

Powerful geography for Dutch schools: the perspectives of academic geographers

TINE BÉNEKER



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Relationships between academic geoscientific knowledge and school subject knowledge in geography are not straightforward. Attempts to bridge a growing gap between the two can be seen in several countries. In preparation for the launch of a renewal of the Dutch national curriculum for geography education in upper secondary education, the Dutch Geographical Society initiated a discussion about the content of the subject. This paper presents the output of this initiative to have a group of 22 academic geographers with different specializations reflect on what young people should learn in Dutch school geography in the near future. The ideas of these geographers are viewed through the lens of 'powerful knowledge', a key concept in academic curriculum debates. Maude's typology is used to gain more insight into the ideas of the scholars. They emphasize the importance of a geographical, holistic perspective when studying contemporary and future societal challenges, whereby an integrative approach to human and physical geography is important, as is attention to power relations and historical developments. In addition, they point to the importance of paying attention to knowledge questions in order to evaluate facts and assess knowledge claims. The academic geographers also call for a connection to be made with the everyday lives of young people. Moreover, they advocate a teaching method that combines theoretical concepts and practical knowledge, encouraging an inquiry approach, offering multiple perspectives and fostering critical thinking. Maude's typology of powerful geographical knowledge is highly applicable and therefore useful for reflection and identification. Due to the large amount of potentially powerful knowledge, other approaches are needed for the selection of actual curriculum content.

Keywords: geography school curriculum, academic geographers, powerful knowledge, Future 3 curriculum, recontextualization

Tine Béneker, (<https://orcid.org/0000-0001-5110-5003>), Department of Human Geography & Spatial Planning, Faculty of Geosciences, Utrecht University, the Netherlands. E-mail: t.beneker@uu.nl

Introduction

After a long wait, the formal Dutch curriculum for geography in upper secondary school is finally set for an overhaul. In September 2024 a committee consisting of geography teachers, teacher educators and curriculum experts began developing new curricula. The current geography curricula were introduced in 2007 and 2013. Since then, only minor revisions took place.

To understand the importance of these curricula, it is necessary to provide some context on Dutch geography education. In primary schools, geography is taught as an independent subject or, more often, as part of theme-based teaching (van Boxtel *et al.* 2024). In their final year at primary school, at the age of 11 or 12, students take an exam that partly determines the type of secondary education to which they progress: Pre-vocational, Senior General, or Pre-university. Geography is a mandatory subject in lower secondary and is generally taught as an independent subject, although it is sometimes integrated with history. In upper secondary, geography is an elective subject. All schools must follow the national curriculum guidelines that prescribe what to teach, in less detail for lower secondary and more detail for upper secondary. Schools are free to follow their own pedagogical visions and decide how they teach. However, there is a system of high-stakes exams at the end of upper secondary school that puts pressure on teaching the curriculum content, while there is no entry examination for higher education.

In anticipation of the curriculum renewal, in 2023 the Royal Dutch Geographical Society (KNAG) organized a symposium to celebrate its 150-year anniversary, at which the substantive content of the geography curriculum was discussed. I led this project with two colleagues, Gijs van Campenhout and Rob van der Vaart. Academics were asked to contribute by writing an essay for input and inspiration. Not a scientific paper, but their personal answer — as subject matter experts — to the question: What should young people (aged 15–18) learn in school geography in the coming decade? They did not need any knowledge about secondary geography education, nor were they prompted to reflect on the current national curriculum. They were simply asked to share their substantive ideas. In the process of revising formal curricula, the opinions of subject matter experts, while important, are only one of several considerations. Trade-offs must always be made between society's needs, students' needs, and developments in the discipline (Béneker & van der Vaart 2023). Ultimately, various pedagogical, practical, and political considerations influence new curriculum design (Thijs & van den Akker 2009).

The collection of 20 essays by academic geographers serves as a unique and interesting 'data set' that I will use to illustrate what academic geography can offer to Dutch school geography. Moreover, my aim is to position this data set in the academic debate about 'powerful knowledge' and 'Future 3 curriculum thinking', where the role of knowledge in education and the relationship between academic knowledge and school knowledge are discussed. Two questions guide this paper. Firstly, what ideas about powerful knowledge for school geography can be derived from the scholars' contributions? And second: Can the concept of powerful geographical knowledge help in identifying and prioritizing curriculum content? This paper is based on my lecture at the Finnish Geography Days, with the intention of sharing these findings from the Dutch context with colleagues in Finland and beyond.

Academic knowledge versus school subject content

Relationships between academic disciplines and school subjects are not straightforward, as both have their own dynamics, developments, priorities, and goals (Butt & Collins 2018). However, scientific knowledge is an important resource for the school subject of geography. Moreover, there is an international preference for subject matter experts as teachers, amidst the challenging rise of non-specialist teachers (see e.g., Butt 2000; Knecht & Spurná 2021). Academic geography programs benefit from good geography teaching in schools, which makes the relationships and interactions between the school subject community and the academic community particularly important.

In theory, the transformation of academic knowledge to school knowledge can be seen as a process of recontextualization (Bernstein 2000). Knowledge from the field of production (academia) is selected and transformed by the field of recontextualization, for example, in a national curriculum (the official field of recontextualization) and into a series of textbooks (the pedagogical field of recontextualization)

before it is represented and thus taught in the classroom by teachers in the field of reproduction. As Lambert (2025, 51) explains:

The processes of recontextualisation are complex, dynamic and highly political. Matters are never finally settled, and the question of what to teach children and young people is correctly always in dispute in a healthy democracy.

In the Netherlands, as well as in other countries (Béneker *et al.* 2007; Butt & Collins 2018), the growing gap between academic knowledge production and school geography curricula has been met with efforts to improve the situation. As early as the 1960s and 1970s, Hoekveld (1967) took the lead in translating new developments in the discipline into the school subject. After several decades of prioritizing generic skills and innovations in teaching strategies over disciplinary knowledge, van der Vaart (1997, 2001) spearheaded a revival of geographical domain knowledge, prompting a review of the curriculum in the 2000s. Internationally, the Geocapabilities approach (Lambert, Solem & Tani 2015; Béneker & Lambert 2024), initiated by Lambert and developed as a European project with worldwide resonance, is a more recent effort in curriculum thinking about the issue of 'what to teach' and the relationship between academic and school knowledge. This initiative can be seen as part of a wider debate in education, as discussed in the following section.

Powerful disciplinary knowledge and curriculum thinking

Over the past two decades, educational sociologists such as Young and Muller (2016) have developed new theoretical insights regarding knowledge, curricula, school subjects, and disciplines. They are advocates of social realism in education, which has its roots in the ideas of Bernstein (2000), who argued that access to abstract, theoretical knowledge is a precondition for an effective democracy. Abstract knowledge enables learners to visualize the 'unthinkable and not yet thought of' and imagine alternative futures. In our times, such knowledge is often absent from the core curriculum, having been replaced, for example, by context-specific, practically oriented skills education (Béneker 2018).

Social realism is a response to social constructivism, which currently dominates thinking about education, and which was itself a response to positivism. These three schools of philosophy have different views on knowledge. Young and Muller (2010) interpret this in terms of three caricatural types of educational curricula, which they refer to as Future 1 (under-socialized, canon-type curriculum), Future 2 (over-socialized, skills-oriented curriculum), and Future 3, and which I would call traditional, modern, and emerging (Béneker, 2018). 'Future' indicates that all three are realistic options for the future. The Future 3 curriculum puts subject matter back on the agenda. It is based on the reality that knowledge exists independently from individuals, even though our knowledge of that reality is a human construct. Knowledge can therefore never be absolute, but it can be more reliable than mere opinion, provided it has been developed within the conventions of discipline-based communities. In other words, 'better knowledge' and 'the best knowledge that we have' do actually exist.

The Future 3 curriculum is also progressive and motivated by social justice. In principle, schools can contribute towards equal opportunities by offering pupils access to knowledge that is outside their sphere of experience. Such knowledge is dynamic and related to discipline-based concepts and ways of thinking. This is a curriculum of engagement with subject-based thinking. School subjects are not a given, as in a Future 1, but neither are they arbitrary as in a Future 2. Young and Muller (2016) call Future 3 a 'knowledge-based curriculum'.

In the context of the Future 3 curriculum, Young introduced the concept of powerful knowledge. It is dynamic and subject to change, but also reliable and based on evidence. Powerful knowledge is part of a system of thought, conceptual, and sometimes counterintuitive, and it exists outside of the immediate experience of teacher and student. Crucially, it goes beyond a mere list of content. In Young's words (2008, 14):

[...] refers to what the knowledge can do or what intellectual power it gives to those who have access to it. 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's ideas on powerful knowledge and curricula have been criticized by school subject experts for their one-sided focus on content (the 'what' and 'why') and for viewing pedagogy (the 'how') as merely derivative. Muller (2022) clarifies that while sociologists are interested in a theory of curricula (what to teach), school subject research communities are interested in a theory for curricula in order to 'improve' subject-specific teaching. These communities, for example in mathematics, history, and geography (Gericke *et al.* 2018; Bustin 2019), have done substantial work on putting social realist ideas into practice. In the previously mentioned Geocapabilities approach, F3-thinking and the role of powerful disciplinary knowledge feature as cornerstones, in addition to a capabilities approach (that serves as a moral framework) and the role of teachers as curriculum leaders. The curriculum-making model used in Geocapabilities takes a relational content-student-teacher perspective, merging the categories of curriculum and pedagogy (Bladh 2020). This aligns with the definition and use of 'subject didactics' (rather than pedagogy) in Nordic countries, Germany, and the Netherlands.

Although Young's 'powerful knowledge' is a more heuristic than analytical concept, it can help elicit questions about curriculum. Interesting in this respect is Maude's attempt, as a geographer, not primarily as an educator, to address the issue of knowledge and the curriculum. He presents a coherent five-part typology of geography as powerful knowledge based on both a close reading of Young and on the nature of geography as a discipline. It has been cited frequently as it represents a move to 'operationalize' powerful knowledge by making the generic concept potentially more analytical (Béneker & Lambert 2024). Maude's interpretation of Young's conceptualization of powerful knowledge leads to an alternative definition (Beneker & van der Vaart 2020). Maude (2018, 180–181) believes that knowledge is powerful if:

It enables young people 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.

Based on this, Maude (2018, 83) distinguishes five types of powerful knowledge in geography (as explained in Béneker & van der Vaart 2020, 223):

- Type 1: Knowledge that provides students with 'new ways of thinking about the world'. This refers to the major concepts of geographical thinking: place, space, and environment.
- Type 2: Knowledge that provides students with powerful ways of analyzing, explaining, and understanding. This includes concepts with analytical and explanatory power (e.g., spatial distribution, relative location) and geographical generalizations. Maude not only refers to these concepts and generalizations but also to the skills of using and applying such concepts.
- Type 3: Knowledge that gives students some power over their own knowledge. This type refers to some knowledge about geographical knowledge production and how to evaluate claims about knowledge.
- Type 4: Knowledge that enables young people to follow and participate in debates on significant local, national, and global issues. This refers to geographical thinking, for example by the integration of knowledge from the human and natural sciences, that helps learners understand societal issues.
- Type 5: Knowledge of the world, concerning the diversity of environments, people, cultures, and economies. This 'regional' knowledge includes "geographical ways of thinking, factual information, generalisations, methods of analysis and techniques for evaluating information."

Twenty essays: authors and content analysis

Human and Physical Geography in Dutch education

In schools, geography is positioned within the 'social sciences' with a bridge function to the 'natural sciences'. The subject combines topics from earth sciences, physical geography, human geography, and spatial planning. However, the Netherlands has a long history of separation between human geography and physical geography study programs at the university level (de Pater & van der Wusten 1996), with separate chairs emerging in the early 20th century. Nowadays, human geography is usually taught in combination with spatial planning in one bachelor's degree, while physical geography forms part of bachelor's degrees in earth sciences. Both programs have different entry requirements, with earth sciences only admitting prospective students with a natural science profile. Prior to the

introduction of the Bachelor/Master system, programs still included compulsory subjects in the other sub-discipline, but this is no longer the case today. Nowadays, climate, sustainability, and inequality have emerged as key subjects (Paul 2023). In some cases, the study programs are grouped together within a more geoscience- or spatial science-oriented faculty (in Utrecht and Groningen), while in others they are divided across faculties of social sciences, natural and life sciences, or even management studies (in Amsterdam and Nijmegen).

Prospective geography teachers take a geography teacher education program at a University of Applied Sciences or a one-year training program after an academic master's degree in human geography, earth, or environmental sciences. The latter students must have a minimum number of credits in the 'other' subdiscipline (human or physical geography) as an entry requirement. One of the authors in the volume (Meijles) indicates that the split in Dutch university education and academia between human and physical geography also hinders an integrated approach in secondary education, if only because prospective teachers are mainly trained in one of the two subfields.

Participants and expertise

The 20 essays, written by 22 geographers and geo-scientists, have been published in a volume along with an introduction and the results of the symposium (Béneker, van Campenhout & van der Vaart 2023). The symposium consisted of a plenary discussion session and two workshops with 65 professionals, including teachers, teacher educators, curriculum experts, and academic geographers. All but one of the authors work in the Netherlands and hold positions ranging from junior researcher to professor. Two essays come from an applied angle: one from an author working at the Dutch Ministry of the Interior and Kingdom Relations, and one from two authors working at the Dutch Spatial Planning Agency (RPB). While not all authors are native speakers of Dutch, the essays were written in Dutch, with one having been translated from English. The authors represent a mix of different disciplines, with more contributions hailing from human geographers than physical geographers. Table 1 shows the 20 contributions and the authors' expertise.

The essays cover different scales, with a substantial number focusing on the local and national levels (Netherlands), while others also address Europe. Some essays have a global perspective and discuss the relationships between different scales. The themes covered include climate change, climate adaptation, energy transition, landscape, inequalities in cities, geographies of young people and families, European integration, migration, and geopolitics. Contributions on natural hazards, demography, or ecology — for example — are missing. The final set of 20 essays is the result of a request to approximately 30 academics working in various subdisciplines at different institutes.

Essay content analysis

The content analysis focused on three aspects: what young people should learn, why it is important, and how it should be learnt. First, descriptions of and references to the 'what', 'why' and 'how' were identified in the essays, which were then summarized using keywords and short sentences. For the 'what', the original text was revisited to classify types of knowledge according to Maude's typology. It should be pointed out that multiple forms of knowledge, sometimes integrated, may emerge in individual essays. Ultimately, all of Maude's types of knowledge were found in these essays. The main purpose of searching for knowledge types was to help identify instances of powerful disciplinary knowledge, enabling us to better understand how each scholar contributes to the substantive discussion on a new curriculum. To illustrate the analyses, Table 2 shows three summaries of essays with examples of the five knowledge types.

The descriptions of the 'why' and 'how' were collected and subsequently interpreted in the context of the powerful knowledge debate. As a reference for the teaching strategies, I used Roberts' work (2023) on powerful pedagogy in geography education in the context of a Future 3 curriculum. While Roberts' research is specific to a United Kingdom context, her work is closely related to the ideas of 'curriculum making' and 'subject didactics'. She refers to three sets of practices: connecting everyday knowledge with school knowledge; practicing geography; and debating and discussing geography. Each set of practices involves the active engagement of students and the interactive support of teachers.

Tab. 1. 20 essays with translated titles. (Béneker, van Campenhout & van der Vaart 2023)

	Author(s)	Discipline	Essay Title
1	Wilco Hazeleger	Climate System Science	Learning from climate change
2	Pieter Leroy	Environment & Policy	An Anthropocene geography
3	Ton Dietz	Human Geography & African Development	The future geography curriculum in ten themes
4	Erik Meijles	Landscape & Physical Geography	Connection on a landscape scale
5	Hanna Lára Pálsdóttir	Geography, policy maker Spatial Planning	Perception of a place
6	Bettina van Hoven	Cultural Geography	More focus on the 'geographies of youth'
7	Lia Karsten	Urban Geography	The history of the urban family in a nutshell
8	Sako Musterd	Urban Geography	Social inequality and segregation in the city
9	Gery Nijenhuis & Ajay Bailey	International Development Studies Anthropology & Cultural Demography	A contemporary geographical worldview
10	Joris Schapendonk	Migration Studies	Migration beyond the 'centre'
11	Henk van Houtum	Political Geography	From Atlas to Hermes: towards a cartography of movement and connection
12	David Lambert	Geography Education	Geography education and racial literacy
13	Michiel van Meeteren	History of Geography	Geographical thinking as curricular grammar
14	Maarten Kleinhans	Biomorphology	Relevant earth sciences are not objective and repeatable
15	Ton van Rietbergen	Economic Geography	Facts please!
16	Virginie Mamadouh	Political & Cultural Geography	Geopolitics and geopolitical literacy
17	Leo Paul	Regional Geography & Europe	Europe in education: quite important
18	Martijn Gerritsen	Spatial Planning & Energy transition	The Netherlands is not finished after all
19	David Hamers & Rienk Kuiper	Spatial Planning in the Netherlands	Sprint and marathon: scenario thinking for urgent action and a long breath
20	Tim Favier	Climate education & Physical Geography	The future of the Netherlands as a delta country

Tab. 2. Examples of summarized essay content based on the ‘what, why and how’ questions

	Essay 1: Learning from Climate Change	Essay 11: From Atlas to Hermes: towards a cartography of movement and connection	Essay 17: Europe in education: ‘quite important’
What?	<p>Type 1: A systems perspective to gain an understanding of an extremely broad concept (climate change), interdisciplinary, holistic, and reductionist.</p> <p>Type 2: Interactions; water cycle; carbon cycle; disturbances; responses; adaptation; mitigation.</p> <p>Type 3: Limits to the systems approach; lack of empirical knowledge; complexity; wicked problems; uncertainties.</p> <p>Type 4: Climate policies, the use of narratives, storylines, and scenarios for normative aspects and choices.</p>	<p>Type 1: A plea for a new approach to cartography that focuses on connections between people rather than differences between territories.</p> <p>Type 3: The use of geographical information, including awareness of maps as models of the world that are not value-free, the political power of maps, cartopolitics and cartographic cleansing.</p>	<p>Type 4: The EU's involvement in geographical issues is significant, and using a governance framework can help improve to understand the political and economic integration of European countries.</p> <p>Type 5: There are three aspects to consider: geographical diversity between and within EU member states, how the EU works in practice, and the distribution of competences between the union and member states. The key message is that EU decision-making can be explained by diversity.</p>
Why?	<p>Climate change is one of the most significant societal issues of this century. It affects us all and therefore deserves a central place in the geography curriculum.</p>	<p>Striving for a more humane and inclusive worldview through different kinds of maps.</p> <p>Raising awareness of the use of maps in political power.</p>	<p>Geography plays a significant role in EU issues. This should be given more attention in education. There is a great deal of ignorance and misunderstanding surrounding the EU. The EU is a complex subject that is often glossed over too quickly. Geography, with its integrative approach, should play a role in addressing this.</p>
How?	-	<p>Creating and using a diverse map collection, with alternative, subjective maps that conform to everyday, dynamic, layered reality, is key.</p>	<p>There needs to be alignment between school subjects and between lower and upper secondary education.</p> <p>Boring explanations of key institutions should make way for high-quality, applied content on themes such as ‘the internal market’, ‘energy policy’, ‘agriculture and nitrogen’, and ‘asylum policy and borders’.</p>

I have translated all quotes in the text from Dutch into English, but references, with page numbers, are to the original text in the volume (see Table 1). The original Dutch essays can be read by anyone, as the volume is freely available on the KNAG website. This analysis of the essays is entirely in line with the authors' intention in writing them: to stimulate discussion about what students should learn in geography over the next decade. At the symposium participants also discussed the essays, reflecting on them verbally and in writing (via additional contributions in the volume), and working with them in workshops.

This paper arose from the need to consider an interesting curriculum discussion in the Dutch geography education community from a scientific discourse and to share it with an international academic community. The content analysis of the essays reflects my interpretation and does not represent the carefully considered views of the academics on powerful (disciplinary) knowledge, as would have been the case if, for example, interviews had been conducted for that purpose.

Perspectives of geography scholars

What to learn?

The analysis of the 20 essays by knowledge type shows that all five types described by Maude can be found in the texts (table 3). Three-quarters of the essays feature Type 1 *geographical thinking and theoretical knowledge*, often in combination with Type 2 *conceptual knowledge and its application*, which are therefore the two most commonly found knowledge types. In contrast, Type 5 *regional knowledge* features the least. Some essays referred to the local environment, one essay dealt specifically with the EU, and a few favored world knowledge and a global outlook. It could be that the authors assume this type to constitute basic knowledge. Nine essays bring up Type 4 *knowledge of societal issues*. Type 3 *knowledge of knowledge production* was written about slightly less often (six essays), although it should be noted that two authors dedicated their entire essay to this type.

Three topics in particular recurred with a striking frequency. First, several essays highlight the importance of a new way of looking at the interaction between the human and the physical or ecological, instead of approaching these domains as two different systems. Several scholars propose a holistic or integral and connecting view, sometimes linking it to concepts such as landscape or living environment. One scholar suggests that climate change should be a guiding theme in the curriculum (Hazeleger), while a second proposes an Anthropocene angle (Leroy), and a third a somewhat similar 'geography of the relationship between humans and the environment' (Dietz). Leroy in his essay: "In the Anthropocene, this separation is no longer useful, nor defensible for that matter. The historical trajectories of nature and humans now coincide." These scholars recognize the power of the school subject in bridging the gap between disciplines and their epistemological roots, while also acknowledging that this can be challenging (Leroy, Hazeleger, Kleinhans). Adopting a systemic or integrated approach to issues means that students will encounter aspects of almost all other school subjects in geography. As such, Leroy, Hazeleger, and Kleinhans argue, alignment with other school subjects will also be needed. Four essays (Meijles, Gerritsen, Hamers & Kuiper, Favier) write mainly about the Netherlands and its spatial challenges in the context of climate change, energy transition, and water management. They emphasize systems thinking, as well as scenario- or futures thinking. Hamers and Kuiper write: "Futures thinking with scenarios is a key component of good education about the physical environment."

Secondly, other essays emphasize the need for a perspective shift, with more attention to multiperspectivity and positionality, and for a less Eurocentric way of thinking. Schapendonk argues that we can no longer see Europe as the center of the world, nor as the center of refugee reception. Nijenhuis and Bailey argue in favor of a broader, critical view of the world: "Three ingredients should not be missing in a truly global perspective: translocal relations, diversity, and positionality." Power relations are frequently mentioned, including by Van Houtum in his argument in favor of a more critical approach to cartography: "Every map effectively engages in cartopolitics, drawing board politics, every map is a political frame of mind through which to look at the world." There is also a focus on the power of geographical thinking, synthesis, and an awareness of the history of geography,

for example in the context of colonialism. Many essays highlight geography's role as a bridge builder with other disciplines and interdisciplinarity.

Thirdly, Type 3 knowledge of knowledge production features heavily in the essays, some of which use it as their main argument (Kleinhans, van Rietbergen). Maude (2018) distinguishes between two forms of type 3 knowledge: skills to find and make sense of available information and knowing how to evaluate claims about knowledge. It is mainly the latter form that gets attention: in the sense of awareness of and countering pigeonholing, the apparent neutrality of classifying and using facts, and the need for a distinction between empirical and normative issues. Mamadouh advocates that “students develop their own 'bullshit detector' to better analyze and assess geopolitical reasoning in politics and media for falsehoods and inconsistencies.” The authors also refer to the important role of factual knowledge (such as Type 5), good understanding, and practicing geographical reasoning in this era of a post-truth society.

An overall and interesting observation is that most scholars show that you have to combine different types of knowledge to arrive at powerful knowledge (Beneker 2018; Bénéker & van der Vaart 2020). Favier argues this in his essay on the Netherlands as a delta region in the context of climate change:

To be able to think critically about future developments in housing, agricultural transitions, and nature development in the Netherlands, students need to combine spatial planning concepts with more factual knowledge of soil-water systems, landscapes, and population densities. Weighing up different scenarios for this complex issue also requires knowledge of who the stakeholders are and where the resistance and interests lie.

Tab. 3. Maude’s Knowledge Types in 20 Essays

Essays																				
Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1 big ideas, theories	x	x	x	x	x	x			x	x	x	x	x			x		x	x	x
2 analytical concepts	x	x	x	x			x	x	x	x		x	x						x	x
3 knowledge claims	x										x	x		x	x	x				
4 societal issues	x		x				x	x								x	x	x	x	x
5 regional knowledge			x						x	x							x			x

Why this knowledge?

Decisions on what knowledge warrants inclusion in a curriculum cannot be seen separately from where and when these decisions are made. Examining why these geographers deem this knowledge valuable for Dutch young people in the coming years is therefore also very interesting. Education has three generally accepted goals, which may vary in emphasis and importance over time. These goals are 1) to qualify for further education and work, 2) to convey and teach how we organize our society (socialization), and 3) personal development or emancipation, which revolves around the development of one's own interests and curiosity, for example (Johnston 1984; Biesta 2009; Thijs & van den Akker 2009). According to Biesta (2007), in recent neo-liberal decades, a lot of attention has been paid to qualification, neglecting emancipation (subjectification in his words) as a principle aim of education. Moreover, in line with critique from social realists, learning has tended to become an end, rather than a means to an end. In reality, these three larger purposes are often intertwined, not separate.

Looking at the essays, it is striking that they often lack a detailed argument as to why it is important to make this or that central to geography education in today's world. There seems to be an implicit assumption that geography is an essential discipline for understanding the world a little better in this day and age. Consequently, most scholars refer to society and the big issues of our time, such as climate change, environmental issues, the energy transition, safety and disasters, inequalities, and racism, which could be seen as a 'socialization aim', as young people need to be informed in order to function as fully fledged citizens. Authors combine this with views on what students should be able to do, partly referring to emancipation goals: the development of young people's capabilities to become critical, independent but socially engaged thinkers and doers. In their descriptions, the authors make reference to more generic skills and knowledge that students can use in their future lives, for example "to be able to adapt", "as a basis for their actions" (Nijenhuis & Bailey), "to act as city-makers" (Karsten), "to contribute to the future of the Netherlands" (Hamers & Kuiper), "as 'critical global citizens' who can think and act independently in their own learning environment" (van Hoven).

References to qualification for further education are few and far between. This could be explained by the selection of scholars, as we may have expected these arguments from data scientists, for example, but none of the 20 essays were penned by a data scientist. Scholars who focused on Type 3 knowledge of knowledge claims and information skills use more arguments related to opinion-forming and argumentation in defense of our democracy, than a need for further education and profession. Three authors explicitly refer to qualification: "To prepare students for life-long learning during the whole century" (Dietz), "(The) need for spatially educated professionals and citizens" (in the context of the energy transition, Gerritsen) and "geographical thinking becomes a skill with evolving knowledge, which students can use in a variety of places in a future career" (van Meeteren).

How should this knowledge be taught?

The authors were not explicitly asked to share their preferred teaching strategies, as we focused on their role as subject matter experts. This makes it all the more interesting that the authors did frequently address the issue of 'how' geography should be taught, why this matters and how it is linked to curriculum design and the aims of geography education. As Meijles phrases it:

As far as I am concerned, content cannot be separated from how one learns. In upper secondary education, it is important that students develop spatial, location-specific, and holistic thinking skills. (...) It strikes me that the frameworks for fieldwork in the examination program are very limited. (...) While all learning processes about landscape development and living environment undeniably have an outdoor component. And fieldwork is, of course, also just plain fun.

The ideas of the scholars fit well with Roberts' work (2023). Many scholars point to an active way of doing geography, through conversations, discussions, and by going outside, during which you learn first-hand how messy reality is. Overall, the authors highlight the following:

- The need to combine theoretical concepts with concrete knowledge when studying in-depth, complex issues;
- The need for an active enquiry and issues-based approach that fosters questions, harnesses multiple perspectives, and pays attention to (self) reflexivity and a critical attitude;

- The need to go outside the classroom, to do fieldwork and engage in other types of experiential learning that stimulate connection and pay attention to emotions as well.

The last point can be illustrated by the following quote from Pálsdóttir:

Turn students into explorers by going out into their own living environment. Let them experience, see, feel and smell various places with all their senses. In this way (...) we can contribute to increasing our sensitivity to our living environment and what is needed to make it future-proof.

Academic geographers also refer to their discipline and how it provides potential tools in the classroom. As van Hoven says:

The use of methods from Children's and Youth Geographies, such as visual tools (photos and videos depicting concepts, processes, complex interactions and place characteristics in a neighborhood), the use of diaries, mind maps, interviews and data collection apps, not only provide a lot of data, but are also ways of taking the (everyday) geographies of young people seriously and relating them to neighborhood, society and world.

Conclusions

Returning to the two questions I posed at the beginning, my first conclusion is that analyzing and reading the essays from a powerful knowledge perspective and Maude's typology was a useful exercise. Above all, it helped to make sense of the kind of knowledge academics find essential, while also revealing that beyond the knowledge itself, it is how we, teachers and students engage with knowledge that makes it powerful. As an answer to my first question, what ideas of powerful knowledge for school geography can be derived from the scholars' contributions, I identify four main messages. In the coming decade, geography education should pay attention to:

- An integrated approach to physical and human geography, especially considering the climate crisis and the Anthropocene;
- An inclusive encounter with the world with attention to historical developments, power relations, and a geopolitical approach;
- Emphasis on 'knowledge questions', to learn to evaluate and appreciate facts, understand how we build knowledge, and strengthen media literacy;
- A strong connection to young people's lives and environments.

Many teachers and other colleagues were enthusiastic about and inspired by the richness of the easy-to-read essays and the strong case they make for the relevance of geographical knowledge in this day and age. Yet critical questions can also be raised about this collection apart from the selection of scholars alone, which was not as comprehensive as it could have been. Mamadouh (2023) did so in her contribution during the symposium, which is also included the final version of the volume, in which she points out the impossible task geography teachers have. She critically analyzed how the essays that refer to the world beyond the local and national scale, and how they opened that world: from seeing the Netherlands as part of a wider world, to using other places in comparison to the Netherlands, to the ways geographers study and represent that world. This merits careful consideration. What makes teaching so difficult is that the geographical worldview students could develop is about the 'other' and therefore about 'us' as well. "However, the other is there, but also here – in class. This makes the task for geography teachers all the more difficult." (*ibid.*, 128).

The answer to the second question, the value of the concept of powerful geographical knowledge in identifying and prioritizing curriculum content, is more difficult to answer. Maude's typology of knowledge can be found in the scholars' contributions and the typology proved helpful in identifying and highlighting instances of powerful knowledge. Most strongly, it showed how knowledge becomes powerful through the dynamic combination of multiple different types of knowledge. While one might argue that powerful knowledge could serve as a principle for curriculum design, using the concept to prioritize and make real choices is much trickier. There is simply too much potentially powerful disciplinary knowledge out there, or even in the 20 essays alone, and other approaches and strategies must also be used to piece together a curriculum, such as Klafki's (2000) idea of a selection of exemplary epochal issues.

Moreover, the authors showed the need for a didactic approach that leads to engagement with knowledge in a Future-3 curriculum in order to produce powerful knowledge. Even for curriculum selection, one has to reflect on the relationships between curriculum thinking and pedagogy. While a national curriculum can help provide a direction and framework, the specific selection of content in the classroom always has a strong contextual element, which points to the crucial role of the teacher. This, again, brings students into focus as well. Several scholars started their essays by emphasizing student development and acknowledging the everyday knowledge and experiences students bring with them.

A final note on the outcomes of the project pertains to the invited scholars, their essays, and the symposium. This project had a community-building effect, as academic geographers put time and effort into their essays and shared their reflections. This was inspiring for many teachers, teacher educators, and curriculum experts in the field of Geography Education, motivating them to read, reflect, and discuss. At the same time, academic geographers also gained new insights during the symposium by talking with teachers. Interactions like these will prove most helpful for building a relevant and up-to-date geography curriculum for future learners.

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