Learning and Change Networks

A Background Paper on Designing Networks to Make a Difference

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Acknowledgements

Introduction

The Ministry of Education has taken the initiative to establish a number of networks throughout the country. Networks can have many different forms and purposes so this background paper begins with a definition and description of the purposes outlined by the Ministry for this initiative.

> A Learning and Change Network is a group of schools, kura and communities working together to grow capability to accelerate student achievement in a culturally intelligent way recognising the diversity of 21st century learning." (Ministry of Education, 2012, p.1).

The focus for the networks is on Māori, Pasifika learners, learners from low socio-economic backgrounds and learners with special education needs.

The Learning and Change Networks will:

- Provide an environment for schools or kura to challenge current beliefs and practices, develop and improve leader, teacher and learner capability.
- Grow and sustain a lateral system of learning and change based on learner needs.
- Provide sector leaders, teachers, learners and communities with a framework to develop self-improvement expertise within their own environment.
- Identify a common student achievement focus for in-depth analysis, critique and change of practices to drive and sustain system improvement and accelerate student achievement.
- Optimise educationally powerful connections with parents, whānau, hapū, iwi and communities.
- Provide an opportunity to utilise student voice to help define the priority student achievement focus area.
- Grow innovation in schools/kura, between schools/kura and across networks.
- Contribute to embedding the use of National Standards and Ngā Whanaketanga to implement the New Zealand Curriculum and Te Marautanga o Aotearoa in each of the networked schools/kura.
- Contribute to embedding the use of ICT for appropriate pedagogical purpose in schools and kura, as well as to engender collaboration between schools and across the New Zealand education system
- After a period of support, be self-sustaining.

The proposed networks are designed to address the persistent challenges that have been evident in our education system for many years. The statistics relating to our high performance and low equity are well known. The latest PISA results (OECD, 2009; 2010a; 2010b) show that we have one of the strongest relationships between socio-economic background, ethnicity and achievement in the OECD (2009). The achievement statistics are mirrored in those for student stand downs, suspensions, exclusions and unjustified absences. In all of the statistics, the effect is much greater for Māori and Pasifika learners than for others. Schools, particularly secondary schools, are not places where many of these learners want to be.

The persistence of these issues over time indicates an urgent need to do something different. There is increasing international consensus that the 'different' involves the need to "mobilise the social, cultural, and linguistic processes of diverse communities as the most important resources for producing positive educational change.... [and] to develop the sorts of alliances among peers, families, teachers and the ethnic/cultural community that can provide the social and cultural resources to support academic development in schools" (Moll, 2010,p. 456).

At a recent OECD conference on networking for improving schools, the former Swedish Education Minister reinforced this need for greater cultural and community connections.

> *Networks and partnerships are critical: School autonomy goes hand-in-hand with being connected to the community, other educators, and the broader society. Hence, the key role of networks and partnerships. Too much educational practice in OECD countries is characterised by isolation: schools from parents and the community and from each other; teachers and learners in isolated classrooms. Partnerships may address skills and employment, society and culture, or bring together different parts of the educational world.*

Ylva Johansson, 2000, cited in OECD (2003)

The Ministry of Education intends the proposed networks to be a flexible laterally-focused way of organising relationships across schools and communities consistent with this international work. They have the potential to use and generate knowledge for change and improvement. Chapman and Aspin (2003) suggest the following possible ways in which networks can promote change:

- Networks offer a means of assisting in the policy implementation process by linking policy both horizontally and vertically.

- Networks provide a process for cultural and attitudinal change, embedding reform in the interactions, actions and behaviour of a range of stakeholders.

- Networks provide an opportunity for shared and dispersed leadership and responsibility, drawing on resources in the community beyond education.

- Networks can be capacity-building insofar as they are able to produce new knowledge and mutual learning that can then feedback and inform public policy.

- Networks can move attention away from a preoccupation with micro-level change at the individual site, and function at the meso-level, to strengthen interconnections and spread innovation across all levels – micro, meso and macro.

The evidence for the effectiveness of networks, however, is equivocal at best. For this reason, it is as important to be aware of the pitfalls so they can be avoided, as it is to be aware of the benefits so they can be enhanced. Simply bringing people together does not work. Sharing practice, whether effective or not, is not enough. Sometimes bringing people together reduces responsibility, creates conditions where nobody raises contentious issues or alternative views, and spreads popular but ineffective practice (Katz, Earl & Ben Jaafar, 2009). High transaction costs can actually take time and

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effort away from the core business of leading, teaching and learning with the pace of improvement being slower than external reforms (Reynolds, 2003).

This background paper highlights the conditions likely to optimise the outcomes identified by the Ministry of Education and reduce the potential for the pitfalls to be the result. It is divided into sections so that those involved in establishing networks can use whichever sections are relevant to their context and stage of development. The next section provides a brief analysis of successful and less successful network-related activities in New Zealand (learning from the present and past) followed by a parallel analysis of a major international networking initiative (learning from others). These analyses are then linked to what we know about possible future directions for schooling (learning in the future). A more substantive section then outlines how to design networks to promote learning and change. The paper concludes with brief sections on research, development and evaluation, sustainability and some suggestions on how to use the paper.

Learning from the Past and Present (New Zealand)

New Zealand has had a number of programmes of change based on schools working together as clusters or networks to accelerate student achievement. A search of Te Kete Ipurangi (TKI), for example, revealed networks named by the organising schools (e.g. Pakaraka School, James Cook High School, Arthur Street School, Ravensbourne School) working collaboratively alongside staff members from other schools, sharing knowledge and building relationships. Other rural networks are named by district (e.g. Kaipara Literacy Initiative, Urewera Early Literacy Initiative) that were supported by the Reading, Writing and Mathematics Proposal Pool to support students in years 1-6. Others are based on innovation in technology education including a talent development initiative.

Most of the descriptions of these networks are of activities, such as how the groups started, how they planned together, and / or their proposals for the future. Unfortunately we were unable to locate rigorous evaluations that allowed us to determine which of these activities worked and did not work in terms of improving outcomes for learners. Others provided both anecdotal and more systematic information about improvements in outcomes for Māori students (e.g. Te Kauhua Pilots) but it is difficult to ascertain which aspects of these programmes contributed to these outcomes. In others, the outcomes do not relate directly to the aims of the Learning and Change Networks outlined in the Ministry of Education (2012) document. For example, the ICT professional development school clusters programme (2005-2007) reports on the usage of ICTs by students, improvement in curriculum coverage, and the provision of 'quality learning experiences' (as indicated by teacher reports) rather than their achievement.

More robust evaluations, directly relevant to the proposed learning and change networks, are available for two initiatives; Te Kōtahitanga and the Ministry's clustering approach to schooling improvement. Although the proposed networks are intended to be different in design from either of these initiatives, there are features of these projects that have important implications for the proposed networks.

We have started with Te Kōtahitanga because of its success in improving outcomes for Māori students in mainstream secondary schools where it is implemented with integrity and the availability of detailed evaluations of what has worked and what has not work so well (Bishop, Ladwig & Berryman, in press). The second involves the Ministry of Educations' work in schooling improvement because of the detailed evaluations that have allowed us to identify what worked and did not work so well within a structure that had some similarities to the proposed networks, although it needs to be noted that there were also many differences (Timperley, Hohepa, Keegan, Parr, Lai, & McNaughton, 2010; Timperley, Parr, Hohepa, Le Fevre, & Lai, 2009; Timperley, Parr, Hohepa, Le Fevre, Lai, Dingle, & Schagen, 2008).

Te Kōtahitanga

Te Kōtahitanga,[1] is a kaupapa Māori[2] iterative research and development project, currently being implemented in 47 schools, that seeks to improve the educational achievement of Māori students in mainstream secondary schools. Although its primary focus is on individual schools, it has important implications for networks because of its success in improving the engagement and raising the achievement of Māori learners in secondary schools where it is fully implemented (Bishop, Ladwig & Berryman, in press). These outcomes are central to those of the proposed learning and change networks (Ministry of Education, 2012).

At its commencement Te Kōtahitanga was primarily a pedagogically-driven school reform initiative, initially focusing on supporting teachers to implement a culturally responsive, relationship-based pedagogy. However, in the past 5 years, the project has also supported school leaders to engage in wider school and community issues and as such the project has morphed into a more comprehensive school reform model that seeks to ensure that the changes in teaching practice and the associated gains in Māori student achievement are sustained.

The most recent analyses shows that in those schools with high levels of implementation, Māori students' participation, engagement, retention and achievement all show positive gains. These outcomes are central to those of the proposed learning and change networks. The culturally responsive pedagogy of relations that use Māori cultural practices and means of sense-making underpin these positive results. Fundamental to establishing such relationships are the following understandings and discursive pedagogical practices (Box 1 Bishop, Berryman, Tiakiwai, & Richardson, 2003).

Box 1: The Te Kōtahitanga Effective Teaching Profile

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[1] Te Kōtahitanga literally means unity of purpose but has increasingly come to embody its figurative meaning of unity through self-determination. Many Māori meeting houses and marae are named Te Kōtahitanga in acknowledgement of the movement of the same name that developed in New Zealand in the late nineteenth century that had self-determination for Māori as one of its key policies.

[2] Kaupapa Māori is a discourse of proactive theory and practice that emerged from within the wider revitalization of Māori communities that developed in New Zealand following the rapid Māori urbanization in the 1950's and 1960's. This movement grew further in the 1970's and by the late 1980's had developed as a political consciousness among Māori people that promoted the revitalization of Māori cultural aspirations, preferences and practices as a philosophical and productive educational stance and resistance to the hegemony of the dominant discourse.

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Effective teachers of Māori students create a culturally appropriate and responsive context for learning in their classroom. In doing so they:

a) positively and vehemently reject deficit theorising as a means of explaining Māori students' educational achievement levels (and professional development projects need to ensure that this happens)

b) know and understand how to bring about change in Māori students' educational achievement and are professionally committed to doing so (and professional development projects need to ensure that this happens).

They do this in the following observable ways.

1) Manaakitanga: They care for the students as culturally located human beings above all else. *(Mana refers to authority and akiaki to the task of urging someone to act. Manaakitanga refers to the task of building and nurturing a supportive and loving environment).*

2) Mana motuhake: They care for the performance of their students. *(In modern times mana has taken on various meanings, such as legitimation and authority, and can also relate to an individual's or a group's ability to participate at the local and global level. Mana motuhake involves the development of personal or group identity and independence.)*

3) Whakapiringatanga: They are able to create a secure, well-managed learning environment by incorporating routine pedagogical knowledge with pedagogical imagination. *(Whakapiringatanga is a process wherein specific individual roles and responsibilities are required to achieve individual and group outcomes.)*

4) Wānanga: They are able to engage in effective teaching interactions with Māori students as Māori. *(As well as being known as a Māori centre of learning, a wānanga as a learning forum involves a rich and dynamic sharing of knowledge. With this exchange of views, ideas are given life and spirit through dialogue, debate, and careful consideration in order to reshape and accommodate new knowledge.)*

5) Ako: They can use a range of strategies that promote effective teaching interactions and relationships with their learners. *(Ako means to learn, as well as to teach. It refers both to the acquisition of knowledge and to the processing and imparting of knowledge. More importantly, ako is a teaching−learning practice that involves teachers and students learning in an interactive dialogic relationship.)*

6) Kōtahitanga: They promote, monitor, and reflect on outcomes that in turn lead to improvements in educational achievement for Māori students. *(Kōtahitanga is a collaborative response towards a commonly held vision, goal, or other such purpose or outcome).*

What is striking is that 10 years ago Māori learners identified the centrality of these types of relationships to their successful engagement in school. The implications for the networks are, therefore, that in addition to developing practices that are consistent with those with a culturally

responsive pedagogy of relations, is to find out from the students and their whānau what is working and not working for them.

Schooling Improvement

Next we turn to what we can learn from the Ministry's approach to schooling improvement clusters drawing on external evaluation reports (Timperley et al., 2010; Timperley et al., 2009; Timperley et al., 2008) to identify additional implications for enhancing the effectiveness of Learning and Change networks. We begin with an overview of the range of engagement of schools in the clusters, then follow with a summary of the main implications of the kinds of cluster activities that led to these patterns of engagement. A more detailed table that describes the realised benefits and unrealised potential of these clusters using the Ministry criteria for effective networks appears in Appendix A.

Schools' commitment to and engagement in schooling improvement clusters were variable:

- Schools in some clusters engaged at all levels where leadership and teacher learning were aligned to solving an identified student learner problem, with accompanying significant changes to practice, resulting in improved outcomes for student learners;
- Schools in some clusters engaged in leadership and teacher professional learning separately, treated change as optional with most not making significant changes to professional practice;
- Schools in some clusters engaged peripherally in cluster activities, and were allowed to remain on the periphery even when student learner outcomes were low;
- Māori-medium schools typically withdrew from predominately English-medium clusters over time and eventually formed their own cluster that had activities more directly relevant to Māori-medium education.

In addition, each cluster typically worked in isolation from others with learning from one not laterally transferred to others. The analysis in Appendix A provides a set of implications for networks to consider if they are to maximise the benefits of networking. In summary, these implications include the importance of:

- Having a sharp focus on targeted groups of student learners (students or Māori and Pasifika descent and students with special education needs) as the touchstone for network activities with ongoing checking to determine if adult learning is resulting in change and improvement for student learners;
- Focusing on one integrated area (e.g. e-learning with a curriculum focus), with adult learning systematically transferred to other areas, rather than an initial focus on more than one area;

- Clarifying roles, responsibilities and accountabilities within schools and between schools and the network in ways that maximise opportunities for network learning to be transferred to the school and school learning to be used across individual networks and other networks in the system;
- Developing educational partnerships with learners, parents, families, whānau, community and iwi focused on achieving the purpose, in ways that lead to innovative solutions and reciprocal benefits;
- Collecting robust data with student learners on their learning together with the professional and family / whānau practices impacting on learning, and engaging in processes that involve sharing all data among network members for the purposes of learning and change;
- Working towards genuine partnerships between school personnel and parents, whānau and communities, based on accurate information;
- Developing distributed leadership throughout the network that is inclusive of the community and evolves as the network purpose evolves;
- Establishing expectations of developing the kinds of relational trust that leads to mutual learning and what that means in practice (e.g. sharing data across the network) and working in ways that are consistent with mutual critique and accountability for learning purposes;
- Developing evaluative probes into the effectiveness of adult practices (including those of the professionals, parents and whānau) in promoting better outcomes for learners and using the information to further develop network processes and practices that are effective and change those that are not making enough of a difference;
- Recognising the cultural identity and authentic recognition of Māori Medium education as an everyday Treaty of Waitangi expectation and negotiate involvement in the network structures accordingly.

Learning from others (international)

Networks and networked learning communities have been part of the educational landscape in many countries. Networks have emerged as:

- university-school partnerships (e.g., The National Writing Project in the US (operating since 1979) – a network of sites operating at universities and serving teachers across all disciplines and at all levels);
- arms-length governmental programmes (e.g., The Networked Learning Programme, begun in 2004 by the National College of School Leadership in England, as a research and development programme to inform the broader policy audience about, what works when schools intentionally work together);
- projects focused on whole school change (e.g., The Portugese Good Hope Project or the Bertelsmann Foundation's Network of Innovative Schools in Germany),

- centres focused on particular issues (e.g., the International Principals' Centres, housed at Harvard) and as
- exchange networks for facilitating research and teaching (e.g., Fulbright Program)

However, overall evidence of the impact of networking and collaboration on improving educational outcomes that are documented for these networks is limited (CUREE, 2005; Lindsay, Harris, Chapman & Muijs, 2005; Hadfield, Jopling, Noden, O'Leary, & Stott, 2006). More systematic evaluation evidence is available for the Networked Learning Communities in England which were at the vanguard of the current emphasis on networking schools. These networks were promoted by the National College of School Leadership with the following quote providing a flavour of their vision:

> *NCSL's hypotheses were that groups of schools working together had the potential to apply both practitioner knowledge and publicly available knowledge in relevant ways; that they would be able to create contextually appropriate solutions; that school-to-school networks would provide a route to greater coherence in a potentially fragmented world; and that through collaborative enquiry, data analysis and local problem-solving those involved would create expanded units of meaning and engagement – the network rather than the school. It was also a belief that teachers would feel more motivated through collaborative working; that they would feel more in control; that leadership opportunities would expand. It was anticipated that children and adults would learn more effectively. It was expected that organisational changes would occur which would generate different kinds of learning opportunities, both within and between schools, and that new teaching strategies would result. There was confidence that knowledge transfer would be enhanced, and that data analysis processes would lead to a focus upon impact (Jackson, 2005).*

In their evaluation of the Networked Learning Communities Programme, Earl & Katz (2006) developed and tested a theory of action for networked learning communities, with a view to informing the field about the key features of such communities and how these features worked in practice. Most of these features have been confirmed and supported in other international studies (Stoll et al., 2012; Mujis et al., 2010; Nooteboom, 2004; Stringfield & Land, 2002 in Mujis et al., 2010; Harris., Chapman, Muijs, Russ, & Stoll 2006; OECD, 2003; Barnett, 2011). An analysis of these features in relation to the Ministry criteria for effective networks appears in Appendix B. This analysis adds some additional important implications for networks to consider as they move forward in New Zealand.

- A learning focus is likely to have a more direct impact if it is *focussed* in ways that are concrete and have high leverage in fostering learning, compelling, challenging, shared and appropriate to the context. A compelling and high leverage learning focus is based on evidence that it can have significant impact on teaching practices and student learning. A challenging focus is one that requires teachers to reconceptualise, unlearn or make changes to existing practice and structures, legitimating the change process, making the status quo

more difficult to protect and offering opportunities for joint attention to issues that are larger than any one school could address alone. The learning focus should be "right" for the participating schools, given their particular context, history and needs. Teachers and school leaders have a responsibility for maintaining the focus on achievement and work to maintain the focus in the face of other initiatives.

- The school culture that leaders foster contributes to the way school colleagues relate to one another and to the network professionally in order to leverage changes in thinking and practice. This positions school leaders as "boundary spanners" and facilitators of change within the network, both offering a point of upload and download of good ideas and problems of practices between the school and the network, and providing the conditions for boundary spanners to emerge from within the school.

- There is considerable work to do in many settings to achieve the engagement of parents, carers and families in their children's education and of learners' involvement in their own education to help all learners achieve what they want in life. Networks can be strengthened when they have clear expectations to account for the work that they are doing and show how it is accomplishing the intended outcomes.

- Data use is an essential part of establishing a focus and of monitoring progress along the way. However, it is a new way of thinking and of working for many teachers and leaders who may need support and to move beyond superficial attention to data.

- Leadership in schools goes beyond role or position to activities and practices that are stretched over many people in a system of interactions that is more than the sum of the actions of individuals. Informal or distributed leadership involves leading within and beyond the classroom, contributing to a community of professional leaders who influence others toward improved educational practice.

- Relationships of trust and mutual challenge are the links that bind individuals together into a web. They are a necessary but not sufficient part of effective networks. Joint work that challenges thinking and practices may be at the heart of the power of networks. Networks can provide the forum for colleagues to address genuinely new, and often difficult, ideas in a safe environment, away from the risk of retribution or censure in their daily place of work. Once the ideas are more fully developed and stabilised, these colleagues can stimulate and lead the same discussions in schools with confidence, and make the ideas practical and personal so that they are more likely to be considered for action in the school.

- Collaborative inquiry requires developing new ways of thinking, as well as a new knowledge and skills for many teachers and principals. Collaborative inquiry is a mechanism that has the potential to create deep conceptual change and dramatic changes in practice. It includes, by definition, ongoing and challenging engagement with new ideas, rethinking existing beliefs,

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unlearning past habits and practices, and going through the process of learning how to do things in (sometimes dramatic) new ways.

- The connection between networks internal to a school and the network the school belongs to needs to be strong and pervasive. Although networking schools can create the conditions for influencing how teachers and leaders think and act, it is not guaranteed. It is important to have extensive and strong links in order to influence changes in schools and in learner engagement, achievement and well-being.

Learning in the future

The greatest concern addressed in the learning for the future literature is the potential irrelevance of schools as evidenced through student disengagement, particularly that of adolescents. Some are physically exiting school and form part of the official statistics. Others are physically present, achieve academically, but are intellectually disengaged (Willms, Friesen & Milton, 2009). Disengagement is a concern in many education systems where the gap is rapidly growing between students' lives outside of school and what happens in school. Currently, global trends are not matched by effective solutions.

The OECD report on networking (Istance & Kobayashil , 2003) paints a picture of three possible scenarios for the future of schooling. They suggest that scenario one, maintaining the status quo of bureaucratic schooling systems, is likely to result in "meltdown" in which learners exit schools and teachers no longer wish to teach in them. A second scenario of stronger and revitalised schools involves re-schooling with community groups closely involved in schools that become learning and knowledge focused. The third scenario involves de-schooling in which schools systems are dismantled and replaced by learner networks or markets. The networks proposed by the Ministry of Education most closely fit with scenario two.

In this section, we will briefly outline proposed future solutions through concepts related to 21st century learning, but it needs to be noted that while the concerns are well researched and documented, there is less systematic evidence about the effectiveness of the solutions. The evidence is mostly anecdotal and based on case studies rather than through more systematic research. However, as the OECD (2003) has identified, we cannot afford to do nothing.

21st Century Learning

The new millennium was ushered in by a dramatic technological revolution. We now live in an increasingly diverse, globalized, and complex, media-saturated society, in which everything around us is changing – economics, work, social interaction, the environment, and politics. The explosion of knowledge is revolutionizing our society and escalating the pace of change, with managing and

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distributing knowledge becoming critical for successful societies. These dramatic changes are challenging historical beliefs about learning, about teaching and about students. Wagner (2008) in his book, *The Global Achievement Gap* identified the importance of:

- Critical thinking and problem solving
- Collaboration across networks and leading by influence
- Agility and adaptability at all levels
- Initiative and entrepreneurialism
- Effective oral and written communication
- The ability to access and analyze information
- Curiosity and imagination.

Part of the rationale for networks is to break down industrial age ideas of hierarchical transmission-type learning for both students and those who create their learning environments to make them more consistent with 21st century horizontal learning. In a background paper for the Ministry of Education on networks, Brian Annan (2012) depicted the contrast between traditional learning and change processes with new learning environments in the following diagrams (Figure 1).
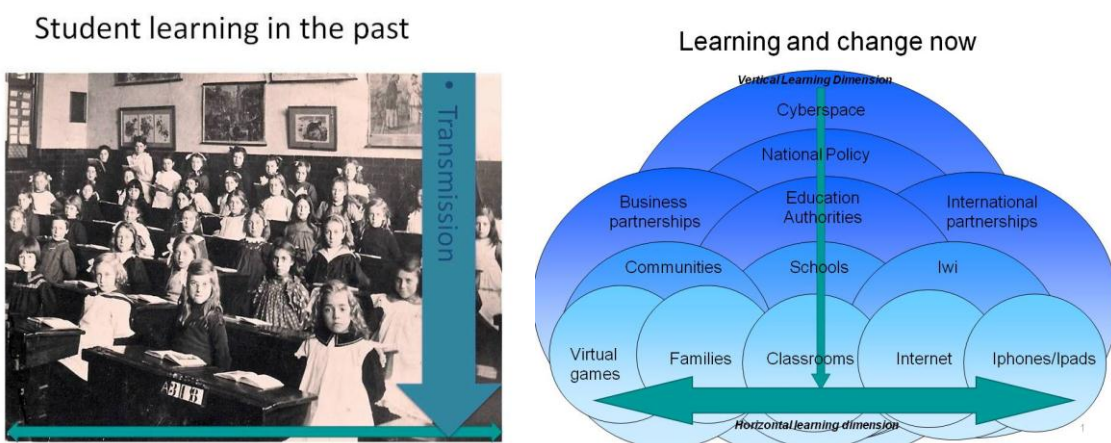
Figure 1
Learning and Change in the Past and Future

As a result of Brian Annan's work in the Global Education Leaders Programme (GELP), he has written the remainder of this section on learning in the future. He presents a past, present and future view of schooling systems that have similarities with those identified in the OECD paper referred to above (Istance & Kobayashil, 2003). Traditional systems involve one-size-fits-all teaching and learning arrangements controlled by teachers, school leaders and department officials. They involve didactic knowledge transmission from teacher to student. In secondary schooling, this kind of education

conjures up images of students sitting in rows copying down what the teacher has written on the blackboard and regurgitating the information in end-of-year exams.

In contemporary systems the teacher continues to control the learning in the main. Schooling systems in this space involve more differentiated learning and interactive teaching with supplementary and improvement programmes helping to improve results. Governments seek to improve schooling through professional development and standards.

A futuristic view of schooling sees student learners becoming the drivers of their own learning, with schools but one learning system among many others in a knowledge society.   It is an environment within which digital technologies and lateral social networking pervade society and schooling. Learning can occur at anytime, anywhere and any-how. This new space, which is already infiltrating some contemporary education environments, means that student learners have quick and easy access to curriculum content and other knowledge in which they may be interested. They are involved in a rich array of networks to solve problems when previously they have relied on a teacher. The teacher becomes the mentor or coach of student-led learning projects, many of which are exploring real life problems and opportunities. These experiments do not necessarily involve transformation of the whole school into a new way of working. More likely they are a one-day-a-week experience or a retreat injected into their contemporary education learning space.

One interesting observation in the GELP thinking is that schooling systems usually have elements of all three spaces. This is true of New Zealand.

- Traditional: recent feedback from secondary students across New Zealand indicate that many of them are still being asked to copy down what is presented to them in power points during lessons (Gibbs and Poskitt, 2010);
- Contemporary: recent government policies set in place a standards-based accountability system for primary schools to track progress in literacy and numeracy and a significant investment into supplementary programmes and improved professional learning and development programmes;
- Futuristic: many New Zealand schools are experimenting with student-led learning, but usually on a limited basis in terms of the time allocated.

Numerous internet sites, blogs and chat rooms are creating a footprint for the move into a possible student-stimulated learning space of the future where the role of teaching is repositioned from a controlling mechanism for learning to a support mechanism. An example in New Zealand described below shows how the move into future schooling spaces is happening in one cluster of schools.

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Manaiakalani project in Tamaki, Auckland

http://www.manaiakalani.org/project-management/project-definition

The Manaiakalani project is a foundation project within the Tamaki Transformation Programme. This is an ambitious undertaking that sets out to change social, educational and economic outcomes in a disadvantaged community. Its distinguishing feature is a methodology of integrated partnership involving Crown agencies, territorial authorities and private investors with the community. Some projects are agency-led, some community-led and some led by co-design principles. A two-year action plan developed for 2009-2011 foreshadowed a twenty year plan for comprehensive renewal.

The Manaiakalani Cluster comprises 7 schools in the Tamaki catchment. They are: Tamaki College, Pt England School, Tamaki Primary School, Glenbrae Primary School, St Pius X School, Panmure Bridge School and Tamaki Intermediate. These schools have been collaborating to provide professional development resources directed to building the capacity and capability of teachers to leverage a digital age pedagogical framework to deliver the curriculum to the students from Years 1-13. The students will own personal netbook devices and have internet access throughout the community to enable them to continue working from home. Parent involvement helps the engagement and confidence-building of their children.

The vision is to create lifelong literate learners who are confident and connected anytime, anywhere, any place; ready for employment in tomorrow's market and contributing positively to their community. The Cluster has identified the following goals for the students:
- Raise student achievement outcomes
- Portability of learning
- Engagement in learning
- Employment readiness

These goals align with the central government priority "skills, qualifications and opportunities mean young people contribute to their own and New Zealand's future.

This example is just one of the many groups of students, educators, community and business leaders, entrepreneurs and governments that are creating a movement that is striving towards an education environment relevant to the future. There is a ground swell of energy building among networks of individuals and/or organisations that are forming at all levels in education systems with a common interest in maximising digital technologies. They work from the premise that we have progressed as people because we have learned to use tools and digital technologies are one of the smartest tools so far (Lucas & Claxton, 2010). This movement towards creating education systems around such technologies is growing in strength both nationally (http://ulearn.core-ed.org/) and internationally http://www.projectred.org/other-resources.html.

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Designing for Learning and Change

Given that the evidence is equivocal for the effectiveness of networks and that evidence from learning in the future is not yet proven in terms of improving outcomes for student learners, it is important to design networks with the Ministry of Education's purpose in mind and to check systematically whether the design and processes within them are achieving the purpose.

The first area we will address in relation to design concerns what it means to develop expert knowledge and be professional because this is fundamental to design. We are starting here because continuing with traditional views of expertise and professionalism has not changed the educational profiles of New Zealand's student learners in any substantive way. The vision presented here is one of learners, teachers and other adults supporting the learning process as adaptive experts who work within and across organisations with high adaptive capacity. The implication for network operations is the need to develop adaptive capacity across the network.

A Vision of Professionalism in Education

This image was originally proposed by Hatano & Inagaki (1986) and further developed by others (e.g. Hammerness, Darling-Hammond, Bransford, Berliner, Cochran-Smith, McDonald & Zeichner, 2005; Feiman-Nemser, 2008; Soslau, 2012). In a more elaborated version, that is relevant to the New Zealand context, we suggest that adaptive experts are focused on the moral imperative of promoting the engagement, learning and well-being of **all** students, particularly those not well served by our education system including those of Māori and Pasifika descent and students with special education needs. To achieve this outcome they are aware of the assumptions underpinning their practice, including their cultural positioning, and know when these assumptions are helpful for their learners and when to question them and if necessary to let them go. To do this they seek to develop deep knowledge about both the content of what is taught and how to teach it effectively for these learners in context. In their practice they work with others, including their student learners, to:

- Retrieve, organise and apply professional knowledge in light of the challenges and needs presented by the learners they are teaching, particularly those not engaged;

- Seek evidence about the impact of their teaching on learners' engagement, learning and well-being.

  o To exercise this vigilance, they also know how to assess student learners on relevant attributes over both short and long-term time frames.

- Build sufficient knowledge to develop innovative approaches when regular routines are not working for their learners and when they need to seek help.

  o Consider that ongoing inquiry for building knowledge is at the core of their professionalism.

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Most views of professionalism come from a perspective of routine expertise. Both routine and adaptive experts learn throughout their lifetimes but routine experts learn how to apply a core set of skills and routines with greater fluency and efficiency. Notions of routine expertise are based on assumptions that novice teachers become expert through supported practice (Dall'Alba & Sandberg, 2006). This perspective is best summed up as "practice makes perfect" where skill development takes place in a stepwise, cumulative manner. Becoming a highly competent professional, therefore, involves progressively developing a set of knowledge and skills relevant to that profession (e.g. Dreyfus & Dreyfus, 1986) in which problems are identified intuitively and holistically with appropriate strategies enacted to solve them. The emphasis is on procedural efficiency (Hatano & Oura, 2003).

An illustration of what it means to be a routine expert is encapsulated in international research in terms of one of the enduring beliefs about teaching, no matter how experienced the teacher (OECD, 2008; Wang & Odell, 2002). The teachers' job is to transmit subject matter from teacher to student whereby teachers demonstrate knowledge and skills for students, followed by student practice. Teachers are perceived to be more expert when they learn how to do this with greater efficiency and effectiveness. Unfortunately, this conceptualisation of teaching is inconsistent with the current knowledge of learning (e.g. Darling-Hammond, 2006). It has not proved to meet the needs of currently under-served students partly because it does not ask teachers to question the efficacy of such an approach in the first place (Bishop, Berryman, Cavanagh & Teddy, 2009). We have contrasted routine and adaptive expertise in relation to some specific attributes in Table 1.

Table 1

Contrasting routine and adaptive expertise in some areas of focus

Area of focus	Vision of a routine expert	Vision of an adaptive expert
Identity	Important to have a well developed professional identity with a focus on constructing effective learning environments.	Professional identity is focused on promoting valued outcomes for **all** learners.
Efficacy / agency	Developing a strong sense of self-efficacy that provides the necessary confidence to teach.	Self-efficacy is related to agency in developing relationships with all learners in ways that promote their learning – particularly those not well served by our current education system.
Normality	Some learners are different from	All groups and individuals within groups are diverse–

	us and this needs to be taken into consideration (othering).	understanding diversity includes learning how to identify and use the cultural and linguistic resources learners bring. The focus is "mārama: developing an understanding of one's own identify, language and culture; developing an understanding of the relevance of culture in New Zealand education" (p. 4, Tātaiko) and understands the impact of their own identify, language and culture on relationships (p. 8).
Complexity and knowledge	Teaching requires flexibility to provide opportunities to learn the curriculum in the form of accepted knowledge.	Teaching is about the co-construction of knowledge that involves joint identification of learning goals, learner's conceptions and misconceptions, and sharing responsibility with them and drawing on diverse resources (e.g. whānau, iwi, community, digital). Teachers acknowledge and access the expertise of others.
Interactions, relationships and responsibility	Extent to which student learners learn depends on a number of factors, such as prior knowledge. The students' responsibility is to learn the content the teacher presents. The teachers' responsibility is to teach it as well as possible.	Teaching and learning are about complex relationships between teachers, students, whānau, iwi and communities. Teachers have ways to navigate the complexities, develop learner agency and find out about the effectiveness of teaching, particularly for learners least like them.
Location of learning	Learning is a complex interaction between home, community and school. The school needs to build on this learning.	Learning draws on information from multiple environments, including digital. "Schooling" involves developing educationally powerful connections across them that assume the importance of an integrated approach to learning within and beyond classroom walls.

Table 1 focuses on defining individual expertise, but to develop such expertise requires learners, teachers and leaders to work in organisations with high adaptive capacity (Staber & Sydow, 2002). In essence, this involves developing a networked community that learns. The description for individual

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professionals above can also be used as the basis for defining the qualities of such schools and networks. In schools and networks with high adaptive capacity, leaders and teachers are deeply knowledgeable about both the content of what is taught and how to teach it, and they create the organisational structures, situations and routines with families, whānau and communities to develop it further. All work to become aware of the assumptions underpinning their collective practice so they know when they are helpful and when to question them and, if necessary, when to let them go. They are expert in retrieving, organising and applying professional knowledge in light of the challenges presented by the students and teachers for whom they have responsibility.

All organisations require routines to function well. In organisations with high adaptive capacity, the routines involve being constantly vigilant about the impact of leadership and teaching on students' engagement, learning and wellbeing and to involve learners in the process. To exercise this vigilance, they also know how to assess learners, and the effectiveness of all professional and learner activities. They construct situations that help them to work out when known routines do not work and to have sufficient knowledge to work collectively to draw on current knowledge and develop innovative approaches when needed. Part of having adaptive capacity is to know when and from where to seek help. Engaging in inquiry and learning and taking action at all levels of the network is seen as core to their professionalism (Timperley, 2011).

Implications for Network Processes

This perspective on professionalism developed in organisations and networks with high adaptive capacity has implications for every member of the network and most particularly leaders. These implications are identified next, then brought together into an inquiry, learning and action spiral.

Focus all activities on individual and organisational learning and change

Firstly, this perspective on professionalism assumes that learning underpins individual adult, whole school activities and those of the network. It means that learning relationships for improvement and change, including those of family, whānau and community, are central to the functioning of the network. These relationships require high levels of relational trust through achieving important improvement tasks together in ways that critique the effectiveness of what is happening and develop innovative solutions combining what is known to be effective with new strategies.

Part of this assumption is that networks are about more than learning and include changed actions for improvement. One of the problems identified in earlier schooling improvement work was the participants' differential commitment to change. This resulted in inconsistent improvement in outcomes for student learners. A benchmark for judging effectiveness must involve the extent to which change is happening and is resulting in improvement in the outcomes of focus for student learners currently underserved by our education system.

Develop inquiry and problem-solving mindsets

Adaptive expertise depends on developing an inquiry mindset (Dweck, 2006). Mindsets are broad cognitive and emotional capacities that shape thinking and action. Inquiry and problem-solving mindsets are at the heart of 21st century skills (e.g. Wagner, 2008) and underpin successful networking (e.g. Katz et al., 2009). They are fundamental to promoting both professional and student learning. Such mindsets are not something with which those involved will necessarily approach the network. Rather they develop through engaging in spirals of inquiry, learning and action that result in improved outcomes.

Systematic inquiry and problem-solving approaches to learning are more effective in promoting both professional and student learning than transmission of de-contextualised knowledge or skills not directly related to the circumstances of the leaders, teachers and student learners in the network. New knowledge and skills are acquired and developed in the context of solving learning-related problems. Their extension and application to other situations is systematically developed through mechanisms of transfer.

These approaches promote meta-cognition and co-regulated learning for the adults and young people involved in the network and become the heart of developing inquiry and problem-solving mindsets.

> "Meta-cognition ... is essentially thinking about thinking .... Meta-cognitive skills are the higher order skills which ensure learners have the ability to stand back and take control of their own learning. (Lucas & Claxton, 2010)

Self-regulation, on the other hand, refers to the extent to which learners are active is using this awareness to initiate, motivate and direct their own efforts to acquire knowledge and skill rather than rely on others as agents of instruction (Schunk & Zimmerman, 1994). Those who are self-regulated take an agentic position towards improving practice (Bishop et al., 2009) and increasingly become their own teachers.

This means that network processes and any expert assistance engaged develop participants' responsibility for and ability to take control of their own learning and change agenda and that of others, including student learners, in the network. This does not mean leaving network participants to their own devices to sort out their own learning agenda. There is little evidence to support this approach as effective in creating the kinds of innovation and change that make a difference to outcomes for student learners (Timperley, Wilson, Barrar & Fung, 2008). It does mean that the kind of expertise engaged should use processes consistent with this assumption.

An important aspect of inquiry involves testing hunches about what is leading to the current situation and how it can be improved. Every individual in the network will have these hunches and they will base their preferred solutions on them. The differing reasons given by student learners,

teachers, leaders and community for profiles of Māori students in Te Kōtahitanga (Bishop et al., 2003) is classic. In this project, it was the hunches of the student learners that proved most powerful in improving outcomes for Māori learners.

More formally, these hunches are referred to as personal theories or theories of action. Theories of action are simply a set of linked ideas about what is leading to what. Everyone will hold them and the important process is to engage and unpack these different theories or so they can be tested through discussion about their effectiveness in promoting the central purposes of the network.

Seek Evidence to Inform Decisions

Those designing improvement are often told to make their decisions evidence-based or evidence-informed. Indeed using evidence to map the current situation and decide what to do is fundamental to effective change. Our approach to inquiry requires more than this – it requires an evidence-seeking approach. In such an approach those involved are constantly mindful of the need to seek and use the most relevant evidence for a particular situation, particularly in relation to what is working and what is not working for learners. Seeking evidence includes innovation because effective solutions rarely come in neat packages that can be applied to solving the complex problems of quality and equity. There is so much that we do not know and contemporary learning contexts are always changing. An evidence-seeking approach asks if what we are doing is effective for all learners, particularly those not benefitting as much as others from the current situation.

Require everyone in the network to consider their contribution

Effective networking requires everyone in the network to analyse their contribution to the situation and includes student learners, teachers, school leaders, networks leaders and those responsible for network policy. In an earlier Ministry funded literacy leadership initiative, Timperley and Parr (2005) asked facilitators, school leaders and teachers whose learning was the focus of the initiative. In essence, the answer was "Everyone except me". No change in outcomes for student learners was evident in this initiative. In its successor, the literacy professional development project, the essence of the answer to a similar question was "Mainly me" (Timperley & Parr, 2009). All professional groups engaged in the analysis of their contribution to the situation and in the kinds of contextualised learning that makes a difference. The literacy gains for students were highly significant (Timperley, Parr & Meissel, 2010).

Designing for Inquiry, Learning and Action

Underpinning this section on designing for inquiry is the vision of teachers as adaptive experts, working in schools and networks with high levels of adaptive capacity that:

- Focus all activities on individual and organisational learning and change

- Develop inquiry and problem-solving mindsets
- Seek evidence to inform decisions
- Require everyone in the network to consider their contribution.

The inquiry learning and action spiral in Figure 2 (Timperley, Kaser & Halbert, 2012) is applicable to and inclusive of all learners in the networks, whether student learners, adult learners or network leaders. It is a development of the first author's earlier writing in this area (for example, the inquiry and knowledge building cycle in Timperley, 2011). An important difference is the focus of the spiral on design whereas the earlier cycle focused primarily on processes.

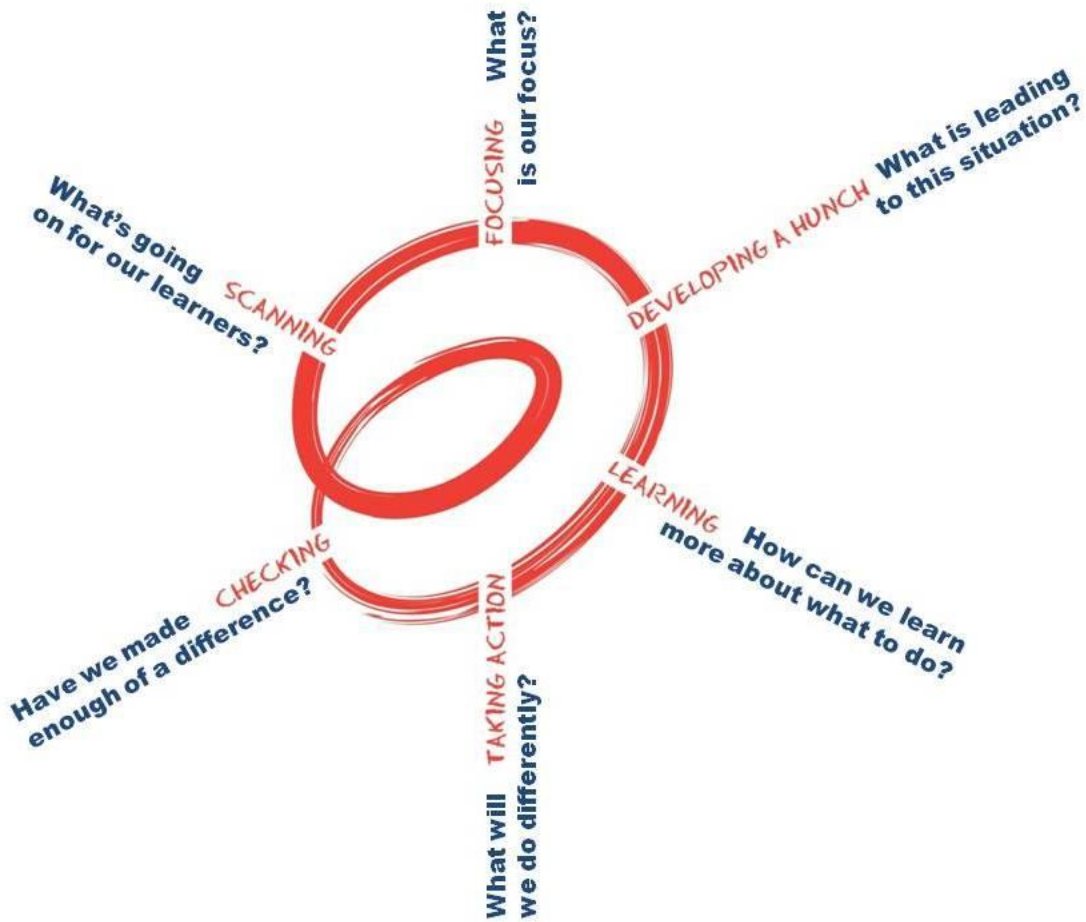

Figure 2
Inquiry, learning and action spiral for networks (Timperley, Kaser & Halbert, 2012)

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The developers of the spiral have found that when network leaders work with others systematically through all phases, compelling reasons for change and improvement emerge. Those involved frame real learner-related problems to focus on. They identify and try out practical strategies using evidence to both frame them and decide if they are effective.

At each phase they ask and answer two central questions, "Why does this matter?" and "How do we know?" Once learners, leaders, teachers and community engage in the spiral, they develop and deepen their inquiries until the process becomes central to their educational and professional lives. That is, they develop inquiry mindsets and can't go back to earlier ways of approaching improvement or learning.

The following sections unpack each phase of the cycle in terms of processes that support the development of adaptive expertise and organisational adaptive capacity. Further details of some specific processes marked with * are provided in a subsequent section.

Scanning

Scanning asks, "What's going on for our learners?" within individual schools and communities, and across the network. It involves a wide and systematic look at what is happening for learners across a range of areas that include as a minimum social-emotional and intellectual engagement together with achievement because each impinges on the other. Given the focus of the networks on improving outcomes for learners, scanning for social-emotional and intellectual engagement does not mean substituting these areas for achievement. It means understanding what is happening for learners from their perspective so that when a focus on the standards is established, it is informed by more than achievement. It is important to keep in mind that it is not really possible to find out what is going on for learners unless they are actively involved in designing and responding to the scan.

Scanning is an evidence-seeking approach. When networks approach the Ministry of Education for network funding it would be expected that they would have undertaken some preliminary scanning, using at the least, learner opinions, their profiles and progress on the standards as a measure of achievement, together with systematically collected information about engagement and attendance. External assistance may be required for more in-depth scanning.

Why does this matter?

Scanning is important because it helps those involved to get a handle on what is happening for learners in the individual schools and across the network. Without this wider view, improvement decisions may miss important issues. When deciding what areas to include in the scan it is important to consider the ideas of both the professionals and the community and build learning partnerships for change*, and, most importantly, the student learners, because they may have very different, but valid ideas about what is going on.

Scanning helps network members identify where they should focus their future learning in an evidence-informed way, rather than working from perceptions or assumptions of what the issues might be for learners and acting on them in ways that miss the point and fall into the kinds of activity traps described by Katz et al., (2009) in their book on networks.

> "... if activity were a proxy for improvement things would be fine. Unfortunately, levels of activity hold no direct promise of improvement. In fact, there is a good chance of ending up in an 'activity trap' focused on doing, where the activity may be ineffective, or even counterproductive. The troubling nature of activity traps is that you don't know when you're in one." (p. 24-25).

How do we know?

Scanning requires criteria that can be used to judge when something is good enough or needs further action. An evidence-seeking mindset of assessment for inquiry* requires that that the criteria have high expectations built into them. The process also requires some way of measuring how the current situation meets the criteria. This requires skills in data collection, interpretation and use.

When making decisions about which areas to scan, it is important to avoid restricting the scan to areas for which criteria are readily available, such as only reading, writing and mathematics. Don't value what is easily measured. Develop ways to measure what is valued.

Design Challenges

It is easier to say what scanning is or isn't than it is to design scans that can be conducted in efficient and effective ways. Scans provide the overview. They are not the main event but provide important information when deciding what to focus on. Once the professional learning spiral is integrated into network practice, scanning will occur regularly as a way to keep a finger on the pulse.

First time scans are likely to turn up surprises. While good assessment systems for the standards tell the professionals and community about student learners' achievement profiles, less evident is what is happening for them in social-emotional and intellectual engagement unless they have had a say yet these areas may impinge on academic learning. Surprises are often about community perceptions. A good scanning system picks up these kinds of issues.

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What scanning is and isn't:

- Scanning involves an inquiry and evidence-seeking mindset, not a mindset that wants to confirm the status quo.
- Scanning takes a wide perspective on learning, not just a focus on aspects of academic learning that are easily measured.
- Scanning is about what is happening for all learners from their perspective, or that of their families, not just that of the professionals.

Focusing

While scanning provides the big picture, this phase asks "What does our focus need to be?" Focusing means finding something specific for the network to learn about and take action on that is worthwhile in terms of improving outcomes for targeted groups of learners.

Why does this matter?

Focusing makes serious action possible. The scan may reveal several possibilities for focused network learning but if more than one or two are selected, those involved can become overwhelmed with multiple demands and nothing changes. There are many examples both nationally and internationally that having a deep and narrow focus, such as reading comprehension or feedback in writing gets better results than trying to cover more than this (Timperley et al., 2010; Bryk, Camburn & Seashore Louis, 1999). Focused and deep is better than trying to cover everything.

How do we know?

Usually further evidence needs to be collected on the area of focus to get a deeper understanding of what is going on. The design for collecting this evidence should identify strengths and positives as well as the problems and challenges because knowing the strengths gives important clues into what to do next. This is evidence-seeking in action.

More often than not this phase is too rushed (unlike scanning) with everyone moving too quickly to deciding what needs to be done. Professionals are rarely short of ideas when asked what is going on for their learners or the community. The leadership challenge is to slow down the process, ask everyone how they know what they know, then channel these ideas into some form of measurement process or tool.

Design Challenges

The multiple possibilities that arise from scanning mean some things have to be parked for a later time or dealt with in another way than through focused professional and community learning. Mediating between conflicting views about what matters and parking something of potential value is

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one of the hardest things for leaders to do. But it does matter. The design task for network leaders is to get everyone heading in the same direction on something that is both worthwhile and manageable. While this is challenging, at least it has more energy behind it than having everyone resigned to "doing" professional development of marginal interest.

What focusing is and isn't

- Focusing uses information from the scan, this is not the time to introduce completely new areas;

- Focusing usually requires collection of further information to clarify what is happening, don't assume you know;

- Focusing should include strengths or positives as well as problems and challenges, not one or the other.

Developing a Hunch

Phases often run into one another and should not be taken as lock-step stages. Evidence from one informs the next. Throughout the spiral, surprises are inevitable and in many ways hunches about what might be leading to what occur throughout. Hunches guide scanning. They guide focusing. They also guide future action so we have included in this phase the question "What is leading to this situation?"

Why does this matter?

Everyone has hunches about what is leading to what. Sometimes they are referred to as personal theories or mental models. Some hunches are passionately held. Getting those hunches onto the table in a way that they can be discussed and assessed in terms of whether or not to make them a network learning focus is fundamental to moving forward together as a network. Otherwise hunches go underground and get in the way of shared commitment to serious action.

How do we know?

There is rarely a definitive answer to the issue of what is leading to what, which is why we have referred to them as "hunches" rather than conveying certainty. Despite this, it is important to seek evidence to clarify what is most likely. A situation analysis* can help here. Including the perspectives of family, whānau and community together with student learners is essential to informing hunches. Their answers to the question of what is leading to the situation are likely to be very different from the professionals. Diverse perspectives are important to get an accurate perspective.

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Design Challenges

There are two main design challenges here. The first is to keep the focus on things that those involved can do something about. There is no point in blaming parents, the community or other schools. It won't change anything. The guiding question has to be, "How are **we** contributing to this situation?"

The second design challenge is to turn answers that are deeply believed to be the 'truth' into hunches. Then they can be assessed for their worth in terms of taking action. Just dismissing them is disrespectful. Just accepting them doesn't allow their worth to be held up to scrutiny. This requires an inquiry mindset and professional conversations* that make hunches explicit, check for meaning and seek ways to test them.

What developing hunches is and isn't

- Developing a hunch involves getting deeply held beliefs out on the table, it doesn't involve a general brain storm of all possibilities;

- Developing hunches focuses on how the participants are contributing to the situation, hunches don't focus on everyone else;

- Developing hunches involves turning beliefs into a form that can be assessed as a worthwhile focus for learning, not just having a vent.

Learning

Learning here refers to adult learning – both within the school and the community within the network. All phases of the spiral involve adult learning. Attention is drawn to it at this stage because this is the time to really get down to the nitty gritty as network members identify "How and where can we learn more about what to do?" The learning focus arises from the hunches that look to be most productive as a way forward.

Why does this matter?

Building capabilities through learning new knowledge and skills is fundamental to creating the kinds of change needed to meet the quality and equity imperatives for **all** student learners. If network members individually already knew how to make the needed changes to practice they would be doing so. Changing practice in deeply informed ways involves new learning of both the theory and the related practice.

By deeply informed we mean those involved know why new ways of doing things are more effective than what they did before. This is the theory part. Theory matters because leading and teaching in

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schools and the community aren't a set of discrete strategies, but an integrated and holistic approach to promoting learning. Knowing why is fundamental to deep change.

How do we know?

The main issue is to decide who needs to learn what. This is possibly the most important question in the whole spiral because better outcomes for student learners depend on those responsible for teaching and leading them, and interacting with them at home, learning the right things and making relevant changes to practice. The process may be led by a member of the network but is also likely to involve people external to the network with specific expertise.

Here it is important to use formal theories and research evidence as a guide. Formal theories help to identify what is likely to be effective and may include how student learners' learn particular subject-matter, what underpins high intellectual engagement and how to promote social-emotional learning in ways that enhances intellectual engagement and better academic achievement.

The contexts of each network, however, are unlikely to mirror exactly the context in which the formal theories have been developed and the relevant evidence collected. Formal theories must be contextualised for particular learning environments.

In addition, in our rapidly changing world, the possibility of innovative strategies must be given space, particularly e-learning because of the potential to engage learners and to give them greater control over their own learning. Here is where theory and evidence-seeking comes into play. What new theories should be considered? What new kinds of evidence should we seek to create innovative solutions?

Professional conversations* typically form the oil that determines whether the activities designed to build capability actually do so, or simply result in activity traps (Katz et al., 2009). The two types of conversations of particular importance are the analysis of professional practice and the examination of student learning (see Figure 4).

Design Challenges

This is the time to build deep knowledge and associated skills for everyone in the network. Alignment of everyone's efforts, focused on learner outcomes is really important. Everyone needs to learn what this involves for them. Leaders need to learn how to lead the focus, teachers need to learn how to teach the focus, and parents need to learn how to support the focus at home, and learners to learn the focus.

The greatest design challenges here are to identify the expertise that can help and to free up time for everyone to be deeply engaged. The research evidence indicates that a year of focused effort is a minimum. Two years is much better and probably needs a third year for sustainability.

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Innovative solutions, particularly related to e-learning should be part of the solution in the 21st century. We wish, however, to sound a word of warning about innovative solutions. They are not the same as letting a thousand flowers bloom or adopting someone's untested great ideas. Innovative solutions draw on what is known to develop something new that is consistent with sound theory and evidence. We refer to this as disciplined innovation*.

Taking the time to identify the expertise required to help leaders, teachers, parents, family and whānau to deepen knowledge and skills is also important in this part of the spiral. The expertise may be within the school or network, or it may be external. Increasingly, there are well-developed materials on websites such as TKI that can be used.

What learning is and isn't

- It is about building everyone's capability to address the focus, not just teachers;

- The associated learning is connected to the inquiry and analysis process in the earlier phases;

- Building capability requires understanding why new ways of doing things are better than what those involved did before, it isn't just about learning new things;

- Building capability that makes a difference requires focused time over a long period, not just a few brief encounters.

Taking Action

In reality, if the earlier phase of building capability is undertaken over an extended length of time, then taking action is an integral part of learning and occurs at all phases. Asking "What will we do differently?" is built into all learning engagements. If earlier phases have identified an area of focus that network members care about, then the difficulty will be stopping them doing something different. In education, leaders, teachers, young learners, community and businesses learn as much through trialling new ideas out in practice as they do from more formal sessions. What is important is that the trialling is informed by a deep understanding of why new practices are more effective than what they did before.

Why does this matter?

Nothing changes for student learners unless the learners themselves, their leaders, teachers and parents and whānau do things differently as a result of engaging in the inquiry process. Sometimes it is assumed that things are changing for learners when just a few superficial things have happened.

Under these circumstances, inquiring becomes an end in itself. We have included *action* in the title for the spiral for good reason.

How do we know?

The only way to know if things are different is to have some way to have supportive observations of practice designed to promote further learning. The research shows that describing practice without an accurate record usually reflects intentions rather than reality (Timperley, 2011). Observations may involve direct observation where the observer is in the room, or it may be through video. Video is often more helpful because everyone asking the question has the same image in front of them and they can press the pause button to discuss a particular point.

Observations are not about whether those observed are doing something right. They are focused on whether the changes network members are making to their practice as a result of their learning are leading to improvement in young people's learning experiences. Sometimes observations are focused on "implementation integrity" which is another word for compliance. We should expect those involved to adapt approaches to meet the needs of learners. What we need to be wary of is lethal adaptations to the intent of the approach that detract from young peoples' learning (Haertle, 1986 cited in Palincsar, 2007).

Design Challenges

The main design challenge is to make sure all those involved are supported to try out new practices that are consistent with the underpinning ideas of what has been learned, and to find out if students' learning has improved. Sometimes teachers try out something that is only partially understood then decide it isn't effective. Leaders rarely have their practice observed and critiqued. Ongoing support for changing leading and teaching in the environments in which young people learn is essential.

> What taking action is and isn't:
>
> - Taking action is about learning more deeply about new ideas, it's not just about implementing what was learned;
>
> - Taking action is informed by a deep understanding of why new practices are more effective than others, it's not just trying things out;
>
> - Taking action involves understanding that when doing something differently its effectiveness is judged by the impact on learners, it isn't about getting the practice right.

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Checking

The whole purpose for designing inquiry is to make a difference to outcomes that are valued for learners. In the context of the networks sponsored by the Ministry of Education, checking is focused on improvement on the standards for targeted groups. If other areas were found to be contributing to problems in the students' profiles on the standards, such as engagement, then they should also be checked. The checking question asks, "Have we made enough of a difference?"

Why does this matter?

Change does not always equal improvement. Educational issues are complex and no-one's best efforts to do something about them are uniformly successful. It is only though carefully checking that the effectiveness of efforts to make enough of a difference to the learner outcomes can be determined. Usually success is mixed. Some things improve, others don't. Spending time unpacking what led to what is fundamental to an inquiry mindset.

How do we know?

The inclusion of "enough" in this question implies that checking uses the criteria established during the scanning or focusing phase. Most educational interventions make a difference but they haven't made enough of a difference to change the country's profiles of achievement to any significant extent. High expectations must be built into the criteria used to assess when enough is enough. Someone learning something, whether adults or student learners, is not good enough. Checking requires prior decisions about what enough would look like; enough of what for whom?

Usually the same evidence used in the scanning and focusing phases is also used in the checking phase. It may be that everyone has learned a lot more as they have worked through the spiral, in which case additional sources of evidence might be used. Evidence-seeking really comes into its own in this phase and it requires sophisticated skills in data collection, interpretation and use.

Checking does not always have to be formal. When inquiry becomes a mindset, leaders, teachers families, whānau and learners will start to check informally during lessons or over a more extended unit to find out if their student learners have grasped a particular concept. The information revealed by the check forms the basis of the next inquiry focus.

Design Challenges

The main design challenge is to make sure adequate checking happens in a timely way for the different participants in the network. Teachers need the information immediately if their teaching is to be responsive to their learners. When checking happens at the end of year it is difficult for teachers to do anything about the issues that are identified.

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Leaders of individual schools can afford to wait a little longer as can those involved in leading the network because the decision-making time about "what next?" is not so immediate. End-of-year information may be useful but needs to be in sufficient time to inform future planning.

What checking is and isn't

- Checking is fundamental to an inquiry evidence-seeking mindset, it is not just a routine to follow;

- Checking has high expectations that inquiry, learning and action makes enough of a difference for **all** learners, not just some difference for some;

- Checking turns assessment profiles into information about the effectiveness of leading and teaching and what can be done about it.

What next?

Figure Two is constructed as a looping spiral because once schools and networks start to engage in serious inquiry and action they come to understand it as the basis for ongoing improvement. Having an inquiry mindset becomes integral to one's vision of being professional, that is, an adaptive expert. The spiral becomes a way of thinking and working with leaders, teachers, parents, whānau and community automatically scanning, focusing, etc on a daily basis.

A major role for network leaders is to develop an inquiry culture where such thinking permeates both adult and student learners' environments across home and school and across schools in the network. Both the adults and those they teach move through the loops of the spiral together on a daily, weekly and monthly basis. A unit of learning is introduced, young people scan as they figure what they know and don't know, they then focus, develop a hunch, find out where they can learn more, do something different and check that they have understood.

Specific skills, processes, tools (* above)

In the description of the inquiry, learning and action spiral some specific processes have been marked with an *. The asterisk indicates that the underpinning ideas are further explained in this section.

Building learning partnerships for change

Networks have as a core principle that they build on a diversity of perspectives from those with an interest in the outcome (Nooteboom, 2004). Given the focus of the networks on improving

outcomes for Māori and Pasifika learners, together with those with special learning needs, it is the perspectives of those who have a particular interest in promoting this outcome that need to be part of the network, or involved in leading it. Concepts defined in Te Kōtahitanga of manaakitanga (caring for students as culturally-located human beings above all else), mana motuhake (caring for the performance of students), ako (reciprocal learning relationships), and kōtahitanga (promoting, monitoring and reflecting on outcomes) (Bishop,Berryman, Cavanagh, & Teddy, 2009) are particularly significant. Te Kōtahitanga (Bishop, Berryman, Richardson, & Tiakiwai, 2002) has demonstrated how powerful the voices of whānau and learners were in changing teachers' perceptions of how their actions impacted on the success of Māori learners.

A summary of the research on creating educationally powerful connections with families, whānau, iwi and community in the Best Evidence Synthesis on Leadership (Robinson, Hohepa and Lloyd, 2009) notes a dearth of research evidence in the area. The authors propose, however, that the big question is not whether these connections are important but how to create educationally powerful connections in ways that benefit learners. The main body of research referred to in this synthesis has focused on involving whānau and parents in curriculum-specific interventions.

The intent of the networks, however, is much broader than this which is why we have used the concept of partnership. Two of the Ministry's criteria for success include whānau, iwi, parents and communities both leading and contributing to innovative solutions within networks. To do so productively, those involved will need to approach the partnership and enact the values of manaakitanga, mana motuhake, and ako and consider the linguistic and cultural resources each partners brings. All have resources to contribute to effective diagnoses of the current situation and all have resources to contribute to effective solutions. Bishop et al., (2002) note that this has not been the case in New Zealand, and that historically New Zealand schools have been organised monoculturally with the result that many Māori children have had experiences that the cultural knowledge was unaccepted or belittled, their intentions and motivations misinterpreted, and their language and names mispronounced.

The importance of mana motuhake and ako means that the network partnerships should not fall into the trap of establishing relationships among the adults in the network that do not necessarily benefit the learners. An earlier study of partnerships in improving schools in Mangere and Otara (Timperley & Robinson, 2002) identified that most partnerships were focused on better relationships among the adults, and did not always focus on the tasks involved in improving outcomes for the learners the partnerships were established to benefit.

Assessment for inquiry

Assessing student learners has traditionally been about collecting evidence to make decisions about students' capabilities, without their input and sometimes taken as a proxy for their intelligence. From this assessment perspective, the purpose is often to identify how well learners are achieving

against the standards, assigning a grade, reporting to parents, or deciding on subject choices or career paths. These purposes are all underpinned by notions of routine rather than adaptive expertise.

Assessment for inquiry is based on notions of adaptive expertise and learning and is underpinned by an evidence-seeking approach. The process underpins the inquiry, learning and action spiral. In all phases, assessment information is created and shared with student learners and gives them, their teachers, family, whānau and communities evidence and information about what is known in relation to goals of engagement and achievement and what still needs to be learned. Such assessments ideally include information about the processes the student learners are using as well as the product because it is often students' misconceptions and inappropriate processes that get in the way of making progress, not just a lack of understanding (Earl & Timperley, in press).

It is important to involve a diversity of perspectives in the inquiry process because evidence does not speak for itself. Individuals usually fail to attend to key pieces of information or patterns in assessment information (Spillane & Miele, 2007). They tend to search for and see aspects that support their beliefs, assumptions and experiences, and do not even notice the evidence that might contradict or challenge these beliefs (Young & Kim, 2010). The same happens when constructing the implications for action (Coburn & Turner, 2011). Involving a range of network participants, including those likely to have contrasting beliefs, can help to make the interpretation process and construction of implications for action more robust.

Assessment information also guides teachers and leaders about their professional learning. Having identified what students know and do not know, can and cannot do, teachers and leaders ask themselves how well they have taught what students have not understood. This is part of developing a hunch. A deeper inquiry then asks them to identify whether they need to engage in further professional learning about how to approach the teaching of a particular concept or skill in ways that students can understand what is being taught. In this way teachers and leaders can start to answer the question, "What capabilities do we need to develop?"

In the early stages at least, the technical and social complexities of this process mean that those involved usually need external assistance. Attending to the technical aspects means the evidence will be of sufficient quality to be worth spending time on. The social processes of deciding what information to collect, how to interpret it and the implications for learning and action require skilled facilitation.
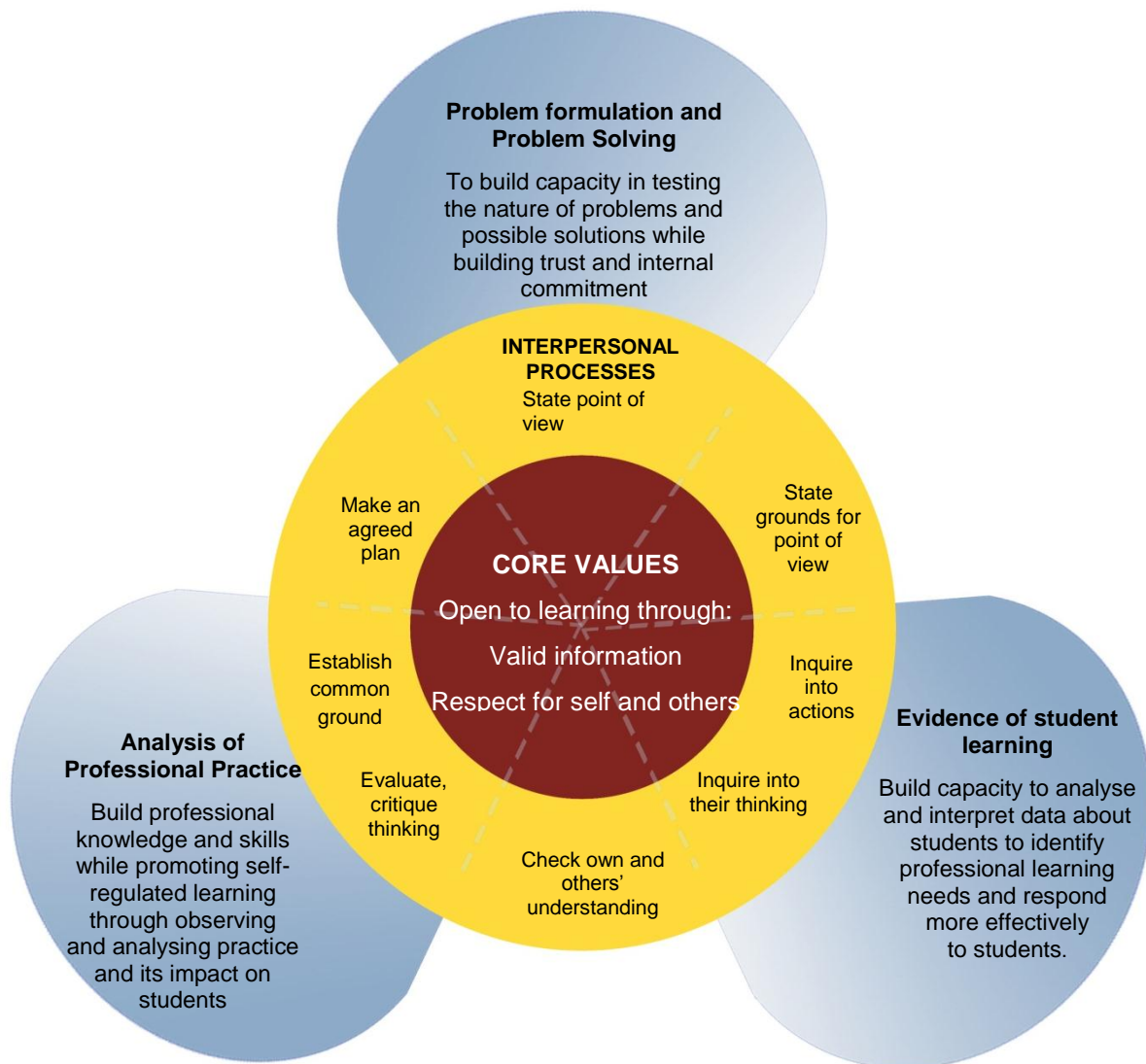
Professional conversations for different purposes

Conversations between learners and their professional, family, whānau and community supporters form the oil that seeps through network and school activities, both creating and carrying meaning as they flow. Networks and schools are places of intense activity and the interpretive conversations that accompany them largely determine whether these activities simply form part of the routines or form opportunities for those involved to learn and improve.

Professionals need to craft their conversations with those other groups carefully and deliberately if they are to realise their power in a lateral learning environment. One of the major challenges is to interrupt the flow of something so innate to our development. Through daily practice since childhood the neural networks in our brains have become patterned in ways that determine what we attend to and how we respond. Changing what we do automatically requires changing this patterning – not an easy matter.

In our work with colleagues (Viviane Robinson, Brian Annan, Mary Wootton), we have identified three purposes related to professional conversations that have high impact on developing professional capability in ways that improve outcomes for student learners. These are summarised in Figure 4 developed by Helen Timperley and Viviane Robinson and include:

- Problem-formulation and problem-solving (see Robinson, 2011)

- Using evidence of student learning (may be data or student work) (see Timperley, unpublished)

- Analysis of professional practice (see Timperley, under review)

Problem formulation and Problem Solving

To build capacity in testing the nature of problems and possible solutions while building trust and internal commitment

INTERPERSONAL PROCESSES

State point of view

State grounds for point of view

Make an agreed plan

CORE VALUES

Open to learning through:

Valid information

Respect for self and others

Inquire into actions

Establish common ground

Evaluate, critique thinking

Inquire into their thinking

Check own and others' understanding

Analysis of Professional Practice

Build professional knowledge and skills while promoting self-regulated learning through observing and analysing practice and its impact on students

Evidence of student learning

Build capacity to analyse and interpret data about students to identify professional learning needs and respond more effectively to students.

Figure 4.
Conversations for different purposes to improve outcomes for student learners

The different conversations in Figure 4 are all guided by core values that are underpinned by being open-to-learning. The first core value involves maximising valid information that is relevant to the situation. In the case of problem formulation and solving, the valid information may relate to different people's perspective on the problem. In the analysis of professional practice, the valid information may relate to the practice itself, or to the criteria against which the practice is being evaluated.

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The second core value is respect for self and others. A key aspect of respect is unpacking and understanding each participant's views, particularly when they do not agree with one another, working out what is agreed and what is not.

The third core value is internal commitment. This commitment is fundamental to creating change and improvement. The networks proposed by the Ministry of Education are about learning and change. If things are to be different for learners, then the commitment to change and improvement is fundamental.

What these values look like in practice is described in the next circle in Figure 4. The processes start with stating your point of view and the grounds for the point of view in a way that it can be questioned by the other person. The following processes of inquiring into their thinking and action are essential to maximising valid information and respecting others. Checking your own and others' understanding and evaluating and critiquing thinking are again maximising value information and showing respect to both yourself and others. These processes also build commitment to change. Critique is often thought of as criticism and can be perceived as such if the prior processes of stating your views so they can be challenged and inquiring into the other person's thinking and action haven't happened. Critique must be based on a deep understanding the other person's views before those views are evaluated and challenged. An effective critique also results in understanding how to change actions. Discussing how something should be changed with no way forward can also be perceived as negative. Specific commitment to change is achieved through the agreed plan.

One of the challenges for those engaging in conversations in the networks, therefore, is to slow down their conversations, decide on the purpose for having the conversation, understanding the interpersonal processes involved and checking whether the conversations among the professionals are resulting in the kinds of change that work for student learners.

Disciplined innovation

Much of the writing on networks is about their creative potential for innovation through drawing on the collective knowledge and skills of those grappling with similar issues. Their typically non-hierarchical structures have meant that the creative energy is not constrained by organisational bureaucracy (e.g. Wenger et al., 2004). In the business world, network goals are often about knowledge creation (Nooteboom, 2004).

The apparent contradiction here is that approaches to making a difference to student outcomes in schools that are based on local innovations that let "a thousand flowers bloom" have been largely unsuccessful in making a difference for outcomes for students (Rowan, Correnti, Miller & Camburn, 2009; Timperley, et al., 2008). On the other hand, neither have highly bureaucratic and prescriptive top-down approaches in terms of their long-term sustainability (Timperley et al., 2008). An

alternative approach is needed that is consistent with developing adaptive expertise and adaptive capacity described in earlier sections of this paper. It includes the following characteristics:

- Building on by what is already known to both work and not work and most importantly the reasons why;
- Taking an inquiry and evidence-seeking orientation that has learners, their engagement, well-being and learning, at the core;
- Analysing which aspects of the innovation are working for student learners in order to identify what should be retained; and what is not working to identify what needs to be changed.

The three big levers proposed in the Ministry of Education networks, e-learning, cultural responsiveness and schooling improvement will require innovative solutions to come together in ways that make a difference to outcomes for student learners. When deciding how to do this it is important to draw on what is already known through extended programmes of research and development, then adapt and contextualise what is known in new environments. This is the intent underpinning the first bullet point above. For example, there is an increasing body of evidence about important skills for the 21st century and how people learn them. To ignore this knowledge-base is inconsistent with an inquiry and evidence-seeking orientation articulated in the second bullet point. The evidence-seeking stance of this bullet point requires learners to be at the core of innovative practices. The ongoing analysis in the third bullet point requires constant review of whether efforts to combine the three levers are making a difference for learners. For example, just focusing the analysis of the impact of e-learning on levels of use in technology will not focus attention on whether increasing use is raising achievement on the standards.

Similarly, there are many different interpretations of what it means to be culturally responsive (Earl, Timperley & Stewart, 2008). If a particular interpretation is assumed to increase student learner engagement and raise achievement, then how this interpretation and approach achieves particular outcomes needs to be tested against what is intended.

Situation analysis

A situation analysis (J.Annan, 2005; B. Annan, Wootton, & Timperley, unpublished) is a facilitated process to help those wanting to improve outcomes for students to identify how they might need to change their thinking and actions in order to achieve ongoing improvement. It is most helpful when networks have experienced initial improvement in student learner outcomes, but then experience a plateau. One place to fit it in the network cycle of inquiry, learning and action is when developing a hunch about what is leading to what. Another time might be after checking if enough of a difference

has been made to outcomes for learners, particularly if the impact is less than hoped for. At this point, the situation analysis can be used to identify the focus of the next cycle of inquiry.

Through the process, the participants come to realise that something different needs to happen if they are to move beyond the plateau. The process acknowledges the ability of those involved in the situation to make further progress once they have identified what may be getting in the way of further progress and what is different about what needs to happen.

It begins by asking those involved to identify key players in the situation and the nature of their interactions. Facilitation involves delving into possibilities and defences evident in the leaders' portrayal of the situation to identify what might be getting in the way and what needs to happen differently. It may include questioning and critique of structural arrangements within the network and almost certainly includes inquiring into relationships, particularly those relationships that might be obstructing change and improvement. It frequently means identifying what is not happening e.g. an absence of collegial critique. This process can take up to two days. The change agenda is identified through leaders completing complementary problem-practice and capability templates in relation to their priority student learning problem. The problem-practice template identifies what needs to change and new actions to change it. The capability template helps leaders work out which new actions they can take on their own, and which will require new professional learning.

Research, Development and Evaluation

Network participation is not the same as change and improvement. Indeed participation may reduce improvement through network members being caught in "activity traps" (Katz et al., 2009) focused on 'doing' but not checking that the 'doing' is effective. It is important, therefore, that the network systematically checks if the activities are resulting in the desired outcomes for the learners the network is designed to serve. Systematic checking by network members themselves provides ongoing information for the network while developing network members' capability to evaluate their activities. Formal checking by outside agencies through research and development can help network members take a wider perspective.

A central purpose of both the internal and external evaluations must be to promote network learning and change. In both cases, criteria about what it means to be effective (ie. success criteria) need to be developed with network members as the basis for evaluating particular network activities. The criteria simply specify what something looks like when it is happening. As these criteria are developed, ideas about how to change and improve become explicit and linked into a network theory for improvement. A theory for improvement is just a set of linked ideas about what activities are supposed to lead to what and ultimately would include the chain of influence from governance and leadership of the network, community involvement and right to the core of teaching and learning. As these criteria and theories for improvement are made explicit they help network

members develop shared understandings across the network about the purpose and meaning of network activities. However, a word of caution needs to be sounded, because in the early stages network members will find it difficult to articulate what they believe is leading to what and will need assistance to do so (Lai, Timperley & McNaughton, 2010).

Once the criteria and beginnings of a theory for improvement are identified, indicators and processes for collecting information about them are then developed to evaluate if key aspects of the theory for improvement are resulting in the changes and outcomes desired. These changes and outcomes at the adult level must ultimately be evaluated in terms of outcomes for targeted groups of learners by asking, "Have we made enough of a difference?" The more distant from the learner, the more indirect the influence but the chain of influence must still be assessed. Figure 5 provides a very simplified illustration of how this might look for the internal evaluation.

Network activity	Criteria (what does this look like when it is happening)	Indicators and processes for collecting the information
Involve school, whānau and community representatives in the governance structure to ensure diversity of opinions are taken into account when designing particular network initiatives.	Criteria identified for what counts as "taking diversity of opinions into account".	Indicators developed by sub-group on governance board. Independent person uses the indicators when contacting members confidentially to find out if they believe their voices are heard and taken into account. Independent person reports back to governance board.
Professional development for whānau and teachers in e-learning promotes connectedness between home and school and improved learner engagement.	Criteria developed for what counts as: • Connectedness between home and school; • Improved engagement of learners (how much in what)	Indicators based on the criteria developed with a group of learners. All learners complete an on-line survey to assess their experience of connectedness and how motivated they are feeling in relation to the criteria. Results of survey returned to learners, whānau and teachers to discuss in an e-forum.
Initiatives developed through diversity of opinions within governance board and the promotion of e-learning lead to better outcomes on the mathematics standards	Criteria developed for what counts as better outcomes: • Which group of learners are of specific interest; • How much improvement would be taken as "better outcomes" on the standards	OTJs for Māori and Pasifika students on the standards used as the indicator. OTJs collated every six months.

Figure 5

An illustration of indicators for internal network evaluation purposes

The main difference between the internal and external evaluations is that the former criteria, theory for improvement and indictors are likely to be network specific, while the latter are more likely to apply across a number of networks with a common purpose and process.

External evaluation has an additional purpose. This purpose is to assess the effectiveness of networks as an innovation in meeting the national objectives for which they were formed. The Ministry of Education has defined these as obtained sustained equitable outcomes for Māori and Pasifika learners and those with special needs (Ministry of Education, 2012). In order to understand potential variability in these outcomes and promote learning at the national level, however, the network activities designed to achieve the outcomes also need to be included in the evaluation design.

Sustainability

There are three apparent contradictions in writing about sustainability in a paper on networks with one of their foci on e-learning. Firstly, networks are designed to evolve and be responsive to changing purposes, not to be an embedded unchanging structure. Secondly, approaches to e-learning are in constant transition as new technologies and understandings evolve, sustainability could be seen as an anachronism in this environment. Thirdly, this paper is intended as an introductory paper, isn't sustainability something that should be considered once something has been achieved that is worth sustaining? The responses to these questions are below.

The purpose of the network is to raise achievement of targeted groups that are currently not well served by our education system, in particular Māori and Pasifika students, and students with special needs (Ministry of Education, 2012). The research literature is full of short term innovations in which gains in outcomes are achieved, only to disappear with the next leader, innovation or government initiative (e.g. Timperley et al., 2008). The longer term thinking must be to sustain gains for these students, so while particular network structures and activities, including the rapidly evolving e-learning landscape, might be relatively short-lived, building in ways to sustain gains of network activities must be part of network thinking from the beginning. Some of these ways include:

- Maintaining a sharp focus on these outcomes for all evolving network activities and not to get distracted by activity traps (Katz et al., date)

- Distributing leadership across the network so key understandings about improving outcomes for targeted groups of students are embedded throughout the network rather than held by a few (Spillane, Halverson, & Diamond (2004);

- Mobilising the social, cultural, and linguistic resources of the communities served by the schools through robust partnerships with the professionals focused on improving outcomes (Moll, 2010);

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- Developing adaptive expertise of all participants whereby those involved are constantly challenging their own assumptions about their effectiveness, particularly in relation to their cultural positioning with respect to Māori and Pasifika student learners, and checking if their efforts to make a difference are actually doing so from the point of view of those the network activities are designed to serve;

- Developing explicit processes of inquiry, such as those described in the inquiry, knowledge and action spiral, so that robust inquiry processes focused on making a difference becomes a professional and community norm;

- Working towards managed-interdependence with external experts whereby participants in the network develop the strategies to identify when they can rely on their own resources for disciplined innovation and when they need to seek assistance (Timperley et al, 2012)

Suggestions for How to Use this Paper

This paper has covered a wide range of topics:

- Learning from the past and present in New Zealand
- Learning from international evaluations
- Learning in the future
- A vision of professionalism as developing adaptive expertise
- Designing for inquiry, learning and action
- Research, development and evaluation
- Sustainability

 The reason for covering this range of topics is the complexity of constructing networks that make significant changes to the educational outcomes for learners from Māori and Pasifika communities, those living in communities with limited economic resources and with special education needs. The paper is deliberately divided into these discrete sections, so that a particular section can be used by the networks at a time that is relevant to their development. For example, when developing network structures and focus the figures in Appendix A and B might provide a useful checklist for some do's and don'ts. The inquiry, learning and action spiral in Figure 3, together with the associated explanation, may help to design processes for learning and change, with more reading indicated for specific skills. Alternatively, it may be more appropriate to unpack what it means to be an adaptive expert to ensure the design of and activities within the network contribute to developing schools and networks with high adaptive capacity. While the intent of the networks is to create improved outcomes, it is important to check whether they are doing so, in which case the section on research, development and evaluation may be useful.

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The complexity of these all these processes, however, mean that they can only be touched on in a background paper. To explain each in depth would require a book or more. This background paper is designed to provide a starting point only, with further papers indicated for specific areas.

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Appendix A

Realised benefits and unrealised potential from Schooling Improvement evaluation and implications for learning and change networks.

Ministry of Education's criteria for learning and change networks	Realised Benefits	Unrealised potential benefits	Implications for learning and change networks
There is a sharp focus on an achievement challenge / opportunity in relation to Māori, Pasifika, learners from low socio-economic backgrounds and learners with special education needs	All clusters had a focus on improving outcomes for student learners with achievement data disaggregated for Māori and Pasifika learners. Some focused on equitable outcomes for priority group learners. Greatest achievement gains were evident in schools with a sharp focus on changing the learning environment and checking if those changes were making a difference.	Despite a focus on improving outcomes for students, some clusters focused more on the learning of teachers rather than ensuring that what was learned resulted in change for student learners. In these clusters limited change was evident.	The sharp focus needs to have targeted groups of student learners as the touchstone for the network with ongoing checking to determine if adult learning results in change and improvement for student learners.
	Schools / clusters that had a single area of focus, then used what they had learned in relation to that focus for change in other areas, had better achievement gains than others.	Schools / clusters with more than one focus had lower rates of improvement in outcomes for learners. The lack of integration of e-learning with schooling improvement foci in literacy and numeracy limited the potential of e-learning to contribute to improvement in these areas.	A sharp focus in one integrated area (e.g. e-learning with a curriculum focus), with adult and student learning systematically transferred to other areas, is more likely to have greater impact on student learner achievement than an initial focus on more than one area.

Network members have clarity of purpose and role – leaders lead within the network, lead within their individual schools/kura and transfer knowledge between network and school/kura	All clusters had a strong sense that the purpose of participation was to improve outcomes for student learners. Clusters with greater gains for student learners developed clear roles, responsibilities and accountabilities to each other for improvement both within their schools and between the schools and the cluster. Improvement efforts were coherent at all levels.	Although the purpose was clear, there continued to be ambiguity in roles, responsibilities and accountabilities to each other for improvement both within schools and between the cluster and school. These ambiguities limited individual, school and cluster learning.	Clarify roles, responsibilities and accountabilities within schools and between schools and the network in ways that maximise opportunities for network learning to be transferred to the school and school learning to be used across the network.
Learners, teachers, school leaders, parents, families, whānau, community and iwi contribute to innovative solutions which are focussed on lifting achievement in relation to National Standards and Ngā Whanaketanga Rumaki Māori	Most solutions were decided by school leaders and cluster coordinators. Where solutions challenged the status quo, were addressed with urgency, and were of high quality, improvements were evident for learners.	Parents, families, whānau, community and iwi rarely directly involved in developing solutions so little evidence of direct benefit to them, nor did learners / schools benefit from community resources and potentially innovative solutions.	Develop educational partnerships with learners, parents, families, whānau, community and iwi focused on achieving the purpose, in ways that lead to innovative solutions and reciprocal benefits.
Strengthened use of data is evident to identify learner, teacher and leader needs.	Most clusters collected data on learners. Greater learning from one another was evident in those clusters that shared their student learner data, collected data on the practices of leaders and teachers and co-constructed their interpretations and the implications for change.	Data from some schools and clusters were not sufficiently robust to determine improvement (or lack of it) even after receiving funding for several years. At best data on leadership and teaching practice was anecdotal. Learning from	The collection of robust data on student learners and the professional and family / whānau practices impacting on student learning, together with processes promoting sharing all data among network members for the purposes of learning and

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the data was limited by continued presentation of "anonymous" data.

change, is more likely to have positive impact than when these conditions are absent.

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Distributed leadership is evident and indicates wider engagement of parents, whānau and communities enriching the quality of the network's programme for improvement.	Distributed leadership within the schools led to shared understandings of all those within the school communities. Parents, whānau and communities were typically not engaged with the network's programme of work so were unable to make a contribution to the leadership.	In nearly all clusters, leadership remained solely with those with positional authority (e.g. principals) in schools and cluster co-ordinators and did not evolve over time.	Work towards genuine partnerships between school personnel and parents, whānau and communities, based on accurate information with leadership based on particular purposes and distributed throughout the network and allowed to evolve as the network purpose evolves.
High levels of relational trust are evident; members make sense of situations together, ask critical and challenging questions respectfully of one another and check that agreed plans are actioned with integrity	In nearly all clusters relationships between schools improved with reduced isolation and competitiveness among school leaders in particular. Some clusters developed high levels of relational trust that included mutual critique and challenge with collegial accountabilities for action and learner outcomes evident.	In most clusters improved relationships remained at a level of "politeness" with school leaders very careful not to intrude on the autonomy of others, thus limiting mutual critique, accountability, and improvement.	Establish expectations of high relational trust and what that means in practice (e.g. sharing data across the network). Work in ways that are consistent with building relational trust based on critique and mutual accountability for learning purposes.
Evaluative capability is grown through evaluative probes into action plans that produce new criteria for improvement the subsequent year.	Some clusters worked in partnership with external research and development groups in ways that built the internal evaluative capability of the individual schools and clusters. This partnership led to ongoing improvement in action plans and outcomes for student learners.	Most clusters limited their evaluative activities to a review of student data each year. Variability in the quality of the data, together with reduced information about leadership or teaching practice, limited the usefulness of the data in identifying where to focus ongoing	From the early stages, work with those with relevant expertise to develop evaluative probes into the effectiveness of professional and parents / whānau practice in promoting better outcomes for students. Use the information to further develop network processes and practices

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	improvement efforts.	that are effective and change those that are not making enough of a difference.

Appendix B

Learning from international evaluation findings on networks[3]

Ministry's criteria for learning and change networks	Network Learning Evaluation Findings	Implications for Learning and Change Networks
There is a sharp focus on an achievement challenge / opportunity in relation to Māori, Pasifika, learners from low socio-economic backgrounds and learners with special education needs	The school focus and the network focus were both highly correlated with the intermediate outcome - changes in thinking and practice. Both the school and network focus were clear, explicit, related to learner needs and linked to teaching and learning.	A learning focus is likely to have a more direct impact if it is *focussed* in ways that are concrete and, high leverage in fostering student learning, compelling, challenging, shared and appropriate to the context. A compelling and high leverage learning focus is based on evidence that it can have significant impact on teaching practices and student learning. A challenging focus is one that requires teachers to reconceptualise, unlearn or make changes to existing practice and structures, legitimating the change process, making the status quo more difficult to protect and offering opportunities for joint attention to issues that are larger than any one school could address alone. The

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[3] This table is based on the work of Katz, Earl and Ben Jafaar (2009). The findings, however, are consistent with other international work on networks. For references see section on "Learning from others (international)".
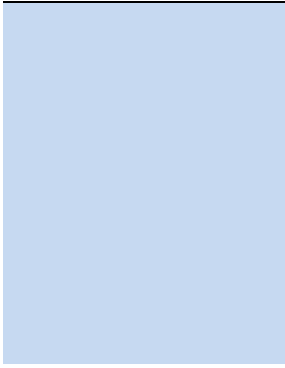
learning focus should be "right" for the participating schools, given their particular context, history and needs.

Teachers and school leaders have a responsibility for maintaining the focus on learner achievement and work to maintain the focus in the face of other initiatives.

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Network members have clarity of purpose and role – leaders lead within the network, lead within their individual schools/kura and transfer knowledge between network and school/kura	Formal leadership was associated with changes in pupil learning and in thinking and practice. Formal leaders were engaged in a range of activities to steer the school improvement process, provide support and build capacity in others. They were active in enabling activities in the school and in the network.	The school culture that leaders foster contributes to the way school colleagues relate to one another and to the network professionally, in order to leverage changes in thinking and practice. This positions school leaders as "boundary spanners" and facilitators of change within the network, both offering a point of upload and download of good ideas and problems of practices between the school and the network, and providing the conditions for boundary spanners to emerge from within the school.
Learners, teachers, school leaders, parents, families, whānau, community and iwi contribute to innovative solutions which are focussed on lifting achievement in relation to National Standards and Ngā Whanaketanga Rumaki Māori	There was limited indication in this study, parents and communities were typically not engaged with the network's programme of work and there was no evidence that there been changes in thinking about or relationships with learners or families in the schools.	There is considerable work to do in many settings to achieve the kinds of engagement of parents, families, whānau, community and iwi in their children's education and of young people's involvement in their own education that will help all young people achieve what they want in life. Networks can be strengthened when they have clear expectations to account for the work that they are doing and show how it is accomplishing the intended outcomes.
Strengthened use of data is evident to identify learner, teacher and leader needs.	Using data was an important variable but fewer participants were involved in activities relating to the analysis of data, reflection about initiatives, monitoring initiatives, learning from failed initiatives or drawing on research or evidence for improvement.	Data use is an essential part of establishing a focus and of monitoring progress along the way. However, it is a new way of thinking and of working for many teachers, leaders and community members who may need support and to move beyond superficial attention to data.

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Distributed leadership is evident and indicates wider engagement of parents, whānau and communities enriching the quality of the network's programme for improvement.	Others in the schools who were not formal leaders were also very engaged in a wide range of leadership activities that supported their school improvement direction, and encouraged and supported others.	Leadership in schools is not connected to role or position but to activities and practices that are stretched over many people in a system of interactions that is more than the sum of the actions of individuals. Informal or distributed leadership involves leading within and beyond the classroom, contributing to a community of teacher, learners and leaders, and influencing others toward improved educational practice.
High levels of relational trust are evident; members make sense of situations together, ask critical and challenging questions respectfully of one another and check that agreed plans are actioned with integrity	Relationships and collaboration in schools (giving advice, discussing professional issues, working together on projects, looking out for one another and trusting one another) had weak positive relationships with changes in thinking and practice and student outcomes, suggesting that they may not be as powerful in changing how teachers think and act as some of the other features. These relationships may be ones of interaction among colleagues who get along and support one another as a routine course of their work but do not test or challenge the status quo. Comfortable relationships and working together are a necessary but not sufficient requirement for networked learning communities to make a difference. There was a difference in the way that relationships and collaboration functioned in the network context. Relationships that embody trust, shared understanding and collective responsibility were more important	Relationships of trust and mutual challenge are the links that bind individuals together into a web. They are a necessary but not sufficient part of effective networks. Joint work that challenges thinking and practices may be at the heart of the power of networks. Networks can provide the forum for colleagues to address genuinely new, and often difficult, ideas in a safe environment, away from the risk of retribution or censure in their daily place of work. Once the ideas are more fully developed and stabilised, these colleagues can stimulate and lead the same discussions in schools, with confidence and make the ideas practical and personal so that they are more likely to be considered for action in the school.

dimensions of interaction in the network than doing things together.

At the level of the network, trusting relationships with shared understanding and knowledge of one another may be necessary for working and reflecting together, especially when the participants have different orientations and views and they are facing challenging issues.

An important and interesting finding in this study was the emergence of a new factor for both schools and networks - "joint work that challenges thinking and practices". This factor is a qualitatively different type of collaboration that requires participants to suspend judgement, challenge their assumptions and intentionally seek out new information, in the quest for understanding.

Evaluative capability is grown through evaluative probes into action plans that produce new criteria for improvement the subsequent year.	Inquiry was a key aim of network learning communities and many schools reported being engaged in reflection about initiatives, monitoring initiatives, learning from failed initiatives or drawing on research or evidence for improvement. At the same time, these were not a well-established or embedded practices.	Collaborative inquiry requires developing new ways of thinking, as well as a new knowledge and skills for many teachers and principals. Collaborative inquiry is a mechanism that has the potential to create deep conceptual change and dramatic changes in practice. It includes, by definition, ongoing and challenging engagement with new ideas, rethinking existing beliefs, unlearning past habits and practices, and going through the process of learning how to do things in (sometimes dramatic) new ways.

An additional criterion has been added to this international table because of its importance in the success of the networks in improving outcomes for learners.

	Network Learning Evaluation Findings	Implications for Learning and Change Networks
Strength of engagement	When the strength of attachment between schools and networks is strong, school-level learning communities can **upload** their ideas and problems of practice into the network – thus strengthening the networked learning community. In the same way, school learning communities can **download** and use ideas and practices from the network for local knowledge creation and sharing. Individuals are the connectors of schools to networks (and networks to schools), through active participation and through the construction of artefacts that serve as the link between the network and the school, with a two-way flow.	The connections between the network and school-level networks need to be strong and pervasive. Although networking schools can create the conditions for influencing how teachers and leaders think and act, it is not guaranteed. It is important to have extensive and strong links in order to influence changes in schools and in pupil learning.

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