

Approaches to specifying curriculum areas of learning

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Introduction

The question of how to frame a national curriculum is one that has preoccupied many governments in recent years. A key issue lies in the nature of curricular specification – of knowledge/content, skills/competencies and methodology/pedagogy. This has several dimensions, for example: the extent to which such issues should be specified by government or left to professional judgment at a local level (i.e. the level of detail in specification); and whether regulation should primarily rest at the level of input (e.g. through specification of content to be taught) or at the level of output (e.g. through evaluation of student achievement as measured against learning outcomes). These are thorny questions, which have elicited a great deal of debate (and often little agreement). Moreover, an examination of recent curricular history illustrates that policy has been subject to global trends, with changes in emphasis being evident over time. Thus, for example, the original *National Curriculum* for England and Wales (1990) was framed as hundreds of detailed statements of subject content, set out in hierarchically arrayed levels – in other words, a highly prescriptive form of input regulation (often termed a teacher-proof curriculum). Subsequent development in the 1990s (for example *New Zealand Curriculum Framework* (1993), or the *5-14 Curriculum* in Scotland (1992) sought to offer a less prescriptive curriculum (in terms of content), but maintained the emphasis on curricular objectives set out in hierarchical levels. These statements of outcome – or learning outcomes as they increasingly came to be known – shifted the balance to some extent from input to output regulation (see: Nieveen & Kuiper, 2012; Leat, Livingston and Priestley, 2013), but maintained a fairly detailed prescription of content, expressed as outcomes (Kelly, 2004). Since the turn of the millennium, we have witnessed the development of yet more generic curricula (see: Priestley & Biesta, 2013), which have placed a renewed emphasis on local teacher autonomy, and which have been accused of downgrading knowledge and privileging the development of what are termed 21st Century Skills (e.g. see: Yates & Young, 2010; Young & Muller, 2010; Priestley & Sinnema, 2014). These curricula, which include Scotland's Curriculum for Excellence (2004) and the revised New Zealand Curriculum Framework (2007), have further developed the shift from input to output regulation; their learning outcomes only lightly specify content, but have been used as the basis for student assessment, and for the evaluation of school performance through the collation and comparison of data relating to student achievement.

The abovementioned trends raise some important questions about how a curriculum should be framed:

- Definitional and conceptual questions about what a curriculum is, or should be, and what it should encompass.
- Organisational questions about how a curriculum should be framed.
- Operational questions about how a curriculum should be supported and put into practice, including wider questions about who should be responsible for what as a curriculum is developed from policy to practice.

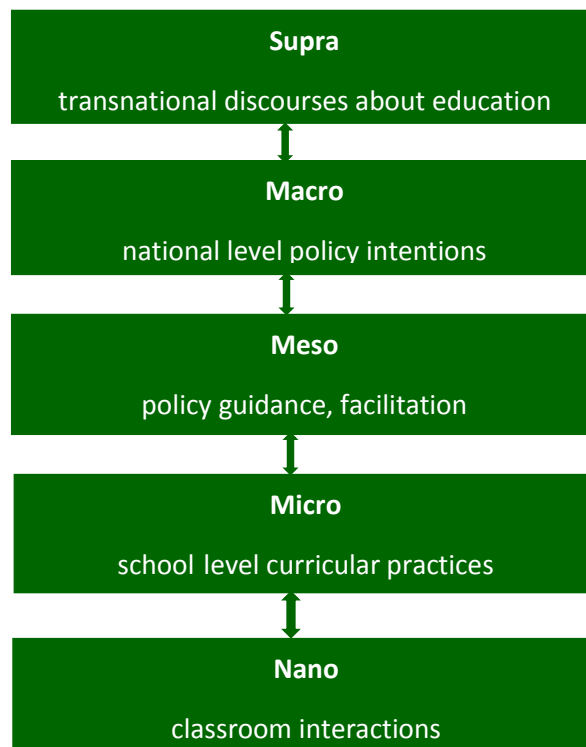
This paper will explore each of these in turn, presenting and offering critique of different approaches framing subjects.

Definitional and conceptual issues

The concept of curriculum

It has become commonplace in recent years for the curriculum to be viewed in rather narrow terms as a statement of content and/or outcomes, or in other words the instructions (to teachers from policymakers) about what is to be taught. This tendency has been accompanied by the development of rather linear language to describe curriculum development, particularly the metaphor 'delivery'. This is rather unhelpful as teachers grapple with new forms of curriculum, such as *Successful Futures*, that require a more developmental approach. There are at least three key issues to consider here.

1. *Holism*. The curriculum needs to be seen as much more than simply a statement of content/outcomes. A more holistic view would take into account the inter-relationships between a range of curricular components, including assessment (how we evaluate progression within the curriculum), pedagogy (how we structure learning experiences), and provision (e.g. the ways in which we organise the school timetable). Failure to take these issues into account can lead to a dilution of the goals of the curriculum; for example, many Scottish secondary schools have struggled to adequately introduce cooperative learning as a key method for enacting *Curriculum for Excellence* because the current pattern of short lessons (typically 30 lessons per week, each 50 minutes) is simply not propitious for this sort of working.
2. *Curricular layers*. Curriculum is a multi-layered set of social practices, and these practices operate differently at different layers of the system. The conceptual map (below) illustrates this.



This sort of thinking is helpful, because it enables us to see that there are different practices and different functions within each layer, and because it ultimately helps us to develop clarity about what is involved in developing the curriculum in schools. Thus, the appropriate

function of the macro-level is to set out in broad terms the vision for the curriculum, its big ideas (principles, purposes and values), and to outline the sorts of resources and processes available to schools to develop these into practice. This means that *Successful Futures* is not a set of instructions to be implemented, as was the explicit intention of the previous National Curriculum, but instead it is a set of resources and ideas to be realised or enacted into practice. The meso-level function is arguably about the development of a system level support infrastructure, including leadership of and expertise for curriculum development regionally and locally. In Scotland, this function has tended to take the form of supporting documentation rather than hands-on leadership and support, which can be seen as a reason why the curriculum largely remains (in the words of Andreas Schleicher¹) an intended rather than enacted curriculum. The primary micro-level function is enactment of the curriculum, or in other words the development of educational practice derived from the official curriculum. There are clear implications here: 1] it should not be the role of government to micro-manage curriculum development, but instead to provide resources, ideas and processes to frame the development of practice; and 2] schools should not expect increasingly specified instructions for practice.

3. *Purpose as a starting point*. The key purposes of the new Welsh curriculum are set out in the Four Purposes section of *Successful Futures*. These provide an excellent basis for what Kelly (2004) defines as a process approach to curriculum development (also see Priestley & Humes, 2010). Such an approach stands in contrast to one where we simply specify subjects to be taught, and populate them with content, leading often to both overcrowding and gaps in the knowledge needed to successfully engage with society. Starting with purposes enables us to identify what knowledge (including skills and key concepts) are of most worth, and also to specify what pedagogical approaches are best suited to developing the attributes required for living in the 21st century; in this latter case, there are, for example, powerful arguments for dialogical learning, inquiry-based learning and direct instruction, provided that these are carefully considered in terms of fitness-for-purpose.

This more encompassing view of curriculum challenges notions that curriculum development is about fidelity in implementation of policy (delivery), instead suggesting that the key concept is enactment of practice within a guiding framework of concepts and resources provided by policy, and following considered professional judgement and the interpretation of policy to meet local needs. Such an approach has been described by CEDEFOP (2009, p144). It is an approach which:

identifies holistically the learning outcomes that the learner should typically achieve by the end of a phase, or the whole of school education. These are associated with the agreed aims and objectives of the education system. Only then are appropriate subjects and groupings of subjects identified or brought into play. In this case, new possibilities open up to include new ways of thinking about the learning process in the overall planning of learning programmes. We can expect these approaches to open up new challenges for pedagogy and for school organisation. (CEDEFOP, 2009, p.144)

The key implication here for *Successful Futures* is that the AoLEs should not be solely specified in terms of content/outcomes; additionally, there should be consideration of how the frameworks act as starting points for school-based curriculum development, what processes there should be for engagement, and how the AoLE frameworks should act as resources for curriculum development.

¹ As quoted on BBC news, 6 December 2016.

Knowledge

It has become fashionable to view knowledge as less important than skills; to suggest that people with the right skills will be able to find any required knowledge through searching the internet, and therefore that what is taught in schools is no longer a primary consideration in education. A likely consequence of such thinking is that content will be chosen for reasons of expediency (e.g. the school has the textbooks) or pupil interest (rather than relevance), or that it will be driven by the demands of the examinations system and other assessment points. In both cases, there may be a lack of consideration of the sorts of knowledge needed to engage with society. Such thinking has been subject to a backlash from some educators seeking to re-establish the primacy of knowledge (e.g.: Young & Muller 2010; Rata, 2016). Such criticisms have some validity; young people need to acquire knowledge of the social and natural worlds they inhabit. Nevertheless, in my view many of the suggested solutions to this problem should be resisted within *Successful Futures*, particularly the siren calls to retreat into the comfort of a traditional subject-based curriculum. It is helpful here to quote Whitty, who stated that ‘knowledge is not the same as school subjects and school subjects are not the same thing as academic disciplines’ (2010, p.34). Academic disciplines are systematically organised bodies of knowledge, and include particular modes of inquiry (e.g. the scientific method). School subjects may reflect particular disciplines, but should be seen as potentially different (and indeed some subjects are inter-disciplinary), and are best viewed as mechanisms for chunking up the knowledge that populates the school curriculum. The important point here is that the key question should not be ‘what subjects should be we teach?’; instead we should be asking ‘what knowledge is of most worth?’ and ‘how might we best teach it (e.g. through subject-based or inter-disciplinary approaches)?’. It is worth adding here that drawing upon disciplinary knowledge in inter-disciplinary ways still requires experts – teachers educated in the disciplines in question – to make sense of disciplinary concepts and to ensure logical progression in learning. As Rata reminds us:

The concepts and content of these subjects, divorced from their structuring systems of meaning in discipline-based subjects, may become somewhat randomly ordered ‘packages’ of facts and details, lacking the inferential potential that comes from sequenced epistemic concepts’. (Rata, 2016, p.173)

Finally, I draw attention to a distinction made between academic (or scientific) knowledge and everyday knowledge. Writers such as Young and Rata have suggested that there is no place in school for everyday knowledge; and that the curriculum should only be concerned with the development of knowledge that is rooted in academic disciplines. Conversely, however, it might be suggested that it is the business of schools to shape the individual, develop attributes and dispositions, and thus teach everyday knowledge that has practical utility for everyday life – particularly if this is everyday knowledge that is not readily available to young people in the home (e.g. concerning relationships).

Knowledge is therefore an important issue for both the AoLE working groups and those developing the curriculum in schools. I am not suggesting here that the AoLE working groups need to specify content in detail. However, there need to be clear processes and/or criteria for schools as they populate their local curricula. Moreover, there is a case for general, non-detailed specification of content at a national level.

Organisational issues

The above section of this paper seeks to engender clarity around some of the issues that might negatively shape the specification of the curriculum, if not adequately conceptualised. In this next section, I examine some of the more practical organisational issues that might arise as the AoLE groups write their specifications. I first offer some examples of different approaches.

Alternative approaches to specifying curriculum areas of learning

At a very basic level, a subject or area of learning can be specified in terms of the content to be taught. As outlined by Kelly (2004), this is an inadequate basis for curricular specification, in part because starting with content can neglect questions of purpose. The original National Curriculum (1990) in England Wales was largely content-based in this way, as mentioned in the opening paragraphs of this paper. I do not propose to spend any time analysing this approach, as it is not being seriously considered in Wales, and also because it is incompatible with the approach set out in *Successful Futures* (for a discussion of these issues in relation to CfE in Scotland, see: Priestley & Humes, 2010). Instead, I focus in this section on an alternative set of approaches to framing curriculum areas, namely different variants of the specification of learning outcomes, including the tendency to set these out as hierarchically organised and linear levels.

Learning outcomes have become ubiquitous within worldwide curriculum policy in recent years. This move comes with many potential benefits, shifting the focus to the learner, and introducing a common language, which addresses issues of progression, transparency and equity (CEDEFOP, 2009). Learning outcomes have their roots in a long tradition of specifying aims and objectives². Learning outcomes are underpinned by a desire to provide unambiguous definitions of what an educated person might know or do, as a result of being educated. For example, according to CEDEFOP (2009), 'learning outcomes can best be defined as statements of what a learner knows, understands and is able to do after completion of learning' (p9). This definition clearly illustrates a shift towards framing education in terms of learners and their development, rather than in terms of what is to be taught, and has been driven by the publication of competency frameworks by supra-level organisations such as the OECD and the European Union.

A major issue concerns the extent to which learning outcomes should be specific or generic. They can be framed as high-level, generic statements of intent, such as the Four Purposes in *Successful Futures*, the Four Capacities of Scotland's *Curriculum for Excellence* (CfE)³, the Key Competences of *The New Zealand Curriculum Framework* (NZCF)⁴ or the Statements of Learning in Ireland's *Junior Cycle Framework*⁵. Or they can be much more specific sets of statements, divided into different subject groupings and often articulated as linear and hierarchical levels of progression (e.g. the 1850 Experiences and Outcomes of CfE⁶ or the Learning Objectives of the NZQF⁷). Many curricula combine both.

This issue raises an important question: whether outcomes should be treated as long term goals of education – as broad statements of what young people should be able to know and do at the end of a stage of education; or whether they should they be viewed as more proximal goals, set out as detailed grids of statements. According to McPhail, writing about New Zealand's curriculum:

School curriculum structures are recontextualisations of conceptual material derived from their parent disciplines. Teachers re-select, re-organise, and choose various contents to elaborate key concepts. The level of autonomy in this process varies from country to country according to the

² The genesis of the current fashion for defining learning as outcomes lies partly in the objectives movement in the United States (c.f. Bobbitt, Tyler, Bloom etc.), with its roots in Taylorist scientific management, and which became extremely popular in the 1960s. There are also clear lines of descent from the development of competency-based vocational education and training in the UK from the 1980s onwards, through the worldwide extension of this model to national academic qualifications (for example the Scottish, New Zealand and South African qualifications frameworks) in the 1990s.

³ <https://education.gov.scot/improvement/curriculum-for-excellence-benchmarks>

⁴ <http://nzcurriculum.tki.org.nz/Key-competencies>

⁵ <https://www.education.ie/en/Publications/Policy-Reports/A-Framework-for-Junior-Cycle-Full-Report.pdf>

⁶ <https://education.gov.scot/improvement/curriculum-for-excellence-benchmarks>

⁷ <http://nzcurriculum.tki.org.nz/Key-competencies>

available prescription. Too much prescription can inhibit authentic responses to the local environment and needs of students. Too little guidance can lead to a dangerous under-specification of progression for learning (McPhail, p526).

Over-specification is associated with a range of problems, well-documented in the literature.

- Detailed statements of outcome have a tendency to become assessment standards, with a consequence of assessment driving learning. According to CEDEFOP (2009, p38), ‘recently, there has been considerable emphasis on performance and bureaucratic models of learning which focus on measurable skills and attainment targets’. A consequence of this is often curriculum narrowing. Ormond (in press) provides a sobering example of this in the teaching of History in New Zealand, where some schools are teaching the Vietnam War without mentioning the American involvement; simply because the assessment standard in question does not require any more than the analysis of a particular event.
- Learning outcomes are subject to what Wolf (1995) termed a spiral of specification. This has been evident in CfE: at an early stage in policy, through the translation of the generic Four Capacities into the more detailed grid of learning outcomes (the E’s and O’s), which have subsequently come to be used as assessment standards; and more recently through the publication of thousands of assessment benchmarks⁸.
- There is a risk of learning outcomes becoming a set of tick boxes when, as has been documented in Norway, ‘standard-setting has become a core strategy of a new quality management system, in order to monitor and improve students’ achievements’ (Mølsted & Karseth, p330). Detailed specification of learning outcomes has been associated with the development of performativity in schools (Wilkins, 2011), as schools develop methods to assess, record and report against outcomes. Bureaucracy (often evidence gathering to mitigate risk) is a documented effect of performativity; others include transmissive teaching to the test, and game playing to manipulate school image and performance statistics. Such practices can reduce curriculum development to a process of evidencing outcomes (e.g. see: Priestley & Minty, 2013)/ Moreover, when curricula are structured as learning outcomes and linked to accountability and high stakes testing, resulting changes to practice tend to be superficial and instrumental, and focused on strategic compliance (Farley-Ripple, 2016; Priestley & Minty, 2013).
- A related tendency is for detailed learning outcomes to become statements of content to be mastered. As suggested by CEDEFOP (2009, p89), ‘in this case subject content steers the intended outcomes for the learner, often supported by traditional, ‘pencil-and-paper’ types of tests’. In Scotland, this has led to some schools, especially in the secondary sector, engaging in strategic curriculum change, as they audit existing content and methods against the outcomes of the new curriculum, making minimal changes where necessary (e.g. see: Priestley & Minty, 2013). Such an approach potentially leads to atomised and fragmented provision, losing sight of the wider aims of education and reducing schooling to the digestion of ‘bite-sized’ chunks of content (Kelly, 2004).
- Highly specified learning outcomes, set out into multiple levels, imply that learning is a linear and non-complex business that can be largely determined an advance, rather than a process which is messy, socially contingent and context dependent. Highly specified learning outcomes, in seeking to define away such uncertainty, meet political rather than educational imperatives, and often do not reflect realities in classrooms.

⁸ See: <https://education.gov.scot/improvement/curriculum-for-excellence-benchmarks>

The conception of learning outcomes as broad generic statements is less problematic; however, in the absence of clear guidance about process, as has been the case in Scotland, generic outcomes can be seen by teachers as ‘vague’ and ‘woolly’ (Priestley & Minty, 2013), leading to confusion amongst teachers and considerable variability in provision between schools. This can be addressed by exploring how learning outcomes might relate to other curriculum components, such as statements of content, guidance on pedagogy, processes for engagement with policy, and the strengthening of (and support for) teacher professional judgment in interpreting and enacting the curriculum. As Sivesind & Wahlström note (in commenting on the relative success of reforms in Finland):

In the Norwegian curriculum, content is subordinated to other educational components, such as objectives that specify competence and assessment directives. In Finland, on the other hand, content, objectives and learning outcomes are all considered important; however, they are considered in a more differentiated way, such that ‘content’ refers to teaching processes as teacher–student interactions, rather than outcomes. This leads to an important discussion about how a particular matter, as outlined within a curriculum, relates to teaching as a practical enterprise in which professional judgements are considered crucial for encouraging meaning-making processes among teachers and students within the classroom (Sivesind & Wahlström, 2016, p.274).

These practice issues will be picked up in the final section of this paper. However, I first address some related issues concerning the organisation – and coherence – of knowledge/content within the AoLEs.

AoLE coherence

The relationship between different components within each AoLE needs careful consideration. Several issues require attention:

- *Whether and the extent to which the AoLE specification should specify content, concepts AND skills.* Learning Outcome frameworks often mainly emphasis the third of these. As discussed, early variants of learning outcomes curricula (e.g. 5-14 in Scotland) tended to specify content in some detail. Later variants, such as the Irish Junior Cycle curriculum tend to be much lighter on content specification. An interesting recent development offers a compromise; the British Columbia curriculum comprises high level Big Ideas, a limited number of generic competences (or learning outcomes) and indicative (but light) specification of core content at each grade⁹. If specification is not to occur within the AoLE, then clear criteria or processes must be developed to aid schools in selecting content as they develop the curriculum.
- *The extent to which the component disciplines within the inter-disciplinary AoLE should be integrated or be specified as separate, subject-based entities.* There is danger of the AoLE being translated into a modular rather than an integrated approach in schools, where constituent subjects/disciplines are only tangentially (eg through timetabling) rather than conceptually related. This has occurred in Scotland within the Sciences and the Social Studies domains; in many schools, subjects such as History and Geography continue to dominate thinking, and integrated provision has tended to become a ‘one teacher, three subjects approach’, where the History specialist prepares a pack of materials for the geography module, etcetera. A different tendency is the proliferation of what has been termed ‘crazy cross-curricularity’¹⁰, where contrived themes are used to shoehorn subject content into themed lessons. A probably apocryphal but salutary example is provided by the sausage themed day: testing fat content in science (good); the history of the sausage and sausages of

⁹ See: <http://www2.gov.bc.ca/gov/content/education-training/k-12/teach/curriculum>

¹⁰ Citing Christine Counsell at a British Curriculum Forum event in June 2016.

the world (less good). AoLEs need to be explicit about the degrees to which subject matter can be integrated, or whether and why it should remain conceptually discrete. This is because such decision making requires disciplinary expertise, and this (along with expertise in curriculum development) is not necessarily found in schools. As suggested in the earlier conceptual section of this paper, any specification by the AoLE also needs to take account of differences between component disciplines – in terms of conceptual development, modes of inquiry, core skills, etcetera. Decisions thus need to be made about when it is appropriate to: 1] stick with existing subjects (derived from single disciplines); 2] when to hybridise subjects (e.g. social studies, integrated science); and 3] when to develop inter-disciplinary approaches such as risk tasks¹¹ (Beane's work is useful here, e.g. see: Beane, 1995). Erosion of disciplinary boundaries in hybrid subject areas has been associated with issues of coherence and progression (e.g. Rata, 2016), when internal logics of disciplinary knowledge are trumped by external organisers (i.e. organising themes); it is therefore essential that disciplinary concepts and content remain visible in integrated subjects, so that progression and coherence can be assured.

- *The nature of any relationship between learning outcomes and the experiences required to achieve them.* It is commonly accepted that how we learn shapes intellectual capacity as powerfully as what we learn (e.g. Leat & Higgins, 2002), care needs to be taken in specifying the relationship between learning outcomes and learning experiences. In Scotland, the CfE Experiences and Outcomes have explicitly linked particular learning outcomes to particular learning experiences¹². This further raises the risk that teachers will reduce each outcome to a single episode in class, prepared for in detail and assessed at a fixed point (as with the example given previously from the Vietnam War). It is difficult to see such outcomes engendering an holistic view of education as a long-term process. Nevertheless, the quality of the learning experience is important. Pedagogy needs to be developed with explicit reference to purposes of education, as articulated for example as learning outcomes or big ideas within each AoLE. Clear guidance on pedagogy and the underpinning conception of learning is important. However, in the light of the experiences outlined above in relation to Scotland, consideration should be given to framing such guidance as a generic addendum to the broader curriculum, and/or as general subject specific guidance, rather than linking them specifically to particular learning outcomes and/or big ideas.
- *The extent to which AoLE specification should be in tune with the big ideas set out in the Four Purposes.* The Four Purposes constitute a set of long-term, divergent and developmental goals for education. They encourage open-ended thinking about educational practice. Over-specified learning outcomes can conversely encourage convergent and closed approaches, especially as they are often used for accountability purposes. The AoLE groups need to work from the Four Purposes, in terms of both the form and process, avoiding the creation of impossible dilemmas for teachers caught between the curricular rock and the accountability hard place. Ultimately they need to create a framework where, as exhorted by Hipkins and

¹¹ Rich tasks were a key feature of the Queensland New Basics curriculum. New Basics was a conceptually rich attempt to develop a 21st Century curriculum, subsequently undermined by the national development of high stakes testing. According to Lingard and McGregor (2014), this development was characterised by 'somewhat fraught attempts to marry disciplinary rigour with the shaping of capabilities and the development of trans-disciplinary knowledge and skills; an attempt to conjoin curriculum rationales of what students ought to learn with what students ought to become.' For more information on New Basics, see: http://acsa.edu.au/pages/images/2001_new_basics_qld_trials_a_curriculum.rtf.doc

¹² See: <https://education.gov.scot/improvement/curriculum-for-excellence-benchmarks>. For example, for following outcome links a discussion activity to the development of a specific concept: 'I can contribute to a discussion on the actions and motives of a group or organisation which seeks to achieve its aims by non-democratic means' (SOC 4-18c).

colleagues writing about New Zealand, teachers can utilise ‘key competencies as an idea to think with, rather than as fixed entities’ (Hipkins et al., p134).

This latter point takes us neatly into the question of how the framing of the curriculum at the level of official specification might be translated into practice.

Operational issues

Teacher sense-making is an important part of the curriculum development process. This may sound like a truism, but it is worthy of further consideration; recent history has illustrated how teachers will view new curricula through the lenses of existing practice unless substantial work is done to make sense of new policy, and especially to develop theories of knowledge to accommodate new thinking and their professional craft knowledge (see: Priestley & Minty, 2013; Drew, Priestley & Michael, 2016). Curriculum is always mediated and recontextualised by teachers (Osborn et al, 1997; Supovitz & Weinbaum, 2008). AS noted by Pietarinen, Pyhältö and Soini, in relation to large scale reform in Finland:

To create a coherent and therefore presumably more functional curriculum, the stakeholders must consider the goals of the reform to be meaningful and significant, and further they have to be convinced that the curriculum will promote the realisation of these goals.’ (Pietarinen, Pyhältö & Soini, 2017, p.36)

Curricular frameworks will lack coherence if teachers don’t understand them, so processes for sense-making need to be built in. Institutional and national differences shape the way that ostensibly similar national curricula are enacted into practice; therefore, it is essential that such contexts are understood (through empirical research and social theory) and that appropriate resources and support are put into place to ensure congruence between educational purposes and emerging practices.

A related issue is the need to address the issue of schools reinventing the wheel. There are two issues here:

1. The balance between local flexibility and unacceptable variability between schools, which may for example affect students who move between schools and prevent cooperation between institutions.
2. Workload, resource and expertise issues, as each school is expected to innovate in response to the new curriculum.

A key question for the government in Wales is the extent to which there should be central development of core resources and courses for Successful Futures that can be adapted by schools, and which address issues of coherence/progression. A good template for this work lies in the former Schools Council, which produced, for example, Schools History Project; a programme developed by teachers, teacher educators and professional historians, which has maintained enduring popularity with History teachers across the UK. This issue has been common to jurisdictions seeking to develop new curricula:

As more twenty-first-century-type schools emerge in New Zealand and worldwide, is each one expected to re-invent the wheel in terms of curricular planning? While autonomy in the pedagogic recontextualising field provides the means for local responses to communities, it seems counter-productive to have many schools working extremely hard to find solutions to problems that will be met wherever schools commit to notions of twenty-first-century curricular ideas; particularly in relation to the conceptual progression within subjects. (McPhail, 2016, p.532)

As such, it should be explicitly addressed in Wales at an early stage in the development of *Successful Futures*.

Conclusions

The above analysis suggests that the writing of specifications for the AoLEs is far from straightforward, but that it can be guided by a various principles and processes. Wales is embarking on the development of what we have termed the 'New Curriculum' (Priestley and Biesta, 2013) in a second wave of innovation. This provides opportunities to learn from the experiences of first wave innovators such as New Zealand and Scotland. My firm view is that this approach is fundamentally right, so long as careful attention is paid to the pitfalls that have afflicted the earlier reforms. These include over-specification of learning outcomes (to be hopefully addressed in the Big Ideas approach being considered), the dangers of linking curricular specification to existing accountability practices, and teacher professional knowledge. At present, Wales is well equipped to address these issues, and successfully develop its new curriculum.

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