

Sabbatical Report

Read about and visit some schools in New Zealand and Australia with new or remodelled innovative learning spaces (ILSs) to investigate physical differences, new pedagogical approaches, and discover what is working best.

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Acknowledgements

I thank The Ministry of Education for their continued support of principals by providing sabbaticals. This time out to undertake a professional learning investigation, to reflect on the work that we are doing in our schools, and also to refresh and re-energise, is invaluable and undoubtedly ensures that we long-serving principals remain in our very rewarding but often stressful positions for longer. It is also an opportunity for us to recreate ourselves, as we must over and over in this job.

Thank you very much to my current and past boards of trustees for the support that they have provided to me for twenty years now as Principal of Morrinsville College, and of course for their support of my sabbatical leave.

I want to thank my good friends and principal colleagues who have inspired me over the years, especially John Wright, Maurie Abraham, Ngaire Harris and Alistair Cochrane, all of whom are long-serving principals whom I hold in the highest regard and view as visionaries and courageous leaders of change in their schools. There have been many other principals whom I have associated with through CoroNet and CNISPA who have also willingly shared their ideas and contributed to my personal learning and growth.

I also want to pay tribute to David Hood, Graham Young and Gael Donaghy, all of whom have challenged my thinking with new ideas and readings over the years, with a special mention to Dr Jane Gilbert whose Master's course *Future Schools in Aotearoa* which I undertook in 2013 through Waikato University was life-changing in terms of my education understandings and beliefs about where education needs to head.

To the principals and senior leaders of the schools which I visited on my sabbatical, I thank you very much for your generosity in spending time with me to honestly and enthusiastically discuss the pedagogical approaches that you are implementing in your schools and how these influenced your new or remodelled buildings' design, and to show me around your excellent facilities.

Finally, thank you to Wayne Stephens and Simon Le Nepveu of Clarke Hopkins Clarke, architects in Melbourne. It is most refreshing and encouraging to meet full-time designers of schools who actually understand that pedagogy must drive buildings' design and who know so much about modern education pedagogies.

The child starting kindergarten this year will graduate in the third decade of the 21st century. All we know about the world she will step into is that it will have challenges and opportunities beyond what we can imagine today, problems and possibilities that will demand creativity and ingenuity, responsibility and compassion. Whether this year's kindergarten student will merely survive or positively thrive in the decades to come depends in large measure on the experiences she has in school. Those experiences will be shaped by adults, and ultimately by places, by the physical environments where she does her learning. United in the conviction that environment is our children's third teacher, we can begin anew a vital mission: designing today's schools for tomorrow's world. – The Third Teacher, Abrams, New York.

Purpose and Rationale

Morrinsville College has been amongst those established schools which are continuously endeavouring to lead change to improve education outcomes for our students. Over the next two or three years we have the opportunity to recreate/remodel some of our traditional classroom spaces. Because of a slowly declining roll, as is the case now in many schools in rural communities in New Zealand, the Board will not be able to build an open-space new building, as we had initially hoped to do.

I believe that pedagogy should drive classroom design and that is why I have undertaken visits to schools, new schools in particular, so that I can decide what works best with the new pedagogies that are being developed, especially in the new schools, due to the rise of the Knowledge Age and the Internet and in response to new economic imperatives which are demanding a new set of skills for 21st century learners to provide for their needs in a rapidly-changing world. These demands are most often seeing a transformation of learning in newly-constructed and re-imagined schools. I have also reflected on what sorts of skills our young people will need to face their uncertain futures and reflected too on the new buildings' designs that are springing up. I think that it would be fantastic if we could all replace our existing traditionally-built schools by designing and building brand new schools and transforming learning by providing exciting new pedagogical approaches within flexible learning spaces to deliver future-focused learning to develop a modified set of 21st century skills in our students. The problem is, how does a successful traditional school with rows of rectangular box classrooms and no licence to change or increase their buildings' footprint do this?

If we teach today as we taught yesterday we rob our children of tomorrow. – John Dewey.

Background

The following is the abbreviated essence of an essay that I wrote late in 2013 when undertaking Jane Gilbert's excellent Master's course which I would like to share. It provides a background to my conviction that there needs to be dramatic change in education in our schools in order to prepare our students more adequately for the future that they face right now in a world where machines/automation will effectively take away many of our current jobs within the next decade or two at the most and where there are significant global 'wicked' problems that our young people will have to solve.

Purposes of Education

The purposes of our public schooling system are several and have varied historically through the pre-industrial, industrial, post-industrial and new knowledge ages. One would naturally assume that over this extended period of time huge shifts would have occurred, to better meet the needs of our students in preparing them for their future. However many modern educationalists and social commentators agree that there has been no significantly noticeable change in education practice so that there is a strong case that schools are not achieving their purposes.

Schools remain largely locked in the past, with what Hedley Beare (2001) describes as vestiges of the old model, nostalgia for the past system, the desire of society to retain familiar conventions and vigorous resistance to change from those who are at the top of the social order.

The academic curriculum itself goes back about 2200 years to Plato who designed an education system to develop the abilities required by the philosopher kings. The purpose of Plato's system was to lead the individual from the empirical everyday concrete world of physical matter to the intelligible world of reason, pure thought or abstract forms – the world of knowledge.

Since Plato, schools have aimed to develop this kind of knowledge in students as the basis of rational thought, with the view that this will enable them to make a full and active contribution to society. In this model, Kieran Egan (1997) asserts that schools "want students to be engaged by the disinterested pursuit of truth through the hard academic disciplines that will make them knowledgeable, discriminating and sceptical, giving new voice to the idea Plato bequeathed to us." (Pg 14). Jane Gilbert (2005) adds that Plato's system "was unashamedly elitist, and designed not to produce new knowledge, but to reproduce existing knowledge. In England early public schools drew heavily on Plato's ideas. Their main purpose, like his, was to educate the future rulers of society and to reproduce the existing social order." (pp 48-49).

The purpose of schooling changed with the Industrial Revolution. As Beare points out, a functional citizen in an industrial economy required a consistent set of knowledge and basic competencies. Mass education, 'the basics' and a curriculum with a common core were born. However, "ironically, mass public education happened not out of a concern for equality and freedom but in response to industrialism's need for an educated workforce." (Gilbert, 2005, Pg 51).

Miller and Bentley (2003) state that socialisation is a key purpose of current schools, and to this they add four other purposes. These are "custody: keeping pupils safe and allowing parents to go out to work; cognitive development: the transfer and development of knowledge, skills and understanding; behavioural rules: teaching and drilling a set of behavioural rules and routines that include punctuality, obedience, occupying a place in organisational hierarchies....performing in standard tests and assessments; and screening and sorting: formal assessment, qualifications and guidance towards particular routes such as higher education, as well as towards the labour market." (Pg 32). These very utilitarian purposes of education are all easily recognisable in our current schools.

Returning to the thoughts of Egan, he identifies another purpose of schools, that of helping each student to gain their full potential. This shift involves an emphasis on students learning how to learn as a higher priority than amassing academic knowledge, gaining critical thinking skills, and evaluating educational success in terms of what students can *do* with what they know. This declared and enlightened purpose is a very good lead-in to a review of what the literature on future-oriented schooling is saying schools should be delivering.

What should future-oriented schools be doing and why?

There is now an extensive body of literature on future schooling which insists that there is an urgent need for a paradigm shift, a transformation of education, not just reform or continuing to tinker around the edges of what we are currently doing in our schools. Indeed, the literature suggests that unless we replace what we are doing we will do a grave injustice to our current students and risk not preparing them for the world of their future.

According to Jane Gilbert (2005) we are in the midst of a major social and intellectual revolution where very different ways of thinking are challenging long-standing ways of thinking. Gilbert states that while learning how to learn is very important, *what* people learn and what they *do* with this learning is even more important in getting a job and contributing to society.

In an article published in the *New Zealand Science Teacher* in 2012, Gilbert asserts that school science does not reflect current science work. Scientists no longer work as individuals or in small groups. Instead, they work in large teams, usually networked across several institutions and countries. They are multi-disciplinary and multi-method. They must have high-level interpersonal and communication skills to be able to be part of a

connected network which can contribute to creating something new, to be able to think creatively “in the spaces *between* experts, books, databases and so on” (Pg 5), beyond the traditional repositories of knowledge. They need to be able to *do things with* knowledge and work *with others* to do things with it. In other words, people need to be innovation-capable.

Carl Bereiter (2002) argues that schools are still treating knowledge as the contents of children’s mental ‘filing cabinets’. He asserts that “The mind-as-container metaphor is handy for talking about the acquisition of knowledge, but not for talking about what the knowledge is good for once it is in the container.” (Pg 21). For Bereiter, like Gilbert, knowledge must become the stuff that students work with to *produce* things in innovative ways. Bereiter notes that promising new developments in education include restructuring school activities and discourse so that students work in research groups where authentic questions are investigated. He advocates for collaborative knowledge-building activities which may advance the world’s knowledge.

Tony Wagner (2012) says that solutions that have created economic and social prosperity in the past will not be enough now and in the future. To be globally competitive we need entrepreneurs and innovators and so schools need to develop the creative and enterprising capacities of students when applied to real world problems. Wagner goes on to identify some key qualities of innovators: “curiosity and imagination, perseverance, a willingness to experiment, take calculated risks, and tolerate failure, and the capacity for ‘design thinking’, in addition to critical thinking.” (Pg 12). He argues that all of these qualities represent a set of skills and dispositions that can be taught and mentored.

Wagner’s central thesis is that there are three inter-related elements to intrinsic motivation needed to produce young innovators: play, passion and purpose. People who play in an unstructured way as children become risk-takers, they are more likely to discover a passion as adolescents and over time these can evolve into a deep sense of purpose, especially with help from parents, teachers or mentors.

Marlene Scardemalia and Carl Bereiter (2006) promote a computer-supported learning environment where students share and build on their understandings associated with new ideas for solving real authentic problems, rather than feeding through the usual filter of their teacher.

Perhaps the best explanation of why our current education model needs to change is provided by David Weinberger (2011). He asserts very persuasively that the Internet has transformed our knowledge foundation into a huge network of knowledge which is literally “too big to know”, the title of Weinberger’s book. Everyone can access it and build on it, working in vast, loosely connected webs. And that means that the concept of knowledge

has changed. Science, for example, is advancing at a huge pace thanks to the new collaborative ethos that exists where the latest idea developments can be built on by people all over the world.

Therefore, in summary, contemporary views are that the key purpose of schools needs to be to prepare students for their future by providing them with a new set of living and learning dispositions.

What do these new conflicting purposes mean for our current schools?

It can clearly be seen that there are big differences and a dissonance between what current education is offering in our schools today and what needs to be offered to students to meet the demands of the networked Knowledge Age. Furthermore, there are real tensions between the current teaching pedagogies and what future-oriented educationalists are advocating for in our schools.

Wagner, Gilbert and Bereiter all call for the development of innovative capability in our school students. Wagner (2012) sums up the reasons for this very well when he states: "Only the jobs of innovators and entrepreneurs will be immune to outsourcing or automation in the new global economy." (Pg XIV). And yet, after an extensive exploration of how teachers in American schools go about developing innovative capacity, Wagner concludes that many school leaders have absolutely no idea what kind of programmes are required to produce students who can think critically and creatively, communicate effectively and collaborate, rather than merely score well in traditional tests.

Gilbert (2012) sees contradictions with what is currently happening in Science education in our schools, which is highly unlikely to produce innovators. Instead practices are about "risk avoidance, compliance, obedience to authority, producing fast 'right' answers, passive consumption of existing knowledge, specialisation, scoring well on tests, a one size fits all 'production line' model of learning, superficial knowledge, and an emphasis on individual learning of pre-set already existing knowledge." (Pg 8).

The emergence of the networked society poses real questions for our current schooling in that it demands a whole new set of skills for students that are much harder to measure than our traditional assessment system allows for. And when a student's qualifications credentials remain the currency for determining opportunities for further learning and life chances this is indeed a major problem. As Bereiter (2002) states: "When innovators move beyond test scores and other immediate indicators of achievement, they find themselves issuing rather long-term promissory notes for future benefits to the learner and to society. Unless they are among the few who manage to achieve celebrity status, they are likely to find these notes rejected: no credit rating, no collateral. Achievement test scores will continue to hold sway unless they can be replaced by other immediate indicators of effectiveness." (pp 451-452).

On the other hand, many uncredentialed people can contribute to the building of knowledge on the Internet. The implication of this Weinberger says is that “we need to educate our children from the earliest possible age about how to use the Net, how to evaluate knowledge forms, and how to love difference.” (Pg 192).

Gilbert (2005) adds to Weinberger’s concerns about what schools are currently *not* doing to prepare and encourage students to create knowledge in the spaces between people, so that they are able to contribute in the world beyond education. She hits the mark when she states “The present focus on encouraging them to master specific bits of knowledge (and assessing them according to whether or not they have mastered them) is no longer appropriate. Instead, the emphasis needs to shift to developing students’ capacity for *knowing* – in all kinds of situations with all kinds of people.” (Pg 76).

How should schools respond?

What should we make of all of this then, given that there is such a big gap between what our schools are continuing to do and what future-oriented schooling should look like? It is evident from the literature I think that we need a complete mindshift in education. A whole new conception of schooling must emerge, based on knowledge doing something, and a desire to create new knowledge. Developing the capacities of young people to become innovators is critical in ensuring their life chances. Knowing how to learn, keep learning, to learn with others and to learn in the spaces between others are critical new skills that every student must possess.

Our youngsters must be encouraged by their teachers to step out of their comfort zones to enter networks which comprise a rich diversity of people with different perspectives and understandings of specialised knowledge. Effectively collaborating with clades rather than clones in such circles will be critical. Students must learn to distinguish between useful knowledge-building groups and those which are not likely to benefit their knowledge growth. They must be able to access knowledge and check its veracity, and to work effectively in their networks with good oral and communication skills.

Our schools must ensure that our students are able to grapple with the authentic ‘wicked’ problems that are currently facing the world and that will increasingly face us. Students must be able to think and learn in multiple learning domains, not always in subject silos, and often in an online environment.

I think that the notion of ‘de-schooling’ must be resisted, despite the growing online education offerings that are now readily available and free of charge. There continues to be a place for re-imagined schools, which must play a part in reducing social inequities such as those created by the socio-economic disadvantage of many families in accessing and using digital technologies. Similarly, to minimise social injustice there will continue to be a place for teacher facilitators working with students to provide for their educational and social

development in order to create citizens who can play a full part in life beyond school and, as Keri Facer (2011) puts it, can “have a role in mitigating inequalities and in contributing to the creation of fairer and democratic futures.” (Pg 9).

However, there will continue to be constraints and barriers to change that must be confronted through public debate. Government-driven policies, high-stakes assessment in our senior secondary school years, external accountability which measures our schools’ performance against traditional norms, and a belief that we can continue to do what we are doing now but do it better, all conspire to sustain our current school system. The disadvantaged of the past remain largely the disadvantaged of today and so social disparities are cyclical and few can escape their disadvantage. It is the role of school leaders to tackle these issues head on.

Governments have been, and are likely to continue to be, loathe to make grants to schools which seek to encourage sustained innovation in education, even though it must be obvious even to politicians that change is urgently needed. Such grants are seen as a waste of money in an electorate which continues to believe that what served them well with their education will also do so for their children. Nor do parents want their children to be ‘guinea-pigs’ when this could affect their life chances, in a system which continues to measure success and sort students through a traditional high-stakes assessment system. School leaders must muster the courage to speak out publicly against such political lack of foresight.

It is currently not easy for a principal to lead any radical change unless they are charismatic and very persuasive to gain the support of a wide group of their staff and the community. It is therefore no surprise that the most innovative schools in our country are usually those in disadvantaged communities where the schooling situation is so bad that there ‘has to be a better way’ and where there is therefore likely to be less resistance from both parents and teachers to change, or in our new schools which have a licence to try new things and be different. Such schools must continue to be the beacons of change, but other schools that currently seem to be ‘successful’ in the existing system must also take up the challenges of necessary change.

Public debate across the nation, led over an extended period of time by credible, highly-regarded educationalists and supported by all political parties is in my opinion the best chance of radical change. This is probably very unlikely given the inevitable cries of horror from powerful lobby groups representing our ‘elite’ schools and the ruling upper class who want to preserve the status quo and their dominance.

Another driver for sustained transformation in schools would be achieved if, as Bereiter asserts, our current knowledge creators decide that they want something different from the schools that their own children attend. For this to occur they would need to envision that

what happens in schools could mirror what goes on in their own professional lives. As this is achievable, this scenario is definitely a possibility in my view.

A third possibility for sustained change is that a group of like-minded leaders of schools would progressively bring about change in their schools by effectively drawing strength from each other and persuading their communities that new and superior outcomes can be achieved. In doing so, they will have to be strong in resisting the pressures that are inevitably going to be brought to bear on them by some members of the public whose view will always be reactionary in agreement with political and media criticism, and, also those who will call for a 'back to the basics' approach, including in all likelihood some of our own teachers.

Conclusion

In summary then, our current schools remain locked into an education system which is well past its use by date. This is because the general public believe that the education system that served them well when they went to school will also serve their children well. However, this is most certainly not the case in the new world of the Knowledge Age and the Global Economy.

In this world it is no longer appropriate for schools to fill students' container minds with 'just in case' academic facts which they can regurgitate in traditional examinations, as a sorting system for universities and employers.

Credentialing is likely to be with us for the foreseeable future. In New Zealand we are fortunate that our NCEA assessment system provides considerable flexibility so that some enlightened teachers are able to design future-focused collaborative projects for our learners which generate NCEA credits.

Most importantly, future-oriented education must also be directed at helping students to develop dispositions for *doing* things with knowledge. They must be part of collaboratively creating new knowledge. Only the creative and critical thinkers amongst us will be guaranteed employment in this new world. And indeed this new world is already upon us so there is a real urgency for change.

Wagner's 'play, passion and purpose' model is a very useful way forward for our schools. This idea of education for innovation requires a new and different approach to knowledge, one that is based on the networked society discussed by Weinberger. This new approach will include a strong emphasis on collaboration and teamwork, multi-disciplinary learning, encouragement of intellectual risk-taking and trial and error, an emphasis on creating things in real-world authentic contexts, a strong emphasis on developing intrinsic motivation in students and an ability to communicate in the 'third spaces' with diverse groups of people.

This does not mean that knowledge as we currently know it is unimportant. It's how our students apply this knowledge that is important, how they use it to discover new knowledge and to think critically to solve complex problems.

I agree with Wagner who concludes "for students to become innovators in the twenty-first century, they need a *different* education, not merely *more* education." (Pg 201).

I am optimistic that we may well be witnessing the genesis of a new paradigm, certainly amongst some of my principal colleagues and their protégés. Our collective support for each other in re-imagining future-building schools will be critical in bringing about the transformation that is urgently required to prepare our students for democratic, sustainable futures.

REFERENCES

Beare, H. (2001). From a society of factories to a society of knowledge workers. From: *Creating the future school*. London: Routledge.

Bereiter, C. (2002). Design research for sustained innovation. *Cognitive Studies, Bulletin of the Japanese Cognitive Science Society*, 9(3), pp. 321-327.

Egan, K. (1997). Three old ideas and a new one. In K. Egan (Ed.), *The educated mind: How cognitive tools shape our understanding* (pp. 9-32). Chicago: Chicago University Press.

Facer, K. (2011). *Learning Futures – Education, technology and social change*. London: Routledge.

Gilbert, J. (2005). *Catching the Knowledge Wave? – The Knowledge Society and the future of education*. Wellington: NZCER Press.

Gilbert, J. (2010). Are we there yet? Sixty years of education sociology and equality in Aotearoa/New Zealand. In: Stephens, K. and Kidman, J. (Eds.). (2010). *Looking back from the centre: A snapshot of contemporary education in New Zealand*. Wellington: Victoria University Press.

Gilbert, J. (2012). School Science, the "smart" economy, "networked" Science and "wicked" problems: Is there a connection? Should there be? *New Zealand Science Teacher*. Issue 131, (pp. 5-9).

Miller, R., & T. Bentley (2003). Thinking about the future of schools: trends, strategic choices and possibility space scenarios. Part 2 of: *Unique Creation - Possible Futures – Four scenarios for 21st century schooling*. Nottingham: National College for School Leadership (UK).

Scardamalia, M. and Bereiter, C. (2006). Knowledge building: Theory, pedagogy, and technology. In: K. Sawyer (Ed.), *Cambridge Handbook of the Learning Sciences*. (pp. 97-118). New York: Cambridge University Press.

Wagner, T. (2012). *Creating Innovators: the making of young people who will change the world*. New York: Scribner.

Weinberger, D. (2011). *Too Big to Know*. New York: Basic Books.

Findings of My Investigation

You can't expect children to learn 21st century skills in schools built for the 1950s. We need schools designed for 21st century success. – Chad P Wick, President and CEO, KnowledgeWorks Foundation.

Buildings' Design and New Pedagogical Approaches

So what buildings' design environments can accommodate the new pedagogical approaches that we must progressively implement to provide our students with the skill set that they need in the 21st century and to what extent are these new pedagogies being delivered by our new and remodelled schools, and what seems to be actually working?

The classrooms in many of our New Zealand schools vary greatly, depending on the ages of different parts of each school, different orientations of various rooms (which direction they face) and the ways in which spaces are being used by teachers, so it is little wonder that learning occurs better in some classroom environments over others. (Of course, the expertise of the teacher also makes a huge difference). We all know too that small changes that cost very little or nothing at all can make a considerable difference to the culture of a classroom and the attainment of students; for example, introducing a variety of new and modern furniture, changing the layout of furniture in the room, the choice of displays or the sound absorption and colour of the ceilings, walls and carpet.

The *Clever Classrooms* research undertaken in English primary schools by Professor Peter Barrett, Dr Yufan Zhang, Dr Fay Davies and Dr Lucinda Barrett, published in February 2015, is worth a read to gain good tips for classroom remodelling or new designs. As the document states, "Intuitively most people would probably feel that the design of the spaces we live and work in does make a difference to how we perform the activities in which we are engaged." This was a significant piece of research, involving 3766 students from 153

classrooms from 27 very diverse schools across England. For the first time, clear evidence was found that well-designed school classrooms can boost learning in reading, writing and mathematics, in this case by as much as 16%.

The most significant finding was that **natural** factors have a pronounced effect:

- Good **natural light** helps to create a sense of physical and mental comfort, and its benefits are far-reaching. The research found that good natural lighting makes a difference of 21% in terms of students' achievement. Of course the natural light must be supplemented by electric light when light fades. It is similarly important to ensure that there is not glare, off whiteboards for instance, so good-quality sufficiently opaque blinds or sun-filter curtains are essential. The use of a high-quality data projector can minimise the need for blinds.
- Ventilation for good **air quality** also has a significant 16% impact on students' learning. Windows with large opening sizes, ideally provided by multiple openings, allow users to ventilate the room effectively under different circumstances. Higher ceilings and larger rooms mean that there will be less of a problem with carbon dioxide as there will be dilution with large room volume.
- Ensuring a **comfortable temperature** in the room was found to make a difference of 12% to students' performance. The temperature is better controlled when the orientation ensures that there is no direct sun heat into the room. External shading or shrubs and planters outside are useful in reducing this problem.

Other significant factors in classroom design were found to be related to **individualisation**:

- Physiology and psychology research indicates that **ownership and personalisation of space** is an important factor in an individual's identity and sense of self-worth, making a 17% difference to learning. A distinctive room design, students' work on display, comfortable, ergonomic and colourful furniture and nice fixtures can all promote greater engagement and participation in the learning process.
- Classrooms need to be **flexible** to accommodate changes in pedagogical approaches to learning over time and it was found that this factor makes a difference of 11% in students' learning. Classrooms can support individualisation by offering a variety of opportunities for different modes of learning. Classrooms with clear attached breakout spaces, (some bigger and some smaller), were found to impact positively on learning, but when these spaces are in corridors or are separate from the classroom they do not seem to be as effective. Rooms with varied floor plan shapes provide greater potential for creating different activity areas, but a larger area with a simpler shape is more appropriate and flexible for older students.

Consideration must also be given to factors involving student **stimulation**:

- Most students do seem to like **colour**, as long as this is not too bright. Such stimulation to different areas of the walls, or a feature wall for instance, was found to increase attention span by creating positive perceptions of the learning

environment and to make a 12% difference to students' learning. Flashes of colour can also be added with complementary furniture colours.

- It is important to have a stimulating room in the relative **complexity** of its shape and form to create visual interest. A balance between a space that is boring and complex is needed, while considering the functionality of the space. This factor was found to make an 11% difference to students' learning.

My visits to a range of mostly new schools in Australia and New Zealand over the last few years and on my sabbatical in particular, showed me clearly that all of the above factors, (but especially classroom flexibility and the use of natural light and sound control), were strongly considered and part of good buildings' design. This is most certainly the case when very good architects who are experienced in designing schools are involved. As stated earlier in this report in my acknowledgements, I was especially impressed by Wayne Stephens and Simon Le Nepveu of Clarke Hopkins Clarke, architects in Melbourne. These full-time designers of schools have actually read widely about evolving new pedagogies in schools, understand how these contribute to students developing a skill set that is appropriate for the 21st century and understand that pedagogy must drive buildings' design, rather than buildings being created that school leaders and teachers must then design pedagogies to suit.

In newly-built modern schools, large open teaching spaces are designed to cater for collaborative team teaching, often of a trio of teachers with groups of 75-90 students, or about three regular classes, supplemented by at least one teacher aide and on occasions with part-time IT support provision. I found that this worked very well when this large open space was the pre-planned pedagogical preference of the school's leaders and teachers before the building was designed, but where the building was designed without thought for the desired groupings (for instance, when the area was designed for up to 120 students and four teachers, but this was not the preferred pedagogical/delivery approach) they obviously do not work as effectively and this is very frustrating for the teaching team.

Many such large learning areas include the possibility of opening doors to an attractive central outdoor commons area, and are also accompanied by an internal learning commons area for students to work, study and relax in or to prepare food and wash dishes at a small kitchenette. There is usually also a toilet area in each commons, which can be either mixed gender or provide separate boys' and girls' facilities.

In senior high schools in particular (and most often in junior high schools too), the large open learning spaces are accompanied by specialist learning spaces, for instance for the various Technology subjects, Digital Visual Communication, Digital Science/Media Studies, Art, Music, Drama, Physical Education and Science learning areas, spread around the school. Such spaces almost always include large internal windows so that learning is visible to all and so that teachers in adjacent areas can keep a watch over learners and each other.

It was on a visit several years back to some schools in Sydney and Canberra, including Northern Beaches Secondary College, with my good friends and colleagues Maurie Abraham, John Wright and Graham Young, that I was first introduced to a range of new pedagogical approaches and the concept of using very different learning spaces for different types of learning, or to suit different activities or to suit students' preferred learning styles. I was especially intrigued by spaces described as the 'cave', 'campfire' and 'watering hole', metaphors which I really like. The 'cave' is a small and often enclosed learning space where a single student or more likely a very small number of students work individually or as a small group in silence or relative quiet. The 'campfire' is a defined learning space (which is usually located in a big open space) where students gather around in what is most often circular shaped furniture, sometimes with a central table, to have a discussion or undertake group work. The 'watering hole' is an area where a much bigger group, often a full class or sometimes more than one class, gathers to receive knowledge transfer from a teacher or teachers, or for example to watch a YouTube clip or other screen presentation, or where large-group instruction or activities can be undertaken. In my visits to new schools I have seen many examples of such learning spaces and they have usually been effectively used by teachers and students to deliver a wide range of activities. I have also seen layered, stepped or seating areas, usually carpeted, which have been physically separated by part-walls or other physical barriers (bricked, wooden or sound-boarded) where students can be involved in learning or 'hang out' during the breaks. Students seem to really like these distinctive areas when they suit them for an appropriate learning activity. Moving between adjacent areas does not seem to be a problem for the students themselves, or for the teacher(s) to monitor what is going on.

Learning spaces are also often notable for the variety of colourful, modern furniture available to students, furniture which is flexible in the table shapes that can be created and which is often on wheels so that it can be moved easily and quickly. These can include bean bags, squabs, low-level padded and unpadded seats and tables and higher-level seats and tables (these latter often seem to be the preference of boys for instance). I was also interested to observe that students, especially younger ones, are as a preference often happy to simply sit against a wall on carpeted floor space to do their learning.

These modern schools model some of the new business working spaces where people more often now work closely and collaboratively together in wide open spaces, rather than being shut up in discreet office spaces, as was the practice of the past. In such spaces people learn to self-manage and collaborate, to use their time very effectively and to tolerate other working noise around them, and so what is happening in open learning spaces at modern schools is likely to be good preparation for many modern workplace environments.

There are some enlightened and courageous school leaders in both New Zealand and Australia who are currently strongly pushing the boundaries of education by introducing new pedagogies and I have been very pleased to observe some of these pedagogies in action. A very good example of people who are doing things differently is Maurie Abraham

and his team at **Hobsonville Point Secondary School** in Auckland. The aim of the school is to see their students “graduating as critical thinkers and as empowered life-long learners by providing a stimulating, inclusive learning environment where learners enjoy innovative personalised learning, engage through powerful partnerships and are inspired through deep challenge and inquiry to achieve academic and personal excellence”. My observation is that HPSS staff are going a long way towards achieving these very appropriate goals. They do this in their Foundation Programme through a blended e-learning curriculum model which is made up of three elements: learning modules, learning projects and learning hubs.

- Learning modules provide specialised subject learning through modules that cover the New Zealand Curriculum. Students select a range of modules in negotiation with their Learning Coach that provide and ensure the depth and breadth of the curriculum and wider topics coverage, and use inquiry and design thinking to ensure high-level thinking and the development of problem-solving skills. There are two types of learning modules, Small Learning Modules (SLMs) and Special Interest Modules (SPINS). SPINS have a single learning area focus while SLMs integrate two curriculum areas around linked concepts, skills and contexts to give authenticity to learning. This helps break down the idea that we learn in subject silos, which is clearly not correct but has formed the basis of our education system delivery for a very long time.
- Learning projects are subject-centred collaborative learning experiences which are based around an authentic issue, challenge or needs-based situation. There is a strong link to the students’ local Hobsonville community and an emphasis on their undertaking a deep exploration, followed by innovative and impactful actions that will make a positive difference to their community. Future-focused skills developed include critical thinking, problem-solving, planning and collaboration.
- Learning Hubs are learning advisories where a teacher forms a strong relationship with a small group of students and their family/whanau to ensure tracking of progress and mentoring, whether academic, pastoral or personal. The Learning Coach helps their students to set and meet challenging learning goals and to work towards their desired future pathways. They also help their students to assess the progress that they are making and to learn to self-manage.

In support of these three learning elements the school also includes three one-hour My Time learning sessions each week. This allows students to select workshops from a range of options that support, challenge and extend learning, with input into their choices from their Learning Coach and teachers. My Time sessions can include support for literacy or numeracy or learning modules where students are struggling or falling behind, extension activities or physical and community activity options.

Hobsonville Point teachers assess each learner’s progress against the curriculum levels, by using the SOLO taxonomy, learner narratives (shared online) and learner reflections. Reporting of progress is done through progress reports completed twice each term, formative reporting each term and Individual Education Meetings between parents, students and Learning Coaches held twice a year.

The curriculum is delivered through a timetable which includes three 90-minute and one 60-minute learning sessions each day. The extended learning sessions allow teachers and students to have fewer interruptions to their learning. The school has no bells - students and teachers move between sessions very comfortably without these and there is no sense that some move off very early and others are tardy in getting to their next session. Almost every school that I visited during my investigation had introduced longer learning sessions mixed with a small number of shorter sessions, and I know from talking to my principal colleagues that many of our Waikato schools at least are now in the process of introducing or moving to such a timetable, (or learning organisation as at least one school nicely calls it).

It has been my observation that almost all of the students at Hobsonville Point Secondary School are very engaged and focused on their learning most of the time and that this can easily be sustained by most students for the longer learning sessions. They are able to work equally well in the variety of learning spaces that are provided, most of which are large open spaces. When I was there, there was no noticeable problem with noise levels in these open spaces. All students whom I spoke to (and I spoke to several) were very able to talk enthusiastically about their learning. Several had opted to enrol at the HPSS because they were not enjoying the traditional learning offered in their previous school and they stated categorically that they were much happier after their move. That is not to say that HPSS should be considered an 'alternative school' for those who do not fit in. Rather, it is implementing a learning model which may well suit the great majority of students.

In another brave move which goes against convention, this year HPSS is not delivering NCEA Level 1 to its Year 11 students. The school is however making sure that they all gain Level 1 Literacy and Numeracy and that identified priority learners who will struggle next year to gain NCEA Level 2 will be able to gain up to 30 Level 1 credits in Year 11 to help them on their credit-gathering journey. All of these credits will come from students' future-focused passion/special interest projects and other appropriate learning as the students continue to work on developing a wider range of 21st century learning dispositions than is the case in most traditional schools.

Ormiston Senior College does some things differently in that the school has learning area/faculty open learning spaces which students move to with the timetable. Their timetable is made up of six lines, each line of which includes a 90-minute learning session at the start of one day of the week, with two of these set down on a Wednesday morning. The remainder of the timetable is made up of twelve 1-hour sessions (so that each line on the timetable meets their teachers three times every week), with three additional hours being allocated for itime, and with there also being two half-hour learning advisory sessions each week. Itime is Independent Learning Time where students manage and take responsibility for their own learning in consultation and academic planning with their Learning Advisor. Specific goals are set for each subject each week and progress towards these goals is monitored by the advisor, who also provides guidance for life beyond school, pastoral support and a link with parents. Students can access teacher support or attend tutorials in

itime, by negotiation. Otherwise, they can choose where they work during itime and what tasks they will work on. I was told that by and large this works well for most students who are focused on doing well with NCEA and certainly it helps students to develop self-management skills.

The eight IT-enhanced learning commons/spaces at Ormiston have the flexibility to be open, or closed off with glass doors to be used for seminars and tutorials. There were also specialist rooms for Art, Science, Technology, Music, Drama and Dance, as well as some small rooms available off the commons areas for individual quiet work. In practice I saw both open and closed spaces being used, but most often doors were open so that teaching and learning were very visible. Because each distinct learning commons space houses one learning area, there is often a mixture of year levels working in the open spaces. This does not from what I observed usually seem to impact negatively on the learning taking place through unwanted interactions between students, and while noise levels are sometimes a little higher than in a traditional classroom, this does not seem to be a significant issue for students and teachers to cope with.

It appears that the learning area spaces, which also incorporate an offset but central staff working space and some excellent use of corridors for breakout learning spaces too, work well for a good collegial working atmosphere for learning area staff members. While I did not see any obvious evidence of team teaching going on with a bigger group of students, I did note that if a student has a question and another teacher other than their own is available nearby it is standard practice for the student to ask the closest available teacher for help.

I was shown some very good examples of faculty planning and sharing of ideas and saw that all units of work for students at all year levels are carefully planned as learning guides and available online to students for anywhere anytime learning. These guides include the objectives of the unit, the tasks that students are expected to complete and clear timeline and presentation expectations. I was introduced to one outstanding staff member who is leading a progressive learning area by modelling video-recording of all of his lessons and putting them up online on his own website, not just for staff members of his own learning area to view and share, but for anyone who is interested. This provides students with ample opportunities to experience flipped learning, to advance at their own pace, or to review concepts and learning where they are not understanding or as revision when exams or assessments approach, and it also enables teachers in other schools to use his videos to aid their teaching.

Rototuna Junior High School has just opened to take in students this year. Unlike past models of bringing students into a new school, RJHS has been forced by the Ministry to enrol four separate year levels, Years 7-10, in one year. This is apparently because the area has experienced a very quick housing development and there has been a large population ahead of the building of the new school, so that there have been large numbers of students

living in the RJHS zone who have had to travel some distance each day to other schools in the local Hamilton area. The impact of enrolling four year levels of children is that the staff are having to work extremely hard to implement the school's new pedagogical approaches at all four levels. Some staff are worn out already and I was told that a small number had left the school to teach elsewhere.

The school was designed with the authority of the Ministry of Education before the appointment of its key leaders and therefore without decisions having been made about their desired pedagogical approaches. Distinct areas of the school have been designed to cater for around 120 students, whereas pedagogically the school's leaders want teachers to work collaboratively in trios with up to 90 students. I think that this will pose some problems as the roll continues to grow in terms of both space usage and pedagogical approaches.

In many ways what is happening in terms of curriculum delivery at RJHS is similar to Hobsonville Point as the RJHS leaders were very impressed with the HPSS model when they visited for two days last year. The timetable looks similar in many ways but is made up of three 100-minute learning sessions. At RJHS the students learn in composite groups of Years 7-8 and Years 9-10. As at HPSS, the RJHS programme includes three half-year co-constructed collaboratively-taught and assessed learning modules which integrate two NZC learning areas and which are designed to foster deep learning and engagement in a blended e-learning environment. The students also experience three weekly sessions of Flight Time where they are able to follow their passions or explore activities that they want to know more about for one school term. The options that they take are negotiated with their Learning Advisors so that some learners are encouraged to use this time for specialist learning assistance or extension, as at HPSS. The school is successfully endeavouring to find and utilise expertise from the Rototuna community to deliver a wide range of Flight Time options. Learning Advisories meet at the start of every day for 20 minutes, and for 2 hours on a Wednesday morning. While it is early days yet at this school, there is optimism that the learning programme is proving to be successful for most learners, although for those Year 10 students who have previously attended 'regular' secondary schools there has been a big change in learning style which many are still struggling to come to terms with.

My impression of RJHS was generally positive. I felt that most of the students were on task most of the time, even in areas where there were large numbers of students working closely together. Noise levels were I thought higher at times, perhaps because these were younger more-excitable students, but this did not seem to affect the learning atmosphere. Students worked in a range of places, including in many cases sitting on the floor, even though other furniture was available for them.

A principal and two deputies have been appointed for the Rototuna Senior High School which will open next year in buildings adjacent to the Junior High School. I had the chance to speak for some time to the new principal and she indicated that it will be her aim to

continue the pedagogies that her students will grow to be familiar with in their time at the Junior High School. She conceded that there would probably need to be more specialised teaching incorporated into the learning programme to ensure that NCEA targets were met. I will look forward to seeing how the school gets on with these aspirations.

Officer Secondary School in Victoria, Australia, is a new school which opened to students in January 2015. The school is currently sitting in some isolation in the countryside just on the outskirts of the city of Melbourne, but it is already attracting large numbers of students due to its very new and tasteful buildings' design and also its growing reputation for delivering quality and 'different' education. The school currently caters for Years 7 and 8 students (NZ Years 8-9) and it is building capacity by one year level each year.

The school was designed by Clarke Hopkins Clarke to suit the pedagogies that the leadership team planned to implement and also to fit in with and meet the needs of the community it serves. The drive is for learning communities of teachers to collaboratively provide student-driven, project-based inquiry learning and direct instruction in a blended learning programme with the aim of achieving deep learning in the students. Deep learning should involve the core elements of collaboration, critical thinking, creativity, citizenship, communication and character. There is a focus on differentiated literacy and numeracy learning where students work individually or in small groups at appropriate levels of learning as determined by data collected from evaluations. There is currently a plan being put in place to extend data collection and to use this to plan further personalised interventions. Personal learning plans are developed with the students. Teachers are experimenting with online learning techniques, including flipped learning, as all of the school's students have prescribed BYOD technology to aid their 'anywhere anytime' learning.

My observation of the work being done by Principal Michaela Cole and her team is that the school has begun very strongly and is holding with determination to its ideals of delivering a different and more appropriate education to meet the future needs of its students. The teaching team is currently planning to sustain their teaching model into Year 11 which is the first year of VCE qualifications. It will be very interesting to see if they can maintain the new pedagogies and still ensure good VCE results for their students, as I personally believe should be the case. It is envisaged that Victorian Education Training (VET) will also be delivered to some students.

The buildings' design is very well done to include the key features of a modern and flexible learning environment. Natural lighting, excellent sound control, even temperature, good air quality in large open spaces, the use of colour and the ability to give students an opportunity to choose areas in which they like to work are all evident.

While in Melbourne I also visited the **Elizabeth Blackburn School of Sciences**, which is a part of the University High School and very close to central Melbourne. It is also adjacent to the University of Melbourne and it is with the co-operation and input of this tertiary institution and the leasing of a small piece of very valuable land owned by the university to the UHS that the Science School has developed. Each year the school enrolls up to 100 students (in practice currently around 75 students) from large numbers of applicants who apply to attend this prestigious purpose-built part of the school, which will lead very talented Science and Mathematics students to the university next door and subsequently into Science-related jobs. The students who attend are many of 'the cream of the crop' and are therefore almost guaranteed very high VCE results and successful outcomes. Student management is seldom an issue. The students are expected to do a lot of homework but, as far as I could determine, this homework is not too dissimilar to that regularly given to senior students in traditional schools, except of course that it is naturally at a higher level of learning with this elite clientele of learners.

The buildings' design was again undertaken by Clarke Hopkins Clarke and it came about through discussion between the UHS principal at the time and representatives of the University about intended pedagogical approaches. There is a deliberate pedagogical lean towards traditional features of a university, including a lecture theatre and lectures delivered to 75 students at one time, which can sometimes be interactive. The building is very attractive from both outside and inside, with a feature being its use of abundant natural light. All rooms have several wireless APs and short-throw data projectors for teacher and student presentations. The earth-warmed and cooled air-conditioning system is a feature and seemed to me to be at least moderately successful on a relatively warm day. Another feature was bold graphics such as the periodic table in large letters and numbers on student lockers, bright and colourful toilet doors and some very interesting windows, all of which are engaging. It was interesting to me that even in these excellent buildings a few very good students can be untidy and drop rubbish.

Coming back to a New Zealand setting, **Mercury Bay Area School** in Whitianga has been in the enviable position of being able to replace many prefabs and to also build new additional classrooms to provide for roll growth. The Principal, John Wright, is someone whom I hold in the highest regard. Over his nearly 13 years at the school he and his team have transformed both the buildings and, more importantly, the pedagogies used in the classrooms. The school has several members of staff who are prepared to push the boundaries to implement new teaching strategies for the benefit of their students, not the least as a result of the professional learning forums that have been successfully introduced which have seen staff think deeply about programmes that they are delivering and make many changes. Of course the MBAS context is different to many of ours with their being an area school, and with their being able to start the new pedagogies from Year 1 so that these are well ingrained by the time that students reach the secondary years.

To quote John, key developments at MBAS have included:

- Increasing personalisation of students' learning
- Increasing individualisation of qualifications opportunities
- Increasing flexibility of learning opportunities in both the middle and senior years
- Increasing opportunity for students' independent learning (and corresponding 'buy-in' from students), supported by staff who are open to being flexible around the learning time/space and scope for students
- A significant move towards the sharing of senior learning time and inter-staff dialogue across and between learning areas to make 'sense' of the curriculum
- A realisation that the school needs to continually examine their learning organisation (timetable) to ensure that it serves the students to the very best ends possible
- An increasingly espoused school philosophy and culture which has at its heart the central belief that it is "the whole learner" that drives the school. This includes the development of the dispositions of the school's learners which are needed for them to be active, informed, critical-thinking global citizens into the mid part of this century.

I recommend a visit to MBAS to listen to John's passion and to see his vision in action.

The school has just built a new open-space classroom (equivalent to two classroom spaces), accompanied by two good-sized breakout spaces and a workroom where selected students can be taken for special teaching or activities. There are an adjacent resource room, toilets and a large covered verandah which runs the length of the building. The intention is that this building, which is just getting its final touches, will be the home of a Years 7 and 8 composite class which will be team-taught by two teachers who will provide rich, authentic, collaborative and personalised learning inquiries to deliver the core curriculum, with the students going to specialised areas for what will be complementary learning in the other learning areas. The open room design is simple, but there is every reason to think that it will work very effectively with the teachers who have volunteered to teach with new pedagogical approaches. There is also provision for more such buildings to be built in an adjacent area soon to accommodate further roll growth, with the intention that Year 9 students will join the middle years' group taught in this way. In time it is likely that Year 10 will also be added to this programme so that all of the identified middle years' group are included.

Paeroa College has also just completed the refurbishment of their main block to produce an excellent and attractive building from one which was previously very much a row of traditional rectangular box classrooms. In addition to the remodelled Art rooms at one end of the block, a significant feature of the new building is the removal of walls between three classrooms to create a big open learning space, three small breakout spaces and a kitchen area for small-group special learning and activities, and two larger workroom/withdrawal spaces for knowledge transfer or learning assistance or conferencing. There is an adjacent teachers' resource room and a long and wide covered deck running the length of the block.

Coloured walls and a variety of complementary furniture have been used very effectively in making this new open learning space feel really good and early indications are that students enjoy working and learning in this new environment.

The teaching programme in this new space is being devised to provide for Years 9 and 10 students in their core learning and is being undertaken collaboratively by a team of four teachers in the case of Year 9 and three teachers in the case of the slightly smaller Year 10 group, led by one of the school's senior leaders who is an advocate of using new pedagogical approaches. There is early enthusiasm for this new approach.

Te Kuiti High School remodelled a block two years' ago. This building is attractive from both inside and outside and incorporates many features of good school buildings' design including the provision of ample natural light, controlled temperature, good ventilation, flexible learning spaces and excellent use of colour on the walls and with the furniture. The building includes four learning spaces which can be opened up to become a very big open learning space, each however with the flexibility to be closed off with big glass sliding doors for traditional knowledge transfer. There is some provision for breakout spaces, a kitchen and toilet for staff and students to use, a resource room/office space for staff and a big attractive deck and stairs which are frequently used by students in the breaks.

The remodelled building has become the home of the English learning area teachers, who were previously dispersed around the school in unsatisfactory learning spaces and so far apart that collaborative planning and curriculum delivery was very difficult to achieve. There is some small dissatisfaction from the school's leaders with the use that the English staff have made of the building, in that the doors to the classrooms are often closed and there is currently only a little collaborative team teaching of larger groups of students taking place, so that too often, in their opinion, traditional teaching is continuing to take place. However, positive aspects have been that the breakout spaces are being used effectively for small group activities at least some of the time and staff are much more often together and able to have learning conversations and plan together.

The school has over the last three years been part of the Sport in Education (SIE) initiative with Year 11 students in an effort to get them more involved with sport and to also undertake some NCEA learning around these sports activities. This included staff blending at least two curriculum areas to deliver learning around students' sports activities. It was felt that this was a successful initiative for the main part, especially in that it engaged a number of learners who would otherwise have been disengaged learning in other subject areas and this engagement led to their gaining NCEA credits. However, the programme was more easily delivered while the Sportfit funding was available as additional staff could be employed and resources inside and outside of the school built, and it became more difficult to provide the programme when the funding came to an end, so that, sadly, it is not running this year.

The school's leaders want to move forward again with integrated learning and are this year working towards teachers in teams of three, supported by an IT person, delivering one collaborative, cross-curricular, blended e-learning, thematic or conceptual unit to all Years 9 and 10 students each term. The aim is to build on the SIE experience of some staff and to get more staff thinking about and collaboratively planning integrated learning experiences, which might in time lead to a similar programme in the senior school with NCEA. There is a possibility that this approach could perhaps see the new building, and any other new buildings remodelled over time as new 5YA funding becomes available, being used by a group of teachers to deliver this integrated junior programme.

Another Similar Study To Mine

I have recently read an excellent sabbatical report written last year by Mark Wilson of Cashmere High School which is on the topic of the effectiveness of Modern Learning Environments in improving learning in secondary schools, and which is similar to my investigation in quite a few respects. Mark visited 12 schools in New Zealand and Australia and asked some very good questions I think. It was his observation that "Most schools preferred to talk in broad terms about how their MLE was making a difference to developing attributes and engagement with learning." Mark found that the newly-created MLEs are definitely more flexible and open and have greater access to digital technology for their students, and that the teachers who have opted to teach in these schools try very hard to ensure more active student involvement and to focus on collaboration and inquiry learning approaches. However, he could not establish any evidence at this stage that the MLEs, and open teaching spaces in particular, are making a substantive difference to improving students' learning. Mark cites the work of New Zealand's widely-acclaimed Professor John Hattie: "In overall effect size, Hattie (2009) concluded that open classrooms made little or no real difference to student learning outcomes. Studies showed that in traditional classroom structures students performed slightly better in achievement tests, while slightly worse in creativity tests." Mark also quoted the Ministry's website, 2015b, which says: "Good spaces enable, but do not guarantee, good educational outcomes. Poor spaces will adversely impact educational outcomes." My own observations would agree with these statements about the lack of evidence that open learning spaces in themselves make a difference to learning, except to provide more room for flexible teaching which I believe can make a positive difference. On the other hand, I have no doubt of the importance of the provision of well-designed, 'learning fit', flexible, comfortable, attractive, user-friendly spaces which definitely will have a positive impact on students' learning. It is also my strong opinion that a quality teacher does not have to have a big open-space MLE to engage students and to help them to make tremendous gains in their learning. No matter what sort of learning space is provided, a great teacher can make a huge difference to students' learning outcomes. Most of us in and beyond education know that John Hattie agrees with this whole-heartedly.

A Personal Opinion Which I Value

I asked my good friend and long-time mentor/education adviser to peer review my report before I published it. He provided the following comments which need to be seriously considered: "I do not agree with you that transformational leaders need to be "charismatic". To me it is a personal perception thing; some see Donald Trump as charismatic; some say the same about John Key. Effective leaders do need to be effective communicators and they need to display those five characteristics I write about in my book: modelling the way, inspiring a shared vision, challenging the status quo, empowering others and encouraging the heart. And these can be 'learned' and nurtured, and need to be as organisations today require leaders at all levels. These characteristics I believe can be applied to and sought in every teacher." There is much wisdom in these comments.

We are currently preparing students for jobs that don't yet exist, using technologies that haven't yet been invented, in order to solve problems we don't even know are problems yet. – Karl Fisch, Educator.

The principal goal of education is to create men who are capable of doing new things, not simply repeating what other generations have done – men who are creative, inventive, and discoverers. – Jean Piaget.

To me, it's about recognising that there is a much richer conception of intelligence and ability available to us than is promoted by conventional education. – Sir Ken Robinson.

I am entirely certain that 20 years from now we will look back at education as it is practised in most schools today and wonder how we could have tolerated anything so primitive. – John W Gardner, US Secretary of Health, Education and Welfare.

Conclusions

There are a variety of different pedagogical approaches which are more easily enabled by the new innovative learning spaces, open-minded teachers and a mandate for new schools in particular to experiment and transform learning to develop a new range of skills in our current students that it is widely acknowledged that they will need in order to thrive in their futures beyond the school gate. These approaches include:

- blended e-learning with a high digital learning component
- authentic inquiry-based learning and/or 'passion projects' which are engaging and allow students to be curious, creative and undertake critical thinking in areas that they are most interested in
- integrated cross-curricular learning on a regular planned basis to complement traditional subject learning
- students' collaboration and working in small teams or larger groups
- students' progress being tracked and mentored closely at school in learning advisories with at least one teacher being the significant mentor in each young person's life
- the encouragement of student voice and choice in learning activities undertaken
- a close partnership connection and communication with parents/caregivers
- a close partnership with the school's community based on the notion that "It takes a whole village to educate a child."

It is my opinion that while the implementation of these pedagogies is likely to be easier to implement and sustain in junior high schools or middle schools, the reality of the mandated high-stakes top-level national assessment systems that we continue to currently use to sort students for further education for universities, other tertiary providers and employers is likely to make it much harder to consistently sustain the new pedagogies into senior secondary school learning. However, many of the new schools in New Zealand and Australia have still not enrolled students to Year 13 and it is very early days, so I might be proven wrong in this respect. I hope that I am proven wrong because I strongly believe that our New Zealand Curriculum's Key Competencies, or a set of closely-related identified competencies/dispositions, are going to be extremely important for our youth as they leave school and enter the workforce and life in modern society, (that is if they are able to find jobs with the continuing likely demise of many current jobs through automation). I wish that an easy and publicly credible way of measuring these skills in our students could be designed as it is my view, and also the view of many of my principal colleagues, that they are more important than the current narrow measure of NCEA results which means that in our country assessment drives the senior curriculum, and to a slightly lesser extent the junior curriculum too.

As stated in my essay earlier in this report, many parents who want the best for their children are willing to go along with new pedagogical approaches in schools as long as these do not impact on their children's ability to get into restricted-entry university and tertiary courses, so NCEA endorsements, (or in the case of Victorian schools high VCE grades),

remain the currency for determining opportunities for further learning and life chances. One simply cannot get past the fact that student assessment for sorting purposes, which is most easily achieved by assessing individuals (rather than more sensibly groups or teams) against a prescribed set of academic knowledge, is likely to continue to be the collateral that our students need when they leave school, that is, as Carl Bereiter (2002) says “unless achievement test scores can be replaced by other immediate indicators of effectiveness.” I am not optimistic that alternative assessment systems will be introduced anytime in the near future because these are likely to be politically sensitive when many people in the powerful ruling class believe that what served them well when they went through school will also serve their children well and when their motivation, whether they know it or not, is to sustain the ruling class structure. Make no mistake, this hierarchical structure is alive and well in New Zealand – it was firmly established by our early population’s largely United Kingdom and European ancestry.

We are seeing a shift in schools’ pedagogies in many cases, often (but not always) led by the educators in our newly-designed schools. These include a much wider use of technological devices to better engage students in their learning, and with the best of our teachers an increase in the rate at which our students are learning through their engagement in more authentic real-world tasks and concepts, more often in the online collegial learning and sharing/communicating environment which there is much evidence that our current learners and workers need. Pleasingly, teachers are much more often facilitating learning rather than being ‘the sage on the stage’, and I am optimistic that students are developing a better set of learning dispositions, in many cases where teachers have open minds to changes in their teaching methods. Unfortunately, however, some ‘traditional’ schools and a few teachers in most schools remain unconvinced that change is needed and so the poor progress that they are making in shifting their pedagogical approaches is likely to have a negative impact on the life chances of their students.

Superior buildings’ remodelling design is a critical element in assisting our students to learn well. There is no doubt that it is very important to remodel to ensure all or a good number of the following:

- flexible and varied learning spaces, which allow for ‘watering hole’ transfer of knowledge or instructions to a large group, ‘campfire’ small-group discussions and collaboration, and ‘cave’ space for quiet individual or very small group work
- very good acoustics achieved by sound-absorbing ceiling and wall panels, carpeting and irregularly-shaped classrooms
- interesting coloured walls, barriers, displays and icons in classrooms, or parts of classrooms, which stimulate students
- high-quality and mobile technology options
- good natural light, particularly from high-level windows if this is achievable, supported by good back-up artificial light
- good ventilation and air quality
- temperature regulation, through good air-conditioning.

Recommendations for Morrinsville College

Earlier this year we learnt that, unfortunately, due to our slowly falling roll in recent years we are no longer in a position to replace five or six very old prefabs with a new Innovative Learning Spaces building. We must therefore remodel current buildings progressively, without adding to our buildings' footprint. This means that we must use all of our footprint space creatively and to maximum effect, including existing corridor spaces which will over time often need to become part of classrooms to provide smaller 'cave' and 'campfire' learning areas. In place of these existing corridor spaces we can build outdoor raised covered decks (which are not included in the buildings' footprint), which can also be used as breakout spaces in the summer months through installing doors that can open onto the decks and provide outdoor flow.

One of the important things that I learnt on my sabbatical is that the desired pedagogies that teachers wish to use in their remodelled spaces need to be discussed before an architect designs the new space. This is critical. It is also critical that we carefully consider whom we employ as our architect. It is my strong recommendation that we try to obtain the services of Wayne Stephens of Clarke Hopkins Clarke in Melbourne to undertake our architectural design for major projects, as he is a full-time designer of school buildings who clearly understands the concepts of the new teaching pedagogies that are being adopted. However, he is a very busy man and so if we are not successful we need to hunt around to find someone else of his ilk. I believe that there may now be some such people in Auckland. It is my recommendation that as our teachers progressively transition to teaching in more open and flexible learning spaces, (not an easy transition), in our remodelling we should consider sometimes installing big glass sliding doors between current classrooms. This will provide flexibility to enable teachers to open up the doors to more often team teach integrated learning, or for 'watering hole' learning, or to close the doors for other learning when this is appropriate. However, there should be encouragement for these doors to increasingly be open, to ensure visible teaching practice, a collaborative teaching and learning ethos and to mimic many modern open workspace settings which many of our students will need to cope with when they leave school.

Before our teachers teach in open learning spaces it is critical that we provide them with extensive professional learning. This will include enabling them to visit schools using open learning spaces, to talk to teacher practitioners in these settings and to observe them in their planning and delivery of quality learning, and to then return to our school to undertake follow-up discussions and planning. We also need to try to provide them with opportunities to practise delivering using different pedagogical approaches appropriate to these open spaces before they are placed in our remodelled buildings, so that they know what to expect.

It is important that our classroom technology options are modern and mobile to ensure flexibility with teaching pedagogies. In my view this will become more and more important as pedagogies continue to change, as I believe they will. It is also critical to maintain a stable wireless network and a reliable network support team (as we hopefully have now).

Our remodelled buildings must include design elements that have been proven to make a positive difference to students' learning. These will include: the use of natural light, good ventilation and air quality, an ability to regulate temperature, flexible learning spaces and furniture, excellent acoustics and the use of colour, interesting shapes, barriers and icons to stimulate the students.

I have been to visit our new MOE Property Officer, David Vincent, and so I am now in a very good position to make recommendations to the Board. We must plan to spend about \$400,000 in the next twelve months and we can then have a major project after that, from later next year.

I believe that our remodel priorities should be:

1. We are already planning to replace the remainder of our A Block roof. This will be a big and quite expensive job. I believe that we will need to use a gutter-guard system on the west facing side of the building closest to our old trees.
2. Partly remodel H Block to allow our Foods Technology teaching team to be approved to deliver more ITO Level 3 standards. This will include in particular remodelling the small room adjacent to our Foods Technology classroom to make it more like a limited commercial kitchen and to construct an outside deck where our Foods Technology students are able to sell their products to student 'customers' who wish to purchase food and drinks. We should also provide our teacher with a big mirror and workbench area at the front of the classroom so that she can demonstrate good cooking techniques to our students. Esther has been to look at other schools' facilities and I will meet with her further to consider any other requests that she might have. **However**, if the current testing of the H Block building indicates that there are water tightness and damp issues then the remodelling work required may well need to be extended immediately to both H Block rooms and made urgent for health and safety reasons. This would affect our proposed programme of property works.
3. Upgrade/remodel the C Block North laboratories to at least the standard of the two southern laboratories, and partly remodel our Science Technician's room at the same time. Depending on the cost of the two previous projects, if this project cannot be implemented in full at this time then this work may need to be staged. It will be important to at least put suspended ceilings in C2, C3 and the Technician's room and to prioritise these rooms for further maintenance.

4. **As our major project**, redesign our currently under-utilised and ‘tired’ school Hall area to better provide learning spaces where we can continue to foster the development of the Arts by bringing together into the same area Music, Drama, Dance, Kapa Haka and Visual Arts in a new purpose-built facility where there are opportunities for integrated learning and high performance. In doing so we would try very hard to upgrade our Hall to include air-conditioning, new sound and lighting and of course new décor so that this becomes the focal point of our school and for our community. We will need to ensure that we liaise closely with David Vincent in order for this proposal to fit within the Ministry’s remodelling guidelines.
5. **As our second major project**, when funding permits in about six years’ time, we should remodel our B Block classrooms into innovative learning spaces, replacing the concrete-tiled roof and changing the roof-line and using current corridor space to provide classroom-integrated breakout learning spaces. Within these new spaces we should place teachers to undertake integrated learning activities with junior students and also increasingly with senior students, in this latter case with our teachers experimenting with using integrated learning to enhance NCEA qualifications.
6. From 2017, begin putting heat-pumps in A Block classrooms to control temperature in the summer months especially, then progressively remodel A Block along the lines of B Block. As it is extremely likely that we will only be installing heat-pumps and not remodelling this block, then we will have to pay for this work from fund-raising efforts and the Board’s property funding in our Operations Grant. This is likely to take a period of three or four years.
7. Throughout our 10YPP and our 5YA programme planning we must retain some contingency funds to allow to remedy any identified health and safety requirements and also for possible problems with essential infrastructure, including the A and B Block water and heating pipes which are very old.
8. By the time all of this work is completed, in about ten years’ time, it will be time to review our facilities at the gymnasium, in T Block and at the Library.

I also recommend the following:

- That the Board encourages our student body, and perhaps the PTA, to fundraise for the redevelopment and extension of our Senior Commonroom, which is currently not considered to be a classroom by the Ministry. (This contention that the room is non-counting firstly has to be confirmed by David Vincent).
- That the Board, PTA and student body continues to work towards beautifying our school settings, as is currently being planned.
- That the Board progressively sells four of our current school houses, in order to supplement our 5YA property funds and enable the above projects to proceed a little earlier than Government 5YA funding will allow for. The on-site house should probably be retained for a staff member to live in, or it might eventually be sold and moved off-site, as it is currently sitting on Ngati-Haua Ministry-leased land.

Further Recommendations

- The Board needs to try very hard to allocate further staffing funding from Operations Grant to allow the three deputy principals, and ideally the senior leader, to each teach fewer hours on the timetable. For new pedagogical approaches to be implemented, and to support planning and professional learning for these things to take place, the Senior Leadership Team has to be given more time.
- We are currently going through a period of reviewing our current timetable with a view to this being changed in 2018. I believe that it is essential that the timetable supports our learning programme and the vision that we have for future learning in our school. We also need to explore how we can find time for more inter-faculty learning conversations and planning for integrated teaching, at least at junior school levels and more often into the NCEA years. In my opinion, we should be providing at least some longer learning sessions, as is the case in all new schools and in more and more existing schools where modern learning is being explored.
- We need to more often explicitly target the development of the Key Competencies (modern learning dispositions) identified in The New Zealand Curriculum as a cornerstone for helping our students to develop the essential skills that they will need post secondary school.
- We need to continue to develop our school's learning hubs, including the newly-trialled learning modules, to ensure that our students are mentored in their learning and pursue their passions and career options.