

seminar series237

Facilitated networks of learning

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Introduction

Leaders of education systems in many countries across the globe are responding to a transforming world, contemplating the nature of future-focused learning environments. This deliberation and movement is not generated solely from the top end of education systems. It operates within a growth dynamic in which some participants, often with no positional authority, take a lead role in creating new visions and opportunities. Other participants may work to preserve valued traditional practices, perhaps tentatively playing with new ideas but hesitant to cut ties fully with established notions of learning. Within these two extremes there is a large group of participants who choose to go with the flow and make changes as and when new practices emerge. Those taking a lead role might express frustration at what they view in others' actions as reluctance to change, and those who are most invested in conserving traditional practices may be annoyed by invitational or mandated calls for change. Each of these actions represents a vital component of the response to a call to align education and the contemporary world.

The ensuing dialogue among participants creates a climate that supports growth, all participants contributing to the creation of new learning environments. For some students, the transformation of learning will emerge

naturally, particularly for those who have multiple social connections and ready access to the deluge of information flowing through the Internet. For others, these opportunities must be manufactured. The rate of change is rapid; those students cannot wait. The creation of innovative learning environments will require innovative facilitation if all children are to become connected in the future world.

How can systems leaders work with this growth dynamic to encourage the development of relevant and engaging practices? Although it is possible that leaders' perspectives will themselves encompass a changing mix of futurist, moderate and traditional views about learning environments, it seems unlikely that any nation can rely on top-end systems alone to effect the timely transformation required for students who are entering the schooling system now. The process of developing learning environments for current and future education must be shared broadly across all people who influence students' learning and development and who hold views about what they should learn and how they learn best, including the students. In this article, we suggest that facilitation of multiple networks of schools, students, families and community can perform this role.

An age of invention

Over the past century, notions of learning and teaching have moved substantially from traditional exposition of knowledge through to collaborative student inquiry and, now, reciprocal, ubiquitous interaction. This progression is depicted here as a three-phase transition (CISCO, 2008). During the first phase, traditional teacher-directed education, responding to an industrialised society, called for educators to disseminate knowledge deemed suitable for students at that time. Students were, in the main, passive in receiving knowledge through instruction. Relationships between teachers and students were strictly hierarchical and curricula were structured to avoid ambiguity and surprise.

The second phase began as society entered the knowledge age. At this point, the roles of teachers and students moved so that students were supported to make interpretations of information and to construct meanings for collaborative inquiries and shared observations. Curricula were more flexible, allowing for a degree of managed uncertainty. However, this change was incremental, involving supplements to traditional education. The second phase saw the introduction of a raft of generic programs, implemented in response to mounting calls on governments for accountability. Education continued to be viewed primarily as the business of the school and relationships among teachers and students, and groups of students, remained unidirectional. Increasing recognition and valuing of diversity, technological advancement and a shifting global economy have sparked desires for new and innovative learning environments that align with the new world. Those desires have pressed, or drawn, education into a third phase that is characterised by innovation and transformation.

The scale of change in the nature of employment, diversity of relationships, available resources and access to information has generated urgency for new tools that help us understand

the multiple variables and complexity that most strongly influence learning and living. These tools must be accompanied by practices that invite individuals and communities to participate and prosper in current and future environments. As Dumont, Istance and Benavides (2010) observed, we are ‘living in an era of incredible invention and growth in information and communication technologies’ (p 8) that requires new sets of knowledge and skill. This reskilling is no longer negotiable or, as Hannon (2010) has said, is not just ‘nice-to-have’.

Images of phase three future-focused learning environments portray students as no longer attempting to pursue a tightly prescribed curriculum, but one to which they actively contribute and that supports them to ‘learn how to learn’, and to discover how and where to access the particular information they require. Emphasis on teachers expounding specific information has lessened, the profession and new players now taking an expanded role in the development of frames and tools that activate agency in students to access further information. Students can now seek multiple sites in which information is shared and grown through diverse social connections. Sites of learning extend from the local community through, for example, clubs, street conversations, schools, homes, and shopping centres to the global community, through television, the Internet and travel. In this third phase, students access information that is contextually relevant and educators welcome the pace, uncertainty and excitement associated with major change. These images are not widespread realities in practice. Rather, they are being talked into existence as questions and anxieties are replaced with confidence in knowing how young people prefer to learn in the modern-day world.

In some places, the new world of omnipresent learning opportunity is beginning to move beyond rhetoric to become a reality, more so around the instructional core than learning beyond the school gates. There are examples

of students and educators enthusiastically engaging in new learning collaborations. Fullan and Langworthy (2014) have observed that some students and teachers are ‘unleashing students’ and teachers’ energy and excitement in new learning partnerships’ (p i). Those observations and other research findings, such as the Woolf Fisher Research Centre findings from Manaiakalani (Jesson, McNaughton and Wilson, 2013), suggest that transformational work around the instructional core in schools is a critically important development for future-focused learning environments.¹

Networks can make powerful contributions to the growth of future-focused learning environments although their deliberate growth has been sporadic in schooling systems. Where networks have been established, many have involved teachers exchanging knowledge (eg, Earl and Katz, 2007; Spillane and Kim, 2012). Others, particularly on-line networks, have included students and parents (eg, Manaiakalani) recognising the significant role that families and communities play in students’ success. It is timely to build on the networking developments that have emerged and activate broader, ecological learning environments within which instruction is just one of several levers for learning.

Ecological networks extend through the various layers of students’ broad environments, locating challenges and practices within the interaction among participants at multiple levels. The establishment of ecological networks does not assume a full swing away from useful elements of current school structures and practices. Those that support future education are woven into new practices. For example, safety, wellbeing and achievement of young children must remain paramount. Recognition of broad, networked learning environments involves knowing where to stand in particular circumstances along a structure-to-freedom continuum. That is, adults knowing when to instruct young people, co-construct knowledge or support them to learn interdependently and

independently. Similarly, education would not be considered a matter of aimlessly ‘following one’s passion’ but one of building on interest and familiarity and surmounting the challenges that presented. As Newport (2012) suggested, adults who are satisfied in their work and their learning tend to be those who engage in tasks that are interesting and challenging, who apply considerable effort to become skilled and who are then able to use these skills in future endeavours.

In this paper we discuss the knowledge foundation of Interactive Networks, described as interactive because of the learner-active/environment-active perspective on learning implied in this structure. We present and discuss a set of five linked ideas that underpin the interactive network as a vehicle for creating future-focused learning environments:

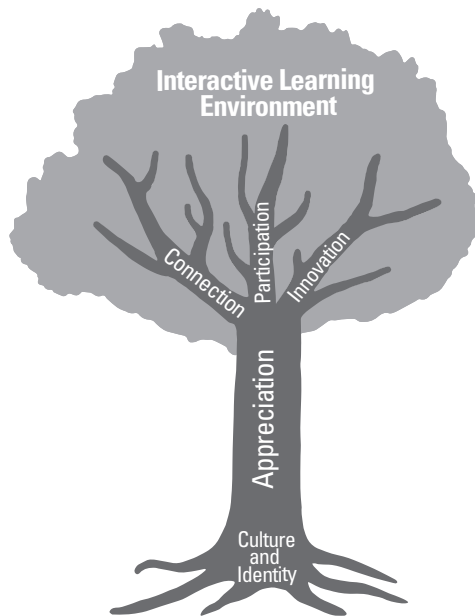
- innovation;
- interactive participation;
- culture and identity;
- appreciation; and
- lateral learning connections.

These five ideas represent the fields in which facilitators of interactive networks require in-depth knowledge and implementation skill. The design of interactive networks has grown as the authors became immersed in

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practice-based developments in education and psychology in Australia and New Zealand. These practice-based developments have involved active participation of students, teachers and families in their schools and communities, resulting in shifts of facilitation from that of ‘consultation with external support and challenge’ to ‘authentic, negotiated external-

Figure 1. The ecology of an interactive learning environment



internal collaboration’.

This situated activity has shed light on some pivotal understandings about student learning. These insights have emerged through a preparedness to innovate; that is, to take calculated and theoretically supported journeys into the unknown and to push current boundaries. We find ourselves at a point where we have observed the parameters of these developments, have begun to understand about innovation for future-focused learning environments and have identified some specific aspects of learning systems for research.

In brief, the facilitation of networks formed to create future-focused learning environments involves activation of multiple group relationships within networks that collaboratively and systematically examine and grow students’ broad learning environments. Students are the primary participants and may be accompanied by groups of teachers, parents and school, community and iwi (indigenous tribe) leaders.

The activity of the networks may be guided by structures such as the Situational Analysis (Annan, J, 2005), an open framework that allows collaborators to develop innovative and contextualised understandings of students’

learning environments. This framework utilises participants’ familiar sense-making processes and tailors change to students’ particular social spheres. In the next section of this paper we elaborate on the five ideas underpinning interactive networking.

Five concepts of interactive networking

Innovation

We consider that innovative future-focused learning environments are those within which graduates grow knowledge and skills for life in current and future worlds. They are flexible, ubiquitous, interactive and constantly transforming, encouraging active participation, curiosity and creativity. They recognise and reflect students’ identities and the multiple cultural beliefs and values students bring to the learning environment. Students in future-focused learning environments develop interdependent relationships and have authentic audiences for organically generated work. They use the latest technology of the time, connecting with one another in borderless networks. These students seek opportunities to explore in new, unknown areas of knowledge and entertain a judicious degree of uncertainty.

As noted earlier, these learning environments do not represent common practice. Rather, they are what we have observed to feature in the visioning of future education. Idea improvement, viewed by Scardamalia and Bereiter (2010, p 12) as the ‘hallmark of a progressive society’, has moved from an elitist activity restricted to formal schooling to one in which everyone can engage. Innovations capable of transforming systems of education must surpass the improvement, reinvention and supplementary approaches that have dominated the past three decades of school reform and cannot rely on simply mirroring high-performing schools (see Hannon, 2014; Innovation Unit for Global Education Leaders Programme, 2013). Traditional, incremental approaches to improve education systems have

aided various reform agendas but are unlikely to produce the level of innovation required to keep pace with rapid societal change. Fullan (2013) has gone as far as to say that we are fast approaching the time when we can no longer ‘squeeze a good education’ from traditional systems.

Future-focused learning environments extend through and beyond the instructional core of schooling and formal education, with students, teachers and communities taking an active role. Together, all participants share in orchestrating applicable learning opportunities. Those students who are able to keep up with social change and digital technology and who can appreciate diverse cultural understandings will prosper. Their familiarity with the artefacts and practices of the new world will support them to connect and communicate with others, to create new technical knowledge and approach learning as a life-long activity.

Many other educators are also contemplating the development of relevant, constructive new learning environments. For example, Dumont, Istance and Benavides, (2010) have suggested that innovative learning environments be explored in ways that reflect the social nature of learning and be shaped through home–school partnerships, the use of up-to-date technology in learning activities, formative assessment and inquiry-based approaches within which students are at the centre. Similarly, Hampson, Patton and Shanks (2012) have offered a set of key ideas for those wishing to advance future education. They encourage the extension of lessons in terms of time, place or structure. This means thinking of social connection outside the classroom, considering students’ individual perspectives and experience and building on the digital expertise students bring to their learning. Students engage in real projects with authentic audiences for their work. Teachers expect to help students be teachers and teachers to be students, and to measure what matters. The authors’ view is that educational relationships include families as active participants in the construction of learning pathways.

Within an interactive conceptualisation of learning, ongoing adjustments to school programs and teaching are vital ingredients of innovative learning environments. Not surprisingly, discussions about innovation to transform education systems frequently focus solely on the role of the school rather than the roles of all involved in the students’ learning. This is possibly because the school is seen as the most likely vehicle to create change. As it stands, governments continue to invest in schools as primary learning hubs and parents generally trust schools as safe places for children to reside during the workday. Innovative schools, however, are characterised by collaboration; they actively involve all stakeholders in the development of curricula, target professional learning in the light of student–parent–teacher interaction and establish supportive and challenging learning connections through linking with other schools.

Innovative schools also involve well-considered infrastructure, procedures and practices. Hannon (2010), making reference to a school network project from the Innovation Unit in the UK, reminded us that changes in school systems affect children’s life chances for better or worse

changes in school systems affect children’s life chances for better or worse and, therefore, the school is not the place for ‘random or unfocused experimentation’

and, therefore, the school is not the place for ‘random or unfocused experimentation’ (p 26). This comment did not imply that education be locked in a time warp, repeating practices from other places and times. Effective changes would be those that were systematic and built on the supportive structures and practices ‘in situ’. Hannon notes that schools working with the Innovation Unit (UK) network project pursued a considered sequence of reflection, analysis and creative design keeping students at the centre of the inquiry.

Similarly, the Manaiakalani project that transformed education in an Auckland suburb involved the creation of a strong structure and clear procedures to support its students to be ‘at home in a digital environment’. Aspects of the learning environment that were given particular consideration were

- the infrastructure to support the digital medium;
- professional learning for teachers;
- device procurement;
- cloud solution;
- operational system (eg, administration, distribution of digital devices and administration); and
- establishing strong, authentic and long-term community connections (see Annan, J, 2013).

The Manaiakalani learning environment was constructed through a process of deliberate social negotiation among students, families, communities and schools, with varying emphases being placed on certain elements depending on the context.

Interactive learning environments call for fresh ways of thinking about sites of learning, tools for learning, social interactions and learning trajectories.

While there remain possibly more questions than answers about future-focused learning environments, some global trends have emerged in thinking about movement toward future education. These comprise a series of simultaneous shifts in the conceptualisation of learning. Specifically, they relate to ecologies of learning, connections with others, collaboration, active participation and appreciation. These shifts are described in terms of

- *ecologies* – from notions of classrooms or schools as primary educational units to appreciating dynamic, ecological structures as students’ core learning environments;

- *connection* – from assumptions of learning as an isolated learner activity to viewing learning as a social process, involving connections among students, teachers, families and the wider community;
- *collaboration* – from competitive or cooperative learning relationships to those characterised by collaboration;
- *interactive participation* – from notions of learning and teaching that presume passive students and active adults to those that assume interactive groups of students and adults;
- *appreciation* – from deficit perceptions of students’ achievement to appreciative views of students’ achievement.

The conceptualisation of education as the domain of a wide population across multiple sites implies the valuing of social learning connections, of collaboration and culturally situated learning activity. Knowledge is interactively constructed by those who seek it, and determined by its relevance for current and future worlds.

Interactive participation

Perspectives and activity

Interactive learning environments call for fresh ways of thinking about sites of learning, tools for learning, social interactions and learning trajectories. Over the last century we have been offered a range of theories of human development and learning, some giving precedence to the role of the environment in determining learning and others to the learner. Contemporary views about learning favour an interactionist view, that is, one that involves the active learner within an active environment (see Dumont, Istance and Benavides, 2010; Illeris, 2009; Lee, 2008; Scardamalia, 2008). Interactive theories, including those advanced by Vygotsky, Engeström, Lave and Bronfenbrenner, have placed the learner and environment alongside one another in the co-construction of new knowledge in dynamic, cultural contexts.

Understanding the perspectives that students, teachers, families and communities take on human development is critical to developing innovative learning environments in which students can be, and choose to be, active in their learning. Theoretical perspective regulates what we see in events and how we interpret and respond to them. Bowler, Annan and Mentis (2007) noted that perspectives on human development and learning determine the location of problems and solutions, placing them within the learner or within the environment or within the interaction between the learner and the environment. Bowler et al illustrated the range of diverse perspectives on the relationship between the learner and the environment in their Matrix of Perspectives (Figure 2). They presented a four-quadrant matrix, formed by two intersecting continua that spanned from passive to active. One continuum represents the learner, the other the environment. The matrix is populated with examples of theorists whose accounts of human development fall in each of the quadrants.

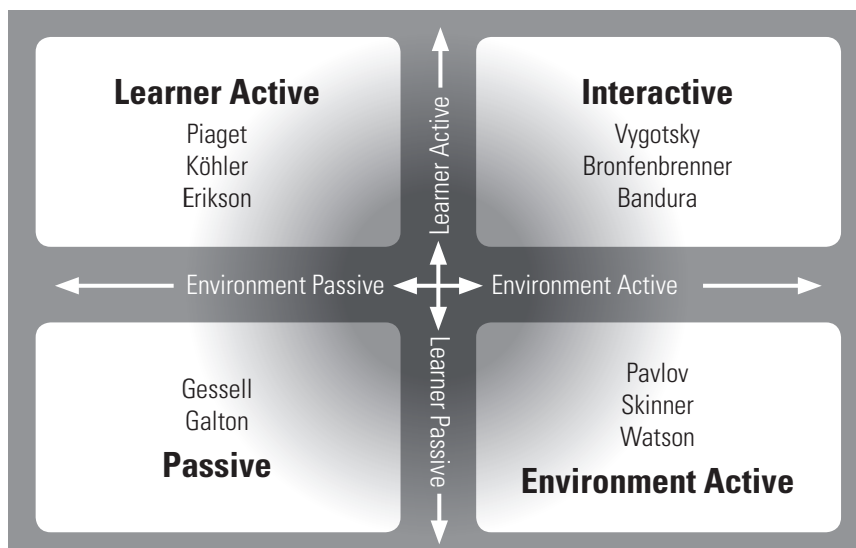
The way in which we conceptualise a situation naturally influences the way in which we address it. Where we position problems and solutions determines the directions that we take and the types of intervention we choose. This relationship is discussed below.

The active learner/active environment perspective corresponds with the contemporary, third phase of education and is represented in the 'Interactive' quadrant at the top right-hand corner of the matrix. In an interactive environment, both learner and environment are seen to play a part in creating the learning context and the knowledge within it. New solutions result from the dialogue among all active participants.

The active environment/passive learner quadrant represents a view that has dominated throughout much of the last century and continues to do so. In this quadrant fall the behavioural theories. From an environmental active/learner passive perspective, a learner's actions are interpreted as a response to her/his environment and would be addressed through environmental modification. This quadrant corresponds to students being passive recipients of knowledge in the environments that teachers, leaders, researchers and evaluators construct for them.

The active learner/passive environment quadrant occupies the top left hand corner of the matrix. From this perspective, learning is seen to emanate from active learners as they journey along developmental pathways. Support for learning in this quadrant involves

Figure 2. The Matrix of Perspectives (from Bowler, Annan and Mentis, 2007)



ensuring students gain mastery at each stage of learning so that further development is optimised.

The passive learner/passive environment quadrant is situated at the bottom left on the matrix. In this quadrant, learning events and circumstances are attributed to destiny or fate, problems and solutions being located outside of the control of either learner or environment. Situations may be left untouched, or perhaps managed, for example, through medication of students.

Stepping into a partnership role means that students must invest in their own learning.

Few theories of human development depict either learner or environment as wholly active or passive and, accordingly, the theories here have been loosely assigned on the basis of the dominance of the role of either learner or environment in learning. The matrix may be considered more of a 'scatterplot' with theories being represented at various points within each of the quadrants. Furthermore, the matrix has, for convenience, been presented as a static model although, in practice, people may adhere to multiple theories, locating problems and solutions in various quadrants depending on their positioning or investment in the circumstances at hand (see Annan, Bowler, Mentis and Phillipson, 2008).

Students as equal partners

Interactive theories suggest that students are best positioned as equal partners in the learning process. Stepping into a partnership role means that students must invest in their own learning. However, as active participation cannot operate in a vacuum, the students must be supported in making this investment. Berieter and Scardamalia (2010) demonstrated that young people could create knowledge that was new to others, particularly when they were working with real ideas and authentic problems. Kellet (2010), who observed children designing, conducting and disseminating

research, suggested that children's 'insider' views of their own worlds contributed unique knowledge to the learning process. While adults may have a greater knowledge and experience in many fields, it is the students who know about their worlds. They know what it is like to be a child. Kellet noted that inquiries conducted by children were qualitatively different from those driven by adults. They asked different questions and interpreted findings through different filters.

If students are to be active in their learning, their voices must be heard. Voice, relates to a person's own perspective on a situation and cannot be neutral as it reflects the social and cultural milieu in which it developed. Kellet (2010) suggests that much of students' voice is not expressed explicitly in words, but is reflected in forms of non-verbal communication. Students' voice may be heard most clearly when we read the text of their actions. To support the integration of students' voice in decision making, and to support active participation, opportunity must be created for voice to be expressed. Students need to feel safe to share their views without penalty, they must be listened to, and heard, and their views must be taken into account. Kellet stressed that resulting change must be visible to those who expressed their views.

Students' agency in learning is supported by an educational culture that encourages students to identify with their work. Jackson (2003), who considered that student agency is the 'single most important ingredient in the educational brew', suggested that fostering academic identities of students, particularly for those who perceived their status as low, was not always an easy task. With reference to schooling, Jackson observed that students whose home identity was not aligned with their school identity could not easily reconcile the differences and, unless successful at school, could dis-identify with school and academic pursuits, becoming alienated. In such cases, students may turn their active efforts away from academic work, finding more rewarding and culturally aligned activities. As time goes on, ties with academic

learning become weaker and weaker. Similarly, Usher and Pajares (2008) have talked about the role of students' self efficacy in influencing their ability to learn, to engage in learning tasks and to persist through tasks to success. Students with higher levels of self-efficacy were more likely to put effort into their work, evaluate their progress and engage in self-regulatory activity.

Neither of these psychological constructs, identity or self efficacy, can be understood independently of the contexts in which they are assigned. Making sense of individual identities requires consideration of the relationships between school practices and the cultural practice of students, parents, teachers, peers and other significant people. New pedagogies for future-focused learning environments will manifest themselves in different ways in different contexts and operate in environments characterised by cultures that support students to identify with learning. They will be built on student-centred pedagogy, extend beyond the classroom, integrating information and communication technology into learning activity (Fullan, 2012).

Appreciation of success

Fortunately, for many students, learning is rewarding and is even observed in unexpected circumstances. While there is much to learn about success and identity formation from these situations, as departures from the 'dominant story' they are often misinterpreted – the opportunities for insight into students' learning being missed as events are dismissed as atypical in statistical analyses. The development of learning environments that support success for all students is thus thwarted by society's unquestioning reliance on traditional tools as the gold standard for making sense of such situations. The interacting, contextual variables that comprise the richness of students' lives as a whole are deliberately eliminated from analyses of learning contexts. This critical information is considered to be confounding, to be clouding the isolated variables that have formed the focus of much research. If we are to move

to a more contextually aligned pedagogy, we must develop trust and expertise in the use of tools that allow us to make sense of complex, dynamic situations.

Culture and identity

Success, including academic success, is fostered in settings that consider, first and foremost, the attitudes and beliefs of students about their learning. Sites of learning must support alignment of multiple identities, including those that grow amidst cultures at home and school. The greater the alignment between the cultural practice of the school and that of its students, the greater the opportunity will be for students to identify with academic learning (see Hawkins, 2005; Jackson, 2003; Nasir and McKinney de Royston, 2013; Purdie et al, 2000).

The greater the alignment between the cultural practice of the school and that of its students, the greater the opportunity will be for students to identify with academic learning

The alignment of home and academic identities requires attention in the immediate environments of students' lives and at policy level. In New Zealand, the National Educational Goals (New Zealand Ministry of Education, 2009) state that all schools must offer environments conducive to the learning of all students, regardless of individual, social and cultural differences. In following these guidelines, schools support students to reach the highest standards possible, so that they are equipped to participate in the 'modern, ever-changing world'. They promote equality of opportunity for all New Zealanders and are respectful of their diverse ethnic and cultural heritages.

The New Zealand National Educational Guidelines also recognise that Māori have a unique place in this country as indigenous people, and support students whose cultural backgrounds are based in the South Pacific and other overseas communities (New Zealand

Ministry of Education, 2013). To promote culturally relevant educational practice in New Zealand, the Ministry of Education has collaborated with particular cultural groups to develop strategies. These are the Māori Education Strategy, Ka Hikitia – Accelerating Success (2013–2017) and the Pasifika Education Plan (2013–2017) (see www.minedu.govt.nz). Ka Hikitia shows how the Treaty of Waitangi

The practice of simply transmitting knowledge, irrespective of the way it is received, does not allow all students to engage with the knowledge.

can be applied in educational settings and outlines the ways in which Māori students can gain the skills, qualifications and knowledge they need to achieve success as Māori. The Pasifika education plan considers the identities, languages and cultures of students living in New Zealand, encouraging alignment of home and school culture. It aims to support Pasifika students to participate, engage and achieve in education.

These plans provide guides to practice in authentic, culturally responsive school environments in New Zealand. Each calls for schools' personnel to be aware of the various perspectives in their local communities and appreciate the cultural diversity that constitutes their learning environments. When school staffs become aware of their own values and practices, and acknowledge the diverse ways in which their communities understand the world, they are better positioned to support positive outcomes for all involved (Vincent et al, 2011).

Power disparities emerge when the cultural practice of schools and students have little overlap. Bishop (2003) considered that such power differences between schools and students occurred when teachers made sense of knowledge and then passed this to students. The practice of simply transmitting knowledge, irrespective of the way it is received, does not allow all students to engage with the knowledge. Students who

do not connect with this knowledge are unable to perform in the ways that schools expect, and 'deficit' interpretations of their actions are assigned. Macfarlane et al (2008) have said that knowledge and knowledge construction for Māori involves a qualitatively different way of thinking than that of Western European groups. Such differences may be reflected, for example, in the focus on individual or collective knowledge, or when education is viewed as a means to an end rather than an ongoing, lived journey. Bishop suggests that for Māori students, genuine learning and engagement in academic tasks could be enhanced through Kaupapa Māori practices, which reflect Māori aspirations and the Treaty of Waitangi, the 'reassertion of indigenous Māori cultural aspirations, preferences, and practices' (p 223).

Where school and home languages differ, additional effort is required to create social cohesion. Siilata and Barkhuizen (2004) have suggested that in order to care for students' first language, their differing sets of cultural knowledge must be recognised across educational settings and close home and school relationships must be developed. Vincent et al (2011) noted the role of subtle subtext of discourse in making sense of communications and drawing conclusions. When culturally diverse speakers interact, they place cultural filters on these social situations, each party gauging their status in relation to that of the other and distinguishing the intended meaning from the range of possibilities they create. While some understandings will prove helpful, others will not. Vincent et al made three suggestions for educational institutions that seek culturally equitable student outcomes – schools might

- work to understand relevant cultural knowledge of the local community;
- commit to culturally relevant and student validating practices; and
- create opportunities for culturally valid decision-making.

Appreciation

A fundamental principle of Interactive Networking is Appreciation, this concept being informed by three compatible approaches:

1. positive psychology;
2. appreciative inquiry; and
3. narrative practice.

Appreciative approaches encourage the gaze to fall on the positive aspects of people's lives, foregrounding foundations of strength upon which learning builds. Understandings of unique, dynamic, interactive contexts are developed, practice being situated not solely in the learner or the environment, but in the relationships between people and their worlds.

Positive Psychology

Positive psychology concerns the lens used to select the features of any situation and the processes by which we make meaning from what we perceive. It leads us to appreciate what does work, what is valued and what conditions are desirable for learning to occur (see Annan and Priestley, 2012; Edwards and Holtz, 2007; Nickerson, 2007). The positive psychology movement, initiated by Seligman and Csikszentmihalyi (2000), has encouraged the creation of optimistic climates for change by placing emphasis on presence rather than absence. Fullan and Langworthy (2014) suggest that schools build on the 'pockets of educational innovation' that are exciting students into learning. This process can usefully be informed by principles emanating from positive psychology.

When positive foci become integral to participants' personal and professional stories, they attend to helpful features of situations and process information in constructive ways (Linley et al, 2006). Within the layered ecologies of children's development, there will always be opportunities and risks. Lee (2010) commented that many teachers have been exposed in their schools and communities to dominant meta-narratives about children's learning, some but not all of these being deficit-focused. The role of

those supporting students' learning is to balance risk factors with real learning opportunities. It is in this balance of risk and opportunity that children develop the resilience required for ongoing learning (Toland and Carrigan, 2011).

Happy students are more likely to achieve success. An example is provided by Villavicencio and Bernardo (2013) who examined the influences of positive school experience and positive personal characteristics. They found that among a group of 1345 university students, those who reported higher levels of enjoyment and pride were better able to self-regulate and also gained higher grades. Similarly, Daniels et al (2009) found, in a study involving 669 college students, a predictive relationship between goals and achievement. This relationship was mediated by students' emotions.

The role of those supporting students' learning is to balance risk factors with real learning opportunities.

Learning is heightened within positive and optimistic climates that allow positive emotions to coincide with learning activities (see Mcloughlin and Kubick, 2004; Sawka-Miller and Miller, 2007; Terjesen et al, 2004). Cohen et al (2009) found, in a review of educational literature, that there is increasing support for the notion that positive educational climate supports and is predictive of students' academic achievement. Positive educational climates were characterised by more than individual experiences, they involved connections among students, families and educators. Similarly, Seligman and Csikszentmihalyi (2000) identified qualities of positive educational settings, noting that they were supported by three interdependent pillars:

1. positive subjective experience;
2. positive personal characteristics; and
3. positive institutions.

Appreciating the positive aspects of students' learning environments means incorporating understandings from beyond the problem-saturated positions where learning is difficult. Such broad and positive understandings of learning environments allow changes to build on strong foundations, thus linking new but meaningful learning opportunities with familiar and valued practices.

Appreciative Inquiry

An appreciative network is one that seeks to discover and create events, activities and relationships that support students' learning and development. Cooperrider and Whitney (2007), who conceptualised and developed the Appreciative Inquiry method of guiding change, talked about discovering what gives 'life' and what is most effective and constructive in ecological and human terms. Appreciative Inquiry centres on asking questions that heighten positive potential. It works to identify, understand and build on a positive core, assuming that every individual and every system has untapped accounts of the positive.

Appreciating the positive aspects of students' learning environments means incorporating understandings from beyond the problem-saturated positions where learning is difficult.

Cooperrider and Whitney considered that to consciously construct better futures with people, the positive change core must become the 'common and explicit property' of all involved.

Appreciative Inquiry follows a cycle of four components, centred around an Affirmative Topic Choice:

1. discovery and appreciation;
2. dreaming and envisaging;
3. designing and co-constructing; and
4. sustaining positive change.

The latter component makes reference to sustaining change rather than making change,

as Appreciative Inquiry assumes that knowing and change occur in the same moment. Change does not only occur as the result of planned post-assessment intervention, it begins the moment the inquiry starts and continues through the process.

Narrative Practice

Narrative approaches to understanding and re-scripting people's lives and circumstances help to discover or create opportunities that may have been obscured or disregarded. In exploring the stories that students, teachers and parents hold about learning, stories are shared about helpful solutions and times when success has been experienced. These stories can illuminate the pivotal points for creating new futures. These points may not be obvious immediately or viewed as major events; they may constitute departures from the dominant story, but play a critical role in sparking innovation (see White, 2007).

An example of an appreciative tool that considers people's stories and makes a clear distinction between the person and her/his practice is the most recent version of Investigating Practice (the Learning and Change Networks (LCN) Induction Manual). This method allows collaborative appreciation of current and LCN next practice and is used to inform understandings developed in educational networks. The Investigation of Practice helps teachers, students, parents and others to share their stories and recognise their own supportive practices in relation to the challenge. From this they construct new stories of their next practices. This tool can provide support in this process for participants who may have been more accustomed to commenting on others' practice, for example, teachers commenting on students' work or parents commenting on teachers' practice. The Investigation of Practice consists of a set of questions about current and next actions, many open-ended. Responses are recorded as next practice actions that each participant will make in order to advance toward envisioned next steps. Within networks,

participants might share their analyses and support one another as they change and grow their practice. Students may discuss their visions and practices with other students, as may teachers with teachers and parents with parents. They may also exchange their views with any or all groups of participants.

A second dimension of Investigating Practice is facilitation support to the principal as an instructional leader to support teachers, in turn, to grow effective practice. This dimension is critical because of the significant positive impact that teachers and leaders can have on student learning (Robinson, Hohepa and Lloyd, 2009; Timperley et al, 2007). Wootton (2013) observed that multi-levelled interaction among the facilitator, principal and teachers represented a level of instructional complexity that required careful and ongoing analysis to achieve and maintain highly effective teaching practice. The research identified two critical components for success. The first was for the principals to build content knowledge around the complexities of instruction. The second was for the leaders to develop that knowledge further with the teachers in different learning contexts. Facilitation could fall short of expectations when it involved building knowledge with the leaders and making assumptions that the principals could then, as a matter of course, enhance the capability of the teachers. As it stood, they had yet to learn how this could be done. This finding underscored the importance of facilitators spending time with principals, to build these collaborative, co-construction skills explicitly, as well as growing the content knowledge around instruction.

Lateral learning connections: Networking

Networks provide a social structure for conducting contextualised inquiries and integrating new practices into students' learning environments. Increasing recognition of the social nature of learning has given rise to the identification and appreciation of such social

learning systems. For example, Senge (1990) shared his model of the Learning Organisation and Vickers (1968) talked about Appreciative Systems. In 1997, McCaleb noted that an increase in immigration had provided teachers, students, families and communities with greater opportunities to appreciate rich and diverse ways of knowing the world and encouraged collaboration across these groups. More recently, Scardamalia (2008) has talked about Knowledge Creating Organisations that centre on the social development of knowledge that is valued and relevant in particular contexts. Similarly, Lave and Wenger presented the Community of Practice (CoP), a group of people who are bound by their shared interest in a particular body of knowledge and shared practices (Lave and Wenger, 1991; Wenger, 1998a; Wenger, McDermott and Snyder, 2002). Social networks such as Communities of Practice foster the social relations that allow new knowledge to be constructed by those who have or can access relevant information, who will use it and who need it (Snyder and Wenger, 2010).

Pedagogical changes of the magnitude required to keep abreast of the greatest wave of innovation since the industrial revolution will require multirelationship collaboration. Fullan (2000) suggested change strategies in education be informed by three perspectives in combination. These were the views from the inside; from the inside-out; and from the outside-in. The inside view is supported when groups of participants have the permission and trust to collaborate on common interests and activities. Networks that position themselves to transform pedagogy and practice establish functional connections within and outside of the systems of the network. Outside connections might entail, for example, schools connecting with other schools, networks of schools connecting with other networks of schools, or groups of schools collaborating with outside agencies. Outside groups can be powerful allies when the intentions of both the

inside and outside groups are shared. This view assumes a broad perspective on the outside that includes parents, community, technology, business and government. Positive change would be promoted where all partners, from inside and outside, supported one another in shared endeavour.

In a move away from external, short-term and prescribed forms of professional development, teachers increasingly have sought, through collaboration, means of accessing and developing knowledge that is applicable in the particular educational environments of their students. They have engaged in activities that support them to share practice and learn with one another (Woodgate-Jones, 2012). For example, Boyle, Lamprianou and Boyle (2005) observed the importance of collegiality for 854 teachers in the UK over a period of two years. They noted teachers' preferences for long-term professional learning comprised observing other teachers and sharing professional information. Teachers also found 'coaching' and 'research inquiry' to be effective. They reported that longer-term professional development of this nature had led to change in their practice.

Multiple levels of collaboration provide opportunities for participants to connect within and outside of groups of schools, including global connection through digital means.

There are emerging examples of facilitation in this collaborative working space throughout the world. For example, the Innovation Unit (UK), mentioned earlier, facilitates the development of collaborative networks of teachers who share ideas, collegial support and challenge to develop new practices in their schools (Hannon, 2010). The framework of the Innovation Unit places students at the centre of the networks' inquiries and supports teachers in Communities of Practice through cycles of reflection, analysis, design, implementation, self evaluation and impact assessment. Information from the inside ensures that practices are developed specifically

for the particular practices. This is judiciously complemented with information from the outside.

Also in the UK, the Specialist Schools and Academies Trust established a mentoring network called Raising Achievement/Transforming Learning (RATL), across more than 700 schools, to increase engagement and raise the achievement of students whose academic performance was low (Crossley, 2008). The network sought demonstrable outcomes and sustainable systems. A key assumption held through the project was that the starting point reflected an appreciative view; the recognition that teachers were capable and could access or create most of the solutions for the challenges they encountered. What teachers sought was the time and space to engage in reciprocal learning through exchange of ideas with others. The network of mentors involved open, non-judgemental collaboration of those teachers who were close to the work. It was a network for schools by schools and built on inside-outside knowledge sharing.

In New Zealand, the Learning and Change Strategy, a three-way partnership among the Ministry of Education, the University of Auckland and the participating Networks of Schools provides a further example. This strategy is a nation-wide initiative designed to create new educational pathways into and through the 21st century and, ultimately, to increase the engagement and academic achievement of all students involved. Participants comprise 338 school communities that form 53 networks. Multiple levels of collaboration provide opportunities for participants to connect within and outside of groups of schools, including global connection through digital means. Students, family and whānau,² teachers, school leaders, specialist support professionals and, in some cases, Board of Trustee and community members, are encouraged to take an active role in the network activity (Annan, B and Talbot, 2013). New Zealand is in the fortunate position of having community-governed schooling at the heart of its education law (Education Act,

1989), which has led to considerable interest in and dialogue about the schooling system at the community level. Building on community level interest to develop future-focused learning environments can take considerable pressure from the government and systems-change leaders to do the impossible. That is, to activate change for the general population.

Many examples of networks in educational settings have involved teachers or groups of schools working together to make a difference for students; fewer have involved both parents and students, although an increasing number of digital networks involve students. In New Zealand, networks of educators have formed organically and serve as conduits for knowledge sharing and creation. These include Hamilton's ConnectEd (www.connected.org.nz), a Community of Practice established to improve the learning environments of the students in the Waikato region of New Zealand. The Community of Practice has 50 member schools that engage in network activity, which includes meetings, community days, special interest group discussions and 'learning feasts'. Internet technology plays a critical role in the network, a strong emphasis being placed on contemporary pedagogy and up-to-the-minute research.

The community of practice

The Interactive Networking discussed in this paper is structurally aligned with the Community of Practice (CoP). It was selected as a structure because it positions key knowledge and learning at its core. In addition, it accommodates and utilises the common and diverse perspectives of multiple groups of participants to develop mutually valued knowledge and, in doing so, supports the cultural alignment of practice required for students to achieve. Three dimensions make up the community of practice:

1. community (people and relationships);
2. the domain (shared field of knowledge); and
3. practice (the activities of the group).

The community of practice is a dynamic structure, the three dimensions operating interdependently and constantly transforming as new knowledge is created.

Lave and Wenger (1991) first discussed the concept of Community of Practice when they observed particular patterns of information exchange and knowledge acquisition. They noted that much knowledge was constructed in near-peer, interactive environments. Since that

Communities of Practice are not new, they have regularly and naturally formed around shared interests forever. They may well have formed the mechanism for civilisation.

time, CoPs have been identified and cultivated in many different walks of life, including education. Community of Practice is the name given to a group of people who voluntarily or intentionally form social connections around its shared concerns for particular fields of knowledge and interest. As Snyder and Wenger (2010) note, Communities of Practice are not new, they have regularly and naturally formed around shared interests forever. They may well have formed the mechanism for civilisation. However, the objectification of this social structure has supported conscious analysis and deliberate cultivation of social learning systems.

Communities of Practice are usually informal and voluntary. They operate on the premise that those who are stakeholders in learning and who collaborate as a group, are best positioned to steward networks' valued knowledge. They are not intended to replace the formal structures in and among schools. Indeed, their purpose is to complement those structures as they operate to generate learning and innovation. Their distance from the boundaries of organisations allows the collective knowledge of formal units, perhaps systems of individual schools or units within schools, to be bridged. Both forms of systems fulfil important functions; formal units are frequently charged with 'running the

business' while CoPs are centred on the shared and treasured knowledge that underpins the practice.

Within the Communities of Practice, explicit and implicit information is exchanged. While explicit information can easily be shared, the implicit, tacit understandings within the community can only be acquired through social interaction and experience of acting in the community. This is because implicit

Competition between schools does not mean that network members cannot cooperate.

understandings, often the most critical to working in organisations, cannot easily, or at all, be codified and they are frequently tied closely to sensitive professional and personal identities (Snyder and Wenger, 2010). Informal interactions are essential to develop collegial and personal relationships that are trusting and engender reciprocal goodwill. Through interaction in trusting relationships, the knowledge base is challenged and modified through resolution of diverse views. It is the resolution of the tensions formed through disparate sets of knowledge that provides the impetus for the Community of Practice to transform in ways that keep it meaningful and existent.

Voluntariness is an essential component of the CoP, irrespective of the way in which the community has formed. This is due in part to the central position of feelings and thoughts, such as levels of trust, commitment to the purpose and relevance of and alignment with the community's core body of knowledge. The functioning of the CoP requires intrinsic motivation of members and comprises continually evolving individual identities. Therefore, each network will most probably have a trajectory or life span. As the need or energy for the CoP fades, they may continue, focusing on new challenges. The structure may also wane and new, different networks may form in response to new goals or new interests (see Wenger, 1998b; Wenger, 2010).

Challenges to Networking

While CoPs provide structures for professional dialogue and growth of practice, there are useful and less useful ways to interact with colleagues in a networked environment. For example, the advantages of CoPs might be diminished if new knowledge were not fed into the domain, if agendas were tightly imposed or participants did not experience the climate as safe and supportive. However, the issue appears not be so much whether or not networks *per se* 'work' or 'don't work', as it is about whether or not people make them work. As Crossley (2008) of the Raising Achievement/Transforming Learning (RATL) project said, 'it is not just what you do, it is how well you do it'. Facilitators need to consider their role in supporting networks to overcome some of the challenges listed below.

Cooperating in a competitive environment

Many schools have found themselves in the position where they are competing with other schools for students, resource or parent support. However, these do not necessarily preclude collaboration. Muijs et al (2011) identified some key elements of collaborative networks. They were trust and reciprocity between members, clear benefits for each partner and a shared vision. Skilled leadership was also required to manage inevitable and essential tensions. Competition between schools does not mean that network members cannot cooperate. However, they are more likely to cooperate when their shared domain is professional development and mutual support than direct involvement in the marketplace, for example, involving the enrolment of students (Muijs and Rumyantseva, 2013).

Accessing new information

Communities of Practice must continually connect with other communities of practice and must welcome a steady flow of new knowledge from the 'outside' into the group. It is new knowledge that fuels the transformation by challenging baseline knowledge and prompts the growth of new contextually applicable

knowledge. The inflow of new ideas helps to prevent the stagnation of the CoP that can occur when members of the community unwittingly succumb to the comfort of ‘group think’ that keeps ideas locked into the community.

Intrinsic interest

Members of the community must have an active role in developing the agendas and methods for their projects. Networks may be adversely affected by the imposition of agendas that quash the intrinsic attraction of the structure. The CoP, as noted, has a life span that reflects the interest in and need for core knowledge, and is best positioned to add value to practice and survive when power, tasks and responsibilities are shared.

Change and traditional practice

Teachers come to networked activity from a history that ‘institutionalises conservatism’ (Hargreaves and Fullan, 2012). In not so distant times, teachers operated very much as sole contractors, taking much personal responsibility for their actions. Teachers have often been afraid to share ideas and practices for fear of being judged poorly, or perhaps of taking unwarranted credit for their actions. It is not surprising that some teachers have developed a preference for working in isolation. Rather than judge these teachers for not being team players, Hargreaves and Fullan suggest that leaders support them, working firstly to understand that teachers retreat to their classrooms for a variety of reasons including architecture, self-preservation and perfectionism.

Quality of interaction

Fostering interaction is one thing, and ensuring quality learning through interaction is another. Hargreaves and Fullan (2012) explain how various kinds of interaction can be more or less effective. At the lowest level of interaction, discussion tends to be about telling stories, some of which may equate to gossip or hearsay. One level up, conversations may be related to requesting and providing assistance. At the penultimate level, discussion occurs within activities in which participants may exchange

information or resources and, at the highest level of effectiveness, interaction involves joint work where there is challenge, support and situated activity (see Annan, Lai and Robinson, 2003).

Conclusion

The new, technologically advanced, socially and economically transforming world has allowed and compelled current and future students to follow multiple pathways to learning, across multiple sites and via multiple social connections. For many students, these opportunities are occurring naturally. For others, optimal circumstances may require deliberate action. Interactive networks can make a substantial contribution to the creation of innovative, future-focused learning environments. The network structures and the activity of network participants are shared among all of those who are invested in students’ learning, promoting the exchange of cultural knowledge and increasing the overlap between students’ multiple, educational identities.

Fostering interaction is one thing, and ensuring quality learning through interaction is another.

Students and other participants work together in an equal partnership. Every participant is active, making unique, constructive contributions to the learning environments. In interactive networks, learning is negotiated and constructed rather than simply acquired. Through collaboration, the positive strengths and pillars of students’ lives across settings can be identified and understood, allowing appreciation of their supportive learning platforms. The inherent, appreciative perspective on exploring students’ learning and learning environments supports the affirmation of their current knowledge and sense-making processes. It fosters collective construction of visions and relevant next steps that authentically engage students, teachers, families and communities.

The formation of networks alone does not guarantee success in creating innovative, future-focused learning environments that support students to succeed. Networking is not without its challenges, which include competing in purportedly collaborative environments, the imposition of agendas and the tendency of some players to adhere to traditional roles. The quality of interaction in networks can vary, ranging from the sharing of stories, to the exchange of resources through to rich dialogue and the situated construction of new knowledge.

Networking is not without its challenges, which include competing in purportedly collaborative environments, the imposition of agendas and the tendency of some players to adhere to traditional roles.

Networking cannot be 'hit and miss'. What is at stake is the learning that students will take into their current and future lives. Facilitators must be knowledgeable – about the theory that underpins interactive human development, networking, and learning – and skilled in collaboration in diverse situations. As they work

alongside people, they must simultaneously take a meta-view of learning and society and understand the specific cultural practices of the people with whom they are working. Networks are supported when facilitators are familiar with open and flexible frames to guide the inquiries in which networks engage, and have sufficient belief in the competence of network participants to use their own ways of creating solutions. Careful and deliberate facilitation safeguards the appreciative lens that is cast on the actions, interactions and knowledge of each group of participants, and the recognition and inclusion of cultural perspectives and practices in new, shared understandings.

High-quality facilitation brings the voices of each participant group to the fore and encourages their representation into new developments. It helps broker knowledge between groups by maintaining relationships, collaboration and the flow of ideas through the network. Ultimately, the networks become interdependent, the facilitation that supported their establishment changing to a more sophisticated coaching role as leaders in the networks, often new leaders, emerge and take this role.

Endnotes

1. ... and, for some background on work in this cluster of New Zealand schools, see www.manaiakalani.org/our-story
2. See www.teara.govt.nz where entries explain that Whānau is often translated as 'family' or 'extended family', 'but its meaning is more complex. It includes physical, emotional and spiritual dimensions ... Whānau can be multi-layered, flexible and dynamic. Whānau is based on a Māori and a tribal world view. It is through the whānau that values, histories and traditions from the ancestors are adapted for the contemporary world.'

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Twelve women reflect on their personal and professional journeys to school leadership, the barriers they have overcome, the successes they have achieved and what they have learned along the way. Their experiences and advice provide inspiration for any teacher who might aspire to school leadership.

About the Authors

The authors are from the Faculty of Education-UniServices, University of Auckland, New Zealand, where Jean Annan is Strategy Development Advisor, Learning and Change Networks; Brian Annan is Director, Research and Development and Programme Director for Learning and Change Networks; Mary Wootton is Lead Facilitator, Learning and Change Networks; and Rene Burton is Digital Design Manager, Learning and Change Networks.

About the Paper

The authors discuss a networked approach to growing future-focused learning environments for students, whose life trajectories will differ significantly from those of previous generations. Some students now have access to massive amounts of information and participate in ubiquitous social interaction. They are moving into a new era with ease, making learning connections across multiple sites. For others, the creation of learning connections poses a greater challenge. The authors argue that if educational opportunity is to be available to all children, innovative new-world learning environments will need to be manufactured. The authors suggest that shifting education in the direction of the current and future worlds can be progressed for all students by the facilitation of Lateral Learning Networks. Five related ideas underpin the facilitation approach promoted by the authors to establish and operate lateral learning networks. They are ecological, interactive perspectives on learning, appreciation, innovation, multilevel social learning connections and the recognition of cultural identities.

The authors would like to acknowledge the Departments of Education in New South Wales and Tasmania, the Catholic Diocese in Parramatta and the Ministry of Education in New Zealand for the opportunities they have provided to grow the facilitation approach.

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