

# How to reinvent schooling

so New Zealand can transform the Internet  
and use the whole world as a classroom

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## Abstract

*The world is hurtling through a fundamental turning point in history. For the first time ever, we now have the ability to store all the world's information, in virtually any form, and to make it available almost instantly to almost any person on earth. This has the power to transform society, and education, more than any previous revolution. It is also the first revolution where children know more about the dominant medium of communication than adults or teachers.*

*Every school system in the world is struggling to introduce Information and Communications Technology, but at least 95% are "doing it wrong". They are trying to graft 21st-century technology on to a 19th-century school model.*

*At least 2% of New Zealand schools are "doing it right". Their students are so enthused — at using the entire world as their classroom — they aren't even aware of the small percentage of sleaze produced by sick adults and spread across the Internet. If we can encourage the other 98% to "follow the leaders" — and retrain all our teachers to catch up with their students — New Zealand has a unique opportunity to lead the most important revolution of our century; perhaps of all time.*

*Even better: the really bright schools directly involve parents and whole families into the 21st-century learning process, helping to create global citizens inside national cultures that recognize and honour the achievements of all cultures.*

## 1. Model primary school of the future

Imagine you're visiting the ideal New Zealand public primary school of the 21st century.

On a 10-point scale — where 10 is a rich community and 1 is poor — it's decile 3. Thirty percent of its students are Maori: around double the national average.

It doesn't look like a school: more like a multimedia centre—a combined newsroom, television production suite, satellite communications network, Internet provider, music studio and digital library.

Its walls are alive with interactive artwork. And as you wander around you soon see that all students, from age 12 to 13, are working on different aspects of an overall theme. In this case it's conservation.

*One group of six-year-olds are producing an animated CD-ROM. It tells, in words, paintings and music how two children have rescued a kiwi caught in a trap in a forest. But they've gone much further. They've depicted it to the music of Vivaldi's *The Four Seasons*. They've added in a brief history of Antonio Vivaldi. And they've even digitally produced and animated a pianist playing the theme tune. [1]*

*In the television studio — without a teacher in sight — 11-year-olds are adding in the voice-over sections of a colour videotape: on water conservation. Chat with them and you discover they're doing this on their own initiative. Apparently they discovered a videotape crew was in their area producing a television programme on water conservation. So they decided to do likewise: to produce a TV show on how to make a professional videotape on water conservation. Script, shooting, editing, music: all done by the students. And nearly all done "on location": out along one of New Zealand's beautiful rivers and in the heart of some of our best bush country.*

*Wander into a class of eight-year-olds, and they're studying a conservation book by one of New Zealand's best authors. Again there's no teacher in sight. Some are reading the book itself. Others sketching their version of its illustrations. Two are making colour plasticine models of characters from the book. Another is using a digital camera to capture already-made characters on videotape. And two others — using the only two personal computers in the room — are using that videotape, and *Hyperstudio* software, to animate the plasticine characters. Pop back later in the day and you'll find a completed Disney-like digital production of a child's version of the story they're studying.*

Now visit some of the other "classrooms that don't look like classrooms":

- All five-year-olds can do computer animation. Ask them and they'll sure to show you their animated version of a trip to the zoo

- All six-year-olds have their own basic web pages—and so do all the older children.

- Seven-year-olds can use html to construct more detailed personal sites on the world wide web.

- Eight-year-olds can show you the interactive online digital short story — with its links to Te Papa, the national museum in Wellington — that has won them a national award against adult competition.

- Nine-year-olds have obviously been studying Howard Gardner's theory of multiple intelligences.[2] Ask them and they'll show how everyone learns, thinks and works in a unique way — and how all learn both their own strengths and the strengths of their classroom mates. They'll even show you the animation they have prepared of a trip inside the brain of their principal. They've even constructed links to show how to use brain-research to design the ideal 21st-century classroom: stimulating, colourful, interactive, and used as a discovery-centre to explore the entire world. Click on another link and you'll be taken to a teacher-centred boring classroom. But no-one wants to stay there for long, except to ponder how adults could ever have devised such a frightening environment.

- Ten-year-olds, if you ask, will show you a six-minute videotape of their school's total philosophy in action: including the way they use "the inquiry process" to become global citizens, confident and competent to use any current or future "tools" to solve any problems. The school movie has already won a national award and been used around the world to show how New Zealand leads the world.

- In the music room, 11-year-olds are producing their own musicals. In nearby spaces, others are making scenery and another group rehearsing a school play.

- In the school's multimedia centre, 12- and 13-year-olds are showing junior students how to duplicate their best work on CD-ROMs and videotape. The school never sends paper-based work home for parents to see. Samples of great student projects are preserved digitally as a permanent record of achievement.

The school has never recorded a theft. You won't find any graffiti. Nor any truancy. The opposite: even sick kids don't want to stay home, so sometimes the school delivers a laptop to their sick room.

Although school doesn't start till 9 a.m., many students arrive from 7 — to get on the Internet and “talk” to their “study-buddies” around the world, from China to Honolulu, Singapore to Sweden.

Sound like science fiction and not the real “public school” world in a poor community?

The model described is Tahatai Coast Primary School, at Papamoa, Bay of Plenty.[3] It was the first new public school built in New Zealand after the Government transformed school administration in 1990.

Since it opened six years ago, the school has been visited by around 6000 teachers: 3000 from other countries.

They marvel at its achievements. And even more when they discover that not one of its teachers was chosen because of digital, multimedia expertise. Instead, teachers were chosen for (a) their passion and (b) their passion to embrace change.

Most of those visiting teachers return to their home countries frustrated at the thought of trying to introduce change to school systems at least a century out of date.

## **2. A primary school without walls**

Or how about an even more revolutionary model than Tahatai? A school completely without walls and using the entire community as a classroom?

Well let me take you to another model New Zealand primary school of the future.

But it's nothing like any other school you know.

Sure, it has a central “discovery centre”: a colourful but small central-city core, adjoining the main city bus depot. And from that central spot, students use the entire community as their classroom.

Each student has an individual study plan, based firmly on matching the proscribed national curriculum with each child's own interests: drawn up between each student, his or her parents and “school mentor”. [4]

Want to study botany, based around flowers? Try a day at the city's botanical gardens.

Or with vegetables? A morning at a market garden.

Television? Tag along with a TV channel's film crew?

Want to study water pollution? Take your science kit down to the local river.

The weather? Visit the airport met. office.

The universe? The city planetarium.

Who was the stupid idiot who first decided that children would learn best inside the four walls of a school classroom? As Buckminster Fuller once put it: “All children are born geniuses, but we spend the first six years of their life degeniusing them.” [5] And then, when we get them to school, we bore them even more by sitting them each day in rows facing a teacher in front of a blackboard — before they return back home and a world of digital television, PlayStation2, the Internet and the World Wide Web.

John Holt challenged the whole traditional school structure neatly around 40 years ago when he pondered: “We must ask how much of the sum of human knowledge anyone can know at the end of his schooling? Perhaps a millionth. Are we then to believe that one of these millionths is so much more important than another? Or that our social and national

problems will be solved if we can just figure out a way to turn children out of schools knowing two millionths of the total, instead of one?" [6] Holt argued even that "since we can't know what knowledge will be most needed in the future, it is senseless to try to teach it in advance. Instead, we should try to turn out people who love learning so much and learn so well that they will be able to learn whatever needs to be learned."

And that's precisely the aim of the model "school" just described. It already exists. It opened in Christchurch last year. It's called Discovery1: a completely new-style public primary school that uses the entire community as a classroom. It's too early yet to have definitive research-results from Discovery1, but I'll bet its students are already enthused at their daily experiences of learning how to learn, learning how to discover, learning how to inquire, learning how to think.

### **3. A model intermediate or middle school**

Or how about an intermediate or middle school where 11- to 13-year-olds are spending an entire week out at a New Zealand adventure camp?

The school is Otumoetai Intermediate, in Tauranga, Bay of Plenty. And I love opening international conference presentations with a six-minute videotape made completely by some of those students.

Teachers, students, parents and administrators from Mexico City to Manchester, South Gloucester to Shanghai have marvelled at the way these students, too, use their entire world as a classroom. And how they use the latest digital cameras to capture on videotape their experiences white-water rafting, kayaking, navigating confidence-building rope courses, abseiling and exploring their environment.

Teachers who then have the opportunity to spend two hours learning iMovie2 [7] video editing are delighted they can learn, from these students, the skills of 21st-century videotape production. Undoubtedly, we live in the first communications revolution in history where even young students know more about the dominant technology than their parents or teachers. Let's harness that ability.

### **4. The high school of the future**

But how would you apply these world-leading models to high schools, where New Zealand has generally followed the incredibly boring English model of moving students each day from one short-period subject-based classroom to other subject-based teachers?

Does anyone seriously suggest that life and work is divided up into 45-minute subject "periods", without any interconnection?

Here, too, New Zealand has been leading the way for 15 years in providing a brilliant alternative: integrated studies, using the entire world as a classroom.

The model school is Freyberg High, in Palmerston North. And its integrated studies model was worked out as a three-way project between Massey University, the school and IBM, which contributed the computers.

Visionary driving force behind the project was Dr Pat Nolan, now Professor of Education and Director of Massey's Educational Research and Development Centre.

Nolan says "the old method" of high school studies is separated from the real world. "We have all been through the school system," he says. What we've experienced is a compartmentalized or segmented curriculum, where subjects are locked up in their little boxes, with tight little boundaries around them. So we learn mathematics, physics and

English separately. Seldom do we see the connection between subjects. Yet it's by linking subjects together and seeing the interconnections that we come to understand the real world better. And that is basically what integration is all about: developing ways of teaching — and experiencing — knowledge in a way that establishes the interconnections in the minds of the students, and has them actually using that knowledge to create new solutions.” [8]

Nolan's integrated studies programme started in 1986. The first models combined biology, computer studies, English and geography. The elements were drawn together around a central theme: preservation and management issues confronting New Zealand National Parks.

Now, 15 years later, visit the lower central North Island and you'll probably find Freyberg students out on a week's hands-on study trip: perhaps tramping and canoeing down the Whanganui River. Sure, they'll be having fun. But they're also split into study groups. One will be researching the interconnection between the river and agriculture. Another gathering information for an environmental impact report. Another will be testing the river's chemical composition and water-flow. Another research the Maori history of the area.

“The whole project is curriculum driven,” says Nolan. “But most activities include adventure and outdoor education components, learning bushcraft, camping and survival skills, as well as learning to work in groups, researching specialist subjects and integrating them into a total report.” And that report, of course, is prepared on computers when the class reassembles back at school: adding more Internet-researched information into the class's overall findings.

Not surprisingly, Freyberg has also shown the fastest growth in roll numbers of any high school in New Zealand's North Island: almost double in four years. And when their students have to sit specific subject examinations at the end of their three and four years in school, their results have generally been well above the national average.

## **5. Is there one school that puts it all together?**

In my experience: yes. And again it's been established by a New Zealander. But in this case in Singapore.

Former New Zealand Bay of Plenty businessman David Perry was the catalyst. And today he's chairman of the international school he founded more than 10 years ago. It's called the Overseas Family School, with more than 2000 students from 61 nationalities.

Their school is the first in Singapore to adopt the International Baccalaureate curriculum for all students from aged three years to senior high school. [9]

And at each of those levels you'll find students from Israeli families working aside others whose parents come from Islamic countries; American students learning and playing with others from China, Korea, Japan and India.

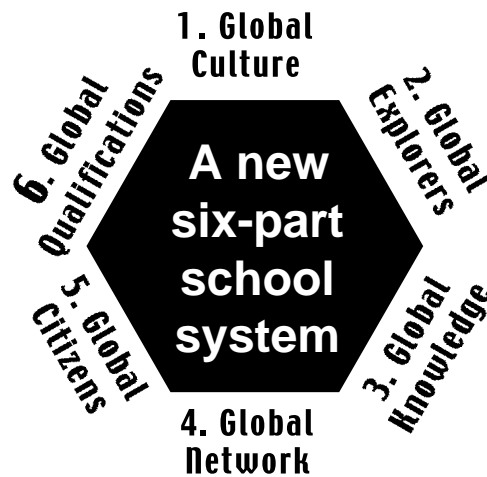
The school's aim is to develop globally-minded citizens, with the integrated skills needed to become competent “global explorers”.

OFS does this in its own unique way, inside the IB framework. And in doing so it encourages all students, and their families, to use the Internet and the World Wide Web in a thoroughly integrated way: a model for our new century.

OFS achieves this through six inter-related steps (see graphic, next page):

**1. A global culture:** celebrating the great breakthroughs of all cultures, and an understanding of the world, to produce:

**2. Global explorers:** skilled in the process of open, scientific inquiry to enable all students to discover, by themselves and in groups,



*The Overseas Family School schematic model. [9]*

3. **Global knowledge:** on a wide variety of vital themes, linked with one's own culture and personal strengths and talents. All this aided by:

4. **A global information-technology network** that instantly links students, teachers, parents and schools with all appropriate information, including all personal study programmes. All these steps produce

5. **Global citizens:** confident and competent to analyze all future important problems and create positive solutions, and with

6. **Global qualifications:** including diplomas and certificates accepted and valued by universities and employers, plus personal digital portfolios showing each student's individual accomplishments.

In the junior and middle-schools, each year's study is split into six or seven different global themes. Every student—and every family—knows each theme in advance: the solar system, the continents of the world, weather, oceans, minerals, the human body, endangered species, the great pioneers in global themes from inventions to science.

Inside each of those themes, every teacher is trained in the IB process of "focused inquiry": skilled at encouraging even very young students to become, in effect, journalists: seeking out the answers to key questions under eight general headings:

❑ **FORM:** *What is it like?* Everything has a form with recognisable features which can be observed, identified, described and categorised.

❑ **FUNCTION:** *How does it work?* Everything has a purpose, a role or a way of behaving which can be investigated and categorized.

❑ **CAUSATION:** *Why is it like it is?* Things do not "just happen". Everything has a cause, and actions have consequences, which need to be learned and considered.

❑ **CHANGE:** *How is it changing?* How does water change into steam? Matter into energy? Everything is in a state of change. Change is universal, and one of the best tests of an educational system is how it develops students' ability to manage change.

❑ **CONNECTION:** *How is it connected to other things?* We live in a world of interacting systems, in which the actions of individuals, communities, nations and elements affect others.

❑ **PERSPECTIVE:** *What are other points of view?* We all view issues and concepts through different perspectives and often preconceptions. These may be individual, cultural or disciplinary.

**RESPONSIBILITY:** *What is our responsibility?* We are not passive observers of events. We can and must make choices. By doing so we can make a difference, on a personal, community and global scale.

**REFLECTION:** *How do we know?* And how do we know when we are correct? Reflection also encourages us to focus on our way of reasoning, and the quality and reliability of the evidence we have considered.

## **7. Isn't this what you'd like your children to be?**

The International Baccalaureate programme also requires its teachers to weave these values into all aspects of the curriculum, so that students become:

**INQUIRERS:** using their natural curiosity to acquire the skills needed to conduct purposeful research.

**LIFELONG LEARNERS:** with an active love of learning.

**THINKERS:** competent to use thinking skills critically and creatively to make decisions and solve complex problems.

**COMMUNICATORS:** confident in receiving and expressing ideas and information — in more than one language.

**RISK-TAKERS:** confident to explore new roles and strategies.

**KNOWLEDGEABLE:** with a critical mass of significant knowledge of themes and topics of global importance.

**PRINCIPLED:** with integrity, honesty and a sense of fairness and justice.

**CARING:** with a personal commitment to action and service — and sensitive towards others' needs and feelings.

**OPEN-MINDED:** committed to exploring a range of views, and understanding the values and traditions of other cultures.

**WELL BALANCED:** with an understanding of the importance of physical and mental balance and personal well being.

**REFLECTIVE:** with the ability to reflect wisely, and constructively analyze their personal strengths and weaknesses.

## **8. But what has all this got to do with Internet safety?**

In my view: everything.

The students at Tahatai and Singapore's Overseas Family School all use the Internet brilliantly to explore their world: creatively, and in a focused thematic, engrossing way.

Their education is a multi-pronged process: involving schools, teachers, parents, students and all the incredible resources of the World Wide Web [10] and of digital technology.

And because the students' parents know the study-themes in advance, guess what whole families are doing outside school hours, whether on the Internet, visiting the local library or using the entire community as a classroom? They, too, are learning to be open-minded global citizens, using the world as a classroom.

I make no apology for the fact that all the examples cited here come from various editions of *The Learning Revolution*, and that all of these leading model educational programmes involve trend-setting New Zealanders.

After spending most of the past 11 years travelling the globe to find the world's best

educational breakthroughs, I've found models for the best right here in New Zealand.

I also believe New Zealand has a unique opportunity to lead the world in education and learning — and that now is the time to take that lead.

The world we live in is hurtling through a fundamental turning point in history. For the first time ever, we now know how to store all the world's knowledge, in virtually any form, and to make it available, almost instantly, to almost anyone on earth. Over the next five years we will move into an era of almost infinite bandwidth, so the web will no longer be the world wide wait.

Almost every school system in the world is grappling with that change. All are struggling to introduce information and communications technology (ICT) into their schools. Nearly all are doing it wrong — because they are trying to graft 21st-century technology on to a 19th-century school model.

New Zealand is unique in that it already has the models to transform learning, education, families and communities. They are working now — with brilliant results. And where they are working so well, the students involved are so enthused at their ability to explore the world's greatest breakthroughs, they have no time to be sidetracked by the sleaze perpetrated by a minority of adults on the web.

Even more important, those great examples involve parents as well as children, and enables them to learn from each other as they are linked into an integrated whole.

So my own answer is very simple. We have already in operation the models to lead the world — and to use the Internet as the incredibly positive tool it can be — and not as the cesspit that some sick adults trying to make it.

The time has come to make that choice: and show the rest of the world how to tap into the greatest power for positive change the world has ever invented.

[1] Tahatai students, 1999, *Expressing Ourselves*, Tahatai Coast Primary School, [www.tahatai.school.nz](http://www.tahatai.school.nz)

[2] Gardner, H., 1991, *The Unschooled Mind*, Basic Books, New York.

[3] Dryden, G, and Vos, J, 2001, *The Learning Revolution*, revised edition, Network Educational Press, UK, **338-339, 492-495**. [www.thelearningweb.net](http://www.thelearningweb.net)

[4] [www.Discovery1.school.nz](http://www.Discovery1.school.nz)

[5] Dryden and Vos, op cit, **234**.

[6] Holt, J, 1968, *How Children Fail*, Pitman, New York, USA.

[7] Otumoetai Intermediate School students, demonstration videotape, used at annual teacher training seminars organized by Apple Education and Tahatai Coast School.

[8] Dryden and Vos, op cit, **412-421**.

[9] Dryden and Vos, op cit, **22-25, 438-441, 487-491**. [www.ofs.edu.sg](http://www.ofs.edu.sg)

[10] For guides to great educational websites, search the George Lucas Educational Foundation website: [www.glef.org](http://www.glef.org) — type *Learn & Live* on the “search space”, and then, when the *Learn& Live* chapters appear, scroll to the end, select *Glossary, Electronic Resources and Index*, and print the resource list free. Also try: [www.inetlibrary.com](http://www.inetlibrary.com) for a free two-week trial of an Internet site that lists more than 250,000 websites ideal for student and family study, all graded on a five-star basis: all sites guaranteed to be free of pornography or gratuitous violence.