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Developing Pedagogy for ‘Big Qual’ Methods: Teaching how to analyse large volumes of secondary qualitative data

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Abstract

The sharing and re-use of data is encouraged by major research funding bodies in the UK as a way of maximising its value and as vital to accountability and transparency. The creation of repositories, such as the UK Data Archive which houses over 1,000 qualitative and mixed methods datasets, offers qualitative researchers and students many opportunities to re-use data. However, the practice of moving beyond the reuse of one or two datasets to working across multiple small-scale archived qualitative studies remains under developed. This represents a challenge, both for researchers seeking to develop their skills and for methods teachers tasked with developing research capacity. This working paper describes the work of a unique collaboration between researchers of methods for analysing large volumes of qualitative data, ‘big qual’, and researchers of social science research methods pedagogy to develop big qual methods teaching and open educational resources. Using reflective and evaluative methods, the combined team completed three cycles of action and reflection based upon the teaching of big qual analysis using an innovative breath-and-depth method for working across multiple archived qualitative data sets. This paper reports key messages for teachers of big qual and related innovative methods, identifying the importance of teachers’ pedagogic reflection across their approaches, strategies, tactics and discrete in-class tasks, and other key pedagogic resources that are necessary to develop teaching and learning. These resources respond to particular challenges for interdisciplinary and innovative methods teaching. They include modes of teaching through data, the use of worked examples and metaphors for articulating and structuring the acquisition of new concepts and knowledge, and the use of peer-learning to enrich learning and manage diversity. Lastly the paper links to an extensive suite of Open Educational Resources for the teaching of big qual analysis at the ESRC National Centre for Research Methods.

1 Introduction

The sharing and re-use of data is encouraged by major research funding bodies in the UK as a way of maximising its value and as vital to accountability and transparency. The creation of repositories, such as the UK Data Archive which houses over 1,000 qualitative and mixed methods datasets, offers qualitative researchers and students many opportunities to re-use data. However, the practice of moving beyond the reuse of one or two datasets to working across multiple small-scale archived qualitative studies remains under developed. Generally, the emergence of ‘big data’ – that is, extensive volumes of data of various sorts, has proved contentious as the ‘new’ material social scientists need to address (Burrows and Savage, 2014). The boundaries between qualitative and quantitative approaches in secondary research are blurred as ‘big qualitative data’ invites computer aided analysis on a scale previously only used by quantitative researchers. This is a relatively new context for qualitative research, where the availability of volumes of complex data is growing but guidance about how best to work with it, and train others in the process is scarce.

Archived storage of datasets from qualitative studies offers social researchers the opportunity to conduct secondary data analysis across multiple, disparate studies, drawing them into one large, bespoke secondary qualitative dataset. There are three key benefits of so doing (see also Davidson et al., 2018). First, working across multiple qualitative datasets allows for greater diversity of participants and cases than from a single study, expanding the possibilities for comparison between participants with different characteristics and circumstances. Second, it can be helpful for theoretical generalisation by enabling understanding of how social processes manifest in different contexts. Third, bringing together the different theoretical, disciplinary and epistemological perspectives that shaped different research studies and the materials they produced also has the potential to generate innovative insights. While the promise is clear, a systematic method to realise this is required.

This working paper is the outcome of a collaboration between two ESRC National Centre for Research Methods (NCRM) workpackages (detailed below). One package focused on developing a new breadth-and-depth method for big qual analysis and the other was concerned with the pedagogy of methodological learning. The collaboration, supported by the NCRM Innovation Fund, marries methodological insights with innovation in methods training and capacity building for the UK social science community. To this end the collaboration sought both to advance methodologically to progress substantive social science research; and to innovate in the design, delivery and evaluation of research methods training. The paper reflects on a joint, action-oriented iterative process of developing teaching/learning opportunities and resources to build capacity in the new method of working across multiple, merged and/or large scale qualitative data.

The method for big qual analysis comprises an iterative four-step approach, combining computational ‘text mining’ techniques for exploring the breadth of large datasets and more conventional qualitative approaches focusing on depth. The latter include approaches using CAQDAs (software designed for computer aided qualitative data analysis) which has now been around for several decades. We outline the steps in detail below, drawing on an archaeological metaphor to do so, but briefly the breadth-and-depth method comprises:

1. Overviewing archived qualitative data, selecting and assembling data in a corpus relevant to research questions (*aerial surveying*);
2. Recursive surface thematic mapping of the corpus using text mining or semantic analysis software to identify potential areas of conceptual and substantive interest (*geophysical surveying*);
3. Preliminary analysis of short extracts of data, sampling for usefulness and salience (*test pit sampling*);
4. In-depth analysis of data, using approaches with which qualitative researchers are likely to be familiar (*deep excavation*).

To develop the teaching of the method we applied a conceptual-empirical typology of research methods teaching developed from substantial synthesis of the pedagogies employed in advanced social science research methods education. This allowed us to think through the teaching of the new method in terms of the categories of *approaches*, *strategies*, *tactics* and *tasks*, working between pedagogical principles and classroom action. In this way, *approach* describes how a teacher goes about their pedagogic work in a way that coheres around values, principles or learning theory. *Strategy* represents the pedagogic planning that is undertaken to implement an approach.

Tactics describe the actions that translate strategies into practice in a specific learning context. *Tasks* are what learners (or teachers) are required to do, or actually do.

This working paper describes the collaborative work of researchers developing big qual methods and researchers of pedagogy to develop big qual methods teaching and resources. The paper begins by introducing each team and the terms of the collaboration, then describing the development of the breadth-and-depth method, and the use of an archaeological metaphor for big qual analysis. Next pedagogical decision-making is discussed and lastly, the paper articulates reflections on the development of teaching big qual analysis.

Note: this working paper incorporates groundwork by two distinct teams. Where this foundation is described, each team is referred to explicitly. The 'breadth-and-depth team' refers to Rosalind Edwards, Lynn Jamieson, Susie Weller and their colleague, Emma Davidson. The 'pedagogy team' refers to Sarah Lewthwaite and Melanie Nind. Later in the paper, we move to a second person, collaborative voice ('we', 'our') to articulate our joint insight, reflection and pedagogic development.

2 A collaborative project

The collaborative project was instigated for three key related purposes: To develop and innovate in the teaching of big qual analysis, breadth-and-depth methods; to apply the typology for social science research methods pedagogy with methods teachers in action-orientated collaboration; and to deliver a suite of learning and teaching resources (see section 6) for the teaching of big qual analysis. The project builds on foundational work by two separate NCRM workpackages. Both are outlined below, prior to greater exposition on the conceptual, methodological and pedagogic groundwork that this project builds from.

Workpackage 1: Working across qualitative longitudinal studies: a feasibility study looking at care and intimacy

This NCRM workpackage was designed to develop secondary analytic practice in working with large amounts of complex qualitative data (for further details about the package see <http://bigqlr.ncrm.ac.uk>; Davidson et al., 2018; Edwards et al., forthcoming). The focus was on bringing together multiple qualitative studies and developing a systematic and rigorous approach to big qual analysis in a manner that maintained the integrity of qualitative work. With the intention of maximising the potential of archived material, the team (Edwards, Jamieson, Davidson and Weller) worked with material housed in the Timescapes Archive; a unique repository of Qualitative Longitudinal Research (QLR) studies and a satellite of the UK Data Archive. Timescapes was the first QLR programme to be funded in the UK by the ESRC. It was a large-scale initiative comprising seven core research projects, each exploring change and continuity in key personal relationships and identities over the life-course, from children's relationships with their siblings and friends, through to the experiences of the oldest generation. Importantly, Timescapes developed the 'specialist infrastructure' enabling reuse of QLR (Neale and Bishop, 2012; Neale, Henwood and Holland, 2012) and gave attention to the value of data sharing and the possibility of bringing related datasets into conversation. Material from the Timescapes research and other affiliated studies has been preserved and made available for reuse.

Workpackage 2: The pedagogy of methodological learning

This NCRM workpackage (Nind and Lewthwaite with Kilburn and Wiles; see <http://pedagogy.ncrm.ac.uk>) deployed multiple methods to better understand the pedagogic practices and ‘pedagogic content knowledge’ (Shulman, 1987) of social science research methods teachers. The research design was grounded in dialogic ‘methods that teach’ (Nind and Lewthwaite, 2018a). The study began with expert-panel research with pedagogic leaders, nationally in the early phase and then internationally in the later phase (see Lewthwaite and Nind, 2016) followed by UK focus groups with experienced methods teachers. These methods generated narrative accounts of practice and the thinking behind that practice. To get closer to practice and to ‘*knowledge in action*’ (Nind, Kilburn and Wiles 2015, p564) video stimulated recall, reflection and dialogue was used. This method held a mirror to the minutiae of practice and process (Nind and Lewthwaite, 2018a) by video recording methods teaching and using excerpts to stimulate dialogue between teachers, learners and researchers about the pedagogy that had just played out. To bring in learner perspectives the research design incorporated diary methods to engage methods learners in recording and reflecting on their methods learning as they moved through doctorates and postdoc research roles over a 30-month period. The final part of the study comprised two in-depth case studies of methods teaching (one qualitative and one quantitative). To articulate teachers’ knowledge and support further development and dialogue, a conceptual-empirical typology of pedagogic practice was developed from iterative, thematic analysis of the collective dataset from the study (Nind and Lewthwaite, 2018b). This typology is detailed below, in section 4.

In addition to the collaboration between the two NCRM workpackages, we worked in partnership with the Timescapes Archive (<http://timescapes-archive.leeds.ac.uk>). The Timescapes archive was used in teaching, and Timescapes Director, Kahryn Hughes contributed to teaching, the evaluative cycles of pedagogic development, as well as trialling aspects of emergent pedagogy in related archive teaching sessions.

3 The story of the breadth-and-depth method

With the growth in interest in big qual research, the challenge of how to work with large amounts of qualitative data has become more evident. Computational approaches using, for instance, text analytics tools, offer the possibility of gaining an overview of a large corpus of qualitative material, more than is practical for an individual or small team to handle effectively. The danger is that such approaches prioritise breadth at the expense of depth; with depth constituting a key facet of qualitative analysis. The breath-and-depth team sought to develop an approach that enabled researchers to work with a large volume of qualitative secondary data, yet retain the distinctive order of knowledge about social processes, context and detail that is the hallmark of rigorous qualitative research.

The six core research studies in the Timescapes Archive present themselves as a ready-made corpus; the projects share substantive interests in personal life suited to the breadth-and-depth team’s research questions about social change in discourses and practices of care and intimacy over time. However, from the outset the team sought to develop procedures for using metadata to find and assemble relevant studies in any archives by undertaking the type of data audit necessary to create a coherent assemblage of data. In the case of Timescapes, audit resulted in further preparatory work harmonising file-naming conventions and data formats. The end point of this stage was data organised not by each Timescapes research project but by age-cohort and gender of

interviewees from the corpus. This was the assemblage most relevant to preliminary research questions about gender convergence in discourses and practices of care and intimacy over time.

As the breadth-and-depth team explored how to work back and forward between the breadth of the data assemblage, and delving deeper into particular aspects of it, we began to visualise the process as much like that undertaken by a field archaeology team. Early discussions were shaped by the work of other authors who have used a metaphor of archaeology in contemplating data analysis. For example, Seale and Charteris-Black (2010) looked at the use of keyword analysis in qualitative health research and described it as being:

... like an aerial view of a landscape, whose undulations and patterns of vegetation growth reflect the outline of ancient buildings, only possible to see from the air. At this point, the 'aerial archaeologist' descends to ground level and starts to dig (p. 537)

They worked with a corpus of over 1,000 transcripts (similar in size to the Timescapes archive) and conducted a matched comparison using a sub-sample of 102 interviews selected by age and gender in order to explore narrations of the experience of cancer, and use the metaphor of an 'aerial archaeologist' to refer to their first step analysis looking at key word patterns, which then 'descends' into qualitative analysis.

The breadth-and-depth team became convinced of the value of the archaeological metaphor in shedding light on the complex and messy processes of handling large volumes of qualitative material, and in reconciling breadth with depth. Metaphors are common in everyday communication, but they may also be used to build or convey theories and models. The metaphor helped to orient each team member, and had real purchase in putting across the whole process from the notion of the data sets that comprise big qual as a landscape, a whole vista to be scanned, to the idea of digging down from interesting features to get into the complex contextualised detail. It helped the team to think about what lay beneath the corpus of material being analysed, and to work extensively and intensively to identify and excavate meaning.

The breath-and-depth method

The breadth-and-depth method takes us beyond the idea of ‘scaling up’ into big qual through merging small-scale data sets; it is not using a process identical in structure to working with small amounts of data and making it bigger. Rather, it is an iterative way of working that creates opportunities for new ways of qualitative knowing. It comprises four-key steps:

Step 1: Overview survey of archived qualitative data and construction of a data assemblage

The first step is akin to flying systematically across a data landscape to gain a broad overview. In archaeological terms this can be likened to conducting an aerial survey. The aim is to look across an archive or several archives, to locate and review potential sources of deposited academic data of an appropriate nature, quality and ‘fit’ with the research topic. Data from many different projects can be brought together. This step may be seeking data on a broad topic area, to fit a specific substantive issue or clearly defined set of research questions. Archived material is usually accompanied by metadata such as contextual information about the aim of the study, disciplinary approach and method, data type, date of collection and the socio-demographic characteristics of research participants. Exploring the metadata provides a sense of the scope and nature of each archived data set, and thus which of them are potential sources for inclusion. The selected data are merged into the data assemblage with which you work. This may involve merging subsets of data or the totality of data across several projects, and may necessitate standardising formats and names of files, and/or structuring the data for comparison, such as by disciplinary approach, characteristics of respondents or by time of study.

Step 2: Recursive surface thematic mapping

The second step concerns surveying the landscape of the data assemblage to identify sites in which to conduct preliminary deeper investigations. It is akin to an archaeological geophysical survey and involves gaining a sense of the features of interest within the landscape that is the data assemblage. The aim is to locate areas of conceptual and substantive interest without disturbing the surface. Indicators of sub-surface features are examined to determine the most important places to dig deeper. There are many computer-aided forms of text analysis designed to help the researcher find indications of meaning and potential significance in text that are useful for exploring large volumes of qualitative data, such as interview transcripts. Such tools typically start with word frequencies and co-occurrences of words and progress to seeking clusters of terms that are inclined to feature together in a text that may identify key concepts, associated with the researchers’ interests. They also enable comparing the relative frequency of use of words or ‘concepts’ across subsets of populations. In combination these procedures can be used to indicate where there might be something of interest analytically ‘underneath’ the surface of the data.

Step 3: Preliminary ‘test pit’ analysis

The key concepts identified in step 2 can be sampled for further preliminary examination, akin to digging shallow test pits in archaeology where digging is only deep enough to see which features of interest are worth investigating further. This step involved reading relatively short extracts (say around 200 words) of the data containing

the key concepts to provide a clear sense of whether or not the content speaks to the secondary analyst's research questions. Even at this shallow stage, awareness of the context in which extracts were generated remains important and is taken into account when sampling extracts. The sampling logic, like the organisation of the corpus, is shaped by the secondary analyst's research questions and, following up on the substance and/or the theory of their research project, as well as pragmatic issues such as the time available. There is the possibility that some of the samples may prove to be of no analytic value and it might be necessary to return to step 2 again to look for other potential areas.

Step 4: In-depth analysis

This step involves moving from examining extracts of data to immersion in whole cases. It can be likened to deep excavation conducted by field archaeologists. It is during this step that depth is brought into conversation with breadth. The extracts from step 3 guide the selection of cases to explore in-depth in step 4. The logic of selection of cases and how many of them is again shaped by the substance and theory of the secondary research project. A 'case' or unit of analysis may be an individual research participant or set of participants, the research encounter, a period of time, a geographical location, or an institution or organization, dependent on the data sources used and the intellectual purpose of the secondary study. There are a diversity of qualitative analytic strategies and in-depth techniques that can illuminate, variously, social meanings, subjectivities, activities, processes, constructions and discourses. Any number of commonly-used approaches to qualitative analysis such as thematic, frame or narrative analysis can be employed. Which techniques are adopted is determined by the researcher's epistemological stance, conceptual approach, substantive concerns, and the pragmatics of the form(s) of data. This step involves being sensitive to context and complexity. This step may reveal other issues for exploration too – so you could go back to step 2 again.

At any point the researcher can return to a previous step to refine their thinking (and we did so on many occasions). The detail of each step and the connections between them was developed through practical engagement with the data – it has very much been an exploratory and experimental endeavour.

In terms of thinking through the process of analysing the breath-and-depth of large volumes of qualitative data the archaeological metaphor has been helpful in a number of ways. It has:

- helped to articulate the notion of datasets that comprise 'big qual' as a landscape, both as a whole vista to be mapped in its breadth and as containing interesting features to be dug into in more depth of detail;
- provided a way for the team to think about what lies 'underneath' the corpus of material being analysed, working extensively and intensively to identify and excavate meaning;
- helped the team to organise thinking and provide a framework for the method; to show how the aerial view, and the in-depth view, can take place simultaneously;
- built upon established metaphors of 'digging' used within linguistics and text-analysis methods, using familiar terms that could then be expanded and usefully differentiated (for example, not 'mining' and connotations that this would bring);
- allowed the team to convey both the messiness and iterative nature of the method;

- provided a guide for thinking, developing and working with the method consistently;
- enabled the team to overcome the challenges of working as a dispersed team and to establish an effective division of labour, each working on different dimensions of a particular step for instance;
- ensured that time and the idea of digging down through layers, is central in team thinking, which has been important across the team's QLR work.

4 Pedagogical decision-making

Although the breadth-and-depth team had designed and delivered some training sessions on the method prior to collaboration with the pedagogy team, the emphasis had been on developing the breadth-and-depth approach. However, developing the method has very much been an exercise in teaching and learning with/from one another. The breadth-and-depth team shared and exchanged ideas about methods, processes and tools as they designed, refined and documented each step and the method as a whole. The team also had to find ways of collaborating remotely, practically, conceptually (in terms of formulating thinking about the method) and communicatively, to convey the method to varied audiences in presentations and publications.

Importantly, in joint reflection, it is clear that the use of the archaeological metaphor within the breadth-and-depth method provided a useful starting point for the development of early teaching. Drawing on insights from the pedagogy of methodological learning study, metaphors are commonly used as a pedagogic resource. Puschmann and Burgess (2014, p.1690) observe that they are a 'common instrument of human cognition, activated when seeking to make sense of novel and abstract phenomena'. In this respect, their place in both research and research teaching is well founded. The use of the archaeological metaphor was useful in structuring teaching. It supplied a four-step process that could be used to parcel concepts and discrete, but related methodological steps. In this way, the metaphorical frame also provided a useful division of labour for a distributed teaching team, with different members having responsibility for leading particular steps.

To develop the teaching, this collaboration project focused on drawing out the pedagogies at play in the nascent teaching of big qual analysis, which would then be iterated through cycles of action and reflection. In early joint meetings it became clear that the different disciplinary backgrounds and methodological expertise of the combined teams required significant groundwork to establish common understanding – through the development of both pedagogic and methodological vocabulary. This had two outcomes.

First, we undertook a process of naming and developing shared pedagogic language. We developed 'A glossary for methods teaching' NCRM quick start guide (Lewthwaite and Nind, 2018) to assist us both within the project and later with engaging stakeholder researchers/teachers. Without a shared pedagogic language, it can be difficult to discuss and deepen teaching practices. Second, discussions focused on identifying the implicit pedagogical approaches and strategies being deployed in the nascent teaching. Talking about research methods pedagogy is not always easy. Even pedagogic leaders 'could not always fully articulate their pedagogy despite their rich teaching strategies and techniques and deeply considered pedagogic values' (Nind and Lewthwaite, 2016, p. 404). This called for conversations in which the challenge of recognising and articulating implicit knowledge could be realised. Using 'methods that teach' (Nind and Lewthwaite, 2018a), lines of enquiry were designed to make implicit thinking explicit, naming it to help make it open to scrutiny facilitate development. These discussions focused on understanding teaching practice

predominantly at the approach and strategic level where articulation was found to be most challenging.

In the next cycles of teaching the method and reflecting on how to improve the teaching, we made increasing use of the typology from the pedagogy of methodological learning study (Nind and Lewthwaite forthcoming):

Category	Characteristic
Approach	How the teacher goes about their pedagogic work in a way that coheres around a theory, set of values or principles
Strategy	Goal directed planning for implementing an approach
Tactics	Translation of strategies when the planning becomes procedural and specific to the context
Tasks	What learners (or teachers) are required to do, or actually do

Table 1: Typology of social science research methods pedagogy

This typology is not hierarchical, though there is a movement from the more conceptual, abstract (approach) towards action and in-class practice (task). When discussing the pedagogy of big qual analysis, our typological lens allowed us to forge new understandings of what was happening in the classroom and in the design of lessons. It also gave us more lucid insight into known challenges and opportunities when articulating the method, as well as opening up new vistas of pedagogy for closer investigation.

In discussion, we began at the approach level and identified three key bits of pedagogical content knowledge that underpinned all pedagogic decision-making in the development of teaching the breadth-and-depth method:

- **Holistic Approach:** The approach is *holistic* and it needs to be represented as a whole method in which learners of it consider the whole methodological process. Without this overarching commitment, the steps constitute several disparate methods.
- **Methods for a purpose:** The approach applies a qualitative/sociological imagination to quant scale data. This rejects ‘fishing’ in the data. It is based on a researchers’ motive and questioning, and a given ‘point of view’. This standpoint underpins all communications about the method.
- **Iterative Logic:** The teaching seeks to convey the logic of the method, so students can navigate the process themselves, and engage in effective methodological decision making. This may include the need to move back-and-forth between steps.

In practice, the related pedagogical **approaches** clearly evident in the planning and teaching included:

- **Active learning:** the use of activities to connect students to the method, and to give opportunities to practice techniques.
- **Experiential learning:** giving students simulated (if not authentic) opportunities to engage with archives and software, to raise authentic issue and gain tacit knowledge concerning the nature of secondary analysis in practice.
- **Student-centred learning:** ‘Methods for a purpose’ and the holistic approach suggest the method needs to relate to student research questions and motives.
- **Standpoint/reflexivity:** The teaching expresses standpoints (i.e. qualitative positionality, critical engagement with software etc.) engaging multiple perspectives on the method and

related tools, establishing positionality for research questions that accords with ‘Methods for a purpose’ approach.

- **Collaborative learning:** teachers and learners embark upon co-discovery in the use of the archive. Knowledge is not imparted to learners, it is co-constructed with them, in dialogue.

Core strategies for ensuring the pedagogic values were carried through included:

1. Using the metaphor as an entry point for checking understanding as well as communicating the method.
2. Modelling, which involved showing how it’s done: what an end point might look like and the process of reaching those outcomes. Modelling helped to convey the logic of the method. Teachers used walk-through and ‘think aloud’ demonstrations of archives in use and text-mining software as well as behind-the-scenes vignettes when discussing teachers’ own research projects.
3. Exposition (the description and explanation of the method), which was central to introducing the method within big qual analysis and connecting learners to this world of research. Expositions that use a fully worked example (illustrating the research process from beginning to end) to demonstrate the method in action, were identified by students as being of particular value for big qual.
4. Scaffolding (which comes from the learning theories of Vygotsky (1978) and Bruner (see Wood et al., 1976) to support students to achieve more than they could alone. This meant collaboration between the learner and more knowledgeable peer or teacher, and allowing students to practice methods activities in a playful/experimental environment.
5. Dialogue is used to engage with students, their diversity, and also to build on expertise in the room (peer-learning). This articulates the student-centred aspect of big qual analysis, and the central value of ‘methods for a purpose’, as classroom activities involve co-discovered in engaging the archive. In this respect engaging around the data, as well as with the data, is an important strategic concern.
6. Drawing connections between the students’ research experience/interests and the archive.
7. Working hands-on with the data to practice parts of the methods.

A multitude of **tactics** were visible in class as the method teaching was practised. Generic teaching tactics included, for example, all team members helping to facilitate small group and pair work and contributing spontaneously to group discussions and question and answer sessions (Q&A). Moving round the room during expositions, using Q&A to draw out ‘teachable moments’ concerning areas of where students struggled with threshold concepts or orientating to qualitative rather than quantitative concerns in the data, showing how the teaching teams’ approaches and strategies were expressed in a responsive, tactical way. More specific teaching tactics included attention to the back-and-forth nature of the method by going back-and-forth during Q&A and exposition to bring learners’ attention to the whole of the method as an iterative and dynamic process.

The centrality of teaching with and through data and the team’s commitment to active learning steered the teaching **tasks**. These included:

Prior to teaching:

- Listening to podcasts
- Reading academic papers
- Completing a reflective ‘about you’ questionnaire / establishing learning objectives
- Visiting the Timescapes archive

- Managing access to the archive

During the session:

Step 1:

- Guided archive walk-through
- Expert researcher 'think aloud' demonstration of research process
- Learner browsing activity (hands on / active learning)
- Learner data sets selection activity with contextual meta-data (hands on /active learning)

Step 2:

- Wordcount/keyness activity with data
- Using freeware

Step 3:

- Show and tell / behind-the-scenes (active listening)
- Q&A (consolidating learning, peer-learning)

Step 4:

- In-depth qualitative analysis activity (active learning / learning by doing /peer learning/pair-work, using i-poems)

Closing:

- Reflection and discussion (reflexivity, consolidating learning, peer-learning)
- Independent learning opportunities to return to Step 1-4 activities.

An annotated lesson plan (Appendix A) was initially developed to effectively communicate teaching and pedagogy across a distributed team. This was compiled for each of the three cycles of action and reflection (Figure 1), offering greater granularity on the schedule, content and rationale. These plans were designed to describe not only what would be done, but also the pedagogic decision-making and intentions underpinning them. Each cycle engaged a different group. The first cycle was based on doctoral training with post graduate students (Southampton), the second with researchers and trainers (Research Methods Festival), the third cycle delivered a train-the-trainers event (London).

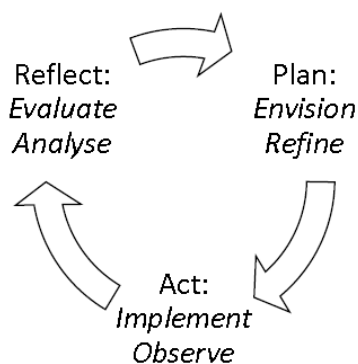


Figure 1: Cycle of action and reflection, deployed iteratively across three phases to develop effective training and then actively researching this approach through teaching.

5 Reflections on the development of teaching big qual analysis

To develop the teaching of rigorous secondary data analytic practice across multiple archived qualitative data sets, the project adopted an iterative participatory approach, working with stakeholders and in partnership with the Timescapes Archive involving collaboration with its director, Kahryn Hughes. Stakeholders include researchers, trainers and archivists who were involved in three key events to engage communities of interest around the teaching of big qual.

Our first event, comprised a one-day NCRM course for PhD students '*Working with large amounts of secondary qualitative data: expanding your analytic skill set*' at the University of Southampton. This used teaching developed from existing materials, research-informed teaching discussions during lesson planning and input based upon the teasing out of implicit pedagogy. During this event, the team used observational note-taking to record discussion and identify moments of particular pedagogic interest. Simultaneously, learners used a novel bespoke evaluation card deck to respond to both content and pedagogy at regular, prompted intervals across the course. Moments of reflection were timed to coincide with distinct activities and pedagogic moves, at approximately 30 minute intervals. The action was activated by a team member ringing a bell. This reflective practice was welcomed by learners, some of whom relished the opportunity for 'analogue tweeting' and also appreciated the opportunity to access explicit pedagogy and to reflect on their learning. Resultant insights demonstrate the need for student insight in methods training, and in research into methods teaching more widely. For example, when questioned on the subject of the archaeological metaphor and whether it had utility for learning, students' responses include insights about both the affordances and potential limits:

Yes: A powerful clean way to convey meaning and communicate. [But] Only if they make sense. Sometime have to be explained to non-native speakers.

Surprisingly so. I was sceptical about the metaphor at first. But I do think it is well-represented here, and provides a way into large-scale qual analysis – which can be daunting. Though I think it falls down a little when you consider sampling strategies in archaeological practice and assumptions about boundaries of 'the data set'.

Other responses highlighted learning activities that were otherwise invisible to the teaching team. When questioned on the use of 'behind the scenes' teaching strategies, students identified the importance of vivid accounts of real world practice for helping them to understand complexity, the time required and identifying the delicate balance between 'interpretive ... and automotive process'. Such responses were indicative of planned learning. However, additionally, one participant gestured to how this instigated peer-learning responding:

This inspired others to talk about their specific contexts and the challenges, so we saw behind their scenes too.

Such responses gesture to how particular teaching strategies can serve multiple pedagogic ends, not all of which may be known to the teacher in the moment.

Our second workshop '*Big Qual Analysis: Innovation in Methods and Pedagogy*' tested our emergent materials and insights with researchers, learners and teachers of methods at the biennial ESRC Research Methods Festival, convened in 2018 by NCRM at the University of Bath. In this

shorter 90-minute session, participants interested in teaching the method discussed the developing pedagogy and learner feedback prompted by the evaluation card deck, offering insights from their own pedagogic practice and methods learning.

Our third ‘train the trainers’ event *‘Teaching how to analyse large volumes of secondary qualitative data: Pedagogy for Big Qual Methods’* sought collaborations with experienced teachers of methods based in stakeholder communities, specifically archival and secondary analysis research, big data and related qualitative and quantitative approaches. This workshop animated our emergent findings, expanded plans for development of open educational resources and consolidated thinking and understanding of need in several key areas.

Key pedagogical decisions gravitated around the choice of learning resources deployed, the balance of data in relation to theory, depth vs breadth of content, pacing, sequencing, timing and so forth. Over the course of our teaching, and cycles of reflection in action research, we identified the following challenges, opportunities and areas for careful consideration.

Challenge: Developing Pedagogic Resources

Opportunities and decisions around which pedagogic resources to use in teaching are necessarily more limited when teaching a new method. This project has highlighted the need to develop materials from scratch, but also to be tenacious in the repurposing and delivery of materials from related fields. Drawing teachers together helped us to identify important areas of need (in terms of data) and to establish some limits in ‘new methods’.

An important pedagogic starting point for the teaching of big qual analysis has been the repurposing of the communicative practices associated with research. As noted in section 3, the ‘archaeological metaphor’ and its 4-step model have served a dual purpose; articulating the method to and within the team and to a methods audience (Davidson et al. 2018), and again later in teaching to learners. This demonstrates how the teaching of innovative methods can and does begin from a basis in research. Nascent teaching approaches are evidenced here in team research. The use of typology to elicit and name the pedagogy of the breadth-and-depth teams’ communicative strategies and underlying pedagogic approaches shows how research yields informal pedagogies that, with structured (typological) reflection, constitute an important starting point for methodological pedagogical development.

Data

A diverse range of resources are frequently deployed in methods teaching. Methods teaching is frequently characterised by teaching through and with data, as found in phase 1 of the pedagogy of methodological learning study (Kilburn, Nind & Wiles, 2015). As our project focused on Timescapes material, data was a core concern, and within it, particular challenges arose.

A significant challenge for teaching big qual relates to the balancing of student interest and motivation, with the parameters of the research projects stored in archives. Should students be provided with topics by the teachers; topics that they know are well addressed in the archive that is being used (e.g. Timescapes or the UK Data Archive)? Or should students pursue their own substantive interests and scour the archives for relevant project data that they can work with. While students may be more invested in the latter, they can experience disappointment when they cannot necessarily find archived data sets that, on the face of it, are an exact fit with their chosen topic. From a pedagogic perspective, students-generating their own research problems when they

engage with the archive during in-class activities is highly desirable. It has benefits for engagement, motivation, and potentially later use of the method in practice. In practice, though, archives remain a challenge for teachers. They are designed primarily for the preservation of materials, with teaching being a secondary concern. Browsing and searching are therefore nuanced acts. If a learner-instigated search occurs, there is the risk that a learner searching the archive will not find data sets relating to their topic. Whilst this is a relevant problem (and authentic challenge) for secondary and archival researchers, exposing learners to this too early in the learning process could lead to disengagement and dismissal of the method. To resolve this, teachers may present learners with questions designed to ensure students can locate and manipulate relevant data, privileging this over authentic learning experience of using the method for genuine discovery. This balance was not one that was fully resolved, in the course of this project, and is an issue that teachers conveying the breadth-and-depth method of working with ‘big qual’ merged data sets will need to reflect on. This highlights ongoing tensions in the balance between student-led and teacher-led methods pedagogy, which incorporates additional questions that resonate with other teaching scenarios – is it possible for students to bring their own research questions, data or software to class and for this to be manageable within a day course?

A middle way emerged during cycle 3. In discussion, it was observed that large-scale qualitative teaching datasets would be invaluable for big qual teaching purposes¹ and we recognised the value of this in addressing our concern with addressing teacher-facilitated student-led data discovery. These are already available in quantitative research. The development of qualitative teaching datasets, particularly those that express change over time (such as Timescapes, or the Internet Archive) would create new teaching affordances. The introduction/development of qualitative teaching datasets will give entirely new teaching affordances, including the opportunity to embed big qual analysis in other areas of the social science curriculum, for example in modules on social change that deal with how to see time, conceptualise different layers of change, generations, working lives, family life, education and so forth. Such affordances allow methods teaching to be embedded in other parts of the social science curriculum.

Examples

The very newness of the method meant that the teaching team have a limited number of examples to draw on when illustrating their teaching. Examples can be important pedagogic hooks – necessary for grounding a method in data and evidence (Nind and Lewthwaite, 2018b). This highlighted the need for foundational work to develop and generate published examples for learners and teachers to draw upon. This requires time and investment prior to teaching but without such materials, proof-of-concept is lacking, and the credibility of a method may be hard to communicate.

To broaden the repertoire of examples available, teaching can benefit by drawing on associated methods and domains. This recognises that innovation in methods tends towards incremental change rather than atomistic revolution (see Wiles et al., 2013). Thus, innovative methods can be articulated whilst maintaining connections to more established methodological resources, by repurposing resources for the new domain. For breadth-and-depth analysis, this meant making a case for the big qual methods as a whole using both research undertaken by the breadth-and-depth team, as well as the concomitant achievements of other large-scale qualitative research with secondary data.

¹ Comment from Prof. Sin Yi Cheung, University of Cardiff.

Examples used were purposed to important pedagogic ends within the teaching. First, they were used to demonstrate the importance of the method in the ‘real world’, its potential impact and ability to address research questions that cannot be met in other ways. This supplied a critical starting point for teaching – a pedagogic hook to motivate and draw learners in – underpinning subsequent use, and refuting any residual ‘culture of uneasy suspicion’ (Mason, 2007) surrounding qualitative secondary analysis. Second, examples illustrated in a concrete way how the method can be used from beginning to end, expressing the method as a cohesive whole (in line with the team’s pedagogic commitment to a holistic approach) and assisting understanding.

Research Texts

A lack of additional research texts - bibliographies, theses, research papers, proposals, templates, textbooks, wikis, repositories and guidance - represent a significant challenge in teaching for innovative methods. It is helpful for researchers and teachers to pool teaching resources at methodological frontiers, recognising that teaching and research peers themselves represent a pedagogic resource. The need for the development of pedagogical culture in research methods to support effective teaching is well documented (Wagner, Garner and Kawulich, 2011; Nind, Kilburn and Luff, 2015). For innovative methods this is a particularly pressing concern as the generation of teaching data, pedagogic literature, slides, prompt sheets, handouts, activities and other teaching materials takes time. Establishing teaching networks where expertise is shared and teaching issues can be effectively reflected upon and debated offers routes to the effective pooling and scaling of experience and expertise beyond ‘trial and error’ (Earley, 2014) to a more developed teaching repertoire. Underpinning this, we note that methodological innovation is frequently led by research communities who do not have a teaching or educational background. At the same time, research teaching development is not necessarily recognised or rewarded in the disciplines. Developing a shared pedagogic vocabulary to facilitate conversations that can articulate and scrutinise practice and theory remains important for the teaching of innovative methods.

Pedagogic Challenges in the teaching of big qual

Pedagogic challenges are frequently a catalyst for the pedagogic development (Lewthwaite and Nind, 2016). Student diversity proved to be both a challenge and an opportunity in the delivery of big qual analysis teaching.

Learners as resource

More experienced learners can constitute a useful resource for teachers. It is common for experienced researchers to attend short course training. These learners may be seeking to develop their skills in a method similar to those which they already use, to build incrementally on methods they use, or they may be seeking opportunities to network with others who practice similar methods (Kilburn, Nind and Wiles, 2015). Within our learner cohort, participants included PhD students and research fellows who also taught methods, also incorporating those experimenting with traversing disciplines (including students of linguistics who brought significant text-mining experience, and students of computer science, bringing insights from web archives and social media research). Whilst expert learners can be perceived as a source of challenge or anxiety for teachers, harnessing learner expertise for peer-learning was found to be a huge resource in the delivery teaching around big qual analysis as an innovative method space, where other resources could be limited. This requires student-centred approaches (detailed previously) balanced with teacher-led pedagogic, that implicitly recognises the importance of PhD and researcher knowledge, as well as the place of interdisciplinary knowledge in the classroom.

Learning community

Short courses represent an opportunity for participants to build relationships with one another for learning purposes, recognising the importance of these social processes alongside individual learning aims proved important for learners who actively sought ongoing connections with one-another. Pair work, group work and whole-group discussions assist both the mutual construction of knowledge (James and Pollard, 2011) and lasting connections beyond the course. For researchers and PhD students, the benefits of being in a learning community was a defining feature of face-to-face courses that they actively sought.

Engaging learner's prior experience

To harness learner expertise and recognise the importance of prior experience to learning it is necessary to get to know more about learners quickly. Even in a one-day course, time spent finding out about course participants and their prior learning is time well spent (as found in phase 1 of the pedagogy of methodological learning study by Kilburn, Nind and Wiles, 2015) This allows teachers to more effectively draw on the expertise in the room, however it also means that teaching can be more effectively pitched for participants – helping to locate the course within their wider learning journey.

Cross-paradigm challenge

Engaging prior experience also has particular importance the breadth-and-depth method and for big qual analysis more broadly, as learners from exclusively qualitative or quantitative backgrounds may require greater scaffolding and exposition to facilitate engagement with the method. This cross-paradigm challenge is a frequent issue for mixed-methods teachers (Lewthwaite and Nind, 2016).

As breadth-and-depth constitutes a qualitative approach applied through a mix of qualitative and quantitative methods generates some tensions and teaching has to manage this. In sum:

- Students from highly **quantitative** paradigms can struggle with the qualitative nature of the in-depth analysis of Step 4.
- Students from highly **qualitative** paradigms express tension/discomfort with the quantitative nature of Step 2 and the recursive surface thematic mapping using text mining or semantic analysis tools.

These tensions gesture to how a 'Methods with a purpose' approach requires strategies, tactics and tasks to manage where different groups of students struggle as the method is cascaded through the 4-Steps. Time invested in getting to know course participants is time well spent, as it allows teachers to pre-empt conceptual thresholds.

An additional known challenge that is acute for methods that broach quali/quant divides relates to language. In the teaching of big qual analysis we noticed a need for explicit and repeated emphasis on different use of language. For example, 'representative' in the qualitative sense, is very different to its use in quantitative practice. Given that big qual deploys some quantitative tools, but engages the qualitative imagination, it was necessary to maintain a focus on the qualitative use of language with learners and spot confusion and misuse of terms where possible.

Additional challenges related to how to handle varied familiarity with concepts such as keyness, counting frequencies, concordance.

Participants demonstrated highly varied levels of familiarity with concepts such as keyness. At the same time, teachers had to remain vigilant that the qualitative use of 'representative', was not

conflated with quantitative understandings of the term. To meet these rhetorical and methodological teaching challenges, we deployed solutions identified by Kilburn, Nind and Wiles (2015) with additional tactics (see Table 2) described here. These included requiring that potential participants contact an administrator stating their reasons for joining the course to check the relevance of their learning aims, prior to registration. Additional resources deployed included the use of an advance questionnaire to registered participants that incorporated a training needs analysis focused on use of qualitative methods and secondary data².

Challenges	Possible Solutions
Assisting prospective learners to self-select onto a course on which the content meets their needs of expectations	Ensuring that a clear, concise, yet sufficiently detailed description of the course aims and content are provided in advance
Teaching learners with a wide range of prior skills or experience (regardless of the level at which courses are advertised)	Including a degree of flexibility or contingency to account for possible variation in the skills of learners Incorporating more experienced learners to draw on their expertise to benefit the learning of others
Anticipating learners' experience levels	Explicitly stating the prerequisite level of experience of prior knowledge Assessing applicants against entry requirements

Table 2: 'Summary of challenges and possible solutions related to learners' expectations, preparedness and the matching of skills' (Kilburn, Nind and Wiles, 2015, p8).

However, allowing flexibility within the teaching was also vital. Formal 'Getting to know you' activities as well as informal teacher/participant discussions in breaks and during arrivals etc. were crucial, but time given to regular discussions of challenges also proved important. The diverse nature of the teaching required a flexible learning environment, incorporating a computer-lab, but also the availability of space for pair and group work, as well as whole group discussions. This need was met by labs where PCs could be folded away, and did not inhibit group processes. This enabled teachers and learners to come together to pool understanding and participate in dialogue more effectively.

Time Challenge

Limited time is a known challenge in short-course teaching (Kilburn, Nind and Wiles, 2015). To mitigate this the team used advance materials ('flipped classroom' methods) that ensure course participants gain an overview of the method through reading research papers, watching videos or listening to podcasts, in advance of teaching, thereby saving time on exposition. We also sought to get to know course participants better using an 'about you' questionnaire. An advance activity – linking students to the archive for experimental purposes - also helped connect students to the subject matter ahead of teaching. Taken together, these tasks orientated students in the method, and also ensured that any participants who had incorrectly self-selected into the course based on other needs were able to release their place to those on the waiting list.

² See http://ncrm.ac.uk/resources/online/teaching_big_qual

6 Conclusions

This working paper has described the results of a unique collaboration between academic research teams with specialisms in big qual research methods and research methods pedagogy, to develop big qual methods teaching and a set of open educational resources for the teaching of breath-and-depth methods for big qual analysis. In the application of a typology for the teaching of social science research methods pedagogy, we have responded to challenges relating to a lack of shared pedagogic language, the implicit nature of much pedagogic activity, and the challenges associated with cutting edge methods where the necessary teaching and learning resources must be brokered or designed from scratch to succeed. For the future, we recognise the need for ongoing development. The development of pedagogical culture for advanced and cutting-edge methods remains a challenge, one indicative of both the relative scarcity of pedagogical culture in the wider methods teaching landscape, and for novel and interdisciplinary methods in particular. To this end, the need for researcher/teachers to collaborate across disciplinary and institutional divides to share teaching practice, pedagogical reflections and research, resources and data present a clear route to advancement. The role of data facilities and archives in this culture-building must also be forefronted.

We have identified the importance of teachers' pedagogic reflection across a typology of pedagogic activity incorporating values-based approaches, strategies, tactics and discrete in-class tasks, whilst recognising that this process is not easy. We note that pedagogic resources can aid the development of teaching and learning. To this end, we have developed a suite of open educational resources for the teaching of big qual analysis, housed at the ESRC National Centre for Research Methods and available from spring 2019.

Open Educational Resources: https://www.ncrm.ac.uk/resources/online/teaching_big_qual

Teacher development resources:

This collection introduces the Typology for Social Sciences Research Methods Pedagogy as an applied framework for iterative and reflexive teaching development. The associated podcasts highlight the teaching challenges and opportunities associated with big qual and innovative methods in methods education. The collection also includes a set of 6 two-page NCRM Quick Start Guides. These guides offer a digested read on key pedagogic approaches, strategies and practices for research methods teaching and big qual analysis in particular.

Student collection:

This learner-facing collection can be used both for teaching and independent learning. It includes podcasts, handouts and activities. Podcasts introduce the Timescapes archive and the archaeological metaphor used in Breadth-and-Depth method. Handouts take learners through how to begin research with archives, and the 4-step process of using Breadth-and-Depth methods. Activities offer hands-on exercises for learners in class.

Teaching resources collection:

This collection includes a set of pedagogic design patterns for teachers seeking resources to develop their lesson planning for big qual analysis and associated methods. It also supplies links to a big qual teaching data set, developed by the project, in response to teacher demand and hosted at the Timescapes Archive.

Additional related websites:

- Big Qual Analysis Resource Hub <http://bigqlr.ncrm.ac.uk/>
- Timescapes Archive <https://timescapes-archive.leeds.ac.uk/>
- Pedagogy of Methodological Learning Study: <http://pedagogy.ncrm.ac.uk>

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Appendix A: Annotated lesson plan

Delegate Schedule	Stages, content and rationale	Teaching method & rationale
Advanced materials: Emailed in advance of teaching [resource 2.1]	<i>Share materials in advance</i> To introduce an example archive. To introduce the method To prepare learners on what to expect.	Podcast to provide context of workshop and approach. Introduce the 4-step framework (flipped classroom). Research paper to substantiate the method in use. Different media to appeal to different audiences. Survey to establish more about the learners, their backgrounds and motivations.
10.00 Welcome		
10.15 Introductions	<i>Introductions</i> To get a sense of expertise in the room. To enable participants to get involved.	Hat task: Everyone to put on different coloured hats to signify qualitative, quantitative or longitudinal expertise to make the introductions fun and introduce playful metaphor.
	<i>Ethics and the archive</i> To introduce ethical context for archive and data re-use.	Signing in to the archive: Learners agree to be bound by ethical protocols relating to data use using time limited usernames/passwords issued by Timescapes for teaching purposes.
	<i>Overview of the method</i> To explain the complexities of working with big amounts of qualitative data and why you might want to do it. To show how the 4 steps interconnect.	Exposition to clarify the thinking behind the method and to make transparent the standpoints of the researchers doing the training.
11.00 An introduction to the Timescapes Archive (Presentation and activity)	<i>Onscreen archive demonstration and 'walk-through'</i> To orientate the students in the archive.	Exposition and think aloud: the researcher/archivist demonstrates the Timescapes Archive onscreen. Learners try searching the archive by case and project.
11.20 Overview: Step 1. Breadth-and Depth Method Guided, hands on session exploring and identifying datasets to look at contextual meta-data (Presentation and activity)	<i>Step 1. Overviewing archived qualitative data and constructing a corpus</i> To explain step 1 and connect it to the whole. To introduce an archive and its potential.	Exposition to clarify/ expand on the podcast. Use metaphor - of aerial survey of the main features of the data landscape - to provide a lively image that captures the logic of the step within the whole method. Learners active browsing of Timescapes archive and active selection of datasets to examine contextual meta-data; provide hands-on experience of identifying appropriate material in key repository, seeing the challenge and potential in a taster to return to and build upon.
11.45 Overview: Step 2. Breadth Developing overviews of metadata to identify features of interest. (Presentation and activity)	<i>Step 2. Breadth overview of metadata to identify features of interest</i> To explain step 2 and connect it to the whole.	Exposition to show the different standpoints of the software developers and the users of this method. Use metaphor – of surface mapping/ geophysical surveying to identify features of interest/getting a bird's eye view - to provide a lively image that resonates with learners.

	To address the challenge of retaining a qualitative mindset while mining datasets. To discuss the concept of keyness.	Hands on use of Leximancer/example of available CAQDAS for text-mining/keyword searching to experience its affordances and provide space to practice and think.
12.30 Lunch		
13.20 Overview: Step 3. Moving from Breadth to Depth (Presentation, Q&A)	Step 3. Moving from Breadth to Depth, sampling the feature identified in Step 2 To explain step 3 and connect it to the whole. To make explicit the epistemic rationale for looking at data in a particular way.	Show and Tell to take the learners behind the scenes of the method through researchers' authentic experience. Use metaphor – of test-pit sampling - to provide a lively image that resonates with learners. Q&A to enable checking & opportunities for others to invite peers behind the scenes of their contexts to maximise engagement.
14:00 Break		
14.15 Overview: Step 4. Context, complexity and detail. Depth analysis with sample cases (Presentation) 14.30 I-Poem analysis: relating depth to breadth analysis (Activity)	Step 4. Context, complexity and detail: depth analysis with sample cases To explain step 4 & connect it to whole. To provide experience of deep analysis.	Use metaphor – of making deep excavations - to provide a lively image that resonates with learners. Hands-on I-poem analysis to provide experience of seeking deep insight using accessible, immediate and trialled data.
15.25 Reflections (Discussion)	Reflections and discussion To emphasise the messy, back & forth nature of the method and distinction between interpretive, human and automated processes in its steps.	Open dialogue to support appreciation of how the method contributes to big data debates and the value & limitations of working across/bringing together several qualitative datasets.
16:00 workshop close		