

Powerful disciplinary knowledge and curriculum futures.

David Lambert

Introduction

The overarching theme of this article is its concern with the future of schools in contemporary society, or more precisely the future school curriculum (see Young and Lambert 2014). The article presents an argument for a progressive knowledge-led curriculum and thus makes a case for subject specialist teaching in schools. A lay member of the public, someone looking at education from the outside, might be astonished that such an argument needs to be made. But it does and my article takes some time to analyse why this is the case. In doing so we set up the 'three futures' heuristic introduced by Young and Muller (2010) and developed for a professional audience by Young and Lambert (2014). In essence, this asks how should schools and teachers respond to what we could call 'Future2ism' which appears to be a most influential 'progressive' educational ideology today which undermines specialist teaching in schools.

Though firmly rooted, albeit implicitly, in Anglo-Saxon traditions of curriculum studies, my argument intersects with Central and North European traditions of subject specialist didactics. This is particularly the case with the article's main point which is to explore the 'pedagogic right' (Bernstein 2000) of all young people to be given access to what Michael Young has called 'powerful' specialist disciplinary knowledge (Young 2008). The notion of powerful disciplinary knowledge (PDK) underpins Future 3 thinking and my article argues for the adoption of a Future 3 curriculum as a goal to work towards. From the outset it is important to note that Future 3 is a way of conceptualising the curriculum – not a recipe or set of techniques to adopt. It enables the process of 'curriculum making'¹

¹ I acknowledge the difficulty many readers may have in 'translating' this idea within their own settings. Curriculum Making resembles the Nordic 'didactic triangle' although places the main emphasis on the teacher 'enacting' the curriculum. It has become central in the GeoCapabilities project which I lead (www.geocapabilities.org), and is placed in context in Lambert, Solem and Tani (2015).

by focusing first and foremost on why teaching geography (or any other specialist subject) is important and following that what (therefore) is worth teaching. The question of how to teach this is then appropriate, with a strong sense of fitness for purpose. Pervading these questions, which tend to be reversed in Future2ism (in which the 'why' question frequently doesn't get asked at all), is the question of who are we teaching: 'all children' is not precise enough, for the context of children's lives is significant in the practical art of teaching.

It almost goes without saying that to achieve the goal of Future 3 curriculum thinking in schools is highly ambitious. For one thing, it requires highly trained and well-educated specialist teachers. This raises an urgent and profound problem, for in my country at least successive governments have been involved in de-institutionalising teacher education and training – in short moving the preparation of teachers from universities into schools. Here is not the place to open up this issue in any detail. But it is worthy of note that in arguing for a Future 3 curriculum, this article is, in effect, calling for careful re-appraisal of the *subject specialist* professional knowledge-base of teachers. Giving teacher preparation to schools makes a lot of sense if you believe teaching to be a set of technical and generic competences designed to facilitate learning. This article, I hope, explains why I find this to be a depressing and limited vision for education. I hope the argument also helps us raise our sights (and our collective spirit).

The rise and rise of Future 2

One reason why arguing for a knowledge-led curriculum is challenging today is that knowledge appears to have acquired a bad name, even among teachers. We tackled this in our 2014 book (Young and Lambert 2014):

“Throughout this book we have been acutely aware that many teachers find it less than comfortable to talk about knowledge lest it betrays them as traditionalists fixed on what we call a Future 1 vision of their work, lacking in creativity and relevance. This often rests on a restricted conception of knowledge where it is taken to mean superficial facts ...’ (p160)

Most teachers I know are very keen to distance their teaching from traditional notions of educational encounters that see the relationship as basically transmissive. Metaphors abound, such as the deficit view of the child's mind being an 'empty bucket' waiting to be filled. Most British teachers are versed well enough in their cultural heritage to have a visceral distaste for Charles Dickens' Gradgrind². Armed with twentieth century learning science, from Dewey to Vygotsky, most teachers are now broadly constructivists: we know that students' talk is important; we know that manipulating data and learning by doing are powerful; we know a lot about engagement and motivation; and we know, most profoundly, that all knowledge is socially constructed. These are more than adequate grounds on which to reject Future 1 curriculum thinking which is characterised by the *delivery* of authorized, 'given' and predetermined contents which need to be memorized by the student and reproduced in the test. Future 1 pays little attention to the source of this knowledge, how it has been produced and/or validated and does not encourage the thought that it may be contested – or even that there may be competing ideas explanations and theories.

Future 1 thinking can be rejected on a number of grounds, therefore, but in truth is remarkably resilient around the world. It could even be thought of as the default position of school systems – and in conservative policy circles can even be part of an imagined rose-tinted past that merely confirms what has been lost though recent political and social change and what needs to be restored³. This may explain the alacrity with which educationists and leftish policy makers often align with what is assumed to be *the* alternative to Future 1, which we have called Future 2. Thus, schools often *look* very different these days: indeed, as an educator (though speaking entirely for myself) one can feel like an existential outsider when one enters newly built schools and academies in England, for they look spacious, open and welcoming in a way that resembles a post-modern workspace

² <https://en.wikipedia.org/wiki/Gradgrind>

³ I have written about the 'knowledge turn' in England which followed the installation of a Conservative led government in 2010 (Lambert 2011). Though well meant and broadly supported the danger is that without an alternative frame of reference the knowledge turn simply encourages a retrenchment of Future 1 thinking.

in the world of commerce or advertising more than than a traditional place of learning. I have no problem with this *per se*. And yet, what goes on behind the classroom doors of even the most futuristic building is, according to some commentators such as Ken Robinson in his famous TED Talk on 'creativity'⁴, little different from what we have come to expect from the earliest state provided school systems. That is, teachers talking a lot, pupils listening and writing a lot and the whole business driven by the need to sort and grade young people for the workforce. Thus, despite relatively lavish funding (the education budget, along with international development, has been ring-fenced and protected ever since the 2008 financial crisis and ensuing years of austerity in England) and a culture of innovation and competition having been introduced into the school system (notably through league tables and 'academization': see Butt and Lambert 2014), the *curriculum* has frequently been damned in recent times as fundamentally nineteenth century, or Fordist, and therefore completely unsuited to the needs of the today's information society: or more precisely, as we shall go on to discuss, the demands of twenty-first century, fast capitalism.

There is more than a little irony in this perceived 'failure' of schools and, by implication, the teachers who work in them whose role it is to enact or *make* the curriculum as it is experienced by students. This is because most schools are *explicitly* concerned with preparing children for their adult lives and *their futures*. And as Fred Inglis remarked some 30 years ago, 'the curriculum is a message to and about the future' (Inglis 1985). But as Matthewman and Morgan (2014) clearly show, mainly in the context of New Zealand where 'Future-focus' is recognized as one of eight curriculum principles (Bolstad 2011), not only is there deep confusion over what this really means but teachers find great difficulty in handling this enormous responsibility in practice - especially it seems, when it is wrapped up in terms of sustainability, citizenship, enterprise and globalization. These four headings (are teachers to interpret these as topics, themes, processes, key ideas or even subjects? It is not clear) *are* the future foci of the New Zealand curriculum, but for me they are examples of what Bill Marsden (1997) described

⁴https://www.ted.com/talks/ken_robinson_says_schools_kill_creativity?language=en
Accessed 10 December 2015, when it had received over 36 million views.

as curriculum 'good causes'. These were, in his view, socio-political categories that need always to be kept in check as they have the potential to subvert or distort the curriculum experience into something that is less than educational and more like indoctrination. In terms of futures thinking in particular this danger is serious, for of course the future cannot be predicted with any great certainty.

This does not mean education should ignore the future, but it does begin to illustrate how Future 2 thinking can develop and take hold, and give us something that perhaps we did not intend. In our eagerness to reject the rigidities of Future 1 (plus the acknowledgement of how challenging it can be to break free from Future 1), we embrace new agenda (like the 'future foci' of sustainability etc). We are encouraged to accept the logic of those who, like Ken Robinson, argue that school 'educates children out of their creativity' – and innovate with alternative structures such as integrated subjects or problem-based learning. We replace subject with new confections – so for example, geography becomes geo-media and science becomes science literacy. We are undermined to the extent that we accept that we – teachers - are part of the problem – we need to do less of it! We celebrate learning more than teaching and imagine that transferrable, soft skills are superior to specialized knowledge.

Such is the rise and rise of Future 2 thinking. It is worth asking, however, in whose interests is the rise of Future2ism?

Versions of Future2ism and some implications

Possibly because of the self-evident truth that 'children are the future' there is a substantial lineage to futures thinking in educational studies. Perhaps its heyday (in England) was during the period following the flush of optimism associated with the economic growth, social change - and recovery - after the Second World War. As Matthewman and Morgan (2014, 28) explain:

'Futures education was closely linked to the emergence of 'new social movements' that challenged the direction of Western modernity and

overlapped with an ensemble of 'adjectival studies' such as world studies, global education, peace education, development and environmental education (Dufour 1990). Important and representative texts include Pike and Selby (1988), Hicks (1988), and Beare and Slaughter (1993). These books reflect the concerns of the 1980s around nuclear war, environmental threats, and demographic change. They accepted the arguments of the 'new social movements' about the need to integrate the 'personal', 'political' and the 'planetary', and argued that schools should actively teach with a futures perspective since, paradoxically, schools did not provide students with the intellectual resources to think about, and actively create 'futures' (Slaughter 1988). An important feature of this literature concerned the role of teachers in curriculum change, finding ways to teach about possible, preferred and probable futures in principled and engaging ways (for a more recent statement, see Hicks 2012)'.

'Futures' was an idea assumed to be of great interest and importance to teachers, as they were responsible for the curriculum *as enacted*. However, futures-in-education discourses are now somewhat different (Beare, 2001). In a nutshell, the 'new social movements' referred to in the above paragraph have been supplanted by even newer realities articulated by OECD's (2004) future schools scenarios and influential texts such as Keri Facer's (2011) *Learning Futures*. No longer is futures thinking concerned with classrooms and the 'curriculum making' responsibilities of teachers but with system change which focuses on organizational matters and 'twenty-first century learning': in the UK context this is manifest in instances of educational entrepreneurial activity such as 'Building Learning Power' (Claxton, 2002), Creative Learning (whose website asks us to "stop thinking like a teacher!" <http://www.creativeeducation.co.uk/>), and the RSA's Opening Minds initiative (<http://www.rsaopeningminds.org.uk/>) built on the notion of developing generic 'competence' in young people.

Examples of educational innovation such as these can doubtless be found in educational jurisdictions around the world. They respond in a sophisticated yet common-sense manner to the universal and persuasive neoliberal argument that in the post-industrial age schools need to prepare young people for 'knowledge

society' (Gilbert, 2005). There is an impressive level of consensus, not only around the world but also among different components of society - from the policy makers and educationists, to leaders in business, publishing and technology (e.g. Pearson, 2015; Cisco Systems, 2012) that education needs to be re-thought along such lines, to produce 'work ready' young people. This re-purposing of education was perhaps summed up well in England's National Curriculum aims of 2007 which stated that the purpose of school was to produce: confident individuals, successful learners and responsible citizens⁵. The 'big picture' vision of this curriculum promoted generic skills and competences, and promoted cross-curricular dimensions and themes above subject knowledge. It was endorsed by many, including one leading professional body, as in this representative if sometimes hyperbolic passage from a teachers' Trades Union (ATL, 2009, 9):

We need to do things differently, and to do better, if we are to prepare young people for a world in which what is known to be true changes by the hour; a world in which access to information is at the touch of a keyboard, where rote learning of facts must give way to nurturing through education of essential transferable skills that enable the next generation to navigate the information age.

That is why we advocate a skills-based curriculum. One that is focused on communication, physical, interpersonal and intrapersonal skills and thinking and learning skills; all essential components of the educated person able to think and act effectively in the twenty-first century'.

The broad consensus or orthodoxy I have sketched here is troubling because of what it does *not* say. The 'skills based curriculum' referred to by the ATL and the analysis of how to respond to the 'information age' appears to promote individualism, and education as a form of consumption with strangely unambitious goals: the grand aims of confidence, success and responsibility do

⁵ This version of the national curriculum was in fact short-lived. It was reformed by the incoming Conservative-Liberal coalition government of 2010, guided by their White Paper *The Importance of Teaching*, an overt statement challenging the 'language of learning' (Biesta 2006) and the skills-based curriculum.

little to help teachers select what to teach. Indeed, teaching is replaced by learning as the priority (students are even referred to now as learners). And as 'facilitators of learning' teachers are to some large measure let of the hook, as they are able to relinquish decisions of what to teach (and why) to others and focus of the process of learning: this is the manifestation of what Gert Biesta memorably calls the 'learnification of education' by which he means the translation of everything there is to say about education into a language of learning and learners (Biesta 2006, 14). It promotes choice under the banner of 'personalisation' and a curriculum that is 'tailored' to meet individual need. At the same time, it promotes a high pressure and high stakes system with little to insulate the individual student (or school) from the idea that 'failure' is anything other than the result of lack of effort or lack of compliance. Adding to the pressure is the unspoken assumption that all can succeed and that social, economic, environmental or cultural issues are irrelevant in explaining disadvantage or difficulty.

As an educationist, it seems to me that such orthodoxies - which accord very readily to the demands of contemporary fast capitalism, of flexibility, mobility, compliance and individual responsibility - can be, and ought to be, contested, largely because they equate education far too closely to the role of key economic policy lever. This is not an easy position to adopt: indeed, how quaint it sounds today to even suggest that it is *not* the prime role of school to prepare children and young people for the world of work (or, that schools are very ill-equipped to do so). Today it is assumed self-evidently to be the case and that any other view of the purpose of schools is retrogressive, misguided or stuck in a romantic liberal-progressive time warp. But for an educationist, the idea that 'there is no alternative' is profoundly mistaken, for education should be concerned with enabling children to see things differently, to encounter hard-won and often difficult ideas, and to think in new ways. To develop David Wadley's (2008) metaphor, schools should not simply be going with the flow of the neoliberal 'vibrant city' but consciously offer a 'garden of peace' where deliberative thought can take place. This echoes Umberto Eco's interesting observation on educational reform: 'Those in power need to understand that you have to be challenged (in order) to grow up' (Eco 2015, 4)

In the long term, it is also important to note that it is surely in the interests of capitalism and its ability to adapt and change, and for society to understand the need to regulate, control and legislate to ensure its continuance, that young people are taught in Bernstein's (2000) words how humankind has been able to 'think the unthinkable' and the 'not yet thought' (p30).

Who are the children we teach?

All agree that society needs individuals who are educated. But educated for what purpose? My contention is that we need a bigger vision than the one economics, or more specifically the perceived needs of would-be employers, can provide. We should also note the broader circumstances in which children and young people are growing up. In Figure 1, I attempt to summarize some of the salient contextual issues of our time. These are indicative of the 'real world' in which students and teachers live and we could doubtless discuss these matters at great length. For now, the only question I ask is simply this: how should schools – or more precisely, the school curriculum - respond?

Figure 1 about here

As we have noted visionaries like Ken Robinson invest enormous faith in the innate potential that resides within each child. Children, he says (in his TED talk), are born with 'extraordinary powers of imagination, intelligence, feeling, intuition, spirituality and of physical and sensory awareness.' We can agree with that unreservedly – children demand our unconditional respect. But respecting children requires more from us *as teachers* than simply acknowledging their potential as human beings. It is not to take a deficit view of childhood (as is sometimes argued) to say that children may benefit from being taught something. And it is dangerous to suggest (as Ken Robinson and others do) that being taught the plot of Macbeth, or how to solve simultaneous equations, or how the 'demographic transition model' works (etc) is somehow to close down or neutralize children's creativity – rather than enable and release it!

Thus, being over-attentive to the child in a way that abrogates our responsibility to teach them, is another form of extreme Future2ism. It leads to the learnification of education about which, as we have seen in the previous sections, we need to be skeptical. Figure 2 offers a summary of why this is so.

Figure 2 about here

In responding more fully to the agenda set out in Figure 1, and at the same time avoiding the Future 2 trap, we should, therefore, think more carefully about who are the children we teach. We need to start, naturally, by asking what role education can play in preparing children and young people for *this day and age*⁶ – whilst acknowledging, as we have seen, that this can easily lead to versions of Future2ism. So, we need to ask how does *what* we teach make a distinctive contribution to the formation of the educated person? What do young people need to know and be able to do that enables them to face the future with confidence and as capable human beings?

The capabilities approach (Lambert, Solem and Tani 2015) addresses these questions directly. Indeed the approach, which is manifest in the outcomes of the GeoCapabilities project⁷, claims to be a means to enable Future 3 curriculum thinking partly because it asks us to justify what we set out to teach. In identifying intellectual preparedness as an aspect of human capability - for example, enabling young people to make choices about how to live, to sustain argument and independent thought and to become productive citizens (following Nussbaum and Sen, 1993; Nussbaum, 2013) – the project asserts the pedagogic right of all young people to acquire the knowledge and the means to think theoretically (in the

⁶ Although Figure 1 spells out what we might mean by this phrase, an alternative approach, which speaks especially well to geography teachers whose object of study is the Earth as home to humankind, is to point up the significance of the Anthropocene, the current epoch of geological time during which human activity is measurably influencing physical systems (and will be traceable in sedimentary and fossil records).

⁷ The GeoCapabilities project is supported by the European Union: Grant Agreement 539079-LLP-1-2013-1-UK-COMENIUS- CMP (2013-6). Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the European Union Comenius Programme.

Find more at <http://www.aag.org/geocapabilities>, <http://www.geography.org.uk/projects/geocapabilities/> and www.geocapabilities.org

abstract); to discern 'better' knowledge and/or arguments; and to make good, supportable generalisations. What lifts this from the dangers of Future2ism is the insistence on inducting young people into specialized 'powerful' knowledge. Interestingly, in the public discourse on education reform in England at least one opposition politician instinctively agrees with this position, even though the language is evidently not available to him to critique the Conservative tendency to turn back to Future 1. Under the headline "Calling time on exam-factory education" he wrote,

"... we always need to guard against the soft bigotry of low expectations: the worrying trend of play and expression being adequate for working-class pupils, while leaving the tough stuff, the physics and the history, for their better off peers."

(Tristram Hunt MP *Guardian* 25.4.15)

A Future 3 curriculum is for all young people independent of their circumstances. It is underpinned by powerful disciplinary knowledge which, from a capability perspective is the pedagogic right of all. It is to this we can now turn.

Powerful disciplinary knowledge (PDK)

We can use a fictitious, historical example to illustrate the place of powerful knowledge and why, as a matter of social equity, access to it matters. This is the case of Jeanne described touchingly in Sebastian Faulks' 2012 novel *A Possible Life*. Set in post-revolutionary France, she is introduced to us as 'the most ignorant person in the Limousin village where she had lived most of her life' (Faulks, 2013: 170). She is honest, warm hearted and hard-working, but nevertheless the butt of jokes and unkindnesses partly as a result of her lack of learning; born into poverty and an orphan she had never been to school. Faulks depicts the resulting deficiencies by describing Jeanne's limited capacity to understand anything beyond her daily routine and encounters: 'She made no judgement on what she had seen in her life, but each experience affected her idea of what the world was' (ibid: 192). Jeanne could neither read nor write, but also we learn that she

'... lived her life, with no plan for the future and no sense that she would one day grow old or weak ... Her time at the orphanage had given her a fierce sense of the supernatural ... She understood so little of the material world – how water boiled, why a walnut fell from a tree – that she had had to take almost everything on trust'. (ibid p175-6)

In 21st century economically prosperous and technologically advanced societies where education is virtually universal, and information about the how the material world works is freely available to anyone with electricity and access to a computer, we might argue that the conditions of ignorance that condemned Jeanne to such a closed existence – and to prey to those who would exploit her over-dependence on the supernatural to explain her world - no longer exist.

However, the capable citizen is not simply a person armed with information and a marketable skill-set. After all, we could argue that even Jeanne possessed such basic attributes as these. What Faulks pointed to was Jeanne's lack of knowledge beyond her everyday life – that is, what Michael Young calls 'powerful knowledge'. This is knowledge that is derived in the disciplines. It is specialized knowledge and exists beyond the everyday experience of people. It is often abstract, being theoretical or conceptual, and it is enabling. In the 21st century, we argue that a crucial aspect of powerful knowledge is to enable young people to *think geographically*. This includes acquiring 'a sense of the global' without which their understanding of global inequalities, uneven development, climate change and much more is inadequate. Acquiring a 'global sense of place' does not happen through everyday experience.

[Figure 3 about here]

Thus, geographical thinking using concepts such as space, place, scale, movement and human-environment interaction, allow students to analyse and form an opinion about real world problems. Using climate change as an example, students are encouraged to understand that climate change is a multifaceted issue which needs to be understood at different scales: this includes the global whilst at the same time holding in mind that global processes play out locally in very different ways.

Geographical perspectives therefore encourage a deeper concept of interrelations, “enabling [students] to envisage alternatives” Young and Lambert, 2014, 74).

Elsewhere I have developed this hypothesis – that powerful disciplinary knowledge in geography is what underpins and enables geographical thought – more thoroughly elsewhere (Lambert 2016). To ask what powerful disciplinary knowledge ‘means’ in school geography is a challenging question – equally so in other school subjects, for a list of contents alone does not tell us. The proposal I have made is as follows (from Lambert 2016, 404-5; adapted and developed from Lambert 2011a; 2011b; Solem, Lambert and Tani 2013).

‘Powerful knowledge in geography [consists]of:

- the acquisition and development of **deep descriptive and explanatory ‘world knowledge’**; this may include (for example) countries, capitals, rivers and mountains; also world wind patterns, distribution of population and energy sources. The precise constituents and range of this substantive knowledge is delineated locally influenced by national and regional cultural contexts.
- the development of the **relational thinking** that underpins geographical thought; this includes place and space (e.g. the local and the global), the human and the physical and notions of environmental interdependence and interaction. This knowledge component is arguably more independent of local circumstances and influences, being derived from the discipline: concepts like place, space and environment are complex, evolving and contested and, referring back to an earlier metaphor, can be thought of as fundamental components of geography’s syntax. They are sometimes referred to as geography’s ‘big ideas’, ‘key concepts’ or ‘second order’ concepts.

- a propensity to apply the analysis of alternative social, economic and environmental **futures** to particular place contexts; this draws on a range of skills developed through appropriate pedagogic approaches such as decision-making exercises; in addition to intellectual skills such as analysis and evaluation this also encourages speculation, imagination and argument. If we accept that it is what students are then able to do (including, to think in new ways) that gives geographical knowledge its 'power', then this category, which we might think of as 'applied geography', is crucial.

Understanding geography in this way is not straightforward and it is not easily derived from everyday experience and popular images of what is meant by the geographical. It requires specialist curriculum leadership, which is why we need specialist teachers who are engaged with geographic disciplinary thought and knowledge.'

Readers of this article who comes from different disciplinary specialisms will doubtless have other ways of responding to the question concerning the nature of powerful disciplinary knowledge. It would be very interesting to discuss this across the sciences, arts and humanities and to build on existing formulations that exist within the different traditions of curriculum and pedagogic thinking. I am aware that from my cultural/educational setting I formulate these concerns as predominantly to do with curriculum enactment, whereas elsewhere these are the concerns of specialist subject didactics. In both traditions, however, we can agree that leadership – what I refer to as 'curriculum leadership' in the above passage – is important.

Teachers as curriculum leaders

I refer to leadership in a highly distributed sense. In other words, I do not refer to managers, executives, principals or head teachers. If we aspire to a Future 3 curriculum, then all *teachers* have to accept the responsibility to 'make it happen'.

This is one occasion, I think, when there really is no alternative. A textbook or a website cannot alone create such a 'curriculum of engagement' (that is, engagement not in 'learning activity' per se, but with specialist knowledge); nor can it be delivered by diktat by a policy maker, curriculum developer or education guru, no matter how well meaning. Such a curriculum has to be made by teachers.

[Figure 4 about here]

The summary provided in Figure 4 stresses that Future 3 thinking is based upon the notion of powerful disciplinary knowledge, access to which we can show, using the capabilities device (www.geocapabilities.org), is a pedagogic right of all young people. But it is very hard to write down what this powerful knowledge is (although Alaric Maude (2016) has made a helpful attempt). A syllabus or examination specification must list content, possibly organized under key ideas, but may remain as dry as dust, and inert, useless and inaccessible to the student without the creative contribution of a teacher. That teacher has to grasp why her subject matters, which is to say wherein lies the powerful knowledge. With this specialist expertise she is in a position to make the curriculum 'speak', as Figure 5 attempts to show. No-one else can do this.

[Figure 5 about here]

There are some similarities and some differences between the curriculum making diagram, which relies on the teacher making professional decisions and judgments to balance the competing educational, pedagogical and subject focused priorities, and the 'didactic triangle' used in Central Europe and the Nordic countries. There are evidently some potential gains to be made through the exploration these more fully in the future.

REFERENCES

ATL (2007) *Subjects to Change; new thinking on the curriculum*, Association of Teachers and Lecturers, London ATL <https://www.atl.org.uk/Images/Subject%20to%20change.pdf>

Beare, H. (2001) *Creating the future school*. London: RoutledgeFalmer.

Beare, H. and Slaughter, R. (1993) *Education for the Twenty-first century*. London: Routledge.

Bernstein, B. 2000. *Pedagogy, symbolic control and identity*. Oxford: Rowman and Littlefield.

Biesta, G. (2006) *Beyond Learning: democratic education for a human future*, Boulder Co: Paradigm Publishing

Bolstad, R. (2011) 'Taking a future focus in education – what does it mean?' An NZCER Working paper from the Future-Focused Initiative available at <http://www.nzcer.org.nz/system/files/taking-future-focus-in-education.pdf> (accessed 3 December 2015)

Bolstad, R. (2011-2012) 'Principles for a future-oriented education system', *New Zealand Annual Review of Education*, 21,77-95.

Graham Butt & David Lambert (2014) International perspectives on the future of geography education: an analysis of national curricula and standards. *International Research in Geographical and Environmental Education* 23 (1), 1-12

Cisco Systems (2010) *The Learning Society* https://www.cisco.com/web/about/citizenship/socio-economic/docs/LearningSociety_WhitePaper.pdf (accessed 3 December 2015)

Claxton, G. (2002) *Building Learning Power*, Bristol: TLO Ltd. See also, <http://www.tloltd.co.uk/building-learning-power/> (accessed 3 December 2015)

Dufour, B. (1990) *The new social curriculum: a guide to cross-curricular issues*. Cambridge: Cambridge University Press

Eco, U. (2016) If I ruled the world, *Prospect*, January 2016, page 4

Education Review Office (2012) *New Zealand Curriculum Principles: Foundations for Curriculum Decision-making*. Wellington: ERO

Facer, K. (2011) *Learning Futures*. London: Routledge.

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

Greig, S., Pike, G. and Selby, D. (1987) *Earthrights: education as if the planet really mattered*. London: WWF-UK/Kogan Page

Hicks, D. (1988) *Education for Peace*. London: Routledge.

Hicks, D. (2012) *Sustainable Schools, Sustainable Futures: a resource for teachers*. Godalming: WWF-UK

Inglis, F. (1985) *The management of ignorance; a political theory of the curriculum*. Oxford: Basil Blackwell.

Lambert, D. (2011) Reviewing the case for geography, and the knowledge turn in the National Curriculum, *Curriculum Journal*, 22, 2, 243-264

Lambert, D. (2016) Chapter 25: Geography, in Wyse, D., Hayward, L. and Pandya, J. (eds) *The Sage Handbook of Curriculum, Pedagogy and Assessment*, London: Sage Publications

Lambert, D., Solem, M. and Tani, S. (2015) Achieving Human Potential Through Geography Education: a capabilities approach to curriculum making in schools, *Annals of the Association of American Geographers*, 105, 4, 723-735

Marsden, B. (1997) On taking the geography out of geographical education, *Geography*, 82, 3, 241-252

Maude, A. (2016) What might powerful geographical knowledge look like?

Geography, 101, 2, 70-76

Matthewman, S. and Morgan, J. (2014) Sharpening New Zealand's Future-focus: a scenaric stance, *SET: research information for teachers*, SET 2014, No 1. Pp.24-32, Wellington, NZ: New Zealand Council for Educational Research
<http://www.nzcer.org.nz/nzcerpress/set/articles/sharpening-new-zealand%E2%80%99s-future-focus-scenaric-stance>

Nussbaum, M. (2013) *Creating capabilities: The human development approach*. Cambridge: Harvard University Press.

Nussbaum, M. and A. Sen. (1993) *The quality of life*. Oxford: Oxford University Press.

OECD (2004) International Schooling for Tomorrow Forum, Toronto, Canada: *Background papers: the schooling scenarios*, OECD/Ontario Ministry of Education
<http://www.oecd.org/site/schoolingfortomorrowknowledgebase/futuresthinking/scenarios/overviewofthesixsftscenarios.htm>

Pearson UK (2015) *Open Ideas: research worth sharing*, Pearson UK
<https://research.pearson.com/> (accessed 3 December 2015)

Pike, G. and Selby, D. (1988) *Global Teacher, Global Learner*. London: Hodder and Stoughton.

Slaughter, R. (1988) *Recovering the Future*, Melbourne: Monash University.

Wadley, D. A. 2008. The garden of peace. *Annals of the Association of American Geographers* 98 (3): 650–85.

Winch, C. (2013) Curriculum design and epistemic ascent, *Journal of Philosophy of Education*, 47, 1, 128-146

Young, M. (2008) *Bringing Knowledge Back In: From social Constructivism to Social Realism*, London: Routledge

Young, M. and Lambert, D. with Roberts, C. and Roberts, M (2014) *Knowledge and the Future School: curriculum and Social Justice*, London: Bloomsbury

Figures

Figure 1. Acknowledging some contemporary challenges

The digital age

- Information at your fingertips
- 24/7 news
- Computing power: e.g. geospatial technologies

Global 'threats'

- Asymmetric warfare and 'terror'
- Climate change
- Unregulated capitalism
- Enormous inequalities

Culture shifts

- Three minutes (concentration span)
- Selfies and celebrity ('famous for 15 minutes')
- Social media tyranny

This is not presented as a definitive list of issues. Its purpose is to illustrate some of the unavoidable 'pressures' that young people and their teachers face.

Figure 2. Being skeptical of learning

Where 'learning' is regarded as:

- A good thing in itself - and assumed to be value free in this sense [But learning can be trivial, undiscerning, dangerous and wrong]
- An essentially scientific or technical process -thus, with correct techniques, learning can be 'accelerated', as if this were a desirable end in itself
[But understanding ideas in science, art or history can require sustained effort and perseverance and sometimes slow deliberation]
- Paramount. Teaching is subservient to, and led by, the learning. We become embarrassed by teaching, and rather talk about 'facilitating' learning
[We could say a profession that abrogates responsibility in this way has lost confidence in itself]

Figure 3. Powerful Disciplinary Knowledge [PDK]: some characteristics

PDK refers to the knowledge young people are unlikely to acquire at home or through their everyday encounters. It is usually,

- evidence based
- abstract and theoretical (conceptual)
- part of a system of thought
- dynamic, evolving, changing – but reliable
- testable and yet open to challenge
- sometimes counter-intuitive
- exists outside the direct experience of the teacher and the learner
- discipline based (in domains that are not arbitrary or transient)

Figure 4. Towards a Future 3 Curriculum

Future 3 curriculum thinking take on these characteristics. It is ...

- a knowledge-led curriculum
(not led by 'skills' or 'competence')
- based on 'powerful (disciplinary) knowledge'
(and what Winch[2013] calls 'epistemic ascent')
- Progressive – motivated by social justice
(ensuring the 'pedagogic rights' of all young people)
- Distinguishes curriculum from pedagogy
(the why and what shall we teach, is distinguished from the how)
- Pedagogic selections need to be fit for purpose
(the how is dependent on what we are trying to teach, and why)

Figure 5. Curriculum Making in Geography

