

How “tight/loose” curriculum dynamics impact the treatment of knowledge in two national contexts

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Abstract

In national contexts where curriculum policies explicitly advocate for the development of students’ higher order thinking capabilities, evidence suggests that achieving this goal can be quite elusive. In this article we explore this challenge by drawing on senior secondary school examples from two national contexts (New Zealand and Israel) that demonstrate how the implementation of student-centred pedagogies can lead to the development of fragmented, shallow knowledge rather than the deep, connected knowledge envisaged by the actual policies. Dilemmas common to both nations include: a lack of understanding that inquiry learning should include an epistemic focus; concerns about how to balance breadth and depth of students’ learning; and a lack of strong models for rethinking purposes for teaching and for assessing the types of learning outcomes envisaged by the curriculum innovations. We contend that the challenges we describe stem at least partially from a tight–loose dilemma common to both countries. In the contexts we discuss, looseness is associated with a lack of clear epistemic criteria for teaching, assessing, and designing interventions. We suggest that, in order to improve the implementation of innovative forms of learning and instruction, issues pertaining to epistemic criteria must be tightened.

Introduction

In national contexts where curriculum policies explicitly advocate for the development of students’ higher order thinking capabilities, evidence suggests that achieving this goal can be quite elusive. In this article we explore this challenge by looking for indications that students are likely to construct “deep knowledge” as an outcome of their learning. By this, we mean that ideas can be meaningfully interconnected within a web of disciplinary concepts, and that

students are beginning to grasp the types of knowledge-building processes that are used to justify knowledge claims in that discipline (i.e., there is an epistemic focus on knowledge production and the nature and depth of thinking). We address this phenomenon by drawing on senior secondary school examples from two national contexts (New Zealand and Israel). In both contexts, we can see that the implementation of “student-centred” pedagogies (i.e., those intended to make learning more meaningful and empowering for students) can lead to the development of fragmented, shallow knowledge rather than the deep knowledge envisaged by the actual policies.

The article had its genesis in informal conversations based on our shared interest in the development of higher order thinking, particularly in science education contexts. We were intrigued by what we recognised as similar challenges in our very different education systems. Accordingly, we begin our discussion by briefly outlining three different dilemmas that interact with each other to impact fidelity of implementation of curriculum initiatives intended to include student-centred pedagogical dimensions.

1. Understanding the intent of pedagogical reform

The international call for deep knowledge in 21st-century schools implies that curriculum reforms will lead to a different quality of learning experience. Students’ encounters with knowledge should enable them to actively engage with the meaning of what they are learning, leading to “the mobilisation of knowledge, skills, attitudes and values to meet complex demands” (Organisation for Economic Cooperation and Development [OECD], 2018, p. 5). Hence, most so-called 21st-century reforms are positioned as “student-centred” and they often adopt “inquiry” pedagogies. Both these concepts are highly problematic because they are open to multiple interpretations. For example, some teachers understand student-centred to mean that they must step back and forgo an active role in supporting learning. This dynamic is reinforced when inquiry is also seen to entail information retrieval and reprocessing that students must essentially undertake without explicit support. (Hipkins, 2006, discussed this problem in the New Zealand senior secondary school.) By contrast, inquiry pedagogies that can mobilise knowledge include a focus on the knowledge-building processes of the discipline. In the science curriculum, this translates most meaningfully to a focus on the practices of science, as relevant at different age levels. Bybee

(2011), for example, provides a clear framework of the practices that underpin the Common Core standards in the United States. As we will show, how best to pick up the epistemic signals in our own national curricula is not clearly specified. Pedagogies intended to support the building of deep knowledge can end up doing the opposite, especially when their underpinning epistemic assumptions are at odds with teachers’ tacitly held theories of knowledge construction. (We come back to this point at the end of the article.)

2. Teachers’ lack of epistemic awareness

Epistemic questions such as where knowledge comes from, what makes it trustworthy, what work it might do in the world, and how it is constructed in school learning, are an important focus for learning conversations that build higher order thinking. However, if deep encounters with knowledge are assumed to include an epistemic dimension, it follows that teachers need to have the necessary knowledge and insight to plan for and lead this aspect of learning interactions. Research over several decades suggests that teachers lack epistemological awareness: “Teachers themselves have difficulty in articulating what they know and how they know it” (Shulman, 1987, p. 6). Furthermore, teachers tend not to hold unified epistemological positions (Roth & Roychoudhury, 1994; Ryder, Leach, & Driver, 1999). Their epistemology is predominantly shaped by their own schooling and professional development, which tends to result in them holding traditional authoritarian perceptions of knowledge. Stoddard’s (2010) more recent research showed that, even when teachers are aware of their own epistemologies, they can adopt relativist positions when confronted with different perspectives, and they revert to traditional authoritarian pedagogies when working with textbooks. There is no reason to suppose that teachers in New Zealand and Israel have better-developed epistemic awareness than teachers in other parts of the world.

3. Tight/loose implementation dynamics

All change solutions... face the too-tight/too-loose dilemma. If a situation is loosely formulated... the natural reaction is to tighten things. Command and control strategies do get results in these circumstances, but only for a short time and only for a degree. If we then say that we need to give people

more leeway—give them resources and trust them to do the right thing—the press for change is lost. In general terms, the solution to motivating people is to establish the right blend of tightness and looseness ... to build both into the interactive culture of the organization. (Fullan, 2007, p. 43)

In this quote, Michael Fullan succinctly explains how hard it is to get policy settings “just right” in terms of management and oversight of the desired changes. Top-down (tight) changes fail to produce ownership, commitment, and clarity about the main messages of the reform. Bottom-up (loose) changes tend to disperse, failing to support a focused and coherent message. Scaling up of interventions is often under-resourced, requiring compromises between practical constraints and the design intended by the developers. Hence, major intended aspects of an innovation’s optimal design may not be enacted as intended by its developers, who can thus anticipate that parts of their design will be “defenestrated” (i.e., thrown out the window) (Dede, 2004, 2006; Lee & Krajcik, 2012).

In any national context, a tight/loose balance needs to be struck across the overall curriculum policy mix, which includes: the actual curriculum documents; the assessment instruments that provide critical signals for how the curriculum should be understood; and any officially sanctioned professional learning and support materials. In the next section of the paper we briefly outline how these policy elements come together in our very different national contexts.

A brief overview of our different curriculum contexts

The New Zealand Curriculum (NZC) (Ministry of Education, 2007) is a well-meaning but loose framework around which schools must weave a local curriculum to meet the learning needs of their student community. *NZC* was designed to be a curriculum for the 21st century, but epistemic signals about what such an aim might mean for pedagogy are easily overlooked in this document of two halves. The more visionary front part of *NZC* includes five key competencies, based on the OECD originals but re-worked for the New Zealand context. These are named as: *managing self*; *relating to others*; *using language, symbols and texts*; *thinking*; and *participating and contributing*. The key competencies are supposed to be woven into rich learning tasks set in one or more of eight “learning areas” (Science; Mathematics; English;

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Social Sciences; Technology; Health and Physical Education; Languages; The Arts) which constitute the “back half” of *NZC*. When read as an integrated document, the signal is that key competencies contribute to changing the manner in which students encounter knowledge from traditional subjects within the learning areas (Hipkins, Bolstad, Boyd, & McDowall, 2014). To this end, *NZC* includes a specific section of advice about “effective pedagogy”. However, it is up to schools to decide how to do this weaving, and resources that modelled how to make the sorts of changes needed were not initially provided. (See Gallagher, Hipkins, and Zohar (2012) for a comparison of how *thinking* was treated in *NZC* compared to the curriculum structure and support in Israel and Northern Ireland.)

Assessment of learning in the senior secondary school in New Zealand is also loosely specified. The National Certificates of Educational Achievement (NCEA) has a modular structure that requires teachers to be skilful curriculum designers (Hipkins, Johnston, & Sheehan, 2016). In some subjects, the achievement standards used to assess students’ inquiries have an explicit epistemic focus but others do not (Johnston, Hipkins, & Sheehan, 2017).

Unlike New Zealand, Israel has a more prescriptive and centrally mandated curriculum that all schools are required to follow. In 2013, the Israeli Ministry of Education initiated a new national “meaningful learning” reform. This reform adopted student-centred pedagogies with an emphasis on 21st-century skills. It sees meaningful learning as learning in which students raise questions, find sources of information, and create new knowledge that is relevant for their daily life and for the 21st-century digital era. The goal of meaningful learning is to develop students’ thinking skills, creativity, abilities for self-learning, personal growth, and social involvement. These are not dissimilar goals to those signalled by the addition of key competencies in *NZC*. The reform policy documents state that the school system must strive towards meaningful learning and facilitate implementation from K–12 with all children (i.e., with children of diverse ethnicities and backgrounds).

As part of implementing the “meaningful learning” reform in the Israeli senior secondary school, the curriculum of each school subject was divided into two unequal parts. In each school subject, 70% of the curriculum continues to be mandatory, with students required to take an external matriculation test covering that part of the curriculum. The remaining 30%

of the curriculum is now exempt from the mandatory external exam and is allocated to a section of the curriculum named “elaboration and elective”. Thus, an important innovation in the reform was that 30% of the grade that had always been given as an external matriculation exam became an internal grade given by each school. The Ministry of Education encouraged schools to develop their own “alternative assessment” methods for this part, such as inquiry papers, projects, portfolios, etc. This part of the reform has been nicknamed the “30/70” reform. The idea behind this change was that the 30/70 reform will enable schools and teachers to be autonomous in choosing some of their own topics for learning, in shaping new ways for learning and instruction, and even in designing their own assessment methods (Israeli Ministry of Education, 2014).

In tight/loose terms, both the *NZC* framework and the modular NCEA assessment system are loose. Great responsibility is placed on individual teachers and schools to weave a coherent senior secondary curriculum that meets the needs of different groups of students. In the Israeli context, just 30% of the curriculum/assessment system is similarly loose. Even so, as the snapshots in the next section of the paper show, very similar dilemmas and challenges have arisen in both reform contexts.

How curriculum interpretation creates epistemic dilemmas

In this section we discuss ways in which teachers have interpreted the loose curriculum and assessment elements outlined above. Our explicit focus is on epistemic dilemmas that arise for teachers as they try to put these curricula to work in their school contexts. We use snapshots from both nations to illustrate the types of dilemmas that arise, and to highlight the complex ways in which these dilemmas interact with each other in unhelpful ways. Dilemmas common to both nations include: a lack of understanding that inquiry learning should include a focus on how knowledge is built in the relevant discipline(s); concerns about how to balance breadth and depth of students’ learning; and a lack of strong models for rethinking purposes for teaching and for assessing the types of learning outcomes envisaged by the curriculum innovations.

Snapshot 1

A high-school literature teacher, who also teaches in a pre-service teachers' college, recently published a short article in a daily newspaper criticising Israel's 30/70 reform on the grounds of what she sees as “abandonment of serious learning”. In essence, she argued that readings of literature pieces accompanied by deep classroom discussions have been substituted by a meaningless requirement “to be creative”. This is done by using diverse activities such as dancing, painting, or preparing a play. She complained specifically about lack of criteria for evaluation of the final project students created for the 30% school-based assessment. The short article describes several specific examples in which students had created various artefacts, receiving high grades despite a superficial connection to the literary pieces they had been studying. Examples included: plays centering on external facets of literature work instead of centering on the complex interpersonal relationships addressed by these literature pieces; a cooking event presumably representing deep ethnic struggles; and a cardboard shoebox painted black that students submitted as their final project about Amos Oz's famous novel *Black Box*. She noted that the number of literary texts students were required to read for external assessment was cut by almost 50%, while the level of study and assessment of the 30% allocated to school-based assessment was seriously damaged (Adivi-Shoshan, 2016).

The 30/70 reform in Israel is supposedly oriented towards making pedagogical space for the active and creative means of learning needed to develop higher order thinking and deep knowledge. Yet Snapshot 1 indicates that these desired outcomes are not necessarily being understood or achieved. The author of the article was concerned about the elimination of significant literary pieces from the high-school literature programme. She expressed concern about both the scope of what students learn, and its quality. She complained about the lack of criteria for assessment. Therefore, she expressed strong apprehension because what she saw in the schools was that “everything goes”—a relativist approach she thought was dangerous for the quality of education. Student expression of any kind of creativity in their “project” (worth 30% of the final matriculation grade) would grant them the desired grade even if it had nothing to do with a demonstration of deep knowledge. Arguably, assessment of students' awareness of how meaning is made in literary texts could help address the implied threat of relativism in determining higher grades. In other words, what is missing are epistemic criteria in the assessment guidance (Pluta, Chinn, & Duncan, 2011).

This lack of criteria that clarifies the quality of the intended cognitive learning outcomes is also highlighted in Snapshot 2, which puts the spotlight on project-based (inquiry) learning in Israel.

Snapshot 2

Anat was recently invited to see to see the work of a group who had been working on the implementation of project-based learning in a medium-size school district in Israel. After visiting classrooms and talking to teachers and students, Anat's hosts presented an assessment study that was just completed. The presenters were extremely proud of the findings, showing that inquiry-oriented lessons were indeed prevalent in the schools participating in the programme, that students and parents were highly satisfied with the programme, and that the assessment showed improvement in attitudes towards school learning and motivation for learning. The assessment did not address the question of what students had learnt, and whether or not participation in the programme affected any cognitive indicators such as knowledge, students' deep understanding, or reasoning abilities. When Anat asked about these indices, the response was that, yes, they would have liked to measure these indices too, but had no idea what criteria they could use. So, meanwhile, they just let it be.

While Snapshot 1 focuses on a lack of clarity about knowledge-building processes in the assessment criteria and among teachers, Snapshot 2 demonstrates that epistemic goals intended for new types of learning and instruction may not be clear even to leaders of change in whole districts involving several schools and many teachers. These change leaders were aware of the limitations of traditional learning, and had a strong conviction that project-based learning was preferable. They could also measure and report affective outcomes of the change process (attitudes towards learning and motivation). However, they were unclear about what they actually wanted to achieve in terms of learning goals that addressed knowledge-building, or even how students perceive interconnections between ideas. Again, there was an apparent void where clear criteria for the cognitive dimension for building deep knowledge should have been in place.

Snapshot 3 comes from the New Zealand context. It also addresses the twin themes of inquiry pedagogies and the types of outcomes envisaged by assessment criteria. This snapshot adds to the complex picture we are building by contrasting the uneven assessment treatment of two subjects

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for which a focus on knowledge-building is supposedly signalled either in NZC (biology) or in the NCEA achievement standards (history). The focus is again on the epistemic dimension that appears to be missing from the thinking of the teachers and school leaders in Snapshots 1 and 2.

Snapshot 3

With two colleagues, Rose recently explored the extent to which standards used to assess history and biology for NCEA reflect the epistemic processes of their parent disciplines (Johnson, Hipkins, & Sheehan, 2017). We found that neither discipline’s knowledge-building practices were well represented by its externally assessed (examination-based) NCEA standards, which all focus on assessing declarative knowledge. Internally assessed standards for biological investigation fared little better. Exemplars posted on a teacher website revealed an emphasis on demonstration of more detailed declarative knowledge as the main indicator of Merit or Excellence in achievement. An epistemic element could be read into the wording of one standard which ostensibly also addressed aspects of the quality of the biological inquiry practices employed. However, this dimension was not emphasised in the exemplars. By contrast, the internally assessed standards for history were found to involve students in a simplified version of authentic historical inquiry. Both the criteria of the standard and the exemplars that supported it reflected this epistemic emphasis. In a separate strand of the research, we found that achievement in internally assessed standards for history was a much stronger predictor of subsequent achievement in history than the externally assessed standards for history, or the standards of either assessment format in biology. (Note that there are three NCEA levels, roughly corresponding to the final 3 years of schooling. This quantitative analysis was applied to every student who took one or other subject and was assessed in it for NCEA in 2 consecutive years in 2014/2015.) A possible reason for the pattern we found is that epistemic focus of the internally assessed inquiry standards in history does promote deep higher order thinking, and that this dynamic, in turn, explains the stronger predictive power of these inquiry standards.

Epistemic elements in assessment criteria need to be really clear or teachers will look for what they have always looked for and teach as they have habitually taught. Snapshot 3 contrasts the explicit focus on knowledge-building in the assessment of history with a continuing more traditional inquiry focus in biology. It could be that the sciences face specific challenges in making epistemic shifts where the practices of inquiry are seen as valid assessment targets. Osborne (2014) asserts that the traditional role of

science inquiry (typically interpreted as laboratory practical work) has been “illustrating or verifying the phenomenological account of nature offered by the teacher” (p. 178). When the very idea of “inquiry” is conflated with an exercise in confirming well-established concepts, the result is to confirm the account of nature offered by the curriculum. This strongly established pedagogical tradition can get in the way of making an epistemic shift to a focus on what scientists actually do (i.e., their knowledge-building practices) (Osborne, 2014).

How “too loose” dilemmas play out

We now direct our attention to the problematic “looseness” in the curriculum elements outlined above. We begin this section with a discussion of the 30/70 reforms in Israel before turning to the complex impact of both a loose curriculum and a loose assessment system in New Zealand. In Israel, partly because of apprehension caused by rapid political change, the 30/70 reform was implemented in a hurry, without enough preparation, support, and professional development. Concerns have been expressed that the pressure to come up with a quick plan for the 30% school-based curriculum and assessment, especially when not accompanied by professional learning, has created “looseness” in terms of clear guidelines for teachers’ instruction and for criteria for the quality of learning. In turn, this has led to non-uniform modes of implementation.

To gain deeper insights into teachers’ thinking about these issues, Anat and her students recently conducted 46 semistructured individual interviews with high-school teachers who were implementing the 30/70 reform. Some schools and teachers said they had “already been there”. Following previous reforms or following local initiatives (such as the one described in Snapshot 2), the teachers in these schools had already gained years of experience in alternative modes of teaching and learning. These teachers said they were able to use the relative freedom of the 30% to “take off” and “fly” towards innovative and creative modes of learning, instruction, and assessment (the expressions in quotes are taken from excerpts of teachers’ interviews). Many other schools, however, did not have the inner resources of knowledge required to make similar changes. In such schools, the hasty implementation of the reform destroyed old routines of traditional teaching and assessment, but, in many cases, did not provide support for constructing an adequate

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replacement. The result was often confusion and chaos. Snapshot 4 illustrates this point through the voices of the interviewed teachers.

Snapshot 4

Many teachers did not think that the 30/70 reform contributed to deeper students' knowledge. A group of 12 high-school chemistry teachers were interviewed specifically about how they view the effect of the reform on the depth and breadth of students' knowledge in chemistry. All 12 teachers unanimously replied that the reform promoted neither the depth nor scope for students to build their knowledge. Rather than viewing the opportunity to teach by inquiry, as indicated by the 30/70 reform, as an opportunity for deeper learning, they saw the change as “losing” the material that was moved to the 30% section:

Yes, the whole section of Physical Chemistry that was moved into the 30%—I am so sad that it will be lost. It's really a pity. (Teacher)

Interestingly, this chemistry teacher referred to a section moved into the 30% as knowledge “that will be lost” rather than as material that would now be taught and assessed by inquiry learning, thereby constructing students' deep knowledge. Other teachers also held this view:

I am really trying to teach in depth, but I actually teach with less depth than before because my time is limited [i.e., because students need time to work on the alternative assessment]. There is no deep learning, it's the other way around—learning is less deep! (Teacher)

Interviewer: Do you think students learn more deeply following the reform?

Teacher: It's the other way around. The reform blocks it [i.e., the deep learning] because students are overloaded.

Similar views were shared by teachers of other school subjects. For example, one of the humanities teachers explained that, because she did not go through any professional learning process, it was not surprising to discover that the reform was expressed in changes in structural issues (e.g., allocation of hours) but did not affect the ways she had been teaching:

Except for the technical part of dividing the content in a different way and the allocation of hours, the reform did not affect me. I am still teaching for the matriculation exam, focusing on the questions that appear in the test. The part of the 30%—we taught it really fast because we had no time. We did not teach it in a deep way, and I am not sure we covered all the topics [that were part of the 30%] ... My teaching methods did not change. (Teacher)

There are two ways to interpret these citations. The first is that the time devoted to the activities involved in the creative, project-based, and inquiry learning interferes with thinking and deep learning (the classic “doing and not thinking” or “hands on rather than minds on”). The second is that, because the 30% consists of school-based assessment and the 70% of external assessment, teachers devote most of their time to preparation for the external test so that only very limited time remains for the content of the school-based assessment. The full database of the interviews actually contains evidence for both explanations.

In New Zealand, more than 50% of NCEA standards are administered and judged by teachers in schools. Because the overall system is modular, the actual balance of internal and external assessments varies from course to course. Some students will gain most of their credits from internally assessed standards, which are widely perceived as easier to achieve than the predominantly examination-based externally assessed standards (Hipkins et al., 2016). Thus the issues about course structures and content coverage raised by the Israeli teachers in Snapshot 4 are even more widely applicable in the New Zealand context. Furthermore, as Snapshot 5 shows, teachers’ decision making is vulnerable to perverse incentives, if these exist within the overall system. If they do not hold a strong view of the purposes for which students are learning (that is beyond gaining qualifications for their own sake) it can be tempting for teachers to take advantage of the looseness in the system for reasons that are not related to the depth and coherence of the overall programme of learning.

Snapshot 5

In 2012, the New Zealand Government set a “Better Public Service” target that 85% of 18-year-olds would achieve NCEA Level 2 or an equivalent qualification by 2017 (New Zealand Government, 2012, p. 2). This target was considerably above average rates of gaining a Level 2 qualification at the time. Tellingly, the policy document mentioned several initiatives that might support achievement of the target but made no mention of *NZC* and the role it might play. (Note that, as we were working on this article in April/May 2017, this policy was withdrawn from the senior secondary school. The government has since changed and a review of NCEA was underway at the time we revised this article.) Principal and teacher responses in a national survey conducted in 2012 after the 85% target had been introduced revealed considerable consternation about how the target might be achieved:

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The target is easily measured but could and does already lead to schools offering students low level courses to help them gain Level 2. We do not believe it is the right target. Gaining success in ‘academic’ courses is more valid. (Principal comment)

The model is philosophically flawed. It correctly points out that its goal is to create lifelong learners, but then demotivates them by making them do all this assessment which will fail them, because it is not what they want, hold valuable and can relate to. (Teacher comment)

Both types of responses have been documented in other research. The following example comes from Starpath, a longitudinal study of student progress through a range of secondary schools in the Auckland area of New Zealand. Wilson, Madjar, and McNaughton (2016) explored students’ opportunities to learn in the subject of English. They selected AS 91100: Analyse significant aspects of unfamiliar written text(s) through close reading, supported by evidence as one of two NCEA standards on which they would focus, given its importance for both current and subsequent academic study. They began by analysing participation rates and reported that fewer Māori and Pasifika students were enrolled for assessment in this standard (perhaps reflecting the first of the strategies above). Wilson et al. then observed lessons in a wide range of classes where students were preparing for assessment. They found that students had very different opportunities to learn in different school contexts. In schools in lower socioeconomic areas (which tend to enrol more Māori and Pasifika students), a self-fulfilling dynamic played out. Teachers responded to students’ reading struggles by giving them shorter texts, simplified from the originals, and directed to an adolescent audience. What the students actually needed was to learn to read and think critically about a range of types of original texts written for adult audiences.

In Snapshot 5, the comment made by the school principal suggests the strategy of encouraging less able students to avoid standards that assess deeper thinking, so that credits are accumulated from easier options. The comment made by the teacher implies that many students simply could not achieve a Level 2 NCEA and it would be wrong to make them try (see Hipkins, 2013 for more detail). There is evidence that both types of responses are made by many teachers, often in combination with each other. Wilson et al. noted that such choices can be seen as rational and strategic in terms of the imperative to lift NCEA achievement rates to 85% at Level 2 NCEA.

While the 85% target has now been removed, other perverse incentives seem much more intractable. For example, since the Tomorrow’s Schools reforms

of the 1980s there has been a history of competition and lack of sharing between secondary schools (Wylie, 2012), especially in large urban areas such as Auckland where the Starpath study was set. The media publish “league tables” of NCEA results and some parents base their choice of secondary school on these rankings. As with the 85% target there is an incentive to emphasise the gaining of NCEA credits as the main purpose for learning. For some students this will come at the expense of the more challenging opportunities to learn envisaged by the curriculum (Hipkins et al., 2016).

Another deeply entrenched influence implied in Snapshot 5 concerns teachers’ views about which students are actually able to demonstrate deeper thinking. The view that intellectually demanding learning is not suitable for all students persists, despite evidence that the benefits are actually greater for students who have not developed higher order thinking capabilities from their cultural backgrounds or their previous learning experiences (see, for example, Zohar & Dori, 2003). This challenge puts the spotlight on teachers’ own opportunities for professional learning.

Drawing the threads together

Informal conversations between Rose and Anat provided the impetus for this article. As we compared the implementation of pedagogies intended to promote more meaningful, deeper learning, we were struck by the strong similarities in challenges our two very different education systems face. The difference between the structure of the “loose” New Zealand curriculum and the traditionally centrally mandated Israeli curriculum is quite large, yet similar implementation dynamics have played out. This finding suggests that a deep underlying similarity is at work.

We contend that part of the challenge involved in the tight/loose dilemma, common to both countries, resides in the looseness associated with a lack of clear criteria for teaching, assessing, and designing interventions that include a focus on knowledge-building practices in the disciplines (i.e., an epistemic focus). This specific type of looseness generates great challenges for implementing student-centred pedagogies in ways that would deepen students’ knowledge, understanding, and thinking. Notwithstanding other aspects of the loose/tight dilemma, we suggest that, in order to improve the implementation of innovative forms of learning and instruction, issues

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pertaining to epistemic criteria must be tightened in three ways: (a) explicate assessment criteria and expectations when knowledge-building practices are an intended focus; (b) design a few exemplary models to demonstrate means of assessment and instruction; (c) offer professional development that will support educators’ understanding of disciplinary practices, along with relevant modes of inquiry and higher order thinking.

These recommendations are at once promising and disturbing. Helping teachers to achieve deeper knowledge and understanding of epistemic goals, as well as of the pedagogical knowledge required for classroom instruction, seems like the only way to work towards the elimination of the problems we have described in the earlier sections of this article. The disturbing question is whether the suggested activities would impair educators’ autonomy and undermine the flexible inquiry practices we are striving to achieve. There is no simple solution to this dilemma because, as in many other complex circumstances, the solution lies in reaching the right balance between looseness and tightness. We believe that building teachers’ awareness of knowledge-building practices, as an explicit curriculum focus, has the potential to increase their professional capabilities in an area that is dictated by the “system” but still allows them to make their own decisions as to what to believe and how to teach.

Our focus on tight/loose policy settings implies that ameliorating some of the looseness that we have described could support greater fidelity of policy implementation. However, our simultaneous focus on teachers’ epistemologies suggests that this is too simple a solution (even though in practice it would not be simple either). There can be no shortcuts in a personal learning journey that includes a focus on practices for building knowledge (as well as knowledge products per se). From our own personal learning journeys across the course of long careers in education, we know that such a focus can be deeply unsettling, at least until a threshold is crossed from tacitly held authoritarian views of knowledge to a more nuanced understanding of how and why disciplinary practices work as they do. It is likely that many teachers will resist even if they are offered chances to learn about knowledge-building practices. How best to support them in this personal learning journey is the ongoing challenge we lay down, both for ourselves and others to pick up.

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