Evidence-Based Leadership

by Jenny Lewis and Brian J. Caldwell

Many nations' governments are requiring schools to bring about significant, systematic, and sustained change to improve student outcomes in all settings, and have imposed mandates to ensure that schools are providing quality education and running efficiently and effectively. Consequently, national and state testing programs, standards-based agendas, and reporting methodologies have been imposed on schools with significant demands and, in many cases, demoralizing outcomes (Hargreaves 2003). As a result of these processes, test questions have become the curriculum; teacher judgment has become undervalued; and evidence that is ill-informed, outdated, and incorrect has been used to drive school change.

Many school leaders have responded in good faith to the growing demands for evidence, spending days and weeks gathering data in the hope that they will create sustainable learning plans for individual students and gain adequate funding to run school programs. There are, however, serious disconnects between what is taught and observed in the classroom, and what is collected, categorized, and reported by the school. Evidence *about practice* that is meant to inform and appease politicians and the public and the use of evidence *in practice* to improve teaching and learning quality rarely have been linked.

The most intelligent use of evidence is not after the event. Postmortems may establish the cause of death, but they cannot bring a corpse back to life. Yet, most uses of evidence in education—league tables, test scores, and school reports— have this after-the-fact characteristic. The challenge for leaders is to collect and report data and be able to internalize it at the right time for the right reasons for the right students.

How organizations use evidence is connected integrally to how they create and manage knowledge—the knowledge of how to share practice, how to transfer it between people, how to alter and improve it, and how to explain and account for it to others (Caldwell 2004; Drucker 1999; Hargreaves 2003). Evidence-based leadership links how evidence is used to how well the school operates and improves.

Principal Jenny Lewis at Noumea Primary School in Australia has identified and collected authentic and authoritative evidence and related it to learning as a means of improving organizational effectiveness and performance. As a result, Noumea staff members have become "skilled at creating, acquiring, and transferring knowledge, and at modifying behavior to reflect new knowledge and insights" (Garvin 1993, 16). The school community has built an evidence-based environment that promotes sustainability through innovative and informed Evidence-Based Leadership in Action—a reform that has become embedded in teachers' practices and the school's operations.

The Context for Evidence-Based Leadership

Noumea Primary is a large public school (580 students) in a low socioeconomic area west of Sydney in the state of New South Wales. The student population is transitional with 43 percent of the students leaving and enrolling each year and 62 percent being of Polynesian or indigenous descent. Many families are now third and fourth generation unemployed. School staff members continually change as the principal encourages them to seek promotions in other schools after five years of service at Noumea. Newly appointed teachers fill these openings, meaning that 83 percent of staff members always are in their first five years of teaching. Until ten years ago, Noumea was identified as a school at significant risk (DeLong and Fahey 2000; Garvin 1993). Since then, Noumea has rebuilt itself as a learning organization, basing its reforms on knowledge creation and sharing.

Noumea was included in the top 25 (out of 2,200) government and nongovernment schools in New South Wales for outstanding improvement in basic skills mathematics in 2000. It was awarded the 1999 National Assessment Award and the 2000 State Literacy Award for its innovative structures and programs. The school received the 2003 Australian Capital Territory Knowledge Management Platinum Award for school culture and technology development to enable organizational learning. At the national level, it received two 2003 National Quality Teaching Awards for leadership and achievement of mathematics outcomes through the use of technology. A nationally funded study dealing with literacy among boys (Alloway et al. 2002) found that teachers at Noumea used school and student data to design individual learning programs and developed innovative and exciting teaching tools to motivate their students to learn.

Evidence-Based Leadership in Action

Three concepts lie at the heart of Noumea's transformation: learning organization, knowledge management, and evidence-based leadership.

- *Learning organizations* (Britton 2002, 11) "actively incorporate the experience and knowledge of its members and partners through the development of practices, policies, procedures, and systems in ways which continuously improve its ability

to set and achieve goals, satisfy stakeholders, develop its practice, value and develop its people, and achieve its mission with its constituency."

- *Knowledge management* (Bukowitz and Williams 1999, 2) is the "process by which the organization generates wealth from its intellectual or knowledge-based assets." This includes the creation, dissemination, and utilization of knowledge to improve learning and teaching and to guide decision making and priority setting. Knowledge management requires all staff members to be at the forefront of knowledge and skill in practicing and supporting learning and teaching. This is a systematic, continuous, and purposeful approach that begins with knowing what people do, don't, and ought to know.
- *Evidence-based leadership* (Field 2002, 460) creates and nurtures an emphasis on strategic planning, action research, monitoring, evaluation, and review. Evidence-based leadership establishes an infrastructure that provides individuals, collegial groups, and staff members with the time and resources (Harris, Busher, and Wise 2001, 86) to "analyze data and to scrutinize evidence, identify areas of action and development, and be involved in action research." A management style that encourages a constant informed interchange of professional information among colleagues is encouraged (Harris 1995; Sammons, Hillman, and Mortimore 1995).

> Evidence-based education is not a technical, disconnected process where teachers collect and analyze quantitative student performance test data in isolation from other valuable evidence of practice.

A key feature of Noumea's learning cycle is "visioning," both collectively and individually. Teachers' personal visions contribute to the school's collective vision by requiring deliberate dialogue, recognizing diverse value systems, listening carefully, and enthusiastically enriching everyone's professional values. Visioning has provided the focus for collecting evidence about the school's real work and its preferred future. Staff members regularly present 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 traveling together having fun" and "Noumea is like a Pearl Jam concert: it rocks!" Staff members also use personal learning journals, which are shared in weekly team meetings, to reflect on their beliefs, practices, and challenges.

Evidence-based practice at Noumea is an integral part of its culture and organization. Visioning has enabled staff members to protect learning areas worthy of their focus and identify intrusions generated by age-old traditions and external agencies. For example, Noumea embraced outcomes-based education in curriculum documents in 1994 but felt that the research base lacked government strategy. Noumea, therefore, adopted a research base (Table 1) developed by Albert Mamary (1991).

Table 1: Outcomes-Driven Developmental Model

Research Base		
Psychological Base	**Transformational Base**	**Philosophical Base**
Administrative Support Change Process Staff Development Communications Problem Solving Climate Improvement	Community Support School Board Policy Support Public Support Networking	Teacher Support Instructional Processes Curriculum Organization School Practices Classroom Practices Organizational Structure
Desired Student Exit Behaviors		
Self-esteem as learner and person Learning levels— low to high	Self-directed learner Concern for others	Process skills: problem solving, communication, decision making, accountability, and group process

©1987 by Albert Mamary, Johnson City Central School District

Accepting this research base as the school's pedagogical position meant that standardized testing, half-yearly and yearly testing, and "flavor of the month" pedagogies pushed by particular areas in the government's education department were dismissed. Staff members' discussions determined that these dated processes provided little evidence and served no purpose in schools where curriculum outcomes were the centerpiece for validating student improvement. Traditional testing was viewed as having no value to teacher and parent knowledge. With parent permission, these testing approaches were removed. Instead, daily teacher judgments of student evidence became critical in informing lesson preparation and student, teacher, and parent knowledge about student progress.

Staff members also looked at aligning organizational elements to implement school-based innovations around the school's vision. Difficult questions about shared leadership, teacher culture, communication channels, and participative processes were addressed, along with how students were grouped and resources were allocated.

Distributive leadership was important in building a professional culture in which mutual trust, shared knowledge, and responsibility could thrive (Crowther et al. 2002; Sachs 2000). Teachers are recognized as contributors to school and student improvement when they join the school. Within five to six weeks of their appointment, teachers are expected to accept at least one leadership role and share the school's real work. All teachers are provided an in-house mentor and professional partner (supervisor), as well as time to research, reflect on, and practice leadership with colleagues. Teachers (Day 2000) also are encouraged and expected to:

- learn individually, in teams, and in larger communities of practice;
- participate in their school-based and external professional worlds;
- collaborate with school community members and 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; and
- be proactive in debate and activities about the moral purpose of the school.

Weekly staff meetings are dedicated to sharing information so that every teacher has full knowledge and can contribute to strategies for assuring and improving student learning and well-being. Teachers also have three hours of free time with a team of colleagues to analyze student data, complete action-research tasks, and investigate innovations that add value. Students' class data and work samples are regularly monitored, reviewed, and evaluated. The result has been a more consistent judgment of student performance and critical dialogue about issues and successes. Findings are shared at whole-school staff meetings so that solutions can be found for emerging problems before they reach crisis proportions.

> The challenge for leaders is to collect and report data and be able to internalize it at the right time for the right reasons for the right students.

These analyses have debunked some unsubstantiated school myths. For example, there was a belief that Samoan and Tongan boys were violent, were not performing well in their schoolwork, and arrived at irregular times to school. Yet, when the data were reviewed collectively, it was found that white Anglo-Saxon boys were the most violent and the most at-risk learners. Teachers then began to understand what previously had been ignored. Polynesian and indigenous students were supported by strong spiritual elders and large extended families. Their sense of family, religion, work ethic, and values was reflected in their support of school. Conversely, many white Anglo-Saxon boys had changed schools often, came from single-parent families, were isolated, and were third or fourth generation welfare recipients.
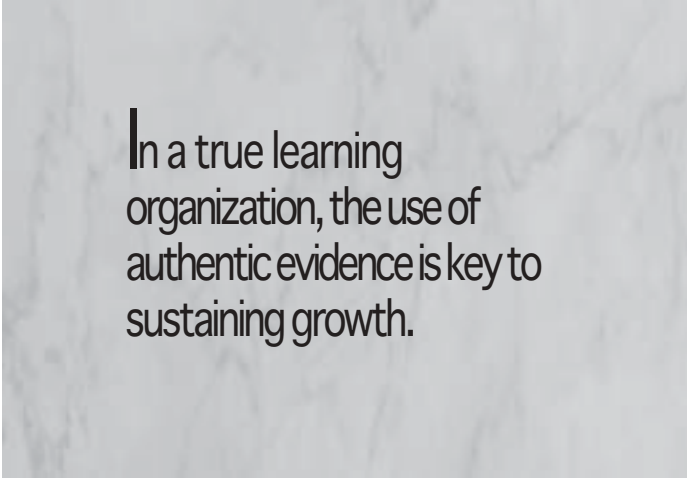
Another example was when Noumea staff members assumed that senior boys were the most violent. Data analysis showed that Year 1 and 2 boys were the most violent. Their smaller size and undeniable cuteness meant that teachers inconsistently applied disciplinary strategies. A behavior modification program was designed for smaller students, and consistent disciplines were reinforced. Information such as this has shown teachers that learning and disciplinary strategies must be based on evidence, otherwise significant time and resources are wasted and students can become targets of unjust treatment.

Evidence-based education at Noumea is not a technical, disconnected process where teachers collect and analyze quantitative student performance test data in isolation from other valuable evidence of practice. Evidence-based education and leadership at Noumea is a way of life.

Creating an Evidence-Based Environment

In a true learning organization, the use of authentic evidence is key to sustaining growth. Both organizational and individual learning are promoted through capturing, packaging, and sharing knowledge among individuals in the organization. Noumea has connected all parts of the school so that members can share their knowledge, perspectives, and

> In a true learning organization, the use of authentic evidence is key to sustaining growth.

experiences about students and programs. The principal is responsible for ensuring that resources, professional support, and reflective time are adequate to sustain innovation. The processes to develop this knowledge and the continual valuing of evidence are detailed here.

Gathering Internal Experience

Early in Noumea's transformation, school leaders noted that the data the government system required them to gather did not provide adequate information about authentic student learning and well-being or give staff members enough facts to act upon. Teachers did not see relevance in standardized and state-based data and, consequently, did not feel compelled to use it in practice or improvement efforts. Staff members redesigned the processes for gathering data on student learning (e.g., curriculum standards, learning styles, and test data) and well-being (e.g., health, attendance, behavior). When analyzed, these processes provided qualitative and quantitative data that would:

- improve teacher judgments about student learning achievement;
- align assessment and learning experiences;
- provide a clearer focus on needed student improvements;
- improve curriculum implementation and continuity of learning experiences;
- improve accountability through the use of a common framework and language for monitoring student learning achievement;
- establish benchmarks from which teachers can work;
- establish a collaborative quality assurance climate within classrooms and across the school;
- facilitate monitoring of observed trends over time;
- provide diagnostic information on individual student progress to aid instructional decisions; and
- enable authentic participation in changing the school's culture.

Though spreadsheets, templates, and checklists provided a great deal of data, they placed high demands on teachers and took them away from the classroom activities that their data-driven efforts were meant to improve. Noumea needed a knowledge creation and management system that would help teachers and parents review data and pursue ongoing improvements and not interrupt the school's workflow.

School leaders draw upon colleagues' ideas and energy, which engenders creative solutions and builds a relationship of trust and commitment.

Ultimately, Noumea staff members developed a net-worked-based knowledge man-agement system known as *SchoolMate* that combined all paper trails about a student into one integrated informational system. *SchoolMate* fostered quick data entry and retrieval. Staff members' agreed-upon protocols ensured that data en-try was consistent. Two net-worked workstations were po-sitioned in every classroom so that qualitative and quantitative data could be entered quickly, using drop-down menus, check-points, batch-up date buttons, and accessible frames. *SchoolMate* fields are linked so that data entered in one area integrates with data in another area. For example, a teacher can review data about a student who has attended eight schools and had numerous absences, making him or her better informed about the reasons for low literacy and numeracy performance.

All student data are stored on a central file server and accessible in every class and staff room. Graphically presented reports provide staff members and students clear and concise information. Data can be collapsed, aggregated, and interrogated by class, grade, whole school, gender, ethnicity, support intervention, and age. At the touch of a but-ton, teachers also can identify the degree of value they add to student learning and well-being.
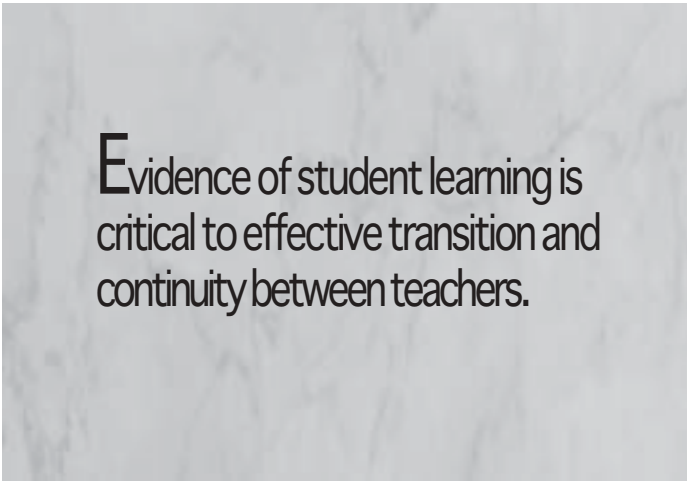
The school also recognized that knowledge resides in the user and not in the collec-tion of data (Malhotra 1998). Tutorials were developed to help teachers manage, ana-lyze, and act on data. Professional development programs provided opportunities for teachers to have personal research time, visit colleagues' classrooms, and visit other schools both physically and virtually.

Noumea uses a knowledge foundation to ensure that it is a learning community, its community of practice is healthy, and its decisions are developed collaboratively (Nonaka 1991; Wenger 1998; Wenger and Snyder 2000). It uses "collective intelligence" (Heifetz and Laurie 1997) to maximize the school's problem-solving potential. School leaders

draw upon colleagues' ideas and energy, which engenders creative solutions and builds a relationship of trust and commitment. Staff members are encouraged to reflect on and challenge their own and others' practices to help students achieve (Schön 1987). For example, three teachers designed a whole-class approach using Reading Recovery (which is typically a one-on-one student program) with four- and five-year-old students, though the program is designed for children above the age of six. Through discussion and reciprocal challenge, they developed a successful program that achieved significant results. The program now is being used in other schools and is being reviewed by Macquarie University. Quality time for individual and collaborative research, permission to take risks, and a continual seeking of evidence by teachers to improve student outcomes contributed to the program's success.

Applying and Integrating Learning into Strategy and Policy

The value of knowledge management ultimately comes from people's ability to reuse 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 (Intraspect Europe 2004). This process needs systemic and strategic support to operate effectively. At Noumea, the principal and middle management are responsible for ensuring that all teachers are supported in processing and interpreting evidence.

> Evidence of student learning is critical to effective transition and continuity between teachers.

An important time for using data effectively is when students move from one teacher and class to another. All too often, though, except in cases of extreme learning problems or behavioral difficulties, teachers disregard prior information about their students. They distrust other teachers' judgments, regard the data as unreliable, feel they have no time to review it, or want to give students a fresh start. These practices often lead to a lack of learning, repeated errors, and lost opportunities to work together to solve students' learning problems. At Noumea, however, evidence of student learning is critical to effective transition and continuity between teachers.

The following year's classes at Noumea are determined three weeks before the end of the school year based on data generated by *SchoolMate*. Teachers are able to access data about their new students from their workstations, have ample time to talk to their students' current teachers, and observe these students at work in their current learning environment. This strategy has enabled teachers to establish the most appropriate learning environment and learning pathways for each student from the first day in their class.

Conclusion

Noumea's unrelenting focus on learning outcomes and its support of evidence-based improvement are consistent with a desire to create a school for the knowledge society (Caldwell 2004; Drucker 1999; Hargreaves 2003). Teachers, parents, and students have collaborated to direct school programs and have accepted a shared responsibility for student, class, and whole-school improvement. Sharing this responsibility has resulted in a genuine understanding of standards, expectations, and value-added achievement.

Leadership at Noumea focuses on nurturing a learning community. It acknowledges the importance of accountability and addresses the need to shift the school's culture if change is to be sustained (Caldwell 2004).

School leaders recognize that creating and nurturing a learning organization requires a dramatic shift in decision making and has worked consistently to reorient people's approach to work. Teachers have been engaged in research, investigation, experimentation, and evaluation to explore the challenges facing schools in the 21st century and have been encouraged to make Noumea an Evidence-Based Learning Community. According to John Naisbitt (in Naisbitt and Aburdene 1990, X):

> 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.

References

Alloway, N., P. Freebody, P. Gilbert, and S. Muspratt. 2002. *Boys, literacy and schooling: Expanding the repertoires of practice.* Canberra, Australia: Commonwealth Department of Education, Science and Training.

Britton, B. 2002. *Learning for change: Principles and practices of learning organizations.* Sundbyberg: Swedish Mission Council.

Bukowitz, W. R., and R. L. Williams. 1999. *The knowledge management fieldbook.* London: Financial Times/Prentice Hall.

Caldwell, B. J. 2004. A strategic view of efforts to lead the transformation of schools. *School Leadership and Management* 24(1): 81–99.

Crowther, F., S. S. Kaagen, M. Ferguson, and L. Hann. 2002. *Developing teacher leaders: How teacher leadership enhances school success.* Thousand Oaks, CA: Corwin Press.

Day, C. 2000. Effective leadership and reflective practice. *Reflective Practice* 1(1): 113–27.

DeLong, D. W., and L. Fahey. 2000. Diagnosing cultural barriers to knowledge management. *Academy of Management Executive* 14(4): 113–27.

Drucker, P. F. 1999. *Leadership challenges for the 21st century.* New York: Harper Collins.

Field, K. 2002. Evidence-based subject leadership. *Journal of In-Service Education* 28(3): 459–74.

Garvin, D. A. 1993. Building a learning organization. *Harvard Business Review* 71(4): 78–92.

Hargreaves, A. 2003. *Teaching in the knowledge society: Education in the age of insecurity.* New York: Teachers College Press.

Harris, A. 1995. *Effective subject departments.* Bath, UK: University of Bath.

Harris, A., H. Busher, and C. Wise. 2001. Effective training for subject leaders. *Journal of In-Service Education* 27(1): 83–94.

Heifetz, R. A., and D. L. Laurie. 1997. The work of leadership. *Harvard Business Review* 75(1): 124–34.

Intraspect Europe. 2004. Practical knowledge management white paper. London: Intraspect Europe. Available at: *www.intraspecteurope.com/downloads/Practical%20Knowledge%20Management%20Whitepaper.pdf.*

Malhotra, Y. 1998. Toward a knowledge ecology for organizational white-waters: Preventing the high-tech hidebound syndrome. Presentation at the Knowledge Ecology Fair 1998, February 2–27, virtual event on the Web.

Mamary, A. 1991. Fourteen principles of quality outcomes-based education. Presentation at Quality Outcomes-Driven Education, Institute for Quality Learning, October 21–28, Scottsdale, AZ.

Naisbitt, J., and P. Aburdene. 1990. *Megatrends 2000.* New York: William Morrow.

Nonaka, I. 1991. The knowledge-creating company. *Harvard Business Review* 69(6): 96–104.

Sachs, J. 2000. Rethinking the practice of teacher professionalism. In *The life and work of teachers: International perspectives in changing times,* ed. C. Day, A. Fernandez, T. E. Hauge, and J. Moller, 76–89. London: Routledge/Falmer.

Sammons, P., J. Hillman, and P. Mortimore. 1995. *Key characteristics of effective schools: A review of school effectiveness research.* London: Office for Standards in Education.

Schön, D. A. 1987. *Educating the reflective practitioner: Toward a new design for teaching and learning in the professions.* San Francisco: Jossey-Bass.

Wenger, E. 1998. *Communities of practice: Learning, meaning, and identity.* Cambridge, UK: Cambridge University Press.

Wenger, E., and W. M. Snyder. 2000. Communities of practice: The organizational frontier. *Harvard Business Review* 78(1): 139–45.

Jenny Lewis is National President of the Australian Council for Educational Leaders, a board member of the National Institute for Quality Teaching and School Leadership, and Principal of Noumea Primary School. She was awarded The Nganakarrawa Award for outstanding leadership and was named one of the 100 most creative and innovative people in Australia by Bulletin Magazine.

Brian J. Caldwell is Managing Director of Educational Transformations in Melbourne, Australia, and Professorial Fellow in the Department of Education Policy and Management at the University of Melbourne, where he served as Dean of Education from 1998 to 2004.