Powerful Primary Geography

Powerful Primary Geography: A Toolkit for 21st-Century Learning explores the need for children to understand the modern world and their place in it. Dedicated to helping teachers inspire children's love of place, nature and geographical adventures through facilitating children's voice and developing their agency, this book explores the way playful opportunities can be created for children to learn how to think geographically, to solve real-life problems and to apply their learning in meaningful ways to the world around them.

Based on the very latest research, *Powerful Primary Geography* helps children understand change, conflict and contemporary issues influencing their current and future lives and covers topics such as:

- Weather and climate change
- Sustainability
- Engaging in their local and global community
- Graphicacy, map work and visual literacy
- Understanding geography through the arts.

Including several case studies from primary schools in Ireland, this book will help aid teachers, student teachers and education enthusiasts in preparing children for dealing with the complex nature of our contemporary world through artistic and thoughtful geography. Facilitating children's engagement as local, national and global citizens ensures geography can be taught in a powerful and meaningful manner.

Anne M. Dolan is a lecturer in primary geography with the Department of Learning, Society and Religious Education in Mary Immaculate College, University of Limerick, Ireland. Anne is passionate about primary geography and she is keen to share this passion with her students and primary teachers. She is particularly interested in creative approaches to geography, interdisciplinary collaboration and the use of the arts in geographical explorations. As a researcher, Anne focuses on outdoor learning, geoliteracy, children's concepts of place and creative approaches to geography.

First published 2020
by Routledge
2 Park Square, Milton Park, Abingdon, Oxon OX14 4RN

and by Routledge
52 Vanderbilt Avenue, New York, NY 10017

Routledge is an imprint of the Taylor & Francis Group, an informa business

British Library Cataloguing-in-Publication Data
A catalogue record for this book is available from the British Library

Library of Congress Cataloging-in-Publication Data
A catalog record has been requested for this book

ISBN: 978-1-138-22650-0 (hbk)
ISBN: 978-1-138-22651-7 (pbk)
ISBN: 978-1-315-39754-2 (ebk)

Contents

Introduction

In the 21st century, teachers and learners require curiosity, imagination, creativity, problem-solving skills, flexibility, digital learning and collaboration. The year 2080 will represent the beginning of retirement for children entering primary education today, all things being equal. Our children's journey towards 2080 will continue to be defined by changes in technology and globalisation. Change prompts new ideas and new solutions. Our children will have to be more knowledgeable, creative, innovative and flexible. They will have to be more resilient cognitively, socially and emotionally. Such resilience requires comprehensive education including environmental and international knowledge, 'the twin pillars of modern geography' (Bonnett, 2008: 54). International and environmental knowledge are absolutely critical in a globalised world defined by issues of injustice, inequality, overconsumption, political instability and climate change. Equally important is a pedagogy of hope whereby children can appreciate their own agency and role as problem-solvers.

While the emphasis in our schools today is on numeracy and maths, the demand for creative and performative skills from the economic, social, political and environmental sectors is as great as, if not greater than, the need for a good memory and factual knowledge. Children should develop informed opinions about local and global geographical issues. In order for this to happen they need to understand the basic physical and human processes involved. If geography, including a sound knowledge about people and places, is taught well children can develop the skills and ability to understand themselves, their place, their environment and other people and cultures, which collectively counts as powerful knowledge. In order to teach geography powerfully, teachers must have engaged previously with the subject in a robust manner.

Powerful primary geography helps children to understand the world around them, including people, systems, places, interactions and decisions which have an impact on their lives. It makes abstract geographical concepts accessible for children. Powerful primary geography is essentially about helping children, student teachers and teachers become excited about their world and their place in this world. For children and young people to participate effectively in this changing world, they must understand it.

This book shines a new lens on primary geography. It argues that geography can be taught in a stimulating fashion which facilitates children's voice and agency. The centrality of geography as part of the life cycle of the school is highlighted. In Bonnett's (2008: 6) words, this book illustrates how geography can 'find and impose order on a seemingly chaotic world'. Examples of empowering and inspirational geography are presented. The book is informed by the most recent research in geographical and pedagogical approaches to teaching and learning. Case studies for integrating geography teaching with other curricular areas including literacy, drama and art are provided.

Powerful geography embraces local studies, place-based learning and outdoor learning. Children have many outdoor experiences, albeit mixed in quality and quantity. They experience the world through journeys and interactions with their environment. Children negotiate and interact with a variety of landscapes (human and natural) on a daily basis. For example, children travel a variety of routes, they make decisions about places to visit and increasingly they use mobile hand-held devices (including mobile phones) to map their location and to communicate spatial information. More importantly, they have many geographical questions about the outdoors. Through these daily interactions and decisions they build up a wide knowledge base about the world, near and far, through a range of direct and indirect experiences. Formal geographical education, on the other hand, tends to take place indoors. Powerful primary geography prioritises outdoor learning in terms of fieldwork, using the locality for enquiry-based learning and experiential learning.

Powerful geography involves making connections. The global dimension is so much more than learning about people and places in other countries. It is about exploring interconnections between people and places. It is about exploring similarities and differences. Ultimately it is about considering our role as global citizens and the corresponding responsibilities which this entails. The impact of online interconnections brings the importance of geographical understanding to the fore. Harvesting data is now big business. Facebook's collection of data makes it one of the most influential organisations in the world. Our online activity, such as a Facebook like or a Google search, is constantly tracked. These interactions feed complex algorithms illustrating personal interests and purchasing preferences. This information is then used to target us as consumers with terrifying accuracy. Children need to be aware of this complex web which is shaping our lived experiences. Critical thinking skills are required to understand how opinions are shaped and formed by media and online influences. Powerful primary geography equips children to think critically and creatively about their world. It enables them to make connections between themselves and other people, other places, their environment and other ideas. It provides lifelong supports for consequential engagement in society. Placing the child at the centre of geographical encounters is essential for developmental and meaningful conceptual development (Figure 0.1).

Figure 0.1 Agency of the child is prioritised by powerful primary geography

This book is written for primary educators interested in learning about how to teach geography powerfully. The book is written to demonstrate that geography teaching and learning should be enjoyable, creative and empowering experiences for everyone – after all it is about the real world we live in! Geography is about places, people and issues, both local and global, and those should be of interest and concern to everyone. We are educating young citizens for a very different and rapidly changing world and geography allows us to teach what will be both useful and important to them now and in their future.

The book is evidence based as the material has emerged from the author's research work in schools and through consultation with teachers and children. There is a very strong commitment in the book to highlighting the voice of children, student teachers and teachers. This book is all about helping teachers to view the world through a geographical lens to develop their geographical imaginations (Martin, 2006) and to use geographical enquiry-based approaches in the classroom. The key concepts of place, space and environment provide an overarching framework for other substantive geographical concepts, as set out in Figure 0.2.

Figure 0.2 Geography's big ideas

Children need to be able to make and understand connections within their world at local, national and international levels in an age-appropriate way. Moreover, children are superb at making these links and their insight often surprises teachers.

An ability to interpret diverse situations is also important. Helping children to become decision-makers helps them to appreciate the different sides of an argument or a proposal. Involving children in school-based decision-making can lay the foundation for geographical skill development. In circumstances where schools are planning an extension, a new garden, playground or a building asking children to research and pitch their ideas is a valuable learning opportunity for both children and the wider school community.

Practically everything has a geographical dimension (Dorling and Lee, 2016). Travelling involves spatial awareness and negotiation of local areas. Everyday events such as shopping and travelling in the local area all have geographical elements. Shopping involves purchasing goods which have come from many locations. Finding out the origin and journey of favourite foods is an important geographical exercise.

Part of making links and connections involves intercultural education. We live in a multicultural society; children need cultural sensitivity and the ability to be empathetic. Learning how to be culturally sensitive is a long-term process, which needs to be prioritised by school management and addressed by teachers and children. Children need to understand the relationships which exist between cultures, including differences and similarities. A child should understand that another child in a different part of the world may not speak the same language, practise the same religion or attend the same type of school, yet both are connected through the common experiences of childhood. Both like to play games, enjoy learning and participate in their own local cultural events. International events such as the Olympics and the rugby and soccer World Cups, along with local sports events, bring out a range of flags as we reaffirm our local and national identities. These events also provide

opportunities for deeper geographical enquiry and investigation; for example, children can investigate the advantages and disadvantages of one country's bid to host an international sports event.

Memories of learning geography in school

Primary education geographers were asked about their formative experiences in geography (Catling et al., 2010). In this study several significant features emerged, including experiences of 'freedom to roam' locally, family holidays, outings and trips abroad, access to maps, fieldwork activities at primary or secondary school and with other organisations, and the impact of a good teacher. Yet, memories of geography for some student teachers tend to be limited to tracing maps, rote learning of rivers and mountains, as well as boring encounters with textbooks (Waldron et al., 2009; Dolan et al., 2014). Those with positive memories remember the teacher who inspired them, the teacher who engaged the children in enquiry projects and the teacher who brought the children outside regardless of weather conditions. Positive memories of geographical learning are closely associated with experiential learning outside (ibid.).

As part of the research for this book, I asked student teachers to reflect upon their memories of learning geography and here are some examples of positive memories. These memories speak for themselves.

> Our teacher brought us on walks every month. We collected leaves and cones, we became familiar with our area and back in the classroom we recorded these walks through pictures, writings and project work.
>
> Every September our teacher talked about his trips during the summer. He brought in a range of pictures, photographs and artefacts. We generally did a massive project on a particular country which was supplemented by the teacher's stories, by our own research and by an occasional guest speaker. It was the best time of the year.
>
> I had an amazing teacher when it came to geography. He was a massive fan of the Burren and we studied its landscape a lot and also visited there. He made Geography engaging, creative and fun. We investigated stuff ourselves and found out things for ourselves. It was thrilling discovering new stuff for ourselves.

Many student teachers vividly recalled rote learning of lists of geographical features. Several included these as negative memories. However, a minority of students claimed that it was important to know the towns and cities of Ireland as well as other factual information. Student teachers recalled a series of lists of place names for towns, cities, rivers, mountains and coastal features. In some cases rhymes or mnemonics were used to assist the process, e.g. FAT DAD as an acronym for the counties of Northern Ireland namely: Fermanagh, Antrim, Tyrone, Derry, Armagh and Down. Rhymes to aid memorisation were also noted. One student could sing the 32 counties on the island of Ireland. Often referred to as 'the capes and bays' approach to learning geography, this involves the memorisation of long lists of capes, bays, rivers, mountains, islands and products from different countries. Also associated with pub quizzes and the game

Trivial Pursuit, this kind of knowledge is one dimension of geography, a factual dimension where answers can be obtained from a Google search, globe, atlas or a map. This is however only one dimension of geography.

Twenty-first-century competencies and skills

We live in a rapidly changing world. Simply reprocessing knowledge will not be sufficient to address the challenges facing young people in the future. Teachers have to prepare children for jobs which have not yet been created, technologies which have yet to be invented and a range of unknown opportunities and challenges which have yet to become apparent. Some of our traditional concepts of the world are no longer relevant. For instance, the traditional dominance of America and Europe in global trade is no longer guaranteed due to the rapid growth of the Chinese and Indian economies.

The biggest increase in the number of skilled individuals is not in the West but in those regions where the population growth is greatest – in Asia, Africa and South America. Delhi's population, for example, currently exceeds 26 million people and is predicted to rise exponentially in the future. Hence, an Indian engineer can do the same job as his or her British or Irish counterpart but for a quarter of the price. In Kenya, the M-Pesa mobile money system allows Kenyans to transfer money by text. It does not require a bank account or an iPhone; all it requires is a 20-year-old Nokia. M-Pesa has allowed Kenya to leapfrog the traditional 20th-century stages of development – infrastructure and banks – with the most basic technology available. A gateway to digital consumerism, M-Pesa has disrupted the traditional function of money by colonising its functions, including purchase of goods, loans, wage payments and even online gambling (Peretti, 2017).

However, the narrative of change is only partially true. Biesta (2015) challenges the universal claim that all aspects of life are changing, illustrating it as half-true and half-false. While change is unprecedented in economic matters and access to information, there are people in parts of the world for whom very little has changed. For instance, many families are struggling to find clean water, feed their families and earn an income. For these families the mantra of universal change offers little hope. Biesta (2015: 6) suggests that the narrative of change and globalisation functions as an ideology in which 'half-truths mask as much as they express'. This is a powerful reminder for all of us in education to question some of the grand narratives which are taken for granted in school and society today.

Notwithstanding the importance of knowledge, including geographical knowledge, meeting the demands of today's world requires a shift in how we conceptualise teaching and learning. The adoption of 21st-century skills in our schools is widely recommended (Colvin and Edwards, 2018; Schleicher, 2018). This involves a movement from a measurement of knowledge to measuring children's ability to think creatively and critically, examine problems, gather information and make well-informed decisions using technology. Twenty-first-century learning involves a strong emphasis on problem-solving and decision-making and the ability to provide justification for the solution offered. Children as 21st-century learners need to be able to understand their

world, their place in the world and how to interact with their world confidently and competently. Twenty-first-century learning is about the capacity to live in a dynamic world as an engaged citizen.

However, commentators such as Biesta caution against making this into a universal claim as it is accurate in some cases but not in its totality. He agrees that we need a broader conceptualisation of education, but it has to begin with questions of democracy, ecology and care as 'orientation points' (2015: 7). In light of the half-truths which dominate educational discourse, Biesta argues that we need to shift our focus from survival to meaningful living. Survival is about adapting to changing circumstances but perhaps we need to question the essential nature of these circumstances and their appropriateness for us and for society as a whole. Perhaps we need to envision a new set of circumstances which will ensure that we are 'more sustainable, more caring and more democratic' (2015: 7). In order to address these circumstances, Biesta returns to the basics of education and suggests that schools are places where children can practise living in a 'grown-up way' and where we can ask the question: What is desirable (a) for our own life (b) for others and (c) for the life we live on a vulnerable planet? While these are essentially geographical questions they also provide a valuable context for the development of 21st-century competencies. The development of 21st-century competencies should not in itself constitute the end goal but should instead provide a framework for sound education which facilitates the development of the individual's full potential while also promoting the development of a more sustainable, more caring and more democratic society.

This book is written for all those involved in primary geography. While the book refers to children in terms of their age group, Table 0.1 provides a guide for children's ages applied in education frameworks from different jurisdictions.

Table 0.1 Guide to comparative age of children in different geographical jurisdictions

Age	*Ireland*	*Northern Ireland*	*California State, USA*	*Great Britain*	
4–5	Junior Infants	Primary 1	P-K	Foundation Stage	Reception
5–6	Senior Infants	Primary 2	K		Year 1
6–7	1st Class	Primary 3	Grade 1	Key Stage 1	Year 2
7–8	2nd Class	Primary 4	Grade 2		Year 3
8–9	3rd Class	Primary 5	Grade 3	Key Stage 2	Year 4
9–10	4th Class	Primary 6	Grade 4		Year 5
10–11	5th Class	Primary 7	Grade 5		Year 6
11–13	6th Class	Year 8	Grade 6	Key Stage 3	Year 7

Overview of chapters

This book describes and showcases the concept of *powerful primary geography*. In light of an overloaded curriculum, the limited time available for geography teaching, a heavy reliance on textbooks and the political supremacy of literacy and numeracy, this book

offers recommendations to teachers for teaching geography powerfully and meaningfully. Each chapter documents theoretical and practical aspects for teaching primary geography.

Chapter 1: Powerful primary geography: Setting the scene

This chapter sets the scene for the book by exploring the nature of powerful primary geography. It calls on teachers to reflect on their own personal geographies, their memories of learning geography in school and their current experiences of teaching geography. It explores the nature of geography in general and primary geography in particular in the context of globalisation, increased inequality and an uncertain future. Primary geography as a powerful discipline is discussed and situated in a broader social, political and economic context. Powerful primary geography is presented in terms of knowledge, aesthetic qualities, enquiry and skill development. The potential of primary geography for developing 21st-century competencies is highlighted.

Chapter 2: Powerful geographical thinking: Initiating investigations and enquiry-based learning

This chapter examines the importance of geographical thinking, which is promoted through children asking questions and conducting investigations or enquiries. The idea of children 'doing' geography as opposed to 'learning' geography is a useful metaphor for teachers. Thinking about child engagement and what the child will be doing at different stages of the lesson or geographical enquiry moves the focus from the teacher to the child. This chapter focuses on geographical investigations and the skills required for these investigations from the perspective of children and teachers. The enquiry process begins with an enquiry question. This big question may arise from a series of smaller questions posed by the children. Through a process of clarification and prioritisation a final big question is agreed with the whole class. This forms the basis of the enquiry. Once the question is selected, the class and the teacher decide how this question is going to be answered, what data is going to be collected and how it is going to be collected. Following data collection, the information is categorised, analysed and conclusions are drawn. Generally the class has an opportunity to share its findings with a wider audience. Various initiatives for promoting enquiries are discussed, such as use of class mascots, mysteries and a class newspaper.

Chapter 3: Teaching powerful geography through place

Place-based education is about generating a deep knowledge of a particular place so that children will eventually care about landscape, nature and people linked to a place. The term 'sense of place' is often used to emphasise that places are significant because they are the focus of personal feelings. In this chapter, I discuss the concepts of place, sense of place, place-based education, place attachment, place names, outdoor learning and critical pedagogy of place.

The chapter includes a number of methodological frameworks for exploring place

including '8-way thinking', inspired by Gardner's theory of multiple intelligence (2011). This suggests that we have at least eight intelligences, namely, linguistic, musical, logical-mathematical, spatial, bodily kinesthetic, interpersonal, intrapersonal and naturalistic. The latest addition, naturalistic intelligence, is defined as the person's ability to recognise and classify his or her natural environment. In order to develop this intelligence, opportunities for outdoor learning are essential. Gardner claims that just as children are ready to master language at an early age, so too are they predisposed to explore the world of nature. Other methodologies for exploring place include story, drama and local trails.

Chapter 4: Playful approaches to powerful geography: Games, artefacts and fun

In this chapter, I explore the concept of playful approaches to teaching geography. The concept of geographical playfulness is discussed, along with different types of play and various structured and unstructured materials which can promote play. The value of using and handling artefacts is discussed. The chapter discusses opportunities for children to handle rocks and make volcanoes. Geography games such as Monopoly and playful initiatives such as Mission Explore are examined.

Chapter 5: Teaching powerful geography through topics: Weather and climate change

In the context of challenges posed by climate change, this chapter draws attention to the significance of children's relationship with weather. In this chapter, I explore different strategies for teaching weather, seasonal changes and climate change. There is a need to look beyond the ways children learn 'about' the weather (where this is presented as something separate to our human selves), to more situated and intertwined ways of learning 'in' and 'with' weather. I also focus on teaching unusual weather conditions and natural disasters as a gateway to climate change education. An analysis of climate change education, climate change denial and climate justice education is provided. Case studies from schools illustrate innovative climate change education.

Chapter 6: Teaching powerful geography through graphicacy, map work and visual literacy

Graphicacy, a form of visual literacy, is the ability to understand and present information in a visual manner through media such as maps, graphs, diagrams and drawings. Most of the information we acquire as children and adults is communicated through visual means. Therefore it makes sense that the development of visual literacy, graphicacy and mapping skills is promoted as part of geographical education in primary schools. This chapter explores a range of strategies for promoting children's graphicacy such as sketching, working with images and working as photographers. The chapter also explores a range of mapping strategies such as journey sticks, mapping through children's literature and problem-solving with maps.

Chapter 7: Teaching powerful geography through the arts

This chapter, with its specific focus on visual and environmental art, is a response to the increasing environmental issues in our society today. Sometimes teachers and children feel disempowered in light of the scale and complexity of geographical issues. This chapter illustrates how children and student teachers respond to contemporary local and global issues through collaborative art pieces, eco art, landscape boxes, architecture, sculpture, scrapbooks and geographical art in the school grounds. Through cross-curricular links with art, the creative process of viewing the world through an alternate lens is promoted. Art helps us to review and renew our geographical understanding of local, national and global issues by making the usual unusual, reframing the ordinary, catching us off guard and provoking us. Much of the philosophy underpinning this chapter is informed by enquiry, constructivism and problem-based learning. Exploring geography with, in and through art encompasses a learning process that is inherently experiential and open-ended.

Chapter 8: Powerful geography: Teaching citizenship, global learning and the Sustainable Development Goals

Growing up in a globalised world requires new approaches to education which develop in children a global dimension, a futures perspective and 21st-century competencies. In this chapter, I discuss the implications of living in a globalised society and the importance of global competencies as a set of requirements for living in and participating in a dynamic rapidly changing world. This chapter highlights strategies for teaching global and justice issues through primary geography. Specifically the chapter presents innovative approaches to global learning, and opportunities presented by the Sustainable Development Goals (SDGs). The challenges facing our world are significant. We can no longer afford to look the other way. By adopting a powerful approach to teaching geography, teachers and children will realise a sense of hope, appreciate their own agency and transform the teaching of primary geography.

References

Biesta, G. (2015) The duty to resist: Redefining the basics for today's schools. *RoSE–Research on Steiner Education*, *6*, 1–11.

Bonnett, A. (2008) *What is geography?* London: Sage.

Catling, S., Greenwood, R., Martin, F. and Owens, P. (2010) Formative experiences of primary geography educators. *International Research in Geographical and Environmental Education*, *19*(4), 341–350.

Colvin, R.L. and Edwards, V. (2018) Teaching for global competence in a rapidly changing world. *OECD Publishing*. https://asiasociety.org/sites/default/files/inline-files/teaching-for-global-competence-in-a-rapidly-changing-world-edu.pdf

Dolan, A.M., Waldron, F., Pike, S. and Greenwood, R. (2014) Student teachers' reflections on prior experiences of learning geography. *International Research in Geographical and Environmental Education*, *23*(4), 314–330.

Dorling, D. and Lee, C. (2016) *Geography: Ideas in profile*. London: Profile Books.

Gardner, H. (2011) *Frames of mind: The theory of multiple intelligences*. New York: Basic Books.

Martin, F. (2006) *Teaching geography in primary schools: Learning to live in the world*. Cambridge: Chris Kington Publishing.

Peretti, J. (2017) *Done: The secret deals that are changing our world*. London: Hodder & Stoughton.

Schleicher, A. (2018) Preparing our youth for an inclusive and sustainable world. *The OECD PISA global competence framework OECD*. www.oecd.org/education/Global-competency-for-an-inclusive-world.pdf

Waldron, F., Pike, S., Greenwood, R., Murphy, C., O'Connor, G., Dolan, A. and Kerr, C. (2009). Becoming a teacher: Primary student teachers as learners and teachers of history, geography and science: An all-Ireland study. *Standing Conference on Teacher Education* North and South (Scotens).

1 Powerful primary geography

Setting the scene

Children as 21st-century learners need to be able to understand their world and their place in it. Prerequisites for 21st-century teachers and learners include curiosity, imagination, creativity, problem-solving skills and flexibility. Twenty-first-century competencies help children learn how to interact with their world confidently and competently. An ability to work collaboratively along with a requirement to be digitally literate are required in the 21st-century classroom and the workforce. Primary geography has the potential to help children learn about their place and their world in a manner which develops 21st-century competencies.

This book describes and showcases the concept of *powerful primary geography*. Enabling children to understand the world around them includes an appreciation of the people, systems, places, interactions and decisions which impact upon their lives. This discipline helps us to understand change, conflict and important issues which have a bearing on our current and future lives.

This chapter sets out to:

- frame the scene for the book as a whole by exploring the nature of powerful primary geography;
- present primary geography as a powerful discipline and situate it in a broader social, political and economic context;
- examine the potential political power of primary geography;
- discuss powerful primary geography in terms of knowledge, aesthetic qualities, enquiry and skill development; and
- provide examples of powerful geography in primary classrooms.

Definition of geography

Geography is a dynamic, living, contemporary and exciting subject. Bonnett describes geography as 'one of humanity's big ideas', 'a fundamental fascination' and 'a core component of a good education' (2008: 1). According to Dorling and Lee (2016: 6) 'it is about what is where and where is what; and why and when, and who and how. It is about exploring places and spaces.'

In the Irish primary curriculum, geography is defined as 'the study of the earth, its inhabitants and the relationships between them in the context of place, space, and the environment' (Department of Education and Skills (DES)/NCCA, 1999: 6). Both the Geographical Association Manifesto (GA, 2009) and Lambert (2009) use the term 'living geography'. While 'living geography' is about current issues, it recognises the past and it is also futures oriented, whereby children are encouraged to think about their personal, collective and spatial futures. Its emphasis on sustainability generates a synthesis across the physical and human worlds. A focus on local geography is set in wider spatial and global contexts requiring children to focus on specific geographical issues through interlocking scales. A key dimension of 'living geography' involves children working as investigators of processes that bring change to environments – these can be grouped as environmental (or 'physical'), social, economic or political. Finally, the concept 'living geography' presents a dynamic interpretation of geography which promotes a critical interrogation of key geographical ideas to support children's conceptual development of place, space and the environment. This concrete interpretation of 'living geography' makes geography meaningful and relevant, and embraces children's personal geographies.

According to the GA (2011) there are three key organising concepts for geography, namely place, space and environment, all illustrated in Table 1.1. These concepts or 'big ideas' provide a geographical lens through which we can understand the world. They can be used to inform decision-making, problem-solving, organisation of data, and planning for geographical enquiry.

Table 1.1 Adapted from 'What should be taught in school geography?' The Geography National Curriculum GA Curriculum Proposals and Rationale

Place (places, territories and regions)	*Space* (patterns and links)	*Environment* (physical and human interaction)	*Geographical enquiry* (procedures and tools)
Knowledge of the local place in its community and regional context Knowledge of Ireland, Britain/UK, in the context of Brexit, Europe and the European Union Broad knowledge of the world including continents, oceans, countries, significant features of Earth such as wind patterns and tectonic structures Knowledge and understanding of specific places or regions different from their own, focusing on people–environment interactions Knowledge and understanding of places of great significance in and for the world today Knowledge and understanding of places that are scenes of conflict at different scales (e.g. a local place, Afghanistan) Knowledge and understanding of places where physical extremes or hazards dominate Understanding that people have different perspectives and perceptions of places	Knowledge and understanding of economic patterns of production, distribution and change such as in industry and leisure, agriculture Knowledge and understanding of resource distribution and food, water and energy security on regional, national and international scales Understanding the reasons for and processes behind the location and changing distributions of population Understanding of flows and movements of people, goods and ideas, with examples on a regional, national and global scale Understanding of spatial systems, such as climate, through the distribution of energy by ocean currents and wind patterns Knowledge and understanding of issues that arise from uneven distributions of people and wealth Understanding the role of imagination and speculation in envisioning alternative uses of space in the future	Knowledge and understanding of fragile landscapes such as deserts, polar regions, mountains and reefs Understanding different approaches to managing and living with changing physical and human environments Knowledge and understanding of processes involved in distribution and patterns of major physical features, including natural regions and ecosystems Knowledge and understanding of the Earth's oceans and their significance Understanding landscapes as distinctive collections of landforms, soils and earth surface processes Understanding the links between social, economic and environmental quality Understanding renewable and non-renewable resources from the Earth and its atmosphere Understanding systems-thinking in the context of human and physical environments	Asking questions about place Assessing positive and negative aspects of place along with current and future opportunities and threats Exploring how place is portrayed in media including local and international newspapers, TV programmes, films and social media Assessing other people's opinions about place Maps – what they show us, how to use them and how to construct them How to use other sources – photographs, diagrams, internet, databases, animation and visualisation technologies, electronic atlases, film libraries, newspapers, magazines and journals, etc. First-hand investigation via fieldwork, photography, GPS sketching, interviewing, meeting people, etc. Writing descriptively and analytically about places, spaces and environments; constructing and challenging arguments

Source: Geographical Association, 2011: 11

Case study 1.1 Exploring the geographies of everyday items

The big ideas of geography can be explored through the products children have in their possession. Tracing a product's geographical connections teaches children how products are made and transported

(Figure 1.1). It highlights the geographical and procedural journeys from component materials to final products. Children from Scoil Íde, Corbally Limerick (9–10 years), traced the global connections of familiar everyday objects such as a hockey stick, a hoodie and a pencil. Through research they compiled a commodity journey log for their chosen item. Each child made a presentation to a wider audience in school and received feedback. Resources such as the Sourcemap website allow children to visualise the journey of several commodities in graphic formats. Applying a 'follow the thing' approach (Cook, 2004; Cook et al., 2017), children used questions (Table 1.2) to guide their research:

Table 1.2 Research questions for researching the geographies of everyday items

Choose any object/food/material of interest to you and research it.
Title: The geography of (my chosen item)
What are the raw materials, i.e. what is it made from?
Where can they be sourced? Show this on a map.
How is your item transported, e.g. boat, train, truck, etc.?
Is it imported/exported to/from Ireland?
How much does it cost to make/produce the item?
What is the impact on the environment of the production of your item, i.e. pollution, and use of fossil fuels, natural resources, water, etc.?
Can it be recycled?
Where is it produced?
What are the workers paid? Is it a fair wage?
Requirement: Use PowerPoint, Prezi or any other presentation software including Microsoft Word.
Include pictures, maps/statistics/facts and any other material which may be relevant.
Acknowledge your sources.

Once children have researched and presented the geography of their chosen item, children can reflect on the visible and invisible impacts of their items on local and global communities. Videos such as *The Story of Stuff* (https://storyofstuff.org) produced by Free Range Studios with Annie Leonard offer an accessible examination of our relationship with materials and consumerism. From its extraction through sale, use and disposal, all the stuff we buy and use affects communities at home and abroad, yet most of this impact is hidden from view. Based on Leonard's research (2010), *The Story of Stuff* exposes the connections between environmental and social issues, and calls on all of us to create a more sustainable and just world. It helps us to think about our purchase, use and disposal of stuff.

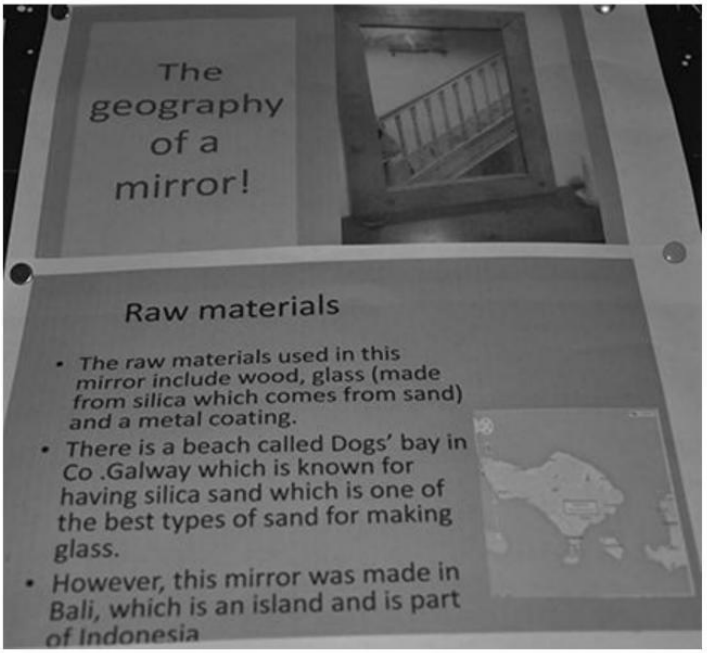

Figure 1.1 The geographies of everyday objects

Geography: a powerful discipline

Geography is a powerful discipline. It has the power to inform and transform, to educate and to challenge prior ideas; to inspire and to motivate children to be creative. Ultimately, it equips children with conceptual understanding and knowledge to enable them to live in, to comprehend and to participate in their world. This discipline helps us to understand change, conflict and important issues which have an impact on our lives today and which will affect our future lives. The disciplinary lens of geography provides teachers with a powerful resource for learning.

According to UNESCO (2012) educational initiatives need to address current environmental, social and political challenges facing our world. Such initiatives require holistic and interdisciplinary approaches. The four pillars of education for all – learning to know; learning to do; learning to live together and with others; and learning to be (International Commission on Education for the 21st Century and Delors, 1996) – provide a useful model for thinking about quality education in general and quality geographical education in particular. Powerful geography is a curricular area in its own right. But it also has to be cross-curricular to be truly effective. It does not just refer to knowledge, powerful or otherwise; it is a holistic approach which applies to skill development and affective responses. Effective primary teachers can help children develop geographical conceptual knowledge throughout the day and across the curriculum. While many teachers are struggling to cope with an overcrowded curriculum, geographical understanding can be developed through literacy, numeracy and other curricular areas in a meaningful way for children.

Powerful geography does not represent a box of geographical facts handed over to children, but rather a process of collaborative learning whereby concepts are explored, examined, showcased and debated. Children learn best when they are fully engaged in their learning, when what they learn matters to them and when they have a sense of ownership and agency over the process. Catling and Martin suggest that 'children's understanding and knowledge is powerful and to be valued, that it has rationality, is systematic and structured, has coherence and is conceptually grounded' (2011: 9).

If geography is so powerful where is the universal demand for the discipline in our schools? Unfortunately, the public image of geography remains somewhat constrained. In some schools the potential of geography is unrecognised. In England, the humanities, including geography, are struggling to obtain the curriculum time deserved (Barnes and Scoffham, 2017). In the USA, geography is taught as part of the social studies curriculum, the marginalisation of which has been well documented (Heafner and Fitchett, 2012). Internationally, there has been an increased focus on literacy and numeracy. Ironically,

denying children the opportunity to build geographical vocabulary and background knowledge actually leads to lower literacy levels (Grant, 2007; Statment, 2009). In a globalised society, which requires collaborative problem-solving skills and critical thinkers to address complex social economic and environmental concerns, core geographical education is as important as literacy, numeracy and computational skills.

The relevance of geography is ubiquitous. One only has to open a newspaper or follow a news report to appreciate the importance of geography. As children progress through the school year, seasonal events, national celebrations and thematic events offer numerous opportunities for geographical explorations.

Of course there is the issue of quality in primary geography and what exactly constitutes excellent primary geography teaching. Children have mixed experiences ranging from inspirational thought-provoking geography to low-key minimalist approaches. Catling (2017) examined reports from the four jurisdictions of the UK to explore the issue of quality in the teaching of humanities in primary schools. According to his findings, primary teachers need to be knowledgeable about the discipline-specific content of geography, history and religious education and able to see interlinkages between the three areas. High-quality teaching requires a substantial degree of pedagogic content knowledge (PCK) (Shulman, 2003). This includes curriculum knowledge, pedagogical knowledge, understanding of learners and knowledge of resources. According to Catling (2017: 363) high-quality teaching

> emphasises holding high expectations of children's learning, drawing on a wide repertoire of teaching strategies and approaches, using active and enquiry methods, appreciating the nature and range of resources that can be used, and understanding how best to enable learning for each child.

Other features include teachers' enthusiasm, flexibility and the willingness to take a risk. While these features underpin all high-quality teaching (James and Pollard, 2012), Catling makes the point that context matters and that the importance of humanities including geography needs to be valued and appreciated by children, teachers, schools and inspectors.

Current context

In these uncertain times, geography matters more in the 21st century than heretofore. To date, the 21st century has been characterised by rapid and unpredictable change. World development indicators prepared by the World Bank (wdi.worldbank.org) demonstrate an unequal distribution of the Earth's resources and increased pressure on the world's fragile ecosystem. This century, there has been a marked increase in fundamentalism and belief-based conflicts, with the threat of terrorism having a marked impact on security, tourism and travel. Numerous natural disasters including drought, flooding, earthquakes and volcanoes have also occurred. Craft (2012: 173) refers to this as a time of 'immense human over-confidence alongside increasing instability in the economy, social structures, beliefs and environment'. In other words we are witnessing an increased disconnect between humanity and the Earth upon which its existence is based.

Our global safety net, biodiversity (otherwise known as the variety of living things on Earth), is facing unprecedented challenges. As humans, we depend on the Earth's biodiversity for food, drinking water, clean air, medicines and shelter. According to the Living Planet Index (WWF, 2018) unsustainable human activity is pushing the planet's environmental resources beyond its capacity. Wildlife populations around the world have fallen by an average of 60% over the last 40 years, according to the WWF study of thousands of vertebrate species. As Hicks (2014) asserts, we are educating children in 'troubled times'.

Extensive flooding in the UK and Ireland together with the destructive power of hurricanes in the Caribbean have highlighted changing climatic patterns and global warming. Devasting forest fires which occurred in Australia, California and the Amazon rainforest during 2019, together with accelerated Arctic and Antarctic warming, underline the international challenges posed by climate change. The devastation caused by several earthquakes, their coverage in international media and the world's reaction have further demonstrated the power of geography. Equally, war and conflict in countries and regions such as Syria, South Sudan and the Middle East cast a light on unacceptable levels of human suffering. Water shortages, famine, migration of people, disputes over natural resources, complexities associated with world trade, interdependence, globalisation and debt are all international challenges with which our

world is grappling today.

An unequal distribution of wealth both within and between nations, exacerbated during periods of recession, raises important geographical questions. Living standards, levels of equality and inequality, patterns of production, movement of people and goods are still largely determined by geographical factors. Place of birth matters. For instance, those born in Western Europe and the USA enjoy the highest standards of living in the world. Inequality is extreme, rising, and widely accepted to be a threat to us all and to the global economy. Manifesting itself in many different forms, inequality is a political, social and economic reality in society today.

We are living in a time of unprecedented change. Some refer to this as the Fourth Industrial Revolution (Schwab, 2017), an era driven by new technologies, globalisation and automation. Digital technology is having a profound impact on society, education, schools and children. Google has changed our world and our access to geography. Instant access to the internet is available through smartphones, iPads, laptop computers and gaming devices. Virtual globes such as Google Earth allow children and teachers to view their area at different scales from vertical, oblique or three-dimensional (3-D) perspectives. Facilities such as Street Maps provide 360° panoramic views. Google Earth allows users to input their own data within certain parameters. Digital technology is allowing us to make connections across time zones and places in a way that was previously unimagined (Figure 1.2).

Figure 1.2 Exploring geography through digital technology

The process by which the world is becoming increasingly interconnected through increased trade and free movement of people, culture and ideas is commonly referred to as globalisation. Now facing a backlash, the future of economic globalisation is somewhat uncertain. Significant political events including Brexit, the growth of right-wing movements in Europe, and the election of President Trump collectively highlight increased support for restricting movement of people. The fall of the Berlin Wall in 1989 heralded a time of great hope. Today we seem more divided than ever as is apparent in a global preoccupation with walls and borders. According to Marshall (2018: 2) 'at least 65 countries, more than a third of the world's nation states, have built barriers along their borders; half of those erected since the Second World War sprang up between 2000 and now.' The people most negatively affected by these walls are the poorest and most marginalised in society. Traditional global power dynamics are changing. We are living in an 'era of democratic recession' when the world is becoming more authoritarian than democratic (Doucet and Evers 2018: 3).

Today, there are refugees in countries all over the world. Many people are not able to avail themselves of the protection of their state and therefore require the protection of the global community. Over 65 million people worldwide have been forced to flee violence, conflict and persecution while millions more have left everything behind following natural disasters. According to the UN Refugee Agency there are more than 15 million refugees in the world today. Refugees are a reminder of the failure of societies to

exist in peace and our responsibility to help those forced to flee. Indeed, the origins of much of the world's political strife can be traced back to the colonial expansion and empire building of European nations. Now asylum seekers are seeking refuge from wars initially caused by European or American interventions whether through bankrolling dictators, supplying weapons, participating in wars for financial gain or creating contentious borders. The West, which has disproportionately benefited from globalisation, refuses to accept its responsibilities towards asylum seekers, even though the current mass movement of people is a direct result of the greed inherent in a global capitalist system.

Nevertheless there are reasons for hope and optimism. The world is witnessing substantial progress, achieved in part by the Millennium Development Goals. Building on these goals, the United Nations has adopted the Agenda for Sustainable Development, which includes a set of 17 Sustainable Development Goals (SDGs) to end poverty, fight inequality and injustice, and tackle climate change by 2030. There are many resources available to help children understand the concept of inequality, the unequal distribution of resources, and the impact of inequality. Envisioning alternative ways of sharing resources and living sustainably provide a hopeful focus for children. The significance of the SDGs is discussed in greater detail in Chapter 8.

It is important for children and young people to learn about the world upon which they depend. Critical skills of analysis are essential requirements for assessing multiple perspectives. It is equally important for young citizens to learn to appreciate diversity, become aware of environmental issues, and learn how to promote sustainable lifestyles. As the technological landscape changes so too does childhood. Children now have increased access to the internet; many have a parallel existence in virtual space. Craft (2011: 174) describes children as 'skillful collaborators, capable of knowledge-making as well as information-seeking'. Children are engaging in social networks, they are learning to create and navigate digital content. While this comes with freedoms and dangers, potential and risks, there are significant opportunities for the teaching of powerful primary geography. For the first time in human history we understand the impact of our actions on the environment. We are already exploring new ways to feed our growing population, meet our energy demands and manage our water supply. Notwithstanding the deniers, we have the knowledge and capacity to move towards a better future for people, biodiversity and the climate. Powerful primary geography includes children's voice as part of this agenda.

Developing 21st-century learning, competencies and skills

Today, globalisation, technology and the growth of knowledge are three of the major forces of change shaping the world our children inhabit. We live in a globalised and interconnected world facing numerous environmental, economic, social and political challenges. The 21st-century learner will sell to the world, buy from the world, work for global companies, work with people from different cultures, collaborate with people all over the world and solve global problems. For many years, educators have been engaged in a reassessment of the knowledge, skills and dispositions young people need for success in today's rapidly changing and complex world. In 2018, the Organisation for Economic Co-operation and Development (OECD) launched a new assessment of global competence as part of PISA (Programme for International Student Assessment). This followed the launch of the SDGs, which officially recognise the importance of education for global citizenship. Both of these noteworthy developments are explored in greater detail in Chapter 8.

Living in a competitive, globally connected and technologically intensive world requires problem-solvers and critical thinkers. While problem-solving, critical and creative thinking have always been part of the educational process, these competencies are now considered to be core in 21st-century learning (Trilling and Fadel, 2009: 50). Twenty-first-century competencies include critical thinking, problem-solving, communication, collaboration (teamwork), creativity and innovation, knowledge building (a growth mindset), resilience, citizenship and global competency (Trilling and Fadel, 2009: 50; Schleicher, 2018; Colvin and Edwards, 2018). These competencies are considered essential to help children and young people solve complex, messy problems including those that have yet to be encountered. Competencies are broader and more complex than knowledge and skills. According to the OECD a competency

> involves the ability to meet complex demands, by drawing on and mobilising psychosocial resources (including skills and attitudes) in a particular context. For example, the ability to communicate

> effectively is a competence that may draw on an individual's knowledge of language, practical IT skills and attitudes towards those with whom he or she is communicating.
>
> (OECD, 2003: 4)

Just as technologies are rapidly expanding, so too is the volume of knowledge. In 24 hours the average person generates as much data as a person did during his or her lifetime 10 years ago (Kennedy and Murphy, 2017). Hence, children need to be proficient in data handling skills. These include: asking questions, deciding what data they need to answer these questions, locating the best sources for this data, filtering different types of data and presenting data in a meaningful and engaging way to a wider audience. Children need to learn the skills of scrutinising data carefully. Critical thinking encourages children to ask questions, explore the hidden meaning of data and be open to alternative perspectives. This book argues that primary geography is well placed to help children develop these core 21st-century competencies with a view to creating a more sustainable, more caring and more democratic society (Biesta, 2015).

The political power of geography

The political power of geography is well documented (Dorling, 2017). Geography allows us to compare places according to different criteria, to see what is possible elsewhere and potentially to make changes at home. Politicians travel to other jurisdictions to see how issues of common concern are faced. Nonetheless, those whose interests are served by inequality or who are in favour of maintaining the status quo have long realised the danger of teaching geography. In testimony to a Select Committee of the House of Commons in 1879 concerning the expenditure of the London Schools Board, one petitioner declared: 'Geography, sir, is ruinous in its effects on the lower classes. Reading, writing and arithmetic are comparatively safe, but geography invariably leads to revolution' (Independent, 2002).

Deciding what geographical content and skills to teach and how to teach are fundamentally political decisions. Teachers can choose to teach about people and places in a safe manner. Alternatively teachers can encourage children to ask questions, dig deeper and critically interrogate some of the dominant geographical messages portrayed in society today. Owens (2013: 392) refers to the 'messy' nature of geography as it sometimes deals with contentious issues, local and global topics, that may be considered sensitive or controversial. Controversial issues include questions or problems which generate different opinions. They can include issues with political, economic, social or environmental impacts on children, their families and the wider community (locally, nationally or internationally). Such issues have many viewpoints ultimately informed by personal and collective values and/or beliefs.

Mass media and increased access to social media have exposed children to sensitive topics that require informed discussion in the classroom (Scarratt and Davison, 2012).

Geographical investigations and 21st-century competencies such as critical thinking, collaboration and creativity equip children to navigate the multiple messages which invade their lives today.

Powerful geographical knowledge

Geography, both as a discipline and a body of knowledge, has been debated by several commentators. Traditionally, geographical knowledge was conceptualised as a fixed body of objective knowledge to be passed from teacher to child. However, research on the sociology of knowledge demonstrates that geographical knowledge is socially constructed. Instead of one, there are several views of the world. Geographical knowledge is fragmented and incomplete.

Young (2008) coined the term 'powerful knowledge' as part of his argument for a subject-based curriculum. He has argued that while knowledge is a social product, the knowledge found in academic disciplines such as geography has real features, as it represents the stored accumulated knowledge and understanding of a community of researchers. It is this powerful knowledge that allows children to transcend and go beyond their everyday experiences. For Young, powerful knowledge 'means knowledge that is reliable, fallible and potentially testable' (2008: 182); this suggests a social realist view of knowledge which contends the existence of an objective reality. Young's ideas have been developed further through

the Geo-capabilities Project, where geographical knowledge is understood as 'Powerful Disciplinary Knowledge' (PDK) (Lambert et al., 2015). The geo-capabilities project suggests acquiring 'powerful' geographical knowledge through geographical education is essential for developing 'capability'. Also influenced by Nussbaum and Sen (1993), the geo-capabilities approach emphasises the value and role of geography as a school subject in cultivating the development of human capabilities.

This articulation of powerful knowledge has been critiqued by those holding a constructionist or relativist view of knowledge (Roberts, 2017). Constructivist pedagogy is rooted in the idea that knowledge is not an objective construct but emerges as we engage with and experience reality. Each of us perceives and understands the world differently depending on prior knowledge, former experiences and thinking frameworks. Constructivism emphasises the importance of the teaching context, children's prior knowledge, active engagement of the child and interaction between the child and the emerging knowledge.

I concur with Huckle (2019) when he argues that geographical knowledge is powerful if it is critical and empowering. However, this idea of powerful knowledge needs to be framed in terms of Catling's empowering pedagogy (2014). Catling's work on empowering pedagogy underlines the importance of children's voice and agency. As the world becomes increasingly complex and due to the contested nature of geographical knowledge, empowering pedagogy is what (according to Catling, 2014) gives geography its power. Children can be co-teachers (Catling, 2014) in a classroom where knowledge resides with all, not with the teacher alone. Craft (2011) argues that teacher-centred approaches and a curriculum emphasising content is at odds with the educational needs of children and the nature of childhood. An overemphasis on knowledge for its own sake could provoke a return to a curriculum of facts and figures.

What might powerful primary geography look like?

What is knowledge and what does it mean to know? These are philosophical questions explored by educators for centuries. The nature of knowledge and knowing are constantly changing. Knowledge is widely available and cheap to access. YouTube provides instant answers to daily queries. Millions of people are accessing Massive Open Online Courses (MOOCs) offered by universities around the world. Nonetheless, the importance of understanding how knowledge is generated, how discipline-specific knowledge connects with other disciplines, and how to apply knowledge to solve problems is more important than heretofore. Twenty-first-century competencies of collaboration, communication, creativity and problem-solving are recognised as essential in a preparation for life, not just exams. While geography is considered by some 'the essential skill for the 21st century' (Nagel, 2008), it has the potential to play a vital role in helping children develop 21st-century competencies.

Geographical knowledge is contested. Debates in the literature about geographical education centre on the nature of powerful knowledge, its meaning and role in school geography (Young et al., 2014; Maude, 2016, 2018; Catling, 2018). Because of the challenges facing society today, I suggest that any framework of powerful knowledge must be considered along with 21st-century competencies. Table 1.3 charts a picture of powerful primary geography. It lists five types of powerful geographical knowledge (Maude, 2016), alongside 21st-century competencies, together with attributes of powerful primary geography further explored in the indicated chapters of this book. While Maude was not necessarily referring to primary geography, his categories of geographical knowledge have been adapted for a primary classroom.

Table 1.3 Charting a picture of powerful primary geography

Maude's five types of powerful knowledge	*21st-century competencies*	*Teaching powerful primary geography*
Knowledge that provides children with new ways of looking at the world	Knowledge building	Thinking geographically (using key concepts such as place, space and the environment), i.e. testing and evaluating claims about knowledge, enabling thinking in the subject Chapters 2 and 3
Knowledge that provides children with	Critical	Asking geographical questions (making connections,

powerful ways to analyse, explain and understand the world	thinking	understanding interconnections and developing well-informed geographical understanding) Chapters 2 and 3
Knowledge that gives children some power over their own knowledge	Real-world problem-solving	Formulating geographical solutions, i.e. using and applying the subject to contribute to topical and societal matters Chapters 3, 4 and 7
Knowledge that enables young people to follow and participate in debates on significant local, national and global issues	Collaboration and teamwork	Acting geographically, extending information and understanding about the world's environments, places and people Chapters 5 and 6
Knowledge of the world	Global competency	Becoming an ambassador for geography Chapters 7 and 8

The aesthetic aspect of powerful geography

The word 'aesthetic' comes from the Greek word *aisthetikos*, meaning the perceiving of things through the senses, which includes sensory and perceptual dimensions. An expression of inner feelings and experiences is the sensory dimension while the perceptual dimension refers to the creation of a response, e.g. a drawing based on personal reflections and interpretations. Perceiving through the senses is influenced by the physical manipulation of certain materials, whether this occurs through writing, drawing or playing music. The Swiss educationalist Johann Pestalozzi described aesthetic production as the link between head, heart and hand (Heafford, 2016).

To engage children in geographical learning, the affective domain, which includes emotions, attitudes and motivation, should be engaged. Geography has a particular contribution to make to emotional development and emotional literacy because it involves the study of real people, places and issues (Tanner, 2010). Emotionally literate geography education enables children to express their own feelings; recognise how they are connected to a place; recognise how they feel about a place; understand the feelings of others towards a place; and communicate responses in different ways. According to Tanner (2010: 37) geography offers three major opportunities for the development of emotional literacy:

- It helps children to recognise and express emotions associated with places and environmental issues;
- It provides opportunities to develop empathetic understanding of others' feelings and views; and
- It develops interpersonal skills through the active learning approaches required by meaningful geographical enquiry.

Geographical experiences have the potential to contribute to children's wellbeing. Children's attachment to place can be fostered though creative place making and place-exploration activities such as field trips, orienteering and den building. These activities are holistic in that they nurture personal, social and emotional development.

Awe and wonder

One of the things I enjoyed most as a primary teacher was experiencing the awe and wonder of children as they witnessed the miracles of nature occurring in their local places (Figure 1.3). Children came to me with expressions of joy as they showed me the biggest acorn ever or described the most beautiful moon witnessed the night before.

Awe is a universal experience and part of our innate DNA. Many famous travel writers including Elizabeth Gilbert, Bill Bryson, Paul Theroux and Ernest Hemingway convey a sense of awe and wonder in their writings. As children the world is an awe-some and wonder-full place. Piff et al. (2015) describe awe as 'that sense of wonder we feel in the presence of something vast that transcends our understanding of the world'.

Being in nature and experiencing an ongoing sense of awe and wonder is important for our sense of happiness and wellbeing. Awe and wonder can be described as an emotional response, a sense of 'wow' which one experiences when exposed to beauty in nature, panoramic views, spiritual experiences, existential experiences, inspiring music and art. Feelings of elation and freedom can be triggered as a result. Piff et al. (2015) found that experiencing a sense of awe promotes altruism, loving-kindness and magnanimous behaviour.

Scoffham (2016) addresses the idea of our oneness with nature. If we saw ourselves as connected and part of a bigger reality would we live differently? Would we spend more time outside soaking in the benefits of nature? Drawing on ideas from Froebel, Jung, Otto, Capra and Luisi, Scoffham emphasises how our sense of oneness with nature can awaken a sense of awe and wonder. He argues that telling the 'story of the world' needs to draw on multiple perspectives and that emotional encounters and existential moments are a necessary part of a meaningful geography curriculum.

Teaching geography powerfully nurtures children's natural sense of awe and wonder. In a study of 134 children from schools in 5 different areas of England, a significant proportion of questions the children asked about geography were underpinned by a sense of awe and wonder (Scoffham, 2013).

Figure 1.3 Children exploring their environments to discover hidden treasures

Exercise 1.1 Generating a sense of awe and wonder

1. Using your camera or smartphone, take one photograph of something which inspires awe and wonder for you. Try to share an image which made you say 'wow'.
2. Share these photos with your staff and discuss the special elements and unique features of each photograph.
3. Discuss ideas for promoting and sharing children's awe and wonder.

Empathy and responsibility

Once children become involved in making choices and decisions, the question of values arises. By making decisions and articulating reasons for their choices, children can begin to make sense of the world around them. Many solutions are based on a compromise and ultimately go against some people's wishes while fulfilling those of others. Children need to understand that issues are complex and decision-makers do not automatically reach the correct or incorrect decision. Powerful geography which involves children in making decisions generates a respect for evidence, an awareness of biased information and an interest in

contemporary issues. By teaching how to appreciate alternative viewpoints, powerful geography can develop empathy in children. It is important to understand that simple explanations rarely tell the complete story.

The issue of child agency is important in geography. Geography informed by citizenship education helps children to understand and participate in the environment in which they live. Such participation implies taking responsibility and showing care. Such education initiatives give children a voice and create a climate in school where children can talk about issues. Helping children take responsibility for their learning is a good place to begin.

Powerful geographical thinking, enquiry and skill development

Biesta (2015: 2) explores the concept of education as an encounter between the child and the world through which the child comes into the world and acquires a 'worldly' form so to speak. In this conceptualisation of education, both the child and the world are changed as a result of the encounter. From a geographical perspective, the idea of an encounter with the world is a wonderful analogy for planning enquiries and investigations. Through these investigations and enquiries teachers need to explicitly teach children how to think geographically. By using discipline-specific concepts and various thinking frameworks, children become more confident in the use of geographical language, in their conceptual understanding and general thinking ability. The benefits of enquiry-based learning and thinking skills are explored in greater detail in Chapter 2.

Powerful conceptual knowledge is formulated through investigative and enquiry-based learning. Based on teachings of Dewey, Bruner, Gardner and Freire, geographical enquiry involves the development of investigation skills inside and outside the classroom. Generally, based on a series of questions or one big question, children undertake a series of investigations, develop subject-specific skills as well as cross-curricular skills, present their findings using a variety of media and reflect on the learning experience.

Skill development is a key component of geographical education. Geographers work in a variety of important occupations including researchers, teachers, journalists, cartographers, tourism advisers, environmental managers, hydrologists, urban planners, community development officers and seismologists. All geographers ask questions, investigate, explore and conduct enquiries.

The idea of children 'doing' geography as opposed to 'learning' geography is a useful metaphor for teachers. Thinking about child engagement and what the child will be doing at different stages of the lesson or geographical enquiry moves the focus from the teacher to the child. As Gardner (1999: 108) suggests:

> The brain learns best and retains most when the organism is actively involved in exploring physical sites and materials and asking questions to which it actually craves the answer. Merely passive experiences tend to attenuate and have little lasting impact.

Case study 1.2 The Keep on Track Project

Sometimes the best ideas are the simplest. Take the railway line from Dublin to Galway or indeed any railway line. What if primary schools adopted each railway station along the line and conducted a cross-curricular investigation into each local geographical site? What if each school could publish its work and share progress with other schools involved in this work? This is exactly what happened during the *Keep on Track Project*. This collaborative cross-curricular project connected 16 primary schools from Galway to Dublin along the Inter-City rail line. The children in each school adopted their local station and researched its story. Classes from senior infants to sixth class (5–13years) took part in the project, researching materials and engaging in learning experiences relevant to their interests and age group. This project was the brainchild of primary teachers Kate Murray and Cathal O'Conaill, and was supported by teachers in each of the participating schools. The project was a great model of continuing professional development (CPD) for teachers as it facilitated the sharing of practical ideas, concepts and curriculum implementation among peers in a supportive manner.

Children from the schools made connections with each other and shared their work through use of Web 2.0 tools such as Skype, Twitter and a group blog. This project engaged children with their curricular

subjects in a motivating manner and offered opportunities to connect with and learn from other schools. Keep on Track offered opportunities for teachers and children to engage with 'real-life' learning experiences in a cross-curricular manner. It also strengthened collaboration between schools, Irish Rail, Education Centres and the National Centre for Technology in Education, and provided a model for cooperation between schools and industry. Schools compiled their work across all curricular areas and presented project materials and outcomes on a joint project blog, www.keepontrack.scoilnet.ie.

Irish Rail (www.irishrail.ie) made archive materials available to aid the implementation of the project and facilitated visits to local railway stations. Children documented their visit and collected data through photographs, interviews and on-site observations. Staff from each station visited primary schools to answer children's questions.

The Galway Schools Library Service offered its services to the project and provided sets of class novels such as *The Railway Children* by Edith Nesbit and *Stop the Train* by Geraldine McCaughrean and research materials to the schools involved. This allowed schools to operate online book clubs to discuss and explore the novels.

A launch day was held in a hotel in Galway where schools presented their project findings. A special Irish Rail train brought all schools involved to and from Galway for the day of celebration. Each class set up a stall and made a presentation based on their research. The stalls were set out in line with the stations from Galway to Dublin so walking through the hall was akin to virtually travelling the journey by train (Figure 1.4). This project could be replicated linking schools on a railway line, a river or locations in a particular geographical area. All participants were extremely positive as illustrated in the feedback below.

This project was chosen to represent Ireland at the Microsoft Innovative Education Forum in Moscow. The Forum, which has been in operation since 2004, is an international gathering of exceptional educators presenting their learning projects achieved through innovative usage of technology. The purpose of this event is to promote international sharing of innovative practices of technology integration and provide Europe-wide networking opportunities among top innovators. It also focuses international attention on the importance of technology innovation in education.

Feedback from project participants

> I have been involved in a lot of projects where schools work co-operatively and I am a big fan of web 2.0 technology such as blogging, podcasting and film making and getting children working hands on and using these technologies as a method. So I thought it would be a great idea to link the schools from Dublin to Galway. Literacy and numeracy were integral to the full project. First of all it's a blog so all the children's work was recorded in writing on the blog or else they used podcasting methods. Their oral language was developed, their written work was developed. They also engaged with Galway Library services here in Galway and the libraries across the country.
>
> Kate Murray, Principal, St Augustine's NS, Clontuskert, Co. Galway

> It's a very innovative idea. Technology links communities near and far across the globe indeed but in this particular project across the country. The railways provide a physical link for the same communities. From an Irish Rail perspective it's great to be involved with the young people some of whom never travelled on a train before this project. We see children as the rail users of the future.
>
> Gerry Glynn, district manager Galway, Irish Rail

> Keep on Track was a great example of how the teaching of geography allows creative opportunities for a cross-curricular approach, cooperation between schools and their localities, and above all generates excitement and enthusiasm for young people. In this project Geography, as a subject, allowed every young person the opportunity to display their particular skills and talents.
>
> Bernard Kirk, director Galway Education Centre

Reactions from children

I learnt so much about railway travel from this project.

Travelling on the train was the best bit!

I loved the show in the Radisson where we saw the work from other schools.

My cousin was working on the Tullamore project so we had a chance to share our ideas.

Figure 1.4 Picture from Keep on Track (more images are available in Section 7 of the colour plates)

Case study 1.3 The geography of a bridge

Bridges are everywhere; over roads, rivers and canals, spanning estuaries and joining islands to the mainland. As significant geographical features of urban and rural landscapes, bridges are very important for connecting places and allowing us to travel easily. These incredible architectural feats impress and delight us. An example of human-made features, they illustrate the impact humans have on the local environment.

The word 'bridge' is commonly found in Irish place names. When located at the end of a name, this means that the town developed beside a bridge, or became famous as a bridging point. The name of the village of *Clarinbridge* comes from the original plank bridge across the river Clarin. Other place names are linked with industry and engineering. Ironbridge is a settlement on the river Severn in Shropshire. The village developed beside, and takes its name from, the cast-iron bridge built there during the Industrial Revolution. Telford in Shropshire was a planned New Town in 1963 to draw off population and industry from Birmingham, and is named after Thomas Telford, the famous civil engineer. Indeed, the town of Bridgnorth is named after one of the bridges he built.

Children (8–9 years) from Gael Scoil de hÍde, Oranmore, Co. Galway explored bridges in their local area along the river Clarin and the river Clare. They visited their local bridges, took photographs, made sketches and mapped the location of the bridges. Children recorded their own thoughts about each bridge and used these notes later as material for poetry and art. They discussed the impact of each bridge on the local area especially in the context of extensive flooding which had occurred recently. Children played pooh sticks on the bridge and observed the flow of the water in the river.

Civil engineers plan and design bridges. Working as engineers, children from Gael Scoil de hÍde completed a geography and engineering project about bridges. The children examined a number of local and international bridges exploring the following enquiry questions:

> What is a bridge? Where would you find a bridge? Is there a bridge in our locality? Where can you find significant bridges in Ireland? (other countries?) What are bridges made from? What do they all have in common? What are some differences? Which bridge is the strongest? What makes a good bridge? Look at the shapes that are used to construct each bridge. Which shape is the strongest?

Which is the weakest? Why might each type of shape be used to build a bridge? What types of bridges are there? Can you name any? (Bridge designs include arch, suspension, etc.)

Drawing inspiration from local bridges, children worked in groups to design their own models, recording bridge type and elements, maximum weight, weaknesses and strengths. This bridge planning, designing and engineering activity provided opportunities for children to be creative, to explore different materials, test ideas and problem-solve. When children designed their bridge, they had to consider how it would be used, how long and wide it should be, and how much weight it could hold. The following factors were also taken into consideration by the children:

- Who will be using the bridge? Cars? Pedestrians? Bicyclists? Big trucks? All vehicles?
- What materials should be used to build the bridge?
- The triangle shape is popular in the construction of bridges. Can you find examples of the use of this shape in famous bridges?
- What style should the bridge be?
- In the case of a river, how long must the bridge be? What is the water like?
- What is the land around the water like? Rocky, muddy, sandy?
- What bridges are used locally?
- What inspiration can be found in bridges around the world?

Children studied examples of the following bridges:

Beam bridges made of horizontal beams supported by piers at each end.
Truss bridges using a combination of triangles made of steel.
Arch bridges using arches to support the bridge.
Suspension bridges such as the Golden Gate Bridge.

The children presented their projects at the Galway Science Fair as illustrated in Figure 1.5.

Figure 1.5 Pictures from the geography of bridges

The power of personal geographies

According to Catling and Martin 'children construct their own ethno-geography' (2011: 8) of places, spaces and environments from life experience. Ethnogeography (Martin, 2005, 2008) reflects the view that all learners (including children) are geographers because of their lived experiences. Drawing on the concept of children's geographies or children's geographical knowledge can change the way geography is taught in

the 21st century (Catling, 2011). It ensures that children are active agents in their own geographical learning. It offers teachers a way to engage with their own personal geographical learning as well as that of the children in their class. This assists teachers to enhance the curriculum and to become 'curriculum makers' through reconstructing, revitalising and owning the geography programmes in their schools. According to Catling (2011: 27) this enables teachers to develop their own geographical studies to foster, excite and deepen children's geographical understanding and engagement in and beyond school.

Teachers also come to the classroom with their own lived geographies. Geography is part of everybody's lives because 'we all live in the world' (Martin, 2006: 1). This is supported by Morgan (2006) who suggests that the experience of living in the world makes geographers of us all. Geographical knowledge is constructed by individual learners, depending on perspective, previous geographical experiences and learning styles. Teachers' everyday geographical engagement comprises places (Where do I come from? Where do I live? What is my connection with the place where I teach?), daily travel and interconnections with their human and natural environment. Teachers also bring their own memories of geographical engagement from previous formal and non-formal educational and life experiences (Figure 1.6). Just as children's geographies are often unrecognised as a reservoir of resources for geographical engagement so too are teachers' previous geographical experiences. A teacher's personal geographical experience shared with children is ultimately much richer and more meaningful to children than any chapter from a textbook. Martin's concept of ethnogeography illustrates how teachers' engagement with geographical ideas and experiences in their daily lives is an important part of their pedagogical and geographical frame of reference.

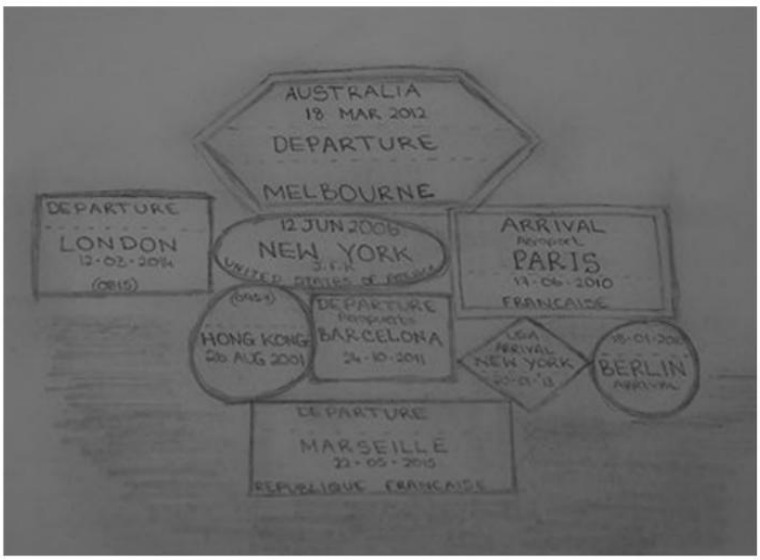

Figure 1.6 Example of one teacher's lived geography

Exercise 1.2 Personal reflection for teachers

Where are your parents from?

Where were you born?

Where are your family members currently living?

Where have you travelled within and outside your country?

Where is your favourite place locally, nationally and globally? Reasons why?

Where would you like to go and why?

How can your personal geographical knowledge become a resource for you as a teacher?

Conclusion

Powerful primary geography has the potential to inspire children, student teachers and teachers to become passionate about their world and their place in this world. Through my research for this book I have been humbled and encouraged by the wonderful geography I have witnessed in primary schools. These examples of primary geography are meaningful, allowing children to make real connections, thus expanding their conceptual understanding and skill development. As geographers, children can engage with their world in a myriad of interesting, educational and challenging ways while enjoying themselves at the same time.

Children are living in an exciting world. They have extraordinary questions. It is our job as teachers and educators to place children and their questions at the centre of geographical exploration in the classroom. To ignite their passion and curiosity, as teachers we need to focus on ourselves first, renewing in ourselves an awareness of the miraculous and magical nature of the world around us.

The ability to make decisions independently and collaboratively is an important 21st-century skill. The act of engaging in geography requires us to think creatively. Roberts (2017) argues that geographical education is only powerful if it adopts a powerful pedagogy that values children's everyday experiences, promotes critical thinking and actively involves children through their construction of knowledge and understanding.

Powerful primary geography is about enabling children to become informed, caring and responsible citizens in their local and global community. It is about generating a sense of awe and wonder and a lifelong fascination with the world. It can only happen by facilitating children's engagement as local, national and global citizens. Powerful primary geography involves a journey of self-discovery as much as it does finding out about the world.

Exercise 1.3 Personal reflection for teachers

How is geography taught in your classroom/in your school?

Over the last few months, what geographical topic/theme/lesson was particularly noteworthy? Reasons for this?

Are you familiar with online resources for teaching geography, e.g. the Geographical Association's website and the journal *Primary Geography*?

What resources or continuing professional development (CPD) would help you to be a better geography teacher?

Further resources

Books

Barlow, A. and Whitehouse, S. (2019) *Mastering primary geography*. London: Bloomsbury.

Catling, S. and Willy, T. (2018) *Understanding and teaching primary geography*. London: Sage.

Pike, S. (2015) *Learning primary geography: Ideas and inspiration from classrooms*. London: Routledge.

Scoffham, S. ed., (2016) *Teaching geography creatively* (2nd edn). London: Routledge.

Scoffham, S. and Owens, P. (2017) *Bloomsbury curriculum basics: Teaching primary geography*. Bloomsbury Publishing.

Willy, T. ed., (2019) *Leading primary geography: The essential handbook for all teachers*. Sheffield: The Geographical Association.

Geographical Association www.geography.org.uk

The Geographical Association is the leading subject association for teachers of geography. Its mission is to 'further geographical knowledge and understanding through education'. The GA attributes significant weight and importance to all stages of learning in geography from the early years through to initial teacher education and to the continuing professional development of teachers. Its substantial membership

of practitioners and professionals in each of these sectors is driven by a belief that geographical education enriches the lives of all children and young people.

A thematic unit on Bridges for Key Stage 2 is available from Council for the Curriculum Examinations and Assessment (CCEA)

http://ccea.org.uk/sites/default/files/docs/curriculum/connected_learning/thematic_units/stem/tu_bridges.pdf

Follow the things www.follow the things.com

Follow the things.com is a fake shopping website where relationships between the production, transportation and distribution of commodities have been researched. This work is published online via social media such as Facebook, Twitter, Flickr and a WordPress blog. The website has the look and feel of an online store with grocery, fashion, electronics and other departments. The website publishes research about the geography of different products, for example, T-shirts, computers and books. The research gives a rich geographical account of the journey of products alongside a critique of other realities which shape the production and distribution of the goods we purchase.

The Story of Stuff http://storyofstuff.org

The Story of Stuff is a 20-minute, fast-paced, fact-filled look at the underside of our production and consumption patterns. *The Story of Stuff* exposes the connections between a huge number of environmental and social issues, and urges us to create a more sustainable and just world.

Sourcemap www.sourcemap.com

Sourcemap is an open-source, interactive database for tracking the origins and impacts of anything from a Mars Bar to a MacBook. Sourcemap lets users create, edit and browse maps detailing the supply chain and carbon footprint of a variety of products. Anyone can create a map for just about anything imaginable and, as a socially driven site, other users can edit and add to that map, connecting the dots of where materials come from and their carbon cost. Sourcemap's geopolitical information reveals the interconnected nature of modern global culture.

Articles published in the Geographical Association's journal *Primary Geography*

Alison, J. (2006) Enlivening, re-instating and celebrating geography. *Primary Geography*, *61*, 30–31.
Bell, D. (2005) The value and importance of geography. *Primary Geography*, *56*, 4–5.
Bonnett, A. (2013) Geography: The world's big idea. *Primary Geography*, *82*, 7–8.
Cook, I., Motamedi, M. and Williams, A. (2006) Stuff geography. *Primary Geography*, *61*, 38–39.
Iwaskow, L. (2006) Learning to make a difference. *Primary Geography*, *61*, 22–24.
Jackson, P. (2016) Geographies of connection. *Primary Geography*, *91*, 8–9.
Parkinson, A. (2016) Digital connections in the primary classroom. *Primary Geography*, *91*, 20–21.
Rawlinson, S. (2016) It's all a matter of connections. *Primary Geography*, *91*, 5–6.
Richardson, E. (2009) Celebrating geography. *Primary Geography*, *68*, 18–20.
Scoffham, S. (2016) Debating connections. *Primary Geography*, *91*, 28–29.
Willy, T. and Sahi, I. (2016) The value of personal international connections. *Primary Geography*, *91*, 32–34.

References

Barnes, J. and Scoffham, S. (2017) The humanities in English primary schools: Struggling to service. *Education 3–13*, *45*(3), 298–308.
Biesta, G. (2015) The duty to resist: Redefining the basics for today's schools. *RoSE–Research on Steiner Education*, *6*, 1–11.
Bonnett, A. (2008) *What is geography?* London: Sage.
Catling, S. (2011) Children's geographies in the primary school. *Geography, education and the future*, London: Continuum International, 15–29.
Catling, S. (2014) Giving younger children voice in primary geography: empowering pedagogy – a personal

perspective. *International Research in Geographical and Environmental Education*, *23*(4), 350–372.
Catling, S. (2017) High quality in primary humanities: Insights from the UK's school inspectorates. *Education 3–13*, *45*(3), 354–364.
Catling, S. (2018) *The debate we are not yet having: What do we mean by knowledge in primary geography? Some preliminary thoughts* Paper delivered at the Charney Manor Primary Geography Research Conference, 23rd–25th February 2016, Why Primary Geography? (Unpublished).
Catling, S. and Martin, F. (2011) Contesting powerful knowledge: The primary geography curriculum as an articulation between academic and children's (ethno-) geographies. *Curriculum Journal*, *22*(3), 317–335.
Colvin, R.L. and Edwards, V. (2018) Teaching for global competence in a rapidly changing world. *OECD Publishing*. https://asiasociety.org/sites/default/files/inline-files/teaching-for-global-competence-in-a-rapidly-changing-world-edu.pdf
Cook, I. (2004) Follow the thing: Papaya. *Antipode*, *36*(4), 642–664.
Cook, I. et al. (2017) From 'follow the thing: papaya' to followthethings.com. *Journal of Consumer Ethics*, *1*(1), 22–29.
Craft, A. (2011) *Creativity and education futures: Learning in a digital age*. Stoke-on-Trent: Trentham Books.
Craft, A. (2012) Childhood in a digital age: creative challenges for educational futures. *London Review of Education*, *10*(2), 173–190.
(DES/NCCA) Department of Education and Science/National Council for Curriculum and Assessment. (1999) *Primary school curriculum. Geography*. Dublin: Stationery Office. Available on www.curriculumonline.ie/getmedia/6e999e7b-556a-4266–9e30–76d98c277436/PSEC03b_Geography_Curriculum.pdf
International Commission on Education for the Twenty-First Century and Delors, J. (1996) Learning, the treasure within: Report to UNESCO of the International Commission on Education for the twenty-first century: Highlights. UNESCO Pub.
Dorling, D. and Lee, C. (2016) *Geography: Ideas in profile*. London: Profile Books.
Dorling, D. (2017) *The equality effect: Improving life for everyone*. Oxford: New Internationalist Publications Limited.
Doucet, A. and Evers, J. (2018) Introduction. In Doucet, A., Evers, J., Guerra, E., Lopez, N., Soskil, M. and Timmers, K. eds., *Teaching in the fourth industrial revolution: Standing at the precipice*, London: Routledge, 1–7.
Gardner, H. (1999) *The disciplined mind: What all students should understand*. New York: Simon and Schuster.
Geographical Association. (2009) *A different view – A manifesto for the geographical association*. Sheffield: Geographical Association.
Geographical Association. (2011) The geography national curriculum GA curriculum proposals and rationale. Available on www.geography.org.uk/download/ga_gigcccurriculumproposals.pdf
Grant, S.G. (2007) High-stakes testing: How are social studies teachers responding? *Social Education*, *71*(5), 250.
Heafford, M.R. (2016) *Pestalozzi: His thought and its relevance today*. London: Routledge.
Heafner, T.L. and Fitchett, P.G. (2012) National trends in elementary instruction: Exploring the role of social studies curricula. *The Social Studies*, *103*(2), 67–72.
Hicks, D. (2014) *Educating for hope in troubled times*. London: IOE Press.
Huckle, J. (2019) Powerful geographical knowledge is critical knowledge underpinned by critical realism. *International Research in Geographical and Environmental Education*, *28*(1), 70–84.
Independent. (2002) Sir Ron Cooke: 'We must assert the importance of geography in the curriculum'. From the president's address at the Royal Geographical Society's annual meeting. www.independent.co.uk/voices/commentators/sir-ron-cooke-we-must-assert-the-importance-of-geography-in-the-curriculum-179715.html
James, M. and Pollard, A. eds., (2012) *Principles of effective pedagogy*. Abingdon: Routledge.
Kennedy, R. and Murphy, M.H. (2017) *Information and communications technology law in Ireland*. Dublin: Clarus Press.
Lambert, D. (2009) A different view. *Geography*, *94*(2), 119–125.
Lambert, D., Solem, M. and Tani, S. (2015) Achieving human potential through geography education: A capabilities approach to curriculum making in schools. *Annals of the Association of American Geographers*, *105*(4), 723–735.
Leonard, A. (2010) *The story of stuff: How our obsession with stuff is trashing the planet, our communities, and our health-and a vision for change*. New York: Simon and Schuster.
Marshall, T. (2018) *Divided: Why we're living in an age of walls*. London: Elliott and Thompson Ltd.
Martin, F. (2005) Ethnogeography: A future for primary geography and primary geography research? *International Research in Geographical & Environmental Education*, *14*(4), 364–371.
Martin, F. (2006) *Teaching geography in primary schools*. Cambridge: Chris Kingston.
Martin, F. (2008) Ethnogeography: Towards liberatory geography education. *Children's Geographies*, *6*(4), 437–450.
Maude, A. (2016) What might powerful geographical knowledge look like? *Geography*, *101*(2), 70–76.
Maude, A. (2018) Geography and powerful knowledge: A contribution to the debate. *International Research in Geographical and Environmental Education*, *27*(2), 179–190.
McCaughrean, G. (2007) *Stop the train*. Oxford: Oxford University Press.
Morgan, A. (2006) Developing geographical wisdom: Postformal thinking about, and relating to, the world. *International Research in Geographical and Environmental Education*, *15*(4), 336–352.

Nagel, P. (2008) Geography: The essential skill for the 21st century. *Social Education*, *72*(7), 354–358.
Nesbit, E. (2017) *The railway children*. London: Virago.
Nussbaum, M. and Sen, A. eds., (1993) *The quality of life*. Oxford: University Press.
OECD. (2003) The definition and selection of key competencies executive summary. www.oecd.org/pisa/35070367.pdf
Owens, P. (2013) More than just core knowledge? A framework for effective and high-quality primary geography. *Education 3–13*, *41*(4), 382–397.
Piff, P.K., Dietze, P., Feinberg, M., Stancato, D.M., and Keltner, D. (2015) Awe, the small self, and prosocial behavior. *Journal of personality and social psychology*, *108*(6), 883.
Roberts, M. (2017) Geographical education is powerful if. ... *Teaching Geography*, Spring, 42(1), 6–9.
Scarratt, E. and Davison, J. ed., (2012) *The media teacher's handbook*. Abingdon: Routledge.
Schleicher, A. (2018) Preparing our youth for an inclusive and sustainable world. The OECD PISA global competence framework OECD www.oecd.org/education/Global-competency-for-an-inclusive-world.pdf
Schwab, K. (2017) *The fourth industrial revolution*. New York: Crown Business.
Scoffham, S. (2013) Geography and creativity: Developing joyful and imaginative learners. *Education 3–13*, *41*(4), 368–381.
Scoffham, S. (2016) *Spirit of place: Awakening a sense of awe and wonder*. In Primary Geography Research Conference, 26th–28th February 2016, Charney Manor, Oxfordshire. (Unpublished).
Shulman, L. (2003) *The wisdom of practice: Essays on teaching, learning and learning to teach*. Hoboken, NJ: Jossey-Bass.
Statment, N.P. (2009) Powerful and Purposeful Teaching and Learning in Elementary School Social Studies. *Social Education*, *73*(5), 252–254.
Tanner, J. (2010) Geography and the emotions. In Scoffham, S. ed., *Primary geography handbook*, Sheffield: Geographical Association, 35–47.
Trilling, B. and Fadel, C. (2009) *21st Century skills: Learning for life in our times*. San Francisco: Jossey-Bass.
UNESCO. (2012) Shaping the education of tomorrow: 2012 report on the UN decade of sustainable development. Retrieved from http://unesdoc.unesco.org/images/0021/002166/216606e.pdf
World Wildlife Fund (WWF). (2018) Living planet report 2018: Aiming higher https://wwf.panda.org/knowledge_hub/all_publications/living_planet_report_2018
Young, M. (2008) *Bringing knowledge back in: From social constructivism to social realism in the sociology of education*. Abingdon: Routledge.
Young, M., Lambert, D., Roberts, C. and Roberts, M. (2014) *Knowledge and the future school: Curriculum and social justice*. New York: Bloomsbury Publishing.