

Pupils' Conceptions of Geography: Towards an Improved Understanding

Nick Hopwood

*Oxford University Department of Educational Studies, 15 Norham
Gardens, Oxford, OX2 6PY, UK*

This paper explores both substantive and methodological issues relating to research investigating Year 9 (age 13–14) pupils' conceptions of geography in one English comprehensive school. Posters, a questionnaire and interviews were used to generate a variety of forms of data. Findings indicated that the pupils saw geography as about the world, people and ways of life, countries, and world problems, and as a dynamic subject in which multiple points of view were considered. Map work, life skills, understanding other people's perspectives and geographical knowledge were the main skills associated with the subject. Values entered pupils' ideas in various ways, relating to respecting other people's points of view, and nurturing attitudes of respect for cultures or the environment. The paper concludes that these pupils' conceptions of geography may be better understood through individual pupil profiles that reflect the links between their ideas.

Keywords: pupils, conceptions, geography, analysis

Introduction

Background

The motivation for this study came from identification of gaps in existing research in a contested context. Lord (2003) has found a persistent neglect of research in the humanities with respect to pupils' perspectives and experiences of the National Curriculum in England. Other geography-specific reviews have similarly found a lack of pupil-centred research (Martin, 1999; Roberts, 2002; Rutherford, 2002; Williams, 1999).

Ongoing debates regarding the nature, purpose and status of the subject provide a relevant and contested context for this study, all the more acute given the declining numbers of pupils continuing to study geography beyond the period of compulsory geography education in England (Adey & Biddulph, 2001; Kent, 1999).

Three strands can be identified in these debates relating to knowledge, skills, and values respectively. The English National Curriculum frames geography in terms of key substantive themes alongside regional and country-based study (Catling, 2003; DfEE/QCA, 1999). Leat (2000), Marsden (1997), Rawling (2000) have been among the large group of writers to discuss frameworks that structure and define the knowledge content of school geography in different ways.

Notions of skills are also contested. Rawling (2000, 2001) is concerned about an image of geography as utilitarian and fact-based, and questions the nature of

skills engendered in studying geography, including geographical enquiry (see also Roberts, 1998). Leat (1998) values geography as a means to achieving thinking skills and metacognition, while others stress career skills (Talbot, 2002). There is a paucity of evidence relating to what skills pupils themselves believe they learn in geography.

As knowledge and skills in geography are contested, so there is a 'values debate' which considers whether a firm stance should be adopted in geography education, or whether a range of views should be presented, encouraging pupils to reach their own decisions about contested issues (Lambert & Slater, 2000; Morgan, 2002; Slater, 1998; Slater & Lambert, 1998; Smyth, 1996).

This study is embedded in these contested contexts, and the three areas of knowledge, skills and values linked directly to the framing of research questions and initial analytical framework.

Research questions

The purpose of this study was to elucidate the nature of pupils' conceptions of geography and to reflect on a variety of techniques in order to inform a second phase of research (Hopwood, 2003). Three substantive research questions were posed, asking what are pupils' ideas about: (1) the knowledge and understanding associated with geography, (2) the skills acquired in studying geography, (3) values and geography.

The first question addressed issues of content (what geography studies) and the nature of geographical knowledge (for example, whether geography involves facts or opinions). The second was approached in an open manner (rather than focusing specifically on enquiry or thinking skills), and the third referred to values pupils associated with the subject (whether they thought school geography involved taking a firm stance on issues or not).

The posing of questions relating to knowledge, skills and values reflected the strands of debate identified, and remits in the National Curriculum in England in those three areas. This tripartite framework helped ensure a holistic approach, combining important aspects of subject conceptions, and was used to guide research design and initial analysis.

In parallel, two methodological questions guided introspection of the techniques used and data generated: (1) to what extent did the different techniques (poster, questionnaire, interview) produce different data and different types of data? and (2) in what ways could the data generated be interpreted and verified?

In addition to providing a substantive contribution to knowledge, this study also sought to develop methodology and explore new strategies and techniques within its specific context. The methodological research questions operationalised this aim.

Methods of Data Generation

Research design

Methodological decisions were made in response to questions posed by Anderson and Burns (1989: 45) such as, 'How do I obtain interpretable data? And given a purpose or set of purposes, a question or set of questions, what kinds of

investigative exercises, operations and strategies should I embark upon to fulfil the purposes and answer the questions?’

This study was largely exploratory, a context in which the strengths of qualitative methods have been demonstrated (Punch, 1998). Miles and Huberman (1994) suggest that qualitative data can be a source of well grounded, rich descriptions and explanations of phenomena occurring in local contexts. This suited the aims of the present research in which quantitative generalisations were not sought, but rather detailed data that satisfied both the aims and provided a means for informing subsequent phases of research.

A multiple method case study was used, involving two mixed ability Year 9 classes (nearly 60 pupils aged 13–14) in a comprehensive school. Year 9 was chosen as this is the final year of compulsory geography study in England, and a single site was deemed sufficient to achieve the aims and to answer the questions of the present study. The use of multiple methods exploits the opportunity to assess the reliability and validity of different techniques and interpretations based on them.

Research techniques

The data generation techniques used were as follows:

- (1) An open-ended poster task in which pupils were asked to produce something showing what they think geography is.
- (2) A short questionnaire, including a range of items (covering knowledge, skills and values) and item formats, following practices suggested by Oppenheim (1992).
- (3) Semi-structured interviews with a sub-sample of pupils, covering most aspects of interest, asking pupils to explain their views.
- (4) Follow-up interviews, talking to pupils about their posters and questionnaires, asking them how they felt about the tasks and opportunities they were given to express themselves.

All interviews explored the continuum from fluid to fixed agenda, using probing questions, asking for examples, and listening actively to answers in order to develop subsequent questions (see Kvale, 1996).

Data management techniques suggested by Robson (1993) were employed, writing summaries of each technique while in the field, noting preliminary analyses and implications for future work. These were complemented by habitual memo-writing recording informal discussions, methodological and substantive hunches, and assessments of reactivity.

Methods of Data Analysis

Brown and McIntyre’s (1993) system for coding was used to code and categorise data, progressing through six stages developed to deal with the different data generation techniques. These stages are summarised in Table 1, and each is then considered in turn.

Brown and McIntyre (1993) refer to codes as units or categories that can be used to make sense of qualitative data. Codes are identified by examining data looking for points of similarity and difference. As more codes are identified, a

Table 1 Overview of the initial analytical procedures

<i>Stage</i>	<i>Details</i>
1. Selection of a sub-set of data from one technique	Questionnaires provided a straightforward starting point; concentrating on one item made coding manageable and context-specific; preliminary coding scheme developed
2. Repeat stage 1 with a new sub-set from the same technique; compare codes	Responses from a new item were coded, developing a new scheme which was then compared with existing schemes; repeated until all data from one technique had been analysed
3. Repeat stages 1 and 2 for the interview data	Coding of interview data closely mirrored that of the questionnaire
4. Compare existing coding schemes	At this point it was clear that coding schemes from different techniques and relating to different foci could be combined into a single coding scheme
5. Analyse the poster data	Combined coding scheme carried through as a basis for analysis; minor revisions and modifications were made
6. Final cross-check	Ensured that all relevant data were accounted for in the resulting combined coding scheme

coding scheme emerges which gives the analysis structure, and allows comparisons to be made between codes as well as between individual data. Before analysis progresses from one stage to the next, the question 'are these codes helping answer the research questions?' must be posed and addressed.

Codes relating to different samples of data were developed and checked independently in terms of their relation to the research questions before making comparisons between coding schemes. In this way, Brown and McIntyre's (1993) suggestion that codes from sub-samples should be carried through to further samples was adapted to the specific context of this study in which, given the methodological research questions, it was important to allow different techniques to be considered separately.

In stage 1, analysis focused on the first item of the questionnaire which asked pupils to 'write what you think geography is about'. Following Brown and McIntyre's (1993) approach to coding, points of similarity and difference among the responses to this item on all questionnaires were identified. Codes and sub-codes were used to structure the emerging coding scheme, for example by denoting general references to the world under the broad code 'world', while retaining precision by identifying sub-codes that differentiated between 'study of the world', 'understanding the world', and 'how the world changes'. Checks were made to ensure all elements within responses were accounted for by the coding scheme.

New coding schemes were developed in analysis of other items on the questionnaire, relating to skills and values (stage 2). These were compared to the existing scheme developed in stage 1. At this time the possibility of combining or merging the coding schemes suggested itself, but it was important to consider the interview data before taking such steps. This was done in stage 3 in which the same principles for coding were applied, and fresh coding schemes developed. In stage 4 all existing schemes were compared and contrasted and the striking similarity between them noted. They were then merged into a single combined coding scheme which was carried forward to analysis of the poster data.

The nature of the poster data meant that it was difficult to select a particular aspect or sub-sample to analyse, so the combined scheme developed through analysis of questionnaire and interview data was used to examine the posters (stage 5). Despite the variety of data formats, data from the posters were accounted for making only a few minor additions and refinements to the combined scheme. In stage 6 all data were scrutinised again, checking that all elements of responses and aspects of illustrations were accounted for in the modified combined scheme, and that the codes were helping answer the research questions.

Inter-rater reliability, established through independent coding by a second researcher, could have strengthened the argument presented in this paper. Severe restrictions in time precluded such practice, and while the benefits are acknowledged, the current study's status aims of exploring the nature of pupils' conceptions and informing further research could be fulfilled by the author working alone.

Findings (1) from the Initial Analysis

Although it became clear that the framework of knowledge, skills and values was imposing divisions in analysis that were not reflected in the data, the decision was taken to continue using the framework which had been crucial in developing the research design, and in terms of which the substantive research questions had been posed, but then to reanalyse the data in a more open way, taking lessons from initial analysis into account (this was termed 'informed analysis'). The combined coding scheme formed the basis for initial analysis of pupils' conceptions in terms of knowledge, skills and values. These findings are presented below, taking each question in turn.

What did the pupils think about geography in terms of knowledge?

This question was broken down into two parts, considering content (what it is that geography studies) and the nature of that content (whether geographical knowledge is factual, involves opinions, is static or dynamic etc.).

The pupils' conceptions of the content of geographical knowledge centred on the world, people and ways of life, countries, and problems or issues. In the first instance, many pupils saw geography as being the study of the world. This was a common response in closed, open, written, verbal and pictorial/symbolic form.

- Geography is all about understanding the world. (Adrian, questionnaire)

- Well, it's just about the world. (Claire, in interview explaining why she had chosen to represent geography with an image of the world on her poster)
- Geography builds up a picture of the world; tells you and explains the problems of the world; [and] is the study of the world, its inhabitants and environments in general. (Gemma and Abi, comments on their poster)

Another key theme identified in the separate coding schemes for all the different data sets and prominent in the combined scheme was that geography focuses on people, lifestyles, or ways of living. Some comments combined elements from other themes, suggesting that a holistic analysis might be more appropriate.

- Learning about the way people live everywhere. (Samantha, questionnaire)
- Geography is learning about the world and its population. You can learn how people in other countries are different from us and the way they live. (Laura and Caroline, poster)

Countries constituted a key area of study for many pupils, although the variety within references to this theme was substantial.

- Knowing where countries are and what they are like. (Abi, questionnaire)
- I think geography is about learning about the world and countries. (Laura, questionnaire)
- Geography is the study of countries in the world. (Nancy and Libby, poster)
- We thought we'd put the map of the world in the background so they'd know where some countries are and stuff like that. (Nancy and Libby, follow-up interview about their poster)

Issues and world problems were often cited as central elements of study in geography, with a particular emphasis on natural disasters. References ranged from general to more specific comments (identified in codes and sub-codes respectively), and again, a combination of themes within statements was common.

- Map work, looking at the world, natural disasters and people from other countries. (Matt, questionnaire)
- Facts about countries, mapwork, earthquakes and volcanoes. (The three areas shown on Matt and Greg's poster)
- I think that geography is an understanding of different issues (mainly environmental) in the world. (Edward, questionnaire)

With some pupils, especially those whom I did not have chance to interview, no clear theme emerged showing what they thought geography is about. Such incohesiveness existed within single responses, and when different sources were compared. This may be a reflection of pupils thinking of geography as a subject with no overarching or unifying theme or concept. There is evidence for this from a limited number of pupils, but in other cases, this may also be a reflection of the limits to the data generation techniques. When asked in interview if there was anything that isn't studied in geography, Tony replied, 'No, anything on the earth could be geography.'

Geography is all about everything, land, sea, weather and even under the earth. (Gary, questionnaire)

Pupils' conceptions of the nature of geographical knowledge centred on issues of opinion and the dynamism associated with the subject.

On the questionnaire, pupils overwhelmingly agreed, that 'in geography I can have a different point of view from other pupils in my class' and similarly disagreed that 'in geography there is always a right or wrong answer'. It transpired from interviews that the pupils saw geography as being about issues or problems to which there may not be one solution. This was sometimes seen as a key difference between geography and other subjects.

There's always different possible solutions. We were thinking about pedestrianisation and stuff just to get traffic out of the centre of town. (Graham, interview)

The other main finding in this area was that pupils tended to think of geographical knowledge as dynamic rather than static. Again, this was seen as something distinctive about geography.

Maths is logic and geography, because we're learning about things, we still don't know the answers to everything about the world, and everyone as a community, we're still learning so it's different, it's not the same as maths where everything adds up. (James, interview)

What did pupils think about geography in terms of skills?

Data on skills were generally much thinner and less detailed than on content. However, the findings indicate *some* of the ways the pupils thought about skills, relating to map skills, life skills, understanding other people's points of view, and geographical knowledge itself.

Map reading or map work were cited by many pupils on the questionnaire, both when asked about content and when asked about skills.

Maps, natural hazards, volcanoes and earthquakes. (Graham, questionnaire content item)

How to read maps and signs. (Nick, questionnaire skills item) Because maps are very important to geography and if you know where places are then you can learn about the climate and things like that. (Nick, in a follow-up interview, when asked to explain his response on the questionnaire)

Life skills were mentioned by some pupils as being key to studying geography, and these often related to personal ambitions and preferences, rather than more general skills. References linking knowledge, skills and personal values suggested that the tri-partite framework might have considerable limitations. For example, when asked if he thought it was worth studying geography, Edward replied 'Yeah definitely because I'm trying to go on to be a pilot' (interview). In the questionnaire in response to a question on skills, Sarah wrote 'How to locate places on a map. What to expect from different countries, e.g. weather, people, places.' She explained in a follow-up interview her ambitions to travel the world.

Recognising and understanding other people's perspectives and points of view was identified as a key skill in geography by many pupils.

Learn about society and the world we live in. Understand different people's views. (Rosie, questionnaire, skills item)

Similarly, when asked what you have to be good at to be good at geography, James said 'listening and being open minded' (interview). Many pupils saw the knowledge and understanding they acquired in geography as equipping them with skills. Some made reference only to areas of knowledge as a skill, while others indicated how knowledge might be used. Again, the close links across themes are apparent.

- Locating countries, information on countries, general knowledge of the world. (Abi, questionnaire, item about skills)
- Map reading, understanding about other countries e.g. LEDC and MEDC, knowing where countries/places are, understanding about the effects of weather, problems in the world e.g. destroying forests. (Nancy, questionnaire, item about skills)
- Geography is about the world, how people live, the environment and the weather. It teaches us why things happen and how to prevent it. (Luke, questionnaire, item about content)

What did pupils think about geography in terms of values?

The interest here was whether pupils thought geography was a subject which embodied certain values, or whether no firm stance was taken about how to act or what should be done. The main themes related to respecting various points of view and nurturing attitudes of respect for cultures or the environment, and different opinions were voiced as to whether geography is value-neutral or not.

As suggested by findings relating to the nature of geographical knowledge, most pupils thought that their own opinions and views were important in geography. One further example is given below.

- Geographers should not all have the same view . . . geography does not tell you this is the right thing to do. (Tony, interview)

Although the majority of pupils suggested their own views were important, some indicated that geography may teach them certain solutions or actions as preferable, therefore embodying certain value positions. In this instance, the overlap with knowledge and skills is particularly apparent.

- You learn how to look after the world properly. (Adrian, questionnaire, skills item)
- I learn to look after the places we like and other countries. (Emma, questionnaire, skills item)
- This is all studied to try and bring forth facts and opinions and to find solutions for different types of situations. (James, comments on poster)

James' comments that geography might propose solutions and 'best' ways forward were validated in interview, when he remarked:

- I think geography can definitely influence what somebody's opinion is and make them think that maybe this is the right answer.

The third theme relating to values in the combined coding scheme was 'valuing values'. Pupils were aware of the importance of respecting other people's point of view, or nurturing attitudes of respect for people, cultures or the environment. Much evidence for this came from data already analysed in terms of content and skills.

- Geography makes us better people through increased knowledge of countries. (Rosie and Tracy, comments on poster)

Summary of substantive findings emerging from initial analysis

The analysis presented above illustrates aspects of pupils' conceptions of geography, distinguishing between knowledge, skills and values. The combined coding scheme identified several themes in each area, demonstrating considerable variation in pupils' ideas. However, considerable overlap between aspects of knowledge, skills and values was found, indicating that the tripartite framework imposed artificial divisions on the data. The suggestion was that pupils' conceptions might be better understood using an alternative framework for analysis.

Findings (2) From an Informed Analysis

Developing an informed analysis

Given the findings from the initial analysis, an alternative framework was sought that would explore the links and overlap between different aspects of pupils' conceptions. A more open question structure was needed, while keeping analysis focused and manageable. The data were revisited focusing on individual pupils, asking 'what is this pupil's conception of geography?' Individual pupil profiles were constructed in this informed analysis, drawing from all available sources. This proved effective in avoiding imposed divisions of the tripartite framework while accounting for data that referred to several aspects of conceptions.

Outcomes of informed analysis

The most complete individual profiles are limited in number to the sub-sample of pupils who were interviewed. They provide a detailed picture of what those pupils thought about geography. The examples below use the pupils' own words, but in a combination that has been constructed for the purpose of this research.

- Geography is learning about the world, how it works and the people in it. It includes learning about other countries and natural disasters. In geography I learn to read maps and I understand other ways of life. I like learning about natural disasters best because they have a big effect on the world. I also like learning about erosion and things because my mum used to live by the sea and we used to go there and the cliff was eroding and stuff. Geography is about things in the news and important things because

earthquakes and volcanoes are always in the news. Geography would be useful to know what was going on with the erosion, and you'd have to ask all the people who lived there what they thought because if they live there they might have different ideas. In future I'd like to learn about hurricanes and tornadoes and maybe other countries because I'd like to see the world when I'm older. (Zoe)

- Geography is the study of the world around us, including human life systems and other poorer countries. It tells us what different individuals or groups think about different issues or problems. I learn skills like learning about other cultures and ways of living, and dealing with human suffering. Geography is needed to provide facts and opinions to find solutions to various problems, such as natural disasters and life in poorer countries. I like studying natural disasters because I'm interested in them personally and because they are important because they kill lots of people. Geography can help understand and improve problems like poverty, and I'd like to know more about how people live in poor countries. Geography is important because it can explain why some countries are poorer than others. (James)

These two examples illustrate a number of strengths of the informed analysis. While the initial analysis identified themes that were prominent across the group of pupils, the ways in which ideas about different aspects of geography were linked at the individual level was not revealed. The individual profiles afforded a closer examination of the nature and structure of pupils' conceptions, rather than merely identifying prominent features across a group of pupils. Through this process more detailed and sophisticated comparisons between pupils could be made, finding similarities and differences in not just the component parts of pupils' conceptions, but also in the ways those parts were linked.

Discussion

This section describes the methodological introspection undertaken in order to answer the methodological research questions and inform further research.

To what extent did the different techniques produce different data and different types of data?

The posters, interviews and open responses on the questionnaire produced very similar data in terms of scope and content, reflected in the fact that coding schemes from different techniques were combined with only modest modifications. Variations in richness were incorporated into the coding schemes with more general, shorter responses coded under more general codes, and more detailed comments accounted for in more specific sub-categories, illustrated with data from the questionnaire in Table 2.

Such variation in content richness was evident in data from all three techniques. However, when individual profiles were constructed, it was found that where some pupils had generated data of low content richness on one technique, much richer data were generated on another technique. Questions as to whether the different techniques were associated with different data were most meaningfully addressed considering pupils rather than the techniques themselves. When, as part of the original research design, pupils were asked how they felt

Table 2 Examples of low, medium, and high content richness

<i>Content richness</i>	<i>Examples from raw data</i>
Low	The study of the planet. (Mike)
Medium	Global position, world processes, farming, population, the world around us, climate. (Simon)
High	Geography is about the environment and the world around us. What's happened to the world, what about the world is changing, and what's going to happen, e.g. different countries, plants, pollution, mountains, volcanoes. (El)

about the different techniques, a variety of responses and explanations emerged. This suggested that the range of data generation techniques used accounted for a range of preferred working styles, and demonstrated the strengths of multiple-method approaches.

In what ways could the data generated be interpreted and verified?

Addressing this question required data to be examined in terms of reliability and validity. The unity of themes across all the data sets such that coding schemes could be combined indicated a good degree of reliability, with pupils overall generating similar data over a period of several weeks through a variety of techniques. The construction of individual pupil profiles enabled reliability of data at the micro scale to be scrutinised. As discussed in findings from initial analysis, inconsistent data might be a reliable source of evidence about pupils with less cohesive and coherent ideas about geography. A limitation of the current design relates to difficulties in establishing whether such data reflected pupils' conceptions or weaknesses in the data generation techniques. When all data pertaining to a particular pupil contributed to a clear and coherent picture, evidence was strengthened and claims have been made about those pupils with confidence.

Assessments of validity focused on interpretation of the data. Comparing data from different sources on an individual pupil basis provided a useful means for checking interpretations. Interviews were also used to verify and explore meanings, using probes asking pupils to explain why they had written or said certain things, or asking them to give details or examples. Instances of pupils interpreting questions in ways other than initially intended and hidden meanings lying behind pupils' responses were discovered in this way. Through this process some elements of the data which could not lead to valid interpretations were discarded. Claims have thus been made only on the basis of data for which reliability and validity of interpretation can be established.

While the reliability and internal validity of the data set for understanding the pupils involved can thus be established in many cases, claims cannot be made beyond those classes (the data and interpretations of it are not externally valid). Similar research working with other teachers or curriculum frameworks might reveal a different picture, and a further limitation with respect to this study reflects its context specificity.

Conclusions

Substantive conclusions and implications

The details and examples given illustrate that the pupils involved had a range of conceptions of geography. The pupils saw geography as about the world, people and ways of life, countries, and world problems, and as a dynamic subject in which multiple points of view were considered. Map work, life skills, understanding other people's perspectives and geographical knowledge were the main skills associated with the subject. Values entered pupils' ideas in various ways, relating to respecting other people's points of view, and nurturing attitudes of respect for cultures or the environment.

The details and content of these conceptions may well reflect in part the National Curriculum framework with which geography teachers in England work, and/or the decisions and practice of the teacher involved. An important development in future research, then, would be to explore different national and international contexts.

The strong differences between pupils' conceptions as demonstrated in the individual pupil profiles indicates that the data generation techniques were sensitive to pupils' personal ideas about geography, however context specific the data as a whole might be. In this respect, the conclusions drawn relate less to the content of pupils' conceptions and more to their nature. Evidence generated in this study indicates that these pupils' conceptions of geography are complex phenomena, varying greatly in both component parts and structure. Hopwood *et al.* (forthcoming) reflect on what these findings might mean for classroom teachers, but the lessons about the way pupils think about geography are worthy of consideration in their own right.

While different frameworks for geography can be found in the literature and National Curriculum, this study has shown that these pupils' conceptions of geography are highly personalised, relating to personal experience and preference as well as to experiences of school geography. Furthermore, while the framework based on knowledge, skills and values reflected remits in the National Curriculum and strands of debate in geographical education, and indeed formed the basis for the questions and design of this study, the findings suggest that pupils tend not to think about geography in these terms. These different features, and others, are instead linked, merged and overlapping.

Methodological conclusions and implications

The strengths of the multiple method design adopted in this study have been demonstrated in several ways. The design accounted for variation in the way pupils think and express themselves. Different techniques were differentially effective for the same individual, and the use of several techniques exploited potential to engage with pupils in a format that suits them, and thus generated data of high content richness and reliability.

Reliability was assessed by comparing data generated over a period of time and using different response formats, and validity established by checking interpretations of data either through comparing different data sources relating to the same individual, or through the use of probes in interviews, further illustrating the strengths of multiple-method designs.

Implications for further research

The potential for similar designs in other contexts is discussed by Hopwood (2004), but in this case a primary conclusion is that investigations into pupils' conceptions must be sensitive to pupils, both in terms of their preferred styles of expression and in relation to the personalised nature and structure of their conceptions.

Similar studies conducted in different contexts might reveal valuable insights into different curriculum frameworks and national or international contexts, and explorations in this avenue would be strengthened by designs incorporating several research sites. While studies with larger samples might appeal to those seeking generalisability, researchers would be faced with the challenge of developing techniques that reflect the nature and structure of pupils' conceptions without imposing artificial frameworks on data generation, analysis and interpretation. Further research might be informed by findings from this study by building on the highly qualitative, detailed individual pupil profiles, focusing on a small number of pupils. A related avenue for further research which presents itself involves combining classroom experiences and pupils as units of analysis, exploring conceptions as they relate to pupils' experiences of geography in schools.

Acknowledgements

The author wishes to thank the teachers and pupils involved in this research, whose ongoing cooperation has been so crucial to the success of this study. The ERSC funds this research and the larger ongoing project of which it is part.

Correspondence

Any correspondence should be directed to Nick Hopwood, Oxford University Department of Educational Studies, 15 Norham Gardens, Oxford, OX2 6PY, UK (nick.hopwood@edstud.ox.ac.uk).

References

- Adey, K. and Biddulph, M. (2001) The influence of pupil perceptions on subject choice at 14+ in geography and history. *Educational Studies* 27 (4), 439–50.
- Anderson, L.W. and Burns, R.B. (1989) *Research in Classrooms*. Oxford: Pergamon.
- Brown, S. and McIntyre, D. (1993) *Making Sense of Teaching*. Buckingham: Open University Press.
- Catling, S. (1993) The whole world in our hands. *Geography* 78 (4), 340–58.
- Catling, S. (2003) Curriculum contested: Primary geography and social justice. *Geography* 85 (3), 164–210.
- DfEE/QCA (1999) *Geography: The National Curriculum for England, Key Stages 1–3*. London: DfEE/QCA.
- Hopwood, N. (2003) Pupils' conceptions of geography: A methodological investigation. Unpublished MSc thesis, Department of Educational Studies, University of Oxford.
- Hopwood, N. (2004) Research design and methods of data collection and analysis: Researching students' conceptions in a multiple-method case study. *Journal of Geography in Higher Education* 28 (2), 347–533.
- Hopwood, N., Courtley-Green, C. and Chambers, T. (forthcoming) Year 9 pupils' conceptions of geography. *Teaching Geography*.
- Kent, A. (1999) Geography in secondary education in England. *International Research in Geographical and Environmental Education* 8 (3), 287–90.

- Kvale, S. (1996) *InterViews: An Introduction to Qualitative Research Interviewing*. London: Sage.
- Lambert, D. and Slater, F. (2000) Forum: Values in geographical and environmental education. *International Research in Geographical and Environmental Education* 9 (1), 48–9.
- Leat, D. (1998) *Thinking Through Geography*. Cambridge: Chris Kingdon.
- Leat, D. (2000) The importance of 'big concepts' and skills in learning geography. In C. Fisher and T. Binns (eds) *Issues in Teaching Geography*. London: Routledge/Falmer.
- Lord, P. (2003) *Pupils' Experiences and Perspectives of the National Curriculum: Updating the Research Review (2002–2003)*. Slough: NFER.
- Marsden, B. (1997) On taking the geography out of geographical education: Some historical pointers. *Geography* 82 (3), 241–52.
- Martin, F. (1999) Contrasting views on locality between child and adult. *International Research in Geographical and Environmental Education* 8 (1), 78–81.
- Miles, M. and Huberman, A. (1994) *Qualitative Data Analysis* (2nd edn). London: Sage.
- Morgan, J. (2002) 'Teaching geography for a better world'? The postmodern challenge and geography education. *International Research in Geographical and Environmental Education* 11 (1), 15–29.
- Oppenheim, A. (1992) *Questionnaire Design, Interviewing and Attitude Measurement* (new edn). London: Heinemann.
- Punch, K. (1998) *Introduction to Social Research: Quantitative and Qualitative Approaches*. London: Sage.
- Rawling, E. (2000) School geography 5–16: Issues for debate. In C. Fisher and T. Binns (eds) *Issues in Geography Teaching*. London: Routledge/Falmer.
- Rawling, E. (2001) Politics and practicalities of curriculum change 1991–2000: Issues arising from a study of school geography in England. *British Journal of Educational Studies* 29 (2), 137–58.
- Roberts, M. (1998) The nature of geographical enquiry at Key Stage 3. *Teaching Geography* 23 (4), 164–7.
- Roberts, M. (2002) The role of research in supporting teaching and learning. In M. Smith (ed.) *Teaching Geography in Secondary Schools: A Reader*. London: Routledge/Falmer.
- Robson, C. (1993) *Real World Research*. Oxford: Blackwell.
- Rutherford, D. (2002) Building empirically-based theory in geography education. *International Research in Geographical and Environmental Education* 11 (3), 283–6.
- Slater, F. (1998) Illustrating values in geography education through an examination of research. *International Research in Geographical and Environmental Education* 7 (2), 162–7.
- Slater, F. and Lambert, D. (1998) Introduction: Examining values in geographical and environmental education. *International Research in Geographical and Environmental Education* 7 (2), 140–41.
- Smyth, J. (1996) Environmental values and education. In J.M. Halstead and M.J. Taylor (eds) *Values in Education and Education in Values*. London: Falmer.
- Talbot, P. (2002) Geography . . . More than a job. *Teaching Geography* 27 (3), 140–42.
- Williams, M. (1999) Research in geographical education. *International Research in Geographical and Environmental Education* 8 (3), 301–4.