TEACHING FOR PRESENT *AND FUTURE* COMPETENCY: A PRODUCTIVE FOCUS FOR PROFESSIONAL LEARNING

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Abstract

The key competencies are a potentially transformative feature of the New Zealand Curriculum. However, the way in which they have been understood and implemented in schools points to tensions and challenges that may prevent them from acting as agents of curriculum change. One recent researcher /practitioner partnership developed materials that show how a close interweaving of key competencies and traditional subject learning might transform the taught curriculum. Analysis of the practice of the teachers who contributed to this project suggests that refocusing teacher thinking about purposes for learning is likely to be a critical change lever. A clear focus on students' present and future needs must be part of any re-imagining of purposes for teaching and learning, and hence of the taught curriculum.

Key words

Key competencies, future-focus, professional learning.

Introduction

Like many other nations, New Zealand has adopted a version of the OECD's key competencies (OECD, 2005) as a central integrating feature of the New Zealand Curriculum, or NZC (Ministry of Education, 2007). This paper draws on research that has explored how the key competencies have been understood and implemented in schools in the years immediately following the release of NZC. Documenting the ways in which the key competencies have actually been addressed allows us to point to tensions and challenges that may have hindered many teachers from seeing them as agents of curriculum change. One recent research project suggested some possible ways to proactively address the implementation dilemmas raised. This project took the form of a researcher/practitioner partnership to develop materials that illuminate the simple but profound ways in which a close interweaving of key competencies and traditional subject learning might transform the taught curriculum. Analysis of the practice of the teachers who contributed to this project suggests that refocusing teacher thinking about purposes for learning is likely to be a critical change lever. We argue that developing a clear focus on students' present *and future* needs must be part of any re-imagining of purposes for teaching and learning. While some teachers already understand the role of key competencies as agents of curriculum change, others will need access to challenging, sustained professional learning opportunities, supported by carefully developed and convincing exemplars of what changes to teaching and learning could look like.

How New Zealand Curriculum positions key competencies

We begin our discussion by briefly outlining several critical aspects of NZC's structure, with a specific focus on the ways in which it signals the intended role of the key competencies in building a "21st century" curriculum. In a letter that accompanied the launch of NZC the then Minister of Education clearly conveyed the expectation that key competencies would play a central role in forging new connections between traditional teaching and learning and the expanded outcomes of schooling seen as necessary for all New Zealand students in a new century:

> This curriculum places learners at the centre of the learning process. It emphasises the importance of literacy and numeracy and of a broad education across a range of learning areas. It describes the key competencies students need in order to live, learn, and work, and contribute as active members of our communities and it emphasises the importance of students being able to apply their knowledge and relate it to unfamiliar material. (Maharey, 2007)

The OECD defined competencies as "key" if they were seen as necessary to lead a successful life in a

well-functioning society (Rychen & Salganik, 2003). This dual focus on current *and future* benefits of learning can also be discerned in the Minister's statement above. However, there is a very large black box between the learning specified in traditional curriculum foci and putting that learning to work at some future date, in contexts not yet specified and perhaps for purposes not yet imagined. This tension between today's traditional learning foci and tomorrow's use of that learning is arguably also evident in the brief quote above. In the Minister's comment the "application" of learning serves as a nod towards bringing present and future into some sort of meaningful relationship. But this high-level signal is hardly an adequate starting point from which to weave a future-focus into current learning. Nevertheless, the examples we introduce later in the paper will show how some teachers have been able to successfully resolve this present/future tension in singular acts of curriculum re-imagining.

The structure of NZC itself does little to clarify matters. Traditional "content" is specified on foldout pages in the back half of the document while high-level signals about the overall role of each learning area in a broad and future-focused education are located in the front part of the document. It is up to schools to bring the detail of the two parts together as they weave a coherent local curriculum to meet the immediate and future learning needs of their own students. This is not an easy task for any teacher and it did not help that implementation support for NZC was mainly targeted at school leaders. Doubtless the expectation was that they would then be able to support their staff to understand the intent of NZC and its implications for rethinking the curriculum they offered (Gallagher, Hipkins, & Zohar, 2012). However, as we next outline, this high-level and generic support was never going to be adequate to support the majority of teachers to achieve the intended interweaving of traditional and new elements of the curriculum.

When teachers first encounter a new theoretical idea, such as key competencies, there is a well-known risk that they will layer it over the top of their existing practice. The consequence of such over-assimilation is that their practice does not actually change, even though they sincerely believe they are putting the new theory to work (see Timperley Wilson, Barrar, & Fung, 2007, p. 199, for a discussion of this risk). The Best Evidence Synthesis completed by Timperley and her colleagues points to the importance of creating *dissonance* in teachers' thinking if they are to avoid over-assimilation. New theory needs to confront and unsettle familiar thinking and practice if it is to lead to meaningful change. They also emphasise the importance of supporting this uncomfortable time of transition with specific and workable examples of what new practice could look like. Such examples are the focus of the second half of this paper.

With hindsight, the way in which NZC named and scoped the key competencies was not helpful for avoiding the risk of over-assimilation. The table below names the OECD versions of the key competencies and contrasts these with the names given to their NZC counterparts. Note that these are best matches, not one-to-one equivalents. New Zealand has five key competencies to OECD's four. The names developed for NZC do not directly convey the full richness of each competency, as intended by the OECD versions. In fact some names that were chosen for NZC cue *subsets* of the competencies devised by the OECD. For example, "managing self" is a sub-set of the OECD's "acting autonomously". This bigger, richer picture could be easily lost if managing self is not seen as something done within the uncertainties of both current *and future* learning. Becoming autonomous is about so much more than demonstrating appropriate behaviour in a tightly managed learning context (Hipkins, 2012).

Table 1: Comparing OECD and NZC key competencies

	Name given to competency by OECD	New Zealand Curriculum version
Thinking (cross-cutting)	Acting autonomously	Managing self
	Functioning in socially heterogeneous groups	Relating to others Participating and contributing
	Using tools interactively	Using language, symbols and texts
		Thinking (not identified as cross-cutting)

The positioning of thinking is another specific point of difference. In NZC thinking has the same stand-alone status as the other four key competencies, whereas OECD saw it as something that is integral to *all* demonstrations of competency. One reason OECD gave for this is that *reflective thinking* is an important part of being competent. It's not enough just to be able to do something without being able to think about and critique one's choices and actions. Advocates for the nomination of thinking as a specific key competency in NZC countered this argument in two ways. Some noted that *all* the key competencies are used in combination. Thus, the argument that thinking must be deployed alongside others can be applied to any of the key competencies. Others noted that thinking itself is complex and "incorporates a wide variety of concepts and types of thinking, which require further clarification to develop shared understanding" (Rutherford, 2005, p. 221). However, thinking is so integral to learning that it can be all but invisible to teachers (Hipkins, 2013). Here, perhaps, was one possible entry point for theoretical conversations that would challenge teachers to see the "something more" intended by the introduction of key competencies. But again, teachers needed specific examples of what a deliberate focus on "types of thinking" might look like in practice, and how today's thinking emphases might support tomorrow's future learning and living.

How the key competencies have been understood and enacted

The New Zealand Curriculum was published in 2007 with the initial intention that it would be fully implemented by 2010. With hindsight, it is clear that a framework curriculum designed to be flexible and *responsive* to the specific learning needs of all the students in each school can never be said to be fully completed because it must continue to evolve as needs shift and change. The phrase "fully implemented" is suggestive perhaps of a comprehensive plan on paper, as might have been required for a curriculum that mainly specifies content to be addressed in the present. Arguably the dual focus on learning for now and for the future cannot be easily accommodated in fully predetermined curriculum pathways. Nevertheless, this was widely seen as the expectation at the time.

Researchers who investigated the implementation of NZC during the early years suggested that giving effect to the more transformative features of NZC, especially the key competencies, would take a lot more time than the three years initially proposed. For example, the Curriculum Implementation Exploratory Studies (CIES) research project[i] investigated progress with putting the curriculum to work in "early adopter" schools. In these schools implementation got under way as soon as NZC was developed. Typically the key competencies were enthusiastically incorporated into high-level curriculum visioning (e.g., School Charter documents) and into practice as generic enablers of better traditional learning. However, progress tended to slow or even stall once these types of changes had been made (Cowie, Hipkins, Keown, & Boyd, 2011; Hipkins, Cowie, Boyd, Keown, & McGee, 2011). The over-assimilation predicted by teacher change research was demonstrated in practice (see also Sinemma, 2011).

Both the opportunities and challenges of using the key competencies as a vehicle for changing teaching and learning have become more visible now we can look back over the half-decade since NZC was officially published. Now in 2013 it is apparent that it takes a long time to build a deep understanding of the role that key competencies might play in changing pedagogy and refocusing learning so that it looks to the future as well as the present. Partly this is because the key competencies themselves take time to understand. Each of them has many layers. Teachers need to keep on exploring these, gradually finding out more and more as they go (Hipkins & Boyd, 2011, give several examples of this recursive process). Another challenge is that putting key competencies at the heart of the curriculum requires a rethinking of aspects of teaching and learning we may take for granted, which is never easy (see Gilbert, 2005, for an extended discussion of this point). There is a very positive payoff, however, for the considerable intellectual effort involved in rethinking the taught curriculum. As the next section outlines, teachers who have continued to build their personal understandings of key competencies and bring new insights to their practice are providing challenging but highly engaging learning opportunities for their students.

[i] This project was funded by the Ministry of Education to inform their ongoing policy work in relation to NZC. Researchers from NZCER and the Univeristy of Waikato worked in partnership to complete the exploratory studies.

What does effective teaching and learning for competency development look like?

This part of the paper draws on a recently completed national research and development project called "Key Competencies and Effective Pedagogy".[ii] The name given to the project highlights the point that what *teachers do* makes a very important contribution to students' opportunities to develop and strengthen their key competencies. It would seem that the curriculum developers clearly understood this point (Rutherford, 2005), but in the event it has taken considerable time to filter through to practice. Giving the name Key Competencies and Effective Pedagogy to the project and related on-line support materials also makes a direct reference to NZC, which includes a section dedicated to pedagogical advice for teachers.

In the Key Competencies and Effective Pedagogy project the researchers worked with both primary and secondary teachers to develop rich and engaging stories of practice. Fourteen stories were fully developed to publication, with at least one story for each of the eight learning areas of NZC. In each example one or more of the key competencies were skilfully woven by the teachers into their planned learning activities, which collectively spanned all the years of schooling in New Zealand (Years 1–13). Abbreviated versions of two of the teachers' stories are now outlined. These provide a context for the discussion of the key lessons from experience.

Teacher 1: Secondary students learn a language in a total immersion setting.

> Students in this teacher's class find themselves in a learning environment where most of the communication is in French right from their very first lesson. The teacher says that there is no point to students learning the language if they cannot gradually become confident to communicate without his immediate support. But he is also very mindful of the challenges an immersion context poses for students' self-management capabilities. Over the years he has found a number of ways to support students to take risks as they communicate with him and with each other in a language they are just beginning to learn.
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> The teacher always speaks in strings of complete sentences, using a lot of repetition and mime. He says that if students hear a word or phrase over and over in the same context, they quickly learn both its meaning and pronunciation. This takes much more time than traditional approaches to building vocabulary but clearly conveys an expectation of communication using those words, right from day one. Keeping it light-hearted, the teacher will send students out of class for a short time if they forget and default to speaking in English in front of the class. He says they quickly learn to speak in French or to say nothing and listen!
>
> Mistakes are an important part of learning a new language and the teacher is careful not to discourage communication by making corrections in front of the class. This expectation also applies to students: when peer reviewing each other's efforts they provide written feedback, unless working one-to-one. The emphasis is on "communication over perfection".
>
> The metacognitive demands of this type of learning are considerable because each language is a specific meaning-making system. "How did you learn that?" is a simple but powerful question, often used in these classes. Self-reflection tasks include questions that focus on specific aspects of the form of French as a language-system. The "implicit becomes explicit" as students note one thing they have learned with respect to the featured aspect of form. At first students are allowed to complete these reflections in English, but by their second year of learning they communicate even the metacognitive aspects of their learning in French.

Teacher 2: Young children shape casual explanations for movement.

[ii] All the materials of this resource can be freely accessed at http://keycompetencies.tki.org.nz/Key-competencies-and-effective-pedagogy. The project was funded by the Ministry of Education, in part as a specific response to the challenges raised by the earlier CIES research. Again the research partners were from NZCER and the University of Waikato.

The children in this class had just started school. They were beginning to inquire into how things move. The simple question "How do things move?" created the opportunity for children to share their existing ideas while the teacher listened for any evidence of causal thinking on which she could build. At this early stage of their science learning the children were more likely to describe *specific instances* of movement than they were to offer *explanations*: "I can move with my legs." "The scooter moves its wheels."

A "wheels day" at school provided the opportunity to build shared experiences for further classroom talk. On this day the children brought in bikes and scooters decorated according to a theme. The teacher drew the children's attention to their actions as they practised moving on their own bikes and scooters and also watched each other moving. The children began to describe what they did to create movement: "I use my feet to make my scooter move." "I can use my feet to push the pedal." These ideas were recorded alongside photos taken on the day and displayed on the classroom wall. Together the class looked at the display to find explaining words. These words were recorded on the board, ready for the next lesson.

Next the children brought toy cars from home and experimented with ways of making them move. The teacher prompted them to draw on their intuitive knowledge of cause and effect by asking questions such as "what do you think will happen to the car when we push it down the steep ramp? Why do you think that?" "What happens when we push the car across the floor? Let's think about why this is different from pushing the car down the ramp." All the ideas offered by the children were recorded.

The children were then challenged to think about how they could measure whether specific cars really were going faster or further. They began to make links between this challenge and their experiences of measuring length in maths. The teacher encouraged them to think about how we can be fair when we measure things to compare them. Once they had access to a fair measurement strategy, and had actually measured the distances that their vehicles travelled in different circumstances, the children could begin to justify their cause and effect ideas by linking these to the evidence of their hands-on experiences.

Reflecting on *purposes* for learning

Early in the implementation of NZC it was common for teachers to think that key competencies might help students do "more of the same, but better". In other words, they did not see this curriculum change as an opportunity to think again about how learning supports both current and future learning and development. The key competency of managing self, for example, was typically used to emphasise being organised, doing homework, behaving properly in class and so on. Of course, good self-managing behaviours do support learning. So what might be missing here? In both the above examples, the teacher's clear sense of purpose allowed them to weave a skilful combination of key competencies and content, in which *both* these curriculum components were integral to the outcomes being sought. We now elaborate on how this reciprocal relationship played out in the two examples above.

Story 1: The Learning Languages section of NZC emphasises *communicative* purposes for learning a new language. In traditional language learning—the so-called "grammar-translation" approach—the accurate use of words and grammar is often the main emphasis. However, a limitation of this approach is that students might learn to read and write accurately without necessarily being able to actually use the language to communicate effectively. Within a communicative approach, students must practise making themselves understood. Conversations require listeners as well as speakers, and students must contribute to practice by playing both roles (for a discussion of the difference and its impact on teaching, leanring and assessment, see East & Scott, 2011).

The teacher in this story recognised how challenging it can be for students to actually communicate in a new language. He drew on deeper insights about the key competency of managing self to help his students build the resilience, courage to take risks, and persistence they would need as they learned to communicate effectively in French. This focus did not replace a focus on knowledge of vocabulary or the features of French as a language (including grammar) but rather provided students with personal

capabilities to use their growing knowledge of these more formal aspects in authentic communication tasks.

Story 2: Primary teachers can sometimes question their role in teaching subjects such as science. Should young children be learning "hard" science ideas or is the purpose for science learning in the primary school different from secondary science in some important ways? It has recently been argued that the main purpose of science learning for young children should be to build up a rich library of experiences on which they can draw (Bull, Gilbert, Barwick, Hipkins, & Baker, 2010). This includes supporting young children to develop a rich language for talking about these experiences, and learning how to "see" their experiences through different eyes.

In one large international science education project, cause and effect thinking was identified as one of a small number of important foundational ideas to build in science (Duschl, Schweinbruber, & Shouse, 2007). Story 2 illustrates how the teacher supported the children to practise their own cause and effect thinking as a specific aspect of strengthening the key competency of thinking more generally. The simple but rich experiences described in Story 2 thus made an important *foundational* contribution to building science capabilities. The ultimate aim, over the years of schooling, is to foster science capabilities for responsible, informed and active citizenship, which is the stated overall purpose for science in NZC. This story could also make a contribution to ongoing reflection on the effectiveness of New Zealand's choice to situate thinking as a key competency in its own right.

Keeping both present and future learning in mind

When gathering teacher stories for the Key Competencies and Effective Pedagogy research and development project it was obvious that all the teachers had immediate curriculum-related goals that were clear and important. As outlined above, a clear sense of purpose informed their decisions and actions, shaping the ways they responded to students' thinking and actions as the learning unfolded. However, it was also clear that each teacher had in mind some *longer-term goals*: the present learning mattered in some bigger way for students' futures. For example, the new entrant teacher was laying an important foundation of rich experiences and language for students' future science learning. The French teacher was intent on making sure his students would have both the knowledge and the confidence to communicate in French in any situation where the need to do so might arise in the future.

The wider collection of examples in the Key Competencies and Effective Pedagogy project illustrates how some of the teachers created powerful ways of confronting accepted thinking or a dilemma that their students might otherwise avoid thinking about. Sometimes they fostered a kind of procedural (how to) knowing related to more critically and thoughtfully being a citizen (for example, being more critical about claims made in advertising). Sometimes they worked on building students' confidence to take the lead and proactively show the way forward.

Providing a context for active participation within carefully structured activities gave students the opportunity to develop some insights into the nature of the particular discipline. It also enabled them to acquire some of the tools needed to solve complex discipline-related problems. For example, they could experience what it feels like to be a scientist, an historian or a carpenter; at least from the perspective of a novice or apprentice rather than as a professional expert. This sense of both present and potentially future-focused *being* is evident in the exemplars about song writing, food technology and being a scientist.[iii]

The dual focus on both current and future learning also points to an important idea about the key competency of *participating and contributing*. In the earlier CIES and other implementation studies this key competency was widely understood as being about students making an active contribution to routine aspects of learning such as group work. Of course, learning together *is* important for building

[iii] Again, this question of *being* as well as *knowing* was a lively topic of debate as the curriculum was being developed (Rutherford, 2005). In fact "learning to be" was seen as one of four "pillars of learning" for the 21st century by a UNESCO project completed at the turn of the century (Delors, 1996). However, it has taken some years for what "learning to be" might actually mean to be more widely debated: it would seem that we still have some way to go with this.

valued knowledge and skills. But this way of understanding the key competency only identifies its surface-level potential. To stop at this understanding would be to miss important opportunities to build the kind of knowledge, skills and attitudes—often referred to as *action competence*—that can be carried forward into life beyond the classroom. Students need to learn in ways that support them to be "ready, willing and able" (Carr, 2006) to act on their growing knowledge and skills in current and future contexts.

Professional learning challenges and opportunities

Roles and responsibilities in the classroom shift as teachers work to provide space for students to develop and extend their understanding and capacity to deploy many different aspects of each key competency.[iv] This does not mean that the teacher moves to the background. Instead they use their own knowledge and expertise in ways that bring students' thinking and reasoning into the foreground. With practice and specific reflection, students become more adept at managing and monitoring their own learning, individual and collective. To support teachers to think about this shift in roles, the project team developed a framework for critical reflection on pedagogy. Development of the self-reflection framework began with a critical discussion within the research team. The team members asked themselves what competency-related outcomes would be worthy of teachers' and students' learning efforts. To answer this question, we began with the NZC vision statement. This prompted us to reflect on the sorts of learning students might need to access if they are to be and become "confident, connected, and actively involved, lifelong learners" (Ministry of Education, 2007, p. 8). Addressing this question we envisaged that learners would need:

- space in which they could take **initiative** and directly experience what it feels like to be and become a "person who can"…;
- to be able to make meaningful **connections** between the task at hand and other aspects of their lives, and of their cumulative, ongoing, and lifelong learning;
- to be "challenged and supported to develop them [the key competencies] in contexts that are increasingly wide-ranging and complex" (Ministry of Education, 2007, p. 12). Being busily engaged is not enough: the learning must also stretch students. Hence, the third dimension built into the indicator framework was **challenge**.

These conditions for effective learning apply in the first instance to students' learning, but they also apply to the professional learning that teachers experience as they explore ways to help realise the NZC vision for students now and in their futures.

In the first half of the paper we noted that the key competencies are complex and have many hidden layers. In our experience, grasping their full potential to transform teaching and learning takes considerable time. There is a need for sustained professional learning opportunities because of the recursive nature of the exploration required. We also noted the risk that teachers will layer key competencies over essentially traditional practice—i.e., they will be over-assimilated. The professional learning BES points to the creation of dissonance in teachers' thinking as an effective way of addressing this challenge (Timperley et. al., 2007). Drawing from the research literature, Timperley and her colleagues identify several areas of theory that could be good candidates for creating such dissonance. These include: thinking differently about students and their abilities; critically reviewing the nature of the teacher's relationships with students; and analysing actual achievement patterns to identify areas of learning challenge. All of these are of foundational importance to pedagogies that would strengthen and stretch key competencies. But we think another very important candidate is missing. In this paper we have presented the case for thinking more deliberately about students' current and *future learning* needs, and about the nature of relationships between these immediate and longer-term outcomes of learning. We think this is the curriculum

[iv] In a more recent Science Curriculum Support project we have used the word "capabilities" to describe diverse aspects of any one key competency. Cause and effect reasoning, for example, could be described as a specific type of thinking capability. Retrieved from http://scienceonline.tki.org.nz/New-resources-to-support-science-education

conversation that should now be happening in productive researcher/practitioner partnerships. The dual present/future focus also needs to be as broadly exemplified as resources will allow in the professional support materials produced for teachers.

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