# Taking a “future focus” in education—what does it mean?

**An NZCER working paper from the Future-Focussed Issues in Education (FFI) project**

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## Abstract

This working paper describes some of the ideas underpinning NZCER’s Future-Focused Issues (FFI) project. There is a variety of ways to interpret what it means to take a “future focus” in education. This paper explains why the FFI project has focused primarily on concepts specifically mentioned in relation to “future focus” in *The New Zealand Curriculum*: sustainability, enterprise, globalisation and citizenship. It introduces the notion of “wicked problems”—challenges characteristic of the 21st century that intertwine future-focused issues—and what these may mean for society and education. Finally, it outlines what we have learned in our studies of education in relation to the FFIs.

## Introduction

It may seem tautological to say that education is about the future. But digging beneath this “obvious” statement, we strike some complex questions. For example, how do we think learning is carried forward from schooling into other aspects of life? How do we conceive of the role of schooling in meeting wider societal purposes (e.g., is schooling for the benefit of individuals’ futures, or for society’s future or both)? Where do we think individual and collective responsibility lies in relation to shaping and creating the future?

Figure 1 **Three ways of interpreting "future focus" in education**

**Future-focused education: What does it mean?**

**Thinking about students in their future lives**

How do we think education will help them in their future lives?

What kind of people do we hope they will be?

**The future of schooling, teaching curriculum**

How is schooling changing, and how else might it need to change to better meet the opportunities and challenges of the 21st century?

**Preparing young people and communities/society to deal with "future-focused issues"**

How will humanity address the "wicked problems" of the 21st century, including those linked with sustainability, globalisation, citizenship, enterprise (and other issues)?

Most familiar/obvious → Least familiar/obvious

**Sources of theory**

- Common sense (e.g., education is for the future)
- Traditional expectations about knowledge development (e.g., students carry knowledge from schooling into their future contexts)
- Traditional expectations about learning pathways and transitions (e.g., certain knowledge prepares students for certain kinds of pathways; some knowledge is important for *all* pathways
- Newer ideas about learning for the 21st century (e.g., a focus on "key competencies", and "learning to be")

**Signals in *NZC***

Key competencies

Vision (p. 8)

Values

**Sources of theory**

- Large international projects, e.g.:
  - UNESCO Commission on Education for the Twenty-first Century (Delors, 1996)
  - OECD definition and selection of key competencies (OECD, 2005)
- Numerous other writings from educational and social theorists (Castells, 2000; Gilbert, 2005; Kress, 2008; Rychen & Salganik, 2003)
- Research on emerging/changing educational practices (e.g., schools developing new kinds of curriculum, pedagogies, and assessments

**Signals in *NZC***

Some weak signals; e.g., the "community engagement" principle (p. 9)

**Sources of theory**

- Relevant sources include literature in the fields of: environmental sustainability, social planning, social theory, political theory, globalisation education, citizenship education, sustainability education, enterprise education, etc.
- Research on emerging practices in education for sustainability, education for enterprise, citizenship education, global education, etc.

**Signals in *NZC***

Principle of "Future focus" (p. 9)

Reference to "future-focused issues" (sustainability, globalisation, enterprise, citizenship) as contexts for teaching (p. 39)

Other references to future challenges in some learning area essence statements (e.g., science, technology)

Figure 1 illustrates at least three different ways to interpret the idea of taking a "future focus" in education. These are:

1) Thinking about students in their future lives: What kind of people do we hope they will be, and how will today's education help them in their future lives?

2) Thinking about the future of schooling, teaching and curriculum: How (and why) might schooling in the future need to be different from schooling today?

3) Thinking about education as preparation for young people and communities/society to engage with specific future challenges. For example, what part can or should education play in helping to address serious and intractable problems linked with sustainability, globalisation, citizenship, enterprise (and other issues)?

These three interpretations of "future focus in education" are not mutually exclusive, but for the purposes of this paper Figure 1 depicts them on a continuum. The left side represents the most familiar and obvious interpretation. It is common sense to say that education is about preparing young people for their future lives, and most educators would have no difficulty arguing the case that schooling "already does this". For many people it is less common to think about the future of *schooling*, and how it might need to change. However, over the past few decades there has been substantial international thinking and theorising (Delors, 1996; Gilbert, 2005; Kress, 2008; Rychen & Salganik, 2003) and (to an extent) policy development focusing on the future of education/schooling and development of curriculum and pedagogy "for the 21st century", with associated changes in thinking and practice.[1] But transformative changes within a system as self-stabilising as schooling can be slow, and indeed, feel quite risky; some liken it to trying to "build the plane while flying it" (Hipkins, 2010).

I argue in this paper that the third way of thinking about education and the future—that is, education as preparing young people and communities/society to deal with specific and complex 21st century challenges (including those linked with issues such as sustainability, globalisation, citizenship, etc.)—is the least familiar to most of us, and as a community, we have very little idea about how to proceed. NZCER's FFI project has aimed to develop knowledge in this unfamiliar/unknown end of the continuum. The four future-focused issues mentioned in *The New Zealand Curriculum* (Ministry of Education, 2007)—enterprise, sustainability, globalisation and citizenship—have been of particular interest in our work to date. My colleagues and I[2] have been interested in exploring opportunities and dilemmas for education associated with the FFIs for three reasons. First, some of these concepts (enterprise and sustainability) have had considerable growth and traction in New Zealand schools in recent years.[3] Second, we are interested in the notion that these concepts are bound up in "wicked problems" (Frame, 2008; Rayner, 2006). These are complex challenges that cannot be addressed or solved using simple problem solving. What, we

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[1] For example, New Zealand schools are exploring many new ideas in *The New Zealand Curriculum* (Ministry of Education, 2007) that derive from national and international thinking about the future of education.

[2] In particular I wish to acknowledge Josie Roberts' contribution to this work. Josie and I have also benefited from critical feedback and input from Jane Gilbert, Rose Hipkins, Sally Boyd, Sue McDowall and Robyn Baker.

[3] For example, there have been various initiatives to support "education for sustainability" and "education for enterprise".

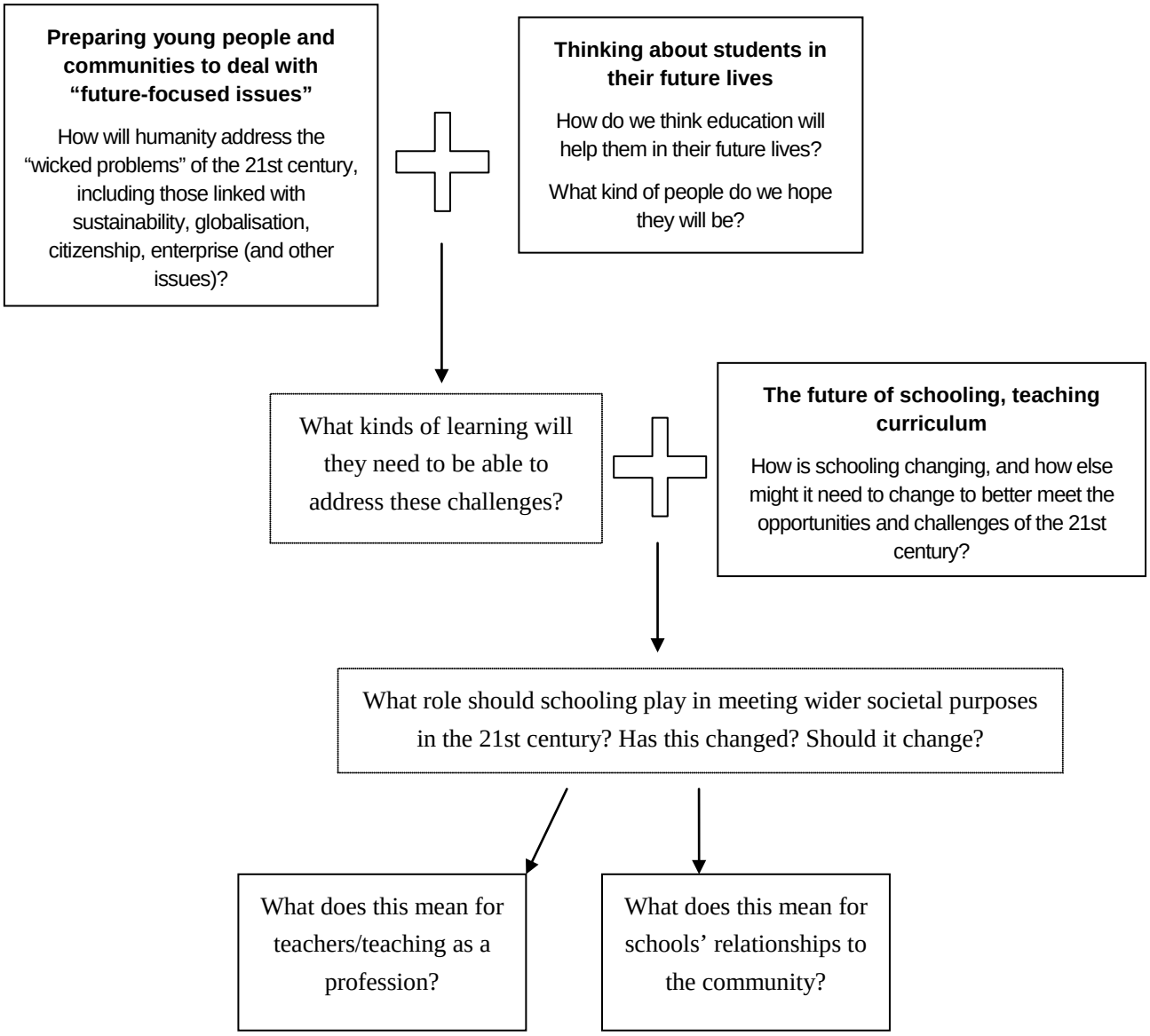
wonder, are educational implications of these challenges? Third, since these ideas do not necessarily have a long and well-developed history in schools/curriculum, we are interested in the ways people *outside* the education sector understand, and are working with these future-focused ideas and concepts, and what light this may shed on how we think about these concepts within education.

The purpose of Figure 1 is to signal that the idea of "future focus" in education is broad and complex, and can't all be fully addressed within the scope of the FFI project. However, we do see these ideas as interconnected. Figure 2 shows some of the questions that emerge when we put together the three different ways of thinking about "future focus" in education. These are some of the major questions that sit underneath NZCER's FFI project, as well as other NZCER research work, but there is much thinking yet to be done to fully address these questions.

In the remainder of this working paper I discuss the origins of the FFI project and our work to date. I introduce the notion of "wicked problems" to illustrate the kinds of unknown and unfamiliar challenges that sit at the right side of the continuum in Figure 1. Finally, I summarise what we do and do not yet know from our work thus far in relation to the FFIs.[4]

[4] This paper also draws on other NZCER research on curriculum innovation not necessarily linked directly with the FFIs (Boyd et al., 2005; Boyd, Dingle, Hodgen, King, & Moss, 2009; Boyd & Watson, 2006; Cowie & Hipkins, 2009).

Figure 2 **Questions that emerge from the intersections of different ways of thinking about "future focus" in education**



## The origins of the Future-Focused Issues in Education (FFI) project

The FFI project has grown out of NZCER's previous work in areas connected with a futures focus, briefly described in Appendix 1 (Bolstad, 2006; Bolstad, Cowie, & Eames, 2003; Bolstad, Roberts, & McDowall, 2010; Roberts & Gardiner, 2005; Roberts, McDowall, & Cooper, 2008). These include two evaluations of environmental education for sustainability (EE/EfS) initiatives, two evaluations of education for enterprise (E4E) initiatives and an evaluation of Secondary Futures. We also undertook additional research work in two projects involving people and groups working with futures-thinking ideas in education (see Appendix 2). The research work in each of these individual projects was guided by goals particular to each initiative. However, we also linked our analyses in each project with contemporary thinking about "education for the 21st century" (Bolstad & Gilbert, 2008; Bolstad et al., 2010; Delors, 1998; Gilbert, 2005; Kress, 2008; Rychen & Salganik, 2003). We have drawn extensively on these authors' arguments that we can no longer accurately predict exactly which knowledge people will need to draw on as they move through life in the 21st century, and that education for the 21st century world must:

> … simultaneously provide maps of a complex world in constant turmoil and the compass that will enable people to find their way in it ... It is not enough to supply each child early in life with a store of knowledge to be drawn on from then on. Each individual must be equipped to seize learning opportunities throughout life, both to broaden her or his knowledge, skills, and attitudes, and to adapt to a changing, complex and interdependent world. (Delors, et al. 1996, p. 85)

Delors et al. argued that education for the 21st century needs to be organised around four fundamental types of learning:

> *Learning to know*, that is acquiring the instruments of understanding; *learning to do*, so as to be able to act creatively on one's environment; *learning to live together*, so as to participate and cooperate with other people in all human activities; and *learning to be*, an essential progression which proceeds from the previous three. (1996, p. 86)

The focus on *learning to be* foregrounds the development of learners' dispositions, capacities or competencies to deal with new situations and environments, including those with high degrees of complexity, fluidity and uncertainty. In the previous "future-focused" contract projects discussed above, we tended to explore ways in which futures thinking, and the future-focused issues, provide contexts for learners to experience teaching, learning and curriculum that aligned with ideas from the "21st century learning" literature. In other words, the focus of data collection and analysis in these projects would map onto the left and middle of the continuum in Figure 1.[5] However, we argue that our projects have not yet really gone far enough in developing new knowledge and insights for the right side of the continuum, namely: how education might support young people and communities to deal with some of the known and projected challenges of the

[5] For example, we looked at whether students' involvement in E4E supported the development of their key competencies (Bolstad et al., 2010)

21st century, including those associated with the issues of sustainability, enterprise, globalisation and citizenship. This is partly because these represent complex long-term outcomes, and it is extremely difficult to map out how they may be connected with specific educational experiences. But, as I argue below, it is also partly because 21st century challenges are characterised by high degrees of uncertainty and complexity, and there is debate about the role education can or should play in addressing these challenges.

## "Wicked problems"

Education ought to help prepare people for a life of real-world problem solving—another "obvious" point. However, it is worth considering the nature of the problems that characterise the 21st century world. A number of authors have adopted the term "wicked problems" to characterise major challenges that are likely to continue for the foreseeable future. Rayner (2006) describes these as problems that:

- don't present a clear set of alternative solutions—different "solutions" can create or exacerbate other problems
- tend to be characteristic of deeper problems
- have redistributive implications for entrenched interests
- involve "contradictory certitudes"—that is, different people or groups "know" what the answer is, but these answers are irreconcilable with one another
- tend to be persistent and insoluble: "we don't really solve them, and we're really not looking at optimal solutions—the best outcome—we're just looking for something that will damn well work" (Rayner, 2006, p. 2)

Wicked problems cannot be solved using straightforward puzzle-solving or mathematical solutions, partly because they span multiple domains: social, economic, political, environmental, legal and moral, etc. They are "highly complex, uncertain, and value-laden" (Frame & Brown, 2008, p. 226). Rayner and others posit that wicked problems—which include a long list of well-known problems (e.g., climate change, waste disposal, educational underperformance, persistent poverty, biodiversity loss, etc.)—can only be addressed with "clumsy" solutions, and this involves bringing together disparate perspectives on the problem, in such a way that "all the 'voices' (are) heard and responded to by the others" (Verweij et al., 2006, as cited in Frame, 2008, p. 1114). In the next two subsections I discuss the possible implications of wicked problem solving for public engagement in decision making, and for education.

### What are the implications of "wicked problems" for public engagement in decision making?

One idea linked with future focus is the notion that we need a much richer public engagement in decision making and new ways to include multiple inputs and perspectives. The underlying

premise is that different people and groups will have quite different viewpoints on where the boundaries and limits of the problem are, and in turn, which approaches are best suited to finding a solution. Rayner (2006) illustrates this by describing three mutually exclusive approaches to problem solving. A "hierarchical" strategy involves breaking the problem down and simplifying it so that existing decision routines can be applied (e.g., cost-benefit analyses). A "competitive" strategy involves determining whose expertise ought to be applied to the problem, and which resources should be brought to bear on the problem. Finally, an "egalitarian" approach involves opening the problem to more stakeholders, bringing additional people into the decision-making process. Rayner argues that each approach represents a coherent organisational world-view, yet each frames the problem (and the strategies for solving it) in quite different ways. Each, he suggests:

> … fills in a partial perspective of the problem that the others can't entertain. None is entirely right, but none is entirely wrong. Policies based on one or two of these [approaches] will fail to grapple with [a problem's] wickedness, but together they offer a dynamic plural argumentative, possibly even agonistic system of policy definition. (2006, p. 9)

The implication is that wicked problem solving needs to somehow encompass *all* of these approaches, but how? Frame & Brown (2008) suggest we need "post-normal"[6] research and policy-making approaches. For example, they propose developing post-normal sustainability technologies (PNSTs) to address wicked problems of sustainability:

> Technologies, in this context, refer to interventions for the creation and use of knowledge about sustainability, which redistribute and disburse responsibility for environmental, social, and cultural stewardship onto broad-ranging groups of stakeholders, including members of the public, as agents of change … PNSTs require new fora for public engagement with science and technology, alongside other stakeholders with diverse interests or stakes who may have varying levels of 'professional' expertise. (Frame & Brown, 2008, p. 226)

The call for different kinds of engagements between people, policy, research and science suggests significant new roles and responsibilities for citizens in the 21st century. In the realm of post-normal science, Frame suggests:

> … people can be credited with multiple capacities and expertise that can support the co-production of knowledge about sustainability in dialogic fora alongside other 'professional' public and private experts. It is premised on lay publics being able to assume some expertise in relation to the exercise of sustainability in their own daily life and socio-political contexts. (2008, p. 235)

Extending the ideas above, internationally theorists have been calling for a greater democratisation of public services to better reflect and serve the diversity, uncertainty and need for just-in-time decision making (Parker & O'Leary, 2006; Seltzer & Bentley, 1999; Stoll &

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[6] In science terms, "post-normal" contrasts with Thomas Kuhn's (1962) concept of "normal science"—the science that occurs to solve the routine problems associated with the particular underpinning science paradigm of the day, without challenge the boundaries of those paradigms.

Louis, 2007). Whether through face-to-face dialogue processes, or electronic social technologies, the idea is that open-ended solutions and systems changes need to come from collaborative problem solving by and for the people closest to any given context and these changes cannot simply be set out by outsiders (even those voted in as "representatives") for others to follow according to hierarchical chains of command:

> The great shift of contemporary politics is that there is no one source of certainty—and that progress … depends *not* primarily on the design or management of institutions but on the ways in which they draw on and interact with the people they serve. (Bentley, 2001, p. 10)

The authors cited above are calling for a much greater public involvement in deliberation and decision making on critical societal issues *which we already know* do not have simple nor obvious solutions. This could be seen as asking a lot of ordinary citizens—which has interesting implications for a curriculum that includes "citizenship" as one of its four future-focused principles.[7] These ideas present a challenge and an opportunity for thinking about what kinds of learning experiences would help to prepare a society of "wicked problem solvers".

## What are the implications of "wicked problems" for education?

Bringing together all the ideas outlined in this paper so far, in the FFI project, we are interested in understanding the types of thinking and practices that might support learners (not to mention teachers, school leaders and families/communities) to actively develop the capabilities they would need to productively engage in 21st century wicked problem solving. We are particularly interested in "wicked problems" because of the ways in which they visibly intertwine different issues, including the four future-focused issues in the *NZC* (sustainability, enterprise, globalisation and citizenship).

There has already been considerable thinking and theorising about what kinds of capacities learners need to develop in order to have fulfilling lives and well-functioning societies amid the uncertain terrain of the 21st century world (e.g., see Delors, 1996; Gilbert, 2005; Kress, 2008; Rychen & Salganik, 2003). For example, that students need opportunities to build their sense of identity, become self-reliant, critical and creative thinkers, be able to use initiative, work together with others, be able to manage the metacognitive and affective aspects of their learning and be able to engage in ongoing learning throughout their lives. In our previous "future-focused issues" projects (particularly the evaluations of EE/EfS andE4E), we looked at the extent to which these initiatives provided contexts for students to develop these capacities and capabilities. We also looked at the ways in which students, teachers and others engaged with these initiatives made

[7] Citizenship, of course, has multiple and sometimes conflicting meanings. For example, Westheimer and Kahne identify at least three different notions about what makes a "good" citizen—such as the personally responsible citizen, the participatory citizen or the justice-oriented citizen (Westheimer & Kahne, 2004). Each carries different assumptions about what attributes a "good" citizen ought to have and what actions would be consistent with the goals of this kind of citizenship.

sense of the actual concepts of “sustainability”, “enterprise” and so on. The remainder of this paper comments on what we have learned so far in our projects connected with the FFIs.

## What we know, and what we do not yet know

### *Concepts such as “sustainability and “enterprise” can provide contexts for innovative curriculum and teaching approaches—but not always*

Our evaluations of E4E and EE/EfS both showed that curriculum and learning experiences built around notions of “enterprise” or “sustainability” sometimes enabled teachers and students to experience roles, relationships and realisations that differed from those they conventionally encountered in day-to-day school learning. Often this involved students learning through authentic, “real-world” contexts, working collaboratively with peers, carrying a project through from beginning to end, solving problems as they arose, forming working relationships with teachers and other people (e.g., partners from the community or business sectors) that were of mutual benefit to both the learners and the adults they were collaborating with, and producing something tangible out of their learning work. In EE/EfS contexts this might involve students undertaking activities to transform their schools, homes or communities towards being more environmentally sustainable; for example, by: establishing school gardens; engaging in environmentally restorative actions in natural areas within or nearby the school; implementing recycling or worm farms; or addressing their schools’ or their homes’ energy and waste management practices (for further examples, see Bolstad et al., 2003; Eames, 2010). In E4E contexts this might involve students producing a product, designing an idea, solving a problem or providing a service for a business or community partner (or for someone within the school), or forming mini-enterprises to learn about how to run a small business (for further examples, see Bolstad et al., 2010; Roberts et al., 2008).

Data collected in the EE/EfS and E4E evaluations suggested many students perceived these E4E or EE/EfS learning experiences to provide more opportunities to be involved in making decisions, to learn about their own strengths and weaknesses and to solve problems. Some teachers talked about stepping back from a directive role, becoming more like a guide or mentor to students, learning how to deal with the more complex classroom management required to support students undertaking multiple open-ended projects, and navigating the stresses of open-ended learning opportunities where students were likely to encounter problems, take “wrong turns”, lose patience or not be able to produce something that was of a quality expected by the teacher or other adult partners or stakeholders. However, teachers and students often found themselves surprised at what they were capable of achieving when they had the space, time, confidence and support to work in these ways.

However, it is important to add several caveats. First, while the ideas of “enterprise” or “sustainability” might have provided contexts in the examples above, similar shifts in teaching

and learning practices, teacher/student roles and relationships, and school–community interactions can also occur in context of other driver "ideas", such as health promotion (Boyd et al., 2009), key competencies (Boyd & Watson, 2006) or other curriculum innovation goals (Boyd et al., 2005). Second, learning experiences designed around notions of sustainability or enterprise—or any of the other ideas above—do not *necessarily* lead to such transformative shifts in teaching and learning practice. Our various evaluations highlight examples of teaching and learning that were not particularly different from "business as usual". Third, instances of innovative or future-focused practices can be isolated and short-lived; they may depend heavily on particular circumstances (a supportive principal, a teacher who is comfortable with uncertainty, an opportunity to work with a facilitator or community or business partner on a specific project) that can change over time. Fourth, innovations often find more traction on the edges of the curriculum (for example, in whole-school activities, or through extra- or co-curricular initiatives) than they do within the regular classroom curriculum (Boyd et al., 2009).

Research and evaluation of curriculum innovations typically point towards factors such as teachers' pedagogical beliefs, the real and perceived constraints of school structures such as the curriculum and timetable and the strength of a school's commitment to supporting and exploring innovation as either enabling or constraining new approaches to curriculum and pedagogy. Research typically suggests that for these kinds of practices to become embedded and "just how we do things", teachers and school leaders need plenty of opportunities to develop deep understandings of the ideas that underpin a potentially transformative educational idea (whether that idea is education for sustainability, education for health promotion, key competencies, "student voice", etc.), and they must be able to connect these ideas with an ongoing exploration of their own and others' practices.

### *Concepts like "sustainability" and "enterprise" need to be unpacked, explored, challenged, expressed in practice, reflected on and revisited in order to remain powerful*

The subsection above underscores that the "ideas" of the FFI aren't necessarily going to be expressed in transformative "21st century" approaches to teaching, learning and curriculum. Across our projects we have been interested in understanding the meanings different people attach to these ideas. Not surprisingly, we found these vary widely. When we have asked teachers, students and other people to tell us what the words sustainability, enterprise, globalisation or citizenship mean to them, many have struggled to articulate their thoughts, or (particularly in the case of sustainability), pointed out that the term can mean different things in different situations. As one person said:

> [In one way] they are all actually things that don't have any meaning, in linguistic terms they are empty signifiers. They are something which each individual populates with his or her own meaning. And as a result they are open to political interpretation. It takes you back to 'who is using [the word] and for what?' (Interviewee)

Of course, the same can be said of numerous other ideas in education (key competencies, student voice, health promotion, literacy, etc.), and initiatives supporting educational change built around any of these ideas appear to be most successful when they support teachers' (and students') to develop understandings of these words, not just as ideas to know, but as ways of being and doing in the world, with the capacity for meaning to be extended and deepened into new contexts and situations over time.

This raises an interesting question for the four FFIs: If people and groups fill these concepts with their own meanings, which other meanings and ideas are not included? Furthermore, what sense do people make of relationships *between* these four concepts (e.g., Figure 3)?

Figure 3 **Some possible ways of seeing the relationships between the FFI concepts**

### *The FFI concepts of "enterprise", "sustainability", "globalisation" and "citizenship" can have quite different political interpretations, but the tensions between these may be filtered out in educational contexts*

We are particularly interested in the tensions, synergies and interconnections *between* future-focused issues. As we and others have written about, the ideas of "sustainability", "enterprise", "globalisation" and "citizenship" each have philosophical underpinnings and political histories drawn from a variety of ideological perspectives (Bolstad, 2005; Bolstad et al., 2010; Westheimer & Kahne, 2004). While, as discussed above, they can be interpreted in a variety of ways, it can be argued that certain interpretations of these ideas are essentially incompatible with one another (Bolstad & Roberts, 2009). Do these incompatibilities matter when these ideas are interpreted in educational contexts?

New Zealand approaches to E4E from around 2006 onwards provide an interesting example. Internationally, enterprise education is seen in many different ways and can encompass a variety of different educational emphases, ranging from simply understanding how businesses works, to learning entrepreneurial skills to enable people to start and manage businesses, to learning how to become a person who is enterprising in all aspects of their life. The concept of enterprise is often linked with the concept of entrepreneurship, and many people in education associate this idea with the field of business and economics education. However, others argue that while entrepreneurship is often constructed as an elitist and economic phenomenon that essentially encourages success *within* the existing economic paradigm, it *could* be understood as an everyday and collective social phenomenon that brings about civic engagement, ecological sustainability and social transformation.

New Zealand's approach to E4E, at least from 2006–9, was built on fairly broad goals of supporting schools to develop an "enterprising culture" that reflects local communities and supports students to become more "enterprising" across the curriculum, across year levels and in all aspects of their lives. A survey in early 2007 asked principals in four regional E4E clusters to explain how E4E was understood and talked about in their schools. The two most common themes in their responses linked E4E to the provision of more authentic or real-world learning experiences, and cultivating students' enterprisingness, innovation, creativity or entrepreneurialism. Other slightly less common themes related to the ideas of linking school learning with the community or community service, and/or with providing closer links to business (Table 1).

Table 1 **Most common themes in principals' descriptions of E4E in their own schools (2007 survey)**

| Most common themes | Number of principals (n=25) |
|---|---|
| Authentic/"real-world" learning experiences | 9 |
| Cultivating enterprisingness, innovation, creativity, taking risks, entrepreneurialism | 9 |
| Community connections, community service | 5 |
| Business connections and partnerships | 4 |

Principals' comments included the following:

> E4E is thought of as learning in real contexts, solving real problems and getting students involved in deep learning. The school is moving from a model of having one off projects to develop entrepreneurial skills to embedding teachers' pedagogy so that enterprising thinking is encouraged throughout the curriculum. Enterprise, we believe, will lead to better engagement in learning, especially for our more senior students. Primarily the benefits exist in that the learning is student centred, authentic and involves high level thinking skills. (Principal, 2007)

> We are taking a holistic view of 'enterprise'—seeing that this is a state of mind rather than being linked as it has in the past with business studies, economics etc. Looking at a school wide culture of giving things a go, calculated risk taking, a sense of energy and adventure, tied together with the concept of resiliency. (Principal, 2007)

> Leadership opportunities for students. Success experiences for students. Community service from students. All these are part of [our school's] strategic plan. (Principal, 2007)

Several principals commented that E4E was still very new and they were only just beginning to think about what it meant for their schools, and some principals made it clear that they did not intend their school to adopt the language of E4E or even "enterprise", preferring instead to talk about "authentic learning" or use other language that was already part of their school's shared vocabulary. Indeed, qualitative interviews with students from many of these schools showed that explicit discussion of E4E and enterprise was occurring in some schools and not others. Some schools offered timetabled subjects called "enterprise", in which students spent time learning about the enterprising attributes and what it means to be enterprising, as well as engaging in enterprising projects and activities. However, in other schools we interviewed students who did not ever recall having encountered terms like "E4E" or "enterprise"—even though activities they had been involved with did, from our point of view, fit the broader intentions of E4E. When asked what they thought E4E or enterprise might mean, students often offered tentative answers in the form of questions, such as "Is that like businesses?" Some students were able to offer suggestions for what "being enterprising" might mean, such as "doing things for yourself", "coming up with ideas" and so on. These and other data from our evaluations suggested that E4E was being interpreted and enacted locally according to the values, interests, goals and negotiation skills of the individual students, teachers and community/business partners involved in E4E development. As other studies have found (Davies, Fülöp, Hutchings, Ross, & Berkics, 2004; Deuchar, 2006), this process of interpretation can lead to a filtering out of certain meanings that are "incompatible" with local values, interests and goals.

Do teachers and students need to understand concepts such as "sustainability" or "enterprise" to be evolving and politically contested? Do they need to explore and challenge some of the more "hidden" or "incompatible" meanings associated with the FFIs? If we take the idea of "wicked problems" seriously, then I would argue that the answer to both these questions is "yes, eventually". How might this happen? Below, I offer some thoughts.

### *Two things schools can do to support learning in relation to the "future-focused issues"*

I am not suggesting that school-aged learners need to learn about (and practise deconstructing) the political histories of the FFIs the way a university graduate student might. However, I propose that there are two things that would help to enact the *The New Zealand Curriculum's* "future focus" principle[8] for learners at every level. The first is relatively easy; the second is more challenging. Neither is new, and both already occur at least some of the time, in some schools and classrooms.

First, schools can ensure there are **many opportunities for teacher and learners to co-construct meanings and practices associated with the FFIs that are personally relevant**, and in doing so, to begin to see these ideas as semi-open spaces to which new thinking and interpretation can be introduced, in new contexts, over time. This kind of process occurs in many New Zealand schools, for example, as teachers and students individually and collectively build their own locally-relevant meanings and practices associated with the key competencies:

> We wanted to ensure that the whole school (community, staff, children) had a shared understanding of the meaning of the key competencies—for example, relating to others—in or out of school. When we clicked on to how powerful this understanding was, we realised it was worth taking our time on the key competencies. (Primary principal, quoted in Ministry of Education, 2009, p. 2)

Across our various evaluations of EfS, E4E and other future-focused curriculum initiatives, those that seem most likely to support powerful and transformative learning are those in which there has been time for teachers and students to explore new ideas and ways of working, share and challenge each other's knowledge, work through open-ended problems, navigate relationships, learn about themselves, etc. We have also seen this happening in contexts outside schools. In 2009 we researched the initial gathering of ReGeneration, a network of young adults and secondary school-aged youth with an interest and involvement in sustainability and environmental issues within their schools, workplaces and communities. As participant observers, we were interested in the ways that many key concepts were not tightly defined by the facilitators, but were generated within the whole group with carefully framed questions to draw on the knowledge of everybody in the room. Rather than converging upon one single understanding, it seemed that the purpose was to stretch people beyond their current thinking to open up wider possibilities without

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[8] Future focus: The curriculum encourages students to look to the future by exploring such significant future-focused issues as sustainability, citizenship, enterprise, and globalisation (Ministry of Education, 2007, p. 9).

any suggestion that there would be one correct answer. Being exposed to so many different perspectives and ideas further pushed each person's own thinking about each key concept, as suggested by the comments below:

> My brain is constantly buzzing, I'm constantly in discussions. Whoever is standing up asks a question and I think that's a good point, I've not thought of that before. And someone [else] will say something and I'll be like 'a great idea just came into my head that wasn't there [before]'. New ideas come into my head—that's what learning is about for me, us figuring out our own ideas. (Youth, focus group, Roberts & Bolstad, 2009, p. 29)

This kind of "brain buzzing" learning undoubtedly happens in some classes, some of the time, but there is also reason to believe that, for many students, this is the exception rather than the norm.

The second thing I propose educators can do more of is to **recognise schools and the community as sites rich with "wicked problems" tied to the four FFIs**. This has long been recognised within the EfS community, particularly with respect to the notion of "action competence", meaning students' abilities to act with reference to environmental concerns (Breiting & Mogensen, 1999; Jensen & Schnack, 1997). The action competence approach is underpinned by the view that environmental problems are structurally anchored in society, and therefore have to be understood as community issues with conflicting interests at several levels: individual, social and structural. Thus, environmental education must help students to identify, expose and analyse all three levels of conflicting interest, and how they affect the environment, so that they might take actions that address the root causes of environmental issues (Breiting & Mogensen, 1999). Resources to support EfS in schools (e.g., Enviroschools) often begin from the idea of the school itself as the object for inquiry, with teachers and students identifying whether the school's operational management, practices and social and physical environment are consistent with sustainability goals, and if not, taking actions to address this. Other programmes such as Future Problem Solving similarly support students to use their own schools and communities as sites for identifying and working with future-focused challenges.[9]

Opportunities for recognising tensions and conflicts linked with the FFIs within the school and community are everywhere, if we are paying attention. However, these opportunities can easily slip by unnoticed. This was illustrated in one E4E project that involved a partnership between three schools and the organisers of an ecotourism conference. Teachers from three different learning areas (art, fabric technology and food technology) were able to draw on this context. We interviewed a number of students who were involved in making ecobags or ecotreats for the conference, and many told us that they appreciated doing something "real" for the partner organisation and for the conference delegates. Some suggested that they consequently felt more motivated to put effort into the learning area, and several believed that they had experienced some of the realities of being an artist, chef or designer. However, when we asked the students about their understandings of ecotourism, it seemed that few had a strong conceptual grasp of

[9] See http://www.fpsnz.co.nz/

ecotourism, the significance it might have for their region or the systems that surround it, such as local and global economies, sustainability, etc. (see Table 2).

Table 2 **Interview excerpts about ecotourism**

| |
|---|
| **School One: Fabric technology students** |
| It's about nature and animals and plants. |
| It's about protecting the environment. |
| It's tourism when they're seeing nature rather than theme parks. They're teaching people how to look after nature and the environment. |
| **School Two: Art students** |
| It's ecofriendly. |
| Q: Did you do much thinking about what it's about to be ecofriendly? |
| Yeah, cos it grows in the environment. |
| Q: Did you guys know about ecotourism before you did this project? |
| No, not really. |
| Q: So what did you learn about ecotourism by doing ecobags? Like what's the point of it? |
| Just being friendly to the environment. (silence) |
| What's the point of it? I dunno. (laughs) |
| Q: Did you get to go to the conference? |
| Na, we had to stay home. |
| We're supposed to be getting a photo or something back from the conference. |
| **School Three: Food technology/enterprise students** |
| Q: Did you talk about ecotourism? |
| With the truffles the [partner organisation] asked us to make sure all the ingredients were sourced through Fair Trade, so the workers have a fair go … |
| When we spoke with the lady from ecotourism, it made you aware that someone's trying to do something about making sure that workers have a fair go, and that everything's fair and that businesses don't get taken over. That people get things back for what they do. |
| Q: Do you feel like you did [get something back for what you did]? |
| I don't. (laughs) |
| We got skills out of it. |

A teacher from one of the schools in the project discussed above mentioned some of the practical tensions that might contribute to "missed opportunities" for deeper systems-level thinking and discussion. In this class, the task of making truffles for the ecotourism conference delegates' bags became repetitive and time consuming, and near the end of the project the focus was on getting the job finished by the due date. Meanwhile, other students in their class were involved in a variety of other E4E activities in the community, and the teacher was struggling to manage all the different students' time frames and support requirements. The students making the truffles from

Fair Trade chocolate started to question whether it was fair that they were doing this work for free when they realised that conference delegates were paying fees to attend. However, the opportunity to explore this tension further—for example, by considering whether the students themselves were engaged in “fair trade” for their work—went unrealised. For the teacher, it was important to get the job completed, as failing to do so would have denied the students the payoff of knowing their truffles were being used and appreciated by their intended recipients. Managing all the different projects and activities in the class to completion thus had to take precedence over opportunities to critique, challenge and deepen students’ thinking around some of the systems-level issues around fair trade, sustainability, economics and ecotourism.

There are many other examples we could cite to illustrate learning opportunities missed or taken when students and teachers have stumbled into an unexpected, real-world “wicked problem” within their own school or community that offers the chance to challenge everyone’s thinking around a future-focused issue. I am arguing that curriculum and teaching need more often to be designed so that these problems can not only be recognised when they arise, but actually sought out as contexts for learning.

References

Bentley, T. (2001). *It's democracy, stupid: An agenda for self-government*. London: DEMOS.

Bolstad, R. (2005). Environmental education: A place in the curriculum? *New Zealand Annual Review of Education*, *14*, 215–235.

Bolstad, R. (2006). *Evaluation of the Northland Enterprising Teachers (NET) initiative*. Wellington: New Zealand Council for Educational Research. www.nzcer.org.nz/pdfs/15059.pdf

Bolstad, R., Cowie, B., & Eames, C. (2003). *Environmental education in New Zealand schools: Research into current practice and future possibilities*. Wellington: Ministry of Education.

Bolstad, R., & Gilbert, J. (2008). *Disciplining and drafting, or 21st century learning? Rethinking the New Zealand senior secondary curriculum for the future*. Wellington: NZCER Press.

Bolstad, R., & Roberts, J. (2009, April), *"Education for enterprise" and service learning: Incompatible ideologies or partners for 21st century learning?* Paper presented at annual meeting of the American Educational Research Association, San Diego.

Bolstad, R., Roberts, S., & McDowall, S. (2010). *Education and enterprise: Learning at the interface. Final report from the Regional Education for Enterprise Clusters Evaluation*. Wellington: Report prepared for the Ministry of Education, New Zealand Trade and Enterprise, and the Tindall Foundation. www.nzcer.org.nz/pdfs/e4e-report-june-09-final.pdf

Boyd, S., Bolstad, R., Cameron, M., Ferral, H., Hipkins, R., McDowall, S. et al. (2005). *Planning and managing change: Messages from the Curriculum Innovation projects*. Wellington: Ministry of Education.

Boyd, S., Dingle, R., Hodgen, E., King, J., & Moss, M. (2009). *The changing face of Fruit in Schools: 2009 overview report. Final Healthy Futures Evaluation report*. Wellington: Ministry of Health.

Boyd, S., & Watson, V. (2006). *Shifting the frame: Exploring integration of the key competencies at six normal schools*. Wellington: New Zealand Council for Educational Research.

Breiting, S., & Mogensen, F. (1999). Action competence and environmental education. *Cambridge Journal of Education*, *29*(3), 349–353.

Castells, M. (2000). *The rise of the network society* (2nd ed.). Oxford: Blackwell.

Cowie, B., & Hipkins, R. (2009). *Curriculum Implementation Exploratory Studies*. Wellington: Ministry of Education.

Davies, I., Fülöp, M., Hutchings, M., Ross, A., & Berkics, M. (2004). Citizenship and enterprise: Issues from an investigation of teachers' perceptions in England and Hungary. *Comparative Education*, *40*(3), 363–384.

Delors, J., Mufti, I. A., Carneiro, R., Chung, F., Geremek, B., Gorham, W., et al. (1996). *Learning, the treasure within: Report to UNESCO of the International Commission on Education for the Twenty-first Century*. Paris: United Nations Educational, Scientific and Cultural Organisation.

Delors, J. (Ed.). (1998). *Education for the twenty-first century*. Paris: United Nations Educational, Scientific and Cultural Organization.

Deuchar, R. (2006). 'Not only this, but also that!' Translating the social and political motivations underpinning enterprise and citizenship education into Scottish schools. *Cambridge Journal of Education*, *36*(4), 533–547.

Eames, C. (2010). *Education for sustainability in New Zealand schools: An evaluation of three professional development programmes. Part two: Report on the Enviroschools programme*. Wellington: Ministry of Education.

Frame, B. (2008). 'Wicked', 'messy', and 'clumsy': Long-term frameworks for sustainability. *Environment and Planning C: Government and Policy*, *26*, 1113–1128.

Frame, B., & Brown, J. (2008). Developing post-normal technologies for sustainability. *Ecological Economics*, *65* (2), 225-241.

Gilbert, J. (2005). *Catching the knowledge wave? The knowledge society and the future of education*. Wellington: NZCER Press.

Hipkins, R. (2010). *Reshaping the secondary school curriculum: Building the plane while flying it? Findings from NZCER National Survey of Secondary Schools 2009*. Wellington: New Zealand Council for Educational Research. www.nzcer.org.nz/pdfs/reshaping-secondary-school-curriculum.pdf

Jensen, B. B., & Schnack, K. (1997). The action competence approach in environmental education. *Environmental Education Research*, *3*(2), 163–179.

Kress, G. (2008). Meaning and learning in a world of instability and multiplicity. *Studies in Philosophy and Education*, *27*, 253–266.

Kuhn, T. (1962). *The structure of scientific revolutions* (1st. ed.). Chicago: University of Chicago Press.

Ministry of Education. (2007). *The New Zealand curriculum*. Wellington: Learning Media.

Ministry of Education. (2009). *New Zealand curriculum update.* Retrieved from http://www.nzcer.org.nz/pdfs/curriculum-update-sept-09.pdf

OECD. (2005). *The definition and selection of key competencies: Executive summary*. Paris: Author.

Parker, S., & O'Leary, D. (2006). *Re-imagining government: Putting people at the heart of New Zealand's public sector*. London: DEMOS.

Rayner, S. (2006, July). *Wicked problems: Clumsy solutions—diagnoses and prescriptions for environmental ills*. Jack Beale Memorial Lecture on Global Environment, University of New South Wales, Sydney.

Roberts, J., & Gardiner, B. (2005). *Exploring possibilities: An evaluation of the short-term effectiveness of the Secondary Futures process*. Wellington: New Zealand Council for Educational Research.

Roberts, J., McDowall, S., & Cooper, G. (2008). *Enterprising and future focused? The first report from the Regional Education for Enterprise Clusters Evaluation. Report prepared for the Ministry of Education and New Zealand Trade and Enterprise*. Wellington: New Zealand Council for Educational Research.

Roberts, J., and Bolstad, R. (2009). *Organising for Emergence: An exploratory study of the ReGeneration network. Final report prepared for Enviroschools.* Wellington: New Zealand Council for Educational Research. www.nzcer.org.nz/pdfs/organising-for-emergence-final-report.pdf

Rychen, D., & Salganik, L. (Eds.). (2003). *Key competencies for a successful life and a well-functioning society*. Cambridge, MA: Hogrefe and Huber.

Seltzer, K., & Bentley, T. (1999). *The creative age: Knowledge and skills for the new economy*. London: DEMOS.

Stoll, L., & Louis, K. (2007). Professional learning communities: Elaborating new approaches. In L. Stoll & K. Louis (Eds.), *Professional learning communities: Divergence, depth and dilemmas*. 1–14 . Berkshire: Open University Press.

Westheimer, J., & Kahne, J. (2004). What kind of citizen? The politics of educating for democracy. *American Educational Research Journal*, *41*(2), 1–30.

# Appendix 1: Previous NZCER projects that the future-focused issues project draws on

| Project | Relevance for the FFI project | Reports/outputs |
|---|---|---|
| Environmental education in New Zealand schools: Research into current practice and future possibilities (2002–2003) | Outlined the theoretical background for, and historical origins of, environmental education. Examined the shift in recent years from "environmental education" to "education for sustainability".<br><br>Provided some examples of innovative practices and thinking about environmental education/education for sustainability in selected New Zealand schools and kura. | The research findings are reported in four volumes.<br><br>Available at: http://www.nzcer.org.nz/default.php?products_id=668 |
| Evaluation of the short-term effectiveness of the Secondary Futures process (2005) | The Secondary Futures/Hoenga Auaha Taiohi project facilitated a broad-ranging discussion about the future of secondary education in New Zealand. Conversations and resulting reports built towards joint ownership for a vision across and beyond the education sector.<br><br>The Phase One evaluation explored the theoretical backdrop for the work. The findings suggested that the processes used by Secondary Futures had been more effective in working towards its first four objectives (which were about using techniques and tools to facilitate conversation), than the final two (i.e., eliciting preferences and supporting change by taking information to others). The evaluation helped Secondary Futures formulate their approach in the second phase of the project. | Final report available at: http://www.nzcer.org.nz/default.php?products_id=1629 |
| Evaluation of the Northland Enterprising Teachers Initiative (NET) (2006) | Northland Enterprising Teachers (NET) was a professional development programme based on the concept of "education for enterprise" (E4E): teaching and learning that is directed towards developing in young people those skills and competencies, understandings and attributes that will equip them to be innovative; and to identify, initiate, create and successfully manage personal, community, business and work opportunities.<br><br>The evaluation identified examples of innovative practices and shifts in (some) students' and teachers' thinking about teaching and learning. It also identified challenges and barriers to the development of "enterprising" approaches to curriculum, teaching and learning. | Final report available at: http://www.nzcer.org.nz/pdfs/15059.pdf |

| Project | Relevance for the FFI project | Reports/outputs |
|---|---|---|
| Evaluation of the Regional Education for Enterprise (E4E) Clusters initiative (2007–2009) | The Regional Education for Enterprise Clusters initiative aimed to embed an enterprising culture within clusters of schools based on the characteristics unique to their individual communities. The four clusters were in Northland, Manukau, Nelson and the West Coast.<br><br>The evaluation identified examples of innovative and sometimes transformative practice. It also helped to develop a theoretical framework for thinking about E4E, and for making sense of its actual and potential role in supporting a range of outcomes, from individual student achievement, to changes in school culture, school–community–business partnerships and economic and social development within regions. | Interim and final reports, and project summaries, available at:<br><br>http://www.nzcer.org.nz/default.php?products_id=1871 |
| Evaluation of three Education for Sustainability (EfS) professional development programmes (2007–2009) | This project evaluated three Education for Sustainability (EfS) professional development programmes—Enviroschools Programme, the School Support Services National EfS Team and Mātauranga Taiao.<br><br>The evaluation concluded that the three EfS programmes were contributing to bring about educational changes and supporting learning outcomes that are aligned with goals for a sustainable future. The professional development support was encouraging more transformative learning styles, greater student engagement and stronger school–community interactions. However, while there was some evidence of very good progress in these areas, this was not pervasive within or across all schools, and several challenges remain in order to realise national and international intentions for EfS. | Full reports available at:<br><br>http://www.educationcounts.govt.nz/publications/schooling/82841 |

# Appendix 2: New data collected for the Future-Focussed Issues project

| | | |
|---|---|---|
| Exploratory study of the ReGeneration Network (2009) | • ReGeneration brought together young adults and secondary school-aged youth with an interest and involvement in sustainability and environmental issues within their schools, workplaces and communities. The network was launched at an initial hui (ReGeneration '09) in February 2009. A long-term goal was to help inspire and build youth-initiated and youth-supported regenerative action in communities across New Zealand.<br>• Our exploratory study identifies key features of the ReGeneration '09 learning environment, noting how these were similar to or different from common approaches to curriculum, teaching and learning in secondary schools. The study provides insight into ways in which young people can engage with and take actions with respect to future-focused concepts of sustainability and regeneration in a nonschool learning network.<br>• The study also explored how the principles at work in the ReGeneration learning space reflected contemporary thinking and theory from a range of fields/perspectives, including social innovation, futures-creation, active citizenship, deliberative democracy, complex systems, etc. | Research report available at: http://www.nzcer.org.nz/pdfs/organising-for-emergence-final-report.pdf |
| Interviews with seven adults who were involved with a (now dissolved) futures thinking network | • In this small study we set out to explore the ways in which various principles, processes and ideas associated with a (now dissolved) futures thinking network have resonated with, and been carried forward by, seven individuals in seven unique contexts.<br>• The project could not be completed due to contractual issues, but five of the seven individuals consented to participate in the FFI project, and our interviews explored their understandings of and engagement with future-focused concepts (and the FFIs named in the *NZC*). | No published outputs at this stage. |