

**Crossing boundaries: Exploring the theory, practice and possibility of a 'Future 3' curriculum**

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**Crossing boundaries: exploring the theory, practice, and possibility of a 'Future 3' curriculum.**

Journal:	<i>British Educational Research Journal</i>
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Manuscript Type:	Original Paper
Keywords:	secondary school curriculum, curriculum integration, 3 Futures model, knowledge-led curriculum
Abstract:	<p>In this paper we examine a case of innovation in curriculum and pedagogy at a new school in the United Kingdom. We begin by outlining Young and Muller's (2010) 3 Futures model which we use as a methodological heuristic in the case study of the school which appears to be both knowledge-led and learner-engaged; characteristics of Young and Muller's Future 3 scenario. In considering the school's curriculum we also draw on a number of concepts from the work of Basil Bernstein: classification, framing, and the idea of open schools, and a curriculum integration model developed by us (Pountney &amp; McPhail, 2017) to consider the degree of epistemic emphasis in the school's predominantly interdisciplinary curriculum. Together these concepts provide the means to examine the organising principles of practice operating in the school as links are drawn between the Futures model, Bernstein's concepts, and the data. We theorise this as a form of 'opening up', suggesting that even within the context of an interdisciplinary curriculum access to powerful knowledge may be maintained in a whole-school approach where the demands of both knowledge and knowers are brought into a balance. The school's approach and the theorisation we offer may provide insights for other schools embarking on a futures model for education and for 21st Century educational discourses more generally.</p>

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Aspect examined	Indications of a shift to 'open'	Illustrative Examples
Curriculum (principles governing the selection of and relations between subjects)	Subjects start as clear cut and definable and are selected, and sequenced into a (supra) idea	The subjects Chemistry, Physics and Mathematics are integrated under the guiding question 'What has chemistry got to do with cooking?'
Teacher Role (and how it is regulated)	(Subject) Teachers work collaboratively, while contributing in a specialist subject role, as problem poser/creator	Chemistry teacher responsible for ensuring that the particle nature of matter is covered, learnt, and assessed in the expedition
Pedagogy	Emphasis on the means of knowledge creation and principles established in context of guided-discovery by pupils	Teacher follows pedagogic protocols established in the school and formal structure of expeditions
Pupils / organisation of teaching groups	Pupils relate to each other initially by what is shared in the learning and then by their individual qualities	Pupils formed into 'crews' in which the pastoral concerns are shared. Academic work is collaborative but measures of achievement are individual
The school community	School boundary relationships are open and porous including the internal physical structure of the school, and the visibility of the curriculum	External experts are part of expeditions including parents and all curriculum documents, including outcomes are online ( <a href="http://xpschool.org/our-expeditions/">http://xpschool.org/our-expeditions/</a> )

**Table 1: Indications of openness**

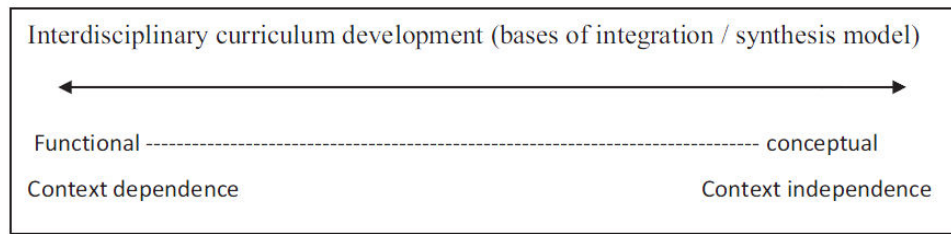


Figure 1: A continuum of integration in interdisciplinary curriculum design

321x82mm (72 x 72 DPI)



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4 **Crossing boundaries: exploring the theory, practice, and possibility of a ‘Future 3’**  
5 **curriculum.**  
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10 **Abstract**  
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30 **Keywords:** secondary school curriculum, curriculum integration, powerful knowledge, 3  
31 Futures model, open schools, knowledge-led curriculum.  
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## Introduction

‘Is the boundary a prison of the past (whatever the nature of the past) or is it a tension point which condenses the past yet opens the possibility of futures?’ (Bernstein and Solomon, 1999; 23)

In 1967 in a brief article in *New Society*, *Open Schools, Open Society*, Bernstein discusses how schools might continue to develop, precursing the School Futures debate of four decades later. Drawing on Durkheim’s conception of mechanical and organic solidarity Bernstein characterises change in education at the time as a shift, respectively, from ‘closed’ to ‘open’ schools. He examines the social conditions for a change in emphasis in some of the main features of the school; the forms of social control, the division of labour among the staff, the curriculum (especially how subjects are viewed), the pedagogy, and how teaching groups are organised. It is the principles governing the selection of and relations between subjects in the curriculum, he argues, that in an *open school* shift from subject as clearly defined to subject as a (supra) idea that is increasingly topic-centred and interdisciplinary. For teachers, this refocuses an allegiance from the subject itself to the bearing the subject has upon an organising idea for the curriculum. One very visible outcome of the shift from closed to open is how the boundary between the school and its community is differentiated – formerly sealed off and self-enclosed, the school becomes physically open in form, with porous boundaries between the home, the school, and external experts. **As we will show later, in relation to one case study, this becomes a form of ‘opening up’.**

Bernstein’s later theorisation of change in educational (knowledge) practices developed into knowledge codes, classification, and framing (1977), and later into, primarily, two curriculum types - a collection code (stronger classification of curriculum boundaries and stronger framing of pedagogical approach identified as a performance curriculum) and an opposing integration code (weaker classification and weaker framing identified as a competence curriculum) (Hoadley and Jansen, 2009). These curriculum codes have become instantiated as binary types, echoing the traditionalism versus progressivism debate, that over time have silenced the possibility of other formulations. In this paper we re-examine Bernstein’s conception of open schools in the light of Futures Thinking about curriculum and the social conditions for an emerging case of innovation in curriculum and pedagogy at one school in the UK.

In building on some of Bernstein’s ideas Young and Muller (2010) propose a *3 Futures model* of curriculum types in a paper that has proved to be seminal within the social realist literature (Young and Muller, 2010). Their model is particularly interesting in that it challenges much of the current futures discourse in a number of significant ways. Along with Bernstein’s concepts noted above, their model is useful as a heuristic for drawing our attention to the key recontextualising principles in educational discourse. This visibility enables an examination of past and present curricular principles and future possibilities for theorising the secondary school curriculum.

Many of the concepts and related ideas in Young and Muller’s 2010 paper have been elaborated and more directly related to practice in the book *Knowledge and the Future School* in which Michael Young is joined by David Lambert and others in translating the ideas for an audience of school leaders and practitioners (Young & Lambert, 2014). In this paper we utilise three key concepts derived from this work to elaborate an imaginary *Future 3* curriculum: - *powerful knowledge, the curriculum-pedagogy distinction, and teachers as curriculum makers*. In concert with these key ideas and applied more directly to the data, we utilise a *realist conceptual methodology* (Lourie & Rata, 2016; author, 2017; Sayer, 2000; Popper, 1978); a

methodology in which key concepts are brought into dialogue with the data enabling the development of what Bernstein (2000) terms *languages of description* (Maton & Chen, 2016; author, 2017). The 3 Futures model provides an *external language of description*, a generalised and somewhat abstract conceptualisation of a social practice. The classification and framing of curriculum knowledge itself – how knowledge is selected, assembled, and sequenced into a curriculum (Bernstein, 1977) - offers the means to develop an *internal language of description*; a more concrete means of making generative principles visible. This methodological process of creating a ‘language of description’ - a form of *translation device* or conceptual rubric - provides a means for theory and data to interact (Bernstein, 2000; Author & Author, 2017). Drawing on a model of the integrated curriculum (Author, 2017a) we elaborate this further, as a translation device to examine curriculum making at XP School. This enables us to make visible the move from theory to empirical description and back to theoretical explanation that can then be critiqued by the reader. Alongside this, the notion of ‘becoming open’ (Bernstein, 1967) offers an organising framework for examining the design and enactment of curriculum, as a recontextualising principle utilised in our research.

In the first section of the paper we give a brief outline Young and Muller’s 3 Futures model noting in particular the theorisation of Future 3. Young and Muller’s model is particularly interesting in that it challenges much of the current futures discourse in a number of ways which are elaborated in the discussion below. We also introduce related key concepts that are put to work in the paper: *powerful knowledge*; *the curriculum-pedagogy distinction*; and *teachers as curriculum makers*. We also note the issues surrounding curriculum integration or interdisciplinary teaching.

In section two we introduce XP School ([www.xpschool.org](http://www.xpschool.org)). Using data from numerous school visits, interviews, observations of curriculum planning and review processes, and curriculum documentation since the school’s establishment in 2013, we give an overview of the school’s approach to curriculum design and enactment. In section three we discuss the empirical data in relation to the theorisations introduced in the first section to ask in what ways XP might represent an instance of an open school with a Future 3 curriculum: (i) does XP develop a curriculum based on the concept of powerful knowledge; and if so how, (ii) does XP distinguish curriculum from pedagogy and to what effect; and (iii) to what degree and in what sense are XP teachers curriculum makers?

### Section 1: The 3 Futures model

Young and Muller’s (2010) 3 Futures paper brings a theoretical lens to past, present, and possible future accounts of schooling. It provides a very useful heuristic for enabling discussion of educational principles that shape education as a form of future thinking (p. 11). *Future 1*, a retrospective imaginary, is the world of conservative education where the stronger classification of knowledge is essentially a means to maintain socio-cultural stability. Education comprises “induction into the dominant knowledge traditions that keep them dominant” (2010, p. 17). Knowledge in this account is *knowledge of the powerful*, a form of symbolic control where those in power exert control over how and what knowledge is recontextualised and made available to others. The curriculum in this model is content rather than concept driven and “overly stratified along social class lines” (p. 17). Pedagogy comprises strongly-framed, teacher-dominated, one-way transmission of knowledge through rote learning; a *one size fits all* approach taking little account of the heterogeneity of pupils and the diversity of their learning needs or interests. Most significantly Young and Muller note the major short-coming of Future 1 as an “under-socialised epistemology” where “boundaries are fixed by social imperatives that override the conditions for knowledge and its innate dynamism, fecundity and openness to change” (p. 17).



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4 Where Future 1 is under-socialised *Future 2*, as if in knee-jerk response to Future 1, is  
5 over-socialised. The knower rather than knowledge is placed at the centre of the educational  
6 space. Knowledge is revealed as “the disguised interests of dominant social groups” (Maton,  
7 2014, p. 6) and therefore the aim is to make education more inclusive, democratic, progressive,  
8 and relevant. Future 2 has also aimed to weaken boundaries between the school and the  
9 community, and between various types of knowledge. Young and Muller argue that in this  
10 Future education has become “over socialised”. This discourse “plays down the propositional  
11 character of knowledge and reduces questions of epistemology to ‘who knows?’” (p. 14). There  
12 is a “validation of all cultural forms as equal” and an “uncritical celebration of experiential  
13 forms of knowing” (p. 19). This epistemological relativism favours a move towards generic  
14 skills and outcomes-based curricula along with non-directive and facilitative pedagogy; “a shift  
15 from detailed specification of knowledge to genericism and a focus on skills/competencies, and  
16 emphasis on the centrality of the learner, and an articulation of curriculum as assessable  
17 outcomes” (Priestly, Laming, & Humes, 2015, p. 1). Many of these ideas, such as constructivist  
18 approaches to curriculum and pedagogy, project-based learning, interdisciplinary curricula,  
19 and an emphasis on generic skills and dispositions have been carried over into 21<sup>st</sup> C narratives  
20 for learning.  
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24 Young and Muller’s *Future 3* on the other hand begins with an acknowledgement  
25 concerning the foundational relationship between knowledge forms, curricular organisation,  
26 and pedagogy. The emphasis in Future 2 on pedagogy at the expense of knowledge has led to  
27 what Maton (2014) terms ‘knowledge blindness’; a lack of recognition of the importance of  
28 different types of knowledge and how epistemic structures can and should effect pedagogy  
29 (Author, 2017a; Author & , 2015; Muller, 2006; 2009). In Future 3 some boundaries are to be  
30 maintained in order to differentiate the epistemic affordances of different types of knowledge  
31 – indeed “boundary maintenance prior to boundary crossing” is a key indicator of Future 3  
32 curriculum thinking (Young and Muller, 2010, p. 16). Along with this re-emphasis on the  
33 nature of knowledge itself and in common with Future 2, Young and Muller (2010) call for  
34 forms of pedagogy which involve “the active role of the ‘recipients’ in making the knowledge  
35 their own” (p. 15, quote marks in original).  
36

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38 Future 3 rejects the over-emphasis on pedagogy and genericism typical of most 21<sup>st</sup> C  
39 literature and Future 2 current practices, and the over-socialisation of the curriculum itself,  
40 apparently to be focussed on the interests of the knower at the expense of what they learn;  
41 *learning to learn* is common catch-cry in education (Claxton n.d.), what Biesta (2009; 2012)  
42 has termed *learnification*. Moreover, Young (2013) argues there is a deeper moral concern to  
43 be addressed; the current orthodoxy is to ask, “is this curriculum meaningful to my students?”  
44 rather than “what are the meanings that this curriculum gives my students access to?” (p. 106).  
45 This is the underlying social justice issue of epistemological access (Rata, 2012).  
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48 As a result of Young and Mullers’ ongoing work (see for example Young and Muller,  
49 2013) we are able to identify and distil three key concepts that will serve as external conceptual  
50 referents for the data analysis. These are discussed below. Moreover, we apply our own  
51 translation device, developed from the analysis of a range of approaches that schools take  
52 towards curriculum making, to distinguish schools along a continuum from functional  
53 /pragmatic to principled/conceptual (Author & Author, 2017; see Figure 1).  
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#### 55 *The challenge of curriculum integration*

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57 In an earlier paper (Author & Author, 2017) we noted the challenges for teachers involved in  
58 curriculum integration – the key curricular structure employed at XP School in the form of  
59 expeditions (see below) – and discussed the concomitant challenges to researchers  
60 investigating interdisciplinarity. In that paper we asked the question if curriculum integration  
is compatible with a knowledge-led approach. We note that Young and Muller appear to throw

doubt on whether the integrated curriculum approach can realise Future 3, aligning it with the weakening of subject boundaries as “the end of boundaries” and the “curricular instrument of choice” indicative of Future 2 (2010, p.18). While we acknowledge the need for a cautionary perspective on interdisciplinary (Chettiparamb, 2007; Barrett, 2007, Moore, 2011) we examine below whether, by means of a measured approach via boundary maintenance, sufficient epistemic strength can be maintained within interdisciplinary contexts to enable boundary crossing so that structured access for students to powerful knowledge is not compromised.

As we argue above, the idea of epistemic structure - how concepts are sequenced and integrated as systems of meaning - has significant implications for access to powerful knowledge no matter what form the curriculum organisation takes (Author & , 2015). What then are the implications for learning where subjects with differing conceptual structures are brought together and where the means for bringing subjects together is external to the disciplinary concepts? The question remains – is this possible, particularly where a high percentage of class time comprises integrated learning. This leads us to another set of related questions: i) how can the approach of interdisciplinary expeditions work without destabilising the intra-epistemic structure of the contributing subjects; (ii) how can a knowledge-led approach sit with a standards-based curriculum; and (iii) how can a curriculum of engagement be effectively realised in this context?

In responding to the challenges facing researchers investigating interdisciplinarity we theorised in our 2017 paper a translation device (see Figure 1) to examine the organising principles of practice operating in interdisciplinary curriculum making – ranging from a functional/pragmatic approach, where design features external to the epistemic structure dominate curriculum making, or towards more to principled/conceptual approaches where the epistemic structure is paramount in driving curriculum design. We utilise the model in relation to XP’s curriculum design later in the paper as a means to assess how they mitigate or not the challenges of curriculum integration and access to powerful knowledge. We theorise this as a curriculum design/enactment problem. In the next section we discuss the theoretical concepts, derived from the Futures model, that enable us to examine the basis of curriculum practice in the case study school.

## Key theoretical concepts

### *Powerful Knowledge*

Young’s (2009) use of the term powerful knowledge was coined to distinguish between two ways of thinking about curricula knowledge as a reflection of political power in society (*knowledge of the powerful*) and knowledge as a means of acquiring the powers of criticality (*powerful knowledge*). In terms of the possibility of Future 3, Young and Muller (2010) argue that it is the social conditions under which powerful knowledge is acquired and produced that determine whether curriculum and pedagogic models might be considered to be Future 3. With regard to these changes in the curriculum these social conditions include the “global specialist communities” that provide the basis both “for the acquisition and production of new knowledge” (p. 19) In this paper we are examining what these social conditions might be. Powerful knowledge will look different in different disciplines and subjects (Firth, 2011; Lambert, 2011; Maude, 2016; Author, 2017b; Ormond, 2014; Yates & Millar, 2016) but essentially it is knowledge that is structured in a certain way – epistemically. Because of this structure - which is based on interrelationships between concepts - students can develop new ways of thinking about the world with which they are already familiar in their everyday lives (Rata, 2016). The essential effects of powerful knowledge, succinctly put, are two-fold: learning to think conceptually and critically (‘know-that’). The power is in both the concepts

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4 themselves and their interrelationships in systems of meaning, and in its potential to advance  
5 students' powers of thinking, imagination, and 'know-how'.

6 Cognisance of this inferential epistemic structure, which may or may not be signalled  
7 clearly in mandated curricula, should guide the selection, sequence, pacing, and evaluation of  
8 the content knowledge (Muller, 2006; 2009). The implication for this study is that we would  
9 expect to see cognisance of the epistemic structures of the school subjects clearly visible in  
10 curricular design and its impact on pedagogy - a knowledge-led curriculum - particularly where  
11 subjects may be packaged as interdisciplinary expeditions as they are at XP school.  
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### 15 *The Curriculum-Pedagogy Distinction and a pedagogy of engagement*

16 Where Future 2 attempts to dissolve boundaries between types of knowledge social realism  
17 theorises an analytical differentiation between them which provides the means for distinctions  
18 to be made in regard to their respective purpose, form, and affordances:  
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21 the curriculum needs to be seen as having a purpose of its own: the intellectual  
22 development of students. It should not be treated as a means for motivating students or  
23 for solving social problems .... The curriculum should exclude the everyday knowledge  
24 of students, whereas that knowledge is a resource for the pedagogic work of teachers.  
25 Students do not come to school to learn what they already know (Young & Lambert,  
26 2014, pp. 96-97).  
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29 Pedagogy has taken centre-stage in research in the last few decades so much so that knowledge  
30 itself (its forms, structures, and affordances) is seldom considered (Biesta, 2009, 2012; Maton,  
31 2014). The theoretical distinction between curriculum content (the what) and pedagogy (the  
32 how) provides a powerful means to distinguish where *progressive* ideas of constructivism and  
33 student-centred learning are important, i.e. in regard to pedagogy, and where such ideas have  
34 serious limitations i.e. in relation to curriculum content (Author, 2016a). As Young and  
35 Lambert (2014) suggest above, students' everyday knowledge should not form the basis for the  
36 curriculum, but it may be useful as a pedagogic tool for bridging the gap between informal and  
37 formal knowledge.  
38

39 The Future 3 model advocates a curriculum of engagement rather than one of  
40 compliance (Young, 2010; Young & Lambert, 2014). By engagement social realists mean not  
41 only the establishment of a progressive pedagogic environment but an engagement with the  
42 knowledge itself. Young identifies four components in a pedagogy of engagement that all  
43 derive from the curriculum: students gain insight into various specialised communities of  
44 practice; subjects provide access to "the most reliable knowledge that is available in particular  
45 fields" (p. 27); subjects provide the means for students to develop their understanding of the  
46 everyday world; and finally subjects provide the possibility for the development of an identity  
47 beyond that of the home or of the everyday. The implication for this study is that we would  
48 expect to see cognisance of these various types of engagement at XP school, particular those  
49 that encourage deep engagement with knowledge.  
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### 54 *Teachers as Curriculum Makers*

55 The establishment of a National Curriculum (NC) for England in 1988, as a prescribed set of  
56 content to be learnt, represents the influence of a long-standing Future 1 approach. The review  
57 of the National Curriculum in 1993 followed complaints that it was too unwieldy and  
58 complicated, heralding a shift towards less defined curriculum structure and the possibility of  
59 a Future 2 approach. The revised 2014 National Curriculum attempts to swing the pendulum  
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4 back towards a knowledge-led Future 1, charging teachers with interpreting and enacting a core  
5 of essential knowledge based on school subjects (DfE, 2010, p. 10).<sup>i</sup> These shifts in curriculum  
6 policy have given rise to a debate in education that is increasingly polarised into traditional  
7 versus progressive ideas about the purpose of the curriculum and how it should be constructed.

8  
9 However, it is important to make the distinction between a National Curriculum  
10 established by government agencies and the curriculum of individual schools, as it is  
11 implemented by teachers and experienced by students. However, while acknowledging the low  
12 capacity for agency that teachers have in the current UK educational climate for curriculum  
13 development (Priestley, Edwards, and Priestley, 2012, p. 192), one thing that the varying  
14 emphases in statutory curricula over time have shared is the requirement for teachers to be  
15 responsible for designing schemes of work, topic maps, and individual lesson plans for the  
16 classroom. This constitutes the form of decision making, involving the selection, sequencing,  
17 and pacing of educational content with an emphasis on pedagogic content knowledge (PCK),  
18 as a special kind of educational content knowledge that “embodies the aspects of content most  
19 germane to its teachability” (Shulman, 1986, p. 9). Ideally, realising the potential of powerful  
20 knowledge pedagogically requires the teacher to have a panoramic view of the discipline – its  
21 key propositions, theories, and concepts – and then the ability to select and recontextualise this  
22 knowledge for the context of the school (Bruner, 1966; Winch, 2017).

23  
24 There is evidence of a developing case for subject integration within the curriculum as  
25 part of the 21<sup>st</sup> century narratives for education, that would offer teachers increased autonomy  
26 and responsibility in curriculum decision-making, including what subjects to integrate and how  
27 (Author, 2016b; Author, 2017a). A curriculum that aims to be knowledge-led and student-  
28 centred, therefore, places a considerable onus on teachers in which they carry “much  
29 curriculum making responsibility” (Young and Lambert, 2014, p. 184). Such a curriculum also  
30 requires methodological tools for evaluating the claims made for it (Author & Author, 2017).  
31 Indeed, “knowing how and when to separate topics to clarify them and knowing, on the other  
32 hand, when to integrate them is a major achievement of skilful teaching.” (Parker, 2005, p.  
33 453). In this sense teachers, as curriculum makers, become recontextualising agents.

## 34 35 36 37 **Section 2: Curriculum making at XP School**

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39 In this section we give an overview of the context and emergence of the school and its  
40 curriculum in order to examine the organising principles that form the theoretical basis of  
41 curriculum making. While this is based on our empirical research the analysis is not a detailed  
42 examination of curriculum activity (which we will explore in another paper) but of how  
43 curriculum making is characterised. The school in question, XP School, Doncaster, UK, is an  
44 11-19 secondary school established as a *free school*<sup>ii</sup> in 2013. In 2017 it was graded as  
45 “outstanding in all aspects” by the Office for Standards in Education (Ofsted)<sup>iii</sup>. The school is  
46 chosen in our study because, first, it is a new school, in which the basis of decisions made about  
47 curriculum and pedagogy can be isolated more easily and examined. Second, the focus of the  
48 school’s curriculum and pedagogy, and integrated curriculum, makes visible the extent to  
49 which the boundaries of disciplinary knowledge are attended to (maintained) and what happens  
50 when subject boundaries are dissolved (crossed). The school is part of a growing academy trust,  
51 currently three schools, comprising a second new secondary school, and a local primary school,  
52 each following an approach to curriculum and pedagogy developed in the EL (Expeditionary  
53 Learning) Schools in the United States (US) (Berger, 2003; Berger et al., 2014).

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55 The signature element of the XP curriculum, drawing from EL Education, is a *learning*  
56 *expedition*, an interdisciplinary project that lasts 8-10 weeks in which subjects are integrated  
57 rather than taught separately (Patton, 2012). This paper adopts the term project-based learning  
58 (PBL) as the description most closely aligned with the forms of curriculum and pedagogy  
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4 typical of XP and EL Schools. The dominant notion, therefore, is of PBL projects as central,  
5 not peripheral to the curriculum, and these are focused on questions or problems that *drive*  
6 students to encounter (and struggle with) the central concepts and principles of a discipline.

7 Critics of PBL suggest this experiential approach is too learner-centred and diminishes  
8 the role of the teacher while being dependent on resources, including time and detailed  
9 preparation (Prince and Felder, 2006). The complexity of projects and the degree of students'  
10 cognitive loading required is considerable, with a suspicion that PBL favours students with  
11 higher levels of literacy and in possession of a higher degree of cultural capital (Badley, 2009).  
12 Furthermore, the transition to PBL from more traditional approaches is not easy, especially  
13 given the lack of experience most teachers have with open-ended teaching strategies, the  
14 difficulty of transitioning students into more active roles, and with effectively assessing student  
15 learning (Ertmer & Simons, 2005).  
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### 18 *Teachers making the curriculum together*

19 Central to XP School's approach to curriculum making are its design principles, as stated  
20 explicitly in its brochures and the website. There is a clear commitment to personalising the  
21 curriculum to meet students' individual needs, including linking learners to real-world issues,  
22 and problems. The sense of a common and shared purpose for the school takes the form of a  
23 *whole-school approach* to the curriculum<sup>iv</sup>, including the development of students' character.  
24 The strength of relationships at XP is verified by research (Loe et al., 2017) that shows higher  
25 than the norm levels of student-student (8% higher), student-teacher (5% higher), and teacher-  
26 student (20% higher) relationships. The report concludes "this is the direct result of the school's  
27 culture and its curricular practice" (p. 14).  
28

29 At the outset, the school made three important curricular decisions: first to follow an  
30 integrated curriculum, with expeditions as the signature curriculum element; second that  
31 curriculum making by teachers was a shared and collaborative enterprise; and third to follow  
32 the national curriculum and standards in planning and mapping the curriculum. Working in  
33 expedition teams, teachers are collectively responsible for rigorously designing and testing  
34 their plans, a process they find both exciting and liberating (Author and , 2018). We examined  
35 the planning documents of 32 expeditions, across the 11-16 age range, that have been taught in  
36 cross-subject teams, including the curriculum maps that identify the conceptual structure of  
37 expeditions (referred to by teachers as knowledge maps).  
38

39 Typically, there are four expeditions per year for each year group and eighty-five  
40 percent of the curriculum is organised into interdisciplinary expeditions. Curriculum planning  
41 involves *atomising* the standards; a process that involves labelling bodies of knowledge,  
42 gradually given structure by identifying interdisciplinary links. For example, it was from this  
43 exercise that the staff recognised the links between cooking and chemical and physical changes  
44 that eventually became a learning expedition (*Chefistry*) with the guiding question 'What has  
45 chemistry got to do with cooking?'<sup>v</sup>. Consequently, in addition to a detailed curriculum map,  
46 teachers recognised the need for and have developed a knowledge map that shows how the  
47 standards are linked and met.  
48

49 The review of curriculum is ongoing, and expeditions are evaluated after every run. We  
50 were able to observe six expedition (peer) review meetings and to examine the curriculum  
51 reports and action plans for future iterations. In the review of the expedition 'War! What is it  
52 good for?' (combining concepts from history, literature, mathematics, and biology) the  
53 teaching team identified an issue in the integration of mathematics and resolved to develop a  
54 "mostly number" aligned maths case study. This aimed to enable students to develop  
55 fundamental principles of number operations, fractions, decimals, percentage, and the  
56 relationships between each. The attention to this improved the integration of data into the future  
57 runs of the expedition.  
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4 Examination of expedition planning documents, developed collaboratively by each  
5 (interdisciplinary) team of teachers, shows close attention to the English National Curriculum  
6 standards and long-term learning targets supporting targets and assessment of learning. For  
7 example, the long-term learning target ‘I can explain how the rock cycle (Science NC standard)  
8 relates to the strata of Doncaster’ is broken down into four supporting learning targets: ‘*I can*  
9 *describe the large scale structure of the Earth*’; ‘*I can explain how rocks change over time*’;  
10 ‘*I can explain how the strata found in Doncaster came to be there*’; and ‘*I can explain the*  
11 *processes that change organic material into coal*’. While shaped by *big ideas*, of how  
12 geological effects over time have shaped pupils’ immediate geographical contexts in this  
13 instance, they link to enduring conceptual understandings that students return to and which are  
14 repeated in other expeditions, for example “make, record, and present observations using data  
15 and text using scientific conventions and protocols”. In this way teachers making the  
16 curriculum at XP attend to the internal coherence of each expedition (how they are constructed)  
17 while being vigilant to its external coherence (how expeditions link together to cover, and  
18 deepen, the requirements of the curriculum over time).

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21 Assessment includes tests of knowledge, extended writing, answers to the guiding  
22 questions, and first-person narratives, and each assessment is made against a rubric of  
23 minimum expected grades in which the student is located on a continuum from developing to  
24 secure<sup>vi</sup>. The expedition review, made after each run of the expedition for guiding future  
25 iterations, considers students’ learning and grades as well as the expedition delivery and  
26 process. The curriculum making process at XP involves a cycle of three distinct stages:  
27 attention to the disciplinary structure of subjects; the integration of specific disciplinary  
28 concepts into a form of curriculum (expeditions); and re-attention to disciplinary structure in  
29 curriculum review to ensure internal and external consistency.

### 30 31 32 *Access to powerful knowledge?*

33 In considering XP’s interdisciplinary curriculum model, and the extent to which powerful  
34 knowledge is made possible, we draw on a translation device developed by us (Author &  
35 Author, 2017) to examine the organising principles of practice operating in interdisciplinary  
36 curriculum making (see Figure 1). We identify two paths to integration differentiated by the  
37 degree to which a strong conceptual base existed for each of the subjects involved and whether  
38 a conceptual framework for assessment exists (p. 1078). The *bringing together* or integration  
39 of the subjects in the *From the ground up* expedition, for example, provoked meanings made  
40 by the students during the expedition, that emerged in their answers to the guiding question,  
41 expressed as a historical perspective on the values that were once held by members of those  
42 mining communities in order that their stories can be passed on. This led to new understandings  
43 for students and teachers, such as the interaction of human and physical processes in the  
44 environment and novel insights into the ethical consideration of community and the political  
45 economy. The distinction here is not only in the academic level that learners achieve (and  
46 whether they outpace or exceed national expectations of learning), but rather whether learning  
47 is generative of novel insights - or more importantly, perhaps, if it enables learners to go beyond  
48 their contexts, as an example of powerful knowledge (Young, 2009), to extend what is  
49 presented in a subject context to identify and explore that which might be possible in an  
50 interdisciplinary perspective. Notable here is that the generic meta-skills, such as problem  
51 solving, are developed in XP’s integrated curriculum, but this is an outcome that is a welcome  
52 by-product of the curriculum, not its *raison d’être*; the result of a form of curriculum integration  
53 that is principled rather than functional (Author and Author, 2017, p. 1078).



2. The mixing of categories at the level of curriculum. The move away from a curriculum where subjects are autonomous and insulated to a curriculum that involves the subordination of subjects and their integration.
3. The mixing of categories at the level of the teaching group. Heterogenous rather than homogenous teaching groups and differentiated sets of pupils rather than fixed forms or classes.

Applying these categories and Bernstein's conception of open schools as an organising framework for examining curriculum making there are a number of indications of a shift to openness at XP revealed by our research (see Table 1).

**Table 1: Indications of openness**

Aspect examined	Indications of a shift to 'open'	Illustrative Examples
Curriculum (principles governing the selection of and relations between subjects)	Subjects start as clear cut and definable and are selected, and sequenced into a (supra) idea	The subjects Chemistry, Physics and Mathematics are integrated under the guiding question 'What has chemistry got to do with cooking?'
Teacher Role (and how it is regulated)	(Subject) Teachers work collaboratively, while contributing in a specialist subject role, as problem poser/creator	Chemistry teacher responsible for ensuring that the particle nature of matter is covered, learnt, and assessed in the expedition
Pedagogy	Emphasis on the means of knowledge creation and principles established in context of guided-discovery by pupils	Teacher follows pedagogic protocols established in the school and formal structure of expeditions
Pupils / organisation of teaching groups	Pupils relate to each other initially by what is shared in the learning and then by their individual qualities	Pupils formed into 'crews' in which the pastoral concerns are shared. Academic work is collaborative, but measures of achievement are individual
The school community	School boundary relationships are open and porous including the internal physical structure of the school, and the visibility of the curriculum	External experts are part of expeditions including parents and all curriculum documents, including outcomes are online ( <a href="http://xpschool.org/our-expeditions/">http://xpschool.org/our-expeditions/</a> )

### *Theorising curriculum thinking and making at XP*

While at this point we are able to say XP indicates the characteristics of an open school, in Bernstein's terms, including the weakening of boundaries in an integrated curriculum, the basis of the shift to openness is ill-defined. We now need to examine the social conditions for possible boundary crossing that is implied in a curriculum that is interdisciplinary. To examine





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4 classification with weaker framing, and vice versa, remains a distinct possibility for curriculum  
5 designers and school planners, theoretically at least.

6 By this analysis the dotted line in Figure 2 indicates a path between the two positions  
7 (Future 1/Future 2) in which Future 3 might lie – i.e. the possibility of Future 3. In one sense  
8 this path is the *locus of curriculum engagement* that ranges from an engagement based on  
9 learners being motivated (as in exciting lessons say) (upper left quadrant, +C,-F) to one shaped  
10 by a curriculum engagement (bottom right quadrant, -C,+F) of the type Young (2010, p. 22)  
11 refers to as “[distinguished from] the traditional model by their different relationships with  
12 learners and, therefore, their different implications for pedagogy and what teachers and pupils  
13 do” – in other words one that has the potential for powerful knowledge. An examination of the  
14 variations in the strengths of subject boundaries (classification) and the control of the pedagogy  
15 (framing), qualifies the role of teachers as curriculum makers and how this is regulated, and  
16 the degree to which this is curriculum recontextualisation rather than (merely) reproduction.  
17 This *space of possibilities*, therefore, begs a temporal question – as to when, and at what point  
18 in the curriculum making process, decisions are made about the form and structure of the  
19 curriculum and the pedagogy required to meets its needs.

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22 What differentiates the positions taken by schools in the continuum of curriculum  
23 engagement is the attention to subject boundaries prior to teaching. In terms of the XP  
24 curriculum this is the attention to boundaries in the selection and sequencing of disciplinary  
25 concepts in interdisciplinary contexts. The distinction pivots around whether the curriculum is  
26 knowledge-led by teachers in the planning or merely content-led in the delivery of the  
27 curriculum. Indeed, as discussed above, it may well involve re-attention to boundaries in the  
28 evaluation of the curriculum, as takes place at XP in the review of expeditions, in which a form  
29 of boundary maintenance is ongoing.

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32 Locating XP school in this topology and on the locus of engagement is subject to a  
33 potential bias by interpreters that Bernstein (1967) makes clear in his discussion of a shift to  
34 open schools: the fear that boundary crossing, in its mixing of categories, dissolves the  
35 principles of social order based on the sacred notion of the disciplines, rendering them  
36 pluralistic. Contrary to this our investigation at XP to date identifies evidence of careful  
37 attention to subject boundaries prior to a form of boundary crossing that takes place in  
38 principled curriculum integration (i.e. with respect to the conceptual structure of the curriculum  
39 – see Figure 1). We locate the form of curriculum engagement at XP to lie in the bottom right  
40 (-C,+F) of figure 2, in that, on the surface at least, it implicates a weakening of subject  
41 boundaries, but that combined with a well-defined, visible pedagogy, and a teacher role that is  
42 achieved rather than given (a role that “*has to be made*” in Bernstein’s words (1967, p. 353,  
43 original emphasis). In this sense XP’s curriculum of and for engagement can be ordered as  
44 knowledge-based and teacher-led.  
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### 49 Section 3: Final Discussion

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51 We have examined the basis of curriculum making in the case study school and identified its  
52 organising principle as a shift to openness. We have done this using a realist conceptual  
53 methodology developing languages of description (Bernstein, 2000) to make the organising  
54 principles of curriculum making at XP visible. This methodological process provides a means  
55 for theory and data to interact; the 3 Futures model has provided an external language of  
56 description, Bernstein’s concepts of classification and framing an internal language of  
57 description, and our own typology of curriculum integration a translation device for the two  
58 languages of description to speak to each other. In this section we return to the key questions  
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4 introduced in Section 1 to consider if a Future 3 curriculum remains a form of *future thinking*  
5 (Young and Muller, 2010; p. 11) yet to be enacted.

6 The links to powerful knowledge are clearly visible in the school's expedition planning  
7 processes and documents, in the focus of teachers' work, the outcomes of learning, and in the  
8 evaluation processes for the curriculum overall. Despite XP's use of key progressive  
9 buzzwords, it appears that concepts such as the personalisation of learning and connecting with  
10 *real world* problems are firmly grounded in an awareness of them being a means to bring about  
11 access to epistemic knowledge: attention is paid to disciplinary boundaries before the design  
12 of boundary crossing (and teachers are vigilant in attending to boundaries following  
13 integration). This is quite a different emphasis from that common in current 21<sup>st</sup> century  
14 schooling discourse where curriculum discussion is concept-and-content weak but emphasises  
15 generic skills and dispositions (e.g. Author, 2017c; Scott, 2015; Badley, 2009). We are  
16 suggesting that one social condition for Future 3 is a whole-school approach that is cohesive,  
17 collective, and collaborative, and where epistemic concerns permeate the decision making of  
18 all dimensions of the school. This bringing together is made possible by the primary  
19 pedagogical structure of the expedition that provides the social 'carrier' for the powerful  
20 knowledge - the space where knowledge and knower become integrated in a learning whole.

21 Awareness of the conceptual distinction between curriculum (what might be taught)  
22 and pedagogy (the means through which the content is delivered) provides the means for  
23 teachers to develop a balanced approach to curriculum development in their work as curriculum  
24 makers. The school's regulative *mission* is to imagine students who will have the choice for  
25 post-school study should they wish to pursue it. While choosing to follow the NC the teachers  
26 at XP have decided to re-think the structure and organisation of the curriculum in line with  
27 their design principles. In this form of collective curriculum thinking teachers have responded  
28 to the challenges of powerful knowledge and the curriculum and pedagogy distinction,  
29 collaboratively (Author & 2018). The curriculum has a dynamic structure and is knowledge-  
30 led in that the disciplinary concepts are mapped, and the inferential relations of knowledge are  
31 attended to. This degree of autonomy in curriculum decision making is balanced by the need  
32 to carefully plan and prepare expeditions that in turn reflect the epistemic requirements  
33 embedded in the NC. Importantly, teachers when integrating the curriculum need to know more  
34 about the content and PCK of the subject/discipline, not less. This leads us to consider that  
35 interdisciplinary expeditions and standard-based assessment are not necessarily incompatible  
36 with Future 3. It all depends on the approach and expertise of the curriculum making of the  
37 teachers.

38 The cross-curricular ideas, or themes, present in XP's curriculum require explicit  
39 consensus amongst teachers that goes beyond the strong boundaries of the subject-based  
40 curriculum towards "a relational idea, which blurs the boundaries between subjects"  
41 (Bernstein, 1971, p. 53). The principle of integration, one form of social condition in the case  
42 of XP school, therefore, is one that has the potential to create various levels of order for teachers  
43 and students across the whole school, in which "the nature of the linkage between the  
44 integrating idea and the knowledge to be coordinated must also be coherently spelled out"  
45 (Bernstein, 1971, p. 64). The abstract relational idea in XP's case revolves around the guiding  
46 question for each expedition and how the pedagogical elements of the expedition are  
47 coordinated *in relation to* the epistemic structure of what is to be learnt.

48 In his ideas on open schools (open society) and the shifts towards organic solidarity,  
49 taken up in the Futures debate, Bernstein is typically prescient and foreshadowing of current  
50 trends and debates in education. He advises us not to take boundary crossing as a sign "that  
51 yesterday there was order; today there is only flux" or as a "long sigh over the weakening of  
52 authority and its social basis". Rather he suggests, we should welcome the opportunity to  
53 "explore changes in the forms of social integration in order to re-examine the basis of social  
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4 control” as it stands today and what it might be tomorrow. This he says, “as Durkheim pointed  
5 out decades ago, is a central concern of a sociology of education” (Bernstein 1967, p. 352).  
6 XP’s journey as a new school can certainly provide insights and raises questions for other  
7 schools embarking on a futures model for education and for 21<sup>st</sup> C educational discourses more  
8 generally.  
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21 <sup>i</sup> Importantly this curriculum is no longer mandatory for academies and free schools, though these are publicly  
22 funded. XP School is a free school that has chosen to follow the National Curriculum.

23 <sup>ii</sup> A free school in England is a type of academy, a non-profit-making, independent, state-funded school which is  
24 free to attend but which is not wholly controlled by a local authority.  
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26 <sup>iii</sup> Ofsted is the Office for Standards in Education, Children's Services and Skills. It reports directly to UK  
27 Parliament and is both independent and supposed to be impartial, though this is questioned by some. By law it  
28 must inspect schools with the aim of providing information to parents, to promote improvement, and to hold  
29 schools to account.  
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31 <sup>iv</sup> By whole-school approach we mean a “cohesive, collective, and collaborative action in and by a school  
32 community that has been strategically constructed to improve student learning, behaviour, and wellbeing, and the  
33 conditions that support these” (Western Australia DfE, 2009, n.p.).  
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35 <sup>v</sup> See <http://xpschool.org/our-expeditions/what-does-chemistry-have-to-do-with-cooking/>  
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37 <sup>vi</sup> See for example <http://xptrust.org/assessment-at-xp/>  
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