what you already know is valuable for the learning you will do ?	✓	✓	✓
• Help you see what you will know or be able to do, once you have learnt the ideas ?	✓	✓	✓
• Help you see a pathway from where you are at the beginning of a unit to where you will end up ?	✓	✓	✓

These data, collected before and after the innovation, assisted in examining the extent to which students perceived the learning interactions being implemented in the teaching.

Change in student level of achievement Change in student achievement was monitored by assessing the change in learning outcomes of a topic studied before the teaching innovation and one studied during the innovation. The first condition provided a base-line measure and the second provided treatment measure. For each condition students' pretest and post-test knowledge were assessed and a gain or 'achievement score' was calculated. This comparison of baseline and treatment achievement scores was assumed to take account of (1) the variation of ways in which different KLAs assess student outcomes (these included essays written under particular conditions, the production of physical products, completion of tasks, test like items, short answer tasks, problem solving tasks), (2) the grade levels of the students (3) general achievement levels of groups of students, (4) the comparative complexity and difficulty of the topic and (5) the comparative length of the teaching time.

For each topic or condition the assessment noted (1) the display of the main ideas / procedures taught (or that portion of them that was relevant) and (2) the transfer of the main ideas (for example, their use in novel contexts or in solving problems, resolving issues) and the extent to which the ideas were involved in innovation / creativity where this was part of the assessment.

This explicit focus on the ideas the students learnt was reported by many teachers to assist them in their planning of the teaching. They found it useful to identify both the types of understanding they required of ideas and how they expected students to use the ideas as procedures.

Effect sizes (ES) for mean achievement scores for relevant main ideas before and after the teaching innovation for each KLA area were used to calculate effect sizes using the procedures recommended by Cohen (1988) and Rosenthal (1994). The index of effect size, d , was calculated as follows: $d = (t_{f_i} - b_{f_i}) / \text{pooled average SD}$. To correct for possible inflation of the ES estimates when using the standard deviation for the gain scores, the correction $ES = Eg \sqrt{2(1-r)}$ was used, where r is the correlation between the treatment and the baseline (or pre-test) scores. The key metric then used to examine comparative achievement with the innovation was effect size. The relationship between the learning interaction targeted by the teaching and the effect size of the teaching intervention in particular KLA areas is shown in Table 3.

Table 3 : The relationship between the learning interaction targeted by the teaching and the effect size of the teaching intervention in particular KLA areas.

Learning interaction targeted	KLA						
	AR	MA	SO	HP	EN	SC	IT
Challenged to learn the topic by having their existing knowledge questioned	.18				.37		
Identify existing content knowledge by using investigative questioning, brainstorming		.48	.53			.54	.55
Identify relevant existing episodic / imagery knowledge	.23		.46			1.1	.69
Identify existing episodic /imagery knowledge and recode to an abstract form			.71	.64	.67	.42	.75
Identify the attitudes student held to the topic to be learnt		.59	.43				
See instances of the outcome they would learn and link their existing knowledge with it	.69			.47			.72
Used their existing knowledge to plan a pathway for achieving the intended outcome		.74			.53		.83
Focused on how they would learn the topic, the actions they would take		.66			.46		
Are helped to believe that they can be successful as learners of the topic		.62	.				.53

This analysis indicates how a focus on particular learning interactions improved learning outcomes.

Factors in addition to the level of student outcomes were influenced by the interventions;

A teacher of Year 9 mathematics taught ratio by using leading questions to tap students' existing understanding of ratio, collating and having the group analyse them. Students (1) made links with other topics and real life contexts, (2) discussed the relationship between ratio and fractions and (3) learnt the language necessary for talking about ratio. They learnt the topic more rapidly and easily than corresponding classes in previous years.

A teacher of Year 10 technology taught students to thread a sewing machine using an explicit instance of the desired outcome and had them (1) discuss how they could do it, based on what they knew (2) use a diagram of a machine to show what they knew and to help them plan their actions. Again the students learnt the topic more rapidly and more easily than corresponding previous classes.

Many teachers noted that they either over – or under-estimated students' relevant existing knowledge. They also noted that it was useful to begin the teaching 'at the edge of what their students knew'.

Attitude to learning the topic. All KLAs assessed changes in students' attitudes to the topic; their level of interest in it, their interest in learning more about it, the value they attribute to the ideas. They differed in the procedures they used. They included

- Traditional surveys pre and post- or post the unit
- Checklists for observing and monitoring behaviours indicative of an orientation / preparedness to learn more about the topic
- Written logs students kept during the unit and /or at the end of the unit.

Across the range of formats teachers and KLAs judged students' attitudes on a continuum from very negative – very positive.

Discussion

Review, enhance knowledge / practice and continue the learning The results indicated the influence of the community learning project in terms of student and teacher growth. The next phase of the community learning involved two aspects of reflection on practice: community members

- (1) reflected evaluatively on what has been learnt and identify valuable outcomes of the learning and
- (2) reflected 'into the future, contemplating possible directions for future learning.

The community reviewed and evaluated the outcomes of the learning. In the above case study innovative teaching procedures were evaluated in terms of their relevance for enhanced pedagogy and an understanding of learning at the KLA level. Staff identified how they could incorporate these into their teaching and to develop them further. At the school level the implications of outcomes for the school's code of teaching were identified. Schools can identify the extent to which the learning has assisted them to achieve aspects of their community goals or visions.

The community also plans and learns further. Schools can identify how they can re-orient their goals or visions and how they might approach the next aspect of their vision. The school identifies new priorities or goals for its learning and implements the next phase of the learning agenda.

The data in summary show an organisation learning and vindicates the application of a learning model to school as a learning community.

Areas in which a learning community can learn. The model of community learning can be applied to some of these. Examples are shown in Figure 12.

area for learning	example
improving literacy	A literacy enhancement program, based on an explicit model of literacy, was implemented in various secondary colleges. Teachers in all subject areas were assisted, through explicit demonstration and coaching, to incorporate several specific literacy learning strategies in whatever content they teach. Teaching procedures teach students to <ul style="list-style-type: none"> • prepare their knowledge for reading • improve their word level knowledge of the content • paraphrase, question and summarise text.
teacher self improvement	Teachers implemented self improvement by audio-taping a sequence of lessons, evaluated the extent to which their teaching fostered the learning interactions and used this to fine-tune teaching.
coaching teachers	individual teachers who were having difficulties with their teaching were coached to improve their teaching through their systematic use of a range of teaching strategies based on the set of learning interactions.
understanding multiple ways of learning	Groups of teachers have learnt to implement teaching that takes account of multiple ways of learning by developing teaching procedures that targeted each learning interaction for the various ways of learning. This has been used to develop effective teaching for <ul style="list-style-type: none"> • students who have learning disabilities • students who have gifted knowledge • adolescence, middle years teaching
dealing with student problems from a learning perspective.	Groups of teachers learnt to use the model of learning to analyse 'student problems' from an 'effective learning' perspective, to identify the key learning aspects not in place and relevant procedures to trial.
Helping students understand learning, manage and direct their own learning, increase motivation to learn.	Teachers used the model to develop procedures to teach in an explicit way the self-talk (self scripts) necessary for students to improve their ability to manage and direct their own learning and to increase their motivation to learn. They also used it to help students learn how to diagnose problems, difficulties in their learning and to take steps to deal with them.

Bench marking, reviewing and evaluating teaching from a learner perspective	Groups of teachers used the learning model to benchmark review and evaluate their teaching from a learner perspective and to improve their teaching by matching teaching with learners. School leaders used the model to evaluate the quality of learning in their school, identify where to fine-tune the teaching. They did this in different ways <ul style="list-style-type: none"> • Develop a checklist that records the frequency of each procedure. • Prepare examples of teaching procedures that foster each interaction and see the extent to which the teaching actually uses similar procedures.
Devise and evaluate instructional units	Groups used the model to devise instructional units that match the learning functions. School leaders have used the framework to evaluate teaching units from learning perspective.

Summary

The study of instructional leadership is "complex and not easily subject to empirical verification" (Hallinger & Heck, 1996b, p. 5). Effective leadership integrates collaboration, peer coaching, inquiry, collegial study groups, and reflective discussion into a holistic approach to promote professional dialogue among educators. It is contextualised in school culture and needs to be developed systematically, explicitly and consistently. It has growth and knowledge enhancement as its prime objective. It integrates knowledge from several areas including the study of learning and teaching from within an adult learning framework that involves a collaborative action research perspective, active reflective practice, professional interaction, communication and group development that is referenced on mutual trust and support.

To be managed systematically and consistently, this range of aspects requires integration. The focus of this paper has been to propose a learning framework for this synthesis. This explicit focus on this systematic teacher friendly model of learning makes the current approach to instructional leadership different from some other approaches. The learning framework is not 'set in concrete' but is instead my 'best approximation' at this time.

This approach to instructional leadership has been tested empirically in case studies of schools as learning communities. Such research may be expected to lead to its gradual enhancement.

References

- Beck, L. G. (1994). *Reclaiming educational administration as a caring profession*. New York, NY: Teachers College Press.
- Blase, J. (1999). Principals' instructional leadership and teacher development: Teachers' perspectives *Educational Administration Quarterly*; 35, 3, 349-378.
- Blase, J. (1987). Dimensions of effective school leadership: The teachers' perspective. *American Educational Research Journal*, 24, 4, 589-610.
- Blase, J. (2000). Effective instructional leadership Teachers' perspectives on how principals promote teaching and learning in schools *Journal of Educational Administration* 38, 2, 130.
- Blase, J. R., & Blase, J. (1997). *The fire is back, CA: Principals sharing school governance*.
- Blase, J. R., Anderson, G., & Dungan, S. (1995). *Democratic principals in Press*
- Blase, J., & Roberts, J. (1994). The micropolitics of teacher work involvement: *Educational Research*, 40(1), 67-94.
- Blase, J.R. and Blase, J. (1996), "Micropolitical strategies used by administrators and teachers in instructional conferences", *Alberta Journal of Educational Research*, Vol. 42 No. 4, pp.345-360.
- Calhoun, E. (1994). *How to use action research in the self-renewing school*. Alexandria, VA: Association for Supervision and Curriculum Development.

- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). New York : Academic Press.
- Dungan, S. L. (1993). *Effects of evaluation, demographics, and perception on control strategies in supervisory conferences in the southeast*. Unpublished doctoral dissertation, University of Georgia, Athens.
- Gordon, S. P. (1997). Has the field of supervision evolved to a point that it should be called something else? In J. Glanz & R. E Neville (Eds.), *Educational supervision: Perspectives, issues, and controversies* (pp. 114-123). Norwood, MA: Christopher-Gordon.
- Hallinger, P, & Heck, R. H. (1996a). The principal's role in school effectiveness: An assessment of methodological progress,1980-1995. In K. Leithwood, J. Chapman, D. Corson, P. Hallinget, & A. Hart (Eds.), *International handbook of educational leadership and administration* (pp. 723-783). Dordrecht, the Netherlands: Kluwer.
- Hallinger, P., & Heck, R. H. (1996b). Reassessing the principal's role in school effectiveness: A review of empirical research, 1980-1995. *Educational Administration Quarterly*, 32(1), 5-44.
- Hunter, M. (1984). Pare down your paperwork!: How to diagnose, test, and make assignments without letting the paperwork get your goat. *Instructor*, 93, 74-76.
- Hunter, M. (1988). A local source for effective teachers. *Educational Leadership*, 45(5), 87.
- Leithwood, K. (1994). Leadership for school restructuring. *Educational Administration Quarterly*, 30(4), 498-518.
- LeMahieu, P. G., Foss, H. K., & Roy, P. A. (1995). *Essential elements of professional development*. Delaware Education Research and Development Center. Newark: University of Delaware.
- Lemahieu, P. G., Roy, P. A. & Foss, H. K. (1997). Through a lens clearly: A model to guide the instructional leadership of principals. *Urban Education*, 31, 5, 582-608.
- Little, J. W. (1982). Norms of collegiality and experimentation: Workplace conditions of
- Pajak, E. (1993). *Approaches to clinical supervision: Alternatives for improving instruction*. Norwood, MA:
- Reitzug, U. C. (1997). Images of principal instructional leadership: From supervision to collaborative inquiry. *Journal of Curriculum and Supervision*, 12(4), 356-366.
- Reitzug, U. C., & Cross, B. (1993, October). Deconstructing principal instructional leadership: From "super" vision to critical collaboration. Paper presented at the annual conference of the University Council for Educational Administration, Houston, TX.
- Reitzug, U.C. (1994), "A case study of empowering principal behavior", *American Educational Research Journal*, Vol. 31 No. 2, pp. 283-307.
- Rosenthal. R. (1994). Parametric measures of effect size. In H. Cooper & L.V. Hedges (Eds.). *The handbook of resear5ch synthesis* (PP. 231- 244). New York : Russell Sage Foundation.
- school success. *American Educational Research Journal*, 78, 178-185.
- Senge, P. Cambron-McCabe, N., Lucas, T., Smith, B., Dutton, J., Kleiner, A. (2000). *Schools that Learn* London: Nichlas Brealey Publishing
- Senge, P. M. (1990) *The leader's new work : Building learning organizations*. MIT Sloan Management Review, Fall, 112-128.

Sheppard, B. (1996). Exploring the transformational nature of instructional leadership. *Alberta Journal of Educational Research*, 42(4), 325-344.

Smyth, J. (1997). Is supervision more than the surveillance of instruction? In J. Glanz & R. E. Neville (Eds.), *Educational supervision: Perspectives, issues, and controversies* (pp. 286-295). Norwood, MA: Christopher-Gordon.

Smyth, J. (1997), "Is supervision more than the surveillance of instruction?", in Glanz, J. and Neville, R.F. (Eds), *Educational Supervision: Perspectives, Issues, and Controversies*, Christopher-Gordon, Norwood, MA, pp. 286-95.