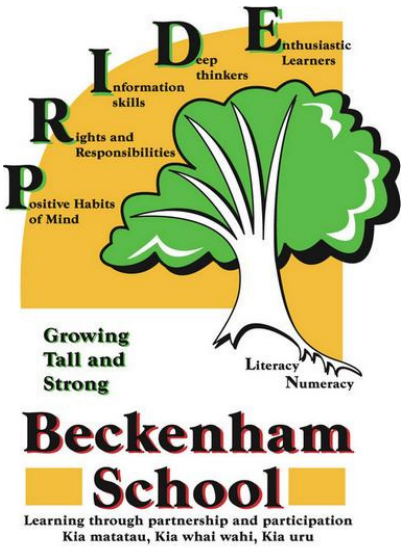
Developing a school - based integrated curriculum that is relevant to and engaging for learners



Sabbatical Report
Term 3
2007

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INTRODUCTION

I consider myself privileged to have been awarded a sabbatical leave position for term three 2007. It couldn't have come at a better time for a number of significant personal and professional reasons.

Firstly, during the previous three years Beckenham School had undertaken a period of intense professional and pedagogical growth associated with ICT cluster PD. A new vision for student learning has been created, an inquiry learning model developed, a school wide information skills programme devised and integrated approaches to curricula implementation are being explored.

Secondly (at the time of writing this report), the Ministry of Education is about to release the final draft of the New Zealand Curriculum following the Curriculum Stocktake (2002) and consultation over the revised curriculum. The 'new' curriculum promises to reduce the demands of meeting an impossible number of learning objectives and strengthens the latitude given to schools to engage in school based curriculum design.

Thirdly, after seventeen years of principalship, I felt a quality and sustained period of personal – professional stocktake, reflection and renewal was well overdue.

ACKNOWLEDGEMENTS

I would like to thank the organisations and individuals who made the sabbatical possible in the first instance and, subsequently, such a rewarding and enjoyable experience:

Members of the Sabbatical Committee representing the Ministry of Education, New Zealand Educational Institute and the New Zealand Principals Federation who granted the award.

Beckenham School Board of Trustees who supported my application and provided a generous budget to enable me to travel to schools, institutions and a conference in Melbourne as well as visit a number of New Zealand schools.

The principals, teachers and students of the schools I visited. Without exception I was warmly welcomed, offered uninterrupted time with the principal and/or curriculum leader and given opportunities to observe and talk to students and teachers in classrooms.

I would also like to thank the staff of Beckenham Schools for their encouragement and support of my time away. In particular, I would like to acknowledge our Deputy Principal, Jacqui Pascoe, whose competency, skill and commitment ensured that the school was expertly led and managed during my absence.

EXECUTIVE SUMMARY

An integrated approach to curriculum delivery has long been regarded as the 'holy grail' of many teachers and educators who, recognizing the deficiencies of the traditional subject - bound, fragmented approach to teaching, have sought a more connected, coherent and meaningful curriculum (Murdoch, 2007).

In many New Zealand primary schools there has been a marked resurgence of school- based curriculum development which has inevitably included inquiry and integrated learning approaches to implementation. For Beckenham School (as I suspect for many others) this resurgence can probably be attributed to three main influences:

Firstly, we have allowed ourselves to be unshackled from the perceived constraints / demands of the decade of national curriculum implementation which entailed professional development, school scheme revision and implementation of successive subject (learning areas) statements from 1992 until 2000, closely followed by student achievement reporting and literacy and numeracy programme developments.

Secondly, ICT cluster PD programmes have offered schools opportunities to review their shared values and beliefs (usually expressed in a school's mission statement and/or vision for student learning), and to explore ways of integrating ICTs into teaching and learning programmes. For Beckenham School (involved in a cluster programme from 2004 – 2006), this has meant, among other things, the development of the PRIDE vision of student learning, the trialing of an inquiry learning model (IGNITE), the development of a school wide information skills programme, and the exploration of integrated approaches to curricula implementation.

Thirdly, the revised curriculum (2007) explicitly invites schools to design a localized curriculum:

> *'This curriculum gives schools the flexibility to actively involve students in what they learn, how it is taught, and how the learning is assessed, and invites schools to embrace the challenge of designing relevant and meaningful learning programmes that will motivate and challenge all students.'* Hon Steve Maharey, Minister of Education, 2007.

This report summarizes my thinking about and reflection on the challenges inherent in achieving this intent at our school. It is the result of several activities, including:

1. a review of relevant literature in school-based curriculum development, inquiry learning, curriculum integration and 'thinking' curriculum conducted at Deakin University, Melbourne, the College of Education, University of Canterbury, Otago University, and College of Education, Victoria University.

2. visits to primary schools, as follows

Melbourne	6 schools (3 inner and 3 outer)
Dunedin	1 school
Wellington	2 schools
Nelson	3 schools

3. attending the 3 day ACER (Australian Council for Education Research) conference: The Leadership Challenge: Improving Learning in Schools.

4. meetings with Victorian Department of Education curriculum personnel.

PURPOSE

My aim was to spend the period of sabbatical leave investigating and reflecting how best to advance the development of a quality, school-based integrated curriculum at Beckenham School that:

- is relevant to and engaging for our students
- meets the diverse needs of our student population
- is consistent with our PRIDE vision for student learning
- fulfils the intent of the 'new' (revised) New Zealand Curriculum

Supporting inquiry questions and Activities:

Theoretical/Pedagogical Understandings

- *What are the important theoretical/pedagogical understandings and perspectives that schools should consider when developing a school-based curriculum?*

- *What does the current literature have to say about school-based and integrated curriculum development?*

Activity: Literature research, reading and reflection

Process/Implementation Issues

- *To what extent are schools endeavouring to integrate all learning areas/subjects?*

- *How are schools creating a sense of ownership by involving teachers, students and parents in the process of developing school-based curricula?*

- *How are schools ensuring continuity and balance of learning experiences for students as they progress through the school?*

- *What inquiry learning models are schools using as vehicles to deliver an integrated curriculum?*

- *What sort of rich learning ideas or themes are schools using to frame their school-based integrated curricula?*

- *To what extent are students involved in co-constructing inquiries based on rich learning ideas?*

Activity: School visits, interviews with key personnel, viewing schools' programmes of work

Supplementary / Incidental questions:

I anticipated that opportunities would arise during school visits to discuss these and related supplementary questions:

- How are schools assessing and reporting student progress in learning areas delivered by an integrated curriculum approach?

- How are students being encouraged to record, have access to and reflect on their learning journeys?

- How are schools fostering 'deep learning' and embedding thinking skills in the curriculum?

BACKGROUND ISSUES / DEFINING TERMS OF STUDY

While I particularly desired my sabbatical study to focus on the more pragmatic issues of curriculum design and implementation rather than become immersed in an academic, theory-based study, I recognize that any discussion of terms like 'school-based curriculum development' 'inquiry learning' or 'integrated curriculum' can never be value or theory free. Furthermore, as I engaged in reading and conversations around the topic, it quickly became evident that such terms are contestable, meaning quite different things to different people at different times.

School – Based Curriculum Development (SBCD)
School – based curriculum development represents an alternative to 'top-down' or centralised curriculum decision making. Although the term has not been used widely in New Zealand education literature (Bolstad, 2005), is not a new phenomenon. Teachers and schools have always engaged in some level of localized curriculum planning and development. Teachers' individual classroom plans are developed from school or team - wide schemes / programmes of work, which in turn are developed from national curriculum documents. Planning at the school and individual class level is intended to provide programmes of work that give local meaning and relevance to a particular group of students.

This intent was clearly signaled in the New Zealand Curriculum Framework (1993)

'The New Zealand Curriculum provides for flexibility, enabling schools and teachers to design programmes which are appropriate to the learning needs of their students'.
(Ministry of Education, 2003, p.6)

'Schools may achieve a balanced and broad curriculum in a number of ways; for example, by organising their programmes around subjects, by using an integrated approach, or by using topic or thematic approaches.'
(Ministry of Education, 2003, p.8)

The revised curriculum reinforces this intent:

'The national curriculum provides the framework and common direction for schools, regardless of type, size, or location. It gives schools the scope, flexibility and authority they need to design and shape their curriculum so that teaching and learning is meaningful and beneficial to their particular communities of students.
(Ministry of Education, 2007, p.37)

Defining Curriculum Integration (CI)

As Godhinho (2007) notes `curriculum integration has emerged from the shadowy positioning of an alternative approach to curriculum design in the 1990s to a highly visible presence in current curriculum documentation' (p.61). In Australia it is clearly evident in and embraced by Tasmania's *Essential Learnings*, Queensland's *New Basics*, and in the *Victorian Essential Learning Standards*.

The draft revised New Zealand Curriculum echoes these in suggesting that:

> '*Different schools will organise their learning programmes in different ways. Some will organise them in ways that* ***integrate*** *understandings, key competencies, and values across a number of learning areas. Others will organise them by learning areas but look for opportunities to* ***link learning*** *across the boundaries between those areas. The knowledge, skills and attitudes that students need for addressing* ***real-life issues*** *and in* ***real-life contexts*** *are seldom found within a single learning area.'*
> (Ministry of Education, 2006, p.26)

In its final form on release in November 2007, this was expressed in a slightly different form:

> *'(Schools) … may decide to organise their curriculum around central themes, integrating values, key competencies, knowledge, and skills across a number of learning areas.'*

and *' Wherever possible, schools should aim to design their curriculum so that learning crosses apparent boundaries.'*
(Ministry of Education, 2007, pp. 37-38)

The term 'integrated curriculum' (or 'curriculum integration') is widely used both in the literature and by schools to describe a range of curriculum models and pedagogical approaches. In New Zealand, it is often linked to and/or used interchangeably with terms such as 'thematic' or 'centre of interest' studies; beyond our shores it may be known variously as cross-curricular, interdisciplinary, multidisciplinary, transdisciplinary curriculum approaches. It is not a new pedagogical concept, having as early advocates John Dewey in the 1930s, Jerome Bruner in the 1960s, and, in New Zealand, Elwyn Richardson, remembered among other things for his 'integrated day' approach to teaching. More recently, as I have no doubt readers of this report will recall, we taught 'wonderful' integrated/thematic units in our classrooms in the 1970s and 80s.

There is considerable debate, however, both in the literature and in practice, about what curriculum integration is and what it should look like. Parker (2005, cited in Hinde, 2005) attempts to offer a common definition by describing an integrated curriculum as

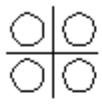
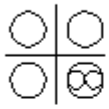
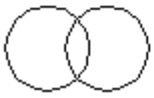
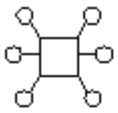
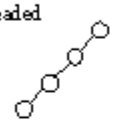
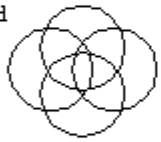
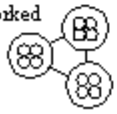
' a curriculum approach that purposefully draws together knowledge, perspectives, and methods of inquiry from more than one discipline to develop a more powerful understanding of a central idea, issue, person or event. The purpose is not to eliminate the individual disciplines but to use them in combination.' (p.106)

An alternative broad definition is provided by Gehrke (1998, cited in Dowden, 2007):

' A collective term for those forms of curriculum in which student learning activities are built, less with concern for delineating disciplinary boundaries around those kinds of learning, and more with the notion of helping students recognize or create their own learning.' (p.52)

Although strongly criticised by Beane (1995, 1997), several writers have gone beyond a single definition of curriculum integration to propose a continuum of approaches that differentiate curriculum designs that attempt integration to a greater or lesser degree. Heidi Hayes Jacobs (1989), for example, offers descriptions of six degrees of integration—from no integration in discipline-based designs, to fully integrated, field-based instruction in which "students live in the school environment and create the curriculum out of their day-to-day lives" (p. 18).

Fogarty (1991) describes ten levels of curricula integration (illustrated as follows):

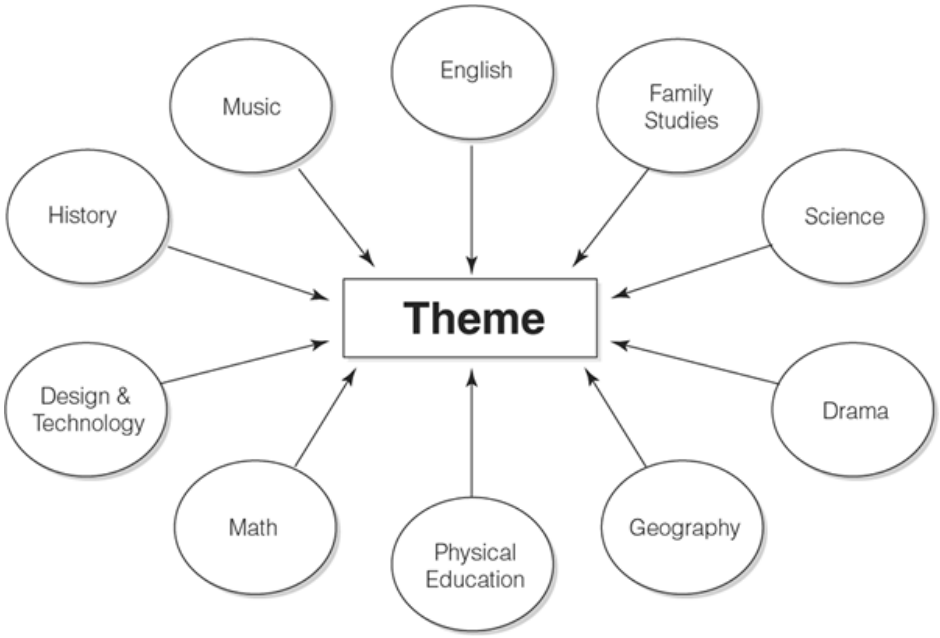
Name	Description	Advantages	Disadvantages
Fragmented 	Separate and distinct disciplines	Clear and discrete view of a discipline	Connections are not made clear for students; less transfer of learning
Connected 	Topics within a discipline are connected	Key concepts are connected, leading to the review, reconceptualization and assimilation of ideas within a discipline	Disciplines are not related; content focus remains within the discipline
Nested 	Social, thinking, and content skills are targeted within a subject area	Gives attention to several areas at once, leading to enriched and enhanced learning	Students may be confused and lose sight of the main concepts of the activity or lesson
Sequenced 	Similar ideas are taught in concert, although subjects are separate	Facilitates transfer of learning across content areas	Requires ongoing collaboration and flexibility, as teachers have less autonomy in sequencing curricula
Shared 	Team planning and/or teaching that involves two disciplines focuses on shared concepts, skills or attitudes	Shared instructional experiences; with two teachers on a team it is less difficult to collaborate	Requires time, flexibility, commitment and compromise
Webbed 	Thematic teaching, using a theme as a base for instruction in many disciplines	Motivating for students, helps students see connections between ideas	Theme must be carefully and thoughtfully selected to be meaningful, with relevant and rigorous content
Threaded 	Thinking skills, social skills, multiple intelligences, and study skills are "threaded" throughout the disciplines	Students learn how they are learning, facilitating future transfer of learning	Disciplines remain separate
Integrated 	Priorities that overlap multiple disciplines are examined for common skills, concepts, and attitudes.	Encourages students to see interconnectedness and interrelationships among disciplines, students are motivated as they see these connections	Requires interdepartmental teams with common planning and teaching time
Immersed 	Learner integrates by viewing all learning through the perspective of one area of interest	Integration takes place within the learner	May narrow the focus of the learner
Networked 	Learner directs the integration process through selection of a network of experts and resources	Pro-active, with learner stimulated by new information, skills or concepts	Learner can be spread too thin, efforts become ineffective

Similarly, Drake and Burns (2004) distinguish between three broad categories of curriculum integration: multidisciplinary, interdisciplinary, and transdisciplinary, each of which subsumes a number of approaches similar to those identified by Fogarty.

- **Multidisciplinary** approaches focus primarily on the disciplines. Two or more subjects are organized around a common theme or topic such as "settlers"; or different disciplines may be viewed as "lenses" to explore a problem or issue. There is an attempt to make explicit connections across subject areas.

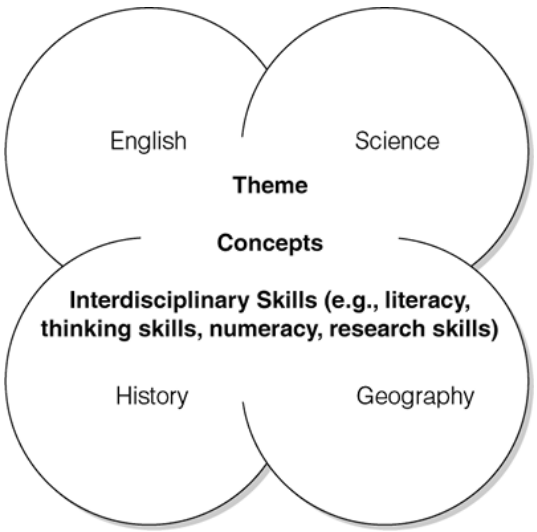
There are many different ways to create multidisciplinary curriculum, and they tend to differ in the level of intensity of the integration effort.

The Multidisciplinary Approach (from Drake & Burns, 2004)



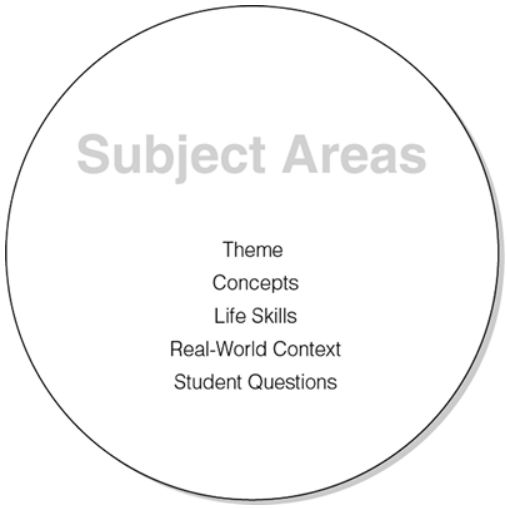
- **Interdisciplinary** approaches chunk together the common learnings embedded in the disciplines to emphasize interdisciplinary skills and concepts. The disciplines are identifiable, but they assume less importance than in the multidisciplinary approach.

The Interdisciplinary Approach (from Drake & Burns, 2004)



- **Transdisciplinary** approaches emphasize a real-life context. The curriculum is organized around student questions and concerns. It is assumed that students develop life skills as they apply interdisciplinary and disciplinary skills in a real-life context, and that the embedded disciplines will come into play as needed or desired throughout the unit. Drake and Burns cite project-based learning and negotiating the curriculum as two examples of transdisciplinary approaches.

The Transdisciplinary Approach (from Drake & Burns, 2004)



An unfortunate and erroneous assumption of conceiving integrated curriculum and separate subject approaches on a continuum is that moving towards the integrated end results in better teaching / improved student outcomes. Indeed, Beane (1995) himself acknowledges the argument for curriculum integration at the expense of a traditional separate subject curriculum is a false dichotomy.

'As an advocate for curriculum integration, I want to set the record straight. In the thoughtful pursuit of authentic curriculum integration, the disciplines of knowledge are not the enemy. Instead they are a useful and necessary ally.' (p. 616)

He then goes on to assert,

'If we are to broaden and deepen understandings about ourselves and our world, we must come to know "stuff", and to do that we must in skilled in the ways of knowing and understanding. As it turns out, the disciplines of knowledge include much (but not all) of what we know about ourselves and our world and about ways of making and communicating meaning. Thus authentic curriculum integration, involving as it does the search for self- and social meaning, must take the disciplines of knowledge seriously – although, again, more is involved than just the correlation of knowledge from various disciplines.' (p.617)

I will argue later that both integrated and separate subject teaching approaches are necessary and complementary to a rich and balanced primary education.

In contrast, other writers refute the validity of the continuum interpretation of curriculum integration.

In a Set article, often used as a reference for and by New Zealand teachers and as a reading by student teachers, Deborah Fraser (2000) argues that thematic units are 'distinctly different from CI (curriculum integration) in every way' and that it is a mistake to consider them on a continuum with curriculum integration. Fraser's argument draws predominately on the seminal writings of Beane (e.g. 1993, 1995, 1996, 1997) . The Beane – Fraser distinction can be summarized as follows:

Thematic Units	Curriculum Integration
Centre on a particular topic (e.g. dinosaurs, flight, communication) which is usually chosen by the teacher in advance.	Based on an issue of concern (e.g. bullying, effects of flooding, global warming) that arises in classroom discussion rather than planned by the teacher in advance.
The topic is then considered (by the teacher) through the lens of each curriculum area.	The issue is identified, discussed, debated and clarified by teachers and students, and general ideas for investigating the issue are discussed.
Teachers plan how each subject could contribute to an exploration of the theme – or more recently, which learning objectives of which strands of which subject (learning) area may be considered to be included in and 'covered' by the unit.	Students identify what they already know, frame questions they wish to pursue, suggest and negotiate investigation activities they wish to undertake.
Teachers decide in advance how they will assess student learning linked to the unit's learning objectives.	Students are involved in discussing and negotiating assessment decisions; assessment is likely to include self and peer assessment as well as formative and summative assessment by the teacher.

James Beane (1997), a highly regarded US champion of middle schools, follows Dewey's call in advocating an integrated curriculum as a means of ameliorating disengagement in learning and democratising the curriculum. He defines curriculum integrations as:

'A curriculum design theory that is concerned with enhancing the possibilities for personal and social integration through the organization of curriculum around significant problems and issues, collaboratively identified by educators and young people, without regard for subject - area lines.` (p.19)

For Beane, a truly integrative curriculum can only be established when the curriculum emerges from the issues and concerns that students themselves identify as being both relevant and real. Rather than establishing connections between separate subjects, he believes that teachers must be willing to negotiate with and engage students in the learning process and establish collaborative working environments in which students can create their own authentic themes of study, that transcend separate subject approaches. In this way he believes the dignity of young people can be respected by responding seriously to their questions and concerns. Beane contends that curriculum integration requires a paradigm shift in educators thinking, rather than seeing curriculum integration as merely an extension of thematic studies.

While acknowledging the limited (if evident at all) genuine conceptual integration inherent in the thematic approach as described in the Beane – Fraser distinction above, I do not think that such a clear distinction can or ought to be made. In (classroom) practice there will always be different degrees and modes of integration, in different settings, at different times for different purposes. It is

unrealistic (and potentially professionally negligent) to rely solely on issues that arise in the course of classroom discussion as a basis for providing a balanced programme which incorporates learning key concepts across a range of strands in science, social science, technology, health. Teachers and school leaders will always need some kind of planning framework for providing a coherent, balanced learning experience for students. The challenge is how to encourage and allow teachers to make use of issues and students' interests and questions while simultaneously expecting them to work within a national, school-wide or team planning framework.

I concur with Murdoch's (2007) contention that (from a teaching and school-based curriculum perspective):

'… at its heart, integrated curriculum is about designing curriculum, teaching and learning in such a way as to minimise unnecessary fragmentation and maximize authentic connectedness across the learning experience for students in relation to both "content" (what is being learned about and for) and "process" (how and with whom this learning is taking place)'. (p.67)

and, I am persuaded by Beane's (1997) compelling rationale for curriculum integration (from a philosophical and epistemological perspective):

'Curriculum integration centers the curriculum on life itself rather than on the mastery of fragmented information within the boundaries of subject areas. It works off the view of learning as the continuous integration of new knowledge and experience so as to deepen and broaden our understanding of ourselves and our world. Its focus is on life as lived now rather than on preparation for some later life or level of schooling. It serves the young people for whom the curriculum is intended rather than the specialized interests of adults. It concerns the active analysis and construction of meanings rather than merely assuming the validity of others' meanings. And it brings the idea of democracy to life through its problem-centered focus, its uses of knowledge, and its participatory framing.' (p.407)

WHY INTEGRATE ?

There are a number of compelling arguments supporting the efficacy of curriculum integration:

1. As many will attest, efforts to teach across the seven areas of learning via a separate subject approach in primary schools has frequently resulted in superficial coverage of learning objectives at the expense of deeper understandings. An integrated approach makes the curriculum more manageable for teachers by bringing like ideas together from a number of learning areas, allows the simultaneous achievement of related learning outcomes, and creates time for deeper exploration of key concepts.

2. Students do not think naturally in terms of different subjects but tend to have a more holistic view of the world, so an integrated approach is regarded as being compatible with our understanding of the ways in which students learn and develop. It helps students make connections between the different learning areas, and assists them to understand and build on their prior knowledge and experiences in order to make sense of the world.

3. Students may be more highly motivated and learn better because an integrative curriculum relates to their needs, problems, concerns, interests, and aspirations.

4. An integrated approach is seen as more compatible with the multi modal techniques used by the media and designers of computer games to excite, engage and inform audiences. As Godinho (2007) observes, *' … if the level of challenge, complexity, excitement and intellectual rigour inherent in many of the popular computer games that students play was replicated in their curriculum design, disengagement with learning in the middle years would soon be eradicated'* (p.65).

5. Integration allows students to demonstrate skills, abilities and knowledge in varied contexts.

6. An integrated approach allows for the inclusion of students from diverse backgrounds and with a wide range of abilities, skills and knowledge within the same classroom.

Can these claimed benefits be substantiated?

Of course it is one thing to list some compelling arguments in support of curriculum integration, but is there equally compelling evidence to back up these in terms of improved learning engagement, attitudes or achievements? Research findings in the area are both limited and inconclusive. As Vars (2001) notes, although more than 200 studies have been carried out to assess the effectiveness of the various forms of integrative curriculum and instruction, unfortunately most of them used conventional paper-and-pencil tests to measure student achievement. There also are wide variations in the scope and quality of the research. Studies range from highly sophisticated analyses of data on thousands of students to longitudinal qualitative studies of students in one class or taught by one teacher or interdisciplinary team. Nevertheless, the research does seem to support the conclusion reached by Hinde (2005):

'The bottom line on the research concerning the efficacy of an interdisciplinary approach to curriculum is that when skilled, knowledgeable teachers employ integrated methods, student achievement is equal to, or better than, that of students who are taught in the traditional separate-subject approach. Therefore, integrating the curriculum is a powerful and useful pedagogical tool when it is employed with much preparation and thought.' (p.107)

Furthermore, there is abundant evidence, mainly anecdotal, that integrated approaches offer other benefits to students:

' … curriculum integration… may result in higher test scores, but even more important are its other benefits such as love of learning, concern for other people, critical thinking, self-confidence, commitment to democratic group processes, and a whole host of other so-called "intangibles." Educators need to gather data on these objectives, too, if only through surveys of students, teachers, parents, and community members. It is patently absurd to judge all educational outcomes on the basis of tests, state-mandated or otherwise.'
(Vars, 2001, p.9)

WHICH MODEL OF INTEGRATION?

While recognizing the need to allow for different approaches to integration to accommodate the different needs of a particular group of students at a particular time for a particular purpose, I also think that in the interests of developing a common understanding and a consistent approach within a school, it is useful to establish a model of integration to aim for, or at least to provide a framework to guide planning.

With that in mind, I would suggest that the following defining components or elements are considered:

1. The starting point for any integrated curriculum plan is a 'big' question or issue that speaks to (is relevant to) the students, rather than a curriculum document, a resource, or an existing topic/unit plan.

2. Students are involved in sharing what they already know and think about the issue, and in subsequently generating and exploring possible inquiry questions and learning intentions. Eliciting students' prior knowledge and acknowledging their views, ideas and questions helps to identify and define the issue as perceived by the students.

3. Using a backward design approach/methodology, to plan, discuss (and if possible negotiate, especially with older children) what will count as evidence that the anticipated understandings have been achieved. I discuss backward design in more detail later.

4. Developing the topic plan so that it attends to various knowledge interests. Wallace, Venville and Rennie (2005) propose a 'worldly perspective on integration' based on their view that 'curriculum integration embraces many forms and many interests' (p.160). They identify three categories of knowledge interests; technical, practical and critical.

   The technical knowledge interest is concerned with learning about the way the world works and draws directly on the various disciplines of the sciences and technologies for understandings and explanations. The practical knowledge interest is concerned with making personal sense of an issue and solving practical problems. The critical interest is concerned with acting thoughtfully to find harmony between personal, community and future generational needs. Wallace et. al. suggest that the nature of a given big idea or topic will determine the relative importance of these knowledge interests; some may place greater emphasis on solving a practical problem while others may have more of a community issue focus. More generally, however, they regard these three knowledge interests as 'building blocks in integrating teaching and learning'.

   'Firstly, students' opinions and understandings about the big ideas need to be informed by a solid foundation of technical knowledge; that is knowledge about how the world works from various disciplinary standpoints. Secondly, students need to make sense of, and test out, new understandings by undertaking practical inquiry and problem solving activities. Finally, students act on their new understandings by seeking ways of balancing personal, community and future needs.' (p.161)

5. That what ever model of integration is adopted, teachers remain cognizant of the underlying aim of teaching in an integrated manner; that is to create opportunities for students to integrate their **thinking** and **understandings** about the big ideas, key questions and rich concepts related to the topic.

CONTEXTS FOR INTEGRATED INQUIRY

There are numerous sources of potential topics or contexts for an integrated inquiry. They may extracted directly from the curriculum itself, dictated by a school's integrated topic plan, devised by a teacher, or drawn from and collaboratively developed from classroom discussions and students' questions.

For Beane (1993, 1997), the contexts for an integrated inquiry are drawn directly from the needs and concerns expressed by students. He advocates beginning curriculum planning by asking students two fundamental questions:

1. *What questions and concerns do you have about yourself?*
2. *What questions and concerns do you have about your world?*

Individual students questions or concerns are then compared by groups, and between groups to identify common questions or concerns for the whole class. Once the class has reached a consensus on a list of themes that incorporate their common 'self' and 'world' questions, a vote is held to decide which theme will be undertaken first. Beane also suggests that teachers should ask themselves one further question in this initial collaborative planning stage:

What questions or concerns does the world pose to young people that they might not see or know about?

By adding responses to this question to those offered by students, teachers can ensure that students are offered a 'rich and balanced' curriculum consistent with national curriculum and local school curriculum guidelines.

In the Queensland 'New Basics'' approach, the contexts are framed as 'rich tasks' based on 'substantive, real problems' which are designed to engage learners in 'forms of pragmatic social action that have real value in the world.' These tasks require students draw on a range of transdisciplinary skills and understandings and aims to connect them to issues and concerns beyond the classroom.

As can be seen in the following examples, 'rich tasks' are regarded as 'outward', 'visible', 'assessable' and 'reportable' outcomes which demonstrate or display students' mastery of understandings, knowledge and skills inherent in solving the problem. They are not intended to be treated as short term projects, but rather the culmination of up to three years' work.

Example 1 (Years 1 – 4):

Multimedia Presentation of an Endangered Plant or Animal
Students will investigate a threatened Australian plant or animal and the extent to which it is at risk. They will use this investigation to take constructive action and create a persuasive and informative multimedia presentation.

Example 2 (Years 1 – 4):
Let's Dance
Students will memorise, rehearse and master dances of different forms. They will prepare introductions for their performed dances by investigating the role of dance and the cultural context of their dances. They will measure and monitor their fitness as they engage in a high level of physical activity.

Example 3 (Years 4 – 7):
Travel Itineraries
Students will design alternative itineraries of interest to a party comprising the student and an exchange student, and to be accompanied by an adult. They will identify a range of issues including transport options, tourist attractions and sites of historical and cultural significance. They will present costings and reasons for their choices.

Example 3 (Years 4 – 7):
Narrative Text: Away with Words
Students will critically examine books written for emergent readers. They will determine the criteria for categorising these books and select one category for further examination. In this selected category, students will present a review of a book. Using the selected category, they will then choose an aspect of nature and create an illustrated storybook - crafted by hand and/or electronic technology - for their peers to review.

(Department of Education, Training and the Arts, Queensland Government, 2001).

While the rationale and aims of the New Basics' 'rich task' approach are laudable, questions must surely be raised over the viability and sustainability of a state mandated approach to topic identification. It is difficult to imagine how teacher and student interest can be sustained over three years or how problems and tasks which have been devised by outside curriculum 'experts' could result in personal ownership and high levels of engagement by either students or teachers.

A less prescriptive, yet comprehensive approach is offered by the International Baccalaureate Primary Years Programme (PYP), used in a number of Australian schools. It is described as 'a globally focused, inquiry based, transdisciplinary approach designed for children aged 3 to 12.' The curriculum framework consists of five essential elements: concepts, knowledge, skills, attitude, and action. These aim to give students the opportunity to:

(i) gain knowledge that is relevant and of global significance
(ii) develop an understanding of concepts, which allows them to make connections throughout their learning
(iii) acquire transdisciplinary and disciplinary skills
(iv) develop attitudes that will lead to international-mindedness
(v) take action as a consequence of their learning

The knowledge component is developed through inquiries into six transdisciplinary themes of global significance, supported and balanced by six subject areas. Students participate in six units of inquiry a year classified under the organising themes of:

Who we are
Where we are in time and place
How we express ourselves
How the world works
How we organise ourselves
How we share the planet

Each inquiry is framed around eight concepts, presented in the form of broad open-ended questions such as:

Form - What is it like?
Function - How does it work?
Causation - Why is it like it is?
Change - How is it changing?

Connection - How is it connected to other things?
Perspective - What are the points of view?
Responsibility - What is our responsibility?
Reflection - How do we know?

(Clements, 2007)

While it may be useful to borrow some ideas from the above (and other) frameworks, there are plenty of worthy contexts for integrated inquiry endemic to 'our place', a number of which are embedded in the vision, principles, values and key competencies, and well as the individual learning areas of The (revised) New Zealand Curriculum (2007).

Some examples might include:

What does it mean to be a global citizen?
Global warming – rumour or reality?
Preventing pollution
Our precious water – enough for everyone?
Sustainability – enjoying tomorrow what we have today
Where are we in this world?
Unique me – Just one of us - citizenship
Enterprise- creating a better future
Diversity
Living with change
Commercialism
Wellness – What does it mean to be healthy?
Learning to learn

CURRICULUM DESIGN

A number of key issues and common understandings about learning and curriculum design emerged from reading and reflection during my sabbatical inquiry, and are summarized as follows. They are, of course, applicable to any curriculum design, integrated or single-discipline approaches.

It's about time

Any attempt to revise or reform a curriculum must acknowledge the importance of the commodity that schools seem to have precious little of: time. Stoll, Fink and Earl (2003) explore this underlying issue in a recent book *It's About Learning (and it's about time). What's in it for schools?* They intend the reference to time in the title to be a double entendre; that it is about time that educational reforms focused on learning, as well as the notion that deep, meaningful and connected learning takes time, and teachers and school leaders needing time to craft curriculum designs and develop learning communities to ensure that students experience that kind of learning.

For students it means time for them and their teachers to explore concepts in depth without having to rush through a crowded curriculum. It means time for them to gain the emotional as well as cognitive understanding of their new learning. It means spending more time on assessment for learning and less time on standardized testing. And it means *' parents devoting time to their children's learning, through reading with them, talking with them and discussing ideas, and taking them places they haven't been before.'* (p 186)

For teachers, it means among other things:

- time to plan thoughtful learning sequences and activities based on enduring ideas and concepts
- time to engage in quality professional development, discussion and reflection
- time for trialing and evaluating new teaching strategies and techniques
- time for observing colleagues at work and getting feedback on own practices
- time for 'researching one's own practice'
- time for 'reviewing data and ideas, reflecting, arguing and clarifying the next steps'
- time for 'working collectively and creatively as a whole school community to ensure that each pupil's learning is as enriching as it possibly can be.' (p. 186)

Achieving more by doing less … and making it relevant

In the final chapter of Graham Nuthall's *The Hidden Lives of Learners* (2007), Wilkinson and Anderson summarise the significant ideas about student learning uncovered by Nuthall's lifetime of classroom research. Important among these are:

1. Learning is highly individual. Students differ in their background knowledge, interests, motivations and experiences. '*Because of these individual differences in prior knowledge, as well as differences in the way students engage with classroom activities, each student experiences the classroom differently, so much so that about a third of what a student learns is unique to that student; it is not learned by other students in the class.'* (p.154)

2. Learning usually involves a progressive change in what a student knows or can do. Single, isolated encounters with an event, activity or experience seldom result in embedded learning. Nuthall's meticulous unveiling of individual students' classroom experiences revealed that students need to encounter a concept on at least three different sequential occasions before the concept *'connects to and integrates with previous knowledge, and hence is learned and remembered.'* (p.155)

3. Learning involves extracting information from, and making sense of experiences. Learning results from the way students experience classroom events and activities, rather than from the activities themselves. *'Students make sense of the activities by trying to connect them to their prior knowledge and beliefs, and to other related experiences temporarily stored in working memory They also evaluate the new experience, and what the experience implies, against their prior knowledge and beliefs.'* (p. 156) Importantly, this includes assessing the worth of experience in terms of personal relevance, the degree of learning effort that it might entail, and students' self perception of their capability as learners.

4. Nuthall's research revealed that a significant proportion of students' learning experiences are generated by or chosen by the students themselves or result from spontaneous talk around the topic with peers.

5. Finally, how students experience an activity (the structures and processes in which it is embedded) is as much a part of what they learn as the intended curriculum content. Furthermore, much of what students learn, and how they learn it, is bound up with their peer culture.

   ' Students live in a personal and social world as well as in the world of teacher-managed activities, and much of the knowledge that students acquire comes from their peers. When it does, it comes enveloped inside their social relationships. During class activities, what students learn and how they learn it depends on the way they interact with other students, and that interaction depends on their social status within the peer culture, as well as on the

position conferred upon them by the curriculum content (for example, if one student knows more about a topic than the others know).' (p.157)

Based on Nuthall's research-borne insights into the often subtle, complex, multifaceted nature of student learning, Wilkinson and Anderson then summarise a set of premises or underlying principles which we need to consider when designing a curriculum and planning for effective teaching:

1. Design learning activities with students' memories in mind. Nuthall showed that students learn from what they do and experience. We therefore need to design learning activities in ways that students cannot avoid interacting with the information we desire them to encounter, to tailor those activities to student's prior knowledge and understandings so that they can make sense of them, and make the information memorable. Nuthall's classroom research showed that one way to ensure that information is memorable is to embed it in a number of different activities, so that the information is experienced and stored in memory in a variety of ways. We also need to choose activities to help students learn how to learn.

2. Engage students in activities that enable them to revisit concepts. As noted above, Nuthall's research suggests that students need to experience three different sets of complete information about a concept before it is effectively learned and remembered. Revisiting concepts should not mean merely repeating activities; rather it means allowing them to experience the same information or concepts in different but related ways and helping them 'see' the connections.

3. Monitor individual students' evolving understanding of concepts. Since learning is highly individual and involves a progressive change in what a student knows or can do, we need to develop assessment and monitoring procedures that enable us to determine what each student knows and believes before, during and after a teaching sequence. While this may be considered a big ask for a teacher with a class of 30 students, it nevertheless is the only way in which teachers can know with any degree of certainty what concepts a student has acquired, is acquiring, or is yet to acquire and hence what the next step of learning is for that student.

4. Focus on big questions. *'Because learning takes time, it is better to invest teaching time and resources in a smaller number of big questions or problems in depth, rather than in covering every aspect of the curriculum at a surface level of understanding.'* (p.162)

5. Capitalise on the peer culture to foster learning. Because much of what students learn, and how they learn it, is bound up with their peer culture, teachers need to understand that culture and work with it to create a class learning community in which each student's contribution is valued and acknowledged and everyone assumes responsibility for learning.

6. Help students to manage their own learning and learn how to learn. Since much of what a student learns depends upon self selected or self generated experiences, and the way they feel about and approach these activities shapes their ability and perception as a learner, teaching needs to focus as much on the productive habits of mind and key competencies as on conceptual content.
(pp 160 -163)

A Developmental Curriculum

Armstrong (2007) argues that the current 'academic achievement discourse' (recognized by a concern for things like accountability, benchmark standards, achievement targets, evidence - based practice) should be replaced by a (return to a) more appropriate 'human development discourse' which recognizes the different developmental stages of students:

Schools need to approach curriculum in a way that is environmentally sensitive to the ecologies of different developmental stages of life. (p. 19)

This appears to be acknowledged by the new curriculum, in distinguishing between five different learning stages from early childhood through to tertiary education and employment, and encouraging schools to 'design their curriculum so that students find the transitions positive and have a clear sense of continuity and direction.'
(Ministry of Education, 2007, pp 41 - 42)

Backward design

'*To begin with the end in mind means to start with a clear understanding of your destination. It means to know where you're going so that you better understand where you are now so that the steps you take are always in the right direction.* (Covey, 1989, p.98)

The backward design is advocated by Wiggins & McTighe (2000) as a means of teaching for deeper understanding of key curriculum concepts and ideas. It is based on the premise that the curriculum design process should begin with identifying the desired results and then 'work backwards' to develop to learning activities, rather than planning topics around activities. By delaying the planning of classroom activities until the learning goals have been clarified and assessments designed, the backward design process avoids the pitfalls of superficial coverage (via ticking off curriculum learning objectives) and activity–oriented teaching.

'One starts with the end - the desired results (goals or standards) - and then derives the curriculum from the evidence of learning (performances) called for by the standard and the teaching needed to equip students to perform' (p. 8)

The design process involves teachers planning in 3 stages, each with a focusing question:

Stage 1: *What is worthy of learning and requiring of understanding?*
Focus first on the 'big ideas', by asking what students should know, understand or be able to do at the end of unit? What central ideas and enduring understandings do we want students to acquire and remember well beyond the completion of the learning sequence? Enduring understandings go beyond facts and skills to focus on larger concepts, principles or processes. They are the 'learning glue' for the unit; they provide the connections between and coherence for the wealth of information that often overwhelms students. An example of 'big questions' related to enduring understandings might be: What does it mean to live a healthy life? How does the structure of a animal enable it to survive in its environment?

Wiggins and McTighe suggest the following 'filters' for arriving at worthwhile understandings:

- Do they represent a big idea having enduring value beyond the classroom?
- Do they reside at the heart of the discipline (involve 'doing' a subject)
- Do they require uncoverage or unpacking (of abstract or often misunderstood ideas)
- Do they offer potential for engaging students' interest?

Stage 2: *What is evidence of understanding?*
The second stage in the design process is to determine how students will demonstrate their understanding related to the big idea and big questions. This is arguably the most challenging and significant stage of the design process since teachers are not used to clarifying precisely what they want students to be able to do or demonstrate as a result of a study before planning learning activities.

Wiggins and McTighe believe that students truly understand when they:
- can explain - to know not only 'what' but 'how' and 'why'
- can interpret - ability to make sense of, translate, read between the lines
- can apply - ability to use knowledge in a variety of contexts
- have perspective – can take a critical stance, consider other points of view, 'see the big picture'
- can empathise - ability to 'walk in another's shoes', get inside the purposes, motives and feelings of others.
- have self-knowledge - 'knowing one's self', being aware of own ignorance, prejudices, and be able to accurately self-assess and self-adjust.

'Students should be presumed innocent of understanding until proven guilty by a preponderance of evidence.' (McTighe, 2007)

Whilst the emphasis is clearly on developing performance tasks, Wiggins and McTighe advocate a balanced use of assessment instuments including authentic tasks and projects, informal checks for understanding, observations, quizzes, tests and student self assessments.The range of assessment tasks and performances selected must serve both to support students in developing understanding as well as give students opportunities to demonstrate that understanding. The tasks must also identify and differentiate levels or degrees of understanding, and form an integral part of the learning process, occurring throughout the learning sequence, not just at the end.

Stage 3: *What learning experiences and teaching promote understanding, interest and excellence?*
In the third stage of the backward design process, teachers design the sequence of learning experiences that students will undertake to develop the enduring understandings. Beyond learning about a subject, students will need lessons that enable them to experience directly the inquiries, arguments, applications, and points of view underneath the facts and opinions they learn if they are to understand them. Experiences must blend depth and breadth, and may require choices and compromises. Those experiences that are undertaken for depth might require students to unearth, analyze, question, prove and generalize. Those giving breadth require students to make connections, to picture (represent or model) and to extend (go beyond). The emphasis is clearly on an inquiry-based approach that requires 'uncovering' the chosen content.

Review and refine
Like all planning models, backward design requires revision and refinements throughout the planning process.

'Creating a unit using the backward design planning process is not a neat, tidy or easy process. It is a recursive one; you will move back and forth across the curriculum map, making revisions and refinements each time you add something to a section of your planning.'

(From http://www.greece.k12.ny.us/instruction/ela/6-12/BackwardDesign/BDstep5.htm)

FINDINGS FROM SCHOOL VISITS

During the course of my sabbatical I visited thirteen schools (six in Melbourne, Victoria, and seven in three different New Zealand cities), ranging in size and socioeconomic 'status'. Apart from the warm reception I received and the generosity of the principals/deputy principals and lead teachers who spent time with me responding to my questions and sharing their curriculum programmes, I was struck by the similarity of programmmes and approaches to school based curriculum developments.

Habits of mind ('Program Achieve'), concern for developing a sense of resiliency, retention of separate numeracy and literacy programmes combined with some kind of integrated programme to encapsulate learning in science, technology and the social sciences were common to all.

In terms of approaches to integration, it was evident that most had interpreted this as being essentially equivalent to a thematic or multidisciplinary approach in which one learning area or subject might be treated as the 'host' for a topic and would be given greater emphasis in terms of learning and assessment outcomes. There were, however, a few schools in which a genuine attempt was being made to develop an approach more closely aligned to a 'transdisciplinary' approach (Drake & Burns), an 'authentic' integrative approach involving participatory planning and negotiation with students (Beane) or a 'worldly perspective on integration' (Wallace et. al.) . Perhaps not surprisingly, in these schools the principals had engaged in substantive professional reading and thinking about integration and could articulate what they wanted to look like in their schools. Moreover, they had been strongly influenced by a particular proponent/writer/consultant (e.g.; Robyn Fogarty/ Kath Murdoch /James Beane), programme (e.g.; Queensland's 'productive pedagogies/rich tasks'), or philosophy (e.g.; Reggio Emelia in the case of Wooranna Park Primary School in Melbourne). It seems evident that for an integrated approach to be successful in a school, the leadership team does need to have developed and be able to communicate a coherent understanding of what they intend by integration and what its pedagogical underpinnings are.

In addition, I had the opportunity during these visits to compare notes and engage in worthwhile discussions with principals and lead teachers about a myriad of other professional issues and concerns not directly related to integration, the details of which are beyond the scope of this report.

OBSERVATIONS & RECOMMENDATIONS

I offer the following observations and recommendations which summarise some key conclusions resulting from my sabbatical activities:

1. Beware the thematic study that claims to be teaching a range of concepts across a number of disciplines. Is it just a convenient planning devise that allows a teacher to indicate learning objectives are covered, but which for many children does not amount to much in terms of embedded concept understandings?

2. The (negotiated / authentic / worldly) integrated curriculum approach can be a liberating and engaging teaching and learning experience for students and teachers when implemented well. However, to achieve its promise it needs a skilled teacher, confident in his or her ability to facilitate and nurture students 'wonderings', who can guide and support simultaneously a number of levels of inquiry sophistication, and who can see and define the

learning links / intentions that enable her to satisfy broader curriculum / school assessment and reporting requirements.

An integrated approach relies for its effectiveness on teachers who have sound content knowledge about the discipline areas they intend to draw upon as well as a sound understanding of integrative strategies and techniques to ensure that the key conceptual understandings are explored in a meaningful way.

In the New Zealand context this means that primary teachers, who by virtue of their training and broad teaching responsibilities, tend to be subject generalists rather than specialists, should in the very least have a thorough understanding of the essence of each subject (learning) area, its way of knowing, how it is structured, its language and specialist vocabulary, and the conceptual framework across levels relevant to the primary years.

As Murdoch (2007) points out, designing a curriculum that is '*coherent, connected and engaging to students requires teachers who have a strong sense of those connections themselves… it is only when teachers themselves have clarity about the 'big picture' that truly integrative teaching and learning can take place.'* (p.69)

Developing in teachers that capacity requires opportunities for sustained professional development opportunities that challenge their thinking and understandings that enable them to explore and identify connections, and that offer quality time to reflect, discuss and debate with each other.

'…the intellectual demands on primary teachers to frame genuinely integrative learning experiences are far greater than those required in the days of themes. Perhaps our continued quest for the 'holy grail' of a deeply integrative learning experience for students should focus not simply on curriculum design but on building teachers' capacity to 'think big' and on providing the time and skills to have the necessary conversations that build connectedness and understanding.' (p.69)

3. An integrated curriculum approach should be used in conjunction with (not instead of) focused subject/discipline specific studies, inquiries and lessons. Student learning in some areas of the curriculum may be better served by a single subject/concept lesson sequence. An integrated curriculum approach, for instance, may not address a logical sequence within a discipline such as mathematics, and some science understandings may be more effectively taught via a series of focused science investigations. The important foundation skills of literacy and numeracy should continue to be introduced, developed and reinforced through focused literacy and numeracy lessons during the primary school years, although content links can of course be made to concepts and understandings in other disciplines in the course of these lessons.

   As Hinde (2005) observes,

   'Knowledge of the various disciplines is fundamental to effective interdisciplinary teaching. Therefore, teaching content separately should not be abandoned in favor of integration, nor should integration be set aside in efforts to teach subjects discretely. A balance between the two strategies is necessary because both are effective means of increasing student achievement.' (p.107)

4. When planning an integrated curriculum unit, teachers should consider the following questions:

(i) How valuable is the organizing central idea for students to think about and assimilate into their way of looking at the world? In other words, is the proposed unit big picture - rich?
(ii) Which subjects/areas of learning does the proposed unit most closely relate to in terms of important concepts and understandings? Which are content-rich?
(iii) Do the proposed integrated areas of learning strongly link in terms of key concepts and understandings? Are they connections–rich? Alternatively, to what degree might the students learn the concepts better than if they had been taught these concepts via a separate subject/discipline study?
(iv) What opportunities does the proposed unit offer students to practise and demonstrate their capabilities as learners and development as a person? Is the proposed unit key competency – rich?

5. Introducing an integrated curriculum poses a number of challenges for schools. To begin with, school leaders need to believe that an integrated approach is appropriate for their school, have a clear understanding of what kind of integration they have in mind, and demonstrate a long term commitment to its development and sustainability. Secondly, and there is no substitute for this, allow their teaching colleagues time to explore, discuss, debate and trial different models of integration before helping them reach a consensus about what integration means and looks like at 'our' school. Unless there is consensus among all involved, it is likely that attempts to integrate the curriculum will lose its direction. Thirdly, given that the majority of parents (and teachers for that matter) have themselves experienced separate subject schooling, a shift to an integrated curriculum model may require a 're-culturing' of the accepted view of the curriculum, and a need to explain and defend an integrated approach. Indeed, Beane (op. cit.) acknowledges that teachers must regard their work as not only professional but also political, in terms of shaping a learner –centered curriculum. Fourthly, introducing an integrated curriculum approach has consequences for how teachers will assess and report on students' achievement. Will they still be expected to do so in terms of separate learning areas? If so, how can integrated approaches accommodate that and allow teachers to effectively extract the necessary evidence?

6. Regardless of whether or not an integrated approach is used to 'teach' the curriculum, and regardless of whether or not we espouse Reggio Emilia principles, we as school leaders and teachers need to listen more and learn to negotiate more with children. Only by being prepared and taking the time to do so will we truly engage students and engage with them, enable them to develop a strong 'academic self' and identity as a capable life long learner.

   As Hancock and Mansfield (2002) observe,

   'It is essential that we improve our understanding of how learning takes place through the eyes of those who directly experience what we teach and how we teach it. If we do not give children the opportunity to tell us how they feel, and a chance to influence how they spend time with us in school, then we make it difficult for them to engage with us as people and with education itself. We could have a situation where they and we are wasting our time' (p. 197).

   This does not mean acquiescing to children's whims and fancies or failing to explain to children the non- negotiable constraints in terms of what they need to learn and know about. Rather, it means deliberately planning to invite children to contribute to and invest in the learning journey and its outcomes.

7. Finally, while acknowledging that curriculum design (and review) is of course 'a continuous, cyclic process' (The New Zealand Curriculum, 2007, p.37), I think it is also important to protect and sustain curriculum practices that have been forged from the often heady and challenging demands of staff professional development activities involving examining current practice, brokering consensus, and aligning school and national curricula visions, beliefs and values. Entropy is invariably at work in our schools, particularly as new staff arrive who were not party to collective understanding and decision making activities, or as existing staff, harbouring covert alternative views, seek to reassert their own preferred ways of teaching. According to Wallace, Sheffield, Rennie & Venville (2007), there are several key characteristics or conditions that enabled integrated curriculum practices to continue to flourish in Australian middle schools. While hardly surprising, they are worthy of bearing in mind and relating to our own school settings.

   The first was small and stable learning environments for teachers and students. These 'teaching teams' or 'learning communities' typically involved a small team of up to 4 teachers with a shared responsibility for up to 90 or so students. The teaching teams offered stability – of programmes, of staff and of relationships. Small and stable teaching and learning environments 'led to a tight reciprocity of teaching and learning.`

   The second was leadership, evident in a variety of forms, ranging from hands-on transformational leadership of the principal, resource support and encouragement to the most pervasive form which was 'distributed leadership involving members taking shared responsibility for the team and contributing jointly to the development and implementation of ideas.'

   The third was team activities strongly linked to classroom instructional practices. Team meeting time was used to 'develop themes, identify links across learning areas, develop common outcomes, coordinate assessments, organise to teach interrelated concepts and discuss how to embed constructivist pedagogical strategies.' Such 'classroom-focused team activities serve to build teaching capacity' and 'to model co-operative learning to students.'

   The fourth was dedicated in-school planning time which provided quality 'time to collaborate and innovate' as well as signaling that 'such work is important and central.'

   The fifth was the role of a flexible timetable enabling 'pedagogical decisions about student grouping, teaching block time, and space allocation' to be 'devolved to the teaching team.'

   The sixth was community links, which the authors regard as operating on to levels. The 'information level' concerns 'the importance of bringing the community 'onside' with school policy and practice.' The more significant 'action level' occurred when 'the teaching program(me) reached out to involve, and contribute to, the community in a more 'integrated' fashion.' This might involve things like community based programmes and inviting in community experts to the classroom. (pp.42 – 44)

   Wallace et. al. propose that these six characteristics should not be regarded as separate structural elements to implement independent of each other. Rather they suggest,

   'that it is the combination of characteristics that matters. For example, leadership alone is unlikely to make a difference if teaching teams are unstable, and team activities are likely to be more effective when common planning time is provided.' (p.45)

Drawing on the notion of 'organisational resilience', Wallace et. al. suggest that schools, like other institutions are constantly 'buffeted by the vagaries of external and internal pressures', and that resilient schools are able to sustain innovative programmes and practices over the long term by holding the 'enabling and inhibiting conditions in a kind of productive tension.' (pp. 45- 46). Maintaining this tension involves ongoing review and responding to the challenges brought about by changing circumstances.

In closing, I concur with Wallace et. al's contention that:

'… embedding curriculum reform through school institutional resilience is also about building resilience among the individuals and groups of individuals belonging to the school - school community resilience if you like… schools need to find ways of providing a safe and stable teaching and learning community to enable teachers and students to make adventurous forays in the integrated world within which they live.' (p. 46)

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