

Creating new schools using evidence-based solutions – a case study

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In a world that is constantly changing, there is not one subject or set of subjects that will serve you well for the foreseeable future, let alone for the rest of your life. The most important skill to acquire now is learning how to learn.
John Naisbitt (1990, pX).

The capacity for schools to innovate and change has for many years been constrained by traditional bureaucratic practices and conservative beliefs about the social purpose of schools. Over the last decade, however, political and economic trends have begun to impose systemic demands for reform to assure the public and themselves that schools are not only providing quality education but are running efficiently and effectively. The implementation of regional and national testing programmes and training have had mixed results, due to their implementation being mandated and their outcomes contributing little to teacher knowledge about student learning needs.

Some school leaders have realised this disconnect and have researched educational and business structures and tools that have enabled the transformation of schools from 19th- to 21st-century learning environments, and have employed student-centric solutions as the focus of school reform. These leaders have researched inclusive school-improvement programmes and have begun to shift the process of change to enable the teachers to actually create it. They have found that shifting the development and responsibility of the pedagogy and improvement process from the principal's office to the classroom, focuses the transformation process on those who need it most – the teacher and the students.

The classrooms practices that once served the predictable school bureaucracies are now viewed as non-functional. These classrooms treat knowledge as a dynamic evolutionary process in which knowledge is continually created and re-created in various contexts and at various points of time to ensure improved student results. There is an acceptance of professional accountability and an acknowledgement that political accountability is a requirement of any government department but that this accountability can be embedded in a collegial environment in which teacher work and judgement are honoured.

These school leaders have achieved this by connecting the parts of the organisation that are historically isolated, fragmented structurally, geographically and culturally so that members of the school community can access the information they need to improve student and school outcomes. They have sought technical solutions to facilitate access of the combined knowledge to those who require it at any time, any where. The solutions have not only promoted the sharing of existing knowledge, but have also driven innovation both in terms of internal processes and organisational practices. These schools view the past as a resource more than an impediment.

These schools with quality time have evolved a knowledge baseline to their work and have assured that as a learning community (Hough and Paine, 1997), communities of practice (Nonaka, 1991; Wenger, 1998; Wenger and Snyder, 2000) are healthy, and decisions are collaboratively developed. They have evolved a number of evidence-based practices in a variety of formats that are continually being designed and developed in schools. One such school is Noumea Public School.

Noumea Public School is a large primary school (580 students) in a low socio-economic area to the west of Sydney in the state of New South Wales, Australia. The student population is transitional with 43 per cent of students leaving and enrolling each year, and 62 per cent being of Polynesian or Indigenous descent. Many families are now third and fourth generation unemployed. The school staff continually changes with the principal encouraging teachers to seek promotion positions in other schools after five years of dedicated service at Noumea. Staff are always replaced by newly appointed teachers. Thus 83 per cent of staff are always in their first five years of teaching.

Until ten years ago, Noumea was identified as a 'school at significant risk' and it is a credit that the Noumea community has redefined Noumea as a very successful school, rebuilding it as a learning organisation, and basing its reforms on contemporary education and business principles conducive to knowledge creation and knowledge sharing (DeLong and Fahey, 2000; Garvin, 1993). Noumea's leadership saw it as essential to develop powerful ways of employing authentic evidence in teachers' daily judgements in order to bring about continuous improvements in teaching, student learning and well-being outcomes. They saw transformation as being accelerated through the concepts of learning organisation, knowledge management and evidence-based leadership and practice consistent with the image of 'the intelligent school' (MacGilchrist et al, 2004) and the concept of 'intellectual capital' (Stewart, 1997).

Noumea's leadership realised that the use of authentic evidence was the key to sustainability and growth. It was seen as a strategy that would promote both organisational and individual learning through the capturing, packaging and sharing of the knowledge that resided within individual staff members. It was also viewed as a means of unlocking and holding on to the value of 'the things we know'. Noumea achieved this by reconnecting all parts of the school so that staff could share their knowledge, perspectives and experiences about students and programmes to bring all areas to the same level of capability. These learnings were formalised as strategy and it was the principal's responsibility to ensure that innovations were sustainable by ensuring in turn that resources, professional support and reflective time were adequate. The processes to develop this knowledge and the continual valuing of evidence are detailed below.

Building a sustainable learning organisation

In 1994, a new principal was appointed to Noumea. Initial observations and analysis of available data indicated that the school was 'at risk' in terms of learning growth and community morale. School staff trying to improve learning outcomes were beset each day by a number of critical incidents. These incidences not only consumed time but were also emotionally draining and stressful to staff attempting to make a difference. Overall the school was found to be running inefficiently and organised around bureaucratic structures that disempowered and divided members and minimised trust.

At a Disadvantaged Schools' review meeting (staff and parents) in late 1994, it was decided that if a positive learning culture was to be created, a review of current practices was required. The review conducted by the Noumea community¹, gathered data and information on student behaviour patterns, learning, teaching and assessment practices, and reported on student achievement. The review looked at programmes and processes that were enhancing or impeding whole school change. Evidence was collected through surveys, discussion groups, one-on-one interviews, student data and teacher assessment of student work samples. These data indicated low literacy and numeracy results against district and state benchmarks, high incidences of student misbehaviour, high student and teacher absenteeism, and traditional school structures that continually impeded school reform programmes.

As a result of the data, the Noumea community came together to decide priorities, processes and programmes that would enable the development of a proactive learning culture. A number of teams involving members of Noumea's community were established with specific tasks and responsibilities. Community strategic planning conferences were conducted; visits to other schools were organised; and a literature review was completed that looked at school improvement models, learning community theory and sound change practices.

These teams began to reflect on the alignment or lack of alignment of approaches to current processes and practices, and to remove real and perceived constraints that existed in the school. Having identified whole school needs, it became easier to identify non-value-added activities and to question their relative function. Many traditional practices, structures and mandatory programmes were challenged and in some instances removed or significantly modified. In their place, key processes were established that would support the core business.

As a result, difficult questions about shared leadership, teacher culture, communication channels and participative processes were addressed; and consideration was given to the ways in which students were grouped and resources allocated. Traditional class grouping by academic year were disbanded and replaced with grouping structures that allowed students to learn to their fullest potential in different places at different times with different teachers and class mentors.

Collaborative processes and a respect for continual improvement became key elements as teams began to rethink and redesign structures within the organisation. More importantly Noumea's community came to believe that this extensive change process would culminate in dramatic improvement of student and school outcomes.

Leadership-guided alignment of organisational elements within the school enabled the holistic implementation of school-based innovations and the school's vision. A school-wide approach to pedagogy was generated and school infrastructures (encompassing time, space, curricula and technologies) were modified to facilitate implementation. The school community shared an understanding of, and commitment to, the essential features of the innovation resulting, in a strong basis for successful implementation. Sustainable communities of practice that consisted of people who were informally, as well as contextually, bound by a shared interest in learning and applying a common practice were nurtured.

A flexible structure that supported a 'community of leaders' at school level was established. The school principal and executive members of staff provided a team of support (not a hierarchical framework) to staff and community members. This flatline team interchanged leadership depending on the initiative, modelling collaborative relationships and team commitment. The embracing of a community philosophy meant that well-informed knowledge-centred decisions about school change progressed with healthy discussion, and a sharing of a variety of understandings and prior learnings illustrating distributive leadership in action (Hough, 1990; McLaughlin and Marsh, 1978; Nonaka, 1991; Showers et al., 1987; Spillane, 2006).

As an innovative school, the Noumea community began to believe that:

- each person has a significant and creative contribution to make;
- creating a cooperative group environment furthers individual uniqueness and responsibility;
- dealing with complex situations simply and comprehensively produces better results;
- high quality is the reward of attention to process, timing and environment;
- effective decision-making depends on ongoing learning and broad-based participation;
- extending openness and information access enables greater responsibility and commitment.

Initially, staff were reluctant to move through another cycle of change. This was understandable due to the many staff and principal changes at the school over previous years (five principals appointed in ten years). Professional learning needed to embrace and support change process, and to recognise leadership development within the school community. Parent participation became paramount and through a number of professional learning programmes parents accepted a greater role in decision-making in relation to learning and teaching, school restructuring and whole school development (Caldwell, 1996). Leadership development and density were encouraged, and teachers and parents with great energy and success quickly accepted opportunities. Their focus on learning and performance enabled the school to bridge the gap between organisational learning and strategic planning. A strategic plan was developed that put in place agreed direction and framed school community beliefs and values.

A key feature of Noumea's learning cycle was the process of *visioning* as a collective and individual exercise. The enrichment of teachers' personal visions was seen as important in contributing to

the school's collective vision, and required deliberate dialogue, recognition of diverse value systems, careful listening and an enthusiasm for enriching everyone's professional values. Visioning provided the focus for collecting evidence about the real work of the school and its preferred future. Staff regularly presented their beliefs about Noumea in enjoyable activities, such as describing the school as a metaphor: *Noumea is like a roller coaster, many ups and downs and everyone travelling together having fun* or *Noumea is like a Pearl Jam concert: it rocks!* As an animal: *Noumea is a chameleon: always changing*. And as a tune: *We are the Champions* (Queen). This development of shared language on sticky notes and staffroom posters was a positive way to centre vision, collectively appreciate each other's thoughts, and include new members of staff in the collaborative process.

Renewal of self became the basis for transforming the school. As teachers began to reshape their thinking about learning, their thirst for professional development increased, the outcome being a number of annual promotions to positions in other schools. A continually changing staff and parent population meant the maintenance of a significant professional learning programme to support new members. Mentoring time was built into the weekly timetable to enable staff to do research on the internet, to observe teaching/learning processes in classrooms on and off site, and to redesign their approach to the teaching/learning process. The timetable enabled teachers to block time to come together to share programmes and ideas. Staff also developed personal learning journals to reflect on their beliefs, practices and challenges, and shared these in weekly team meetings. Strategies such as these moved the school's use of evidence from a reactive to a proactive perspective.

The sharing of leadership was viewed as an important strategy to build a culture of professionalism in which mutual trust, shared knowledge and responsibility could thrive (Crowther et al, 2002; Sachs, 2002). To achieve this from the day they were appointed to the school, all teachers were recognised as leaders with many gifts and talents to contribute to school and student improvement. Within five to six weeks of their appointment, teachers were expected to accept at least one leadership role and to share the load of the real work of school. It was believed that if teachers were responsible for part of the school they would quickly become involved in and feel like an active member of the Noumea community. All teachers were provided with an in-house mentor and professional partner (supervisor), as well as school time to research, reflect on and practise leadership with colleagues. The concept of professionalism was openly and continually discussed, and Professor Judyth Sachs' (2002; pp84-85) five core professional values were developed into school-based practices. Teachers were encouraged and expected to:

- **learn** individually, in teams and in larger communities of practice;
- **participate** as active agents in their school-based and external professional worlds;
- **collaborate** with members of the school community and those colleagues who contribute to their learning in the external environment;
- **cooperate** and develop a common language and technology for documenting and discussing practice and desired outcomes;

- **be proactive** in debate and activities about the things that matter for students and the school as part of their moral purpose (Day, 2002, p.15).

Most importantly, teachers were encouraged to practise leadership and to research and self-actualise in areas that they felt passionate about (Spillane, 2006, p24).

Developing evidence-based practices for sustainability

This culture of Noumea – the school's character as a trusting, collaborative, inquisitive and responsible learning organisation – was an essential context, and integral part, of its identity as an organisation that pursues evidence-based improvement. Evidence-based education at Noumea was not a technical, disconnected process where teachers irregularly collected and analysed quantitative test data about student performance, in isolation from other kinds of valuable formative evidence. Evidence-based education and leadership at Noumea was not just a bunch of meetings, but a way of life.

The staff took a very early stance on selecting the right pedagogical practices that aligned classroom learnings with assessment and reporting practices. They also did not want to waste time collecting information and data that would contribute minimally to improvement processes.

An international and national focus on outcome-based education at that time set the scene for initial research. It was felt that a learning platform was required that:

- improved teacher judgements about student learning achievement;
- aligned assessment and learning experiences;
- provided a clearer focus on where students needed to improve;
- improved implementation of the curriculum and continuity of learning experiences;
- improved accountability through the use of a common framework and language for monitoring student learning achievement;
- allowed teachers and administrators to monitor student outcomes to support student and school development planning, as well as improved school and system accountability.

The standards approach to the curriculum was seen as logical, since teachers and students could collaboratively map student outcomes over time to quantify achievement, share a learning language, determine value-addedness, and identify point-in-time teaching/learning experiences (Beare, 1994; Murphy, 1992).

Visits to Australia at that time by Al Mamary, the educationist, provided the practical theory, and to some extent the external permission, to continue with the current change process. Mamary's (1991) total educational system known as the Outcomes-Driven Developmental Model (ODDM) confirmed process and challenged direction in terms of school mission and shared beliefs, and provided a model of development for outcomes-based education. By using this model, and building on the works of Spady (1995) and Middleton (1997), teams were able to develop a language that would be understood by teachers and parents as they began to share and discuss the issues and tasks at whole school level.



The theories of William Glasser (1990), respected author and psychiatrist, and the practices of Bill Rogers (1993), author and education consultant, were researched as appropriate foundation frameworks to support student well-being. These programmes supported the learning process and emphasised students' rights and responsibilities, encouraged reflection of cause and effect, modelled self-control, and most importantly mandated 'no blame, no shame'.

The schools' decision to create a new learning platform and to embrace an outcomes approach meant a significant change process for teachers, students and parents. For some, it meant a major shift in their educational platform (revolutionary), and for others it was the next logical step in their teaching journey (evolutionary). It meant:

- Recognising that every student could be successful and that these incremental, individual successes should be celebrated. This was achieved by shifting from a competitive learning environment to a cooperative learning environment where the individual student learns at their personal performance level and in ways that cater for individual learning styles, cultural backgrounds and personal circumstances.
- Moving from a model of remediation to one of prevention and continuous improvement. An outcomes approach enabled class-based reform and a placing of emphasis on more explicit learning outcomes. As the learning platform was established, staff began to ask the questions:

- What do we want our students to know?
- When do we want our students to know?
- How much should our students need to know?
- How well should they know?
- Moving from an exclusive curriculum to an inclusive curriculum that provides sequentially planned units of work. This was achieved through teachers collaboratively programming and developing integrated units of work. This allowed the participation of every student in the learning process, the level of outcome to be achieved differentiated to ensure success.
- Changing the learning environment from one of fear and failure to one of trust and success. Teachers must establish an explicit approach to learning, clearly articulating the outcome of a learning activity and therefore ensuring student understanding before commencement of learning.

Accepting this research base as the school's pedagogical position meant that things such as standardised testing (a white Anglo Saxon focused process), half yearly and yearly testing (a traditional 'busy' non-learning time for schools), and 'flavour of the month' pedagogies being pushed by particular equity areas in the government education department were dismissed. Staff discussions about the usefulness of standardised testing determined that these dated processes provided little evidence and served no purpose in a school where curriculum outcomes were the centrepiece for validating student improvement. Traditional

testing was viewed as too abstracted from what was being taught in classrooms and as adding no value to teacher and parent knowledge. With parent permission these approaches to testing were removed and in their place, daily teacher judgements of student evidence became critical in informing next-day lesson preparation and student, teacher and parent knowledge about student progress.

Noumea's leadership established infrastructure that provided individuals, collegial groups and the whole staff with the quality time and resources to analyse data, scrutinise evidence, identify areas of action and development, and the time to be involved in action research (Harris et al, 2001, p.86). A collegial style of management was encouraged to enable constant informed interchange of professional information among colleagues (Harris, 1995; Sammons et al, 1995).

Developing an evidence-based learning community

Ultimately, the value of knowledge management comes from people's ability to reuse valuable evidence to work faster, shorten learning cycles, identify new opportunities, increase the quality of deliverables, and increase the volume of work on matters of priority (Reynolds 2003). This process of knowledge management needs systemic and strategic support to operate effectively. At Noumea, it was the responsibility of the principal and middle management to ensure that all teachers were supported in processing and interpreting of evidence and thus actively contributing to building Noumea as an *evidence-based learning community*.

Implementing successful knowledge management required Noumea staff to develop a deep capacity among its entire staff to be at the forefront of knowledge and skill in practising and supporting learning and teaching. This was more than occasional in-service training and professional development. It was a systematic, continuous and purposeful approach that started with finding out what teachers and students knew, didn't know and wanted to know. This was strategised through the continual creation of evidence-based leadership and practice.

Spreadsheets, templates and checklists were initially designed to provide as much data and information as possible. Teachers' efforts to retrieve usable information from this stockpile of data were commendable but this process exerted high demands on their time and took them away from the very classroom activities that their data-driven efforts were meant to be improving! Noumea required a knowledge-creation and management system that would help teachers and parents review student and school data, and pursue ongoing improvements of and adjustments to practices in a way that supported and did not interrupt the workflow of the school. Teachers felt that data collection, analysis and management, should be part of and not an extraneous addition to or burden upon this workflow.

Ultimately, Noumea staff developed a networked-based knowledge management system known as *SchoolMate* that combined the many paper trails relevant to a student into one integrated information system. *SchoolMate* fostered quick data entry and retrieval as students completed tasks in the classroom. Staff agreed protocols ensured data entry was of a consistent standard. Two networked workstations were situated at each side of each

classroom so that data could be entered using quick drop-down menus, checkpoints, batch up-date buttons, and accessible frames to support the entry of qualitative and quantitative data. *SchoolMate* fields were linked so that data entered in one area could inform data in another area. For example, a teacher who could review data about a student who had attended eight schools and had numerous absences was better informed about the reasons for low literacy and numeracy performance. Data entry took two to three minutes a day, enabling students to access the work stations for their research at any time. There were also a number of workstations provided in the staffroom and library to support any-time, anywhere access.

All student data were stored on a central fileserver and was accessible in every class and staffroom. Whoever was responsible for the student could access data from any workstation, assuring immediate and responsive actions. Numerous graphically presented reports enabled immediate understanding of student performance in a clear and concise manner, which could be shared with staff, students and parents. Data could be collapsed, aggregated and interrogated in terms of learning and well-being by class, grade, whole school, gender, ethnicity, support intervention and age to determine programme development and value-addedness. Teachers could also identify the degree of value they were adding to a student in learning and well-being at a touch of a button. Having the data at the teachers' fingertips meant that they could interpret and act quickly on behalf of a student changing learning/teaching direction immediately – not ten weeks, six months, or a year later when traditional results were gathered and programmed for.²

In developing this knowledge management system, the school also recognised that knowledge resides in the user and not in the collection (Malhotra, 1998). Thus, tutorials were developed to help teachers manage information, analyse data more effectively and act on these data more efficiently. Professional development programmes provided 'just-in-time' and 'just-in-context' opportunities for teachers who had the right as professionals to request personal research time, visits to colleagues' classrooms, and visits to other schools both physically and virtually. Staff meetings were also used for staff learning time and that learning was then replicated in weekly team meetings to enable collegial discussion and personal meaning.

Weekly staff meetings of an hour were dedicated to sharing data and information so that every teacher had full knowledge and could contribute to the strategies necessary to assure and improve student learning and well-being. Leaders used these meetings to draw upon the ideas and energy of colleagues, not only engendering more creative solutions, but also building trust and commitment that they could call upon in the future. Staff were encouraged to reflect on and continuously challenge their own and each other's practice in order to generate new learnings that assisted students to achieve (Schon, 1987). Teachers were also allocated three hours of class-free time (two hours provided by the government department of education) with a team of colleagues to analyse student data, complete action research tasks together, and investigate innovations that would add value to school and class processes. Within these weekly meetings, the executive member and teaching team regularly monitored, reviewed and evaluated students' class data and samples of work drawn from *SchoolMate* folders. This led to greater consistency of judgement

about student performance and generated critical dialogue and sharing of issues and successes through celebrations of tasty food and good coffee. These learnings were regularly shared at whole school staff meetings, where evaluation of school trends enabled quick solutions to be devised to any emerging problems before they reached crisis proportions. The consistent question was: 'How could we do this better?'

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Staff were also encouraged to research an area of interest and given time to apply this research into classroom practice. An example of an innovation that evolved included three school-based Reading Recovery trained teachers designing a whole class approach using Reading Recovery (usually one-on-one) with four and a half and five-year-old students in their first year of school (most research indicates that children must not be immersed in Reading Recovery until the age of six). Through discussion and experimentation, they designed a successful programme that not only achieved significant results at Noumea but also in other schools, as well as being reviewed by Macquarie University as a significant innovation. Successes such as these were nurtured through quality time for individual and collaborative research, permission to take significant risks and a continual seeking of evidence by teachers to improve student outcomes.

Staff also began to challenge structures that impeded learning potential and turned their attention to the ways students were traditionally organised in classes. Classes were organised three weeks before the end of the school year according to learning and well-being data generated by *SchoolMate*. Teachers reviewed the suggested placements and organised classes based on knowledge of ideal learning buddies and preferred strategies for learning success. Teachers nominated their preferred class and were able to access important data and information about this class from their workstations. They were given quality time to discuss valuable information about their new students with their current teachers and, where necessary, observed these students working in their current learning environment. This strategy enabled all teachers to establish the most appropriate learning environment and learning pathways for each student from the first day of the following year.

This practical use of evidence assured a responsive start to the school year and a very relaxed positive learning environment for each and every student.

Conclusion

At a time when the improvement of student and school results were not only holding schools to professional but also political accountability, Noumea developed the architecture and community to fundamentally change the way staff work and responded to these accountabilities in a student-centric environment. The daily work of teachers and school leaders were honoured as the school

transformed into an effective and efficient learning organisation. Sustainable practice became a way of life.

Noumea's unrelenting focus on learning outcomes, and its embracing of information and communications technology (ICT) as a way to drive forward evidence-based improvement, were consistent with a determination to create a school for the knowledge society (Caldwell 2004; Drucker 1999; Hargreaves 2003). Teachers, parents and students collaborated to provide direction to school programmes and accepted a shared responsibility for student, class and whole school improvement. Sharing this responsibility resulted in a genuine understanding of standards, expectations and value-added achievement. This happened naturally as school members accepted the responsibility to control their destiny.

Leadership at Noumea was strategic, and focused on the nurturing of a learning community. It acknowledged in a comprehensive and coherent way the importance of accountability, and it addressed the need to shift the culture to ensure sustainability (Caldwell, 2004). Leadership understood that creating and nurturing a learning organisation required a dramatic shift in the organisation's pattern of decision-making and worked consistently to re-orientate the way people approached work. Noumea's leadership engaged teachers in the kind of research, investigation, experimentation and evaluation required to explore the multiple challenges facing schooling for the 21st century, and encouraged construction and reconstruction of Noumea as an evidence-based learning community.

This is the real and future work of school leaders whose ability to assure organisational learning, and to broaden and deepen the leadership capacity of the school, will be the hallmark of sustained school success. Peter Drucker suggests that the strength of these leaders will be their capacity 'to know how to ask rather than tell'.³

Schools have the potential to develop as 'organizations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking were nurtured, where collective aspiration is set free, and where people were continually learning to learn together' (Senge, 1990). Certainly the research and practices are available, it is just a matter of learning.

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Endnotes

- ¹ In this context, Noumea community included teachers, clerical staff, cleaners, parents and where appropriate students.
- ² As a result of these school-based successes, *SchoolMate* has been rebuilt in a .NET 2 web-based framework so that teachers can access data and information, anytime, anywhere. *SchoolMate.NET* is now used in a number of schools across a number of countries).
- ³ Cited in *Anderson Consulting Institute of Change*, 1999, p2.

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