



Article

School Geography's Critical Role for a More Sustainable Future: Powerful Knowledge and Praxis

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Abstract: In this theoretical article we draw on the concepts of powerful knowledge and powerful pedagogies to argue that the school geography curriculum is key to developing structured teaching programmes for students to extend their knowledge and actions for a sustainable future. We argue that geography education uniquely opens up opportunities for action with its focus on place-based, sensory and multimedia experiences, that centre on students' schools and their communities. This article posits that, although important, merely identifying geographical powerful knowledge is not enough, teachers must also incorporate geographical "powerful pedagogies". Geography, as a discipline, holds a critical role when it comes to sustainability and education for the future as it makes the links between people and the environment clearly visible. Yet for Geography to be a discipline that empowers students to navigate their current and future life-worlds, it must encompass action through fieldwork and incorporate dialogue between students, teachers, experts and the public that focus on perspectives and possibilities for praxis—action for the good of humankind. This article situates geography education in the powerful knowledge debate by offering a new synthesis of theories connecting curriculum, practice architectures and praxis/action for the future.

Keywords: geography; praxis; powerful knowledge; powerful pedagogical practices; theory of practice architectures



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1. Introduction

Information is changing, messy, multitudinous, contradictory, fascinating and puzzling. When it is meaningfully organised, it is called knowledge. Teaching knowledge is the work of schools, helping young people to navigate the messy cacophony of information. Curriculum theorists, politicians, teachers and others in society debate about what young people need to know and understand, and how that can be organised. Who decides and how do they decide what is more important? Disciplines have a long history in developing and organising knowledge, and versions of disciplines are taught in schools, sometimes alongside non-disciplinary approaches. As debates continue about what knowledge is to be taught in schools, the concept of powerful knowledge has generated significant attention as it appeals to many as a call to teach what is **deemed to be important**. At face value it sounds seductively simple. However, powerful knowledge is a site of debate, perhaps a fertile site of debate, as it calls for theorising about and justifications for what is deemed to be more important in this knowledge drenched world.

Yet even if we could agree on what constitutes powerful knowledge in a field of study, it is not simply transmitted. Rather, active teaching and learning practices are the means by which knowledge is developed. We take the view that what we are attending to are **repeated practices** in teaching and learning. These repeated practices are the ways that communities of teachers come to understand, or are "stirred into" the role (Kemmis et al. 2017; Schatzki 2017), and speak to preferred ways for students to learn. The idea of educators being "stirred into"

practices “suggests an account of learning that elucidates the process, activity and sociality of learning as a practice” (Kemmis et al. 2017, p. 46). As practices circulate in communities, they will stick if teachers are persuaded that they are more important, or better ways, to learn. They may be called signature pedagogies (Shulman 2005) and are likely to be markers of what Roberts (2017) calls “powerful pedagogies”.

Using the theory of practice architectures as a conceptual framework (or lens) to understand these, we argue that school geography classrooms are a key sites for developing structured and powerful teaching programmes for students to extend their knowledge and actions for the future of the planet and all its inhabitants.

The theory of practice architectures (TPA) posits that the enactment of practices is prefigured but not predetermined by the varied arrangements in the intersubjective space in a particular site (Kemmis et al. 2014). In any educational site (indeed, any site at all), there are three dimensions of intersubjective space—the semantic space, the physical space–time and the social space (Kemmis and Grootenboer 2008; Kemmis et al. 2014). The semantic space fosters practices and actions related to what people *say* (the sayings) and how they share ideas through language. What people *do* (the doings) when they encounter each other as embodied beings occurs in physical space–time, and how people *relate* to one another (the relatings) as social and political beings occur in the social space (Kemmis 2023).

Practices do not only happen because people choose, or intend, to enact them but are “also steered, more generally, by and among *arrangements* (including tools and technologies) found in or brought to the *sites*” (Kemmis 2023, p. 43). The TPA identifies three ways that intersubjective space is arranged, and these entangled arrangements enable and constrain the different types of practices (i.e., the doings, sayings and relatings) that can occur. These *cultural-discursive*, *material-economic* and *social-political* arrangements hold practices in place and are what form practice architectures (Kemmis et al. 2014). Within these arrangements, the TPA posits that learning is never a solitary affair but rather a shared, communal and intersubjective thing that is influenced and formed by local histories (Kemmis and Grootenboer 2008). The theory ultimately questions “what people do in a particular place and time” (Kemmis and Smith 2008, p. 13) and the social practices and learning paths that are available for people.

In this article, we examine the debates that circulate about powerful knowledge in geography, and powerful geographical pedagogies in order to better understand how geography education can foster a more sustainable future. We foreground the importance of attending to the arrangements in any site of learning with the help of the theory of practice architectures, in which established geographical practices such as inquiry, dialogue, visualisation and field activities can be undertaken. In what follows in this article, our line of argument is structured by four questions:

- What is powerful knowledge and how has this been conceptualized in geography education?
- What is geography’s role in and for sustainability education for the future?
- What is meant by powerful pedagogies, what are powerful geography pedagogies for the school level, and how can they contribute to sustainability?
- What types of practice architectures (arrangements) enable or constrain how powerful knowledge is taught and learned using powerful pedagogies? How can powerful geographical pedagogical practices help to induct pupils into characteristic ways of thinking (saying, doing and relating)?

We then conclude by proposing that **coupling** powerful knowledge with powerful teaching and learning practices (powerful pedagogies) should be conceived of as *praxis*—a type of “history-making action” (Kemmis 2023, p. 15) that enables better ways of understanding and influencing the world towards a more liveable future.

2. Powerful Knowledge in Geography Education

The term powerful knowledge was first coined by Leesa Wheelahan (2007, 2010) and further developed and defined by Michael Young (2008, 2009) and Johan Muller (2023) and

in collaboration (Muller and Young 2019; Young and Muller 2010, 2013). Young (2008) describes this concept arising in response to what he saw as a need to “bring knowledge back” and to refocus the debates about curriculum beyond “knowledge of the powerful” to “powerful knowledge”. Reframing knowledge itself as powerful, as opposed to something being wielded and guarded by powerful people, enables the focus of curriculum discussion to shift to what people can do with the knowledge they hold (Gericke et al. 2022; Maude 2018). If knowledge allows those who have access to it “more reliable explanations and new ways of thinking about the world” (Young 2014, p. 20), then it can be considered powerful.

However, a more concrete definition of *what* powerful knowledge actually is has proved elusive (White 2018) and subject to considerable debate. Young (2015) has argued that powerful knowledge is most likely to reside in disciplines because:

powerful knowledge is systematic. Its concepts are systematically related to one another and shared in groups, such as subject or disciplinary associations. It is not, like common sense, rooted in the specific contexts of our experience. This means that powerful knowledge can be the basis for generalisations and thinking beyond particular contexts or cases. . . . Powerful knowledge is specialised. In other words, it has been developed by clearly distinguishable groups with a well-defined focus and relatively fixed boundaries, separating different forms of expertise. (Young 2015, para. 8–9)

Most of this definition is useful to frame this paper, as powerful knowledge is often developed in disciplines, although we question the marginalisation of common sense, personal experience, and what is elsewhere termed everyday knowledge. As geographers, we find this dismissal of the everyday experience unhelpful, given that students have diverse experiences and cultural heritage to bring to a classroom, and it has been challenged on several other fronts (see for example Roberts 2023 and White 2018). Powerful knowledge can come from many sources and may or may not align with learner experience, their common-sense understandings and the knowledge that they have constructed through their everyday activities. Deng (2022) suggests that the acquisition of powerful knowledge allows us to move beyond our own specific experiences, which allows us to “envisage alternative and new possibilities” (p. 245).

An allied line of theorising about what is important knowledge for students to learn rests on the idea of epistemic quality (Hudson 2018). This is a term coined to describe the quality of teaching “subject” knowledge. At its essence, it is teaching that makes the reasoning and justification for types of knowledge visible, so that students can be guided toward an understanding that knowledge is constructed, how it is constructed, and that it may change. Curriculum that is high in epistemic quality focuses on what is known and how it is known, to cultivate critical reasoning which leads to recognition that knowledge is incomplete and fallible. Hudson et al. (2023) describe “epistemic quality as a way of articulating aspects of what we mean by powerful knowledge at the classroom level” (p. 122).

Powerful knowledge is, similarly, a call to deliberate on the aims of education and consequently on the curricula that is prioritised. It speaks back to the notion of “learnification”, which takes the view that all learning is worthwhile (Biesta 2010), which is a discourse that has weakened the emphasis of discipline-rich curriculum. In contrast, Young’s advocacy for the importance of disciplines has driven considerable theorising and debate about what constitutes powerful knowledge in a range of school subject disciplines, such as physics (Yates and Millar 2016), history (Nordgren 2017), biology (Dempster 2023) and mathematics (Hudson 2018). Each have explored powerful knowledge in these respective disciplines.

Setting aside the fervent debates about the definitions of powerful knowledge, we understand it as subject-specific coherent conceptual knowledge derived from disciplines that will enable students to make decisions and become action competent in a way that will influence their and others’ lives positively. We are in strong alignment here with Deng (2022), who describes the purpose of powerful knowledge as “centrally concerned with the cultivation of human powers (understanding, capabilities, dispositions)” (p. 600).

How Has Powerful Knowledge Been Conceptualised in Geography?

Young and Lambert (2014) have been united in arguing for “a progressive knowledge-led curriculum . . . [and make] a case for subject specialist teaching in schools” (Lambert 2018, p. 14). To that end, generative scholarship has flourished in efforts to define geographical powerful knowledge (see for example Maude 2017, 2018, 2022; Roberts 2014; Slater and Graves 2016).

An active area of development in geography education has been the GeoCapabilities approach, which applies Martha Nussbaum’s (2003) theorising that views human development as a journey towards personal autonomy that will enable a person to have agency in society. The first GeoCapabilities project ran from 2012 to 2013 and was led by the Association of American Geographers with the sole aim to examine curriculum. It was expanded in the GeoCapabilities 2 project from 2013 to 2017, led by David Lambert, to examine enactment of curriculum. This was followed by GeoCapabilities 3, led by David Mitchell, from 2018 to 2022. These phases have forged a significant line of inquiry in geography education through distinct and focused international collaboration. The tenet of the capabilities approach is that the purpose of powerful knowledge in geography is to foster young peoples’ individual growth in order to be fully able to not only function in the world but also to influence the world (Lambert 2018). This resonates with the idea that knowledge in and of itself is not powerful per se, but is powerful in what can be achieved with it.

In interpreting Young and Muller’s claims to powerful knowledge—for geography—Maude (2017) outlines six elements of geography powerful knowledge. He suggests that holding powerful knowledge enables one 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)

In this set, Maude echoes some of Young’s elements, contextualises what this means for geography and gently repositions personal experience to be valued but not sufficient to constitute powerful knowledge. What strikes us is that Maude’s elements can all be experienced as practices, which is what draws us to the theory of practice architectures, which we will discuss further in Section 5.

3. Geography’s Critical Role for a More Sustainable Future

Geography, as a discipline, is uniquely placed to play a key role in learning about sustainability (Bagoly-Simó and Kriewaldt 2023; Casinader and Kidman 2018) because it draws from the natural sciences and the social sciences to bring together different ways of thinking about human–environment relations. Sustainability education or education for sustainable development (ESD) arose from critiques that traditional environmental education that was based only in the natural sciences could not satisfactorily address the interlinked human and societal issues that pre-empt or cause environmental destruction and environmental issues, such as climate change (Peters and Wals 2016). Geography by its very nature makes those links. As van der Schee (2006) eloquently states:

Geography is the compelling story of our changing planet with all its challenges and problems. Everything in the world is connected. What we do here and now can have profound consequences. Whether these consequences surface now or later, or manifest here or on the other side of the globe, there will be important consequences for all of us. This is not a game. Geography is the discipline to help students to think critically about their interdependent world (p. 192).

Geography has a facilitating and validating approach to interdisciplinary environmental research (Elwood 2010), which is what makes it a good place to start with teaching about sustainability in all its forms. An advantage that geography has is that geographers have

the ability to link spatial technologies and measurements with observations that enable and make visible the links between people and the environment (Clausen 2018).

Although the discipline of geography has much to offer the concept of sustainability, because it considers place and space-based dimensions, a geographical mindset on its own is not enough. Science and geography education are natural siblings in sustainability education. Science brings in the biological, chemical and physical knowledge, whereas geography situates these in place and considers the activities of people, as well as human and more than human interactions (Larsen and Solem 2022). While science and geography go hand in hand with a distinctive role in sustainability education, other knowledge domains have much to contribute too. Without exhaustively listing these, languages, history and the arts (Windsor and Sanders 2023) have an important place in sustainability education. Across all of these disciplines (in our case school subjects), the goal is to foster citizens who have the knowledge and the thinking skills to be action competent for their lives in the future.

4. Powerful Pedagogical Practices and *Didaktik*

As outlined in the previous section, there is widespread consensus that geography knowledge can contribute to sustainability education, yet much of the powerful knowledge discourse is disconnected from consideration of the influence of the pedagogical practices utilised. As Young and Muller's theorising of powerful knowledge did not extend to pedagogical practice, questions have been raised about the limitations of discussing knowledge without considering *how* it is taught. This is saliently argued by Roberts (2014):

Whatever knowledge is selected and justified, it is only *potentially* powerful. Students do not necessarily learn what they are taught; they do not simply acquire knowledge because it has been prescribed in a curriculum. School knowledge remains inert if students are not motivated to learn it and if they cannot make sense of it in some way for themselves (p. 204, italics added).

We agree that knowledge in and of itself cannot be considered powerful, it can only hold power when it “depends on a powerful pedagogy” (Roberts 2017, p. 9) or “powerful pedagogies”¹. In this article, we draw on the definition that Roberts (2023) uses to define pedagogies as “repeated patterns or sets of teaching and learning practices that shape the interaction between teachers and learners” (Peterson et al. 2018 cited in Roberts 2023, p. 70).

Roberts' articulation of powerful pedagogy is a comparable concept to the significant German/Nordic tradition of *Didaktik*². The term *Didaktik* is used “*generically for both the dimension of objectives and content and the dimension of methods, taking the preconditions given at both the personal and institutional level into account*” (Klafki 2006, p. 115 italics in original). Essentially, *Didaktik* considers the knowledge (or content), the learners and the teacher as equally important (Hopmann and Riquarts 1995) and it is the relationships between these three equally important aspects that allows learning to occur.

In a practical sense, research conducted in the *Didaktik* tradition starts from an understanding that there is an autonomous dimension to teachers' work, where they have the authority or power to make curriculum and content decisions that are contextually relevant. The teacher is not understood as merely implementing a given curriculum derived from a curriculum tradition (Gericke et al. 2018). As Bladh (2020) explains “the *Didaktik* tradition focuses on curriculum making at the classroom level” (p. 208). In other words, teachers are expected to be able to identify and interact with powerful knowledge within the curriculum and in their own classrooms and assist their students to make meaning of the knowledge.

In the *Didaktik* tradition, pedagogy is not narrowly conceived as a type of practice, rather as all of the educational space. In other words—pedagogy *is* education in a holistic sense—and it cannot be separated into component parts. What is important here is that this tradition does not map onto other conceptions, nor does it directly translate into English (Hopmann 2007). It is a way of conceiving of teaching and learning that positions teachers as sophisticated learning designers that hold knowledge, teaching practice and

their learners in constant interplay. The teacher is positioned as highly knowledgeable and capable and consequently trusted as an autonomous professional.

In support of this line of argument, we agree that teachers should have autonomy and it is neither possible nor desirable to disaggregate what is taught (the content knowledge) and the teaching practices, or pedagogies, that are employed. Knowledge and understanding that is important could perhaps be rote learned, but few would argue that this constitutes a powerful education. We argue that it is only through engaging students in repeated geographical practices that they can be inducted into characteristic ways of thinking about and understanding sustainability powerfully. Teachers' theoretical and conceptual knowledge of geography and determination to foster geographical thinking will affect the lessons that they design for their students and what is learned by students. Additionally, the arrangements in which teaching and learning activities occur are also important and will be introduced in penultimate part of this article.

What, Then, Are Powerful Pedagogical Practices in Geography?

An underpinning foundation of geographic thinking is **enquiry/inquiry** which is a signature way that pupils are inducted into the discipline of geography. Geographical inquiry is both a way to frame thinking, and also a route to understand challenges that have a geographical dimension—selecting those big ideas that contemporary issues invariably have. These issues include population change, trade, urbanisation, migration (including forced migration), climate change, responding to hazards and disasters, global health and urban design, for example. Inquiry is comprised of many components, yet at its essence inquiry is expressed in questions and encourages a rich sensibility of being curious about the world, and noticing and gathering data that enable better understanding of the world. Lee's (2022) recent study found “that the nature of knowledge in geography is such that geography inquiry is key to experiencing and developing powerful knowledge in geography” (p. i).

In addition to inquiry, fieldwork is a core geographical practice. Fieldwork incorporates key concepts that include place, space, environment and interconnection, and offers a significant way to induct students into geographical thinking, to cultivate their capacity to analyse, explain and understand the world in which they live (Maude 2020, 2022). Fieldwork enhances students' capacity to “see” geographically by incorporating a spatial dimension, and it connects the physical and social sciences to integrate understandings of people and places (Jackson 2016). This extends to fostering interconnected thinking about human–environment interactions and, importantly, to interpreting and evaluating knowledge that they encounter (Roberts 2023). These powerful geographical practices that couple inquiry and fieldwork offer promising ways to contribute to the development of a generation who understand sustainability and can confidently act on, and with, what they know.

5. Geographical Arrangements for Powerful Knowledge and Powerful Pedagogies

This section outlines the practice architectures (i.e., types of arrangements) that enable or constrain how powerful knowledge is taught and learned using powerful geographical pedagogies. How can powerful pedagogical practices help to induct pupils into characteristic ways of thinking, saying, doing and relating?

For powerful knowledge to be learnt and powerful pedagogies to be practiced in geography, we must understand what those practices are and what practice architectures are in place that mediate them. In geography classrooms, the arrangements for powerful pedagogical practices may vary, yet there are some basic material–economic arrangements that will enable powerful pedagogical practices to be engaged in. For example, for powerful geographical knowledge to be learned, teachers must have and retain the capacity to display maps, atlas/globes, images, film, data/statistics, and use other physical resources in powerful ways. They need to be able to link to place through these resources, and the core practice of fieldwork is so students learn how to gather data. Teachers must

have access to a wide range of trusted information sources, which include large statistical databases and geographical information systems (GIS). When we think of the cultural discursive arrangements in a geography classroom there is a clear language of geography that describes and defines the human/culture/society/planet interactions in a unique and powerful way. In the coming together of these arrangements, Young's (2008) claim that "powerful knowledge provides more reliable explanations and new ways of thinking about the world and acquiring it . . . can provide learners with a language for engaging in political, moral, and other kinds of debates" (Young 2008, p. 14) becomes possible in the geography classroom. This leads to the social-political arrangements; a geography classroom that exposes issues of inequality and asymmetries of power, as well as societal, structural and policy frameworks that damage people and the planet, fosters practices that enable stronger relationships, solidarity, cooperation and care.

Returning to Young's idea of powerful knowledge, he explains that "knowledge is 'powerful' if it predicts, explains, and it enables us to envisage alternatives" (2015, p. 74). However, as has been convincingly argued (see for example Kollmuss and Agyeman 2002; Wals 2020), when it comes to sustainability it is not a lack of, or access to, reliable and powerful knowledge about sustainability issues that is a problem for students today. The problem, as Kaukko and colleagues (2021) state,

is a lack of action One of the reasons for this lack of action is rooted in the distinction between *education* and *schooling*: it is a profound disruption of the relationship between human knowledge and human social practice. Education for practice looks a little different from education for knowledge (p. 8, italics in original).

When we think of (or about) education for the future, identifying powerful knowledge is not enough. Transmitting powerful knowledge cannot be the end game for teachers; school must "produce, reproduce and transform people's *practices* so that, not just in possibility but *in fact*, human beings live sustainably on the planet" (Kaukko et al. 2021, p. 8). There is no doubt that schooling must prepare children to live sustainably. Without knowing precisely what the future holds, teachers can foster learning experiences that enhance "students' ethical competence and capacities from thinking and acting in ways that create a more sustainable future" (Windsor 2019, p. 72).

6. Conclusions

Bringing together the concepts of powerful geographical knowledge and powerful geographical pedagogical practices for a sustainable future we arrive at the notion of geography as a fertile ground for critical educational praxis (Mahon et al. 2020). Mahon and colleagues define critical educational praxis as a

special kind of action (or practice, as we have argued), but it is not action without thought or moral intentions. It is informed, reflexive, and committed to bringing about the "good", whatever that might be in the given educational context, for others and humankind, in and through the educational endeavours that go on in that context. (Mahon et al. 2020, p. 32)

Our dream is for young people to be able to access and contribute to powerful knowledge that helps to explain and understand the natural and social worlds and also hold a healthy scepticism to keep checking what they think they know and what they are told—a criticality. We want them to learn and apply core substantive concepts that are useful (for example the water cycle, climate, biomes and many others). But importantly, we want them to be able to use these in concert with geography's key analytical concepts that include place space, scale and interconnection. We want them to experience the knowledge building processes by approximating the practices of geographers through inquiry, fieldwork and perspective taking.

And for what? So young people can be empowered to enter debates equipped with specialised geographical language and characteristic ways of thinking to influence preferred

or better futures. With calls that our planet is on fire, it is urgent that geography as praxis is integral to the social sciences. As we have argued in this article, geography education, when it incorporates both powerful knowledge and powerful pedagogical practices, is well positioned to engage students in thinking and acting for the good of humankind and, importantly, every other living and non-living thing on the planet (and indeed, the planet itself). Geography has an indispensable place in the social sciences to develop knowledge, understanding and criticality for action competence for the future of the planet.

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Notes

- ¹ We will use the terms ‘powerful pedagogies’, powerful pedagogical practices, and powerful geographical practices interchangeably.
- ² We continue to use the European spelling *Didaktik* rather than the direct English translation (didactic) because it does not directly translate in terms of meaning.

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