



# Thinking, not just learning

EIGHT YEARS AGO, A.B. PATERSON COLLEGE DECIDED IT NEEDED TO MAKE A RADICAL CHANGE TO ITS PRACTICES OF TEACHING AND LEARNING IF IT WAS GOING TO KEEP UP IN A FAST-PACED AND COMPLEX WORLD. THAT CHANGE CAME IN THE FORM OF THE HARVARD UNIVERSITY-ENDORSED TEACHING FOR UNDERSTANDING FRAMEWORK. HERE **DAWN LANG** ANSWERS THE FUNDAMENTAL QUESTION: TEACHING FOR UNDERSTANDING – IS IT WORTH THE RISK?

A.B. PATERSON COLLEGE IS EIGHT YEARS into a whole-school transformation process to help our students be better prepared for life in today's more complex world.

Deciding to change the way we teach and learn was a major challenge. To add to the complexity, we chose Teaching for Understanding, an educational framework untried in Australia.

Today we can say that both the whole-school transformation and the use of Teaching for Understanding as our pedagogical approach were the correct decisions for us. While all change is context specific, our journey may be of interest to others.

## **If it ain't broke**

A.B. Paterson College began in 1991 and is a coeducational, nondenominational school for students from Prep to Year Twelve. In 1998, an Early Childhood Centre was added for children from fifteen months to five years of age.

The college is not part of any system and therefore enjoys a large degree of independence in decision-making, but also the reality of standing alone financially and in support services. There were stringent financial constraints during the first eight years until the funding level was increased, and these constraints significantly held back capital development.

Philosophically, the college has always focused on students as individuals, encouraging them to strive for personal excellence through a balanced program of academic, co-curricular and personal growth activities. Parents say they choose the college because of its high academic outcomes, traditional ethos and discipline, and caring relationships between teachers and students.

Why, then, did we feel it was necessary to change the teaching and learning practices at A.B. Paterson?

The decision to engage in a whole-school transformation was the result of a regular internal review in 1995 to ensure that we were effectively preparing our students for

the different demands of twenty-first century life. With concepts of the knowledge economy and technological revolution changing the educational landscape, and with technology, particularly Magnetic Resonance Imaging, providing us with a better understanding of the complexities of brain function for learning, we felt the school also needed to do more to keep its education relevant.

Together the college board, parents and staff developed a new set of academic goals to focus the direction of the school. The goals, based on the school community's needs and federal government areas of focus, were to improve literacy and numeracy; to develop students' higher-order thinking skills; to implement computer technology across the curriculum; to facilitate the convergence of general and vocational education; and to link Prep to Year Twelve to improve curriculum and the educational process generally.

While staff worked hard at each of these goals, our efforts tended to be piecemeal. Following the thinking of the time, we embraced the 'toolbox' model, offering students information about thinking skills only during pastoral care or special lessons – and then wondered again why transference of these higher-order thinking skills to other subject areas was not occurring automatically.

We injected concepts from the theories of Multiple Intelligences, Emotional Intelligence, constructivism and other 'isms' of the time, but changes in our teaching and learning practices were isolated according to staff interests.

Junior school and senior school teachers still saw themselves as quite separate mini-institutions, with different teaching approaches – the perception was that high school teachers only teach subjects, while primary teachers teach children but no worthwhile content!

Progress was made in refining the curriculum and improving consistency in planning and assessment within year levels, but the challenge of smoothly linking Prep to Year Twelve was not resolved.

There was distinct improvement in the provision of computer and internet access; vocational subjects were expanded; and greater attention was paid to literacy and numeracy with some pleasing results.

The underlying problem remained, however: by 1998, academic outcomes were high but there was little evidence of independent thought or deep understanding by students. It was clear that in spite of teachers' earnest efforts, tinkering around the edges produced only moderate positive change.

We decided to look for an organising process or structure to unify not only our goals but also the way we went about achieving them. We needed a vehicle to drive change.

### **A vehicle to drive change**

We had a number of criteria for our selected vehicle. It needed to be one that was flexible enough to meet our own context and conditions; well researched and proven to be effective in helping students across year levels think and go deeper in their learning; one that would be acceptable to teachers by valuing good practice, yet challenging and encouraging enough to push us past our habitual assumptions and strategies.

After preliminary research, I went on sabbatical to the United States to investigate further a number of programs successfully proven to improve student outcomes. These failed to meet our needs by being too prescriptive, too narrowly directed to particular levels of schooling, or focused on single solutions such as the use of information technology.

It was the work of David Perkins at Project Zero, Harvard Graduate School of Education, that offered answers to so many of our questions. In his book, *Smart Schools* he drew a clear picture of the breadth of change needed to counter the limitations in learning produced by what we might call industrial model classroom practice. The weaknesses he described in children's and teachers' thinking about learning resonated deeply with our staff.

At the same time, Perkins demonstrated how our knowledge of the human brain and learning supports those strategies we all recognise as quality teaching when we see them. For teachers and schools, Perkins' work offered both validation and challenge.

Importantly, he started from the premise that all children can learn. While acknowledging that there is a very small percentage of children with diagnosed learning difficulties, he stressed that in the classroom it is the teacher's responsibility to find ways to engage children and help each individual student learn through understanding.

Perkins' pedagogy was untried in Australia, though well researched and trialled in the United States with successful outcomes. Perkins and classroom practitioners had conducted trials over a five-year period in more than sixty schools across the US to identify ways for teachers to improve practice and student outcomes. The result was the Teaching for Understanding framework.

The framework addresses how teachers can decide what to teach and reduce the crowded curriculum to the big ideas or concepts of a discipline. It has ideas on how to engage students. It suggests how to assess student understanding progressively so that misconceptions are identified and corrected early instead of at the end of a unit, and explains how to assess students' work in a variety of ways at culminating points to allow each child to demonstrate understanding by applying learning to new situations.

This framework met our requirements and more. It was not a prescriptive process of steps, but a flexible framework that required teachers to use their professional knowledge in decision-making and operate as reflective practitioners. For teachers in Queensland who had long been engaged in developing work programs from syllabuses and designing assessment, this freedom from over-prescription was essential.

The framework was suitable for all teachers in any discipline, at primary, middle or secondary level. It is an approach

to teaching and learning that could also be supported by special education teams, teacher librarians and other essential school personnel. The use of common terms and language provided a way for all staff to be able to communicate and engage in professional discussion.

Any process of change needs to have an element of destabilisation, otherwise it is too easy merely to continue on doing as we have always done. That element is embedded in Teaching for Understanding in the planning process. Planning is radically changed, which then flows into practice.

Essential to the framework is the need for teachers to collaborate. The challenges in changing the way teachers plan, evaluate students' work, reflect on ways to intervene and give worthwhile feedback, assess and engage students in the whole process naturally drives the development of an active, learning community.

### Dealing with change

In keeping with the metaphor of driving, we could examine the process of change through seeing various teachers as drivers, navigators, passengers, and those who refused to ride in such an unknown and potentially dangerous vehicle!

The fact is, of course, that people can never be categorised into fixed positions. They change seats, get in and out of the car, vie for the right to drive or navigate and abandon the vehicle altogether if the experience becomes too demanding. We encountered all of those things.

Counter to the prevailing theory of organisational change of the time, our change process was so broad and pervasive that it needed to be driven from the top down. Open communication was vital, however, and all staff, not only teachers, were fully aware of the research underway to find a suitable organising framework for change, and then were involved for months in discussions about the framework itself and the practicalities of implementation.

We took a 'greenfield site' approach by stating that nothing was protected by

tradition, which was a challenge to some staff because although A.B. Paterson was a young school, most of the teaching staff had long experience in the profession. We stated that, with pedagogy as the central organiser, we would automatically move into what Cuban and Hargreaves refer to as 'second order change' – that is, 'altering the fundamental relationships of a school, creating new goals, reorganising structures and creating new cultures through innovation.'

The school developed a five-year timeline that gave teachers room to explore ideas for the first year, then built in increasing levels of accountability for implementing various aspects over the next four years.

Consistent with that five-year development was a restructure of management responsibilities to develop change leaders throughout the school. While we acknowledged that leaders would emerge to take various ideas forward, it was important that all staff saw the depth and breadth of change we had embarked on, and that leadership was formally devolved away from the key drivers such as the principal and the director of teaching and learning.

Senior staff responsibilities were redesignated, and the roles of heads of subject departments in the senior school gradually expanded to become the roles of heads of faculty in key learning areas across all year levels from Prep to Year Twelve.

The key message in all these discussions and planning was that the framework and resulting organisational and structural changes would happen. There would naturally be mistakes, reviews and re-planning along the way, but we would move forward. Objections were expected and seen as desirable as ways to identify difficulties and move forward. Senior staff and the principal used discussions to move from the words 'this can't work' to the question 'how can this work?'

Having staff accept that the concept of review and change would be part of the ongoing nature and culture of the school was the hardest stage in some ways, as

many teachers had been through educational change programs in previous schools which had led to nothing. Some staff thought that if they ignored the whole process it would go away. Others still had to ask 'Are we there yet?' Over the five-year plan, however, while some stages took longer than expected and others were reached early, all of the various milestones were achieved.

Support for the introduction of Teaching for Understanding required not only reorganisation, but also extensive and ongoing professional development.

The chief challenge was, and still is, the one that plagues all educators: time. As well as the inherent problem of educational change, trying to alter practice while maintaining day-to-day objectives and requirements is a bit like changing the tyres on the car while driving. Finding time for the extensive professional development required sacrifices.

Full staff meetings were relegated to once a term to free up time for teachers to meet, plan and participate weekly in professional development. As the college doubled in size over the five years, induction and in-service for new staff required additional time, so new staff were exempt from attending school assemblies and used that time for professional development.

Major curriculum revisions included developing a scope and sequence document for each key learning area to ensure a smooth development of curriculum through progressive year levels. Teachers worked with heads of faculty to define the 'big ideas' of each discipline, which became the organising or overarching goals for that discipline across all year levels from Prep to Year Twelve. For each unit of work they co-developed assessments related to real life tasks; these were called the understanding goals and they linked directly to the overarching ideas of each discipline. A part of the process was to devise standards schemas or rubrics for assessment that could be modified for various units. The final step was to ensure the

reporting procedure also revolved around the overarching goals.

### Student and parent reactions

Changing students' understanding of what classroom learning was about took considerable time and development. It is much more straightforward to be told what to learn and then regurgitate that learning for a test than to be involved in designing tasks, asking questions, listening to others and developing solutions, finding evidence and deciding how best to present ideas. Then there is the final challenge of applying that understanding to new situations.

There were statements such as, 'I am sick of teachers asking me to guess – just tell me what you want me to learn.' After clarification, the word 'guess' was changed to 'think' – and students started to see the benefit of the framework.

New students are sometimes surprised initially at the level of responsibility they are expected to take in classroom learning. Most overcome this quite quickly and say they feel more motivated in general about learning. There are a few who are not interested in working at that level and choose to take an easier road somewhere else, but these are usually students who also take offence at our general grooming and uniform standards.

In 2003, we asked an educational consultant to do an audit with classes from Years Five, Seven, Nine and Eleven and randomly selected teachers on how they saw Teaching for Understanding. It was interesting that in contrast to national research outcomes, our Year Five students were still highly excited about learning and achieving well. Performances dropped slightly around Year Seven when social and adolescent development issues began to intrude.

Students said the things they enjoyed about lessons were the discussions, the new ideas they discovered and that lessons were not boring. Their major concern was the inconsistencies experienced when dealing with new staff or those less advanced on their own professional journeys, who

were not as comfortable about giving greater responsibility for learning over to students.

Parents have generally been extremely supportive about the changes, particularly as academic outcomes have remained high and students are successful in national and state level competitions.

The only major concern occurred in 2004 when our approach to mathematics in the junior school changed significantly. While there had been quite major changes in mathematics learning in the senior school, the generalist-trained teachers in primary were less confident about moving away from traditional practice. On a second sabbatical to the US in 2003 to follow up on the progress of other schools using Teaching for Understanding, we discovered interesting developments to support our work.

One was a Mathematics program developed by Teaching for Understanding teachers and a University in Michigan. The process is based around helping students develop an understanding of numbers for themselves and then gradually working out the appropriate algorithms, rather than having algorithms presented to them.

At first parents were quite concerned that the way they had learned mathematics was not being used, but most admitted after discussion that their own mathematics experiences had not been very satisfactory. Strong results in mathematics have now provided reassurance, though we still hold mathematics information evenings for parents of junior students to take them through the process personally.

### New problems, old thinking

To take our driving metaphor further, perhaps we could see our developing problems as designing a new car body but using partially reconstructed materials under the bonnet.

By the end of our first five-year plan we could see that in spite of ongoing professional development and collaboration, some teachers who had quite readily

accepted Teaching for Understanding were gradually reducing the flexibility of the new planning and practice into more rigid lessons in line with earlier thinking. Some used performances of understanding as tests or homework exercises, rather than as a feedback loop to gauge students' thinking: new terminology but old-style thinking.

For teachers accustomed to controlling the lesson themselves, letting go to some extent in the classroom by allowing students to negotiate their own ways of working to understand a concept, or having students design their own generative topic and mind map of ideas for a unit can be quite daunting. This demands faith in the process and a high level of prior thought and planning. The opportunity to create rich units of work with students also means moving away from that trusty bank of prepared lessons and assessments built up over many years.

Dealing with these issues had prompted the second sabbatical to schools in the United States and Europe also treading the Teaching for Understanding pathway. It was reassuring to discover that other change leaders were seeing the same problem and were all looking at ways to take their own and teachers' thinking deeper. One of the developments was the junior school Mathematics program noted earlier.

The second important outcome of that sabbatical was finding the work of Ron Ritchhart, Senior Research Associate at Project Zero, whose book *Intellectual Character* focused on the importance of providing a classroom environment that encourages thinking. His use of thinking routines to help students develop intellectual character, the disposition to think and question, offered new insights for teachers to help students understand more deeply.

Following up this work led to a meeting with Ron Ritchhart and a teacher at a school in Amsterdam, Mark Church, who was also an online coach for Teaching for Understanding. Until this time professional

development at our school had been led internally as there was no one from whom we could learn about Teaching for Understanding in Australia. We had enjoyed a one-day visit from Tina Blythe, author of the teachers' guide to Teaching for Understanding, in 2001 when she was visiting Tasmania's Education Department for a similar purpose and we could 'piggy back' some of the expenses.

We were intensely relieved then that our 'do-it-yourself' version of Teaching for Understanding really was in line with the work she and her colleagues were doing.

The ideal professional development would have been to send teachers to the annual Summer Institute at Project Zero, but sending sufficient numbers was beyond our financial resources. Additionally, where this had been tried in European schools the result had been some jealousy about those chosen and those unable to attend. With all of our teaching staff involved, we could not afford division on this basis.

We were very fortunate to have both Ron Ritchhart and Mark Church agree to visit our college for two days of professional development at the beginning of our school year from 2004 on and this has been extremely helpful. Ritchhart's ongoing research has helped us keep in touch with new developments and concepts, and Church who is now with Project Zero on a fulltime basis, has significant prior classroom experience with using Teaching for Understanding that has been of practical assistance.

### **Sustaining the change process**

As human beings, our ability to change lies in the unexamined assumptions and beliefs we all hold that form our approach to life. In the case of schooling, teachers come to us with their individual understandings of school through personal experiences with their own teachers and through previous employment in a variety of settings. Identifying and challenging these assumptions can be confronting even when done through established, formal protocols to minimise the personal issue.

Change leaders are not immune to this, of course, nor to the fact that we all develop at different rates and make mistakes that later become blindingly obvious. Teachers did become somewhat annoyed when they may have just mastered a particular way of thinking or operating, to find that we would like to do things a different way – even though the reasons for tweaking the procedure may be perfectly understandable.

As the budget improved, we have devoted resources as much as possible to supporting teachers better in this complex journey. Middle management and teachers were given more time to rewrite programs, consult and plan. A teacher mentor who was not on senior staff was appointed as a way of offering support for teachers without the teachers feeling they were being formally supervised.

To help the heads of faculty cover Prep to Year Twelve, assistant heads were appointed to deal with administrative issues and key learning area coordinators positioned in the junior school to help translate practice at early levels of development. More middle managers were appointed to take on specialty projects outside the initial eight key learning areas.

The timetable was developed where possible to allow teachers in a year level in the junior school common spare periods. Lesson times in the senior school were extended from forty-five minutes to ninety minutes over a two-week cycle to allow more time for students to explore issues and ideas, while junior school classes operated at forty-five minute periods.

It was necessary in some subject areas to challenge the occasionally more rigid expectations of assessment for tertiary entry requirements, but as time has gone on, this has become far less of an issue. As more and more schools have pursued the importance of changing teaching and learning to better prepare students for today's world, many using frameworks or concepts somewhat similar to Teaching for Understanding, the statutory body in

Queensland has broadened its scope of what is acceptable.

What remains a challenge are the 'point in time' tests or assessments required by the federal government and in our case, the state government. We certainly have no difficulty with being accountable. Independent schools are accountable on a daily basis to parents and students, to our community and should be accountable for the funding we receive from governments.

Unfortunately, it seems the simplest way of determining whether children are achieving across the state or nation is through common testing at particular points in time, even though we know that young children in particular, have a two-year window of quite normal development.

Our challenge is to ensure that we have time to allow our very young children to develop as part of an individualised learning journey, and not be confused by the need to prepare for specific test or assessment times that may normally have been encountered later.

There is a body of thought still extant that sees it as almost impossible to translate research into practical classroom application. We had many dire warnings of this potential problem in 1998 and as recently as four years ago.

We have been very pleased, as have our parents and students, at our very strong student outcomes at national and state testing, competitions and tertiary entry, without being a selective school.

### **Was the change worth the risk?**

Teaching for Understanding was the right choice for us, and certainly, worth the risk.

Yes, we did encounter the well-documented perils of workplace change, the paradox of meeting government accountability measures while at the same time responding to government calls for educational innovation and change for the Twenty-first Century, and the constraints inherent in using traditionally designed facilities and a very low budget to produce quality results.

The result has been that our students continue to achieve high academic outcomes and according to them, are 'required to think, not just learn.' In fact, when new staff from schools with more traditionally structured lessons enter the classroom, our students explain that ideas are meant to be discussed to help them form substantiated opinions; that topics are not bound by 'what we are meant to study this term' but by natural progression in the investigation process to help them go deeper with their understanding.

We can see great improvements in students' motivation and in the way they are constructing meaning for themselves and are able to transfer their learning to new situations.

Implementing a common pedagogical framework has allowed us to draw the many aspects of the college together more firmly as a corporate body with a united approach to achieving our goals, a common language for professional discourse, a recognition that learning progresses naturally through Prep to Year Twelve without disjuncture at traditional 'mini-school' levels, and a commitment by all staff to ongoing professional learning.

This is not to pretend that all students are achieving their personal best all the time. We have open enrolment with classes across the ability ranges, along with children who have ADHD, Asperger's syndrome and diagnosed learning difficulties. In meeting their various needs and aspirations, we offer both academic and vocational pathways. We have our share of students who for personal or social reasons decide they are 'too cool for school.'

And while many of our teachers have said they feel professionally challenged and 'alive' as teachers again through using Teaching for Understanding, there are naturally still differences between classrooms as teachers travel along their own personal learning journeys.

The outcomes, however, have been more than we could have hoped in the early stages, and while the learning journey is ongoing for each of us, and the way we teach and learn is at odds with many government

accountability measures, we can now say it has been, and still is, worth the risk.

### An Australian first

Recently A.B. Paterson College hosted the first national conference in Australia on Teaching for Understanding. Including our own staff, the conference attracted 240 delegates from across Australia, from South Africa, New Zealand and the US.

Interest in the Teaching for Understanding framework has risen in recent years as Project Zero at the Harvard Graduate School of Education has conducted online courses in Teaching for Understanding through its WIDEWorld site, and publication of materials on ongoing related research have drawn attention from educators.

According to senior researchers at Project Zero, A.B. Paterson remains the only school in the world so far to adopt Teaching for Understanding as a whole-school approach. ▀

*Dawn Long is the principal of A.B. Paterson College.*

### FURTHER READING:

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*Photo page 6, An example of cooperative group problem solving in the classroom, courtesy of A.B. Paterson College.*

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