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Powerful knowledge, educational potential and knowledge-rich curriculum: pushing the boundaries

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ABSTRACT

Building on and going beyond Young and Muller's theory of powerful knowledge, this article seeks to articulate a model of a future-oriented, knowledge-rich curriculum by invoking David Lambert's *capabilities approach* and *Bildung*-centred *Didaktik*. The curriculum is *knowledge rich* in three respects. First, it is informed by a vision of education centrally concerned with the cultivation of human powers (understanding, capabilities, dispositions) predicated on the contribution of knowledge. Second, the construction of a school subject—in the form of curriculum frameworks, syllabuses, and guidelines–entails selecting and organizing content in terms of educational potential and its realization in classrooms. Third, classroom teaching entails unlocking the educational potential of the content of a school subject for developing human powers. The curriculum is *future-oriented* in the sense that it aims at the formation of autonomous and responsible individuals who can thrive and flourish in the present and future world.

KEYWORDS

Powerful knowledge; content; educational potential; curriculum making; curriculum thinking; *Bildung*-centred*Didaktik*

The first decade of the twenty-first century saw a 'knowledge-turn' in the development of the National Curriculum in England (Lambert, 2011; Morgan et al., 2019). The turn has led to the promotion of a model of a 'knowledge-rich curriculum' in the 2014 revised National Curriculum. Heavily influenced by American educationist E.D. Hirsch's theory of core knowledge, this model is centred on 'the core subject knowledge that every child and young person should gain at each stage of their education' (Department of Education [Department for Education (DfE), 2010, p. 11). Accordingly, the National Curriculum framework outlines the contents of various school subjects in terms of knowledge, understanding, and skills—which constitute the 'core of essential knowledge'—with attainment targets for each learning stage (Mitchell & Lambert, 2015). It is believed that universal participation requires all students to have a basic background knowledge in mathematics, English, science, geography, and other subjects (Gibb, 2018, 2015; Simons & Porter 2015). To ensure that 'every child receives a first-class education', Nick Gibb, former Minister of State for School Standard, asserted, 'all our children are taught in schools with an extensive knowledge-rich curriculum by well-trained and supported teachers' (Gibb, 2021). Such a curriculum is 'the best way to raise standards in schools, and eventually to achieve social justice' (Simons & Porter, p. 8).

This is a praiseworthy effort to restore knowledge to the school curriculum against the global education landscape where the significance of knowledge has been eroded with the widespread acceptance of generic competences and skills, where knowledge-based curriculum making has been bypassed in favour of developing competency frameworks and outcomes (Karseth & Sivesind, 2010). However, Hirsch's theory of core knowledge, with its reduction of school subjects to bodies of 'things

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we all need to know' (Hirsch, 1987, 2007), is far from adequately capturing the role and significance of knowledge in education and the curriculum. Instead, it promotes a vision of education based on 'an unchanging canon of facts, even though the rate of knowledge production continues to accelerate relentlessly' (Lambert, 2011, p. 225).

It is noteworthy that the term 'powerful knowledge', notably articulated by Michael Young and Johan Muller, has been invoked as a guiding principle in the English National Curriculum Review. Guided initially by an Expert Panel chaired by Tim Oates (Group Director of Assessment Research and Development at Cambridge Assessment), the Review offers recommendations on the construction and content of the 2014 revised National Curriculum (James et al., 2011; Oates, 2011). 'The concepts, facts, processes, language, narratives and conventions of each subject', the Review asserted, constitute *powerful knowledge* that needs to be selected into the Curriculum (James et al., 2011, p. 9). To provide all students access to powerful knowledge, the National Curriculum needs to delineate this knowledge in all subjects, together with necessary progressions and developmental milestones. However, Young and Muller's theory of powerful knowledge—which can be seen as a correction to Hirsch's theory—has not been carefully explored in the Review. As a result, the significance and implications of the theory for what constitutes a knowledge-rich curriculum has not been adequately recognized, nor are its issues and limitations. 'The current debate about "powerful knowledge"', Rawling (2020) observed, 'opens up a new area of concern of which national curriculum designers in England and Wales may have been aware but seemed not to know how to address' (p. 74).

Building on and going beyond Young and Muller's theory of powerful knowledge, this article seeks to articulate a model of a knowledge-rich curriculum centrally concerned with the cultivation of human powers (understanding, capabilities, dispositions), and to address the implications of the model for curriculum making from policy to classroom. It starts with a brief review of Young and Muller's theory and the model of a knowledge-rich curriculum based on the theory. After a critical appraisal of the theory and the model, the article examines two alternative approaches to developing a knowledge-richcurriculum—Lambert's capabilities approach and *Bildung*-centred *Didaktik*. What follows is an articulation of a model of a future-oriented, knowledge-rich curriculumin terms of the central purpose of education, content selection and organization, and classroom teaching. The article concludes by identifying three areas of work necessary for the making of a knowledge-rich curriculum across three arenas, *the policy* (public and political discourses and debates on the vision and purpose of schooling), *the programmatic* (the construction of a school subject and related curriculum frameworks and guidelines), and *the classroom* (teachers' interpretation and enactment of the purpose and content of a school subject; Deng & Luke, 2008).

Powerful knowledge, epistemic access, and a knowledge-rich curriculum

Powerful knowledge is the central concept in Young and Muller's social realist theory of knowledge—also called 'theory of powerful knowledge' in this article—articulated within the tradition of sociology of education. Based on the works of Émile Durkheim (1858–1917) and Basil Bernstein (1924–2000), Young and Muller differentiated disciplinary knowledge from common-sense knowledge acquired from everyday experience. Developed by 'communities of enquirers' (Young & Muller, 2010, p. 14), disciplinary knowledge is powerful because it is 'specialised', 'context-independent', and 'systematically principled' (Young & Muller, 2013). It obtains objectivity through the employment of various methodologies for generating and validating knowledge claims, with concepts that 'are 'systematically related to each other in groups' (Young, 2014, p. 75). Young and Muller further differentiated between two broad types of disciplinary knowledge, (1) natural sciences and (2) social sciences and humanities. In the former knowledge develops 'cumulatively and progressively, with earlier formulations being subsumed by later formulations', whereas in the latter knowledge accrues 'not by one subsuming the other, but by the addition of parallel theories' (Young & Muller, 2013, p. 239).

Disciplinary knowledge is powerful also because of the powers that knowledge gives to those who possess it. This knowledge provides us with 'more reliable explanations and new ways of thinking about the world' and 'a language for engaging in political, moral, and other kinds of debates' (Young, 2008, p. 14). Acquisition of this knowledge allows us to move beyond our specific experience and to 'envisage alternative and new possibilities' (Young & Muller, 2018, p. 245). It, too, 'allows those with access to it to question it and the authority on which it is based and gain the sense of freedom and excitement that it can offer' (Young, 2014, p. 20).

With this theory of knowledge, Young has advanced a model of curriculum—in terms of the distinctive purpose of schooling, the formation of school subjects, and the work of a teacher—which can be seen *knowledge-rich*. The distinctive purpose of schools is to provide access to powerful knowledge that students cannot acquire at home. Access to powerful knowledge is an 'entitlement' for *all* students regardless of their socioeconomic status, race, and gender (Young, 2013).

As 'the most reliable tool' for enabling students to acquire powerful knowledge, school subjects are recontextualisations of academic disciplines by way of selecting, sequencing and pacing disciplinary knowledge in view of the 'coherence' of each of the disciplines and constraints imposed by students (Young, 2013). As he stated,

> . . . academic subjects are primarily oriented to the transmission of knowledge and have to take account of the age and stage of development of learners and the knowledge that they bring to school. Subject knowledge is selected (from disciplines), paced and sequenced, according to rules that are often implicit but also shared. (Young, 2016, p. 191)

From this perspective, curriculum making (the planning of a course or a unit of study) involves an analysis of what constitutes powerful knowledge and its subsequent application to knowledge selection and organization in consideration of the background and developmental stage of students. This way of making a knowledge-rich curriculum finds illustration in the work of Rata (2019, 2021) who has developed a model to assist teachers in designing courses with a central concern for knowledge coherence and progression.[1]

In classrooms the primary task of a teacher is to help students to acquire a body of disciplinary knowledge and to taking them beyond their everyday experience. Young (2013) made a sharp distinction between curriculum and pedagogy. Whereas curriculum referring to 'the knowledge that pupils are entitled to know' determined prior to teaching, pedagogy pertains to 'what teachers do, and get pupils to do' when they 'transmit' or 'convey' knowledge (p. 111)

The above three aspects together constitute a model of a knowledge-rich curriculum. It is *knowledge-rich* because the curriculum promotes *epistemic access* to powerful knowledge for all students. It is important to note that this model of curriculum is positioned as a vision of the 'curriculum of the future' embedded in what is called 'Future 3' educational scenario developed 'out of the critique and analysis . . . of Future 1 and 2' educational scenarios (Young & Muller, 2010, p. 19). The three educational scenarios are:

- **Future 1** is represented by the traditional academic curriculum directed towards the transmission of disciplinary knowledge which stands for 'the best which has been thought and said' (Arnold, 1869/1993). The curriculum is elite and conservative, comprised by academic subjects which are static, with fixed and given boundaries. It is underpinned by an 'under-socialised' conception of knowledge which treats knowledge as given, absolute and unchanging (Young & Muller, 2010, p. 14).
- **Future 2** is exemplified by a competence-based curriculum directed towards the development of generic skills or competences, with the adoption of a constructivist pedagogy which puts the learner at the centre and construes the teacher as the facilitator. The curriculum is characterized by the 'end of boundaries' and is underpinned by an 'over-socialised' conception of knowledge (Young, 2014; Young & Muller, 2010).

- **Future 3** is represented by a knowledge-led curriculum directed towards providing all students access to disciplinary knowledge. This knowledge is 'fallible' and 'open to change', the development of which 'is bounded by the epistemic rules of the particular specialist communities' (Young, 2014, p. 67). School subjects are 'the most reliable tools' for helping students acquire disciplinary knowledge (Young, 2013).

Futures 1 and 2 are manifested in the 1988 and 2008 versions of the National Curriculum, respectively (see, Deng, 2020; Lambert & Hopkin, 2017). The 2014 revised National Curriculum can be seen as a move away from Future 2 and a return to Future 1. It is worth noting that in a latest article Muller (2022) revisited these three scenarios and suggested that the three Futures need to be thought dialectically: 'There are aspects in each of Future One and Two that were seen as genuinely liberatory at the time, and deserve at least consideration in a re-modelled Future Three' (p. 9). While not framed in terms of the three Futures, the article, as will be seen, carries implications for the re-modelling alluded to by Muller.

A critical appraisal

As mentioned already, Young and Muller's theory of powerful knowledge can be seen as a correction to Hirsch's theory of core knowledge. This is because they relocate knowledge in academic disciplines, making what is taught and learnt in classrooms more reflective of the characteristics of disciplinary knowledge as developed by specialist communities. They also call attention to the powers of disciplinary knowledge which afford to those who possess the knowledge.

However, this theory has received numerous criticisms in terms of, for example, its predilection towards academic subjects like mathematics and sciences rather than literature and arts, and its tendency to soften, if not obscure, issues of power and social control inherent in all knowledge (which, ironically, was the initial preoccupation of the new sociology of education of which Young was a key figure), among others (e.g. Eaglestone, 2020; Rudolph et al., 2018; White, 2018, 2019; Whitty, 2018). Young and Muller have responded to these criticisms on several occasions (Muller, 2022; Muller & Young, 2019; Young, 2018). In this paper I am concerned with three issues associated with the curriculum model. With the stipulation of the transmission of disciplinary knowledge as the distinctive purpose of schooling, Young seems to be silent about other purposes of schools which also require the teaching of knowledge.[2] Among those purposes is not least the one of individual formation through the development of human powers (to be further explained below). In other words, Young is primarily concerned with, to borrow from David Hamilton, the present question of 'what should they [students] know?' *rather than* the future-oriented question of 'what should they [students] become?' (Hamilton, 1999, p. 136). He tends to view knowledge as something taught for its own end rather than for expectations or demands from society (see, Deng, 2020).

A second issue has to do with the idea of school subjects as recontextualisations of academic disciplines—a notion that conflates school subjects with academic disciplines, even though acknowledging that disciplinary knowledge needs to be adapted to students' background and developmental stage. While related, school subjects and an academic discipline are fundamentally different. The former are courses of study within an institutional (national) curriculum formulated for the facilitation of teaching and learning, driven by social, political, and educational purposes. The latter, conversely, refer to fields of learning affiliated with academic departments within a university, formulated for the advancement of research and scholarship and the professional training of researchers, academics, and specialists (Deng, 2007, 2012; Scheffler, 1991). '[A]n unproblematic reliance on the academic disciplines as the source of curricular content', Stengel (1997) observed, 'seems to obscure rather than highlight negotiable issues of curricular purpose, substance and practice' (p. 585).

A third issue concerns the transmissive view of teaching—the conveying or passing on of disciplinary knowledge to students—seemingly endorsed in the model. It suggests 'distance and a one-way process', which is far from 'the interpersonal teacher-learner interactions' (Alderson, 2020, p. 35) and, not least, far from content-learner encounters which can give rise to a transformative impact on perspectives, ways of thinking, and capabilities of students (Hopmann, 2007). The transmissive view, together with the separation of pedagogy from curriculum noted above, assigns a teacher to the role of a curriculum deliverer rather than a curriculum maker—to which I will return.

These three issues have to do with the fact that the curriculum model—alongside its underpinning theory of powerful knowledge—is articulated within the tradition of sociology of education, and in particular, within the Bernsteinian tradition of conceptualizing the curriculum. Bernstein's theory of curriculum has been proven to be remarkably useful in unravelling the complex relationship between curriculum, knowledge, and social orders (Bernstein, 1971, 1976, 2000). It has informed and inspired numerous research programmes that examine how curriculum and pedagogic practice, by way of sets of regulative principles and codes pertaining to the selection, classifying, and framing of knowledge, are inextricably connected with issues of political power and social control.[3] However, as far as the making of a knowledge-rich curriculum is concerned, Bernstein's theory has inherent issues and limitations. The theory, after all, is developed for the purpose of *explaining* the curriculum in relation to issues of social power and control—rather than *making* the curriculum for educative purposes. To this end, Bernstein linked the curriculum to the task of the 'formal transmission of educational knowledge' and focused on 'knowledge codes' or 'underlying principles which shape curriculum, pedagogy and evaluation' (Bernstein, 1976 p. 85).

There is, then, a need to go beyond the Bernsteinian tradition and examine alternative approaches to articulating a knowledge-rich curriculum. In what follows I turn to Lambert's capabilities approach and *Bildung*-centred *Didaktik*, both of which construe the development of human capabilities or powers as the central purpose of education, both of which are centrally concerned with the making of a curriculum for educative purposes.

Capabilities, epistemic quality, and a knowledge-rich curriculum

The capabilities approach, developed by geography educator David Lambert, is informed by the theory of human development of Sen and Nussbaum, according to which the central aim of education is human development and flourishing through the expansion of human capabilities (Nussbaum, 2013; Nussbaum & Sen, 1993; Sen, 1985). The term *capabilities* signifies what people can actually be and do, including 'the different combinations of human functionings that can be achieved by people, groups, or both' (Lambert et al., 2015, p. 724). The development of human capabilities is seen as inextricably tied up with the Bernsteinian notion of the pedagogic rights of young people to individual enhancement, social inclusion, and political participation (Lambert, 2014b; Lambert et al., 2015). Furthermore, informed by Young and Muller's theory of powerful knowledge, Lambert asserted that the development of human capabilities entails 'initiating' individual students into various forms and fields of specialized knowledge represented by academic disciplines. Without the acquisition of specialized knowledge, students 'are deprived and restricted in their personal and intellectual growth into fully capable adults' (Lambert, 2014b, p. 13).

Using the capabilities approach as a framework, Lambert envisioned a Future 3 curriculum in which knowledge is 'deemed to be necessary in developing human agency and potential' (Lambert, 2017, p. 141). The role of geographical knowledge in the curriculum is in terms of contribution to 'the development of human potential and well-being both as individuals and members of a society' (Lambert et al., 2015, p. 724)—the central aim of education. Lambert identified a set of geo-capabilities which, developed through learning to think geographically, can contribute to this central aim. It includes an ability to 'think about themselves in the world, and about the changing relationship human beings have with the environment', and a disposition to take 'environmental and global responsibility', among others (Lambert & Solem, 2017, p. 8).

The development of geo-capabilities is predicated on the acquisition and development of powerful geographical knowledge (Lambert & Solem, 2017; Lambert et al., 2015). Lambert made a 'progressive' case for the Future 3 curriculum that foregrounds 'the emancipatory power and purpose of education in initiating all young people into forms and fields of specialised knowledge and powerful thought' (Lambert, 2016, p. 392). The envisaged Future 3 curriculum is *knowledge rich* because the epistemic quality of what is taught is ensured for all students by grounding it in powerful disciplinary knowledge. The concept of *epistemic quality*, borrowed from Brian Hudson, refers to the quality of 'what the students are expected to know, understand and be able to do' (Hudson, 2018, p.388; also Hudson et al., 2015; Hudson, 2019, 2022). The Future 3 curriculum is characterized by high epistemic quality because knowledge is seen as developed within the geographical communities of researchers, with the employment of epistemic rules and methods of enquiry (Lambert, 2018). This knowledge consists of 'distinctive perspectives, methods and ways of thinking' which 'are never static nor fixed, but dynamic and evolving' (Lambert, 2018, p. 27). Students are supported to develop: (1) 'A deep descriptive world knowledge'; (2) 'A critical conceptual knowledge that has explanatory power and systematicity, providing a relational understanding of people living on the planet'; and (3) 'A propensity to think through alternative social, economic, and environmental futures in specific place and locational contexts' (Lambert et al, 2015, p. 732). This curriculum is in stark contrast with the Future 1 curriculum (as exemplified by the 2014 revised National Curriculum) which is of low epistemic quality, in which knowledge is treated as certain, infallible, absolutist and authoritarian (Hudson, 2022; Lambert, 2018). It is also in direct opposition to the Future 2 curriculum (as promoted by OECD and EU) centred on the teaching of generic competences (Lambert, 2016).

Teachers are viewed as 'curriculum makers' who, by means of their disciplinary knowledge, interpret and transcend the National Curriculum to create 'educational encounters' that can take students beyond their everyday experience and develop their capabilities (Lambert, 2014a, 2014b; Lambert et al., 2015). The realization of the Future 3 curriculum calls for 'Future 3 curriculum thinking' centred on the 'what' and 'why' questions around teaching. They are to identify 'the powerful disciplinary knowledge in what they teach' and understand the 'potential and possibilities' of geography contributing to the development of human agency and potential (Lambert, 2018, p 30, 2014b, p. 731). Teachers also need to engage with the 'who' question, understanding what 'naïve knowledge' and 'everyday experiences' students bring to a classroom—knowledge and experiences that can be meaningful resources for acquiring powerful disciplinary knowledge (Lambert et al., 2015). They, too, need to grapple with the 'how' question, determining 'pedagogical techniques that are fully fit for purpose' (Lambert & Solem, 2017, p. 8).

In two respects this model of a knowledge-rich curriculum goes beyond the one advocated by Young noted earlier. First, Lambert construes the central purpose of education as the development of human agency and potential rather than merely the transmission of knowledge. Accordingly, he conceives the role and significance of disciplinary knowledge, not in and of itself, but in relation to this central purpose. Second, this model of curriculum is future-oriented, with a central concern for the being and becoming of students in the future world by equipping them with capabilities.

However, there are two issues that require attention. With an exclusive focus on curriculum making in classrooms, Lambert in effect suggests that teachers can bypass the purpose and substance of school geography delineated in the National Curriculum framework (see, Lambert & Hopkin, 2014, p. 64; also Deng, 2018). They are 'to remake and recontextualise the curriculum', using powerful disciplinary knowledge as an important tool (Rawling, 2020, p. 69). This is understandable given the fact that the 2014 revised National Curriculum, heavily influenced by E.D. Hirsch as mentioned earlier, has been inadequately developed, with low epistemic quality. Teachers are thus in effect 'being asked to compensate for poor curriculum development decisions at national or sub-national level' (Rawling, 2020, p. 72). However, what is

overlooked is the necessity of addressing issues concerning the development of a national curriculum framework and the attendant work of classroom teachers towards the development of capabilities. For example, how would geography as a school subject—in the form of a national curriculum framework and related guidelines—be formulated in a way that is directed towards the development of capabilities and supports curriculum making in classrooms? How would teachers interpret and translate the content of a school subject—embodied in such a national curriculum framework—in a way that contributes to the central goal?

Another issue pertains to the incompatibility of Sen and Nussbaum's theory of human development and Young and Muller's theory of powerful knowledge—two theoretical underpinnings of Lambert's capabilities approach. Viewed in the perspective of European educational thinking, Sen and Nussbaum's theory is a kind of *formal Bildung theory* that prioritizes the cultivation of human capabilities over and above the teaching of knowledge content. Conversely, Young and Muller's theory of powerful knowledge—together with its translation into curriculum making and classroom teaching—represents a kind of *material Bildung theory* that foregrounds the transmission of knowledge over and above the development of capabilities (see Meyer et al., 2017; Willbergh, 2016). How these two competing theories can be reconciled does not seem to be a concern of Lambert. Following Young and Muller, he seems to posit that the acquisition of powerful disciplinary knowledge will lead to the possession of capabilities.

However, the teaching of knowledge does not necessarily or automatically give rise to the development of human capabilities. Bringing the two together requires a particular *Didaktik* (or curriculum) way of conceiving the significance of knowledge, of selecting and organizing knowledge into the content of a school subject, and of unlocking the educational potential of content in classrooms. These ways can be found in *Bildung*-centred *Didaktik* which is predicated on a reconciliation between material and formal *Bildung* theories.

Bildung, educational potential, and a knowledge-rich curriculum

While its intellectual root can be traced back to ancient times (Plato: Meno), *Didaktik* was formally established around the 1800s in Germany, with significant influences from Comenius, Herbart, Schleiermarcher, and many others (Hopmann, 2007). The establishment of *Didaktik* as a discipline is inextricably connected with the implementation of mass schooling in Germany during the late nineteenth and early twentieth century and has to do with the rise of state-based curriculum making and teacher education. *Didaktik* shows how to construct state curriculum guidelines and how to translate the guidelines into classroom teaching (Hopmann, 2007; Hopmann & Riquarts, 1995).

Among many branches or schools, *Bildung*-centred *Didaktik* has had an enduring impact on classroom practice and teacher education in Continental Europe (Gundem, 2000). It positions *Didaktik* within the realm of human sciences (Geisteswissenschaften)—rather than natural sciences (Naturwissenschaften)—with the employment of a phenomenological and hermeneutical approach in accordance with *human science pedagogy* ('geisteswissenschaftliche Padagogik') developed by Wilhelm Dilthey (Klafki, 2000). At the heart of *Bildung*-centred *Didaktik* are three essential ideas—(1) *Bildung*, (2) a theory of content, and (3) teaching as an encounter between content and students.

Bildung

As a distinctively German notion of what education is, *Bildung* refers to the full formation of the individual through the development of intellectual and moral capabilities and cultivation of dispositions or virtues such as sensibility, self-awareness, liberty and freedom, and dignity (von Humboldt, 2000; Lüth, 2000; also Hopmann, 2007). To obtain *Bildung*, the individual seeks to 'grasp as much [of the] world as possible' and to make a contribution to humankind through developing his or her own unique potential (von Humboldt, 2000). The world, independent of human thinking and practice, is processed by diverse forms of human thought and experience represented by various academic

disciplines (humanities and sciences) and fields of specialized knowledge (Lüth, 2000; von Humboldt, 2000). These disciplines and fields, each of which embodies a particular way of knowing, inquiring and interacting with the world, have potential for developing *human powers* which, broadly construed, encompasses understanding, capabilities, dispositions, and ways of thinking.

This notion of *Bildung* itself points to a way of bringing together material formation and formal formation theories. Academic disciplines and fields constitute an indispensable resource for developing human powers and must be 'used in the service of intellectual and moral *Bildung*' (Lüth, 2000, p. 77). Through interacting with various forms of knowledge, individuals can develop their understanding of themselves and the world and strengthen their human powers, thus achieving *Bildung*. The role of knowledge is conceived as:

- a means of expressing, exercising and intuiting powers;
- a potential stimulus for human development;
- a counterpart to mark out the boundaries of the individual; and
- a means of objectivizing ideas and powers in order to leave traces in the world. (Lüth, 2000, p. 77)

In other words, knowledge is a vehicle for developing human powers—not something to be taught for its own end. What knowledge is important is not determined by the intrinsic value of knowledge but its contribution to *Bildung*. Therefore, there is a need to explore the contributions various forms of specialized knowledge can make to *Bildung*, that is, to the development of human powers—a necessity that is also alluded to by Lambert concerning the development of capabilities note above.

A theory of contents

In *Didaktik content*, rather than *knowledge* per se, is used to conceptualize what is selected into the curriculum. A theory of contents (*Theorie der Bildungsinhalte*) can be identified from Klafki's theory of categorical *Bildung* which entails a reconciliation of material and formal formation theories (Klafki, 2000; Meyer et al., 2017). This theory can be seen as consisting of five interrelated concepts—*contents of education* (*Bildungsinhalte), educational potential* (*Bildungsmoglichkeite), educational substance* (*Bildungsgehalt*), the *elemental* (*das Elementare*), and the *fundamental* (*das Fundamentale*)—which serve to translate *Bildung* into state curriculum planning and classroom teaching.

Contents result from a deliberative process of selection and organization of the wealth of academic knowledge, experience and wisdom for *Bildung*. The deliberation is 'made in a particular historical situation and with specific groups of children in mind' (Klafki, 2000, p. 150). Such contents, set aside for teaching, are assumed by curriculum designers as embodying *educational potential* for *Bildung*:

> . . . these contents, once the children or adolescents have internalized and thus acquired them, would enable them to 'produce a certain order' (Litt) in themselves and at the same time in their relation to the world, to 'assume responsibility' (Weniger), and to cope with the requirements of life, and take the free chances of life. The contents of teaching and learning will represent such order, or possibilities for such order, such responsibilities . . . (p. 150)

On this account, educational potential refers to the *possibilities* that contents can bring about for *Bildung*.

The notion of educational potential is inextricably intertwined with the concept *educational substance*. To search for the educational substance of a content is to ask what 'educating *(bildend)* potential the content is reckoned to have (e.g. by curriculum authors, teachers) and how this potential can be realized' (Klafki, 2000, pp. 142, Translator's note 3). This question, according Klafki,

needs to be answered 'with reference to the particular children and adolescents who are to be educated' and 'with a particular human, historical situation in mind with its attendant past and the anticipated future' (p. 148).

Contents of education and educational substance are further theorized in terms of the elemental and the fundamental. Standing for the objective side of a content, the elemental refers to essential categories (concepts, principles, values, methods) which 'are so basic, so essential and so broad (categories) that they serve to encompass a whole range of phenomena in the world' (Willbergh, 2016, p. 115). The fundamental, representing the subjective side of the content, denotes the possible impact of the content—by virtue of the elemental—on the perspectives, capabilities, dispositions and ways of being-in-the-world of students (Krüger, 2008). *Bildung* is achieved through a 'dialectical unity' between the elemental and the fundamental, between the objective and subjective sides of the content. And, it requires a double opening up. By virtue of the elemental, the content opens up a world of possibilities of development and growth to students and, at the same time, students open themselves to the world of possibilities being opened up (Hopmann, 2007; Willbergh, 2016). In other words, by way of the ideas of the elemental, the fundamental, and double opening up, material *Bildung* (the acquisition of knowledge) and formal *Bildung* (the development of capabilities) are brought together in a dialectic, reciprocal manner.

Teaching as a 'fruitful encounter' between content and student

Informed by such a theory of contents, the state curriculum guideline *(Lehrplan)* only lays out school subjects and their contents which are reckoned to have potential in terms of *Bildung*. It does not specify educational substance, meaning, and significance—which are to be interpreted and unpacked by teachers through *Didaktik* analysis (Hopmann, 2007; Klafki, 2000). Teachers are entrusted with a high level of professional autonomy to interpret the state curriculum guideline. They are viewed as curriculum makers 'working within, but not directed by' the state curriculum framework, informed by the idea of *Bildung* and the *Didaktik* way of thinking (Westbury, 2000).

Teaching is construed as a 'fruitful encounter' between content and students (Copei)—rather than a mere transmission of knowledge (Klafki, 2000). The teacher unlocks the potential of content by tackling its educational substance, i.e. by analysing and unpacking its meaning and significance in terms of *Bildung*. He or she also opens up the 'potential' of specific students in class to experience what is opened up to them. In classrooms the (enacted) curriculum is *knowledge-rich* in terms of the potential—a world of possibilities—which content is made to open up for *Bildung*, as will be seen in Klafki's model of *Didaktik* analysis discussed below.

Towards a future-oriented, knowledge rich curriculum

I now discuss what a future-oriented, knowledge-rich curriculum entails in a way that builds upon but goes beyond Young and Muller's theory of powerful knowledge. The discussion focuses on three constituent aspects of the curriculum—concerning (1) the purpose of education, (2) the content selection and organization of a school subject, and (3) classroom teaching.

Formation of the individual as the central goal

Curriculum is a teleological practice. It is 'intentional' because it 'has its raison d'etre in its ends-in-view' (Westbury, 1972). A distinctive purpose of schools, as Young (2009) has rightfully argued, is the transmission of disciplinary knowledge that students cannot acquire at home. Through their passing on disciplinary knowledge to the next generations, schools fulfil an important role in 'reproducing human societies' and 'providing the conditions which enable them to innovate and change' (p. 10). This purpose, nevertheless, needs to be seen as inextricably intertwined with another (arguably) more fundamental purpose that, from the

perspective of *Bildung*, is the formation of independent and responsible individuals for 'a future that is not yet known' (Uljens & Ylimaki, 2017, p. 13). The formation as such calls for the cultivation of human powers which include, not least, self-determination, imagination, critically reflected action, and a sophisticated and informed understanding of the world (Uljens & Ylimaki, 2017; Willbergh, 2016). The set of powers can be extended to include many of those so-called twenty-first-century competences such as communication, problem solving, critical thinking, creativity, learning to learn, and intercultural capability (Carlgren, 2005; Willbergh, 2016). In other words, a knowledge-rich curriculum needs to be future-oriented because it is concerned with not only the present question of 'what should they [students] know?' but also the future question of 'what should they [students] become?' (Hamilton, 1999, p. 136).

School subjects, properly conceived, have immense potential for contributing to human powers. Mathematics can, as Lyakhova et al. (2019) observed, 'develop learners' creativity to transcend what we see and what has existed hitherto, to imagine/develop/discover new realities'. It can cultivate the ability 'to operate with things that do not physically exist', 'to know the reasons for making one or other decision or adapting one or other view'. Furthermore, mathematics 'develops resilience and encourages learners to recognise their ability to learn, and want to continue to learn, throughout their lives' (p. 519). Geography can contribute to the development of a set of powers alluded to by Young and Muller in their theory of powerful knowledge—in terms of being able to:

- discover new ways of thinking
- better explain and understand the natural and social worlds
- think about alternative futures and what they could do to influence them
- have some power over their own knowledge
- be able to engage in current debates of significance, and
- go beyond the limits of their personal experience. (Maude, 2017, p. 30)

School history, Nordgren and Johansson (2015) argued, can contribute to the goal of cultivating students' intercultural competence—comprised by an understanding of social and cultural processes, an ability 'to interpret representations from other cultures', 'to relate these to representations of one's own culture', and 'to decentre' (p. 7).

However, the contribution of a school subject does not come automatically; it calls for a deliberate and purposeful approach to the selection and organization of content.

The selection and organization of content

When the development of human powers is of central concern, the selection and organization of the content of a school subject cannot be reduced to the matter of 'recontextualising' an academic discipline into a school subject as seen by Young and his colleagues. The construction of a school subject entails identifying (and selecting) content in view of the potential for developing human powers and organizing the content in a way that the potential can be realized in classrooms. It calls a theory of content—a *Didaktik* or curricular way of elaborating (or theorizing) content—concerning what content is, what potential content has, and how the potential can be actualized (Deng, 2009; Doyle, 2008).

The above points can be illustrated by looking at the work of Alaric Maude who has explored how the content of school geography can be selected and organized in a way that contributes to the development of human powers (Maude, 2017, 2021). Five types of geographical disciplinary knowledge are identified which have potential for developing the five kinds of powers noted above:

- knowledge that provides students with 'new ways of thinking about the world';
- knowledge that provides students with powerful ways of analysing, explaining and understanding;

- knowledge that gives students some power over their own geographical knowledge;
- knowledge that enables young people to follow and participate in debates on significant local, national and global issues; and
- knowledge of the world (Maude, 2018, pp. 181–183)

These five types of knowledge form a set of criteria for content selection.

Furthermore, he identified four key concepts—*place, space, environment,* and *interconnections*—which provide 'anchors' for the organization of content. These concepts are further divided into several secondary concepts—*interdependence, spatial interaction, processes, flows*, and *system*. The four key concepts, together with their secondary concepts, provide 'ways of thinking about the world, prompts to the questions to ask about this world, guides to the conduct of an inquiry or investigation, and frameworks for analysis and explanation' (Maude, 2021, p. 28). Furthermore, each of these concepts is 'disaggregated' into a number of 'second-level', 'increasingly abstract' generations that call for 'factual studies' that progressively lead students to higher levels of thinking and more sophisticated ways of knowing. The five types of knowledge and the body of key and secondary concepts, together with their disaggregations, constitute a theory of content that supports the selection and organization of content in geography for developing human powers.

Another illustrative case is found in the work of Nordgren and Johansson (2015)—concerning content selection and organization in school history for intercultural learning, with a central concern for cultivating the intercultural competence noted above. They embrace a broader conception of school history—that encompasses the ideas of 'history as consciousness, as culture and as use' (p. 4)—and expand content to include 'popular manifestations and people's everyday assumptions about the past, as well as expert narratives' (p. 3). Three kinds of historical content are identified that have potential for intercultural learning:

- A content that considers cultural encounters and impact of migration as central components of historical narratives.
- A content that opens up a diversity of perspectives and voices from different cultures, and where the 'others' enter the historical narratives as agents with voices of their own.
- A content that makes learners alert to their own historical cultures, cultures that create feelings of belonging and legitimize value and judgements. (p. 8)

Furthermore, content is organized around *cultural encounters* and *migration* which are 'trans-historical phenomena for understanding the whole of human history' (Nordgren, 2021, p. 190). This way of elaborating (or theorizing) content, as will be seen below, is designed to support cross-curricular and interdisciplinary activities in classrooms in a way that school history can be made to open up a wealth of possibilities for cultivating intercultural competence.

The selection and organization of content centred around issues and themes finds strong support from Klafki. In critical-constructive *Didaktik* (a later development of *Bildung*-centred *Didaktik*), Klafki advocated for the use of 'epochal key problems' as a key frame of reference for content selection and organization. Such problems include peace issues, environmental problems, societal inequity within and across nation-states, hazards and possibilities of information and communication technology, and experiences with love and sexuality. The exploration of these problems, which requires perspectives from multiple disciplines and sources, yields possibilities for students to acquire 'state-of art knowledge' which equips them 'to handle complex societal issues today and in the future' (Bladh et al., 2018, p. 400). It, too, brings about possibilities for them to cultivate self-determination, co-determination and solidarity, among other human powers (Klafki, 1998).

It is important to note that content selection and organization, vital to the syllabus formation of school subjects, is a sophisticated task of curriculum making at the institutional level. It is often undertaken by policymakers, curriculum specialists, and subject specialists from the Department or Ministry of Education. Properly constructed, a school subject—in the form of curriculum frameworks, syllabuses, guidelines—can provide guidance and support to teachers in actualizing the potential of the subject in classrooms—a point to which I will return.

Teaching as unlocking the educational potential of content

At the classroom level a teacher is a curriculum maker because he or she interprets and transforms what is in the institutional curriculum into instructional events—i.e. the enacted curriculum. Those instructional events are fundamentally *curricular* because a piece of content is being interpreted and transformed for educative purposes (Doyle, 1992b). At the heart of curriculum making is the process of interpretating and unpacking the meaning and significance of the content to unlock its educational potential.

Based on the work concerning the formation of school history for intercultural learning noted above (Nordgren & Johansson, 2015), Nordgren (2021) articulated a model which can be used by teachers to interpret and unpack the educational meaning and significance of migration and cultural encounters. Teachers are to:

- Explore how migration and cultural encounters are interwoven in the period or event being studied and open up the diversity of voices associated with it. Explore how the students themselves are part of historical cultures.
- Interpret history as a collection of sources from different cultures and times, examine explanations and concepts used during that period or event, and assess how they relate to meta-narratives in our historical culture.
- Explore how different cultures have used history to define themselves and how history is used in contemporary public life, and use history to historicize the contemporary multicultural context. (pp. 187–188).

In the process of interpretation and unpacking teachers need to draw on their specialized knowledge of history, political and public discourses, and students' lived experience. They are to utilize 'the gaze of historical specialisation to process the values and questions which emerge from the horizontal discourse of multicultural society' and 'the questions and values from multicultural society to re-evaluate what is significant within the vertical discourse of historical knowledge' (p. 188). They also 'need to be open to the fact that such intersections can challenge norms and traditions within both vertical and horizontal discourses' (p. 188). Through such interpretating and unpacking, teachers unlock the immense potential inherent in the topics 'migration' and 'cultural encounters' for students to develop intercultural competence.

Klafki's (2000) model of *Didaktik* analysis, developed based upon his theory of categorical *Bildung* introduced above, remains useful today as far as the interpretation and unpacking of the meaning and significance of content is concerned. The model consists of a five-step set of questions that serves to guide teachers in unlocking the educational potential of a piece of content in a classroom context:

(1) *Exemplary significance*. What wider or general sense or reality does this content exemplify and open up to the learner? What basic phenomenon or fundamental principle, what law, criterion, problem, method, technique, or attitude can be grasped by dealing with this content as an 'example'?

(2) *Current significance*. What significance does the content in question, or the experience, knowledge, ability, or skill, to be acquired through this topic, already possess in the minds of the children in my class? What significance should it have from a pedagogical point of view?
(3) *Future significance*. What constitutes the topic's significance for the children's future?
(4) *Content structure*. How is the content structured (which has been placed in a specifically pedagogical perspective by questions 1, 2, and 3)?
(5) *Pedagogical representations*. What are the special cases, phenomena, situations, experiments, persons, elements of aesthetic experience, and so forth, in terms of which the structure of the content in question can become interesting, stimulating, approachable, conceivable, or vivid for children of the stage of development of this class? (pp. 151–157).

The model prioritizes the exploration of the educational potential of content by interpreting its meaning and significance with respect to *Bildung* within an instructional context (Questions 1, 2 and 3). The search for the means of realizing the potential—in terms of content structure and pedagogical representations—only follows, and needs to be informed by, the exploration (Questions 4 & 5).

Bladh (2018) employed Klafki's model to help student teachers learn how to explore the potential of content in school geography for geographical and relational thinking capabilities. Student teachers were presented with such a task:

> Select two sorts of food from your household – one from Sweden and one from outside of Europe. Describe the food's journey "from cradle to grave" as accurately as you can. Draw its trajectory and give an overall view of the food' production /consumption /destruction flow. What impacts (direct and indirect) do the different stages in the food's life cycle have on the landscape, environment, people and society? (p. 215)

This task constitutes a 'pregnant case' (Krüger, 2008)—a way to introduce geographical events and actions and make visible complex relations of space, nature and society for school students.

To explore the educational potential of the content involved, teachers draw on specialized subject knowledge—i.e. the 'world-view' and 'notation-system' of time-geography[4]—to unpack the educational meaning and significance. In terms of exemplary significance (Question 1), the unpacking allows teachers to see abundant possibilities the task can open up for 'thinking geographically' and 'extending geological capabilities'. The discussion of the 'foodstory' calls for various facets of relational and geographical thinking involving the use of central concepts such as landscape, place, space, environment, and scale. The exploration of various aspects of the food-path leads to the formulation of various case studies which, in turn, requires 'deep descriptive and explanatory "world knowledge"' (p. 215). In terms of current and future significance (Questions 2 &3), the unpacking allows teachers to see the opportunities for engaging students in three sets of sustainability issues: (1) 'resource conflicts, indirect land use changes, ecological footprints and environmental justice'; (2) 'geographical divisions of labour, consumption patterns, fair trade and moral economies'; and (3) 'food, climate change and possible sustainable futures in a changing Anthropocene world' (Bladh, 2018, p. 215). Issues as such call for interdisciplinary approaches to overcome subject boundaries. The exploration of these issues can bring about possibilities for students to develop an ability to think ecologically about nature, society, and people, a capacity to make informed decisions and changes towards a more sustainable world, and a disposition towards environmental and social justice.

In both Nordgren's and Klafki's model, teachers are supposed to draw upon specialized, disciplinary knowledge in interpreting and unpacking the educational meaning and significance of content. The fundamental task of teachers is *not* the one of transferring disciplinary knowledge to students *but* the one of using disciplinary knowledge as a tool for unlocking the educational potential of a piece of content. Teachers are concerned with how the content can be made to open up a wealth of possibilities for students to develop human powers.

Conclusion and discussion

Informed by and going beyond Young and Muller's theory of powerful knowledge, I have advanced a model of a knowledge-rich, future-oriented curriculum by invoking Lambert's capabilities approach and *Bildung*-centred *Didaktik*. The curriculum is *knowledge-rich* in three respects. First, the curriculum is animated and informed by a vision of education centrally concerned with the cultivation of human powers predicated on the contribution of knowledge. Second, the construction of a school subject—in the form of curriculum frameworks, syllabuses, and guidelines—entails selecting and organizing content in terms of educational potential and its realization in classrooms. Third, classroom teaching entails unlocking the educational potential of the content of a school subject—the possibilities for developing human powers. The curriculum is *future-oriented* in the sense that it aims at the formation of autonomous and responsible individuals who can thrive and flourish in the present and future world.

The work presented in this article is only an initial attempt. More efforts are needed. This article brings to the fore three areas of work—both research and development—that are necessary for the making of a knowledge-rich curriculum within the context of an institutional (national) curriculum. First, in the policy arena there is a need to articulate a vision of education centrally concerned with the cultivation of human powers in today's and future context and to explore the contribution of knowledge to the cultivation. What does it mean to be an autonomous and responsible individual who is actively participating in and interacting with the current and future world characterized by transnational economies, an ever-increasing rate of information exchange and mobility, rapid developments of new technologies, uncertainty, climate change, human-induced environmental disasters, and wars, among others? What intellectual, emotional, moral, social, cross-cultural, and technological powers would he or she need to develop to become free and independent individual and to face the challenges of the world? How and in what ways would academic disciplines and specialized fields contribute to the development of such powers?

To ask such questions is also to invite policymakers, curriculum developers, and educationalists to conceive the purpose of education beyond the conventional, taken-for-granted view that is centred on access to or acquisition of knowledge in relation to academic achievement and social mobility. Such a view has permeated debates over the National Curriculum in England (see, Morgan, 2015; Whitty, 2018; Wrigley, 2018). Inextricably intertwined with the teaching of knowledge is another equally important purpose of education—the formation of individuals through the cultivation of human powers—that is vital to preparing students for the current and future world. The recognition of this important purpose calls for an understanding of what students should become and what powers they need to develop in the 21st century and beyond. It too calls for a recognition that specialized and disciplinary knowledge is not something taught for its own end *but* a powerful resource/vehicle for developing human powers. The challenge is to explore what contributions academic disciplines and specialized fields can make for the cultivation for *all* students and how the contributions would be actualized by way of programmatic and classroom curriculum making.

The second area of work concerns the formation of a school subject at the programmatic or institutional level and within the context of a national curriculum. What are the knowledges that have potential for contributing to human powers? How would those knowledges be selected and organized into the content of a school subject within the institutional curriculum? How would a school subject—in the form of curriculum frameworks, syllabuses, and guidelines—be formulated in a way that supports—rather than constraints—curriculum making in classrooms so as to unlock and actualize the potential of the subject? How would curriculum frameworks, syllabuses, and guidelines be designed in a way that provides teachers with a relative degree of professional autonomy in interpreting and enacting what is contained in the institutional curriculum?

To ask these questions is to regard the formation of a school subject as a unique educational undertaking underpinned by curriculum or *Didaktik* thinking—rather than a technological task, as seen in the 2014 revised National Curriculum in England, of specifying

a list of basic knowledge that all students need to acquire. A school subject can function as an 'intervention' introduced to classrooms which goes beyond regulating the transmission of content and induces a transformative impact on the formation and becoming of students (Deng, 2009). The formation of such a school subject, undertaken at the institutional or programmatic level, calls for *Didaktik* or curriculum thinking centred on what content is, what potential content has, and how the potential can be unlocked in classrooms for cultivating human powers (Deng, 2009; Doyle, 2008). It results from a deliberative process of curriculum making embedded in a complex web of considerations pertaining to the four curriculum commonplaces—the subject matter, the learner, the teacher, and the milieu (Schwab, 1973). Such a formation of a school subject is integral to the development of curriculum frameworks, syllabuses, and guidelines which, properly designed, can enable and support teachers' professional interpretation of the institutional curriculum and face-to-face-interaction in classrooms (see, Luke et al., 2013). Yet, the necessity of developing sound, well-designed national curriculum frameworks in the current 'knowledge-turn', as alluded to earlier, has not received attention from educationists and curriculum researchers in England (Rawling, 2020).

The third area concerns the work of teachers in classrooms. How would teachers interpret and translate the content of a school subject in the institutional curriculum into instructional events, tasks and discourses that render a wealth of possibilities for students to develop human powers? How would they facilitate and support students' encounters with content in a way that students 'open up themselves' to the possibilities rendered? What do teachers need to know and be able to do to unlock the potential in content to bring about such encounters? What would be the curriculum or Didaktik models or frameworks that can provide teachers with guidance and support in their curriculum work in classrooms, and how would such models or framework be developed?

Questions like these call for a shift in perspective from 'teachers as curriculum deliverers' to 'teachers as curriculum makers' within the context of an institutional curriculum. Curriculum making is not in the sense that teachers bypass what is contained in the institutional curriculum to 'remake and recontextualise the curriculum' as noted earlier (Rawling, 2020). Rather, it is in the sense that they, through interpreting and transforming the purpose and content of a school subject in the institutional curriculum, 'author' curricular/pedagogical events—the classroom curriculum (Doyle, 1992). Teachers thus act as the 'intermediaries' between the institutional (national) curriculum and the classroom curriculum (Reid, 2006). Such questions as well challenge us to go beyond seeing teaching as passing on or providing access to knowledge to students and conceive of teaching as a content-students encounter which can bring about a transformative impact on the formation of students. On this conception, specialized and disciplinary knowledge is drawn upon not for the purpose of knowledge transmission—but for the goal of developing human powers.

The discussion above by no means exhausts the kinds of research and development work needed. It is only intended to stimulate and provoke further discussion and inquiry. I hope that there will be more works concerning the making of a knowledge-rich curriculum within the context of a national curriculum, across the policy, the programmatic or institutional, and the classroom arenas.

Notes

1. The model consists of four aspects: (1) 'Select and sequence the concepts'; (2) 'Connect concepts to content'; (3) 'Connecting "knowledge-that" to "knowledge-how"'; and (4) 'Evaluating "knowledge-that" and "knowledge-how"'.

2. In addition to the academic purpose (passing on bodies of disciplinary knowledge to future generations), schools serve *economic* (preparing students for jobs), *cultural and social* (socializing students into social and cultural orders), and *educational* (fostering students' self-actualization and development) purposes, all of which require the teaching of knowledge—including disciplinary knowledge (Deng & Luke, 2008; also Deng, 2020).
3. For a review of such research programmes, see, Goodson (1995), Sadovnik (2001), and Whitty (2018)
4. Time-geography is 'an evolving transdisciplinary perspective on spatial and temporal processes and events such as social interaction, ecological interaction, social and environmental change, and biographies of individuals'. It 'is not a subject area per se, but rather an integrative ontological framework and visual language in which space and time are basic dimensions of analysis of dynamic processes' ('Time geography', n.d)

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References

Alderson, P. (2020). Powerful knowledge and the curriculum: Contradictions and dichotomies. *British Educational Research Journal*, *46*(1), 26–43. https://doi.org/10.1002/berj.3570

Arnold, M. (1993). Culture and anarchy and other writings. Cambridge: Cambridge University Press (Original work published in 1869).

Bernstein, B. (1971). On the classification and framing of educational knowledge. In M. Young (Ed.), *Knowledge and control: New directions for the sociology of education* (pp. 47–69). Collier Macmillan.

Bernstein, B. (1976). *Class, codes and control* (Vol. 3). Routledge.

Bernstein, B. (2000). *Pedagogy, symbolic control, and identity*. Rowman & Littlefield.

Bladh, G., Stolare, M., & Kristiansson, M. (2018). Curriculum principles, didactic practice and social issues: Thinking through teachers' knowledge practices in collaborative work. *London Review of Education*, *16*(3), 398–413. https://doi.org/10.18546/LRE.16.3.04

Bladh, G. (2020). GeoCapabilities, Didaktical analysis and curriculum thinking–furthering the dialogue between Didaktik and curriculum. *International Research in Geographical and Environmental Education*, *29*(3), 206–220. https://doi.org/10.1080/10382046.2020.1749766

Carlgren, I. (2005, September). *The content of schooling: From knowledge and subject matter to knowledge formation and subject specific ways of knowing*. *Paper presented at the meeting of European Conference on Educational Research*, University College Dublin, Ireland.

Deng, Z. (2007). Knowing the subject matter of a secondary-school science subject. *Journal of Curriculum Studies*, *39*(5), 503–535. https://doi.org/10.1080/00220270701305362

Deng, Z., & Luke, A. (2008). Subject matter: Defining and theorizing school subjects. In F. M. Connelly, M. F. He, & J. Phillion (Eds.), *The Sage handbook of curriculum and instruction* (pp. 66–87). Sage.

Deng, Z. (2009). The formation of a school subject and the nature of curriculum content: An analysis of liberal studies in Hong Kong. *Journal of Curriculum Studies*, *41*(5), 585–604. https://doi.org/10.1080/00220270902767311
Deng, Z. (2012). School subjects and academic disciplines: The differences. In A. Luke, K. Weir, A. Woods, & M. Moroney (Eds.), *Curriculum, syllabus design and equity: A primer and model* (pp. 40–73). Routledge.
Deng, Z. (2018). Pedagogical content knowledge reconceived: Bringing curriculum thinking into the conversation on teachers' content knowledge. *Teaching and Teacher Education*, *72*, 155–164. https://doi.org/10.1016/j.tate.2017.11.021
Deng, Z. (2020). *Knowledge, content, curriculum theory and Didaktik: Beyond social realism*. Routledge.
Department for Education (DfE). (2010). *The importance of teaching*. HMSO. Retrieved 3 June 2022, from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/175429/CM-7980.pdf
Doyle, W. (1992). Constructing curriculum in the classroom. In F. K. Oser, A. Dick, & J. Patry (Eds.), *Effective and responsible teaching: The new syntheses* (pp. 66–79). Jossey-Bass.
Doyle, W. (2008). Competence as a blurred category in curriculum theory. *Paper presented at the conference "Research on vocational education and training for international comparison and as international comparison". Georg-August-Universität*, Göttingen, Germany.
Eaglestone, R. (2020). 'Powerful knowledge','cultural literacy'and the study of literature in schools. *Impact*, *2020*(26), 2–41. https://doi.org/10.1111/2048-416X.2020.12006.x
Gibb, N. (2015). How ED Hirsch came to shape UK government policy. In J. Simons & N. Porter (Eds.), *Knowledge and the curriculum* (pp. 12–22). Policy Exchange.
Gibb, N. (2018). School standards minister at researched. school standards minister Nick Gibb today (8 September) addressed researched at Harris secondary academy, St Johns Wood. *BMC Health Services Research*, *22*(1), Retrieved 3 June 2018, from https://www.gov.uk/government/speeches/school-standards-minister-at-researched
Gibb, N. (2021). Speech: Nick Gibb: The importance of a knowledge-rich curriculum: 21 July 2021. Retrieved 3 June 2022, fromhttps://www.gov.uk/government/speeches/the-importance-of-a-knowledge-rich-curriculum#:~:text=A%20broad%20and%20rich%20knowledge,debates%20that%20dominate%20public%20discourse
Goodson, I. F. (1995). Basil Bernstein and aspects of the sociology of the curriculum. In P. Atkinson, B. Davies, & S. Delamont (Eds.), *Discourse and reproduction* (pp. 121–136). Cresskill, New Jersey: Hampton Press.
Gundem, B. B. (2000). Understanding European didactics. In B. Moon, M. B. Peretz, & S. Brown (Eds.), *Routledge international companion to education* (pp. 235–262). Routledge.
Hamilton, D. (1999). The pedagogic paradox (or why no didactics in England?). *Pedagogy, Culture & Society*, *7*(1), 135–152. https://doi.org/10.1080/14681369900200048
Hirsch, E. D. (1987). *Cultural literacy: what every American needs to know*. Houghton Mifflin.
Hirsch, E. D. (2007). *The knowledge deficit: Closing the shocking gap for American children*. Houghton Mifflin.
Hopmann, S., & Riquarts, K. (1995). Didaktik and/or curriculum: Basic problems of comparative Didaktik. In S. Hopmann & K. Riquarts (Eds.), *Didaktik and/or curriculum* (pp. 9–40). IPN.
Hopmann, S. (2007). Restrained teaching: The common cores of *Didaktik*. *European Educational Research Journal*, *6*(2), 109–124. https://doi.org/10.2304/eerj.2007.6.2.109
Hudson, B., Henderson, S., & Hudson, A. (2015). Developing mathematical thinking in the primary classroom: Liberating students and teachers as learners of mathematics. *Journal of Curriculum Studies*, *47*(3), 374–398. https://doi.org/10.1080/00220272.2014.979233
Hudson, B. (2018). Powerful knowledge and epistemic quality in school mathematics. *London Review of Education*, *16*(3), 384–397. https://doi.org/10.18546/LRE.16.3.03
Hudson, B. (2019). Epistemic quality for equitable access to quality education in school mathematics. *Journal of Curriculum Studies*, *51*(4), 437–456. https://doi.org/10.1080/00220272.2019.1618917
Hudson, B. (2022). Teachers as curriculum makers for school mathematics of high epistemic quality. In B. Hudson, C. Olin-Scheller, M. Stolare, & N. Gericke (Eds.), *International perspectives on knowledge and quality: Implications for innovation in teacher education policy and practice* (pp. 145–166). Bloomsbury Academic.
Humboldt, W. V. (2000). Theory of *bildung*. In I. Westbury, S. Hopmann, & K. Riquarts (Eds.), *Teaching as a reflective practice: The German Didaktik tradition* (pp. 57–61). Erlbaum.
James, M., Oates, T., Pollard, A., & Wiliam, D. (2011). The framework for the national curriculum: A report by the expert panel for the national curriculum review. Retrieved 3 June 2022, from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/175439/NCR-Expert_Panel_Report.pdf
Karseth, B., & Sivesind, K. (2010). Conceptualising curriculum knowledge within and beyond the national context. *European Journal of Education*, *45*(1), 103–120. https://doi.org/10.1111/j.1465-3435.2009.01418.x
Klafki, W. (1998). Characteristics of critical constructive *Didaktik*. In B. B. Gundem & S. Hopmann (Eds.), *Didaktik and/or curriculum: An international dialogue* (pp. 307–330). Peter Lang.
Klafki, W. (2000). *Didaktik* analysis as the core of preparation. In I. Westbury, S. Hopmann, & K. Riquarts (Eds.), *Teaching as a reflective practice: The German Didaktik tradition* (pp. 139–159). Erlbaum.
Krüger, R. A. (2008). The significance of the concepts "elemental" and "fundamental" in didactic theory and practice. *Journal of Curriculum Studies*, *40*(2), 215–250. https://doi.org/10.1080/00220270701332267

Lambert, D. (2011). Reviewing the case for geography, and the 'knowledge turn' in the English national curriculum. *Curriculum Journal*, *22*(2), 243–264. https://doi.org/10.1080/09585176.2011.574991

Lambert, D., & Hopkin, J. (2014). A possibilist analysis of the geography national curriculum in England. *International Research in Geographical and Environmental Education*, *23*(1), 64–78. https://doi.org/10.1080/10382046.2013.858446

Lambert, D. (2014a). Curriculum leadership and the knowledge-led school. In M. Young, D. Lambert, D. Roberts, & M. Roberts (Eds.), *Knowledge and the future school: Curriculum and social justice* (pp. 157–187). Bloomsbury Publishing.

Lambert, D. (2014b). Curriculum thinking, 'capabilities' and the place of geographical knowledge in schools. *Syakaika Kenkyu*. *Journal of Educational Research on Social Studies*, *81*(3), 1–11.

Lambert, D., Solem, M., & 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. https://doi.org/10.1080/00045608.2015.1022128

Lambert, D. (2016). Chapter 25: Geography. In D. Wyse, L. Hayward, & J. Pandya (Eds.), *The Sage handbook of curriculum, pedagogy and assessment* (pp. 397–407). Sage.

Lambert, D., & Solem, M. (2017). Rediscovering the teaching of geography with the focus on quality. *Geographical Education (Online)*, *30*, 8–15. https://dspace.uni.lodz.pl/xmlui/bitstream/handle/11089/14661/3-013_030-LAMBERT.pdf?sequence=1&isAllowed=y

Lambert, D. (2017). The road to future 3: The case of geography. In D. Guile, D. Lambert, & M. Reiss (Eds.), *Sociology, curriculum studies and professional knowledge: New perspectives on the work of Michael Young* (pp. 132–145). Routledge.

Lambert, D. 2018. Geography, capabilities and the educated person. In E. Shin, & S. Witham Bednarz (Eds.), *Spatial citizenship education: citizenship through geography* (pp. 22–40). Abingdon: Routledge.

Luke, A., Woods, A., & Weir, K. (2013). Curriculum design, equity and the technical form of the curriculum. In A. Luke, K. Weir, A. Woods, & M. Moroney (Eds.), *Curriculum, syllabus design and equity: A primer and model* (pp. 6–39). Routledge.

Lüth, C. (2000). On Wilhelm von Humboldt's theory of *Bildung*. In I. Westbury, S. Hopmann, & K. Riquarts (Eds.), *Teaching as a reflective practice: The German Didaktik tradition* (pp. 63–84). Erlbaum.

Lyakhova, S., Joubert, M., Capraro, M. M., & Capraro, R. M. (2019). Designing a curriculum based on four purposes: Let mathematics speak for itself. *Journal of Curriculum Studies*, *51*(4), 513–529. https://doi.org/10.1080/00220272.2019.1594389

Maude, A. (2017). Applying the concept of powerful knowledge to school geography. In C. Brooks, G. Butt, & M. Fargher (Eds.), *The power of geographical thinking* (pp. 27–40). Springer.

Maude, A. (2018). Geography and powerful knowledge: A contribution to the debate. *International Research in Geographical and Environmental Education*, *27*(2), 179–190. https://doi.org/10.1080/10382046.2017.1320899

Maude, A. (2021). Recontextualisation: Selecting and expressing geography's 'big ideas. In M. Fargher, D. Mitchell, & E. Till (Eds.), *Recontextualising geography in education* (pp. 25–39). Springer.

Meyer, M. A., Meyer, H., & Ren, P. (2017). The German Didaktik tradition revisited. In J. C.-K. Lee & K. J. Kennedy (Eds.), *Theorizing teaching and learning in Asia and Europe: A conversation between Chinese curriculum and European didactics* (pp. 179–216). Routledge.

Mitchell, D., & Lambert, D. (2015). Subject knowledge and teacher preparation in English secondary schools: The case of geography. *Journal of Teacher Development*, *19*(3), 365–380. https://doi.org/10.1080/13664530.2015.1042024

Morgan, J. (2015). Michael Young and the politics of the school curriculum. *British Journal of Educational Studies*, *63*(1), 5–12. https://doi.org/10.1080/00071005.2014.983044

Morgan, J., Hordern, J., & Hoadley, U. (2019). On the politics and ambition of the 'turn': Unpacking the relations between Future 1 and Future 3. *The Curriculum Journal*, *30*(2), 105–124. https://doi.org/10.1080/09585176.2019.1575254

Muller, J., & Young, M. (2019). Knowledge, power, and powerful knowledge re-visited. *The Curriculum Journal*, *30*(2), 196–214. https://doi.org/10.1080/09585176.2019.1570292

Muller, J. (2022). Powerful knowledge, disciplinary knowledge, curriculum knowledge: Educational knowledge in question. *International Research in Geographical and Environmental Education*, 1–15. https://doi.org/10.1080/10382046.2022.2058349

Nordgren, K., & Johansson, M. (2015). Intercultural historical learning: A conceptual framework. *Journal of Curriculum Studies*, *47*(1), 1–25. https://doi.org/10.1080/00220272.2014.956795

Nordgren, K. (2021). Powerful knowledge for what? History education and 45-degree discourse. In A. Chapman (Ed.), *Knowing history in schools: Powerful knowledge and the powers of knowledge* (pp. 177–201). UCL Press.

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

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

Oates, T. (2011). Could do better: Using international comparisons to refine the national curriculum in England. *The Curriculum Journal*, *22*(2), 121–150. https://doi.org/10.1080/09585176.2011.578908

Rata, E. (2019). Knowledge-rich teaching: A model of curriculum design coherence. *British Educational Research Journal*, *45*(4), 681–697. https://doi.org/10.1002/berj.3520

Rata, E. (2021). The curriculum design coherence model in the knowledge-rich school project. *Review of Education*, *9*(2), 448–495. https://doi.org/10.1002/rev3.3254
Rawling, E. (2020). How and why national curriculum frameworks are failing geography. *Geography*, *105*(2), 69–77. https://doi.org/10.1080/00167487.2020.12094091
Reid, W. A. (2006). *The pursuit of curriculum: Schooling and the public interest*. Information Publishing.
Rudolph, S., Sriprakash, A., & Gerrard, J. (2018). Knowledge and racial violence: The shine and the shadow of 'powerful knowledge'. *Ethics and Education*, *13*(1), 22–38. https://doi.org/10.1080/17449642.2018.1428719
Sadovnik, A. R. (2001). Basil Bernstein. *Prospects: the Quarterly Review of Comparative Education*, *31*(4), 607–620.
Scheffler, I. (1991). Basic mathematical skills. In I. Scheffler (Ed.), *praise of the cognitive emotions and other essays in the philosophy of education* (pp. 71–79). Routledge.
Schwab, J. J. (1973). The practical 3: Translation into curriculum. *School Review*, *81*(4), 501–522. https://doi.org/10.1086/443100
Sen, A. (1985). *Commodities and capabilities*. North-Holland.
Simons, J., & Porter, N. (Eds.). (2009) *Knowledge and the curriculum*. Policy Exchange.
Stengel, B. S. (1997). "Academic discipline" and "school subject": Contestable curricular concepts. *Journal of Curriculum Studies*, *29*(5), 585–602. https://doi.org/10.1080/002202797183928
Uljens, M., & Ylimaki, R. M. (2017). *Bridging educational leadership, curriculum theory and Didaktik*. Springer.
Westbury, I. (1972). The Aristotelian 'art' of rhetoric and the 'art' of curriculum. *Philosophy of Education*, *28*, 126–136.
Westbury, I. (2000). Teaching as a reflective practice: What might Didaktik teach curriculum. In I. Westbury, S. Hopmann, & K. Riquarts (Eds.), *Teaching as a reflective practice: The German Didaktik tradition* (pp. 15–39). Erlbaum.
White, J. (2018). The weakness of powerful knowledge. *London Review of Education*, *16*(2), 325–335. https://doi.org/10.18546/LRE.16.2.11
White, J. (2019). The end of powerful knowledge? *London Review of Education*, *17*(3), 429–438. https://doi.org/10.18546/LRE.17.3.15
Whitty, G. (2018). Taking subject knowledge out and putting it back in again? A journey in the company of Michael Young. In D. Guile, D. Lambert, & M. Reiss (Eds.), *Sociology, curriculum studies and professional knowledge: New perspectives on the work of Michael Young* (pp. 17–30). Routledge.
Willbergh, I. (2016). Bringing teaching back in: The Norwegian NOU the school of the future in light of the Allgemeine Didaktik theory of Wolfgang Klafki. *Nordic Journal of Pedagogy& Critique*, *2*, 111–124. http://dx.doi.org/10.17585/ntpk.v2.268
Wrigley, T. (2018). 'Knowledge', curriculum and social justice. *The Curriculum Journal*, *29*(1), 4–24. https://doi.org/10.1080/09585176.2017.1370381
Young, M. (2008). From constructivism to realism in the sociology of the curriculum. In G. J. Kelly, A. Luke, & J. Green (Eds.), *Review of research in education* (Vol. 32, pp. 1–28). American Educational Research Association.
Young, M. (2009). What are schools for?. In H. Daniels, H. Lauder, & J. Porter (Eds.), Knowledge, values and educational policy. London: Routledge.
Young, M., & Muller, J. (2010). Three educational scenarios for the future: Lessons from the sociology of knowledge. *European Journal of Education*, *45*(1), 11–27. https://doi.org/10.1111/j.1465-3435.2009.01413.x
Young, M., & Muller, J. (2013). On the powers of powerful knowledge. *Review of Education*, *1*(3), 229–250. https://doi.org/10.1002/rev3.3017
Young, M. (2013). Overcoming the crisis in curriculum theory: A knowledge-based approach. *Journal of Curriculum Studies*, *45*(2), 101–118. https://doi.org/10.1080/00220272.2013.764505
Young, M. (2014). Knowledge, curriculum and the future school. In M. Young, D. Lambert, C. Roberts, & M. Roberts (Eds.), *Knowledge and the future school: Curriculum and social justice* (pp. 8–40). Bloomsbury Academic.
Young, M. (2016). *School subjects as powerful knowledge: Lessons from history. Masterclass in history education, transforming teaching and learning*. Bloomsbury Academic.
Young, M. (2018). A knowledge-led curriculum: Pitfalls and possibilities. *Impact*, (4). https://my.chartered.college/impact_article/a-knowledge-led-curriculum-pitfalls-and-possibilities/