Successful futures, successful curriculum: What can Wales learn from international curriculum reforms?

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Abstract

The proposed Curriculum for Wales 2022 presents a bold new vision for curriculum, teaching and learning. Together with its focus on four key purposes, it affords substantially more flexibility and autonomy to teachers and schools, positions learners as central to curriculum decision making, promotes active forms of pedagogy and 21st century skills, and reduces specification of curriculum content. Like other 'new curriculum' examples around the world, it brings with it a complex set of interacting curricular elements, with challenges including curriculum design capability and the agency required of those working with the curriculum. In this article we discuss challenges and opportunities for this curriculum reform in light of international curriculum experience. In particular, we highlight the need for attention to the accountability, professional learning, and social network context necessary for the realization of national curriculum aspirations in Wales.

Context

The current cycle of curriculum reform in Wales was heralded in the *Successful Futures* report (Donaldson, 2015), and has subsequently been developed by working groups comprising networks of Pioneer Schools, along with representatives from the school Inspectorate Estyn, the Regional Consortia of local authorities and the Government. The notion of co-construction of the curriculum – by the profession – has been a strong feature of the reforms, and recent research (Crick & Priestley, 2019) suggests that this has been a genuine rather than contrived process of engagement. As one of the participating Pioneer School teachers states:

> I agree that the curriculum is being co-constructed by the profession. We are the ones who have written the content and set out exactly what it is that we need. We are the ones in the classroom delivering it (Teacher interview, July 2019, Crick & Priestley, 2019).

The curriculum is typical, in many ways, of recent worldwide 'new curriculum' policy (M. Priestley & Biesta, 2013; Sinnema & Aitken, 2013). The proposed new curriculum[1] is a radical departure from the top-down, teacher proof policy of the previous National Curriculum. It eschews prescriptive content-led approaches to teaching, and affords schools and teachers considerable autonomy in developing programmes to meet local needs. The curriculum emphasizes: the centrality of the learner, along with active forms of pedagogy (Sinnema & Aitken, 2013) and a view of teachers as facilitators of learning; the importance of developing so-called 21st century skills, both for citizenship in modern pluralist democratic societies and to

[1] Descriptions of the curriculum elements refer to the Draft Curriculum for Wales 2022 published by The Welsh Government on 30th April 2019 and the focus of a feedback process held until July 2019.

ensure economic development and national competitiveness (Yates & Young, 2010); and a shift from the prescriptive specification of knowledge content evident in many earlier national curricula to what Young (2008) has termed genericism. In the latter case, there is an assumption that subjects, the ubiquitous approach to segmenting the secondary curriculum, may not always be the best way of organizing learning and teaching; the Welsh curriculum follows international trends through being framed as six *Areas of Learning and Experience* – that is, broadly cognate domains of knowledge. Like many modern curricula, the Welsh variant is articulated as learning outcomes, termed Achievement Outcomes, although these are specified in less detail than is the case in many contemporaries (e.g. the Experiences and Outcomes of the Scottish Curriculum for Excellence).

Moreover, like other new curricula in countries such as Scotland, New Zealand and the Netherlands, the new curriculum is open to critique, and faces considerable challenges in efforts to realize it in schools. These curricula have been attacked for downgrading knowledge (see Young, 2008; Rata, 2012; Priestley & Sinnema, 2014), including blurring the well-established boundaries between everyday knowledge and disciplinary knowledge (Young & Muller, 2010). Critics have derided their over-emphasis on skills, along with a prevalent 'skills versus concepts bifurcation' (Rata, 2019, p1), and child-centred learning which over-emphasizes the 'how' over the 'what' of education (see Biesta, 2007; M. Priestley & Sinnema, 2014; Rata, 2011; Young, 2008a; Young, 2008b). Successful Futures has elicited similar responses – ranging from skepticism to outright hostility – from within the profession in Wales (e.g., BBC, 2019), externally from critics of the curricular approach (e.g., Battleground, 2015) and from academics

in Wales (for example Newton, 2018). Furthermore, similar curricula elsewhere have suffered implementation problems (e.g., M. Priestley & Minty, 2013). For example, Andreas Schleicher of the Organisation for Economic Cooperation and Development (OECD) stated in December 2016 that, while Scotland had developed a bold and visionary approach, it still needed to move from an intended to an implemented curriculum.

While some prior curriculum initiatives in Wales have similarities to the new curriculum (for example the Foundation Phase curriculum for pre-school to 8 year old pupils and the Welsh Baccalaureate for 14-19 year olds), the new Welsh curriculum enters largely uncharted territory for schools in Wales in many respects. Thus, there is much that Wales can learn from examination of other similar curricula in different international contexts. The purpose of this article is hence to locate the Welsh reforms within the wider international context of curriculum policy development, offering reflections on how the Welsh education system might successfully navigate the curricular challenges..

The Curriculum for Wales and its Location in Transnational Curriculum Discourses

In the introduction to the paper, we highlighted a number of commonalities between the Welsh reforms and international trends in curriculum policy development. In the following sections we explore in greater detail these themes of flexibility and autonomy, curriculum design capability, agency, and the purposes, knowledge and skills/competencies of the curriculum.

Flexibility and Autonomy

The draft Curriculum for Wales 2022 is characterized, like many other contemporary national curricula by an emphasis on curricular autonomy and flexibility (Kuiper & Berkvens, 2013; Law,

Law, & Nieveen, 2010). The introduction to the curriculum conveys explicitly that it is intended to "support education professionals and practitioners to enjoy the autonomy to make school-level decisions within a common framework, and to design and develop curricula relevant to the context and specific needs of learners" (Welsh Government, 2019, p. 6). In this sense, the curriculum for Wales does not focus on a desired endpoint, but is instead a starting point for the curriculum decision making of teachers and schools:

> "The statements of experiences, knowledge and skills are not exhaustive but are provided in support of the what matters statements, as a common starting point for curriculum design and development in settings and schools, and in support of the learning expressed through the achievement outcomes. This approach is intended to give a clear sense of what should be considered while also providing the flexibility to develop school-level curricula in response to the specific needs of learners" (Welsh Government, 2019, p. 10).

As Sinnema and Aitken (2013) explain, there are compelling arguments both for and against increased flexibility and reduced prescription in curriculum policies. On the positive side, "flexibility acknowledges teachers' professional autonomy; it increases their sense of control and, therefore, commitment and satisfaction; and it enables responsiveness to local needs and interests" (p. 157). In addition, studies of the relationship between autonomy and student performance lend support for such autonomy and the flexibility afforded to practitioners for school-based curriculum design. Reports from the Programme for International Student

Assessment (PISA), for example, suggest that the intelligent combination of both autonomy and accountability is associated with better student performance (OECD, 2016). There are also well-established links between autonomy and positive indicators for the teaching workforce. These including findings, for example from Pearson and Moomaw's work (2005), that as curriculum autonomy increases, on-the-job stress decreases. In a similar vein, Skaalvik and Skaalvik (2014) found that autonomy positively predicts engagement and job satisfaction and negatively predicts emotional exhaustion, and this effect stands even when controlling for self-efficacy. They also found an association between autonomy and engagement that was stronger for low self-efficacy teachers than those with high self-efficacy, important in a context where there is unlikely to be widespread high self-efficacy for the significant demands of a new curriculum.

Increased flexibility, however, can also bring risks. In some cases it:

> "increases workload because it diminishes the value of, and market for, published resources; it presupposes expertise in curriculum that may not be widely of evenly spread. It may, therefore, compromise entitlement and equity as schools and individual teachers make idiosyncratic choices about what to teach" (Sinnema & Aitken, 2013, p. 157-158).

High levels of flexibility in international curricula are reflected in the reduction of prescription to just broad expectations for learning, associated with short descriptions of the essence of each learning area. This flexibility is both a gift (for some) and a burden (for others). As a consequence, students' curricular experience is determined very little by what the national curriculum sets out, and is almost entirely determined by what their teachers and leaders of curriculum design in their schools create. In many cases, that leads to quite remarkable, ground-

breaking and thoroughly impressive teaching and learning experiences and outcomes. But that is not the case for all, as troubling educational equity statistics in New Zealand make clear.

In the absence of specification of content to be taught (or clear criteria for selection of content), there is a risk that, potentially, 'anything goes'. For example, Smith (2019) has documented, in relation to the teaching of History in Scotland's Curriculum for Excellence, how instrumental reasons for content selection predominate – availability of teaching resources, staff and student interest in 'sexy' topics (p.457) and the demands of future external assessments trump a considered selection of content based upon educational priorities, and curricular coherence. The result in many schools has been a patchwork of topics that fail to develop big picture history and lack coverage of key periods (e.g. early modern History). Similarly, in the Netherlands, a total of 58 attainment targets (goals to strive for) for the phase of junior secondary education, provide little concrete guidance for teacher teams who work on the curriculum (Nieveen & Kuiper, 2012).To compensate for this lack of specification, teachers often fall back on the use of textbooks. Where there is a desire to be less dependent on textbooks, then curriculum making by schools and teachers becomes contingent on the curriculum capacities of those schools and teachers to deal flexibly with national curriculum frameworks and available learning resources (Huizinga, Handelzalts, Nieveen, & Voogt, 2014; Nieveen & van der Hoeven, 2011).

A further, and related, issue lies in the general tendency for input regulation (i.e. detailed prescription of curricular content) to be replaced by output regulation, particularly the use of school inspections and evaluative use of achievement data (Nieveen & Kuiper, 2012). The

effects of regulative mechanisms on school autonomy can be profound, as teacher agency – a capacity for autonomous action – is eroded despite a rhetoric of autonomy and flexibility, as teachers are effectively disabled by the contextual conditions by means of which they work (Leat, Livingstone, & Priestley, 2013; M. Priestley, Biesta, & Robinson, 2015). This is a granting of autonomy on the one hand, while simultaneously denying the means to exercise it on the other hand. The result can be curricular incoherence or a self-imposed form of over-specification in the form of textbooks. A stark example of this combination of under-specification of content and pressures of assessment demands is provided by Ormond (2012): the lack of specification in both the History curriculum and associated achievement standards has led to a situation in some schools where the Vietnam war is taught simply in relation to the causes and consequences of a single event (e.g. a battle during the Diem regime period 1954-63), with no need to teach about the American involvement in the war.

Internationally (including in Canada, Scotland, Cyprus, Finland, The Netherlands and New Zealand, for example), it is increasingly common for system reforms to devolve decision-making powers to the local school level, with greater autonomy generally, and in some cases regarding curriculum in particular (OECD, 2018). The abovementioned examples clearly illustrate for Wales the dangers of taking this path while failing to take account of the risks and drivers of curricular incoherence that may result from local curriculum autonomy.

Notwithstanding these international trends, it is also important to note that curriculum flexibility remains elusive in some contexts. In England for example, flexibility is referred to, but in relation to the timing of the introduction of content rather than more permissive approaches to

flexibility that encompass decisions about what to prioritize in teaching and learning. This is seen in the statement that:

> Within each key stage, schools … have the flexibility to introduce content earlier or later than set out in the programme of study. In addition, schools can introduce key stage content during an earlier key stage if appropriate (Department for Education, 2013, p. 6).

We note that such flexibility sits amongst a highly prescriptive outline of the topics and skills that are required to be taught, again suggesting that autonomy is often largely rhetorical.

The contrast in national curriculum policies' affordances of flexibility are, as Sinnema (2016) describes, "similar to the ebb and flow of the tide, there are constant fluctuations in curricular autonomy over time and it is high in some places whilst low in others" (p. 965). Most recently, the tide of curricular autonomy in New Zealand, Scotland and the Netherlands, for example, has been high (with high freedom for teachers, despite the demands of output regulation), whilst in England and Australia "the tide has been going out – with tightening of national control, prescription and regulation over curriculum, with expanding curriculum content and a more explicit emphasis on core knowledge". Although it would be valuable to look for an equilibrium, somewhere between both extremes, countries seem to struggle to perform this balancing act.

Curriculum design capability

Where curriculum flexibility is high, there is a need for attention to variability in the curriculum design capabilities of those charged with designing local curriculum. Individual capacity is an important component of teacher agency (Priestley, Biesta & Robinson, 2015). Curriculum making capacity in schools often seems to be assumed as a given by national policy developers,

but the reality is that it is highly variable, and often comparatively absent (Handelzalts, 2009; Huizinga, 2014). Sense-making by teachers is suggested to be a key factor in the development of state-mandated, large scale curriculum reform in systems perceived as successful, such as Finland (Pyhältö, Pietarinen & Soini, 2018), but it is often neglected. Priestley and Minty (2013), for example, found that in Scotland, following the national implementation of Curriculum for Excellence in 2011, many teachers welcomed the principles of the new curriculum (first order engagement). However, in many schools, second order engagement was relatively absent; a lack of understanding of the core ideas of the new curriculum, and/or a lack of fit between these and their beliefs and existing practices, meant that they were unable to implement it meaningfully. Moreover, general curriculum making capacity—professional knowledge about curricular concepts, and processes for engagement—continues to be an issue impacting upon the development of Scotland's curriculum (M. Priestley et al., 2015).

Similarly in the Netherlands, schools and teachers who embark on changing their school-based curriculum (e.g. designing core and elective courses with the use of learning strands) are commonly confronted with many concerns. (Nieveen, Handelzalts, & van Eekelen, 2011; Nieveen, van den Akker, & Resink, 2010). Teachers used to working by themselves are challenged to share their goals in and perspectives on learning and teaching. Socio-political concerns also surface, relating to who should be involved in the redesign process and how to activate and include all teachers and team leaders. Curriculum teams are confronted with questions on the actual redesign of all interlinked curricular components, such as the selection of learning activities, materials, assessment instruments, the acquisition of new teaching roles, and

the setting out of time frames and equipment in new learning environments. Teachers report a lack of confidence in their curriculum knowledge and design skills and struggle to fully utilize their curricular freedom (Onderbouw-VO, 2008). Strengthening their curriculum capacity is essential but not widespread. A study (Nieveen, Schalk, & Van Tuinen, 2016) at eight teacher education programs showed that initial teacher education courses mainly pay attention to curriculum development in the sense of lesson design. Teacher design teams within the schools need support that pays attention to curriculum making at the school level. This all suggests that teachers and school leaders in Wales will need opportunities to acquire these curriculum design capacities through various forms of continuing professional development programs.

Where flexibility for local curriculum design is embraced as part of a national curriculum framework, international evidence suggests that many teachers and schools thrive and grow to become exceptional designers of curriculum, creating previously unrealized opportunities for learning – this means there are pockets of expertise that are potentially available to others (Handelzalts, 2009; Huizinga, 2014; Sinnema, 2018; Volman, Raban, Heemskerk, Ledouz, & Kuiper, 2018). While there is emerging evidence in Wales that involvement in the Pioneer schools networks writing the curriculum is starting to produce dividends in this respect (Crick & Priestley, 2019), more probably needs to be done to maximize and utilize this potential. Indeed, international research, into the extent to which networks operate in ways that enable such expertise to be leveraged across schools, suggests there is much improvement to be had in this regard. For example, findings from a social network analysis (Sinnema, Daly, Liou, & Rodway, in press) about the extent to which curriculum related expertise is leveraged across networks of

teachers from multiple schools suggest that, often, while within school networks are densely connected, cross-school networks are much sparser with a lower degree of connectivity. Many network members, despite best intentions, remain on the periphery of networks and as such are unlikely to be able to access and capitalize on the curriculum, or other expertise potentially available to them. This calls for focused explicit attention to the improvement of collaboration efforts, and the interruption of assumptions that systems, structures and assignment of roles relating to collaboration are sufficient for developing the kind of collaboration that was intended.

Agency

As we indicated in the earlier sections on autonomy, flexibility and capacity, the ability of schools to maximize the benefits of the autonomy afforded by curriculum policy is closely linked to teacher agency. The Curriculum for Wales Guidance makes clear that it is "designed to assist teacher agency" (Welsh Government, 2019). It seeks "to allow for a broadening of learning, supporting settings and schools to be more flexible in their approaches, and provides education leaders and practitioners with greater agency, enabling them to be innovative and creative" (p. 3). This policy move that recognizes the relationship described between curriculum flexibility and teacher agency resonates with Priestley, Biesta and Robinson's (2015) notion that agency is ecological, in the sense that it does not reside in individuals, but is an emergent phenomenon of actor-situation transactions. In other words, it is a "quality of the engagement of actors with temporal-relational contexts-for-action, not a quality of the actors themselves" (M. Priestley, Biesta, Philippou, & Robinson, 2016, p. 626). In Wales, as in other jurisdictions, curriculum reform has been positioned as central to efforts to not only improve learning for children and

young people, but also to the teaching profession given the centrality of curriculum policy to the context in which teachers' work is situated.

Not only does the draft Curriculum for Wales, through its flexibility, provide conditions conducive to teacher agency, but the very process used to develop it allowed practitioners an agentic role in designing the curriculum itself. As Crick and Priestley (2019) note, involvement in the Pioneer networks has been significant for those involved, in developing their agency as curriculum makers (although these capacities are not necessarily the same as those needed for school-based curriculum design). Part of this lies in the development of human capital – conceptual development, professional knowledge, etc. – of the practitioners forming the groups writing the curriculum. A good deal more is due to the development of social capital (Liou, Daly, Brown, & del Fresno, 2015; Sinnema et al., in press) through the networks, and the access to relational resources which do much to enhance the professional agency of those involved, through the dissemination of ideas (cognitive resources), spread of expertise, and support for professional practice. Attention to networks addresses a challenge that is not unique to Wales, that of "low capacity for agency in terms of curriculum development within modern educational systems" (M. Priestley, Edwards, Priestley, & Miller, 2012, p. 192). That problem arises at least in part from norms entrenched over time by more highly prescribed curriculum policies. The close involvement of networks such as pioneer schools increases the likelihood of practitioners responding in their practice in ways aligned to the intentions of curriculum reform rather than exercising their agency for what Priestley, Edwards, Priestley and Miller (2012) warn are "non-beneficial" purposes, towards which agency can also be directed. This can be strengthened

through the development of systematic programmes of professional learning that relate to curriculum development – echoing Stenhouse's (1975) dictum that there can be no curriculum development without teacher development. In this sense, it is encouraging that Welsh policy has emphasized the importance of systematic approaches to collaborative professional enquiry, drawing upon Scottish research suggesting that these enhance teachers' professional agency as curriculum makers (Drew, Priestley, & Michael, 2016; M. Priestley & Drew, 2019). We return to this issue later in the paper.

The commitment to a co-construction process evident in the Pioneer Schools approach in Wales is reminiscent of the process used in New Zealand to develop the national curriculum between 2004 and 2007; a process that involved more than 15000 students, teachers, principals, advisers and academics in working groups, online input and focus groups. A similar approach has also been taken in the Netherlands in the renewal of the 4-18 curriculum framework. After a countrywide debate, nine teacher teams have been developing building blocks of knowledge and skills at the various stages in education for nine curriculum areas. They sought online and off-line feedback on these building blocks from thousands of colleague-teachers, students, parents, principals, subject-matter experts and academics.

In both countries this participatory process, which fostered the creation or growth of curriculum-related professional communities, has been credited with the widespread high regard for the curriculum from its inception (Sinnema, 2011; Sinnema & Ludlow, 2013), and ongoing attachment and commitment to its ideals.

Unpacking the curriculum for Wales: from broad to refined

Four purposes

A number of key elements comprise the Curriculum for Wales. The most prominent of these are the Four Purposes of the curriculum, which aim to develop children and young people as: ambitious, capable learners, ready to learn throughout their lives; enterprising, creative contributors, ready to play a full part in life and work; ethical, informed citizens of Wales and the world; healthy, confident individuals, ready to lead fulfilling lives as valued members of society" (Welsh Government, 2019, p. 6). This broad framing of curriculum purpose is common in many recently developed national curricula. Similar foci are evident in the curricula aspirations of, for example, Australia, British Columbia, New Zealand and Scotland. The Australian Curriculum, sets out the goal for "all young Australians to become successful learners, confident and creative individuals, and active and informed citizens" (Australian Ministerial Council on Education & Youth, 2008, p. 7). Similarly the British Columbia curriculum supports "the development of citizens who are competent thinkers and communicators, and who are personally and socially competent in all areas of their lives" (British Columbia Ministry of Education, 2015). In New Zealand, the curriculum vision is for "young people who will be confident, connected, actively involved, lifelong learners' (Ministry of Education, 2007).

Six Areas of Learning and Experience

How knowledge and skills and/or competencies are handled in a curriculum policy vary despite these quite similar curriculum goals. The Curriculum for Wales is organized around six areas of learning and experience (Expressive Arts; Health and Well-being; Humanities; Languages, Literacy and Communication; Mathematics and Numeracy; Science and Technology). This

structure is similar to that utilized in other national curricula (e.g. Scotland's Curriculum for Excellence, Ireland's Junior Cycle). However, the detailed articulation of such domains of knowledge varies greatly across countries. Many contemporary curricula frame subject areas as large numbers of learning outcomes, set out in supposedly sequential levels. Scotland's Curriculum for Excellence typifies this approach, comprising around 1850 Experiences and Outcomes, set out across nine broad subject domains and three cross-curricular areas, and sequenced across 5 levels. The following example from Numeracy and Mathematics (figure 1) illustrates this approach.

	Number, money and measure				
	Early	First	Second	Third	Fourth
Number and number processes including addition, subtraction, multiplication, division and negative numbers	I have explored numbers, understanding that they represent quantities, and I can use them to count, create sequences and describe order. MNU 0-02a I use practical materials and can 'count on and back' to help me to understand addition and subtraction, recording my ideas and solutions in different ways. MNU 0-03a	I have investigated how whole numbers are constructed, can understand the importance of zero within the system and can use my knowledge to explain the link between a digit, its place and its value. MNU 1-02a I can use addition, subtraction, multiplication and division when solving problems, making best use of the mental strategies and	I have extended the range of whole numbers I can work with and having explored how decimal fractions are constructed, can explain the link between a digit, its place and its value. MNU 2-02a Having determined which calculations are needed, I can solve problems involving whole numbers using a range of methods, sharing my approaches and	I can use a variety of methods to solve number problems in familiar contexts, clearly communicating my processes and solutions. MNU 3-03a	Having recognised similarities between new problems and problems I have solved before, I can carry out the necessary calculations to solve problems set in unfamiliar contexts. MNU 4-03a

written skills I have developed. MNU 1-03a	solutions with others. MNU 2-03a

Figure 1: The Scottish Numeracy and mathematics learning outcomes (source Education Scotland)[2]

Since 2016, the Experiences and Outcomes have been supplemented by assessment benchmarks, numbering in the thousands. This approach to specifying curriculum has been critiqued on several grounds, notably complexity and the resulting tendency to adopt tick box, bureaucratic approaches to curriculum planning, and consequently the potential for curricular fragmentation and loss of coherence (Priestley & Minty, 2013). We suggest that while Wales has specified its achievement outcome (descriptions of learning in the latest curriculum draft at the time of writing) in less detail, this risk remains real. It can be mitigated in our view by adopting a purposes-led approach to developing practice from curricular specification (Priestley & Xenofontos, in press). The draft specification has partially addressed this through its explicit linkage of the AoLEs to the Four Purposes, but this is insufficient given the potential described earlier in the paper for achievement outcomes to drive these curricula in the absence of other specification and guidance. Clear processes for teacher professional learning linked to a process approach to developing the curriculum will also be required, with implications for resourcing, leadership and time (Priestley & Drew, 2019). We return to these issues in the latter part of the paper.

What Matters Statements

[2] From https://education.gov.scot/scottish-education-system/policy-for-scottish-education/Policy-drivers/CfE-(building-from-the-statement-appendix-incl-btc1-5)

The Welsh 'What Matters' statements offer a quite different, and less specified approach to Scotland's framing of the curriculum as ladders of learning outcomes. They have at their heart, a 'big ideas' conception of curriculum. Here, the work of Harlen (2015) on big ideas in Science has been particularly influential. Big ideas, Harlen explains, address student perceptions of curriculum content as fragmented, irrelevant and lacking coherence; help teachers prioritize the vast array of possible content; and provide a steer for thinking about progression. Support for a big ideas approach comes from the field of cognitive science (cf. Chalmers, Carter, Cooper, & Nason)

The Curriculum for Wales What Matters statements set out big ideas at the area of learning and experience level. The four proposed What Matters statements for mathematics are detailed here to illustrate this approach:

- The number system is used to represent and compare relationships between numbers and quantities.
- Algebra uses symbol systems to express the structures of relationships between numbers, quantities and relations.
- Geometry focuses on relationships involving properties of shape, space and position, and measurement focuses on quantifying phenomena in the physical world.
- Statistics represent data, probability models chance, and both support informed inferences and decisions.

These are more general than the big ideas in the equivalent British Columbia curriculum, which at level 1, for example are:

- Numbers to 20 represent quantities that can be decomposed into 10s and 1s.
- Addition and subtraction with numbers to 10 can be modelled concretely, pictorially, and symbolically to develop computational fluency.
- Repeating elements in patterns can be identified.
- Objects and shapes have attributes that can be described, measured, and compared.
- Concrete graphs help us to compare and interpret data and show one-to-one correspondence.

The British Columbia 'big ideas' are more akin in degree of generality to the lists of experiences, knowledge and skills set out in the Curriculum for Wales progression steps. The Welsh approach, foregrounding (bigger) big ideas is more similar to the current New Zealand Curriculum that sets out a short (1-2 page) essence statement for each learning area, detailing what the learning area is about, why it should be studied and how it is structured alongside big idea-like statements about the relevant strands (for example the strand of Identity, Culture and Organisation in the Social Sciences).

While there are many proponents of the benefits and possibilities for the use of big ideas as curriculum organizers including in mathematics and science (Bar, Brosh, & Sneider, 2016; Chalmers, Carter, Cooper, & Nason, 2017; Harlen, 2015; Kennedy, 1997) and the arts (Stewart, 2014), there is much less empirical evidence of the impact of such approaches. What exists is

promising (Bautista, Liang See, Devi Ponnusamy, & Xenia, 2016; Chalmers et al., 2017; Siemon, Bleckly, & Neal, 2012; Virgin, 2014). In the context of History, for example, Virgin (2014) reports that "revisiting the same essential questions throughout the school year greatly increased students' abilities to connect learning between units, but only slightly increased their abilities to connect learning to personal experiences outside the history classroom" (p. 201). According to Virgin, and based on student feedback, big ideas enabled them to do what they don't do without explicitly being expected to—connect learning across units of work, and across years in the learning programme. In this way, big ideas, provided a framework to ensure learning was not compartmentalized or disconnected.

Progression Steps with experiences, knowledge and skills

The What Matter statements (big ideas) in the Curriculum for Wales have been exemplified into sets of 'experiences, knowledge and skills', unpacked at each progression step. Regardless of the official status of such specification (guidance or prescription) issues can arise. How to deal with this issue depends largely on who will use these specifications and for what reasons (Nieveen & Kuiper, 2012). For example, experienced and confident teachers typically need less detail than teachers who are (as yet) less confident with the curriculum or teaching more generally. Teams of teachers who plan at the yearly level are likely to need less detail compared to teachers who are working on specific lesson plans, projects, modules or units. Developers of lesson materials usually need less specification than developers of assessment materials. The degree of specificity also depends on the extent to which the broader curriculum policy seeks diversity and variation across school. For instance, since 2006, schools in the Netherlands have been encouraged to

contextualize curriculum choices in relation to their own vision, setting, and students. Students and their parents have choice about which school in their neighborhood to attend. For reasons of variation, the number of attainment targets required for junior secondary education was reduced from 320 to 58 fairly undetailed attainment targets.

Role of knowledge

The fact that knowledge is embedded as part of the sets of 'experiences, knowledge and skills', unpacked at each progression step in relation to each What Matters statement, the Curriculum for Wales is subject to the social realist critique regarding the erosion of distinctions between everyday and disciplinary knowledge, the weakening of the relations between knowledge based in the academic disciplines and what is taught in schools (Young & Muller, 2010), and a risk that young people are denied access to the 'powerful knowledge' (McPhail & Rata, 2016; Rata, 2011), resulting in their social exclusion and unfulfilled curriculum entitlement. The progression step statements in the Curriculum for Wales touch on the range of knowledge types set out in the OECD statement on Knowledge in the Education 2030 framework (disciplinary knowledge, interdisciplinary knowledge, epistemic knowledge and procedural knowledge), but arguably emphasize procedural knowledge over the other knowledge types. This is evident also in the framing of learning outcome statements, that are expressed from a learner's perspective, using stems such as "I have…" and "I can …". As noted, these are similar in form to the Scottish Experiences and Outcomes but far fewer in number. We note also that framing, at least rhetorically, is consistent with the Curriculum 2030 notion of student agency as part of the OECD Learning Compass 2030, which promotes students "exercising their sense of purpose and

responsibility while learning to influence the people, events and circumstances around him/her for the better" (OECD, 2019c, p. 5).

The Curriculum for Wales does not go as far as other 'new' curricula (M. Priestley & Sinnema, 2014), in foregrounding competencies as opposed to knowledge, and as an alternative to the more traditional expression of skills in national curricula. Other jurisdictions with curricula designed around the time of the OECD Definition and Selection of Competencies (DeSeCo) Project (OECD, 2005) developed elements similar in nature to the DeSeCo competencies as a central component of the curriculum design, including key competencies (Ministry of Education, 2007), general capabilities (Australian Curriculum, 2010) and capacities (Scottish, 2004). Similarly, in more recent work on a learning compass (OECD, 2019a) we seen a move toward what the OECD refers to as "transformative competencies" referring to "types of knowledge, skills, attitudes and values students need to transform society and shape the future for better lives" (OECD, 2019b, p. 3). These have been identified as creating new value, reconciling tensions and dilemmas, and taking responsibility. While some aspects of these transformative competencies are evident within elements of the Curriculum for Wales, the persistence of skills rather in the Wider Skills cross-cutting element is, perhaps intentionally, a departure from the trend toward competencies and/or transformative competencies gaining curricular traction elsewhere. The Welsh curriculum explicitly refers to competency only in relation to 'digital competence' as one of the cross curriculum responsibilities that the curriculum sets out as a statutory requirement, and instead positions the generic competencies explicitly as 'purposes'. This latter feature is potentially more than a sematic distinction, clearly signaling how schools

might use the curriculum as part of a process (or purposes-driven) approach to enacting practice. Again, we return to this issue in the latter sections of the paper.

The place of competencies in other curriculum policies is not, moreover, unproblematic. The introduction of competencies in what is referred to as the 'front end' of the New Zealand Curriculum – separate from the 'back end', where learning area statements and sets of non-mandatory achievement objects were positioned – helped create an unintended consequence of a system-wide binary between knowledge and competencies. Despite the intention for key competencies to be encompassing of knowledge, skills, attitudes and values, all demonstrated in practice, the knowledge aspect of competencies is often underplayed. Worse, 'knowledge' and 'competencies' in many initiatives, debates and indeed curriculum tools in New Zealand have been presented as binaries, alternatives, and often in competition with each other. More common are narratives of practice that firmly position teachers and schools as committing to a focus on one (typically competencies) or the other (less typically, knowledge). Of course there are many who recognize the interdependency of both, and the possibility for attention to both, but more common is an attachment to a competency or knowledge 'camp'. This pattern, it is argued, has not served New Zealand students well, and may be reflected in the persistence of equity concerns revealed in international and national assessments.

Challenges and Opportunities in Wales

International comparisons can only take us so far, and we need to be aware of the danger of cherry-picking policy from what might be quite different contexts. Uncritical policy borrowing has been a ubiquitous feature of international policy making in recent decades (Rizvi & Lingard,

2010), producing neat, homogenized curriculum policy that ignores the reality of enactment – that teachers enact policy (Ball, Maguire, & Braun, 2012), and this is mediated via all sorts of contextual lenses, including school cultures, teachers' existing beliefs, structural patterning with education systems. Nevertheless, careful consideration of the issues affecting contemporary international curriculum policies can aid us in understanding how the Welsh reforms might be enacted successfully, provided that contextual issues are also carefully considered. In this section, we consider steps that might be taken in Wales to ensure the successful enactment of the new curriculum. These are broadly themed as curriculum concepts and curriculum processes.

Curriculum concepts

As discussed, teacher capacity is an important component of teacher professional agency. A key part of capacity is the development of nuanced concepts – conceptual tools – to inform the development of curricular practices. It has become fashionable to talk about delivering the curriculum (as illustrated by the quotation from the Pioneer School teacher which features at the start of this paper). Curriculum is invariably seen as a product to be delivered, and linear metaphors characterize policy talk on curriculum and curriculum development. Curriculum, in this conception tends to be seen as specification of content, as a syllabus or scheme of work, often pre-specified to teachers. Our view is that this is unhelpful as Welsh practitioners start to enact the curriculum policy set out in the new draft specifications with a view to curriculum realization. For a start, because the new Welsh policy offers only limited specification of content, it requires professional decisions by practitioners about the knowledge that should be developed through their teaching. Second, a primary focus on content neglects other curricular 'practices'

such as pedagogy, assessment, and provision, which shape the development of educational programmes.

With this in mind, we suggest that curriculum needs to be reconceptualized as social practice. Priestley and Xenonontos (M. Priestley & Xenofontos, in press) offer the following definition of curriculum:

> [T]he multi-layered social practices, including infrastructure, pedagogy and assessment, through which education is structured, enacted and evaluated. Such a definition moves us beyond thinking of the curriculum as a product which needs to be delivered or implemented. Instead, it views curriculum as something that happens—or which is done—differentially across different layers of the education system, as the curriculum is made in different institutional settings. Put differently […] the curriculum is contextualized in policy, and recontextualized as it is [re]made (interpreted, translated, enacted) in different schools. This definition of curriculum also requires us to consider how different curricular practices interrelate, and how the curriculum relates to educational purposes, students and the wider social context (in press, page number to come).

This definition allows us to consider how pedagogy can be developed to meet educational aims, bearing in mind that how we learn shapes the intellect as much was what we learn. It allows us to consider how assessment opportunities can be built into the curriculum. Moreover it compels us to consider how issues of provision impact on other curricular practices such as pedagogy and selection of content. The interdependencies of all components that need to be considered in

curriculum decision making has been helpfully depicted with the metaphor of the curriculum spider's web (van den Akker, 2003). An example of a Scottish secondary school that moved from a thirty to a twenty period week is salutary here; the school discovered that it was possible to develop more active forms of pedagogy (e.g. field work and cooperative learning within longer periods) and ensure greater depth and continuity in engagement with content[3].

To reject the reduction of curriculum to content is not to reject the importance of knowledge in the curriculum. We would agree with the Cambridge Primary Review, which rejects arguments that:

> process is all that matters, and that knowledge is ephemeral and easily downloaded after a Google search. Knowledge matters because culture matters […]. In fact, culture is what defines us (Hofkins & Northen, 2009, p. 22).

Conversely, there is a need to avoid the commonplace tendency to reduce knowledge to subjects. It is interesting that the framing of the Welsh curriculum as broad domains of knowledge has been construed in some quarters as an attack on subjects. This can be misleading. As Whitty (2010, p. 34) reminded us, "knowledge is not the same as school subjects and school subjects are not the same thing as academic disciplines". Such reductive thinking risks subjects becoming the ends of education, rather than, as they could alternatively be seen, as particular means of organizing knowledge in the curriculum. Subjects have a tendency to become unchallengeable entities, supported by powerful subject associations (Goodson & Marsh, 1996). An effect of this

[3] The school apparently made the change as a short term response to the need to minimise movement when construction work was occurring, but the changes proved to be so popular in relation to Curriculum for Excellence that they have persisted for ten years.

has been the development of gaps in the curriculum as society changes (e.g. do we adequately cover social, political and environmental issues in the current school curriculum?) and overcrowding as new subjects tend to be bolted on to address gaps (e.g. citizenship in England's secondary—but not primary—National Curriculum, and digital technologies in the New Zealand Curriculum). Moreover, a focus on 'traditional' subjects neglects alternative and often rigorous approaches to teaching disciplinary knowledge that are inter-disciplinary in nature (for example, see Beane, 1997; Wall & Leckie, 2017). Addressing these issues requires different thinking – not 'what subjects do we teach?', but instead 'what knowledge, skills and attributes are required for educating the human to be a critically engaged participant in a modern democracy?'; something redolent of the famous key curriculum decision making question, coined by Herbert Spencer in 1859, "what knowledge is of most worth?".

Curriculum processes

Conceptualizing curriculum as social practice compels us to consider the processes that might foster this practice, including the ways in which the system might support curriculum making in schools. It is useful to think about this across the multiple layers that comprise the Welsh system. These are:

- *Macro*: curriculum policy and specification, typically produced nationally. The National Approach to Professional Learning framework would fall into this category, although its effects play out in meso-level activity.
- *Meso*: mid-level practices, such as the production of guidance to support curriculum making, and the provision of leadership and support for activity in schools. In Wales, the

Pioneer Schools networks and the Regional Consortia are well-positioned to provide this function.

- *Micro*: school-based curriculum making, including the development of whole school approaches to curricular coherence, the development of schemes of work, the production of resources and their enactment in classrooms.

We conclude by considering how actors in each layer might engage with the new curriculum in Wales. At a macro-level, a good deal of the development work has been completed in the writing of curricular specification. This provides much of the impetus for curriculum reform in schools, but does little to address the conditions that might render such reform more feasible. Three areas are immediately evident as being of concern: 1] the persistence of accountability practices that might exert undue influences on schools through, for example, the creation of perverse incentives; and 2] the resourcing of high quality programmes of professional learning; and 3] attention to the role of social capital (Daly, 2010; Daly, Moolenaar, Bolivar, & Burke, 2010; Sinnema et al., in press) in curriculum reform, and high quality research and development to improve the functioning of collaborative networks in ways that ensure curriculum expertise essential to the realization of curriculum aspirations is leveraged.

In the first instance, it was been well-documented for many years that accountability through output regulation can create performative cultures where decisions about schooling come to be made to satisfy external audiences rather than to meet educational criteria (e.g. Gleeson & Gunter, 2001; Keddie, Mills & Pendergast, 2011; Sahlberg, 2011). It is thus incumbent on Welsh policy makers to carefully consider how policies can act in this way, and how different policies

can act in tension with one another; for example how accountability policy might undermine the goals of curriculum policy.

In the second case, government has a responsibility to resource the sorts of professional learning that lead to the raising of teacher capacity to engage with the new curriculum. This might consist of the development of a cadre of expert teachers to act as leaders of curriculum making across the system, and more generally as the raising of capacity amongst the general population of practitioners, and clearly these are also meso- and micro-layer activities. The existing networks of Pioneer Schools go some way towards fulfilling this function, and the positioning of collaborative professional enquiry at the heart of the new National Approach to Professional Learning will further facilitate this capacity building exercise. While this is partly a question of resourcing, it is also an issue of process. Some forms of professional enquiry are limited in their scope and potential, for example in comprising short changes of enquiry which fail to engage with external sources of impetus (for example research literature) and consequently are likely fail to interrupt engrained habitual practices. More nuanced approaches to professional enquiry (see DeLuca, Shulha, Luhanga, U., Shulha, et al. 2015) offer more potential to support capacity building and whole system change. For example, Priestley and Drew (2019) document how a programme to develop the curriculum through Critical Collaborative Professional Enquiry (CCPE) enhanced teacher agency through developing professional expertise, changed dispositions to practice and towards engaging with research, developing relational resources through networking and breaking down hierarchies in schools. In sum, these effects stimulated

more expansive ways of thinking about educational practice and facilitated sustained changes to those practices in many cases.

The above example of curriculum development through CCPE is powerful also in that it provided a clear and highly structured process for engaging with curriculum policy and enacting practice. This involved engaging with purposes – big ideas – providing opportunities for the sorts of collective sense-making that Pyhältö and colleagues (2018) document in Finland. There was then consideration of fitness the purpose, in relation to knowledge, pedagogy, assessment and provision – in effect a holistic exploration of curricular practices – followed by inquiry (action research) to develop and test new interventions. A series of studies (Pieters, Voogt, & Pareja Roblin, 2019), centering on the potential of teacher design teams (TDT's) as a means to integrate curriculum development, teacher development and school organization development, provide inspiration in this respect. Here, teacher collaboration is seen as essential to bridge the gap between the work of individual teachers (within their own subjects and classrooms) and school-wide aspirations.

In summary and as discussed above, prior empirical and theoretical work in the curriculum field suggest a number of lessons for the continued approach to curriculum reform in Wales. These include:

- Developing nuanced concepts – conceptual tools – to inform the development of curricular practices.

- Privileging attention to sense-making of curriculum concepts rather than assumed a shared understanding of what they mean and require.
- Reconceptualizing curriculum as social practice.
- Attending to the macro level practices alongside, meso-level and micro-level practices that support curriculum making.
- Designing accountability practices with a view to their relationship to and impact on curriculum aspirations
- Ensuring the highest quality professional learning of the type required to develop capacity for curriculum design and realization.
- Drawing on social capital and the strengthening of collaborative networks to develop agency and leverage curriculum expertise across the system
- Embracing the importance of knowledge
- Working to maximize the benefits afforded by a flexible curriculum while simultaneously mitigating the inherent risks

The orientation of the Curriculum for Wales 2022 sets a bold direction for teaching and learning in Wales. Efforts to realize the curriculum, including efforts focused on the macro-, meso- and micro-level practices surrounding the curriculum reform should pay particular attention to the

characteristics that present, often simultaneously, opportunities and risks. Those risks need mitigating, we argue, through close attention to how practitioners respond to the flexibility of the curriculum, particularly given the prominence of curriculum elements at markedly depart from what the previous curriculum expected. Opportunities need to be maximized – in particular, the opportunity to create system-wide conditions conducive to curriculum realization, to treat curriculum reform as a vehicle for wider educational improvement through professional learning, and to continue and further improve the collaborative networks of educators whose joint efforts have the potential to leverage the commitment, agency and expertise for successful curriculum reform in Wales.

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