Exploring Issues of Validity in a Study of Geography Teachers' Subject Knowledge

Clare Brooks
Institute of Education, University of London, UK
and
Nick Hopwood
Oxford University Department of Educational Studies, UK

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Abstract

This paper explores aspects of validity in qualitative research relating to a study of geography teachers' subject knowledge and how this relates to their practice. Participating teachers and an external researcher scrutinised raw data and commented on preliminary analyses. The outcomes of these processes are evaluated first with specific reference to understanding the case teachers' subject knowledge and then in a broader discussion relating to engaging participants and other researchers in similar exercises. It is argued that even where discrepancies and conflicts between different interpretations of data emerge, such tensions may be explored as helpful rather than perceived as threats.

Key Words: analysis, interpretation, representation, case teachers.

Introduction

Teachers' practice is situated within a complex cocktail of social and cultural influences. Exploring this in educational research presents a number of challenges. Elbaz (1990), Clandinin and Connelly (1995), and Calderhead (1996) demonstrate the difficulty in understanding the representations made by participants in research through their accounts. Tensions may arise between interpretations drawn by a researcher and the meanings participants

intended to convey. This paper explores these issues with reference to a study of geography teachers' subject knowledge and how this influences their practice. The focus herein is on an exercise orientated more specifically on analysis and validity conducted within the larger study. It considers how the case teachers, in addition to generating data through interviews, performed roles akin to verifiers and analysts. It also reflects on how an external researcher provided further perspectives on the data and interpretations of it.

Offering data and interpretations of it to participants and other researchers provides a clear opportunity to enhance validity and strengthen claims that can be made (Silverman, 2000). However such practices also pose potential difficulties, particularly when disagreement arises about either the suitability of the raw data as an evidence base (and hence who 'owns' the data), or about the way data have been interpreted. While such conflicts may appear problematic, the identification of such tensions and exposure to conflicting perspectives should be welcomed as helpful in data analysis.

Both the notion of 'validity' and ideas about how to enhance the validity of interpretation of qualitative data are contested. Such arguments and the position adopted in this study are summarised in the following section.

This paper focuses on one methodological aspect of Ph.D. research into geography teachers' subject knowledge. The aim of the research was to understand how subject knowledge was conceptualised and used by six different case teachers. The research was divided into two stages, each comprising three case teachers. This paper reports on the data analysis of the first stage of the research featuring three teachers: Steven, Clive, and Mandy (Names of the case study teachers have been changed to ensure anonymity and confidentiality). The study explored the nature of secondary school geography teachers' subject knowledge and the relationships between this and how they teach geography.

Validity in Qualitative Research

The exercise discussed in this paper can be situated in the context of broader debates regarding validity in qualitative research. Guba and Lincoln (1989) argue that the terms internal and external validity are inappropriate for an interpretative approach to qualitative research. Instead they introduce alternative criteria for 'trustworthiness' (credibility, transferability, dependability, and confirmability) which have parallels with more conventional terms of external and internal validity, reliability, and objectivity. They also outline criteria for authenticity, designed to ensure that accounts in qualitative

research are considered 'authentic' by research participants themselves, enabling them to act upon researchers' interpretations and analyses. Guba and Lincoln's (1989) reformulation of what validity might mean in qualitative research constitutes a significant contribution to these debates. Yet their notions have not been widely adopted in other studies (Bryman, 2001), and were indeed strongly criticised by Morse (1999), demonstrating the contested nature of this aspect of qualitative research.

Although consulting participants for purposes of internal validation is often recommended in qualitative research manuals (McNiff, 2002; Blaxter, Huges, and Tight, 2001; Silverman, 2000), the practice is not universally valued or employed. This reflects in part a justified practice in some studies to avoid involving participants in data analysis; it also reflects perceptions that seeking different people's perspectives on data and analysis might lead to disagreement or conflict that could hinder rather than help research.

Guba and Lincoln (1989) are strong advocates for involving participants in the validation of research. They contend that doing so is valuable not only for data analysis but also offers opportunities for participants to reflect on and change their practice. However, many researchers recommend caution before involving participants in validation. For example, Hammersley (2002) warns "nor can we rely on the fact that because participants are 'there' that they 'know'" (p. 75). Brown and Dowling (1998) believe that it is the role of the researcher to make meaning of the data and that this may be compromised through placing inappropriate emphasis on participants' responses to data or interpretations of it. Similarly, Robson (1993) notes that 'using' others to assist in validating data or analyses can present problems when conflicting views arise. It then becomes the researcher's duty to determine to what extent that conflict or tension is due to different interpretations or understandings of the data or inherent problems with the data or the research design itself. Such difficulties can be exacerbated when participants ask to change 'raw' data having (re)read transcriptions or field notes subsequent to data collection. Participant validation can therefore be problematised, and associated with a tendency to reinforce existing power relations of dominance of researcher over researched, or to pose 'threats' to the integrity of the researcher or outcomes of research.

Research Context

Histories of academic geography show the subject has changed in response to a variety of philosophical and ideological approaches each

resulting in different epistemologies of geography (Livingstone, 1993; Unwin, 1992; Johnston, 1991). The term "geographical knowledges" describes different conceptions of the subject and forms of knowledge within it (Morgan and Lambert, 2005). This paper refers to "geographical knowledges" as it reminds the reader that there is more than one way to understand geography. Slater (1996) has identified six different traditions of geography and has noted how the "means" and the "ends" of each type of geographical knowledge are different. Morgan and Lambert (2005) argue that shifts in geography education have not necessarily paralleled those in academic geography. Geography education has been influenced by curriculum controls as well as developments in geography itself. Rawling (2001) has categorised geography education into a series of ideological traditions that reflect curriculum changes as well as associated geographical knowledges.

Each teacher develops their own understanding of geography reflecting how they have been influenced by these philosophical or ideological traditions in their study of both the academic and school subject. This may affect how they then use that geographical knowledge in their teaching. Data elucidating these issues were collected through interactions with three experienced secondary (high school) geography teachers in England: Clive, Mandy and Steven. This data collection involved these descriptions of their relationship with geography (their "geographical imagination") and observations of their teaching practice. It is also possible that the reading of data in this study may have been clouded or filtered through the primary researcher's (Brooks) own geographical imagination and understanding of the subject. It was important to acknowledge and explore this complexity as part of understanding and analysing the data. It was decided to compare the primary researcher's reading of the data with that of an external researcher (Hopwood) and with the intentions of the participants. The outcomes of these processes are evaluated first with specific reference to understanding the case teachers' subject knowledge and then in a broader discussion relating to engaging participants and other researchers in similar exercises.

Methods Used For Validation

In the process of designing the research, it became clear that a conflict could arise between what the teacher participants said and what they actually did (such an anomaly between teachers' intentions and actions was highlighted by Lidstone and Stoltman, 2002). With this dilemma in mind, three stages of research validation were undertaken.

Stage 1–Informing Case Teachers about the Research

In an attempt to manage reactivity, the case teachers were only informed about the focus of the research to a relatively basic level prior to data collection. However in order that they might participate fully in the process of validation, further details were given about the research questions, analytical constructs, and methods of analysis. The external researcher's first involvement in the project was at this stage and thus a full account of the aims and methods of the study was given. The research was summarised as aiming to understand the nature of teachers' pedagogical and subject knowledge by exploring the cultures and values evident in their practice and their talk about their practice.

Stage 2–Explaining the Procedures and Purposes Of Validation

The case teachers were asked to read the data transcripts, to provide feedback and comments in an open way, and to specifically identify any inaccuracies they perceived in the raw data, thus including them in questioning the dataset as a basis for analysis and interpretation.

The next step involved providing the case teachers with the initial analyses constructed by the primary researcher. The geography and geography education traditions identified by Slater (1996) and Rawling (2001) were used as analytical constructs with which to explore the teachers' subject knowledge. The participants were then asked the following questions:

- How accurately does my representation depict you as they were then?
- What is your response to my comments / observations?
- Have you changed since then? If so, how?
- Are there any inaccuracies in this analysis?
- Can you 'see' yourself in what I have written?
- To what extent do you think I have allowed my personal feelings or opinions about you to cloud my analysis?

The external researcher undertook two tasks in validation. The first task was to comment on the suitability of the dataset as a basis for addressing the research questions, and then to use the geography and geography education traditions as constructs with which to analyse the main interviews with each teacher. In essence, this involved repeating the preliminary analysis conducted by the primary researcher. The second task sought to identify core values evident in the data, and what geographical knowledges were being expressed. The external researcher was totally blind to any analyses or interpretations reached by the primary researcher at this time.

Stage 3 - Collaboration

The primary and external researchers then worked together examining the teachers' comments, and comparing and contrasting the initial (Brooks') and blind repeat (Hopwood's) analyses of the data. This collaborative phase was characterised more by asking questions than seeking 'solutions,' and brought together multiple perspectives on the data enabling areas of coherence or agreement, and dissonance or disagreement to be identified. Where agreement was found, the following question was asked: "How and to what extent can this help establish confidence in the data and interpretations of it?" In cases of disagreement, a series of questions were posed:

- How can this add to our understanding of the methods of data collection and analysis used?
- How can this add to our understanding of the substance – the data and what they are saying?
- What notions of 'reconciliation' or 'resolution' are appropriate?
- How can these differences or tensions be reconciled, resolved or explained?
- If reconciled, what are the outcomes in terms of validity and findings?

This approach both required and created a mood of confidence and openness between collaborators. This made both the primary and external researchers more willing to seek out and identify such areas of friction or tension in data analysis viewing them as productive rather than threatening.

The outside researcher completed all the tasks and participated in the collaborative phase. Of the case teachers, Clive provided no feedback but Mandy and Steve provided comments on both the raw data and the primary researcher's initial analysis. This resulted in greater insight and confidence in the research in three ways: (1) understanding about the data collected; (2) understanding about the case teachers; and (3) understanding about the analytical constructs. Each is considered in more detail in the following sections. The process also provided a basis for critical reflection on and fresh insight into the problems and prospects associated with participant validation in research more generally.

Understanding about the Data Collected

The study was predicated on the generation of data which provided a basis for analysis and which constituted a suitable record of teachers' practice and their talk about this practice. Steve and Mandy and the external researcher

agreed that the data met these requirements. The teachers made no additions or revisions to the raw data except for a limited number of minor factual corrections. This indicated that they felt the transcripts provided a sound basis for analysis and addressing the research questions. Furthermore the outside researcher, independently of the teachers, found the dataset to be sufficient for a robust analysis and interpretation.

Understanding about the Case Teachers

Through the collaborative phase it became apparent that consulting case teachers was instructive of issues of interpretation in two ways. The first involved confirming or questioning particular meaning associated with parts of the data and the geographical knowledges that the teachers were discussing. The second related to the overall weight or balance used in more holistic analyses and data interpretation. Thus findings relating to the case teachers' subject knowledge became clearer.

In the case of Clive the analyses of the primary and external researcher (conducted independently) were strikingly similar in both their descriptions of Clive and their use of the geography and geography education traditions as analytical constructs in framing the analysis. The same was true in the case of Steve, who offered strong personal confirmation:

> I can see myself (certainly as I was) within your evaluation and don't think you have manipulated the data. I consider the data analysis to be fair, unbiased, and not clouded by personal feelings. Overall the representation of myself is true to the main characteristics I certainly used to, and in many ways continue to display.

A potential concern in such a situation is that the teacher might feel unable or unwilling to provide negative feedback or criticism. However, Mandy's comments demonstrated the climate of openness and genuine concern for case teachers' opinions:

> I believe that the data has been manipulated to present me as a caricature that fits a commonly held preconception of

> 'purist' geographers. It appears that you have looked for evidence to push the descriptions of me to an extreme. . . I am very uncomfortable with the notion that my motive to 'support and help' students from challenging socio-economic circumstances is 'worthy'. . . I have concerns about the interpretations that you have made of my 'personal culture'. . . It would not be possible for your personal feelings and opinions to be separated entirely from the study. . .

While this certainly illustrates the freedom to be critical, an immediate reading suggests weaknesses in the primary researcher's initial analysis. In qualifying these points, Mandy provided additional data which she intended to use to substantiate these comments. However they were seen to support rather than challenge many aspects of the original analysis. For example when Mandy contested the use of the word 'worthy' the qualification given was 'an absolute commitment to equality of opportunity, success and challenge for all, and improving self-esteem, life chances of individuals is what I am to achieve–empowerment of the individual through his/her educational experience.' Both researchers agreed that Mandy's deep values about social justice underpin her ideas about geography and approach to geography education. This further evidence seemed more supportive of this analysis rather than conflicting with it. Elsewhere Mandy opposed the implication that this forms a personal 'mission.' However, analysis of all the data showed clearly that while notions of social justice may be widely accepted, they certainty do not underpin notions of geography and geography education for all teachers. Mandy's approach is therefore seen as value-laden and personalised; the disagreement can be understood on the grounds that Mandy does not perceive it in these terms herself. The fact that she appears not to see such beliefs as choices or judgements reinforces rather than threatens the interpretation that these values are significant in understanding her teaching practice.

This exemplifies how friction, tension, and disagreement actually contributed to a deeper understanding of the data and the process of analysis, without impacting negatively on the research. Such experiences helped establish a feeling of confidence between the researchers in collaboration, prompting them to search more rigorously for areas of disagreement. This was largely because disagreement came to be viewed as a means to constructive discussion of and engagement with the data, rather than as a threat to the research.

Understanding about the Analytical Constructs

At first, it was attempted to 'match' the teachers' representations with the geographical ideological traditions as expressed by Slater (1996) and Rawling (2001). Slater and Rawling developed these frameworks through analysis of the ideological traditions that underpin development in academic geography (Slater) and geography education (Rawling) informed by a range of policy and literature sources. The intention in this research was to identify if there were similarities or connections between the geography and geography education ideologies expressed in the data. However, it quickly became clear that these categorisations did not exactly match what the teachers were saying. While both the primary and external researcher were in accord about how the geography and geography education traditions related to the data with respect to Clive, they also agreed that these relationship were not straightforward. In the case of Steve, confidence in both the analytical constructs used and their relationship to the data was even stronger as he himself also provided such confirmation.

In this way the limitations of the Slater's (1996) and Rawling's (2001) ideological categorisations in the context of understanding teachers and their practice were explored. The analysis of Mandy (as carried out independently by the primary and outside researchers) indicated that while she wanted students to understand the world as it exists (from the Liberal Humanist tradition, see Rawling, 2001, p. 32), she hoped to achieve that through child-centred pedagogies (part of the Progressive tradition) in order to enable her students to become active and engaged citizens (a key theme in the Reconstructionist tradition). For example, she initially stated that the study of geography should be grounded in local issues that affected her students stating that her interest was in "local issues, to do with the area that I'm teaching. So erosion of the South Downs or the impact of cliff collapse in Eastbourne as a town." (interview transcript lines 128-9). She then proceeds to describe her favourite type of teaching strategy and resource stating that: "I really love simulations and I use lots of pre-packed ones: trading games, the trainer one, paper bag, and cotton pair of jeans because what comes out of those is far more than you even anticipate as a teacher is going to come out—you can't cover all of it and it changes every time you do it as well depending on the children who are doing it." (interview transcript lines 346-350). This is then contrasted with how she describes what she understands to be the value of learning geography at school: "It is important so that they can understand and appreciate the world that they are living in. It is important so that

they can be sympathetic, and that they can make positive decisions, as adults and citizens on issues that affects them. One area that the kids are always most interested in is to do with the environment, and environmental issues because they have a direct impact on them and it is also an area in which they can take direct action." (interview transcript lines 221-225). When these perspectives are read together, they do not appear to contrast or to represent values that conflict with each other, however, when compared to preset criteria (as described in the models put forward by Slater (1996) and Rawling (2001), it can be seen that they do not neatly fit any one category. It was not merely that this teacher engages with an eclectic mix of ideological traditions, but she draws upon certain aspects of them as and when they are appropriate.

It can be argued that many teachers could exhibit such an eclectic yet strategic view of their subject. As subject specialists, teachers are able to draw upon different types of geographical knowledges and to make decisions about which are appropriate for different purposes. The identification of this complexity, enabled a multi-dimensional view of the case teachers, rather that a 'best-fit' contrite solution. This enabled the analysis to go beyond a superficial reading and instead to focus on the complex relationships between their decision making and their geographical knowledges. In all three cases, the teachers drew upon a repertoire of traditions of geography and geography education to enable them to meet their objectives. In this way analytical constructs were subjected to a critique in terms of their relevance to a particular context. This suggested further questions that the primary researcher, with the case teachers, should pursue.

Discussion

This section explores what the potential implications of the above findings and experiences may be for qualitative research into teachers' subject knowledge. The argument is not that participants and external researchers should be consulted in all research studies, rather that decisions on this matter might be better informed adopting the perspectives outlined below.

Notions of Participation

Qualitative studies have used validation techniques, checking interpretations, coding, and analysis with other researchers and participants. The relationships between researchers and participants, and the roles they enacted in this study (as in others) transgress limited notions of participants merely as sources of data. The discussions between primary researcher, participants

(and later, the external researcher) broke through binary positions, and took on qualities associated with metaphors of 'knots' and 'entanglements' (MacLure, 2003). Such complexity, it is argued, can be effectively explored and indeed exploited by an open and frank inclusion of multiple perspectives fulfilling different but complementary roles. Through engagement with the data as a basis for interpretation and analysis the intricate webs of relationships and meaning can be discovered. In this way, seeking the perspective of the participants became useful not just as a mechanism for validation, but for exploring the nature and quality of data.

Tensions as a Productive Force

Qualitative researchers are under an obligation not to ignore or dismiss data that appear not to 'fit' the general trends, themes or hypotheses that are supported by evidence elsewhere. Such obligations might be met by considering misfit, tension, discord, and friction as productive features and forces in research, something to be sought out and relished, rather than 'dealt with.' Participant validation can be instrumental in reaching a more constructive approach to 'problematic' elements of data and/or interpretations of it. Predicated on open, frank and honest relationships (which cannot be taken for granted, but must be worked at and monitored), multiple perspectives can benefit researchers significantly in (1) identifying loci of tension, discord etc.; (2) exploiting such features in their capacity to generate further questions, issues and insight; and (3) 'resolving' such tensions in a more conventional sense.

Asking participants to pinpoint particular facets, interpretations or claims that might be deemed problematic is a well-established practice. It does not equate, however, an approach which takes pleasure in such a process, not merely as a step to ensuring validity, but as a formative step in coming to understand the subtleties of data and processes of analysis and interpretation. It is through seeking, finding, and exploring such elements that one can come to 'know' better the data and the research process. While such an approach may appear to be one that complicates and problematises, it does so with an inherent capacity to deal with the complexities of research, clarify issues of importance, and increase confidence in analysis. Such clarity and confidence lie not in reducing or simplifying research, or seeking surface consensus, but in the use of an open and questioning approach as a means to deepen insight into data and interpretation.

A further positive outcome of this process lies in the 'resolution' of such difficulties, but adopting a looser sense about what 'resolving' a tension might involve. Practices of validation rarely result in stalemate, and indeed

an acceptable outcome, especially when one is dealing with people is that conflict and contradiction may well be part of the 'story' that someone (researcher or participant) has to tell. Tensions can be 'resolved' in other ways, too. For example, Mandy's objection to initial analysis was instructive of both her views, precisely how the original analysis might be read and understood, and what meanings it might convey. Resolution lay not in replacing view A with view B, but in an increased understanding of both views A and B, and how binary opposition could be replaced with overlap, albeit murky.

Conclusions

Asking the teachers to participate in the validation and analysis of their data led to the expression of different perspectives and views about the data and their subject knowledge. Relatively narrow conceptions of validation were replaced with more complex views incorporating 'knots' of relationships, multiple roles, different planes of engagement with data, and interpretation. Perhaps most importantly, ideas of validation as a means to resolve problems were abandoned in favour of viewing such processes as generative of issues, questions and problems, yet still productive, constructive and clarifying.

This paper has discussed issues of validation in a study of geography teachers' subject knowledge. Through processes of consultation and collaboration with participants and an external researcher, not only were issues of validity explored with respect to the particular data and research questions at hand, but more general lessons were learned about the nature and potential of participant validation in qualitative research. Such collaborations are presented in the more general context of qualitative research as potentially powerful in exploring researcher-participant relationships and roles without a binary positioning. These processes can also help reconstitute tensions in data as productive rather than problematic, constructive rather than threatening, and requiring exploration as well as resolution. Concepts of 'resolution' can be broadened out encouraging a frank face-to-face engagement with tensions in research, and viewed as integral to understanding processes of data collection, interpretation, and useful components of the machinery of qualitative analysis.

References

Blaxter, L., Hughes, C. & Tight, M. (2001). *How to Research* (2nd ed.). Buckingham: Open University Press.

Brown, A. & Dowling, P. (1998). *Doing Research/Reading Research: A mode of Interrogation for Education*. London: Falmer Press.

Bryman, A. (2001). *Social Research Methods*. Oxford: Oxford University Press.

Calderhead, J. (1996). Teachers: Beliefs and knowledge. In D. C. Berliner & R. C. Calfee, (Eds.), *Handbook of Educational Psychology* (pp. 709-727). London: Prentice Hall International.

Clandinin, D. J. & Connelly, F. M. (1995). *Teachers' Professional Knowledge Landscapes*. New York, Teachers College: Columbia University.

Elbaz, F. (1990). Knowledge and Discourse: The evolution of research on teacher thinking. In C. Day, M. Pope & P. Denicolo (Eds.), *Insights into Teachers' Thinking and Practice* (pp. 15-42). Hampshire: Falmer Press.

Guba, E.G. & Lincoln, Y.S. (1989). *Fourth Generation Evaluation*. London: Sage.

Hammersley, M. (2002). Ethnography and realism. In M.A. Huberman & M.B. Miles (Eds.), *The Qualitative Researcher's Companion* (pp. 65-80). London: Sage.

Johnston, R. J. (1991). *Geography and Geographers: Anglo-American Human Geography since 1945*. London: Edward Arnold.

Lidstone, J. & Stoltman, J.P. (2002). International understanding and geographical education. *International Research in Geographical and Environmental Education*, 11(4), 309-312.

Livingstone, D. (1993). *The Geographical Tradition*. Oxford: Blackwell.

MacLure, M. (2003). *Discourse in Educational and Social Research*. Buckingham: Open University Press.

McNiff, J. (2002). *Action Research: Principles and Practice*. London: Routledge/Falmer.

Morgan, J. & Lambert, D. (2005). *Geography: Teaching School Subjects 11-19*. London: Routledge.

Morse, J.M. (1999). Myth #93: Reliability and validity are not relevant to qualitative inquiry. *Qualitative Health Research*, 9, 717-718.

Rawling, E. (2001). *Changing the Subject: The Impact of National Policy on School Geography 1980-2000*. Sheffield: Geographical Association.

Robson, C. (1993). Real World Research London:Blackwell.
Silverman, D. (2000). *Doing Qualitative Research: A Practical Handbook.* London: Sage.
Slater, F. (1996). Values: Towards mapping their locations in a geography education. In W.A. Kent, D. Lambert, M. Naish & F.A. Slater (Eds.), *Geography in Education: Viewpoints on Teaching and Learning* (pp. 201-30). Cambridge: Cambridge University Press.
Unwin, T. (1992). *The Place of Geography.* Harlow: Longman Scientific and Technical.

Clare Brooks (BA, MA) is a Lecturer in Geography Education at the Institute of Education, University of London. Her interests are in how expert geography teachers use their subject knowledge, e-learning and the study of geography.
Address: 20 Bedford Way, London, WC1H 0AL
Tel: 0207 612 6047
Email: c.brooks@ioe.ac.uk

Nick Hopwood (BA, MSc) is a DPhil student at the Department of Educational Studies, University of Oxford. His interests are in pupils' conceptions of geography, and issues of qualitative method, in particular research design and analysis.
Address: OUDES, 15 Norham Gardens, Oxford, OX2 6PY
Tel: 01865 274040
Email: nick.hopwood@edstud.ox.ac.uk