



**HAL**  
open science

## Enhancing Teachers' Expertise Through Curriculum Leadership-Lessons from the GeoCapabilities 3 Project

David Mitchell, Martin Hanus, Tine Béneker, Mary Biddulph, Caroline Leininger-Frézal, Luc Zwartjes, Karl Donert

► **To cite this version:**

David Mitchell, Martin Hanus, Tine Béneker, Mary Biddulph, Caroline Leininger-Frézal, et al.. Enhancing Teachers' Expertise Through Curriculum Leadership-Lessons from the GeoCapabilities 3 Project. *Journal of Geography*, 2022, 121 (5-6), pp.162-172. 10.1080/00221341.2022.2149838. hal-04029102

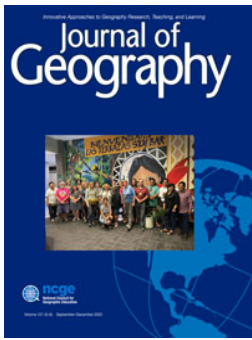
**HAL Id: hal-04029102**

**<https://hal.science/hal-04029102v1>**

Submitted on 22 May 2024

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



# Enhancing Teachers' Expertise Through Curriculum Leadership—Lessons from the GeoCapabilities 3 Project

David Mitchell, Martin Hanus, Tine Béneker, Mary Biddulph, Caroline Leininger-Frézal, Luc Zwartjes & Karl Donert

To cite this article: David Mitchell, Martin Hanus, Tine Béneker, Mary Biddulph, Caroline Leininger-Frézal, Luc Zwartjes & Karl Donert (2022) Enhancing Teachers' Expertise Through Curriculum Leadership—Lessons from the GeoCapabilities 3 Project, Journal of Geography, 121:5-6, 162-172, DOI: [10.1080/00221341.2022.2149838](https://doi.org/10.1080/00221341.2022.2149838)

To link to this article: <https://doi.org/10.1080/00221341.2022.2149838>



© 2022 The Author(s). Published with license by Taylor & Francis Group, LLC



Published online: 13 Dec 2022.



Submit your article to this journal [↗](#)



Article views: 1602



View related articles [↗](#)



View Crossmark data [↗](#)



Citing articles: 7 View citing articles [↗](#)

## Enhancing Teachers' Expertise Through Curriculum Leadership—Lessons from the GeoCapabilities 3 Project

David Mitchell<sup>a</sup> , Martin Hanus<sup>b</sup> , Tine Béneker<sup>c</sup> , Mary Biddulph<sup>d</sup>, Caroline Leininger-Frézal<sup>e</sup>, Luc Zwartjes<sup>f</sup> and Karl Donert<sup>g</sup>

<sup>a</sup>Institute of Education, University College London, London, UK; <sup>b</sup>Department of Social Geography and Regional Development, Faculty of Science, Charles University, Prague, Czechia; <sup>c</sup>Faculty of Geosciences, Utrecht University, Utrecht, The Netherlands; <sup>d</sup>School of Education, University of Nottingham, Nottinghamshire, UK; <sup>e</sup>André Revuz Didactic Laboratory, University of Paris, Paris, France; <sup>f</sup>Geography Department, Sint-Lodewijkscollege, Brugge, Belgium; <sup>g</sup>European Association of Geographers (EUROGEO), Brussels, Belgium

### ABSTRACT

GeoCapabilities is a distinctive approach to teacher professional development which foregrounds the educational potential of geographical knowledge. This paper examines the effect of GeoCapabilities on geography teachers' expertise. First, the paper explores a problem of teacher training which privileges technique for classroom effectiveness over geographical thinking. We then introduce the GeoCapabilities 3 project, presenting and discussing findings through teachers' reflections. We argue that GeoCapabilities 3 offers a model of teacher development, which supports teachers as leaders of curriculum change in an 'activist profession'. This is needed if geography education is to equip young people with knowledge capabilities for their future.

### KEYWORDS

teachers' expertise; professional development; disciplinary knowledge; GeoCapabilities; powerful geography

### Introduction: why a subject discipline focus is needed for teacher professional development?

In this introduction, we first discuss why teacher education tends to lack a balance of engagement with geography (the discipline), teaching skills and the young person's needs. This leads us to explore how GeoCapabilities may support such a balance.

There has been a loss of subject teachers' curriculum leadership in a teacher education landscape of competencies and standards (Uhlenwinkel et al. 2017). The GeoCapabilities model of teacher development can help to address this. Mitchell and Lambert (2015) argued that a more generic, skills-based teacher training that does not fully recognize subject differences, diminishes the subject teachers' role. This is a missed educational opportunity to draw on the powerful knowledge and powerful pedagogies in geography. Rather, teacher education, both initial training and later professional development, should help teachers to reconceptualise themselves as taking on a role and responsibility as curriculum leaders (Mitchell and Lambert 2015).

In many countries teachers' thinking has drawn away from asking important questions about what to teach in order to focus more on considerations of how to teach effectively. This means that curriculum thinking has been displaced by a technical focus on teaching driven by the assumption that any learning, regardless of content, is a good thing, in an uncritical 'learnification' of schooling (Biesta 2013). In other countries,

notably in France or Belgium (fr), teacher training is still dominantly content-based with little consideration on how to teach. However, the content-base has been diluted in some cases. For example, in the Netherlands, primary teacher-training focuses on language and mathematics content, at the expense of depth in geography (Béneker 2018). We note here the need to be cautious in generalizing about differences in the type of teacher professional development between countries. What we can say with some certainty is how varied teacher professional development tends to be, in each European country. The Eurydice report (2021) carried out a quantitative analysis to this effect, finding that Belgium and France show less varied teacher professional development than England and the Netherlands, with Lithuania and Latvia showing the most varied (diverse) professional development (2021, 90). We suggest that more varied and diverse professional development is likely to provide teachers with more balance between disciplinary knowledge, teaching methods and children's needs.

In all European countries, accountability has intensified, with schools and teachers increasingly concerned about performance in a climate of openly published examination results and inspection reports (Pring 2012). Education is now highly marketed, with schools needing to compete with each other for resources, students and parental approval. At the same time, young people are conceived of as consumers who demand to see the immediate relevance of any school activity

**CONTACT** Martin Hanus  [martin.hanus@natur.cuni.cz](mailto:martin.hanus@natur.cuni.cz)  Department of Social Geography and Regional Development, Faculty of Science, Charles University, Albertov 6, Prague 2, 128 00, Czechia.

© 2022 The Author(s). Published with license by Taylor & Francis Group, LLC

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives License (<http://creativecommons.org/licenses/by-nc-nd/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited, and is not altered, transformed, or built upon in any way.

to their learning outcomes (i.e. examination success), or at least to be entertained by their teachers, if they are to engage in lessons and be compliant (Hartley 1997; Ecclestone and Hayes 2019; Morgan 2014; Furedi 2009 for different analyses of an overemphasis on student opinion in curriculum planning). In a postmodern world, boundaries are weakened: between teacher and student; curriculum and pedagogy; disciplinary knowledge and everyday knowledge. Technology is changing everyone's relationship with information and therefore how knowledge is constructed, to such an extent that use of the Google search engine and social media raises serious questions about the value and authority of teacher and curriculum, in the student's mind at least (Morgan 2014).

Teachers are under great pressure in such times. They are pulled in two directions. On the one hand, their students must achieve good exam results, on the other, they try to design engaging, activity-based lessons. In a world where students and parents are seen as 'education consumers' then the cost of this tension is that teachers' careful discipline-based curriculum thinking is replaced by foregrounding competitiveness and performance in exam results. At the same time technologies are used for efficient (but sometimes uncritical) curriculum delivery. In this pressurized educational landscape, teachers' curriculum thinking is outsourced to Google or other similar search engines and the curriculum comprises a sequence of shared PowerPoints in the name of efficiency and curriculum coherence, with little time for deeper curriculum thinking. Mitchell (2020, 172) describes this state of affairs as 'late capitalism thinking' in 'hyper-socialised' curriculum enactment.

Many geography teachers do want to engage in deep curriculum thinking with their subject and have succeeded. These teachers are resisting the pressures described above by navigating their way through late capitalism and hyper-socialisation (Mitchell 2020) by not succumbing to 'deliverology' (Pring 2012), which is too often taken as a common-sense notion of teacher professionalism (see Mitchell and Lambert 2015), but rather by utilizing their identities as geography teachers. Mitchell and Standish (2022) explore how a teacher's initial education can facilitate this, arguing that the teacher will be better able to develop an attitude and identity of geography 'curriculum maker' (Young et al. 2014) and able to resist the performativity pressures, if they engage with deep geographical thinking through their initial teacher education. The same approach (geographical thinking to develop a geographer identity) is needed in the continuing professional development of geography teachers, and here we examine the potential of GeoCapabilities (specifically the work of the GeoCapabilities 3 project) for teachers' professional development.

There is a body of literature demonstrating the problems associated with neglecting subject knowledge in teacher development. Orchard and Winch (2015) ask, 'What training do teachers need?' Teachers cannot just learn disciplinary knowledge or the technical skills associated with teacher effectiveness in the classroom. Whilst practical experience in classrooms has an important role to play, the educational theory is also needed to allow all teachers (beginning teachers and those with more experience) to make sense of their

practice and to help them to develop themselves as professionals—theory which includes how the specialized knowledge of the subject discipline connects to young people, through the teacher's choices. They conclude that teachers must be equipped to make their own critical decisions about what and how to teach. This is a view supported by Goepel (2012) who frames the issue as one of trust (and the erosion of trust in teachers by a ratcheting up of accountability systems), arguing that teachers' professional development should foster independent critical judgment rather than merely to be responsive to externally imposed rules or standards.

Connell (2009), drawing on Australian education and borrowing from Moore's (2004) useful distinctions, shows how the notion of 'the good teacher' has changed over time. Connell argues that since the 1980s teachers have been increasingly seen as 'competent crafts persons' or skilled technicians, managed in an audit culture which is suspicious of older values of 'professionalism'. Connell argues that the 'skilled technician' model of teaching lacks a theoretical knowledge base and that there is no coherence to lists of teaching skills (or competencies) that can be added to, broken down, and redefined in ever more detailed and arbitrary ways. This lack of a coherent image of teaching extends to the individualization of teachers. Self-managing teachers must navigate through a threatening environment without a strong sense that teaching is part of larger communities, including that of the subject discipline (Connell 2009).

Unfortunately, there is little sign that recent global events (the Covid 19 pandemic and the climate emergency) have changed the overriding view of the professional teacher as the skilled and efficient 'deliverer' of exam results (referred to by Pring (2012) as 'deliverology'). Despite the amount of geography in the news, and the ways a geographical education could open up alternative insights into what young people see, read and hear, the school geography curriculum still tends to be slow to respond. Morgan explores how the mentors of new and inexperienced geography teachers might challenge such a culture, asking 'what sort of mentoring for what sort of geography education?' (Morgan 2022, 42). He argues that as the world has lurched from one crisis to another from the 1970s to the present, opportunities to change school geography from the ground up (through the training and development of teachers in school) have been missed. There has been a 'bounce back' from crises like the Covid 19 pandemic to business as normal, in which examination results are still the overriding goal in schools. Mentors, with their influence on new teachers' professional development, could play an important role in challenging a limiting 'business as usual' view of the world (a backward-looking geography). Rather, Morgan argues, they should 'persevere with their geography' (2022, 49) to deeply explain the state of the world and offer alternatives. Also exploring geography mentoring in schools, Bustin's (2022) argument relates to Morgan's call for teachers' professional development to respond to the geography curriculum that young people (and wider society) need. Bustin sees mentors who are engaged with geography and committed to applying geography, critically to their curriculum making, as crucial to the Future 3 curriculum (Young and Muller 2010).

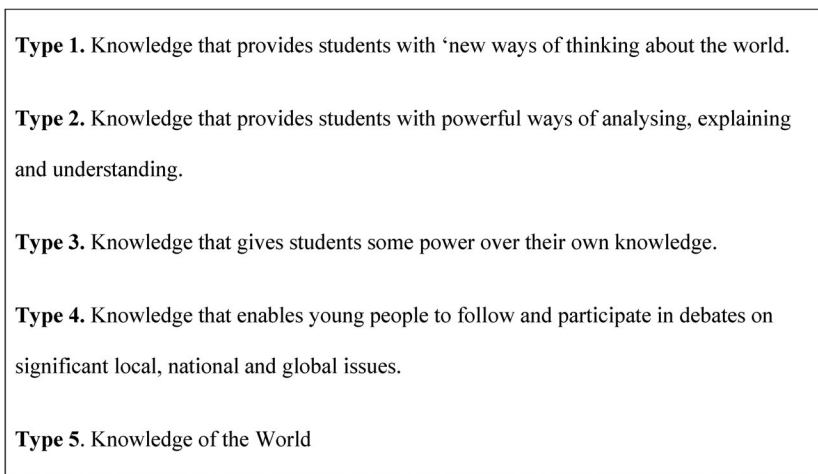


Figure 1. Typology of PDK (Maude 2016).

We are conscious that we have drawn on a predominantly ‘Anglo-Saxon’ context in our discussion thus far. There are different traditions and characteristics of schooling and teacher education across the countries involved in our project. But we share increased pressures of accountability and performativity in teaching. Bustin, Morgan and the wider critique of a narrowing view of teacher professionalism which we have discussed here, all show a need for professional development which helps the teacher become a leader of geography curriculum change in their school. The GeoCapabilities approach offers a way toward this which is relevant in all these countries.

### **How does GeoCapabilities focus teacher development on disciplinary knowledge?**

The GeoCapabilities approach places the subject discipline at the center of teachers’ professional development. It encourages teachers to identify themselves as geographers and to collaborate with each other as part of a geography education community. It does so by asking, ‘What is the educational purpose of a subject discipline?’ When the educational purpose of a subject discipline is understood as the concepts, skills and values necessary to achieve the capabilities necessary for a person to flourish in every way, a theoretically robust case for the value of geography to a child’s education can be made. The key theory supporting this case, is of ‘powerful disciplinary knowledge’ (PDK) (Young 2007; Young et al. 2014) and the allied heuristic of a Future 3 curriculum (Young and Muller 2010). The essential concept here, is that subject (in this case geography) knowledge offers the knower new and valuable (or ‘powerful’) ways of thinking which are not available elsewhere, such as in everyday experiences (Maude (2016) has usefully broken down the PDK of geography into five types (Fig. 1)).

The subject discipline is therefore integral to developing teachers’ professional expertise. Furthermore, this disciplinary knowledge is dynamic, it cannot be set in stone as lists, or texts to be delivered. This concerns the importance of the Future 3 curriculum heuristic (see Lambert, Solem, and Tani

2015), which recognizes the importance of disciplinary boundaries, which are also dynamic. For example, geography is distinct from citizenship studies, sociology or economics, but the discipline also evolves through academic research and is continually being recontextualised and reproduced at various levels, including by the teacher (see Fargher, Mitchell, and Till 2021). To take one example from the GeoCapabilities 3 project, young people can be helped to re-imagine a conception of ‘home’, drawing from geography research, to apply the lenses of place, space and interconnection to people’s lives and relationships. This can develop a more nuanced, critical sense of place, challenging oversimplified notions of insider-outsider and the associated risks of xenophobia (Mitchell and Béneker 2022).

PDK and a Future 3 curriculum are the crux of the GeoCapabilities claim that geographical knowledge is essential in a child’s education. Alongside them is the notion of curriculum making and teachers responsibilities as curriculum makers (Lambert and Morgan 2010). Curriculum making gives geography teachers responsibility for balancing disciplinary knowledge, a child’s life experiences or needs and the teaching approaches. It encourages teachers to think deeply about the distinct concepts and procedures of geography by engaging with academic geography before developing lesson materials with their students’ experiences and needs in mind. Closely related to curriculum making, is the European notion of subject didactics and the relationship between a child, the subject and teachers. Certain principles associated with subject didactics were also drawn upon in the GeoCapabilities 3 project, particularly Klafki’s (1999) questions of the significance of subject content for learners (e.g., Bladh, Stolare, and Kristiansson 2018; Muller 2022). In the methodology section, which follows, we show how GeoCapabilities 3 applied these theories as conceptual and practical tools for teacher development.

The important point we make here is that by making a clear educational case for a curriculum of engagement with disciplinary knowledge, it follows that the subject teacher should ask the question—how can I use geography in ways that open up new and powerful ways of thinking, understanding and doing for young people? This re-focuses the

teacher on subject-based curriculum thinking and leadership. From this position, we present our methodology and then some findings from the GeoCapabilities 3 project to argue that placing the subject discipline and students centrally in teachers' professional development, enhances teacher expertise with strong outcomes for the young person's education.

### Methodology: a GeoCapabilities approach to produce case studies

The GeoCapabilities 3 project was a collaboration between six university partners (two from England and one from each of the other participating countries—Belgium, Czechia, France, and the Netherlands) and the European association EUROGEO. A total of 14 teachers from the five countries participated in the project, selected from the partners' networks. The sample of teachers is a purposive one and not necessarily representative of a larger population. At the outset, the project partners chose the topic of migration as a focus, because it exemplifies PDK and the Future 3 curriculum, being subject to change at an academic research level and to popular misconceptions which knowledge can address. It also resonates with the social justice dimension of GeoCapabilities, being a value-laden issue and a social concern. Also in keeping with GeoCapabilities as social justice through education, we chose to work with teachers in schools labeled as 'challenging', in areas of relatively high deprivation affected by de-industrialisation and recent migrations (see Biddulph et al. 2020).

Drawing from phase one and two of the project (GeoCapabilities 1 and 2, see <https://www.geocapabilites.org>), we collaboratively developed a process with the teachers we called a GeoCapabilities approach (described below). At each stage of the process, we collected data in the form of teacher 'vignettes' describing the PDK of migration geography they intended to teach, interviews with the teachers, lesson observation, students' concept mapping and teacher-student focus group discussions about the topic. At the end of the project, the teachers produced 'storymaps' describing their curriculum making and how they felt the project had affected their teaching and professional development.

We analyze these data using an interpretivist, case study approach. Borrowing from narrative methodology, we pay attention to the teachers' stories and the themes emerging from them. Part of our aim in this article is to show how putting the subject discipline at the forefront of teacher development in curriculum thinking does not merely improve teachers' knowledge, but it can enhance teacher expertise and effective teaching more widely. We are exploring the GeoCapabilities 3 project findings as a form of teacher professional development and so we have chosen Kyriacou's (2007) widely used teacher education text in our analysis. Kyriacou (2007) uses three elements of teachers' skills defined as 'discrete and coherent activities by teachers which foster student learning' (2007, 4) of:

- knowledge, comprising the teacher's knowledge about the subject, students, curriculum, teaching methods, the influence on teaching and learning of other factors, and knowledge about one's own teaching skills;

- decision-making, comprising the thinking and decision-making that occurs before, during and after a lesson, concerning how best to achieve the educational outcomes intended;
- action, comprising the overt behavior by teachers undertaken to foster student learning.

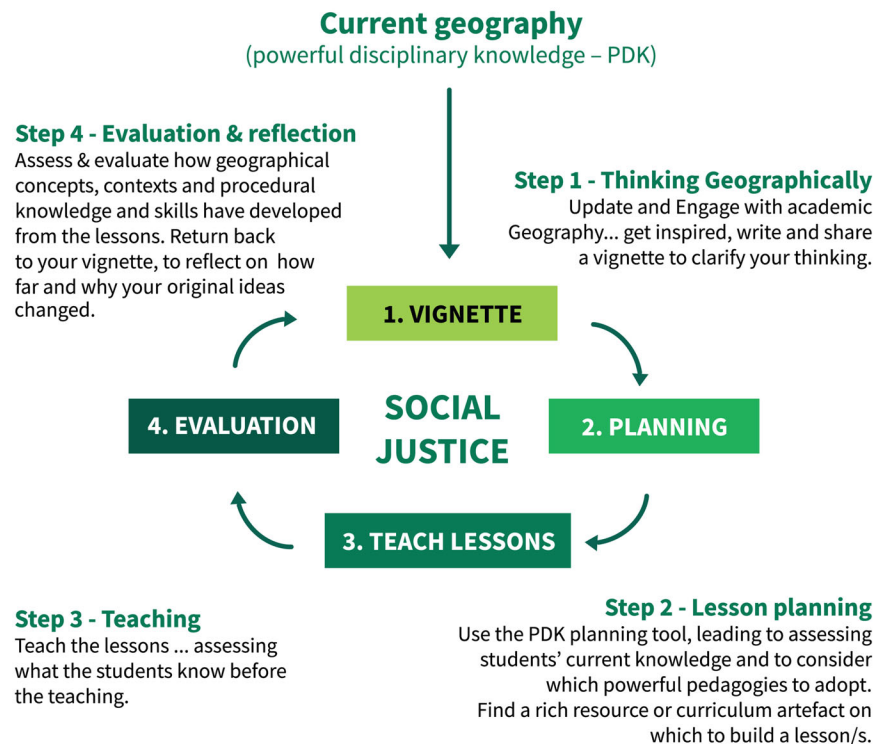
We return to Kyriacou's three elements in the 'findings' section of our article. We now describe how we brought the GeoCapabilities lens to teachers' work, in a practical sense, through four steps. These were:

- engagement with academic geography (a university seminar) and the recent trends in geography education, through open and supportive dialogue between academics, teacher-trainers and teachers to develop teachers' expertise in the knowledge element of Kyriacou;
- lesson planning/curriculum making—re-thinking aims for teaching migration. These were expressed in 'vignettes'<sup>1</sup> linked to what we knew of our students' context; activities in this phase of the project were aimed at enhancement of teachers' decision-making element;
- teaching the lessons, e.g., develop the action element;
- evaluation (of how far powerful knowledge and geographic capabilities had developed) that, among other things, enabled teachers to reflect on their professional development in all three elements of Kyriacou.

Although, the link between the four steps of the GeoCapabilities 3 project and the Kyriacou's three elements of teachers' expertise was evident, it was expected that the activities in each of four steps of the project enhanced the teachers' development in more than one indicated element.

The GeoCapabilities approach emerged as a cyclical process with the teacher returning to the discipline (and how it is potentially helpful for the particular young people) as we evaluated and reflected on how and why the PDK of geography had been learned as intended (Fig. 2). GeoCapabilities can be thought of as a form of spiraling professional development (as shown by Fig. 2) in which knowledge enables teachers to make decisions and enact curriculum change in the classroom—which in turn feeds back to enhance their knowledge of young people's relationship to geography.

Beneker's (2018) model of powerful knowledge in geography inspired the GeoCapabilities 3 team to develop practical planning tools for both teaching and evaluating development of knowledge of migration. These practical curriculum planning tools were combined with a student focus group and concept-mapping exercise with students. The focus group evaluations were held approximately one month after the migration teaching, to evaluate deeper learning. Concept mapping was used to evaluate the development of students' PDK, encouraging students to articulate geographical concepts and contexts as well as feelings, values, and ideas. Concept maps were photographed, and the discussions were recorded and transcribed. Although some adaptations of the process to the national and school contexts occurred between the partners of the project, the general framework was followed as described. Then, data were analyzed using Maude's typology of PDK (Fig. 1) and Klafki's (1999)



**Figure 2.** The GeoCapabilities approach in practical steps, <https://www.geocapabilities.org/geocapabilities-3>.

questions about the current and future significance of curriculum content to the students. This produced a co-constructed account of the PDK of migration by teacher and students, in each school, that were presented as teachers' stories in the StoryMaps format. The full accounts or 'stories' including the concept maps can be found at <https://www.geocapabilities.org>. We use reflections and storymaps from all the participating teachers to show how engaging with the PDK of geography enhanced teachers' expertise. Additionally, we use teachers' reactions from the interviews taken by each partner (except EUROGEO) with one associate teacher involved in the project. These interviews reflected on teachers' overall involvement in the project and how it had affected their professional expertise. The study's findings build on all these inputs from teachers involved in the project; however, teachers' quotes from reflective interviews more specifically illustrate how putting the subject discipline at the forefront of teachers' curriculum thinking enhances teacher expertise and effective teaching. As such, primarily supporting and positive quotes are mentioned, while the limitations observed are more discussed in the discussion section.

## Findings

This section explores professional development through the stories of teachers involved in the GeoCapabilities 3 project. It is structured according to Kyriacou's three elements of knowledge, decision-making and action. Kyriacou's elements are helpful to analyze how GeoCapabilities contributes to the development of the 'skilled teacher'. However, we find that these elements can be interpreted as interconnected and overlapping (rather than discrete)—the qualitative change in

one element inevitably results in changes in the other two elements.

### Knowledge development

Through the GeoCapabilities 3 project, teachers developed a wide range of knowledge that shaped their teaching and curriculum making about the topic of migration. First, they deepened, updated, and revised their disciplinary knowledge about migration through academic geography.

Teacher AL: 'An academic geography was the starting point of my thinking about teaching about migration'.

Specifically, seminars and discussions with academic geographers, academic articles, and (in the case of recent graduates) their past university courses were used as primary tools to enhance their knowledge of migration. They enabled teachers to sum up what do (and what do not) they know about migration (and its broader consequences, e.g., push and pull factors and specific conditions in different regions, variability in migration policies among countries, impacts of immigration and emigration on society and economy, globalization of migration), understand specific concepts and use new language (e.g., home, remittances, 'elite cosmopolitanism', 3% rule, irregular migration, chain migration, step by step migration, securitization of migration) in the dialogues, and helped them to understand the migration-related educational issues better. In particular, academic geography helped them to understand (and subsequently to select responsibly and teach better) key concepts of migration.

Teacher KL: 'Geography teachers, migration researchers, teacher trainers and university teachers joined forces to rethink our

current perspectives on migration theory in the current geography curriculum’.

Teacher FL: ‘My learning aims for teaching migration were shaped by the seminar with academic geographers and by having my own students’ in mind’.

Teacher KA: ‘Meetings with academic experts in migration geography and geography education were open-minders that helped me think innovatively and in a clearly structured way about my migration teaching’.

Teacher AL: ‘As a recent graduate from university, my studies and several academic articles about recent trends in migration theory were important in my thinking and planning’.

For the use of powerful pedagogies (specifically to ground lessons in the students’ prior knowledge and experience), teachers found it critical to develop their disciplinary knowledge of migration and their knowledge about/perception of students’ knowledge about migration. Therefore, teachers employed specific pedagogical principles to investigate students’ prior knowledge and possible misconceptions—i.e., they extended their knowledge of students’ knowledge.

Teacher KL: ‘We all felt the necessity to give a voice to the students’ experience and integrate their personal geographies into the existing curriculum’.

Subsequently, teachers enhanced their expertise by familiarizing themselves with the GeoCapabilities approach and its educational potential. Specifically, they were trained in the fundamental concepts of the approach, the typology of PDK, the process of vignette writing and the curriculum artifact deliberation. The teachers used this knowledge to reflect on their actual knowledge and thinking about geographies of migration and, as such, helped them think about the PDK and specify the migration-related curriculum. Before the project, teachers were not fully conversant with this approach and its key concepts. They perceived them as one of the tools that helped them critically evaluate their current teaching approach and enhanced their professional development toward curriculum making and leadership.

Teacher KA: ‘Reflecting on my participation in the project, I perceive the knowledge of GeoCapabilities approach and related concepts as a vital tool that supported my innovative thinking about the migration lessons in a clear and well-structured way’.

Knowledge of the GeoCapabilities approach helped teachers develop their knowledge about curriculum (the migration-related educational issues, educational resources, possible bottlenecks and opportunities for scaffolding) and knowledge of pedagogical principles (e.g., how identify students’ prior knowledge and possible misunderstandings or how reach the conceptual change in students) and teaching skills. Such knowledge supported teachers to make decisions related to curriculum planning and teaching.

### **Decision-making**

The lesson planning process, grounded in their newly acquired knowledge, led teachers to think critically of their teaching, plan the lessons innovatively and encouraged them to not stick to the textbook or the strictly formulated

curriculum. This was boosted by the process of vignette writing and curriculum artifact deliberation. The project developed teachers’ reasons to make bold decisions about their teaching and the confidence to do so. This was preceded by critical and innovative thinking about their teaching.

Teacher KA: ‘The GeoCapabilities 3 project brought brand new inputs to my thinking about teaching. The GeoCapability approach (significantly the curriculum artifact deliberation and the vignette writing) helped me structure my thinking about migration lessons’.

Teacher SA: ‘The GeoCapability approach has helped me narrow down and focus better my work. Subsequently, it allowed me to be more organized, systematic and to work more closely with the students’.

Teacher AL: ‘GeoCapability approach enabled me to start thinking about the geography in the geography curriculum in careful and informed ways. This then framed my curriculum planning and teaching’.

Next, innovative and structured thinking about the topic (migration) and teaching forced teachers to reflect on the lesson aims and structure, respectively, to decide to restructure the lesson and set the specific educational aims. Considering specific national, regional, school and class circumstances, teachers specified the educational outcomes for their lessons about migration. I.e., teachers planned to equip students with various ways of data analysis, different perspectives of the issues, the interconnectedness of the problems, geographical concepts, regional and global knowledge, or specific vocabulary. Moreover, students learned to follow and participate in the debates, examine and reflect on the decisions made by other people, consider ethics of policing and managing migration movements, identify choices in their lives, etc. These educational outcomes formed a framework for all the subsequent activities.

Teacher KA: ‘Migration is a traditional part of my geography courses. However, I always find it challenging to teach because of its complexity and, in many ways, its sensitivity. In my lessons, students should develop the ability to think about different aspects of migration, discuss them, argue correctly, use relevant sources of information and evaluate them’.

Teacher AL: ‘I decided to use ‘mobilities’ as a lens for planning the type of geography that would enable students to develop a more critically informed understanding of migration. My students should analytically deconstruct geographical data so that they can fully participate in debates on contemporary issues. It encourages them to not only reflect upon migration from a positivist perspective but also humanistic perspectives and constructivist perspectives’.

Teacher FL: ‘I wanted my students to gain ‘powerful’ geographical knowledge and explore stereotypes and preconceptions on migration-related issues. I aimed to turn around the notion of migration as always into the UK and look at emigration out of the UK by using identities and a nuanced conception of ‘home’ that can cross national borders and be about interconnections, as much as a single location’.

Subsequently, teachers were encouraged to think about the PDK they intended to develop in their students (i.e. further specify the educational aims). This decision-making was



supported by the processes of curriculum artifact deliberation and vignette writing.

Teacher SA: 'I did not know before how to get started, what relevant materials to select and use. The process of vignette writing and artifact deliberation allowed me to identify students' skills and knowledge to work on in my lessons'.

In some cases, teachers found it challenging to link the vignette-writing about geographical concepts to the classroom. Then, they suggested changing the teacher's vignette-writing stage from a purely geographical thinking exercise to one more connected to students' needs.

Teacher FL: 'Geographical concepts were more in the vignette than the teaching. On reflection perhaps the vignette could be more about connections. For me, the powerful knowledge is getting the children to think outside their experience, more than my vignette'.

Furthermore, teachers in the process of vignette writing identified opportunities to scaffold learning. Particularly, they recognized possible bottlenecks in teaching and learning, preempted students' questions and gathered resources (i.e., the curriculum artifacts) needed for students' better understanding of the issues taught.

Teacher FL: 'The creation of the vignette gave me a more critical and current approach to the sub-topic of migration. It helped identify opportunities to scaffold learning and help students make grounded decisions about migration, understand places and the people within or connected to them. I was able to preempt students' questions better and gather resources to support students' understanding of migration and 'home'—two relatively complicated concepts'.

Teacher KL: 'It was challenging to find a curriculum artifact that could cover migration-related concepts and would at the same time appeal to the students' interests, triggering their attention and allowing them to understand the conceptual basis of the assignment we were about to start'.

Finally, teachers had to make decisions about PDK development and achieving educational goals through suitable pedagogical strategies (see the Action section below). They mostly think about powerful pedagogies with the intention to set students into the center of their teaching. Specifically, to move away from talking about and instead listen to the students' own perspectives.

Teacher FL: 'The learners had to be included at all stages of my curriculum-making'.

Teacher SA: 'The GeoCapability approach also allowed me to build my course in a more student-focused way'.

### **Action—teachers' behavior and application of powerful pedagogies**

After developing their knowledge and decision-making in curriculum making and lesson planning, teachers enhanced their expertise in the action element, specifically in developing a specific professional behavior (connected to their role in the community), and in applying powerful pedagogies to achieve the educational aims. They used a mix of pedagogical principles (e.g., using rich and engaging real-world data and focusing on the practical consequences of the

studied processes for their everyday lives). Some of the principles were migration-specific but mostly universal and applicable to all (not only) geographical PDK, which has a human dimension (see details below). Most of the principles and techniques used were perceived as innovative or innovatively used in the given context.

GeoCapabilities encouraged the teachers to consider students' prior knowledge and most of the lessons were well-grounded in this. Teachers addressed misconceptions related to basic geographical (migration) concepts, for example, by using concept mapping to develop conceptual understanding and insight into the complexity of the migration processes.

Moreover, teachers aimed their lessons at students' use of and access to reliable sources and data and thought critically about the introduced information when addressing students' misconceptions.

Teacher KA: 'Together with my students, we focused specifically on where to get relevant information and develop abilities to analyze conditions leading to social inequality in the world (and in our surroundings) and values of social empathy... In the lesson, students developed their awareness that some media are inflating the migration situation and that fake news and hoaxes are spreading in media and on social networks'.

The majority of lessons taught were student-centred, stressing the need for higher levels of student engagement. This was done using individual and/or group teaching and learning activities, particularly dialogic teaching addressing teacher and student-generated questions, e.g., a rotating debate technique. The higher engagement of students was identified as the critical and truly powerful pedagogical principle.

Teacher SA: 'To engage students in the lesson I decided to employ the rotating debate technique. I was pleasantly surprised by the way the students took charge of the debate. Specifically, how active and open-minded in the migration-related debate they were'.

Additionally, teachers used various pedagogical strategies to bridge relevant theories and real life in their lessons. Specifically by focusing on the concrete life stories of real migrants. Teachers from countries, regions or schools with higher migrant backgrounds used students' personal and family experience with migration. The rest of the teachers used the mediated life stories of migrants—employing storytelling, role-playing, or drama-use to enable students to perceive specific situations and their consequences.

Teacher AL: 'I built a range of 'powerful pedagogies' into my teaching such as opportunities for data analysis and critique, examination of migration at temporal and spatial scales and studying an individual migrant's story. Technology was layered into the teaching via ArcGIS and Gapminder as geographical visualization tools to support students' understanding'.

Although they used the trial-error approach in some cases, teachers perceived their lessons as effective, mainly because they achieved the educational aims and positively affected students' PDK (identified by pre- and post-lesson protocols) and effectively engaged students in complex and relevant discussions.

Teacher FL: ‘Trial and error underpinned my curriculum making. Both teaching and evaluating change depend on the class dynamics and abilities. My aims did not change throughout, but the teaching had to be malleable depending on school lesson changes and student engagement. The powerful knowledge was developed. Through some written work and class discussions, it was clear that students could explain different motivations for migration; understand how we make homes in different places; and engage with how migrations might influence the current and future world’.

Teacher KA: ‘When evaluating the lessons (using the evaluation protocols), it could be stated that the teaching process was effective. Two thirds of students positively rated their shift in PDK about migration—some have developed their knowledge, others their attitudes. Nevertheless, the majority has developed in both knowledge and attitudes’.

This was verified by the positive feedback on the lessons from students. Students mainly appreciated that teachers engaged them in the lesson through discussions, enquiries, significant questions/problems to be addressed, etc. This was supported by using rich and engaging real-world data and visualization, helping students understand the fundamental concepts better. Almost all participating classes appreciated that the lesson focused on the practical consequences of migration processes for their everyday life (e.g. the interconnection of local and global processes) and, especially, were impressed by the personal stories of migrants. Such lessons helped students think of their migration background and find out new information (mostly of emotional nature) about their families. This supported the formation of students’ personal geography.

Teacher KL: ‘After the migration lesson, students came back with interesting thoughts, new insights and open reflections on their family migration and their notion of home’.

Teacher SA: ‘I have never seen students enjoy doing assignments so much’.

Teachers’ professional development in the ‘action’ element was further supported by the possibility to share their direct experience with colleagues regionally, nationally and internationally. In many cases, this opened their eyes (and minds), supported innovative teaching, and positively influenced their self-confidence. In some cases, this was perceived as a springboard to teachers’ further engagement in the collaborative geography teacher community.

Teacher SA: ‘What I liked about the project was that we reflected and exchanged concepts with students and other teachers’.

Teacher DA: ‘Involvement in the GeoCapabilities project gave me the opportunity and the impetus to read across the discipline and to use the knowledge gained from this to shape alternative approaches to the concept of place’.

It can be concluded that through the lessons taught, teachers enhanced the action aspect of their professional expertise, particularly by trialing the powerful pedagogies in their classes. This was grounded in the developed expertise in knowledge and decision-making.

For most of the teachers involved, the integration of the pedagogies and subject knowledge in the GeoCapabilities 3 project was innovative and led to a comprehensive development of their expertise as geography teachers. Generally,

teachers developed their migration-related curriculum, including new lesson plans and conceptual and practical tools. They revised their lesson plans by specifying the lesson content (by identifying the PDK) better, implementing innovative ways of teaching using the principles of powerful pedagogies, and evaluating and improving time management (e.g., providing more time to reflect on the lesson; reflecting on the students’ feedback). Moreover, the project boosted teachers’ professional development in subject-specific knowledge, skills and pedagogy. Teachers both updated and deepened their knowledge in the field and started to think critically about their actual teaching:

Teacher KL: ‘As a geography teacher working in a multicultural environment, I am keen to find ways of weaving the students’ geographies into the lessons. The GeoCapabilities approach is a welcome opportunity to rethink possibilities. We often speak about migration, migrant neighborhoods, the other or other cultures. Yet, how can we give space to the students’ own experiences and perspectives? How can we move away from talking about and instead listen to the multiple perspectives and richness in experience available in the classroom?’

Teacher KE: ‘The effect of the project on my expertise is evident to me, however, I still feel the need to practice and use it regularly in standard situations. I could not fully benefit for the approach yet as the Covid-19 had blocked normal lessons’.

Therefore, teachers made progress in all three of Kyriacou’s (1987) elements of teachers’ skills: knowledge (of the subject, students, curriculum, and pedagogical strategies), decision-making (especially in the process of curriculum making and lesson planning), and action and behavior in lessons (application of powerful pedagogical strategies).

Teacher KL: ‘All in all, being a part of the GeoCapabilities project was an interesting journey. Stepping away from the curriculum and schoolbooks can sometimes be challenging yet is always rewarding’.

Teacher KA: ‘It was really challenging for me. Still, there is a need to work in this way for a long time to make educational impacts noticeable and mainly positive’.

Several tools supported teacher expertise enhancement helping teachers to start thinking innovatively about their teaching, improve their knowledge, and develop powerful pedagogies. These were primarily the creating of vignettes and deliberating the curriculum artifacts, discussions with academic geographers and geography educators, sharing ideas with other teachers (nationally and internationally), and the GeoCapabilities approach itself (familiarizing themselves with the fundamental concepts of the approach: PDK, capability, Maude’s typology of PDK, curriculum-making, etc.).

## Discussion

The experiences of the teachers in the GeoCapabilities 3 project suggest that a model of developing the ‘skilled teacher’ can be one which foregrounds subject disciplinary knowledge. We see this as reclaiming the notion of teacher professionalism from the competent craftsperson discourse and replace it with one of the ‘teacher as a curriculum leader’. Such teachers are engaged with exploring the educational potential of geography (the academic discipline) in a

professional community. The skills-knowledge relationship is brought to light here. We see the two as inseparable and, as Shulman (1987) showed that knowledge, both about teaching and the subject discipline, are the basis for the teacher's actions. We found the knowledge, decision-making and actions of the skilled teacher were overlapping and interdependent. Kyriacou's third area 'action' is of particular interest to us in the project findings. 'Action' resonates with the problem of an inert geography curriculum and a tendency to resume 'business as usual' when the times call for curriculum change and leadership in doing so.

Teachers on the project spoke of the benefits of geographers (teachers, academics and educators) working together with a focus on school geography. The collaborative work and support of a professional community gave teachers the knowledge and also the confidence to act. Even though there was no funding to 'buy' the teachers out of school, they found the time and a space to make changes to what and how they taught migration geography. According to their evaluations, the changes enhanced the quality of their students' geography curriculum. Critical reflection was important here, in and on action (see Schon 1983) and as a cyclical process resembling Kolb's (1984) reflective cycle. But distinctive in the project was the commitment to pushing the boundaries of their school geography which these teachers showed. They kept focused on geographical knowledge—drawing on the discipline of geography, with their pupils' needs in mind. This is, therefore, a model for enacting a Future 3 curriculum (Lambert, Solem, and Tani 2015).

A Future 3 curriculum is one in which powerful disciplinary knowledge (PDK) is enacted by teachers. It is the teacher who constructs, or 'makes' the curriculum for his/her learners and so the enacted curriculum can be different in every school. But, as the earlier discussion shows, there are pressures on teachers to conform to the dominant 'deliverology' narrative—and training students to pass tests (Pring 2012). When this situation is accepted, an inert (Future 1) curriculum actually becomes an advantage because it is easier to train students to pass examinations when content is stable and predictable. But the world is anything but stable and predictable. Academic geography research reflects this, including in migration studies and this calls for a more activist notion of the teacher's role in the curriculum.

The GeoCapabilities 3 teachers' decision-making and action (their curriculum making) reflects how Sachs (2003) described teaching as an 'activist profession' (2003). It also resembles the school-led curriculum development (e.g., Skilbeck 1990; White 1997; Rawling 2001). As the Anthropocene emerges as an unavoidable reality, the need for an 'activist profession' is more pressing than ever, amidst calls for education to do more to address global challenges (International Commission on the Futures of Education 2021). In this context, the GeoCapabilities approach warrants attention as a way to support this. Morgan (2021) explores the role that education plays in reproducing the carbon-based economy and how schools teach a 'fossil curriculum'. He argues that for education to play its part in a

post-carbon future, the curriculum must reveal the political economy linked to the climate emergency and wider environmental and social problems. To achieve this, Morgan argues teacher development is key to encouraging new teachers to 'persevere with their geography' (2022, 49) by challenging a fixed or backward-looking curriculum. Our project findings relate to migration geographies, which are connected to climate change, globalization and the carbon economy. Our main point here is that GeoCapabilities 3 helped teachers develop professionally, gaining the confidence and the opportunity to take action to develop their curriculum. Morgan (2022) offers a typology of mentors, including mentor as knowledge-focused, activist, reflective and networked. We see each of these reflected in the GeoCapabilities 3 teachers' accounts.

Although the professional development of teachers involved in the GeoCapabilities 3 project is evident, one should be aware of the specific conditions to be met and barriers for the efficient professional development to be eliminated (Ingvarson, Meiers, and Beavis 2005). First, it requires progressive teachers (Adler and Iorio 2013) that are open to think critically and innovatively and to invest their time to develop lessons in a powerful way. While teachers have part of their working time dedicated to these activities in some education systems, it is often a matter of teachers investing their personal time. Additionally, even where teachers are 'open' to the ideas of GeoCapabilities, there is a wide spectrum between teachers' academic background knowledge, experience and particular interests.

Furthermore, teachers' development can be limited by the national, regional or school educational specifics, e.g., the rigidity of the curriculum, examinations systems, traditional teaching approaches (use of textbooks, etc.). As the 'strict' curriculum leaves little freedom or responsibility for schools and teachers, there is no (or very limited) space for developing teachers' own curriculum, nor the development of curriculum making expertise by individual teachers. Additionally, their curricular expertise can be limited by a perceived lack of time in (Future 1 curriculum) teaching programmes to implement powerful pedagogies. Teacher education toward a Future 3 curriculum is greatly enhanced by school leadership which recognizes the significance of this (Young et al. 2014). Finally, there is a robust tradition of the dominant use of textbooks in lessons in many countries/schools. As a result, teachers are required to follow the book without any fundamental deviation. The elimination of these barriers can support the professional development of teachers as curriculum makers, leaders and advocates (Lambert, Solem, and Tani 2015).

## Conclusion

Geography teachers develop professional expertise through building knowledge, understanding, skills, values and beliefs around education, geography and teaching. The GeoCapabilities 3 project supported all these areas by offering teachers a space to explore curriculum purpose through a conception of geographical (powerful) knowledge to open

up young people's choices, and by developing the teacher's tools to enact this in the classroom. These are tools to develop the teacher's disciplinary (geographical) knowledge, their abilities to recontextualise that knowledge and their understanding of their students' prior knowledge, capacity to learn and to develop new understandings (students' experiences and individual learning needs).

GeoCapabilities particularly foregrounds disciplinary knowledge in a distinctive teacher development approach. We have applied Kyriacou's notion of the skills a teacher needs, to show that GeoCapabilities 3 has been more than just updating the teacher's academic geography knowledge of migration. It develops teacher expertise in a broad and practical way by enabling teachers to bring into the classroom geographical knowledge that resonates with young people living in the Anthropocene era. A progressive view of disciplinary knowledge underpins GeoCapabilities, and we found that the lens of teacher expertise applied to GeoCapabilities 3, helps show why and how geography teachers should, in Morgan's terms, 'persevere with their geography' (2022, 49).

## Note

1. These and the other project teachers' vignettes of migration make a stimulating resource for teachers at <https://www.geocapabilities.org/vignettes>.

## Funding

This work was supported by the European Union Erasmus + Programme under Grant no. 2018-1-UK01-KA201-048104.

## Orcid

David Mitchell  <http://orcid.org/0000-0002-8294-0519>

Martin Hanus  <http://orcid.org/0000-0002-9873-5106>

Tine Bénéker  <http://orcid.org/0000-0001-5110-5003>

## References

- Adler, S. M., and J. M. Iorio. 2013. Progressive teachers of young children: Creating contemporary agents of change. *International Journal of Progressive Education* 9 (2):129–43.
- Bénéker, T. 2018. *Powerful knowledge in geography education: Inaugural lecture*. Utrecht University, Faculty of Geosciences, Utrecht, NL.
- Biddulph, M., T. Bénéker, D. Mitchell, M. Hanus, C. Leininger-Frézal, L. Zwartjes, and K. Donert. 2020. Teaching powerful geographical knowledge – A matter of social justice: Initial findings from the GeoCapabilities 3 project. *International Research in Geographical and Environmental Education* 29 (3):260–74. doi: 10.1080/10382046.2020.1749756.
- Biesta, G. J. J. 2013. *Beautiful risk of education*. London: Paradigm. <https://www.routledge.com/Beautiful-Risk-of-Education/Biesta/p/book/9781612050270>.
- Bladh, G., M. Stolare, and M. Kristiansson. 2018. Curriculum principles, didactic practice and social issues: Thinking through teachers' knowledge practices in collaborative work. *London Review of Education* 16 (3):398–413. doi: 10.18546/LRE.16.3.04.
- Bustin, R. 2022. Mentoring as a professional development opportunity. In *Mentoring geography teachers in the secondary school*, edited by G. Healy, L. Hammond, S. Puttick, and N. Walshe, vol. 1, 75–87. London: Routledge. doi: 10.4324/9781003157120-8.
- Connell, R. 2009. Good teachers on dangerous ground: Towards a new view of teacher quality and professionalism. *Critical Studies in Education* 50 (3):213–29. doi: 10.1080/17508480902998421.
- Ecclestone, K., and D. Hayes. 2019. *The dangerous rise of therapeutic education*. Vol. 2. London: Routledge. doi: 10.4324/9780429401039.
- Eurydice. 2021. *Teachers in Europe: Careers, development and well-being*. Luxembourg: Publications Office of the European Union. [https://eacea.ec.europa.eu/national-policies/eurydice/content/teachers-europe-careers-development-and-well-being\\_en](https://eacea.ec.europa.eu/national-policies/eurydice/content/teachers-europe-careers-development-and-well-being_en).
- Fargher, M., D. Mitchell, and E. Till, eds. 2021. *Recontextualising geography in education*. 1st ed., 2021 ed. Cham, Switzerland: Springer.
- Furedi, F. 2009. *Wasted: Why education isn't educating*. London: Continuum Press.
- Goepel, J. 2012. Upholding public trust: An examination of teacher professionalism and the use of Teachers' Standards in England. *Teacher Development* 16 (4):489–505. doi: 10.1080/13664530.2012.729784.
- Hartley, D. 1997. *Re-schooling society*. London: Routledge.
- Ingvarson, L., M. Meiers, and A. Beavis. 2005. 'Factors affecting the impact of professional development programs on teachers' knowledge, practice, student outcomes & efficacy. *Education Policy Analysis Archives* 13:10–26. doi: 10.14507/epaa.v13n10.2005.
- International Commission on the Futures of Education. 2021. Release of progress update. UNESCO. <https://en.unesco.org/futuresofeducation/news/progress-update-release-march>.
- Klafki, W. 1999. Didaktik analysis as the core of preparation of instruction. In *Teaching as a reflective practice*, by I. Westbury, S. Hopmann, and K. Riquarts, 139–60. London: Routledge.
- Kyriacou, C. 2007. *Essential teaching skills third edition*. 3rd Rev. ed. Cheltenham, UK: Nelson Thornes Ltd.
- Lambert, D., and J. Morgan. 2010. *Teaching geography 11–18: A conceptual approach*. 1st ed. Maidenhead: Open University Press.
- Lambert, D., M. Solem, and S. Tani. 2015. Achieving human potential through geography education: A capabilities approach to curriculum making in schools. *Annals of the Association of American Geographers* 105 (4):723–35. doi: 10.1080/00045608.2015.1022128.
- Maude, A. 2016. What might powerful geographical knowledge look like? *Geography* 101 (2):70–6. doi: 10.1080/00167487.2016.12093987.
- Mitchell, D. 2020. *Hyper-socialised – Enacting the geography curriculum in late capitalism*. Abingdon: Routledge.
- Mitchell, D., and T. Bénéker. 2022. Expanding students' concept of "home": Teaching migration with a geographic capabilities approach. In *Children, education and geography: Rethinking intersections*, edited by L. Hammond, M. Biddulph, S. J. Catling, and J. H. McKendrick. Abingdon: Routledge.
- Mitchell, D., and D. Lambert. 2015. Subject knowledge and teacher preparation in English secondary schools: The case of geography. *Teacher Development* 19 (3):365–80. doi: 10.1080/13664530.2015.1042024.
- Mitchell, D., and A. Standish. 2022. Embedding epistemic quality in the pedagogy of student geography teachers. In *International perspectives on knowledge and quality: Implications for innovation in teacher education policy and practice*, by B. Hudson, N. Gericke, C. Olin-Scheller, and M. Stolare, 63–86. London: Bloomsbury Publishing.
- Moore, A. 2004. *The good teacher: Dominant discourses in teaching and teacher education*. London: Routledge.
- Morgan, J. 2014. 21st century learning – Again. *Schoolingcapitalism*. March 25. <https://schoolingcapitalism.wordpress.com/2014/03/25/21st-century-learning-again/>.
- Morgan, J. 2021. From the fossil curriculum to the post-carbon curriculum: Histories and dilemmas. In *Curriculum challenges and opportunities in a changing world: Transnational perspectives in curriculum inquiry*, edited by B. Green, P. Roberts, and M. Brennan, 325–45. Curriculum Studies Worldwide. Cham: Springer International Publishing. doi: 10.1007/978-3-030-61667-0\_19.
- Morgan, J. 2022. What sort of mentoring for what sort of geography education?. In *Mentoring geography teachers in the secondary school*, edited by G. Healy, L. Hammond, S. Puttick, and N. Walshe, vol. 1, 75–87. London: Routledge. doi: 10.4324/9781003157120-8.

- Muller, J. 2022. Powerful knowledge, disciplinary knowledge, curriculum knowledge: Educational knowledge in question. *International Research in Geographical and Environmental Education*: 1–15. doi: [10.1080/10382046.2022.2058349](https://doi.org/10.1080/10382046.2022.2058349).
- Orchard, J., and C. Winch. 2015. What training do teachers need?: Why theory is necessary to good teaching. *Impact* 2015 (22):1–43. doi: [10.1111/2048-416X.2015.12002.x](https://doi.org/10.1111/2048-416X.2015.12002.x).
- Pring, R. 2012. *The life and death of secondary education for all*. 1st ed. London; New York: Routledge.
- Rawling, E. 2001. *Changing the subject: The impact of national policy on school geography 1980–2000*. Sheffield: Geographical Association.
- Sachs, J. 2003. *Teacher activism: Mobilising the profession*. BERA, Nottinghamshire, UK.
- Schon, D. A. 1983. *The reflective practitioner: How professionals think in action*. 1st ed. New York: Basic Books.
- Shulman, L. 1987. Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review* 57 (1):1–23. doi: [10.17763/haer.57.1.j463w79r56455411](https://doi.org/10.17763/haer.57.1.j463w79r56455411).
- Skilbeck, M. 1990. *School based curriculum development*. Paul Chapman Publishing, Liverpool, UK.
- Uhlenwinkel, A., T. Bénéker, G. Bladh, S. Tani, and D. Lambert. 2017. GeoCapabilities and curriculum leadership: Balancing the priorities of aim-based and knowledge-led curriculum thinking in schools. *International Research in Geographical and Environmental Education* 26 (4):327–41. doi: [10.1080/10382046.2016.1262603](https://doi.org/10.1080/10382046.2016.1262603).
- White, R. C. 1997. *Curriculum innovation: A celebration of classroom practice*. Philadelphia: Open University Press.
- Young, M. 2007. *Bringing knowledge back in: From social constructivism to social realism in the sociology of education*. London: Routledge. <https://www.routledge.com/Bringing-Knowledge-Back-In-From-Social-Constructivism-to-Social-Realism/Young/p/book/9780415321211>.
- Young, M., D. Lambert, C. Roberts, and M. Roberts. 2014. *Knowledge and the future school: Curriculum and social justice*. New York: Bloomsbury Academic.
- Young, M., and J. Muller. 2010. Three educational scenarios for the future: Lessons from the sociology of knowledge. *European Journal of Education* 45 (1):11–27. doi: [10.1111/j.1465-3435.2009.01413.x](https://doi.org/10.1111/j.1465-3435.2009.01413.x).