Chapter 5

How do we understand conceptual development in school geography?

Clare Brooks

> Place, space and scale are arguably the three really big ideas that underpin school geography. Opening up these ideas a little … shows their scope and potential. We can see the relevance of being able to 'think geographically' to anyone living in the world and wanting to understand and respond to the challenges facing them during the 21st century.
>
> (Lambert, 2009, p. 4)

Introduction

Concepts are at the centre of geography education. However, even in the fairly recent past, concepts and in particular their role in the geography curriculum, have been somewhat contested. The 2007 Geography National Curriculum (GNC) expressed the Programme of Study through Key Concepts and Key Processes. However, this approach was critiqued due to its lack of specific reference to geographical knowledge, and the seemingly knowledge-weak school curriculum it produced (see DFE, 2010). In its place, the 2014 Geography National Curriculum and the Department for Education's public examination guidance makes little explicit reference to concepts. And yet, geographical concepts and conceptual understanding are fundamental to structuring and supporting how people learn geography. The lack of explicit reference to concepts in official curriculum documents has shifted the focus onto teachers to consider how to use geographical concepts to support geographical thinking. It is the aim of

this chapter to offer some ways that geography educators can think about geography concepts.

As the opening quotation to this chapter suggests, how we understand concepts determines how we use them, and can affect our understanding of geographical phenomena. This chapter will explore how concepts have been used and understood in geography education, and how they relate to concepts in academic geography.

Concepts in the curriculum

An examination of the Department for Education's guidance for Geography reveals an interesting shift in the role that concepts play in the educational vernacular. The word "concept" itself is missing from both the National Curriculum Programmes of Study for Key Stages 1 and 2, and that for Key Stage 3. Whilst, there are no direct references to concepts themselves, place knowledge does appear in Key Stage 1 and 2, and frequent references are made to the intention that pupils will be able to "understand" and "interpret". At Key Stage 3, one reference is made to concepts, but this is in relation to models and theories, and no explicit mention is made of any particular geographical concept.

The Department for Education guidance for GCSE (2014) and GCE AS and A Level subject content (2014) also tend to focus on content rather than concepts but concepts are more evident. Within the GCSE Progression statement reference is made to 'the subjects' conceptual frameworks' (2014, p.4), although these are not defined, and pupils are encouraged to develop their ability to make generalization, abstractions and synthesis. Some reference is also made to conceptual understanding around Place (ibid, p.5).

It is at advanced level that concepts make an explicit appearance. In the Department for

Education's guidance on GCE AS and A Level subject content (2014), four concepts are listed (p.3): place, space, scale and environment. Furthermore a claim is made that these concepts underpinned the previous National Curriculum Programmes of Study and GCSE guidance.

Despite this claim that geographical concepts underpin the curriculum, they are not an explicit part of it until GCSE and GCE level. iIf we understand concepts as being a vital part of how one develops geographical understanding, then it is essential that they feature in teachers' plans to follow the above programmes of study. But to do that, teachers need to be clear on what geographical concepts are and how they can be useful.

WHAT IS A CONCEPT?

Before exploring the meaning of the term 'concept', and how it has been used in geography education, it is useful to consider why they are important. 'Concept' is a fairly general term that is used in a variety of contexts to mean different things. Concepts can be concrete and fairly unambiguous (like 'rain') or more abstract and difficult to define (like 'culture'). Within geography education, concepts have been used to describe and categorise geographical knowledge and understanding. However, there has not been a consensus as to which concepts are 'key' or how they should be used by teachers. To help us to understand these differences, I suggest that concepts are used from three different perspectives each relating to a different approach to teaching and learning. Key to this categorisation is an understanding that there are three dimensions to education: the curriculum, pedagogy and the learner (as represented in Lambert and Morgan's (2010) curriculum making diagram). Each of the categorisations below foreground one of these dimensions:

- *hierarchical* – concepts as a content container, with the focus on the subject;
- *organisational* – concepts helping the linking of ideas, experiences and processes, with the focus on pedagogy;
- *developmental* – concepts reflecting the process of deepening understanding, with the focus on the learner.

I suggest that these categorisations are useful to distinguish which particular perspective is being emphasised. However, these categorisations are not inherent to the concepts themselves but illustrate how they can be used in curriculum making. In this respect they are a useful tool for examining curriculum documents critically. In the next section, I take each dimension in turn.

HIERARCHICAL CONCEPTS

One of the most common uses of 'concepts' is to group the contents of the subject: as a container for geographical ideas or content. In this respect, the word is used to represent ideas, generalisations or theories. When concepts are used in this way, they are represented as hierarchical: so some concepts are described as 'key', or 'foundational' or 'main'. Taylor (2008) refers to concepts of this type as 'classifiers', as they classify the geographical knowledge to be taught.

In his review of concepts in geography (at the time of the introduction of the 'concept-free' Original Orders of the Geography National Curriculum), Marsden (1995) suggested that concepts have two dimensions: abstract–concrete, and technical–vernacular (everyday). In my adaption of Marsden's classification (see Figure X.X), we can see how these dimensions result in different types of concepts.

It is worth noting that some readers may disagree with my categorisation in Figure X.X. Indeed, it is debatable whether 'beach' is indeed a concrete concept. Geomorphologists and surfers may have some disagreement about what constitutes a 'beach'. The precise meanings of concepts are often debated, for example a concept such as 'place' will mean different things to different specialists: one person's concrete concept, can be highly abstract for another. In addition, there will be some discussion as to whether some concepts are geographical: time is a key part of geographical analysis, but is not always considered a geographical concept.

The examples used in Figure X.X were chosen from a list of 'Main Concepts' taken from the Physical Geography section of a Singaporean Geography 'O' level (equivalent to GCSE) examination syllabus. My reason for doing this is twofold: first, to demonstrate how concepts can be used in different contexts (i.e. a 'main concept' in Singapore is not necessarily the same as a 'key concept' in the English Geography National Curriculum). Second, concepts can demonstrate both these dimensions of being abstract–concrete and technical–vernacular. The two dimensions are useful because they show that some concepts are more commonplace (vernacular) and more concrete than others. Concepts that are abstract–technical are more 'difficult' to understand than those that are concrete–vernacular. For curriculum makers this differentiates substantive geographical content, and enables them to structure content from the concrete–vernacular towards abstract– technical concepts: in this sense these concepts are hierarchical. This kind of classification is often used in examination specifications and other curriculum documents.

<*Insert Figure X.X* Dimensions of hierarchical concepts (adapted from Marsden, 1995).>

The key concepts in the 2007 Geography National Curriculum (e.g., Place and Space) can

be viewed as hierarchical concepts. They are used to represent geographical ideas that are both technical and abstract. In Rawling's book *Planning your Key Stage 3 Geography Curriculum,* she refers to these concepts as 'fundamental ideas in geography' (2007, p. 17). Written specifically to support geography teachers implementing the 2007 Geography National Curriculum, Rawling's book breaks down each of the GNC key concepts, illustrating how the concept is understood within geography, and how students can experience them. This breakdown illustrates the hierarchical nature of these concepts, and Rawling shows how the curriculum can be designed to scaffold students' learning towards understanding the abstract–technical concepts. In particular, Rawling draws attention to the hierarchical nature of the key concepts, describing Space and Place as the most generalised and abstract of these ideas which are 'standing at the top of a hierarchy of ideas in geography' (pp. 23–4). Rawling's approach to the handling of these concepts is very clear. As content containers and abstract ideas, she argues that they should not be used as a starting point for curriculum planning, but more of a skeleton 'on which to hang the more detailed curriculum flesh' (p. 17). When concepts are used as content containers, it is possible to distinguish between the abstract–concrete, and technical–vernacular nature of content knowledge (and hence are often referred to in the academic literature as substantive concepts). In this respect they are helpful in determining the 'ends' or outcomes of the curriculum, but not necessarily the process or 'means' of how to achieve that end.

This way of thinking about concepts is particularly valuable when they are so absent in the Department for Education's Programme of Study. A programme of study articulated without concepts runs the risk of focusing entirely on knowledge or skill acquisition, and not on how to develop the building blocks of geographical understanding. Not only will this affect progression in geographical learning but also in distinguishing what is distinctively different about learning geography from other school subject areas.

ORGANISATIONAL CONCEPTS

Another approach to the use of concepts in geography education is to view them as organisational. Whilst the hierarchical nature of concepts described above has a degree of organisation embedded within it, the focus is not on how the concept is used, but in how it relates to geographical knowledge. Both Leat's (1998) 'big concepts' and Taylor's (2008) 'organisational concepts' use concepts as a way of linking everyday experience with higher-level geographical ideas. The distinction here is that the concepts are seen as a tool in developing geographical learning.

Leat used the term 'big concepts' in his *Thinking Through Geography* publication (1998). This, and subsequent publications, became very influential in geography education, as the geographical interpretation of the Thinking Skills movement (and in line with other cognitive acceleration strategies). Thinking Skills were adopted as part of the New Labour Key Stage 3 Strategies and influenced geography education pedagogy in the first decade of the twenty-first century. *Thinking Through Geography* featured a series of thinking skills activities relevant to geography education. The focus of the publication (and the strategies contained within) was to promote children's thinking, and so the concepts emphasised were those that would promote 'thinking'. Rather than seeing these concepts as goals of learning in geography education, Leat suggests they function as a way of developing understanding in geography:

> We believe that it is helpful to conceive of geography in terms of a number of central underpinning concepts, through which much subject matter is understood.
>
> (1998, p. 161)

He acknowledges that the list of Big Concepts is not a definitive one and is likely to change, but includes:

- cause and effect;
- classification;
- decision-making;
- development;
- inequality;
- location; and
- planning and systems.

Taylor (2008) describes these concepts as generic cognitive processes, and whilst they each have a role in geography education, they are not uniquely or distinctly geographical in nature. Indeed, a similar list would not look out of place in history or science education. Leat acknowledges this by arguing that 'the main concern of this book is students' learning, not the sanctity of the subject' (1998, p. 167), and that these concepts are useful to help students to make sense of the thinking scenarios that they are faced with, in the sense that they are used organisationally to develop the learning.

Taylor (2008) differentiates Leat's list of concepts from her own 'organisational' concepts. Taylor outlines that her four organisational concepts were developed from engagement with the work of Massey (see 2005) and so they have a distinctively (but not exclusively) geographical function:

- diversity;
- change;

- interaction; and
- perception and representation.

The organisational nature of these concepts stems from how Taylor suggests they are used, particularly in how they create a bridge between the hierarchical substantive concepts of place, space and time and the geographical enquiry questions which relate to the topic being studied. This is illustrated in Figure X.X below, adapted from Taylor's original article (2008).

These concepts are organisational because they provide a link between the abstract concepts of place, time and space, and the enquiry questions that relate to the topic being studied. Taylor does not suggest that these concepts should necessarily be shared with students, but that these organisational concepts are useful in curriculum planning.

Taylor acknowledges that her work on organisational concepts has been influenced by 'second order concepts' as they appear within school history. (Indeed, it is also interesting to note that Taylor includes time as a geographical concept, when other categorisations explored in this chapter prefer to emphasise Place and Space as stronger geographical concepts.) In history education, second order concepts (cause, consequence, significance, change) are used to shape enquiry that will lead to deeper understanding of substantive concepts (such as democracy, revolution and empire). Within history education there is a clear demarcation between these second order concepts, which are organisational and enquiry–based, from the more substantive (content-based) historical concepts (see Counsell, 2011).

Organisational concepts are different to hierarchical concepts, as they are not the goal of learning geography but a facilitating tool to get to those goals, and hence they emphasise linking processes and ideas rather than outcomes.

DEVELOPMENTAL CONCEPTS

The third approach to discussing concepts is the least common in geography education. The definition of key concepts in the 2007 Geography National Curriculum helped to define hierarchical concepts as the dominant approach in geography education. Prior to that, concepts were often referred to in relation to the child and their own learning, rather than on concepts as a way of structuring or organising knowledge.

In Hopwood's research he explored students' own conceptualisation of school geography, which he argues is an important influence on their learning (2004, 2011). Hopwood demonstrates how students use their conceptualisation of the subject as a way of filtering and processing their geography lessons: as a way of making meaning. In this respect, concepts are ideas, internally held, that are adapted or modified in the light of new information.

<Insert *Figure 5.2* Questions afforded by each organising concept (adapted from Taylor, 2008, p. 52).>

I have included this distinction because I think it is a particularly useful one for teachers. Research into concepts in education generally illustrates that views of knowledge in the curriculum can be divided into two schools of thought: exogenic and endogenic (Gergen, 2001). In the exogenic approach, knowledge is seen as external to the student, and the process of teaching is one in which 'outside' concepts are brought to the student. In this sense concepts are determined by the teacher (as the subject's conduit) and could be hierarchical and/or organisational. In the endogenic approach, knowledge is developed from within. In this respect, concepts are developmental, and are used by the student to make sense of a lesson's content.

With this alternative way of understanding concepts, Hopwood's research is particularly important because he illustrates that students' conceptual understanding of geography is often different to the hierarchical or organisational way of presenting concepts, and also that students' concepts are unique to the individuals. The implication of this finding is that whilst teachers may organise their curriculums around hierarchical or organisational concepts, the way that students make sense of their lessons may be determined by their own conceptual frameworks.

USING CONCEPTS TO BUILD UNDERSTANDING

The absence of any explicit mention of concepts in the 2014 Geography National Curriculum Programme of Study, requires geography teachers to take their own stance on how they introduce, use and develop geographical concepts in their teaching. Whether concepts are seen as hierarchical, organisational or developmental, teachers need to consider how they can support learners in developing geographical understanding, and how they can be used in planning meaningful geographical learning experiences.

Bennetts represents the process of developing understanding in geography education with the diagram in Figure X.X

[Insert Figure X.X here]

[caption]Figure X.X The roots of understanding (Bennetts, 2005).

In this diagram, concepts are grouped together with generalisations, models and theories as the ideas and mental constructs that enable learners to make sense of their experiences. To use the language analogy made popular by the Geographical Association's manifesto *A Different View* (2009), concepts can then be viewed as the 'grammar' of geography that we use to make sense of the world (or the vocabulary) and how we experience it. Bennett's diagram places concepts with both personal and public meanings, illustrating that they can come from the subject as well as from the student.

GEOGRAPHICAL CONCEPTS

The idea of threshold concepts has become influential in geography education. However, it is important to distinguish threshold concepts from academic geography, and, how they both relate to the typology already used in this chapter. Firstly, it is important to outline what threshold concepts are.

The idea of threshold concepts was developed by Meyer and Land (2005) in relation to economics in higher education. They define a threshold concept as:

A threshold concept can be considered as akin to a portal, opening up a new and previously

> inaccessible way of thinking about something. It represents a transformed way of understanding, or interpreting, or viewing something without which the learner cannot progress. As a consequence of comprehending a threshold concept there may thus be a transformed internal view of subject matter, subject landscape, or even world view.
>
> (p. 174)

They identify that threshold concepts have particular characteristics that distinguish them from other (lesser) concepts. For a concept to be 'threshold' it is likely to have the following features: it is:

- *transformative*, in that once it has been understood, it changes the way one views the phenomena;
- *troublesome*, in that it can see counter-intuitive, alien or incoherent;
- *irreversible*, so that once understood, one cannot go back to how they thought before;
- *integrative*, in that it brings together aspects of the subject that did not appear to be related;
- *bounded*, and so delineates a particular conceptual space;
- *discursive*, and therefore incorporates an enhanced and extended use of language.

Jonathan Slinger's research for the MA in Geography Education, sought to identify a framework for looking at threshold concepts in school geography (2010). Slinger describes threshold concepts as 'existing in relational web-like patterns' which includes

- using the discipline as a resource
- viewing students as active, enquiring learners who bring their own experience to the learning processes; and
- teachers as working with the subject and the student to construct knowledge

collaboratively.

Whilst Slinger doesn't go so far as to list what these concepts might be, he does acknowledge that they can operate at different levels (which he describes as basic, disciplinary and procedural) and that they can adopt a relational and situated view of knowledge, acknowledging the contested and plural nature of approaches within the discipline. In this respect threshold concepts can be viewed from a variety of perspectives: the subject, the pedagogy and the learner, and so can be seen to cross the categorisations offered in this chapter.

Slinger's analysis highlights the geographical potential of threshold concepts, but he also concludes that defining threshold concepts in geography is not straightforward. It has been argued by proponents of the idea of threshold concepts that they are what constitute the nature of disciplinary thinking: they are in effect what distinguishes "thinking like a geographer" from other ways of thinking.

The literature does suggest then that there may be a strong link between disciplinary concepts and threshold concepts, but that they are not necessarily the same. Once a threshold has been crossed, it changes the way you think, and much of the literature on threshold concepts suggests that it then becomes tacit and difficult to explain to others. The example used by Meyer and Land (2005) is that of price in economics. One cannot understand many of the ideas in economics without a precise understanding of "price", and yet once understood, price becomes difficult to articulate clearly.

In geography, the concepts of place or space, are also still an area of widespread theoretical debate. Academic concepts like these are an important link between the school subject and the

academic discipline, which Maude (2016) explains is because they have analytical power. However, their analytical power does not necessarily make them easy for learners to grasp.

Within academia, concepts help structure and define the future development of the discipline. For example, Jackson (2006) has argued that the geographical concepts of space and place, scale and connection, proximity and distance emphasise relational thinking, which he argues is a distinctive geographical contribution to knowledge. However, views on the significance of certain concepts can change. For instance, Castree (2005) presents a strong case for Nature as a powerful concept within geography. His book on nature is part of a series entitled Key Ideas in Geography that includes titles on *The City, Migration, Landscape, Citizenship, Rural, Mobility, Home, Scale*. Each of these titles can be seen as geographical concepts, and their focus as titles within this popular series illustrates a shifting dynamic in academic geography. This is symptomatic of the changing nature of disciplines, and is representative of our growing understanding of the world, and the ideas that shape it.

It is to be expected then that important concepts within the academic discipline will change over time. This will in turn influence school geography. Lambert and Morgan (2010) focus on the concepts of Place, Space, Scale and Interdependence, which they take care not to define in a hierarchical way (i.e., they don't refer to them as core or key), but as 'significant ideas' within geography. They argue that geography uses these 'ideas' to make sense of the world, whilst acknowledging the historical development of the concepts themselves. In the detail of their analysis they explore the development and interpretation of these concepts, and illustrate that the concepts are sites of contestation with the academic discipline, with multiple meanings. With each of the concepts they consider the implications this has for school geography.

Lambert and Morgan (2010) hold a position that a conceptual approach shows the promise of geography education. They see concepts as a powerful mechanism to support and develop

geographical understanding.

Conclusion

In this chapter I have suggested a categorisation of concepts in geography education. Concepts can be seen as hierarchical, organisational and developmental. In each of these categorisations, concepts are used by geography educators to support the learning process, by emphasising the subject, pedagogy or the students' experiences (respectively). In this respect, concepts can be understood as powerful tools for the geography curriculum maker. The GA (Lambert, 2011) has suggested that it is useful to distinguish between:

- core knowledge (the extensive world knowledge or vocabulary of geography);
- content knowledge (the key concepts and ideas, or grammar of geography); and
- procedural knowledge (thinking geographically, and the distinctly geographical approaches to learning such as enquiry).

Should geography teachers seek to adopt or develop this approach as a way of thinking about geographical content in the curriculum, then they will need to clarify which geography concepts they wish to focus on (hierarchical), and how they will support students to develop their understanding of those concepts (organisational) and the extent to which they will support students to develop their own conceptual frameworks (developmental). Further work on threshold concepts in geography could help to achieve this.

Key readings

1. Lambert, D. and Morgan, J. (2010) *Teaching Geography 11–18: A conceptual approach,* Maidenhead: Open University Press. Anyone interested in exploring geography's key concepts more should start with this book. In the opening chapters David Lambert and John Morgan outline their approach to teaching with concepts, and subsequent chapters take key concepts in turn and explore how they have changed over time and their relevance for school geography.
2. Taylor, L. (2008) 'Key concepts and medium term planning' in *Teaching Geography,* 33 (2), 50–54. This article is a good introduction to organisational concepts. In this article, Liz Taylor outlines her interpretation of them, how they relate to more substantive concepts and how they can be used to identify enquiry questions.

References

Bennetts, T. (2005) 'Progression in Geographical Understanding', *International Research in Geographical and Environmental Education,* 14 (2), 112–32.

Castree, N. (2005) *Nature,* London: Routledge.

Counsell, C. (2011) 'What do we want students to do with historical change and continuity?', in I. Davies (ed.), *Debates in History Education,* Abingdon: Routledge.

Department for Education (DfE) (2010) *The Importance of Teaching: the Schools White Paper,* London: HMSO.

Department for Education (DfE) (2013) *Geography programmes of study: key stages 1 and 2; National curriculum in England*. DfE Reference: DFE-00186-2013.

Department for Education (DfE) (2013) *Geography programmes of study: key stage 3;*

National curriculum in England. DfE Reference: DFE-00186-2013.

Department for Education (DfE) (2014) *Geography; GCSE subject content*. DfE Reference: DFE-00345-2014.

Department for Education (DfE) (2014) *Geography; GCE AS and A Level subject content*. DfE Reference: DFE-00693-2014.

Geographical Association (2009) *A Different View: A manifesto from the Geographical Association,* Sheffield: Geographical Association.

Gergen, K. (2001) 'Social construction and Pedagogical Practice', in K. Gergen (ed.), *Social Construction in Context,* London: Sage.

Hopwood, N. (2004) 'Pupils' Conceptions of Geography: Towards an Improved Understanding International Research', in *Geographical and Environmental Education,* 13 (4), 348–61.

Hopwood, N. (2011) 'Young People's Conceptions of Geography and Education', in G. Butt (ed.), *Geography, Education and the Future,* London, Continuum.

Jackson, P. (2006) 'Thinking Geographically', *Geography,* 91 (3), 199–204.

Lambert, D. (2011) *The Geography National Curriculum: GA Curriculum Proposals and Rational,* Sheffield, Geographical Association.

Lambert, D. and Morgan, J. (2010) *Teaching Geography 11–18: A conceptual approach,* Maidenhead: Open University Press.

Leat, D. (1998) *Thinking Through Geography*, Cambridge: Chris Kington Publishing.

Marsden, W. (1995) *Geography 11–16: Rekindling good practice*, London: David Fulton Publishers.

Massey, D. (2005) *For Space*, London: Sage Publications.

Maude, A. (2016) What might powerful geographical knowledge look like? *Geography*, 101 (2), 70-76.

Meyer, J.H.F. and Land, R. (2005) 'Threshold Concepts and troublesome knowledge (2), Epistemological considerations and a conceptual framework for teaching and learning', *Higher Education*, 49, 373–88.

Rawling, E. (2007) *Planning your Key Stage 3 Geography Curriculum,* Sheffield: Geographical Association.

Slinger, J. (2010) 'Threshold Concepts in Secondary Geography Education', Unpublished dissertation, Institute of Education: University of London.

Taylor, L. (2008) 'Key concepts and medium term planning', *Teaching Geography*, 33 (2), 50–54.