



## **Innovative Inquiry for Curriculum Design**

*How we turn the exciting talk, ideas, and connections into practice can be challenging. Small nudges in particular directions allow leaders to watch for the emergence of new patterns so that they can encourage them (if they are going in a good direction) or discourage them (if they are going the wrong way).*

*Berger and Fitzgerald (2015)*

### **Purpose**

The purpose of this research project was to better understand the role that school leaders play in fostering innovation that transforms teaching practice. Innovation is at the heart of transforming teaching practice, it flourishes in collaborative cultures where the great ideas that improve learning outcomes for students are shared and refined<sup>1</sup>. A particular focus of the research included the pragmatic actions of leaders, how they utilise small and innovative inquiry or ‘hacks’, as part of future focused curriculum design. By making these actions visible to others the implementation of future focused curriculum might be better supported. As part of this research a framework was developed utilising concepts that captured the complexities of innovative inquiry that supported future focused curriculum design.

This research study celebrates and disseminates some of the practices going well in our schools, reflecting the possibilities that exist in all New Zealand. The strategies described in this report will hopefully be useful to school leaders grappling with the how of implementing a future focused curriculum.

### **Background Information**

In New Zealand and internationally there is a growing body of knowledge and research supporting the theorising of future focused curriculum (Bolstad and Gilbert, 2008; Facer, 2015, Facer and Amsler, 2017, Garver Berger, 2016; Gilbert, 2015; Lichtman, 2014; Burger and Weinberger, 2014). These thought leaders and researchers have provided a range of views and information to support the ‘why and

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<sup>1</sup> Andreas Schleicher, The OECD Handbook for Innovative learning Environments, OECD 2017.

what' of future focused curriculum. This knowledge is useful to leaders to help us understand the rationale and purpose behind changes likely needed in our schools. However, while there is much support for the *why* and *what*, there appears to be less support for school leaders to implement the *how* of future focused curriculum development.

In some ways implementing the pragmatics of a future focused curriculum appears to be uncharted territory. An Education Review Office Report (2012)<sup>2</sup> indicated that implementation was slow and appeared to be happening in schools at a local rather than national level. In addition, school leaders appeared to be approaching implementation from many angles. This diversity may be appropriate as what works in one school may not work in another. Yet while it could be argued that flexibly meets local need, this has meant limited sharing of innovations that work.

There is some emergent support for school leaders in New Zealand for future focused curriculum implementation. The Ministry of Education has showcased the learning journey of a few schools on <http://future-focused.tki.org.nz/>. These e-learning stories generally have a strong focus on digital technology and its impact on students' lives, learning and achievement. Other groups provide professional development for school leaders, such as [Core Education](#), [The Mindlab](#), and several universities offer master's or doctoral level study in Futures Education. In addition, the Ministry of Education's TKI Education Leaders website provides snapshots of leadership research. For example, a 2016 Principals' Sabbatical research project by Greig Mercer<sup>3</sup> found that some school leaders were driving change. The leaders described in Mercer's report were attempting to implement a 21<sup>st</sup> Century Curriculum which challenged and engaged students, had clarity and was manageable for teachers to deliver.

Similarly, there are international web resources that are particularly useful for New Zealand leaders that are interested in the future focused curriculum. For example,

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<sup>2</sup><http://ero.govt.nz/National-Reports/The-New-Zealand-Curriculum-Principles-Foundations-for-Curriculum-Decision-Making-July-2012/Findings/Successes-and-challenges-in-the-least-enacted-principles/Future-focus>

<sup>3</sup> Mercer, Greig (2016), [Full report \(PDF 214 kB\)](#)

Australian global educator Julie Lyndsay's Flat Connection Project brings school leaders from around the world together to work collaboratively on global e-projects. Another useful website is that of Stanford University's d-school that through [IDEO](#), provide retool programmes for school leaders around design thinking. Similarly the Carnegie foundation for the Advancement of Teaching provide some focus on the multiplicity and developing evidence-base of what works, with whom, and in what context<sup>4</sup>.

A review of the literature for this research highlighted three key areas of focus. These included future focused curriculum, school leadership, and innovative inquiry. These areas will be briefly discussed in turn in the following section.

- **Future focused curriculum**

There are many ways to interpret what the term a *future focus curriculum* means, and it can be a complex notion to clarify. At a basic level school leaders can utilise the future focused principle described in the New Zealand Curriculum (2007). The New Zealand Curriculum (NZC) described the [future focus principle](#) as encouraging students to look to the future by exploring such significant future-focused issues as sustainability, citizenship, enterprise, and globalisation. Similarly, the New Zealand Education Review Office Report (July 2012) indicated that future focus was about supporting learners to recognise that they have a stake in the future, and a role and responsibility as citizens to take action to help shape that future. While both descriptions are still relevant, given the complexity and changes occurring in our world, a deeper perspective may be timely.

Another view-point by Rachael Bolstad (2011), described a future focus curriculum as encompassing all that we do in our schools. Bolstad argued that '*education*' itself is about the future of our students. Bolstad, draws our attention to the particular capabilities, skills and understandings needed to *take action to shape that future*, with schools as places where people want to be. She described a school that is utilising the future focus principle as collaborative, agentic for all, providing space for

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<sup>4</sup> Bryk, A., Gomez. L., Grunow, A., & Le Mahiu, G. (2015). Learning to Improve: How America's Schools Can Get Better at Getting Better, Harvard Educational Press.

innovation, and the capability and capacity for all members to grow and thrive.

Descriptions of a future focused curriculum invariably include the use of technology or digital platforms to support learning. Though while likely that technology is being utilised to support a future focused curriculum, this is not all of the picture. Future focused schools rest on the foundation of a strong digital platform, as this is how we now live, and reflects what is becoming the norm in today's workplaces. However, future focused curriculum also looks at what it means to be human and how we as humans interact and are supported by technology<sup>5</sup>.

In order for the future focus principle, or way of being, to thrive in our schools, educators appear to need to be collaborative, agentic, and be provided with opportunities for innovation. The OECD Innovative Learning Environments Handbook (2017) supports this view and describes some of the actions required by schools to support educators to develop and support a future focus. Firstly the OECD describe a future focused and innovative school as demanding new definitions of educators' roles in which their own learning is fundamental to the success of the learning environment. They see teachers as knowledgeable about the nature of children's and young persons' learning and growing more knowledgeable as they gain experience. This experience is likely to include an emphasis on student engagement, as if learners are not engaged how can they meaningful learn? Also, it might include a change in the locus of control in schools. For example, understanding how far we think learners are 'actually' at the centre of our school, and why. Knowledgeable future focused teachers will have a better understanding of how things are at present - not how they wish them to be.

In addition, in order for students to take action to shape the future, we in schools may need to be clear about the role of our curriculum and discuss how we think learning is carried forward from schooling into other aspects of life. The broadness of the NZC and the importance of all strands would likely be given prominence in such discussions. As Rose Hipkins (2014), a researcher for the New Zealand Council for Education Research, cautions we need to "take *The New Zealand*

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<sup>5</sup> [Digital-Technologies-Hangarau-Matihiko-ENG-July.pdf - Google Drive](#)

*Curriculum* seriously”. “The key competencies in the curriculum are a good stepping-off point for conversations about how students learn and the future of schooling.”<sup>6</sup> Discussion on future focused curriculum might include discussion about the kind of people we hope our students will be, how education today might help them in their future lives, and how it helps them to engage and manage future challenges. As Hipkins noted:

*“Unless we put the purpose of what learning is about in the centre – why we are doing this and what we want kids to be capable of being and becoming – we won’t move forward”.*<sup>7</sup>

What we want our students to be capable of being and becoming is a powerful idea and at the heart of future focused curriculum design.

- **Leadership**

So what sort of leadership is needed to support implementation of a future focused curriculum design? It is difficult and challenging work, and we know many leaders in many sectors, not just education, are facing the realities of fast paced change and in some instances a choice between ‘deep change’ or ‘slow death’ (Quin, 1996). [Dr Peter Cammock](#) from the Leadership Lab at the University of Canterbury, in his book *The Dance of Leadership* indicated great leadership is needed to navigate when storms threaten, or icebergs clutter the sea-lanes, or when the traditional ports and sea-lanes are no longer available.

As leaders of learning our vision and strategies should be bold, with implementation including the changed routines and infrastructure needed to put the vision and structures in place (OECD, 2017). In order to implement a future focused curriculum leaders need to be able to translate their visions into strategies of design together with having the ability to put those designs into action (McBeath, 2013).

But how are leaders visions put into action? Is it through the traditional strategic planning route, or through a messier less structured process, one that is critical to a

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<sup>6</sup> <http://www.edgazette.govt.nz/Articles/Article.aspx?ArticleId=8997>

<sup>7</sup> <http://www.edgazette.govt.nz/Articles/Article.aspx?ArticleId=8997>

culture of innovation? Berger-Garvey and Fitzgerald (2015) argued that in times of change and unpredictability taking a new approach to leadership may be risky but while change is always perilous never before has a status quo approach to leadership been so dangerous.

It may be the case that we need new leadership characteristics or skills to face the messy realities of implementation of innovation. More specifically, several characteristics of future focused leaders are described by [Carolyn Stuart](#) in her blog posting on [exponential change](#) as having:

- a strong moral compass, as the known becomes unknown with that which matters most, standing strong at the core;
- a willingness to embrace change, to intentionally move towards the new rather than hiding behind the old;
- a default setting of being open to others' perspectives and being willing to listen and share insights, and to support others along the journey.

The skills needed for leadership in these times might also include allowing others and self to get on with it by empowering leadership at all levels; whether it is leadership over self or leadership over many. Listening to the diverse stories of others setting the direction of their schools is also important.

It is vital for leaders who are designing a future focused curriculum to have an awareness of what is happening in this field in the world and in New Zealand. Leadership of future focused curriculum includes some new attributes, such as, a passion to discover what is happening now, having a learner mind-set, and the ability to look outside close boundaries to prepare for and to manage change. [Julie Lindsay](#), Global Educator and innovator and author of *The Global Educator: Leveraging technology for collaborative learning and teaching (2016)*, described this leadership as needing a global perspective, with an ability to understand how to connect beyond your own immediate learning environment using digital technologies. She described being a connected and global education leader as being able to redesign your school's curriculum based on emerging pedagogies that 'bring the world in'.

In New Zealand and internationally there are school leaders who are creating new approaches to schooling, and who are playing a critical role in promoting innovation and innovative practice and pedagogical development. They are generous in opening up their school doors, and sharing their thoughts, trials and tribulations face-to-face and online. Their work provides a platform or starting point for others, and opportunities for broader and deeper levels of collaboration that is supportive of the system as a whole. As specialist in futures thinking, Jane Gilbert<sup>8</sup>, Professor of Education at Auckland University of Technology argued that increasing interaction will shift the way the system “works” and how it “knows” allowing past inputs to be reworked, re-energised, with more resilience and more capacity for innovation. While finding the way ahead may not be clear, generating the momentum to transform pockets of innovative practice into systemic change could support the engagement and motivation, and the raising of achievement, for all students.

- **Innovative inquiry or leadership hack**

For a number of years educators in New Zealand and other OECD countries have been utilising inquiry or spirals of inquiry to improve their practice, mainly developed from the work of Timperley, Kaser and Halbert (2014)<sup>9</sup>. These authors discussed the idea of educators surfacing ‘hunches’ about specific situations for learners. Hunches are based on intuition not necessarily grounded in fact, they may be right or completely wrong. Developing hunches requires courage to put ideas on the table, and to possibly confront well established structures or routines. Timperley, Kaser and Halbert see it is being essential that we get our hunches out into the open so that we can start to test them collaboratively by seeking relevant evidence. They make a strong point that inquiry is a process of developing collective professional agency either within a school or across a cluster of schools.

In some education systems the hunch and action aspects of the inquiry cycle are referred to as a hack. The word ‘hack’ is more informal than the term ‘inquiry into practice’, and implies a less structured process, and this use of less formal

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<sup>8</sup> Gilbert, J. (2015). Leading in collaborative, complex education systems. Commissioned paper for New Zealand Education Council — Matatū Aotearoa.

<sup>9</sup> Timperley, H. S., Kaser, L., & Halbert, J. (2014). *A Framework for Transforming Learning in Schools: Innovation and the Spiral of Inquiry*. Melbourne, Australia: Centre for Strategic Education. Pages: 27.



terminology may be useful to leaders in schools. This is because, a hack, like an inquiry, is a deliberate opportunity to make clever, ethical changes to an existing system.

Today there are leaders in NZ and globally implementing small, safe to fail opportunities for creative, thoughtful, hacks or nudges to their systems, and sometime these nudges lead to deeper thinking and enable a system to reach a tipping point, useful to others [@schoolretool](#). Hacks may start small, but they're built on research-based practices that lead to Deeper Learning, and can lead to systemic change once evaluated. Whether we talk about theories, hacks, or inquiry hunches, what they all have in common is that they do not have an endpoint. The whole idea of this inquiry mindset, or hacker mentality is that it is never about the end, it's always about the means, and checking that new ways of doing things are better than those used previously.

Implementing future focused curriculum is highly complex work. To work successfully with this complexity, it is the argument of the author that that small collaborative innovative inquiry or hacks will leading to more immediate change. And, from this position the next step is the pattern making and understanding, and the longer-term system change that is likely needed for implementing future focused curriculum. As we cannot see into the future or know what will or will not work, it is vital to pay attention to the patterns as they emerge rather than attempt to predict the future (Snowden and Boone, 2007). Large systematic top down interventions with predetermined outcomes are less likely to have the desirable effect. There is no simple step by step linear solution that we know will work. It is the small nudges in particular directions that allow leaders to watch for the emergence of new patterns to be encouraged or discouraged. Utilising small, safe to fail probes and then learning from the system as it changes is the best way to move in a desirable direction, rather than making big changes based on untested assumptions (Berger-Harvey, 2015).

## **Methodology**

The methodology for this Principal's' Sabbatical research project included some traditional means of data collection, such as, visits to schools and early childhood

centres, narrative of meetings both informal and formal, on-line discussions with peers in New Zealand and internationally, and attending a research symposium in Melbourne. However data was also gathered through the utilisation of tools such as leaders' blogs, leaders' Facebook networks, Global Educator networks, Twitter and Edchat networks. This diverse form of data collection was important as leaders and education futurists utilise these tools to collaborate and share ideas and thinking. While traditional face to face meetings are useful for clarification of ideas, a growing group of principals are utilising online tools to connect with a broader range of leaders both in New Zealand and globally. As, the challenges we face in New Zealand are likely similar to those of our peers globally.

Data gathering involved two phases. Looking near - this included utilising social media contacts and online resources. For example, on the [TeachMeetNZ](#) site there are numerous examples of innovative inquiry by school leaders. This first phase also involved some visits to schools, and discussions with New Zealand school leaders. In this way I better understood local need and capacity, and this phase provided the foundations for the research. Looking far – included immersion in a global context, utilising social media and online forums to explore promising practice from around the world. This second phase of data gathering also included attendance at an innovation in learning environments research forum in Melbourne <http://www.iletc.com.au/iletc> .

The examples of innovative inquiry, the nudges or hacks that supported the development of future focused curriculum, were reviewed then a smaller selection identified from the larger pool. The final selection was made from an initial scan against the Blue Sky Curriculum Framework developed for this research with weight given to those participants that met more criteria. Another weighting included if participants had indicated that their innovative inquiry or the hack was a direct response to developing future focused curriculum in their environments (centre/school). The data was then further analysed against the framework, and categorised (see Table 1).

- **Developing a framework**

A framework was developed to test the idea that small innovative inquiry or hacks (nudges) had the ability to lead to larger system change. This framework helped to explore the relationship between the innovative inquiry, nudges or hacks, and any tensions identified by the participants in their analysis of the intentions, and outcomes of the innovations. The model draws heavily on the work of Berger-Harvey and Fitzgerald (2015). The model has three parts and each part is further divided into relevant criteria and described below:

### **Practice and Intention**

- **Future focused curriculum** - utilises new knowledge to develop learning capacity
- **Innovative inquiry or hack** - a collaborative response to the complexity of the situation
- **Identified and selected** - an experimentation not a destination or a single solution

### **Tensions**

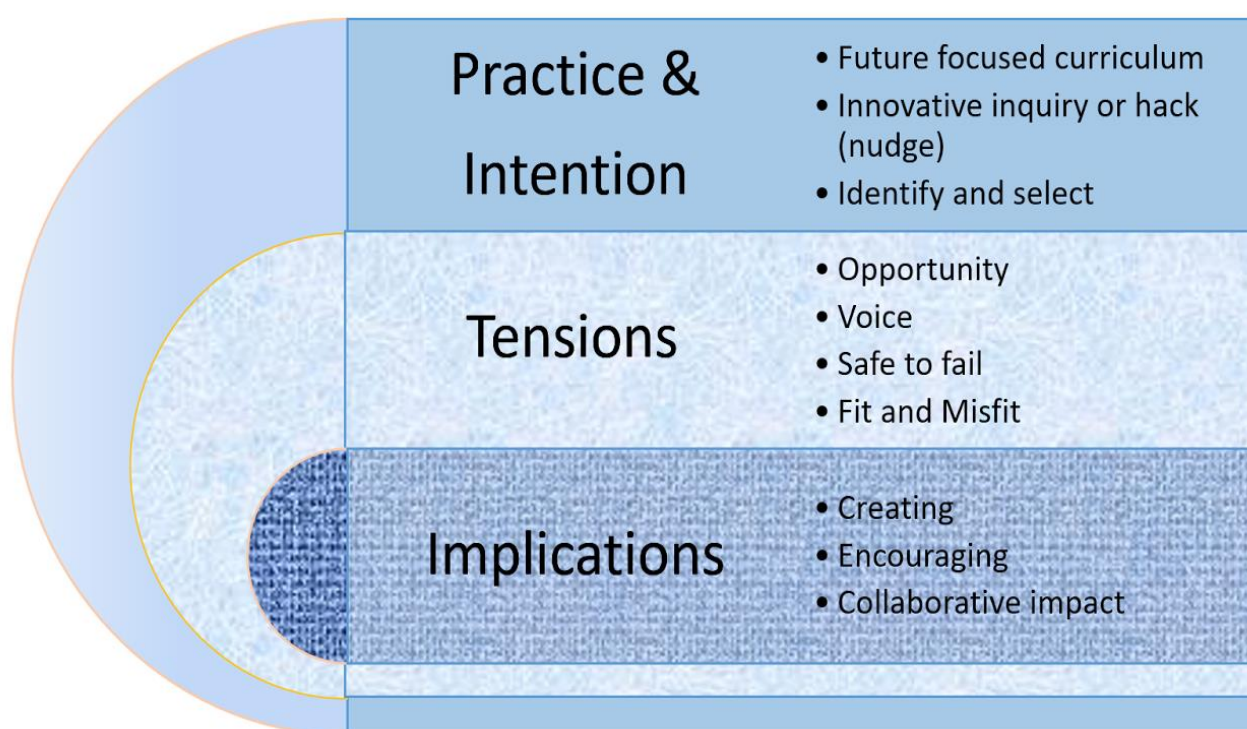
- **Opportunity** - who makes the nudges in the organisation, leadership
- **Voice** - the diversity of perceptions, whose voice
- **Safe to fail** - learning/failing in public rather than in private
- **Fits and Misfits** - simplicity of the nudge (not making complexity complicated)

### **Implications**

- **Creating rather than informing** - no predetermined outcomes
- **Encouraging experimentation** - learning rather than analysis and searching for the best solution
- **Collaborative impact** - evaluation and outcomes, seeing complexity to advantage and being able to scale up if successful

The analysis of the examples also looked at the aspects of teaching and learning they represented, for example, pedagogy, curriculum, learner agency, professional learning and development, and collaborative networks.

## Blue-Sky Future-Focused Framework



## Findings

Seven examples of innovative inquiry or hacks were identified and are described using the why, what and how structure below. The seven examples all supported the development of future focused curriculum when compared against the framework (Table 1). The Future focused concept was identified using the OECD Handbook for Innovative learning Environments (OECD 2017). The nudges, hacks and inquiries included:

- **Utilising Te Whariki with the New Zealand Curriculum**

*Future focused concept: Students learning needs, interests and capacity determine the pace of the learning.*

**Why:** Current programmes were not recognising the interest of students. Teachers of children in a junior team recognised the need to support student learning in a

more developmentally appropriate way.

**What:** Teachers decided to balance teacher-directed activities and child directed activities drawing on Te Whariki (2017) (the revised early childhood curriculum).

**How:** The teachers in this school hacked traditional structures to design a new play-based learning model. In doing this they learned to continually observe and reflect on the play of the students and when appropriate introduced provocations drawing on their curriculum knowledge, and the key competencies, values and principles of the New Zealand Curriculum.

Leaders in this school learned with the teachers, and provided time for teachers to develop their understanding of the change. They worked with teachers to evaluate aspects that were successful and the barriers to implementation, and where necessary reflected on and adapted reporting and assessment requirements.

- **Re-thinking Traditional Ability Grouping**

*Future focused concept: Students owning and driving their own learning to build an inclusive learning environment.*

**Why:** Teachers and leaders of children in a senior team recognised that in their school student learning was underpinned by negative messages about students' capacity to achieve.

**What:** They recognised that no matter how successful they were in developing strong relationships with students many students absorbed messages about their ability to learn through long-held classroom structures and systems.

**How:** The teachers in this school hacked traditional structures to re-think their traditional classroom ability grouping systems. In doing so they incorporated digital platforms. Rethinking how learners come together and how learners are grouped

also strengthened their understanding of and the role of learner agency in learning spaces. A strong feature of this hack was the time taken to structure the change process and the collaborative problem solving of the teachers and leaders.

- **Student Agency to Develop Curriculum**

*Future focused concept: Rethinking learners and teachers roles.*

**Why:** Leaders wanted their students to develop the democratic capabilities of questioning and challenge to make real decisions to collectively solve problems.

**What:** Leaders in a intermediate school recognised that traditional ways of organising curriculum topics left little room for student involvement or ownership of learning. They recognised that learning content and discipline specific topic studies did not put learners at the centre in their school's curriculum design. In addition their hunch was that with greater learner ownership of curriculum then there would be greater learner activity, motivation and 'buzz'.

**How:** Over several years a curriculum design team of student leaders were given the opportunity, and were very successful in planning the provocations and teaching content for the whole school. Teachers agreed that this pedagogical approach elevated student ownership of inquiry and a focus on concepts that drove interdisciplinary learning.

- **Student Agency to Design Learning Spaces**

*Future focused concept: Students as co-designers of curriculum and their learning environments.*

**Why:** Leaders recognised that traditional ways of organising learning spaces did not put learners at the centre in their schools learning environments.

**What:** They wanted their students to make real decisions and to collectively solve problems. Leaders of children in secondary school recognised that traditional ways of organising spaces left little room for student involvement or ownership of these

spaces and of supporting ways of learning.

**How:** A design team of student leaders was established and they decided how their learning spaces would be developed. A strong research based focus was undertaken by the students. In particular, the students explored how they could reduce cultural barriers. Some surprising findings resulted in a rethink of use of space and furniture. In particular, the students explored how they could reduce cultural barriers as part of designing learning spaces.

- **The broadening of a learning environment**

*Future focused concept: Students and teachers owning and driving their own learning.*

**Why:** Teachers and leaders wanted to drive their own learning and to learn at a pace that best suited their learning style, and that enabled them to better understand the realities of learning for their students.

**What:** A group of teachers and leaders in a primary school decided that in order to gain the pedagogical knowledge and skills in a particular area they would need to engage in professional learning on curriculum development outside of the traditional models available. They wanted challenge, collaboration with a wider network of peers, and to learn at their own pace.

**How:** They found the support for their learning through involvement in an online NZ developed MOOC (massive online open course) that was designed to challenge educators thinking in regard to an aspect of curriculum. Of note that while this group of teachers were in a learning environment, this was not a school or university based environment, and reflected current and future possibilities for their students' learning. It involved the use of technology transforming the idea of a teaching and learning space.

- **A Global Learning Environment**

*Future focused concept: Students and teachers developing new kinds of relationships and partnerships.*

**Why:** A group of leaders recognised that by engaging in globally projects themselves, they would build their capability to provide rich and relevant opportunities for learning for students.

**What:** Leaders challenged each other to collaborate and to learn with diverse peers, globally. They wanted to gain pedagogical knowledge and skills in a particular area outside of traditional leadership learning, and to utilise sophisticated information systems.

**How:** They came together collaboratively in a digital environment to work on a problem of leadership. This involved developing the skills and knowledge to work in a global digital environment on a challenging inquiry project.

Of note this group of leaders utilised a non-school or university learning environment, and their learning was highly visible. It reflected current and future possibilities for their teachers' learning. It involved the use of technology transforming the idea of a teaching and learning space. In time it lead to their support of teachers utilising this form of global interaction to enhance learning in classrooms.

- **Leaders Collaborative learning**

*Future focused concept: Students and teachers using the advantage of technology to build new kinds of partnerships and relationships.*

**Why:** Leaders recognised strength in working together on a challenging problem of practice to deepen learning and make links and pathways across their schools.

**What:** A small group of leaders worked together face-to face, on a complex, and difficult, common problem of practice that was evident in each of their schools



(introduction of robotics, coding and a digital curriculum).

**How:** This group utilised their strong common cultural backgrounds as a strengths to support each other. They utilised a dominant culture of reflection and evaluative thinking when working together. They were clear on sharing what they expected from the change, and in getting support when they needed to understand something better. They provided strong feedback to each other as part of this learning process. While they had diverse educator views and practice the strength of their cultural ties and backgrounds helped them negotiate the challenges to their learning. They used strong learning evidence and their diverse evaluation and assessment process to strengthen their common learning.

### **Analysis of Examples of Hacks, Nudges and Inquiries**

Examples were categorised against criteria that is inclusive of future focus (FF) curriculum, including inquiry into pedagogy, curriculum, collaborative networks, student agency, and professional learning and development. These examples were described against the framework (Table 1). This analysis supported robustness and helped to ensure each hack, nudge or inquiry would be useful for future focused curriculum design.

**Table 1. Future Focused Curriculum Inquiry in Action**

<b>Descriptors of Future Focus</b>	<b>Practice and Intention</b>	<b>Tensions Evident</b>	<b>Implications and discussion</b>
<b>Pedagogy and Curriculum</b>	<p>Early Childhood Centre pedagogy transferred into a school setting utilising a play based pedagogy</p> <p>Six teachers and leaders were involved.</p>	<p>Learner agency</p> <p>Safe to fail mind-sets</p> <p>Risk taking supported by senior leaders</p> <p>Misfit - Weak communication of nudge across the school (initially)</p>	<p>Identified as a small change - no predetermined outcomes</p> <p>Collaborative evaluation ongoing, (strong feature) and led to next steps</p> <p>Student outcomes - strong</p>

<b>Pedagogy and Curriculum</b>	<p>Mixed ability grouping</p> <p>Five teachers and leaders involved</p> <p>Utilised new knowledge to develop learning capacity of teachers</p> <p>A collaborative response to a very complex situation -</p> <p>Some contextual matters identified and mitigated</p>	<p>Teacher driven and owned</p> <p>Safe to fail</p> <p>Risk taking supported by senior leaders</p> <p>Strong communication of nudge across the school</p> <p>Initial complexity but on-the-trot changes helped lessen these and any anxieties</p> <p>Very public muck-ups and failures celebrated</p>	<p>Small change but big impact on student motivation</p> <p>Student and teacher feedback on-going and teachers responded to this on a day to day basis</p> <p>Existing organisation and systems identified as not fit for purpose</p> <p>Work in progress - now into second year</p> <p>Impact on new staff and students evaluated and tweaks made to model</p> <p>Success supported by the ability of teachers to discuss and debate hard issues</p>
<b>Pedagogy and Student Agency</b>	<p>Student agency to develop inquiry curriculum</p> <p>Teachers and students initially worked together to develop a whole school inquiry curriculum (integrated curriculum)</p> <p>Uncertainties with the outcome</p> <p>Some teachers described initial nervousness of learner agency</p>	<p>Strong learner agency (students and teachers)</p> <p>Strong feedback mechanisms and discussion of failures and successes</p> <p>Variations of teacher output discussed openly</p> <p>Safe to fail mind-set</p>	<p>Simple idea that utilised existing systems</p> <p>Changes made on the trot</p> <p>Still work in progress</p> <p>Outcomes strong - and shared with local networks of schools</p>
<b>Pedagogy and Student Agency</b>	<p>Student agency to design learning spaces</p> <p>Students produced new knowledge</p> <p>Students, teachers and leaders work together</p> <p>Initially no idea of outcomes</p>	<p>Some mind-sets closed to some changes</p> <p>Adult perceptions tended to dominate</p> <p>Adult viewpoints hardest to change</p> <p>Some structural and safety features a barrier to innovation</p>	<p>Some predetermined outcomes</p> <p>Simple approach</p> <p>Overall experimentation rather than best solution</p>
<b>Professional Learning and Development</b>	<p>Teachers and leaders participated in a MOOC (massive open online course)</p>	<p>Pre-determined content</p> <p>Some aspects</p>	<p>Technologies to facilitate learning</p> <p>While discussion was not</p>

	<p>Opportunities for leaders and teachers to interact and experience new perspectives in a neutral space</p> <p>Able to question assumptions about learning</p>	<p>participant driven</p> <p>Participants had various levels of success in interacting with others about their ideas</p>	<p>predetermined the content was quite rigid and there was limited flexibility</p> <p>Was this a solution rather than an experiment?</p> <p>Outcomes strong and learners felt this PLD was of value</p>
<b>Professional Learning and Development</b>	<p>Global participation in leadership e-learning course</p> <p>No strong destination or single solution</p>	<p>Some structured content but very experimental in outcome</p> <p>Strongly participant driven</p> <p>Strong success in interacting with others about emerging ideas and challenges</p>	<p>Technologies to facilitate learning</p> <p>Very flexible and open-ended</p> <p>Learning continued outside of formal structure</p>
<b>Pedagogy and Collaborative Networks</b>	<p>Four leaders working on a collaborative inquiry to grow a common identified area of weakness in leadership practice</p> <p>Opportunity to grow as a team of leaders around a weakness identified in leadership</p>	<p>Structured content but very experimental in outcome</p> <p>Strong strengths based on cultural similarities</p> <p>Openness and honest ability to challenge each other</p> <p>Strong success in interacting with others about emerging ideas and challenges</p>	<p>An expectation that they would develop expertise but no real understanding how this would eventuate</p> <p>Looking forward to more study, collaboration, debate and support</p>

## Implications

Weaving together the themes and findings of this research project has been described under four key headings. These include school leadership and future focused curriculum, school leadership characteristics for future focused curriculum, and the role of innovative inquiry and hacks in future focused curriculum.

- **School leadership and future focused curriculum**

The work of *futurist educators* who are hacking their learning and innovatively

designing curriculum provide other leaders with examples and opportunities to think about and start experimenting with the curriculum in their schools. They help us gain an understanding of ways of designing curriculum in our schools that are supportive of growing the system as a whole. This creativity will continue to shift the way the system 'works' and how it 'knows'. It will open the door for opportunities for traditional ways of working to be reworked, re-energised, and in doing so build our resilience and capacity for innovation.

- **Future focused curriculum and agency**

An implication raised from the focus on student agency is that some schools are rethinking student and teachers' roles in order to create a knowledge building environment where all work together. Traditionally school learners themselves have had little opportunity to shape the curriculum. Given that student perspectives of curriculum are just as relevant as anyone else's, opening possibilities amongst groups previously not given a voice is exciting.

- **Future focused curriculum leadership characteristics**

It became apparent when weaving together the literature and the findings of this research that particular leadership characteristics are useful for implementing future focused curriculum. The leader needs to be both a coach and a mentor, working alongside teachers and leaders, and also a sounding board for the experiments and designs as the inquiries progress. This support, and possibly other supports, such as resourcing and the opportunity to share and collaborate, were deemed important by the participants. Leaders certainly need to develop a school culture where risk-taking and informal opportunities to design curriculum are valued. And, that opportunities to fail (and learn from this) are modelled, acknowledged and honoured.

- **The role of innovative inquiry or hacks**

Spirals of inquiry, or the less formal hacks or nudges, encourage experimentation and learning at all levels of a school to flourish. Particularly if teachers and leaders of the organisation take ownership of their own learning, and when the organisation is not risk averse. Important in these complex and challenging times, is the need to reduce the expectations of inquiry. As we do so, we open up new possibilities for the future of curriculum design in our schools. Let's start hacking!

## Conclusion

For leaders, channelling thought into action is hard but necessary work, especially in our complex school environments. As a school leader I understand that the curriculum encourages students to look to the future by exploring such significant future-focused issues as sustainability, citizenship, enterprise, and globalisation. More importantly I want our students to be future-oriented and adaptable, adopting a more complex view of knowledge that incorporates knowing, doing, and being. Alongside this, as a leader I need to rethink how curriculum design is organised, resourced, and supported. Work globally on future focused learning is new and exciting, albeit challenging to implement. As Paulo Freire (1994) said:

*As beings programmed for learning and who need tomorrow as fish need water, men and women become robbed beings if they are denied their condition of participants in the production of tomorrow. Every tomorrow, however, that is thought about, and for whose realisation there is a struggle, necessarily implies dreaming and utopia. There is no tomorrow without a project, without a dream, without utopia, without hope, without creative work, and work towards the development of possibilities, which can make the concretisation of that tomorrow viable.*

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