

## 3-DIMENSIONAL PEDAGOGY— THE IMAGE OF 21ST CENTURY TEACHER PROFESSIONALISM

### *Dorothy Andrews and Frank Crowther*

*With the advent of post-industrialism the work of teachers will surely change dramatically. But how? In this final chapter of the year book, Dorothy Andrews and Frank Crowther draw on the outcomes of a successful school revitalisation project that has engaged teachers in serious ‘imagineering’ of their current work and their professional futures. On the basis of the outcomes of the project to date, Andrews and Crowther propose that teaching in a knowledge society will be a highly sophisticated, highly complex construct that can be viewed as three-dimensional. When the three dimensions come together, the net effect is new knowledge that has the power to transform communities.*

#### **Introduction**

Educators are at the heart of the knowledge economy. Teachers in the twenty-first century are increasingly being understood as knowledge workers with the power to facilitate, motivate and collaborate ... the potential impact of twenty-first century educators is unparalleled (Kalantzis and Harvey 2002, p. 9).

The age that Kalantzis and Harvey describe as having reached our doorsteps is one of information revolution where most knowledge has a limited shelf life (Spender 2000). It is also an age where schools will be encouraged to become stand-alone enterprises (Beare 2001)—self-managing, partly self-funded, networked, global, accumulating other functions and selecting their own staff. Drucker (1994) has envisioned it as one of discontinuous change where the main form of work will be knowledge creation and where ‘education will become the centre ... and the school (the) key institution’ (p. 9). Professionals in this brave new world will be largely self-managed individuals—lifelong learners who work collaboratively with others to achieve a shared purpose (Limerick, Cunnington and Crowther 1998).

Our research and facilitative work with schools and other educational institutions over the past half-decade suggest that this future can be approached by the Australian teaching

profession with a sense of keen anticipation and enthusiasm rather than fear or cynicism. In this chapter we describe our work in the IDEAS Project, a school revitalisation initiative in which we have engaged with about 150 schools. Of particular focus in this chapter is the concept of 3-dimensional pedagogy—a concept that has emerged from the IDEAS Project and that appears to have considerable power to transform teaching at the same time as it has the capacity to affirm the central essence of the teaching profession in a knowledge society.

## The IDEAS Project—Reimagining the Work of Schools and Teachers

The IDEAS (Innovative Design for Enhancing Achievements in Schools) Project is a whole-school revitalisation initiative of the University of Southern Queensland's Leadership Research Institute and Education Queensland. It has been in development for six years, building mainly on the research of Newmann and Associates (United States) and Cuttance and Associates (Australia) into the links between professional learning communities and enhanced school outcomes.

IDEAS has evolved through a series of conceptual stages and, in its current form, is underpinned by three essential components, all of which represent significant departures from mainstream educational reform literature of the past decade or more. These components are as follows:

**Component One:** The Research-based Framework for Enhancing School Outcomes (Figure 8.1) is an image of a successful educational organisation for the post-industrial world. Central to this first component of IDEAS is the notion of organisational alignment—that is, schools that generate both depth and consistency across their major elements will engender a greater capacity to pursue high expectations for student achievement and to nurture a distinctive sense of identity. (Note: Kaplan and Norton's (1996) notion of 'Balanced Scorecard' has been used to develop the concept of alignment and extend it into school settings.) The five core elements of the school as an organisation that are contained in the Framework (i.e. strategic foundations, cohesive community, infrastructural design, schoolwide pedagogy (SWP), professional supports) differ significantly from the components of most organisational development models of the past. In particular, the element of SWP can be viewed as an inclusion that has not featured in traditional organisational designs. Not surprisingly, over 90% of IDEAS schools find when they complete diagnostic inventories at the start of the revitalisation process that this element has limited place in their current operations.

**Component Two:** The IDEAS process is a five-phase implementation strategy that enables schools to work towards a heightened degree of organisational alignment. The five phases are labelled *initiating*, *discovering*, *envisioning*, *actioning* and *sustaining*. In conceptualising the IDEAS process four key theoretical concepts have been drawn upon: metastrategy (Limerick et al. 1998); appreciative inquiry (Cooperrider and Whitney 1996); action learning (Argyris and Schon 1996; Kolb 1984; Zuber-Skerrit 1990) and organisational capacity building (Newmann, King and Youngs 2001).

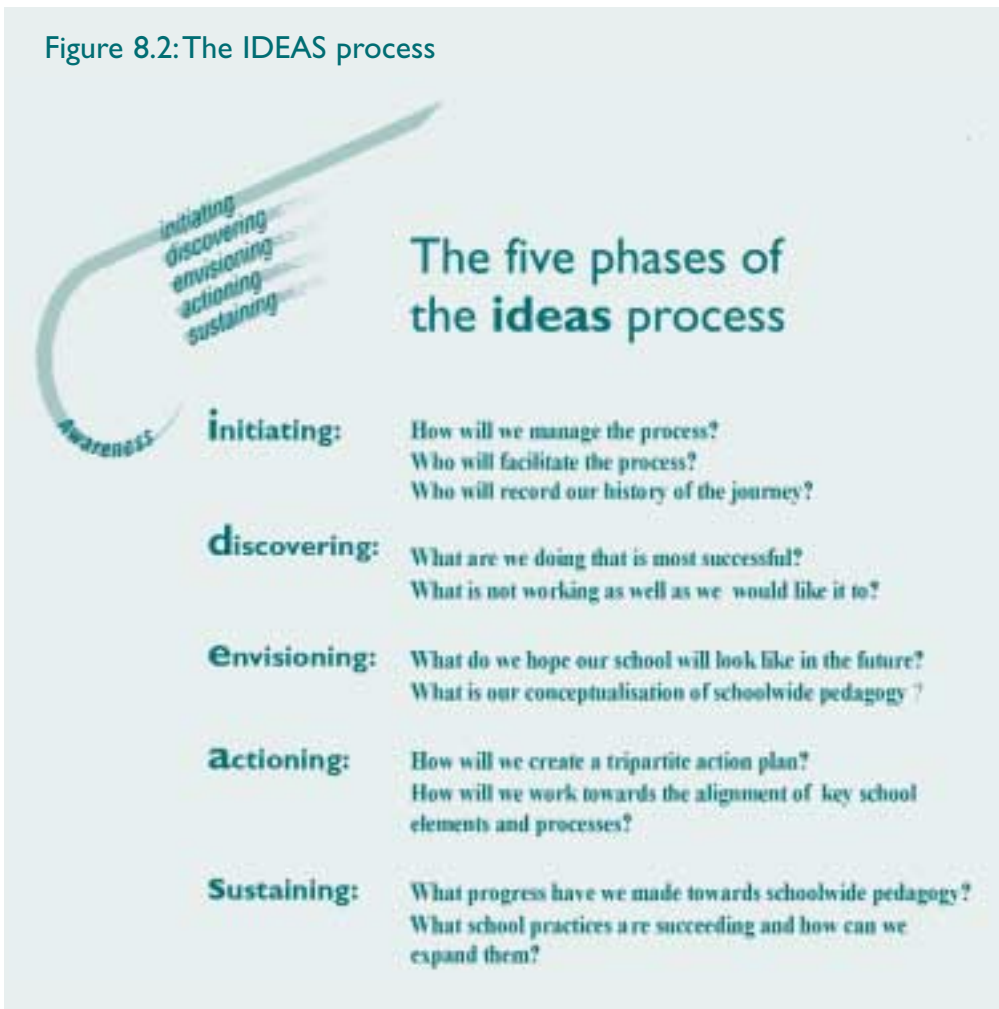
Phase one of the IDEAS process (Figure 8.2) usually requires the identification of one or

Figure 8.1: The Research-based Framework for Enhancing School Outcomes



more school-based facilitators and establishment of an IDEAS school management team (ISMT) to work with the external (university) support team. The second phase (discovery) involves the ISMT in collecting information from teachers, students and community about the current level of organisational alignment of the school in an attempt to illuminate the school's most successful aspects, interventionist factors and key challenges. This process facilitates learning across the school community, but is centred on the work of teachers, particularly the identification and exploration of instances of pedagogical excellence. It usually culminates in preparation of a self-report card prepared by the teaching staff and that highlights the degree of alignment of the school's elements. The third IDEAS phase relates to envisioning, that is, the imagining of ideals or dreams that the school community may aspire to. At this stage, language becomes very important, with metaphor, symbolism and analogy emphasised (in contrast with the language of bureaucracy that has tended to dominate in most school reform efforts of the recent past). A conceptualisation of SWP, reflecting the school's vision and drawn primarily from teachers' most successful practices, usually marks the culmination of phase three.

Figure 8.2: The IDEAS process



The fourth phase represents what might be called mutualistic actioning within the school, led by teacher leaders and administrators working conjointly. Principals focus on community building and the coordination of within-school developmental efforts while teachers (either as individuals or as self-selecting small cohorts) are encouraged to trial aspects of their SWP, with a view to creating school-based definitions and meanings of these various aspects. Action research, action learning, peer mentoring, dialogue groups, phenomenological writing and group presentations have all been used successfully to explore the meaning of SWP in individual classrooms. Teachers are encouraged at this stage of the IDEAS process to cross-refer to authoritative theories of learning and teaching and to reflect on their personal potentialities (styles, values, personalities and so on) to contribute to particular pedagogical aspects.

The last IDEAS phase is the sustaining phase, which focuses on sustaining the school's enhanced level of alignment, particularly in relation to its distinctive SWP. This phase has usually engaged teachers in IDEAS schools in exploration of the relationship between systemic initiatives (such as productive pedagogies, New Basics and whole-school literacy) and their SWP. It has also sometimes resulted in major adjustments to school infrastructures, including curricula, timetables, organisation of students, spatial arrangements and deployment of technology. Of fundamental importance is that the infrastructural changes that are decided upon come only after the school, led by teams of administrators and teachers, has determined its vision and schoolwide pedagogy. This feature of the IDEAS Project stands in stark contrast to the approach taken in most educational reform initiatives in recent decades.

**Component Three:** Parallel leadership, in which teacher leaders and administrator leaders engage in collective action to build their school's capacity, represents a fundamental departure from the dominant educational leadership paradigm of the recent past (Andrews and Crowther 2002). Parallelism embodies mutual respect, shared purpose and allowance for individual expression and recognises forms of leadership potential within the profession of practising teachers that have been obscured, and frequently denied, in the past.

In IDEAS, the metastrategic leadership function of principals is asserted unequivocally. But equally important is bona fide leadership on the part of teachers. The Teachers as Leaders Framework that is contained in Table 8.1 has been demonstrated to have concrete meaning in many dynamic school settings and to be fundamental to sustained school improvement (Crowther, Kaagan, Ferguson and Hann 2002). Most of the IDEAS Project's school-based facilitators feature highly on the components that are contained in Table 8.1.

Taken together, these three components—the Research-based Framework for Enhancing School Outcomes, the IDEAS process and parallel leadership—represent a new conceptualisation of processes of successful school reform and a new conceptualisation of teachers as leaders in a knowledge society. Figure 8.3 contains a diagrammatic representation, drawn from our research, of a plausible integration of these three components.

Table 8.1: The Teachers as Leaders Framework

**Teacher leaders...**

Convey convictions about a better world by:

- articulating a positive future for students
- showing a genuine interest in students' lives
- contributing to an image of teachers as 'professionals who make a difference'
- gaining respect and trust in the broader community
- demonstrating tolerance and reasonableness in difficult situations

Strive for authenticity in their teaching, learning and assessment practices by:

- creating learning experiences out of students' needs
- connecting teaching, learning and assessment to students' futures
- seeking deep understanding of tacit teaching and learning processes
- valuing teaching as a key profession in shaping meaning systems

Facilitate communities of learning through organisation-wide processes by:

- encouraging a shared, schoolwide approach to pedagogy (teaching, learning and assessment)
- approaching professional learning as consciousness raising about complex issues
- facilitating understanding across diverse groups while also respecting individual differences
- synthesising new ideas out of colleagues' dialogue and activities

Confront barriers in the school's culture and structures by:

- 'testing the boundaries', not necessarily accepting the status quo
- engaging administrators as potential sources of assistance and advocacy
- accessing political processes in and out of the school
- standing up for children, especially marginalised or disadvantaged individuals or groups

Translate ideas into systems of action by:

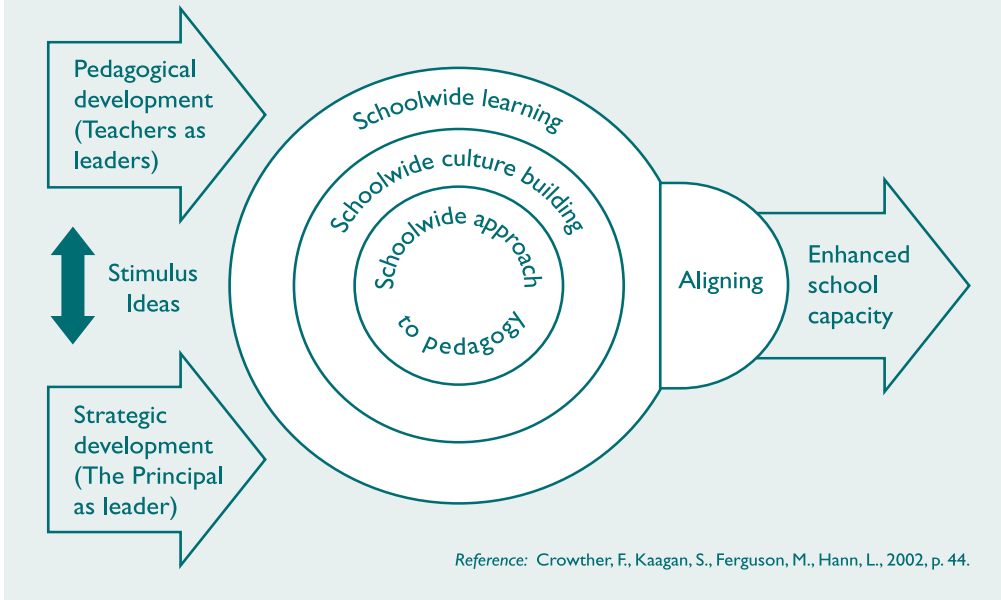
- organising complex tasks effectively
- maintaining focus on issues of importance
- nurturing networks of support
- managing issues of time and pressure through priority setting

Nurture a culture of success by:

- acting on opportunities for others to gain success and recognition
- adopting a 'no blame' attitude when things go wrong
- creating a sense of community identity and pride.

Crowther, Kaagan, Ferguson and Hann 2002, pp. 4–5.

Figure 8.3: Linking parallel leadership and successful school reform



### 3-DP, the IDEAS Conception of the 21st Century Teacher at Work

Schools that have engaged systematically in the IDEAS Project for a sustained period of time (usually at least two years) have frequently found that they have undergone significant change in their sense of identity, their level of organisational alignment and their pedagogical practices. One major side-effect that has been observed relates to teachers’ professional image, with re-administered diagnostic inventories (based on the Research-based Framework for Enhancing School Outcomes) in some cases showing dramatic improvements in teacher morale and esteem as a result of engagement in the project.

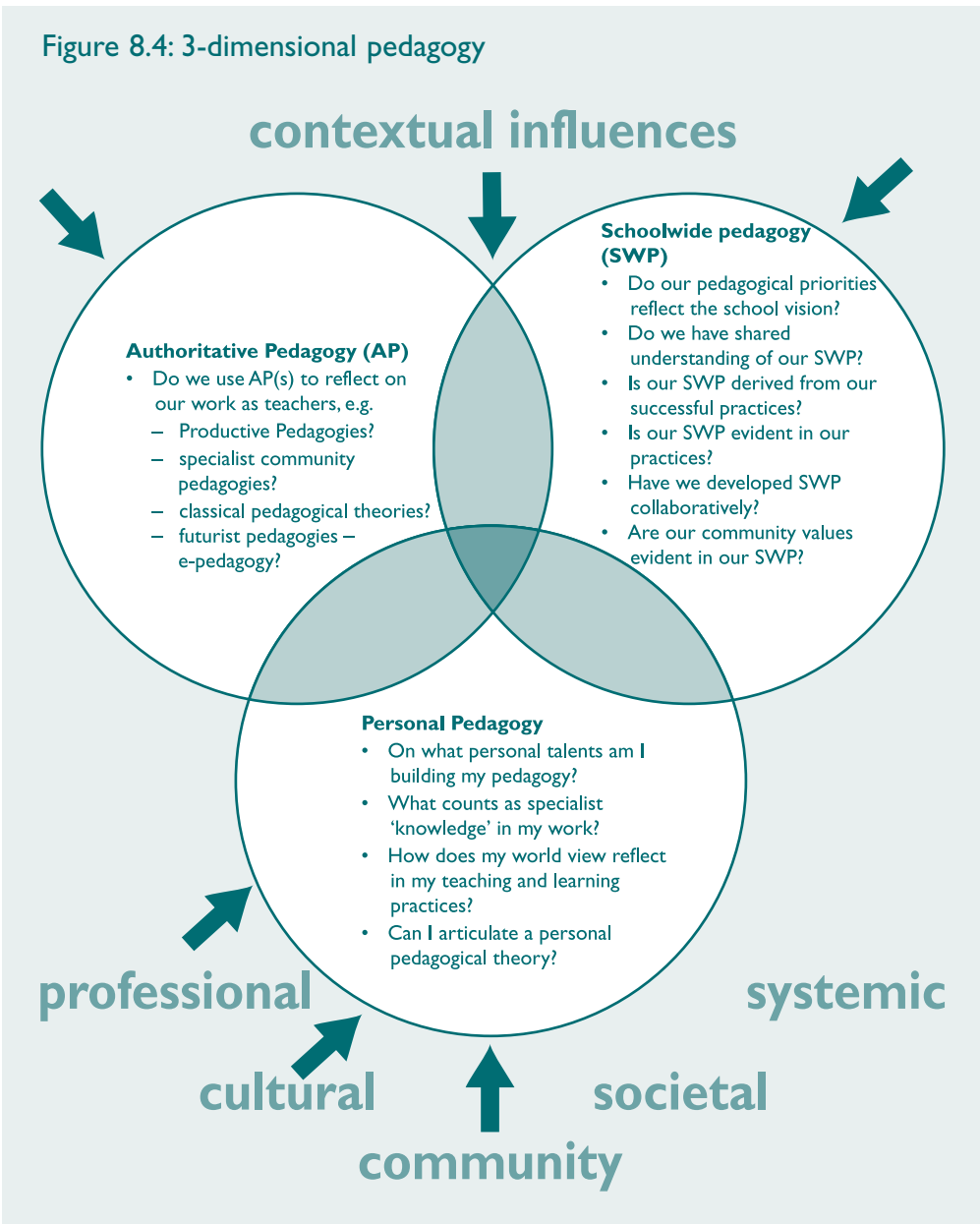
Our explorations of this phenomenon with IDEAS Project participants have led us to the concept of 3-dimensional pedagogy—an integration in teaching-learning contexts of personal pedagogy (PP), schoolwide pedagogy (SWP) and authoritative pedagogy (AP). (See Figure 8.4 for one of several diagrammatic representations of 3-DP that has been generated recently by IDEAS Project participants.) In essence, 3-DP teachers develop their personal pedagogical self at the same time as they engage with their school’s SWP and explore the potential of relevant authoritative theories of teaching and learning to both their personal pedagogy and their SWP. The 3-DP teacher, it can be seen, is a collaborative participant in a dynamic professional community but is also an autonomous individual with highly specialised personal pedagogical interests and capabilities.

### Personal Pedagogy

The concept of Personal Pedagogy can be found in a number of forms in the educational literature.

Marland and Osborne (1990), for example, explored the nature of a teacher's theory of action and the relationships between that theory and interactive thinking and specific teacher behaviours. They defined three stable and closely interrelated elements: an educational philosophy expressed in terms of goals, beliefs and values; knowledge of the students; and a range of classroom procedures in the form of tactics, principles and models for classroom practice. A fourth element is that of dilemmas, that is, situations in the classroom that are problematic or areas of responsibility where the teacher makes choices between competing values, beliefs and practices.

Figure 8.4: 3-dimensional pedagogy





In somewhat similar vein, Elbaz (1983) defined the elements of teachers' work based on the personal qualities of the teacher (attributes, values, beliefs, assumptions); underpinning philosophies developed as metaphors and images (a teacher's world view); learned technical aspects; content knowledge; practices learnt from experience (now tacit); and contextual variables.

Turner-Bisset (1999) extended Shulman's highly renowned concept of pedagogical content knowledge to include eleven sets of knowledge bases for primary teachers. These included substantive and syntactic subject knowledge; curriculum knowledge; general pedagogical teaching knowledge (gained from practice and based on beliefs about teaching); knowledge of learners; and knowledge of self and of educational contexts where planned learning is proposed to take place.

Based on theoretical underpinnings such as these, the IDEAS Project employs the following criteria for the exploration and development of Personal Pedagogy:

- On what personal talents am I building my pedagogy?
- What counts as specialist knowledge in my work?
- How does my worldview reflect in my teaching and learning practices?
- Can I articulate a personal pedagogical theory?

## Schoolwide Pedagogy

The essence of the Wisconsin research (King and Newmann 2001) that is fundamental to the IDEAS Project is that successful school reform derives from a combination of shared professional responsibility and agreed principles for pedagogical practice. Sarason had observed almost two decades earlier from studies of failed educational reform that:

the fact that a person has a particular orientation towards himself or herself and the world is important, but equally important are the ideas and values to which the orientation is related (1982, p. P176-7).

Sarason's argument that there is a need for individual ideas and values to be analysed by self, and between self and others, as part of reform processes, could be said to have been accorded scant attention over the past two decades. More recently, Senge has summed up these same sentiments with the following colourful image:

You cannot implement 'learner-directed learning', for example, in one classroom and not others. It would drive the kids nuts, not to mention the stress on the individual teacher (Peter Senge, quoted in O'Neill 1995, p. 21).

Our observations do not necessarily support Senge's observation regarding students going nuts. To the contrary, smart kids can quickly learn how to play one teacher off against another in a school that lacks a cohesive pedagogical approach. But we have every reason to believe that his observation regarding teachers in schools that lack pedagogical congruence is defensible.

Based on the Wisconsin research and commentaries by authorities such as Senge (1995),

we have developed the concept of SWP for schools engaged in the IDEAS Project. It incorporates seven criteria for the members of a professional community to consider at the juncture at which they believe they may have determined a consistent schoolwide approach to their core work:

- Does our SWP reflect the school’s vision?
- Does our SWP comprise a balance of teaching, learning and assessment?
- Is our SWP derived from analysis and synthesis of teachers’ highly successful practices?
- Is our SWP responsive to students’ needs and the features of the community?
- Is our SWP evident in classroom practices and experiences?
- Is our SWP grounded in authoritative theoretical and systemic frameworks?
- Is our SWP continuously illuminated through processes of professional learning and shared practices?

### **Authoritative Pedagogy**

There is no shortage of authoritative pedagogical theories on which teachers can draw, individually and collectively, either to illuminate or to explain their work.

Historical examples include Montessori and Reggio Emilia approaches to early years education. Maria Montessori’s holistic methodology continues as an integrated philosophy-strategy-design approach in many Australian early childhood settings while The Reggio Way—in which schools encourage longitudinal exploration, communication, problem solving and discovery, mainly through art (Palestis 1995; Herzog 2001)—is similarly renowned as a time-honoured approach to early years education.

Angus’s (1988) classic study of a Christian Brothers’ boys school outlines some of the pedagogical implications when a deeply entrenched socio-religious-educational philosophy (Edmund Rice) in a school interfaces with a range of contextual influences in teachers’ work. Angus concludes that stability and continuity are maintained in the Christian Brothers education of Catholic boys through selective staffing and by shared pedagogical practices that emphasise discipline, control and caring, prayer and a strong devotion to academics and sport.

In recent years, with student orderliness and discipline an increasing concern in many schools and communities, authoritative pedagogies that are derived from social behavioural theories have also gained prominence. These include the responsible thinking process (RTP) of Edward E. Ford (1994) and choice theory of William Glasser (1998). At the same time, multiple intelligences theory, left-right brain theory and various forms of constructivism have acquired significant educational followings as whole-school approaches. Also, as one might expect, the concepts of e-pedagogy and virtual classroom have emerged as powerful benchmarks against which to assess the integrity of pedagogical practices in some schools and systems (Spender 2000).

In Australia in the past three years, the conceptual work of University of Wisconsin–Madison researchers Fred Newmann and Associates (1996) with intellectual processes has been extended by Hayes, Lingard and Mills (2001) to encompass a range of social processes and related outcomes. The Productive Pedagogies Framework of these researchers provides yet another highly authoritative framework within which individual schools might develop their approaches to SWP and individual teachers might assess their PP.

IDEAS Project schools are encouraged to ask themselves three questions as they proceed into the final stages of the IDEAS process:

- Do we use AP(s) to justify our SWP? E.g.:
  - Productive pedagogies?
  - Spiritual/specialist community pedagogies?
  - Classical pedagogical theories?
  - Futuristic pedagogies?
  - Etc.
- If so, how?
- What does a particular AP tell us about our individual PPs?

### 3-DP in Action—Two Thumbnail Sketches<sup>2</sup>

The following two thumbnails have been provided by the IDEAS facilitators at Gumleaf and Rainbow state schools. They explore the evolving interplay between the three dimensions of teachers’ work at IDEAS schools. SWP provides the connection and represents the main tool for teachers to take control of their work and to begin to see themselves as authentic makers of new meaning.

#### Thumbnail Sketch 1: New knowledge for Gumleaf State High School

The Gumleaf School vision: A community of forward thinkers

The Gumleaf School SWP: Seven shared pedagogical principles:

*Principle 1: Scaffolding ideas:* teacher facilitation and modelling, involving ‘scaffolding’ to enable students to organise, arrange and manipulate information

*Principle 2: Transferring knowledge:* includes higher order thinking, intellectually demanding applications

*Principle 3: Facilitating substantive conversation*

*Principle 4: Knowledge navigation:* teachers as knowledge ‘navigators’ in their subject area expertise.

*Principle 5: Creating a supportive classroom environment* that both encourages student engagement with a variety of learning modes and promotes individual responsibility for behaviour and outcomes.

*Principle 6: Building global connections:* where students' understandings engage larger social contexts.

*Principle 7: Future-ing:* thinking and acting from a futures perspective. Students recognise possibilities; identify alternatives; make informed choices; and act in the creation of a preferred future, both in individual life and in their contribution to the building of a better world.

### **How have we made meaning of Gumleaf High's new knowledge in our classrooms and across the school?**

Our Forward Thinking vision developed from an intensive values clarification exercise. We then proceeded to identify pedagogical practices (from each of our faculties) that reflected the futuristic nature of our vision. These pedagogical practices were workshopped with staff to enhance clarity and understanding.

This provided a platform for the articulation of our SWP. This engaged us in new forms of collaboration, synergistic thinking and professional sharing. It was probably the most challenging, and also the most professionally satisfying, part of the entire IDEAS process.

After eighteen months in IDEAS, our school is already responding to the benefits of a clearly articulated vision and schoolwide pedagogy. During the actioning phase, we decided to generate a schema, which marries personal pedagogy, schoolwide pedagogy and productive pedagogies. This enabled us to engage in lesson observation where a peer-observer records the dialogue for later interrogation through the dual lens of productive pedagogies and our SWP.

Those teachers who have engaged in the peer-observation process then report to a staff meeting about their experiences. One longstanding member commented recently that he had not had a colleague observe his lessons in 23 years as a teacher and that the sharing of Forward Thinking pedagogical practices had opened the minds of the staff to new images of themselves as professionals.

### **Thumbnail Sketch 2: New knowledge for Rainbow State School**

The Rainbow School vision: Bridging the gap

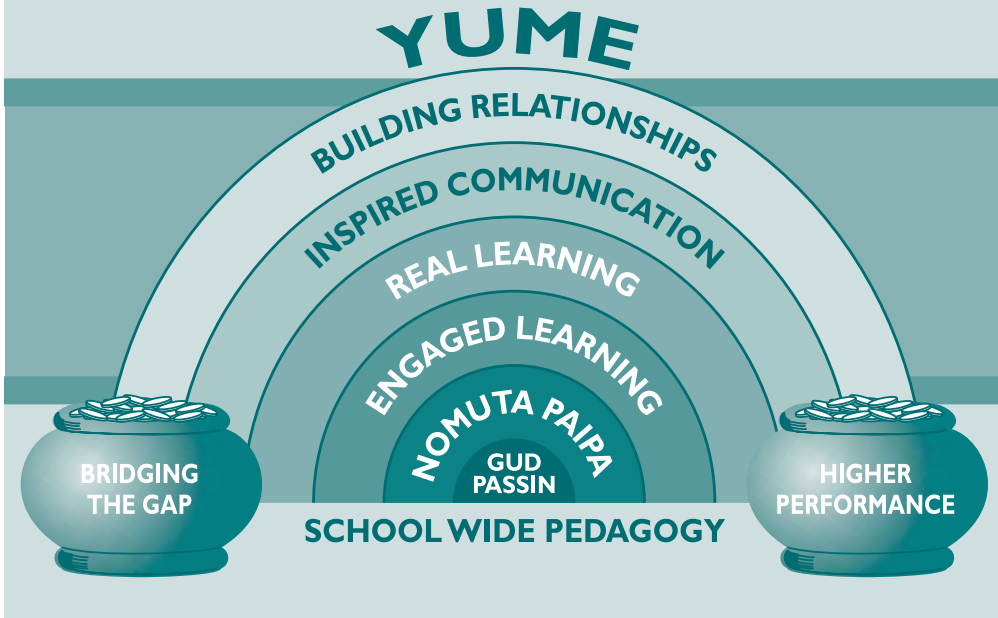
The Rainbow School SWP: Yume teaching and learning

### **How have we made meaning of Rainbow's new knowledge in our classrooms and across the school?**

The metaphor of the rainbow has provided a very successful tool for creating shared understanding of our collectively successful practices in an indigenous educational setting. The rainbow's arcs are embedded in the broader Yume culture of the Torres Strait. (Yume education means 'learning together', where 'together' implies cultural relevance and educative dialogue through a school-community alliance.)

Our six-coloured rainbow bridge depicts our six schoolwide pedagogical strands.

Figure 8.5: The Rainbow School rainbow



Visualisation is very important when communicating with Torres Strait Islanders so our students created their own IDEAS Project bridges as well. At the core of our pedagogy are the traditional values and practices of **nomuta paipa** and **gud pasin**. Nomuta paipa is a complex concept that engages learners in the essence of a task as opposed to tangential concerns. It encourages a ‘no hurry up’ approach to the task, ensuring that the task gets completed thoroughly. Gud pasin is equally complex, involving social skills and values that are fundamental to survival—respect, love and caring, for example. The other arcs in the rainbow have significant bicultural meaning relating specifically to Rainbow State School.

In brief, the arcs have been accorded the following meanings:

*Building relationships* means:

- building connections between educator and student, student and student, school and community
- developing an atmosphere of trust, honesty, respect
- working with a partner and in groups.

*Inspired communication* means:

- generating pride in all communication skills. This includes literacy, numeracy and the arts
- doing an excellent job of explaining/presenting for a purpose
- challenging, reflecting, critiquing.

*Real learning* means:

- building the capacity to inquire about life skills effectively at a local, national and global level
- relating school tasks to the world outside the classroom with activities that are meaningful to students
- identifying prior knowledge and developing it in a real-life context
- not ‘gammon’ learning
- problem solving
- collecting data from the community: what do they want children to learn at school?

*Engaged learning* means:

- using hands-on experiences, coupled with multiple intelligences
- engaging students on-task
- relating learning to a purpose
- integrating key learning outcomes that support student involvement and action
- providing students with clear assessment criteria at the start of the unit of work.

*Nomuta paipa* means:

- not rushing, doing it properly
- doing less but doing it better (deep understanding)
- developing good work habits
- knowing students’ backgrounds and how much they are learning
- taking time to explore education issues with school community leaders
- understanding the community’s educational expectations
- taking time to listen and think before answering.

*Gud pasin* means:

- caring and respecting each other
- developing social skills
- accepting people’s values and understandings
- reporting in an authentic manner to parents about students’ progress each term.

### **How have we made meaning of this new knowledge in our classrooms, and across the school community?**

The six SWP principles have become embedded into every aspect of school life: the school planning documents, assessment and reporting procedures, curriculum plan, literacy plan, annual operational plan, intranet and internet sites for school operations, financial plan and human resource management plan. Classroom observations and discussions at staff meetings also illustrate the rainbow in the work of teachers. The following table demonstrates the embedding of the SWPs across the school community:

<p><b>Building relationships</b></p>	<ul style="list-style-type: none"> <li>• School community leaders, including students, run all school parades and special events.</li> <li>• Drama lessons have resulted in video production of students' work on legends.</li> <li>• Cultural assumptions on which the classroom operates are clearly articulated.</li> </ul>
<p><b>Inspired communication</b></p>	<ul style="list-style-type: none"> <li>• Communication structures match those that students have acquired already in their home community.</li> <li>• Radio broadcast, drama performance and video productions are regular features of our students' activities.</li> <li>• A web page has been constructed on diabetes and healthy lifestyles.</li> <li>• Student public speaking e.g. ANZAC ceremonies and running their own discos.</li> </ul>
<p><b>Real learning</b></p>	<ul style="list-style-type: none"> <li>• Diabetes and healthy lifestyles are examined openly.</li> <li>• Enterprise education promotes the development of enterprising skills for life.</li> <li>• Skills in information and communications technology are acquired through real experience.</li> </ul>
<p><b>Engaged learning</b></p>	<ul style="list-style-type: none"> <li>• Content is culturally relevant to students' prior experiences, fosters their cultural identity.</li> <li>• Personal health plan integrates the arts, health/PE and English.</li> <li>• Creation of a memorial site built entirely by student leaders.</li> </ul>
<p><b>Nomuta paipa</b></p>	<ul style="list-style-type: none"> <li>• Teaching culturally relevant content that empowers them with knowledge, and practices that enable them to operate in mainstream society.</li> <li>• Teachers are personally warm towards, respectful of and academically demanding of students.</li> <li>• Working at an unhurried pace.</li> </ul>
<p><b>Gud pasin</b></p>	<ul style="list-style-type: none"> <li>• Classroom urgings to respect others, avoiding spotlighting individuals.</li> <li>• Avoiding direct, overt management strategies and using indirect strategies.</li> <li>• Unit plans published on classroom windows and reporting back to parents on learning outcomes.</li> </ul>

Our SWP has been examined, debated and promoted across the school through community meetings and local media. In particular, the Council of Elders has affirmed the importance of having 'gud pasin' at the heart of our SWP.

Finally, the exploration of Rainbow SWP has engendered a collective consideration by administrators, teachers, parents, Elders and local politicians of what might constitute the philosophical underpinnings of the rainbow. We have tentatively concluded that we have in place a form of bicultural pedagogy that is informed by the concepts of culturally

relevant pedagogy (Osborne and Cooper 2001) and pedagogies for cultural difference (Kalantzis et al. 1990), and also by the educational philosophy of the Torres Strait Islander Regional Education Committee (TSIREC 1992, 1997).

## Conclusion

The two thumbnail sketches permit us to make several assertions regarding our conceptualisation of the work of teachers of the 21st century.

First, the concept of 3-dimensional pedagogy that emerges from our research, and that is explicit in the thumbnails, is grounded in an intimate relationship between teaching and leading—a relationship that points to a profession of potentially major influence and vitality in the post-industrial world.

Second, 3-dimensional pedagogy clearly has the capacity to engender the creation of new knowledge and new meaning in the lives of students and communities. It is extremely doubtful, in our view, whether any other contemporary institution can demonstrate what knowledge creation means, or how it occurs, as clearly or convincingly as can our schools.

These points notwithstanding, the professional qualities that will be needed if the teaching profession is to transform itself, and in so doing nurture continuous knowledge creation, are as yet blurred and largely unknowable. Indeed, we have only just begun the search for them. But we can see that 3-dimensional pedagogy is an achievable image and that Drucker's assertion that the teaching profession may be the central profession of a knowledge society may represent a realistic ideal.

Using concepts like 3-dimensional pedagogy as our starting point, we can afford to approach the emerging post-industrial era with confidence.

## References

- Andrews, D. and Crowther, F. 2002, 'Parallel leadership: A clue to the contents of the "black box" of school reform', *International Journal of Educational Management*, 16 (4), 152–9.
- Angus, L. 1988, *Continuity and change in Catholic schooling*, Falmer Press, East Sussex.
- Argyris, C. and Schon, D. 1996, *Organisational learning II: Theory, method and practice*, Addison-Wesley Publishing, United States of America.
- Beare, H. 2001, *Creating the future school*, Routledge, Falmer, London.
- Cooperrider, D. L. and Whitney, D. 1996, *Appreciative inquiry consultation workbook*, Taos Institute, Taos, NM.
- Crowther F., Andrews, D., Dawson, M. and Lewis, M. 2002, *The IDEAS folder*, Education Queensland, Brisbane.
- Crowther, F., Kaagan, S., Ferguson, M. and Hann, L. 2002, *Developing teacher leaders: How teacher leadership enhances school success*, Corwin Press, CA.
- Drucker, P. 1994, 'The age of social transformation', *The Atlantic Monthly*, November, pp. 1–19, viewed 8 June 2001, <<http://www.theatlantic.com/issues/95dec/chilearn/drucker.html>>, <<http://www.theatlantic.com/politics/ecbig/soctrans.htm>>.
- Elbaz, F. 1983, *Teacher thinking—A study of practical knowledge*, Croom Helm, London.
- Ford, E. 1998, *Discipline for home and school, Book one* and *Discipline for home and school, Book two*, Brandt Publishing, Scottsdale, AZ.



- Glasser, W. 1998, *Choice Theory: A new psychology of personal freedom*, Harper Collins Publishers, New York.
- Hayes, D., Lingard, B. and Mills, M. 2001, 'Productive pedagogies (2000)', *Education Links*, No. 60, Education Queensland, Brisbane, <[http://138.25.75.110/personal/dhayes/Education\\_Links.html](http://138.25.75.110/personal/dhayes/Education_Links.html)>.
- Hertzog, N. B. 2001, 'Reflections and impressions from Reggio Emilia: "It's NOT about Art!"', *Early childhood research practices: An Internet journal on the development, care and education of young children*, ED453002, viewed March 2003, <<http://ecrp.uivc.edu/v3n1/hertzog.html>>.
- Kalantzis, M., Cope, B., Noble, G. and Poynting, S. 1990, *Cultures of schooling: Pedagogies for cultural difference and social access*, Falmer Press, London.
- Kalantzis, M. and Harvey, A. 2002, 'Preparing educators for the twenty-first century'. *Professional Educator*, 1 (1), pp. 8-9.
- Kaplan, R. and Norton, D. 1996, *The balanced scorecard: Translating strategy into action*, Harvard Business School Press, Boston, MA.
- King, B. and Newmann, F. 2001, 'Building school capacity through professional development: conceptual and empirical considerations', *International Journal for Educational Management*, 15 (2), pp. 86-93.
- Kolb, D. 1984, *Experiential Learning: Experience as the source of learning and development*, Prentice-Hall, Englewood Cliffs, NJ.
- Limerick, D., Cunnington, B. and Crowther, F. 1998, *Managing the new organisation: Collaboration and sustainability in the post-corporate world*, 2nd edn, Business and Professional Publishing, Sydney.
- Marland, P. and Osborne, A. 1990, 'Classroom theory, thinking and action', *Teaching and Teacher Education*, 6 (1), pp. 93-109.
- Newmann, F. and Associates 1996, 'Authentic achievement: Restructuring schools for intellectual quality', in F. Newmann, B. King and P. Youngs 2001, *Professional development to build organizational capacity in low achieving schools: Promising strategies and future challenges*, Center on Organization and Restructuring of Schools, University of Wisconsin-Madison, Madison, WI.
- O'Neil, J. 1995, 'On schools as learning organisations: A conversation with Peter Senge', *Educational Leadership*, 52 (7), pp. 20-3.
- Osborne, B. and Cooper, D. 2001, 'From culturally responsive to culturally relevant pedagogy', in B. Osborne (ed.), *Teaching, diversity and democracy*, Common Ground Publishing, Altona, Victoria.
- Palestis, E. 1994, 'The Reggio Way', *American School Board Journal*, 181 (8), pp. 32-5.
- Sarason, S. 1982, *The culture of school and the problem of change*, 2nd edn, Allyn and Bacon Inc., Boston.
- Senge, P. 1995, *The fifth discipline fieldbook: The art and practice of the learning organization*, Doubleday, New York.
- Spender, D. 2000, Keynote address at IT for Teachers Conference, Brisbane, 16 August.
- Torres Strait Islander Regional Education Committee (TSIREC) 1992, 'Ngampulayawadhan ziawali: Education policy for Torres Strait', TSIREC, Thursday Island.
- Torres Strait Islander Regional Education Committee (TSIREC) 1997, 'Recommendations from TSIREC on the place of Torres Strait islander languages in Torres Strait and Northern Peninsula Area', TSIREC, Thursday Island.
- Turner-Bisset, R. 1999, 'Knowledge bases for teaching', *British Educational Research Journal*, 25 (1), pp. 39-55.
- Zuber-Skerrit, O. 1990, *Action learning for change and development*, Gower-Avebury, Aldershot.